

PROJECT MANUAL



THP Limited

100 East Eighth Street

Cincinnati, Ohio 45202

P (513) 241-3222

Northern Kentucky University

Norse Hall Façade Repairs and Recladding
NKU-29-2021

3/19/2021 FOR BIDDING

PRIMARY CONTACTS

William M. Judd II

Senior Principal

(513) 241-3222

bjudd@thpltd.com

David B. Morehead, AIA

Senior Restoration Project Manager

(513) 919-9502

dmorehead@thpltd.com

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 011000

SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

- A. The Base Bid scope of work includes, but is not limited to, the following:
1. Installation of new cladding system at existing Breezeway exterior walls, including:
 - a. Demolition of existing Exterior Insulation & Finish System (EIFS).
 - b. Inspection of existing gypsum sheathing. Removal and replacement of deteriorated sheathing to be performed on a Unit Cost basis.
 - c. Application of new liquid-applied air barrier.
 - d. Installation of new wood furring strips and rigid insulation boards.
 - e. Installation of new prefinished fiber cement siding panels and trim, including required flashings.
 - f. Installation of new sealant at joints within siding and between siding and adjacent materials.
 2. EIFS repairs at exterior walls outside Breezeways:
 - a. EIFS lamina repairs, to be performed on a Unit Price basis.
 - b. EIFS crack repairs, to be performed on a Unit Price basis.
 - c. Full-depth EIFS patching, to be performed on a Unit Price basis.
 - d. Cleaning, preparing and recoating EIFS.
 - e. Inspection of existing sealant at control joints within EIFS. Removal and replacement of identified areas of disbanded sealant to be performed on a Unit Cost basis.
- B. The Alternate scopes of work includes painting Breezeway ceilings and exterior surfaces of existing aluminum windows.

1.2 CONTRACTS

- A. A complete Bid including all Base Scope and Alternate Work Items must be received from the Contractor.

1.3 CONTRACTOR'S DUTIES

- A. Assume all Contractor responsibilities and provide for the Work required by the Contract Documents.
- B. Give required notices where and when requested.
- C. Comply with codes, ordinances, rules, regulations, orders, and other legal

requirements of public authorities which bear on the performance of the Work.

- D. Pay all legally required taxes. Refer to Bidding Requirements, General Conditions for information relative to sales tax for which the Owner is exempt.
- E. Apply, secure, and pay for all required local permits, fees, licenses, and approvals per the General Conditions of the Contract.

1.4 NOTES TO CONTRACTOR

- A. The division of the body of the Specifications into various Parts has been arranged for clarity in the delineation of the various parts of the whole Work. It is not the intent of such division to develop any secondary responsibilities for the satisfactory completion of the Work and all of its parts as required of the Contractor by the Contract Documents, nor is the assignment of any parts of the Work to any trade or craft to be inferred from the Contract Documents.
- B. Division 01 Specifications typically address items in a general nature and the Contractor must take notice that more specific requirements may be included in the Technical Sections.

1.5 PROJECT COORDINATION

- A. The Contractor has full responsibility and authority regarding the scheduling and coordination of the Work within the Contract time and within the requirements of Article 1.7.
- B. The Contractor also has full responsibility for the completeness and quality of the Work as outlined in the Contract Documents, and must staff the project with qualified, competent personnel to the extent required for the Work.
- C. The Contractor's Project Manager and Lead Project Superintendent are subject to the review and approval of the Owner. Upon request at any portion of the project (i.e. pre-award, post-award and prior to project start, or during the project), the Contractor shall produce a detailed resume, with references, documenting the experience of the Project Manager and Lead Project Superintendent for the Owner's review and approval.
- D. All subcontractors shall abide by the Project Schedule and coordination requests made by the Contractor.
- E. If a subcontractor is substantially responsible for specific components of the Work (i.e. concrete repairs or new concrete placements, waterproofing efforts, electrical work, painting, etc.), the Contractor must have a regular, periodic site presence during those efforts, not less than two separate days per week, nor less than 20 percent of the total work week time, to provide a level of coordination and quality control consistent with that expected of a wholly self-performing Contractor labor force.
- F. Unless otherwise directed or allowed, the Owner (or the Owner's representative) communicates directly with the Contractor. All dealings and decisions regarding execution of the Work shall be from the Owner, (or Owner's representative,) to the Contractor, and the reverse flow.
- G. The Contractor communicates directly with the subcontractors, vendors, and suppliers. At the Engineer's option, direct communications between the Engineer and subcontractor may occur, for clarification of material delivery, installation procedures, technical support, logistics and other matters. Contractor will be kept advised of any

such Engineer/subcontractor communications.

- H. The subcontractor shall coordinate with the Contractor who has the overall responsibility for the Work.
- I. Where Work of any one Section of the Specifications affects the Work of other Sections, successive Work shall not be installed until conditions have been inspected by the Contractor and are satisfactory for successive Work. Installation of successive Work shall serve as the Contractor's acceptance and confidence with the conditions being covered by subsequent work. The performance of successive Work shall be the responsibility of the Contractor to coordinate.
- J. Contractor is required to be on site to conduct regular, bi-weekly job progress meetings with the Owner. Contractor shall include Engineer via telephone for said progress meetings and shall distribute written meeting minutes as directed by Owner.
- K. The Owner reserves the right to hold additional job progress and coordination meetings on an as-needed basis as determined by the Owner. The Contractor shall be given 48 hours' notice (when possible) to said meeting.
- L. A preconstruction project meeting shall be held by the Owner prior to the start of work.

1.6 APPLICABLE CODES

- A. The Contractor shall comply with all Federal, State and Municipal laws, codes, ordinances and regulations applicable to the Work in this Contract and also with all requirements of the National Fire Protection Association, the National Electric Code, and the Occupational Safety and Health Administration (OSHA). If the above laws, codes, or ordinances conflict with this Specification, then the laws, codes or ordinances shall govern, except in such cases where the Specification exceeds them in quality of materials or labor, then the Specifications shall be followed.

1.7 SCHEDULING

- A. The Construction Project Schedule shall be prepared using the Critical Path Method (CPM) of network calculations. The Schedule Manager shall provide the schedule in either the Precedence Diagram Method (PDM) or the Arrow Diagram Method (ADM). A bar chart Construction Project Schedule listing all work activities and durations may be provided if approved in advance by the Owner.
- B. The Construction Project Schedule shall include a detail program for construction, purchasing of critical materials, and for submission of shop drawings and samples. All construction activities must show work phasing requirements. The schedule must be signed by an official of the firm. It must be realistic as its faithful execution will be considered a commitment, not an estimate.
- C. Within 7 days after Notice of Award, submit the Construction Project Schedule within the requirement items below.
- D. Work Hours and Site Restrictions
 - 1. Normal working hours during summer break are 7:00 AM to 5:00 PM, Monday through Friday. Normal working hours when facility is occupied are 9:00 AM to 5:00 PM, Monday through Friday.

2. Work requested by the Contractor to be performed outside of normal working hours must be approved and coordinated through the Owner. Provide the Owner a minimum of 4 working days' notice prior to the requested time to perform work outside normal working hours. Such request shall include type of work to be performed and expected duration.
3. Work performed outside of normal business/working hours shall be performed at no additional cost to the Owner. Additional cost incurred for testing and inspection, including services of the Engineer or Owner's representative shall be solely borne in full by the Contractor.
4. Change order work that is to be performed on a time and materials basis shall be billed as if performed during normal work hours. In the event that work is required to be performed outside normal work hours due to schedule or site restrictions, the Contractor shall be compensated at their standard overtime rate.
5. Odor or fume producing work performed in the vicinity of fresh air intakes (or similar occupied building access points) must be performed at night after the shutdown of fresh air intakes. At the Contractor's option, and if approved in advance by the Owner, work may begin prior to air intake shutdown. If work is elected to begin prior to intake shutdown, the Contractor shall at their expense, employ measures to draw fresh air from areas beyond the work activities that produce odors/fumes. All methods or procedures must be approved by, and meet, the satisfaction of the Owner.
6. When work is performed which may create a hazard to persons or property above, below or in the proximity of the work, those areas shall be blocked or otherwise protected to eliminate the hazard.
7. All work at entry/exits is to be performed in such a manner to allow traffic flow in and out without significantly constricting the accessibility.
8. The Contractor is responsible for securing work area for performance of the Work.

E. Milestones and Contract Completion

1. The time for Substantial Completion is 180 Calendar Days from the date of mobilization.
 - a. Milestone for Substantial Completion of work within Breezeways (demolition of existing EIFS, installation of traffic membrane, replacement of doors and frames, and installation of new cladding system) is August 13, 2021, prior to students returning to campus for fall semester.
2. Substantial Completion is defined as the project is sufficiently complete, in accordance with the construction contract documents, so that the owner may use or occupy the structure for its intended purpose without affecting daily operation.
3. The time for Contract Completion is 28 Calendar Days beyond Substantial

Completion date.

4. The Contractor shall mobilize and begin work not later than 14 Calendar Days from receiving a formal Notice to Proceed or executed Contract.
5. The Contractor shall deliver submittals to the Engineer at least 7 Calendar Days prior to mobilizing. Submittals shall include but not limited to technical data information, shop drawings, certification letters, and the schedule of values.
6. Should the Contractor fall behind the approved or adjusted schedule in the performance of his Work and, in the judgment of the Owner, it appears that the Contractor cannot complete his Work within the time established by the Contract, then the Contractor shall work overtime, additional shifts or adopt such other procedures with the Owner's approval, as may be necessary to restore adherence to the schedule while maintaining the required level of quality control, testing and inspection. The full cost of such work or procedures shall be borne by the Contractor, including the cost of additional services of the Owner or Owner's representative.
7. Work rejected by the Owner as not meeting the intent or requirements of the Contract Documents shall be replaced by the Contractor and shall not result in additional costs to the Owner. Rejected work will not be cause for an extension to the Contract Time.

F. Adverse Weather

1. Adverse Weather Day occurs when weather parameters (precipitation or temperature) create conditions that inhibit the ability of the contractor to work productively on all scope items outlined in the contract documents.
2. The Contractor shall assume three (3) Adverse Weather Days per month which shall be built into the overall Construction Progress Schedule.
3. Contractor should notify Owner when Adverse Weather Days are encountered, and work cannot continue on a given day.
4. The Contractor shall provide a written weekly summary of Adverse Weather Days for review.
5. An Adverse Weather Day is defined by temperature and precipitation requirements per the technical specifications.

G. Periodic Schedule Updates

1. The project schedule shall be updated every 30 days. The update shall show recommendations for adjusting the Construction Progress Schedule to meet milestone completion and Contract completion dates. Include Adverse Weather Delays for review by the Owner for possible adjustment to the milestones and Contract completion dates. No changes to the to the milestones and Contract completion dates unless modified via a change order to the project.

2. The Contract shall provide a two-week Look Ahead Schedule for review at the Progress Meeting. The Look Ahead Schedule will be based on the most recent monthly update and will show only those activities that are scheduled to begin or are in progress during the week before and for two weeks after.

1.8 PROJECT CONDITIONS

- A. Existing emergency access routes must be maintained at all times on each level of the structure where work is being performed.

1.9 SAFETY

- A. The Contractor is responsible for all safety issues regarding performance of the Work.
- B. The Contractor must submit to the Owner a copy of the contractor's safety program prior to the start of work.
- C. The Contractor shall have weekly Tool Box Safety Meetings which must be attended by all Contractor and subcontractor personnel on-site.
- D. Fire extinguishers shall be provided at all contractor furnished gasoline operated equipment, contractor storage area, at membrane application areas and membrane mixing areas, and at each area of other work efforts with flammable components. Extinguishers to be 10 lb. A, B, C Class.

PART 2 PRODUCTS – NOT USED.

PART 3 EXECUTIONS – NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 012200

UNIT PRICES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Base Bid Unit Prices.
- B. Related Sections:
 - 1. Section 012900 – Payment Procedures
 - 2. Section 061643 – Gypsum Sheathing
 - 3. Section 072400 – EIFS Restoration
 - 4. Section 079200 – Sealants

1.2 UNIT PRICES

- A. General
 - 1. Unit Prices include all labor, material, tools, equipment, supervision transportation, handling, storage, overhead and profit, and all other costs associated with performance of work.
 - 2. Additions to a quantity as listed in this Section will be paid by the Owner at the unit price established in Section 012900: Payment Procedures.
 - 3. Deletions from a quantity as listed in this Section will be credited to the Owner at the unit price established in Section 012900: Payment Procedures.
- B. Base Bid Unit Price Items
 - 1. Gypsum Sheathing Replacement2,500 square feet
 - 2. EIFS Lamina Repair (Detail 1/301)50 square feet
 - 3. EIFS Crack Repair (Detail 2/301)125 square feet
 - 4. Full-Depth EIFS Patching (Details 3 & 4/301)15 square feet
 - 5. EIFS Control Joint Sealant Replacement (Detail 5/301)250 linear feet
- C. The Contractor shall include the total cost for all Base Bid Unit Price items listed above in the Base Bid Lump Sum Total as reflected in Section 004100: Bid Form.

PART 2 PRODUCTS - NOT USED.

PART 3 EXECUTIONS - NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 012300

ALTERNATES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Alternate Bid Summary
- B. Related Sections:
 - 1. Section 011000 – Summary of Work
 - 2. Section 099100 – High Performance Coatings

1.2 ALTERNATES

- A. General
 - 1. Cost for Alternates shall be complete, including all labor materials, tools, equipment, supervision, transportation, handling storage, overhead and profit and performance and material bonds.
 - 2. The Owner may choose any or all Alternates in any order unless otherwise indicated.
 - 3. The Owner reserves the right to reject any or all Alternates.
 - 4. Failure to provide a cost for each requested Alternate on the Bid Form may be cause for rejection of bid by the Owner.
 - 5. Alternates that are submitted by the Contractor at zero cost change must be indicated on the Bid Form by writing "No change in cost".
- B. Provide a cost in the spaces provided in Section 004100: Bid Form for the following Alternate. Refer to Drawings for additional information.
- C. Alternate No. 1: Removal of loose and peeling paint, spot priming, and painting surfaces at all Level 3 Breezeway ceilings.
- D. Alternate No. 2: Cleaning, surface preparation, and painting exterior surfaces of frames and sash members at existing aluminum windows.

PART 2 PRODUCTS – NOT USED.

PART 3 EXECUTIONS – NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS
SECTION 012600
CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Change of Work Procedures.

1.2 CONTRACT MODIFICATIONS

A. Minor Changes in the Work

1. Interpretation of Contract Documents or minor changes in the Work not involving changes in Contract Price or Time shall be issued by the Owner in writing and shall be executed promptly by the Contractor.

B. Contract Modifications

1. Changes to the Contract that affect the cost/time shall be processed as follows:

- a. Contractor shall submit a written proposal, with a complete itemized breakdown, showing quantities and unit costs of the major items of materials, labor hours, labor costs per hour, overhead and profit, and time modifications to the Owner for review and acceptance.
- b. The Owner will review the proposal and respond with one of the following:
 - i. Reject the proposal in writing.
 - ii. Issue a Construction Change Directive.
 - iii. Issue a Change Order.

C. Change Orders

1. Cost for change orders shall be calculated as the sum of hourly wages, materials, overhead and profit.
2. The percentage to be used for General Contractor overhead and profit shall be 15 percent for self-performed labor, 10 percent for subcontractors and 10 percent for materials and equipment.
3. The percentages to be used for Sub-Contractor overhead and profit shall not exceed 10 percent for labor and 10 percent for materials and equipment.

PART 2 PRODUCTS - NOT USED.

PART 3 EXECUTIONS - NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 012900

PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Unit Prices.
2. Measurement Procedures for Unit Prices.

B. Related Sections:

1. Section 012200 – Unit Prices
2. Section 061643 – Gypsum Sheathing
3. Section 079200 – Sealants

C. Unit Prices

1. Unit prices shall apply for both additions to and deletions from the Work.
2. Unit prices shall be complete including all labor, materials, tools, equipment, supervision, transportation, handling, storage, overhead and profit, and all other costs associated with the work.
3. No monetary variance of unit prices for additive and deductive quantities will be accepted and will be cause for rejection of Bid.
4. The Owner reserves the right to accept or reject any or all unit prices.
5. All unit price items on the Bid Form must be completed. If unit price is zero, then it must be indicated as such in the space provided.
6. Failure to provide unit prices as required on the Form of Proposal may be cause for rejection of Bid.

D. Measurement & Payment Procedures

1. Prior to the start of work in each work area or phase, the Contractor and the Owner will inspect the area and document locations and quantities of all unit price items. The Contractor shall notify the Owner at least 3 days in advance of required inspection. Refer to Section 012200.
2. Unit price items will be recorded and the date of the inspection and the persons performing the inspections will be recorded on each item sheet.
3. The Owner's representative will measure and count the unit price items. The Contractor will record the results.
4. At the completion of each item inspection, both the Owner and Contractor will sign the record sheets.

5. The Owner will copy the sheets and provide a copy of all sheets to the Contractor within 3 working days from the date of inspection.
6. These inspection sheets will be the only basis for determining final quantities of all unit price items.
7. Measurements will be recorded to the nearest inch.
8. For each application of payment submitted by the Contractor, a summation of all unit price items shall be sent for verification.
9. Differences in sum totals between the Owner and Contractor will be resolved by comparing quantity sheets to determine exact final quantities. Quantities NOT measured AND confirmed per Article 1.4 shall not be approved for payment.
10. The difference between an actual quantity and a specified quantity will be multiplied by the unit cost for that item to establish a dollar value. The dollar value for quantities above the unit price quantity will be added to the contract amount. The dollar value for quantities below the unit price quantity will be subtracted from the contract amount.
11. Adjustments to the contract amount will be made by approved change order.

PART 2 PRODUCTS - NOT USED.

PART 3 EXECUTIONS - NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 013300

SUBMITTALS PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Procedural requirements for non-administrative submittals, including shop drawings, product data, samples, and other miscellaneous work-related submittals. Shop drawings, product data, samples, and other work-related submittals are required to amplify, expand, and coordinate the information contained in the Contract Documents.
2. Shop drawings are technical drawings and data that have been specifically prepared for this project, including but not limited to:
 - a. Fabrication and installation drawings.
 - b. Setting diagrams.
 - c. Shop work manufacturing instructions.
 - d. Coordination drawings (for use on-site).
 - e. Schedules.
3. Standard information prepared without specific reference to a project is not considered to be shop drawings.
4. Product data includes standard printed information on manufactured products that has not been specifically prepared for this project, including but not limited to the following items:
 - a. Manufacturer's product specifications and installation instructions.
 - b. Standard color charts.
 - c. Catalog cuts.
 - d. Printed performance curves, independent technical analysis of performance, or similar.
 - e. Operational range diagrams.
 - f. Standard product operating and maintenance manuals.
 - g. Mill reports.
 - h. Safety data sheets (SDS) on all material provided or used in execution of the Work.
5. Samples are physical examples of work, including, but not limited to the following items:

- a. Partial sections of manufactured or fabricated work.
- b. Small cuts or containers of materials.
- c. Complete units of repetitively-used materials.
- d. Swatches showing color, texture, and pattern.
- e. Color range sets.
- f. Units of work to be used for independent inspection and testing.

1.2 SUBMITTALS

A. General

1. Promptly after the Contract has been signed, the Contractor shall submit complete and detailed shop drawings to the Owner or its representative for the work of the various trades, and the Owner or its representative shall approve or reject them with reasonable promptness.
2. The Contractor prior to submitting the shop drawings shall review all shop drawings, check all conditions, check, and verify all field measurements, and mark all corrections, sign, and date each set.
3. No shop drawings will be reviewed without the signature of Contractor, which will signify that he has checked drawings.
4. No faxed copies to the Engineer for approval will be accepted.

B. Coordination of Submittal Times

1. Prepare and transmit each submittal sufficiently in advance of the scheduled performance of related work and other applicable activities.
2. Transmit different kinds of submittals for the same unit of work so that processing will not be delayed by the need to review submittals concurrently for coordination.
3. The Owner will endeavor to complete his review of submittals within 7 calendar days of receipt. Submittals shall be returned noted: "No exceptions noted", or "Exceptions noted", or "Exceptions noted: revise and resubmit". Fabrication of material before the receipt of shop drawings for that material noted "No exceptions noted" shall be at the Contractor's risk.

C. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the work.

D. Submittal Preparation

1. Mark each submittal with a permanent label for identification. Provide the following information on the label for proper processing and recording of action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of Owner.

- 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.
 - j. Similar definitive information, as necessary.
2. Provide a space on the label for the Contractor's review and approval markings, and a space for the Owner's "Action" marking.

1.3 SPECIFIC SUBMITTAL REQUIREMENTS

A. General

1. Specific submittal requirements for individual units of Work are specified in the applicable Specification Section.
2. Except as otherwise indicated in the individual Specification Sections, comply with the requirements specified herein for each type of submittal.

B. Shop Drawings

1. Information required on shop drawings shall include dimensions, identification of specific products and materials which are included in the Work, information showing compliance with specified standards, and notations of coordination requirements with other work.
2. Provide special notation of dimensions that have been established by field measurement.
3. Highlight, encircle or otherwise indicate deviations from the Contract Documents on the shop drawings.
4. Coordination Drawings
 - a. Provide coordination drawings where required for the integration of the Work, including Work first shown in detail on shop drawings or product data.
 - b. Show sequencing and relationship of separate units of Work which must interface in a restricted manner to fit in the space provided or function as indicated.
 - c. Coordination drawings are considered shop drawings and must be definitive in nature.
5. Do not permit shop drawings copies without an appropriate final "Action" marking to be used in connection with the Work.
6. Do not reproduce Contract Documents or copy standard printed information as the basis of shop drawings.

7. Initial Submittal
 - a. Provide an electronic version of each submittal. An electronic version will be returned. The Contractor should maintain a printed copy on site during the project.
 8. Final Submittal
 - a. Provide an electronic version of each revised submittal after the Initial Submittal review. The Contractor should maintain a printed copy on site during the project.
- C. Product Data
1. General information required specifically as product data includes manufacturer's standard printed recommendations for application and use, compliance with recognized standards of trade associations and testing agencies, and the application of their labels and seals (if any), special notation of dimensions which have been verified by way of field measurement, special coordination requirements for interfacing the material, product or system with other work, and material safety data sheets.
 2. Preparation
 - a. Collect an electronic version of the required product data.
 - b. Mark the electronic version to show which choices and options are applicable to the project.
 3. Submittals
 - a. Product data submittal is required for information and record and to determine that the products, materials, and systems comply with the provisions of the Contract Documents.
 - b. The initial submittal is also the final submittal, except where it is observed that there is non-compliance with the provisions of the Contract Documents and the submittal promptly returned to the Contractor marked with the appropriate "Action."
 4. Final Distribution
 - a. An electronic version of the submittals will be returned to the Contractor.
 - b. Furnish copies of product data to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for proper performance of the Work.
 - c. Show distribution on transmittal forms.
 5. Installation Copy
 - a. Do not proceed with installation of materials, products, and systems until a copy of product data applicable to the installation is in the possession of the installer.

- b. Do not permit the use of unmarked copies of product data in connection with the performance of the Work.

D. Samples

1. Submit a minimum of two samples for visual review of general generic kind, color, pattern, and texture, and with other related elements of the Work.
2. Samples are also submitted for quality control comparison of these characteristics between the final sample submittal and the actual work as it is delivered and installed.
3. Refer to individual Work Sections of these Specifications for additional sample requirements which may be intended for examination or testing of additional characteristics.
4. Compliance with other required characteristics is the exclusive responsibility of the Contractor; such compliance is not considered in the Owner's review and "Action" indication on sample submittals.
5. Documentation required specifically for sample submittals includes a generic description of the sample, the sample source or the product name or manufacturer, compliance with governing regulations and recognized standards. Indicate limitations in terms of availability, sizes, delivery time and similar limiting characteristics.

E. Miscellaneous Submittals

1. Inspection and Test Reports
 - a. Classify each inspection and test report as being either "shop drawings" or "product data," depending on whether the report is specially prepared for the project or a standard publication of workmanship control testing at the point of production.
 - b. Process inspection and tests reports accordingly.
 - c. Refer to Section 014000: Quality Requirements for report distribution.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTIONS - NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 014000

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES

1. General: Required inspection and testing services are intended to assist in the determination of probable compliance of the Work with requirements specified or indicated. These required services do not relieve the Contractor of responsibility for compliance with these requirements or for compliance with requirements of the Contract Documents.
2. Definitions: Quality control services include inspections, tests, and related actions, including reports, performed by independent agencies and governing authorities, as well as directly by the Contractor. These services do not include Contract enforcement activities performed directly by the Owner.
3. Specific quality control requirements for individual units of Work are specified in the Sections of these Specifications that specify the individual element of the Work. These requirements, including inspections and tests, cover both production of standard products and fabrication of customized work. These requirements also cover quality control of the installation procedures.
4. Inspections, tests, and related actions specified in this Section and elsewhere in the Contract Documents are not intended to limit the Contractor's own quality control procedures which facilitate overall compliance with requirements of the Contract Documents.
5. Requirements for the Contractor to provide quality control services as required by the Owner, governing authorities or other authorized entities are not limited by the provisions of this Section.

1.2 RESPONSIBILITIES

- A. Contractor Responsibilities: Except where they are specifically indicated as being the Owner's responsibility, or where they are to be provided by another identified entity approved by the Owner, all inspections, tests and similar quality control services are the Contractor's responsibility - these services also include those specified to be performed by an independent agency and not directly by the Contractor. Costs for these services shall be included in the Contract Sum. The Contractor shall employ and pay an independent agency, testing laboratory or other qualified firm approved by the Owner to perform quality control services specified.
- B. Owner Responsibilities: The Owner will employ and pay for the services of an independent agency, testing laboratory or other qualified firm to perform services which

are the Owner's responsibility. Such services shall be coordinated by the Contractor as required.

- C. Retest Responsibility: Where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance of related Work with the requirements of the Contract Documents, then retests are the responsibility of the Contractor, regardless of whether the original tests were the Contractor's responsibility. Retesting of Work revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original Work.
 - D. Responsibility for Associated Services: The Contractor is required to cooperate with the independent agencies performing required inspections, tests and similar services. Provide such auxiliary services as are reasonably requested. Notify the testing agency sufficiently in advance of operations to permit assignment of personnel. These auxiliary services include, but are not necessarily limited to the following:
 - 1. Providing access to the Work.
 - 2. Taking samples or assistance with taking samples.
 - 3. Delivery of samples of test laboratories.
 - 4. Security and protection of samples and test equipment at the Project site.
 - E. Limitations of Authority of Testing Service Agency: The agency is not authorized to release, revoke, alter or enlarge the Contract Documents. The agency shall not approve or accept any portion of the Work. The agency shall not perform any duties of the Contractor.
 - F. Coordination: The Contractor and each independent agency engaged to perform inspections, tests and similar services for the Project shall coordinate the sequence of their activities so as to accommodate required services with a minimum of delay in the progress of the Work. In addition, the Contractor and each independent testing agency shall coordinate their work so as to avoid the necessity of removing and replacing work to accommodate inspections and tests. The Contractor is responsible for scheduling times for inspections, tests, taking of samples and similar activities.
 - G. If the laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any work to be inspected, tested or approved, the Contractor shall give the Owner timely notice of its readiness and of the date arranged so the Owner may observe such inspection, testing or approval.
 - H. Special Tests: The Owner may on occasion request the Contractor to perform a special test on materials or equipment installed to verify conformance to the Specifications. The Owner will pay for all such tests if the materials or equipment meet or exceed specified requirements. However, if the items tested fail to meet these requirements, then the Contractor shall pay all costs of such tests and shall rectify at no cost to the Owner.
- 1.3 SUBMITTALS
- A. General: Refer to Section 013300: Submittal Procedures, for submittal requirements.

- B. Submit a certified report of each inspection, test or similar service performed by the Testing Laboratory directly to the parties below.
 - 1. Contractor.
 - 2. Engineer.
 - 3. Owner's representative.
 - 4. Owner.
 - 5. Project governing authority when the authority so directs.
- C. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to the following:
 - 1. Name of testing agency or test laboratory.
 - 2. Dates and locations of samples and tests or inspections.
 - 3. Names of individuals making the inspection or test.
 - 4. Designation of the Work and test method.
 - 5. Complete inspection or test data.
 - 6. Test results.
 - 7. Interpretations of test results.
 - 8. Notation of significant ambient conditions at the time of sample taking and testing.
 - 9. Comments or professional opinion as to whether inspected or test work complies with requirements of the Contract Documents.
 - 10. Recommendations on retesting, if applicable.

1.4 QUALITY ASSURANCE

- A. Qualification for Service Agencies: Except as otherwise indicated, engage inspection and test service agencies, including independent testing laboratories, which are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which are recognized in the industry as specialized in the types of inspections and tests to be performed. Owner must approve Contractor's designated testing agency.
- B. Codes and Standards: Testing, when required, shall be in accordance with all pertinent codes and regulations and with selected standards indicated in the various Sections of these Specifications under the Article entitled QUALITY ASSURANCE.
- C. The Contractor shall comply with all Federal, State and Municipal laws, codes, ordinances and regulations applicable to the Work in this Contract and also with all requirements of the National Fire Protection Association, the National Electric Code, and the Occupational Safety and Health Administration (OSHA). If the above laws, codes, or ordinances conflict with this Specification, then the laws, codes or ordinances shall govern, except in such cases where the Specification exceeds them in quality of

materials or labor, then the Specifications shall be followed.

1.5 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking, and similar services performed on the Work, repair damaged Work and restore substrates and finishes to eliminate deficiencies, including deficiencies in the visual qualities of exposed finishes. Protect Work exposed by or for quality control service activities and protect repaired Work. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

PART 2 PRODUCTS – NOT USED.

PART 3 EXECUTIONS – NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 014216

DEFINITIONS AND STANDARDS

PART 1 GENERAL

1.1 DESCRIPTION OF REQUIREMENTS

- A. General: This Section specifies procedural and administrative requirements for compliance with governing regulations and the codes and standards imposed upon the Work. These requirements include the obtaining of permits, licenses, inspections, releases, and similar documentation, as well as payments, statements and similar requirements associated with regulations, codes, and standards.
 - 1. "Regulations" is defined to include laws, statutes, ordinances, and lawful orders issued by governing authorities, as well as those rules, conventions and agreements within the construction industry which effectively control the performance of the Work regardless of whether they are lawfully imposed by governing authority or not.

1.2 DEFINITIONS

- A. Owner: Northern Kentucky University (NKU) and their properly authorized agents including the Engineer and other consultants serving as Owner's Representatives reviewing work.
- B. Engineer: THP Limited, Inc., Cincinnati, Ohio.
- C. Owner's Representative: THP Limited, Inc., or another authorized agent as designated by the Owner.
- D. General Explanation: A substantial amount of specification language consists of definitions for terms found in other Contract Documents, including the Drawings. (Drawings must be recognized as diagrammatic in nature and not completely descriptive of the requirements indicated thereon). Certain terms used in Contract Documents are defined in this Article. Definitions and explanations contained in this Section are not necessarily either complete or exclusive but are general for the Work to the extent that they are not stated more explicitly in another element of the Contract Documents.
- E. General Requirements: The provisions or requirements of Division 01 Sections apply to entire work of Contract and, where so indicated, to other elements which are included in the Project.
- F. Indicated: The term "indicated" is a cross reference to graphic representations, notes or schedules on Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is for the purpose of helping reader locate cross reference, and no limitation of location is intended except as specifically noted.
- G. Directed, Requested, Etc.: Where not otherwise explained, terms such as "directed",

"requested", authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by Owner or Engineer", "requested by Owner or Engineer", and similar phrases. However, no such implied meaning will be interpreted to extend the Owner's, Engineer's, or Owner's representative's responsibility into the Contractor's area of construction supervision.

- H. Project Site: The term "project site" is defined as the space available to the Contractor for performance of the Work, either exclusively or in conjunction with others performing other work as part of the project. The extent of the project site is shown on the Drawings.
- I. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
- J. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.
- K. Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
- L. Installer: The term "installer" is defined as the entity (person or firm) engaged by the Contractor, its subcontractor or sub-subcontractor for performance of a particular unit of work at the project site, including installation, erection, application, and similar required operations. It is a general requirement that such entities (installers) be expert in the operations they are engaged to perform.
- M. Final Completion: The term "Final Completion" refers to the degree of completion at which time the Project is turned over for full use to the Owner and all Work is completed in compliance with the Contract Documents.
- N. Entrance: The term "entrance" is defined as a pedestrian doorway, stair, walkway, passageway, landing, elevator, or other type of connector which connects or allows access from one structure to another structure.

1.3 INDUSTRY STANDARDS

- A. General Applicability of Standards: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, applicable standards of the construction industry have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if public copies were bound herewith. Refer to other Contract Documents for resolution of overlapping and conflicting requirements which result from the application of several different industry standards to the same unit of work. Refer to individual unit of work Sections for indications of which specialized codes and standards the Contractor must keep at the project site, available for reference.
 - 1. Referenced standards (referenced directly in Contract Documents or by governing regulations) have precedence over non-referenced standards which are recognized

in industry for applicability to the Work.

2. Non-referenced standards recognized in the construction industry are hereby defined, except as otherwise limited in the Contract Documents as having direct applicability to the Work and will be so enforced for the performance of the Work. The decision as to whether an industry code or standard is applicable to the Work, or as to which of several standards are applicable, is the sole responsibility of the Engineer.

- B. Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of Contract Documents.
- C. Copies of Standards: The Contract Documents require that each entity performing work be experienced in that part of the Work being performed. Each entity is also required to be familiar with recognized industry standards applicable to that part of the Work. Copies of applicable standards are not bound with the Contract Documents.
- D. Where copies of standards are needed for proper performance of the Work, the Contractor is required to obtain such copies directly from the publication source.
- E. In case of conflict between the published standard and Project Specifications, the more stringent shall govern.
- F. References to known standard specifications shall mean the latest edition of such specifications adopted and published at date of execution of the Contract.
- G. No claim by Contractor for additional compensation will be entertained on account of his failure to be fully informed as to requirements of any referenced standard.

1.4 REGULATORY REQUIREMENTS

- A. Adherence to Codes and Regulations
 1. Before proceeding with the Work, the Contractor shall thoroughly review the Drawings and Specifications to assure the design to be in accordance with all laws, ordinances, rules and regulations, and he shall assume full responsibility therefore and shall bear all costs attributable thereto UNLESS notice is given to the Owner in writing of the discrepancy BEFORE proceeding with the Work.

PART 2 PRODUCTS - NOT USED.

PART 3 EXECUTIONS - NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS
SECTION 015000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for temporary services and facilities, including such items as temporary utility services, temporary construction and support facilities, and project security and protection.

1.2 OWNER OPERATION, MAINTENANCE OF OPERATION AND SAFETY

- A. The structure is currently in use by the Owner. Areas of the structure outside the limits of a particular construction area shall remain functional throughout the construction period.
- B. All construction operations shall be carefully coordinated with the Owner to minimize the overall inconvenience to the Owner and to expedite job progress.
- C. All fumes and dust arising from construction operations shall be controlled so persons using the structure and all adjacent facilities will not be affected adversely.
- D. The Contractor shall protect his Work and equipment from damage by the public and other entities occupying the structure during the construction period.
- E. The Contractor shall take all necessary precautions for all Work Areas to prevent debris from falling and causing damage outside the work area, including damage to existing mechanical/electrical fixtures. The Contractor shall be held liable for all damage caused by excavation, patching, drilling, coring, cutting, sandblasting, dust, and debris. The Contractor shall be held liable for all damage to mechanical/electrical fixtures systems due to construction related activities. Contractor shall be responsible for all injury to people and property, including motor vehicles, caused by any construction related activity. The Owner will endeavor to field complaints and forward same to Contractor. Contractor is responsible for contacting people or property owner and resolving complaints.
- F. When Work is performed which may create a hazard to persons or property above, below or in the proximity of Work, affected areas shall be blocked or otherwise protected to eliminate the hazard. Coordinate this activity with the Owner a minimum of 4 working days prior to the requested time for performance of such work.
- G. Access to all emergency egress routes outside the limits of an individual construction area shall be continuously and safely maintained. Emergency egress routes shall not be impaired due to construction activities.
- H. Coordinate Work Areas with the Owner to minimize interference with normal operations.
- I. The Contractor shall comply with all Federal, State and Municipal laws, codes,

ordinances, and regulations applicable to the Work in this Contract and with all requirements of the National Fire Protection Association, the National Electric Code, and the Occupational Safety and Health Administration (OSHA). If the above laws, codes, or ordinances conflict with this Specification, then the laws, codes or ordinances shall govern, except in such cases where the Specification exceeds them in quality of materials or labor, then the Specifications shall be followed.

1.3 WORK AREAS

- A. The Work is divided into sections termed Work Areas. Work outside the closed Work Area is not allowed, except work permitted by the Construction Documents or authorized by the Owner.
- B. The Construction limit lines are defined as the extent of the Work Areas designated on the Drawings. Areas outside the construction limits may not be used by the Contractor for staging, storage of materials, or any other purpose, except as indicated in the Construction Documents.

1.4 MATERIAL AND EQUIPMENT STORAGE AND DELIVERY

- A. An area of the complex will be made available to the Contractor for material and equipment storage, staging and other facilities deemed necessary by the Contractor.
- B. Deliveries shall not block access to the facility and are to be scheduled between 9:00 am and 3:00 pm, unless approved by University.

1.5 PROTECTION OF THE SURROUNDING AREA

- A. All construction operations shall be conducted such as to protect the surrounding areas and adjacent buildings.
- B. Fumes and dust shall also be controlled to prevent harmful or undesirable effects in the surrounding areas. All potential avenues for penetration of fumes or dust into occupied spaces adjacent to the work area must be located and sealed by the Contractor in a manner acceptable to the Owner prior to the start of the work in the affected area.

1.6 PROTECTION OF EXISTING CONDITIONS

- A. All portions of the existing structure, all utilities and all other building contents not part of the work damaged, moved or altered in any way during construction shall be replaced or repaired to the Owner's satisfaction at the Contractor's expense.
- B. Contractor and Owner shall conduct a preconstruction inspection of all finish materials and equipment located within the Work area to record in writing existing damaged finish materials and/or equipment not directly involved with this Contract. The Contractor shall be deemed responsible for damaged finish material and/or equipment not recorded during the preconstruction inspection. Contractor shall replace or repair to the Owner's satisfaction damaged finish material and/or equipment. It is the Contractor's responsibility to schedule and coordinate this preconstruction walk-through with the Owner. Provide a minimum of 5 calendar days' notice prior to the requested walk-through time.

- C. Accidental interruptions caused by the Contractor to services outside of the work area shall be reported to the Owner at once, and immediate, emergency efforts to restore the service shall be made at the expense of the Contractor.
- D. When performing work adjacent to building and structures, protect buildings and structures from dirt, dust, and debris.

1.7 TEMPORARY FACILITIES

- A. Existing electric and water service shall remain at their present level of service and may be used by the Contractor. The Owner will pay for current and water used. Additional electricity and water and their service connections which may be required for construction shall be provided by the Contractor. Contractor shall verify existence and usability of listed services prior to submitting Bid. Non-listed services required by the Contractor shall be provided by the Contractor.
- B. The Contractor shall provide temporary toilet facilities for use by its employees and subcontractors. Locate in an area approved by the Owner. Use of Owner facilities is not allowed.
- C. Job signs are not allowed unless authorized by the Owner.
- D. The Contractor shall furnish temporary lighting or heat required so that work may proceed to meet the Contract schedule.
- E. The Contractor shall arrange and establish a location satisfactory to the Owner where workmen may eat; provide a rubbish container, and clean and remove all debris at the end of each work day.
- F. At all times when work is being performed, the Contractor's foreman shall be on-site. Both the foreman and the superintendent shall have a mobile phone or beeper with him/her at all times while on the job site. Provide the Owner with the telephone number.
- G. A job site office/trailer is not required.

1.8 PARKING

- A. Contractor is required to purchase any required parking passes from the University.

1.9 USE OF FACILITY

- A. Contractor employees are not permitted to use facility except as previously noted. Failure to comply with this restriction can result in the dismissal of the offending employee from the construction site.
- B. Except for materials being used during a work shift, store all materials in approved storage area.
- C. Materials being used for work shall be uniformly distributed throughout the work area not to overload or otherwise distress the supported structural system.

1.10 TRAFFIC CONTROL

- A. Provide signage and barricades to re-route traffic clearly and safely around work areas.

Coordinate with the Owner a minimum of 7 days in advance of when an area is scheduled to be closed.

- B. Erect barricades to prevent unauthorized entry of pedestrian into, on, or under the Work Area. Post appropriate signs to warn against entry. Construct barricades to prevent unauthorized entry during non-work hours.

1.11 USE OF STREETS AND WALKS

- A. All use of streets and walks must be in accordance with local authorities having jurisdiction. The Contractor must coordinate such use directly with the local authorities.
- B. The Contractor shall provide and maintain control device necessary for the protection of his Work, and areas which the local authorities may consider hazardous, including necessary lighting. Further, should conditions arise which necessitate the use of flagman and/or the services of the local police, the Contractor shall supply this type of control at no expense to the Owner.
- C. Maintain traffic in accordance with local authority's requirements.
- D. The Contractor shall provide and maintain signage, barricades, warning devices, etc. that may be necessary or required by local authorities or the Owner for the protection of pedestrians and vehicles while performing the work.

1.12 CLEANUP

- A. Each Contractor or Subcontractor, upon completion of his division of the work, shall collect and remove all rubbish, surplus material, tools and scaffolding pertaining to his work, and shall keep the work area neat and orderly by periodic removal and cleanup. Crates and cartons in which materials or equipment are received shall be removed daily. Contractor shall leave each phase of the work broom-clean upon completion of that phase.
- B. Each Contractor shall be responsible for daily collection and disposal of rubbish created by his materials, laborers, and work efforts. If this is not done, the Owner may direct that cleanup be done and the cost of same shall be deducted from the Contractor's contract.
- C. Contractor shall clean surfaces of all lights, control panels, overhead piping, duct work, etc., after construction is complete, to the same level of cleanliness as surfaces were before construction.
- D. Protect from damage during subsequent construction activities all new work and existing construction cleaned upon the completion of any one phase.
- E. Contractor shall legally dispose of all debris off the site.

1.13 FIRE PROTECTION

- A. It shall be the responsibility of the Contractor to take the proper precautions to prevent fires when welding or while other fire-hazardous work is being performed.
- B. Gasoline and other flammable liquids shall always be kept in approved safety cans.

1.14 WATCHMEN

- A. The services of a watchman will not be provided by the Owner.
- B. The Contractor shall assume full responsibility for protection and safety of material and equipment stored at the job site both within and outside of the work areas or storage areas.

1.15 ADDITIONAL REQUIREMENTS

- A. During the term of this Contract, the employees of the Contractor shall not consume or be under the influence of alcohol while on the premises of the Owner. The use of nonprescription, over the counter drugs and medications (i.e., Contact, Actifed, etc.) is discouraged, but if used, manufacturer's guidelines must be followed. Drugs considered illegal by federal, state, and local authorities are strictly prohibited.
- B. Owner reserves the right with or without cause and at its sole discretion, provided that such right is lawful, to have the Contractor temporarily or permanently remove any of the Contractor's employees from the Project.
- C. Shutting down of existing apparatus and service lines shall be done only at times prescribed and approved by the Owner. Apparatus and service lines shall not be left out of service overnight, during non-working periods or during scheduled events.
- D. Notice of temporary service interruption (or potential interruption) shall be given to the Owner and his designated representative not less than (5) working days prior to required interruption to allow adequate preparation to be made.
- E. Provide the Owner with emergency telephone numbers to be able to contact the Contractor's superintendent or project manager 24 hours a day.

PART 2 PRODUCTS – NOT USED.

PART 3 EXECUTION – NOT USED.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 015600

BARRIERS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Full height rigid and movable construction area enclosures.
2. Miscellaneous barriers and efforts, including construction fencing, caution tape and signage.

B. Related Sections:

1. Section 024119 – Selective Demolition
2. Section 061053 – Miscellaneous Rough Carpentry
3. Section 061643 – Gypsum Sheathing
4. Section 072400 – EIFS Restoration
5. Section 072727 – Fluid-Applied Membrane Air Barriers
6. Section 074646 – Fiber Cement Siding
7. Section 079200 – Sealants
8. Section 081100 – Metal Doors and Frames
9. Section 099100 – High Performance Coatings

PART 2 PRODUCTS

2.1 MATERIALS

A. High Visibility Safety Fencing

1. High density polyethylene material.
2. Diamond mesh with 1-1/2" openings.
3. Minimum 4 feet high.
4. Bright orange color.
5. Minimum 2200 lbs. break load capacity.

B. Chain Link Fencing

1. Minimum 6'-0" feet tall.
2. Minimum 9 gauge galvanized with 2"x2" pattern configuration.
3. Fence to be panelized system, surface set with ballasted based.

4. Drilled posts are not permitted.
- C. Caution Tape
1. 3" wide.
 2. Minimum 4 mil thick plastic.
 3. Safety yellow tape with black "CAUTION" lettering, minimum 1-1/2" high.

PART 3 EXECUTIONS

3.1 GENERAL

- A. Work shall not proceed until barriers and construction fencing are in place and secure.
- B. Provide barricades to isolate areas directly under work areas for protection of persons or property.
- C. Remove barricades at entrances during non-working hours which will obstruct or hinder the use of the entrance.
- D. Installation and removal of barricades or barriers shall not damage existing surfaces.
- E. The use of anchors which penetrate the existing surface are prohibited, unless approved in advance by Engineer.
- F. Remove all evidence of barriers installation upon removal.
- G. Contractor is responsible for erection, maintaining, moving and removal of barricades, fencing and barriers from the job site.

END OF SECTION

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 017700

CLOSEOUT PROCEDURES

PART 1 General

1.1 SUMMARY

A. Section Includes:

1. Requirements for Close-Out of Contract.
2. Specific requirements for individual units of work may be included in the appropriate Sections.

1.2 DEFINITIONS

- ###### A. Contract Closeout is the term used to describe certain collective project requirements, indicating completion of the Work that are to be fulfilled near the end of the Contract time in preparation for final acceptance and occupancy of the Work by the Owner, as well as final payment to the Contractor and the normal termination of the Contract.

1.3 PREREQUISITES TO SUBSTANTIAL COMPLETION

- ###### A. General: Complete the following before requesting the Owner's inspection for certification of substantial completion, either for the entire Work or for portions of the Work. List known exceptions in the request.
1. In the progress payment request that coincides with, or is the first request following, the date substantial completion is claimed, show either 100% completion for the portion of the Work claimed as "substantially complete," or list incomplete items, the value of incomplete Work, and reasons for the Work being incomplete. Include supporting documentation for completion as indicated in these Contract Documents.
 2. Submit a statement showing an accounting of changes to the Contract Sum.
 3. Advise Owner of pending insurance change over requirements.
 4. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications, and similar documents.
 5. Obtain and submit releases enabling the Owner's full, unrestricted use of the Work and access to services and utilities. Where required, include occupancy permits, operating certificates and similar releases.
 6. Submit record drawings, maintenance manuals, final project photographs, damage survey and similar final record information.
 7. Discontinue or change over and remove temporary facilities and services from the project site, along with construction tools and facilities, mock-ups and similar elements.
 8. Complete final cleaning-up requirements, including touch-up painting of marred

surfaces. Touch up and otherwise repair and restore marred exposed finishes.

- B. Inspection Procedures: Upon receipt of the Contractor's request for inspection, the Owner will either proceed with inspection or advise the Contractor of unfilled prerequisites.
 - 1. Following the initial inspection, the Owner will either prepare the certificate of substantial completion or will advise the Contractor of work which must be performed before the certificate will be issued. The Owner will repeat the inspection when requested and when assured that the Work has been substantially completed.
 - 2. Results of the completed inspection will form the initial "punch list" for final acceptance.

1.4 PREREQUISITES TO FINAL ACCEPTANCE

- A. General: Complete the following before requesting the Owner's final inspection for certificate of final acceptance and final payment as required by the General Conditions. List known exceptions, if any, in the request.
 - 1. Submit the final payment request with final releases, affidavits and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - 2. Submit an updated final statement accounting for final additional changes to the Contract Sum.
 - 3. Submit a certified copy of the Owner's final punch list of itemized Work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
 - 4. Submit consent of Surety.
 - 5. Submit evidence of final, continuing insurance coverage complying with insurance requirements per General and Supplementary Conditions in these Specifications.
 - 6. Submit a certificate clearly indicating that all outstanding bills for materials, services and labor, and all subcontractors have been paid in full.
- B. Re-inspection Procedure: The Owner will re-inspect the Work upon receipt of the Contractor's notice that the Work, including punch list items resulting from earlier inspections, has been completed except for these items whose completion has been delayed because of circumstances that are acceptable to the Owner.
 - 1. Upon completion of re-inspection, the Owner will either approve the final payment request, or will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final release of final payment.
 - 2. If necessary, the re-inspection procedure will be repeated.
- C. Schedule with the Owner a close-out meeting. Coordinate this meeting with the Owner. Provide a minimum of 3 working days' notice prior to the requested time for the meeting.

1.5 PROJECT RECORD DOCUMENTS

- A. The Contractor shall be responsible to maintain at the job site one copy of:
 - 1. Record contract drawings.
 - 2. Record project manual.
 - 3. Addenda.
 - 4. Reviewed shop drawings.
 - 5. Change orders.
 - 6. Other modifications to Contract.
- B. Maintain documents in clean, dry, legible condition.
- C. Do not use project Record Documents for construction purposes.
- D. Failure to maintain documents up-to-date will be cause for withholding payments to Contractor.
- E. Obtain one complete set of Contract Documents, including:
 - 1. Project Manual with all addenda.
 - 2. One complete set of black-line or blue-line prints of all drawings not bound in project manual.
 - 3. One complete set of sepia prints of all drawings not bound in project manual.
- F. Keep Record Documents current.
- G. Contract Drawings: Contractor may, at his option, enter required information on a "working set" and then at completion of project transfer the information to final submitted "Project Record" set. All notations on the "Project Record" set shall be in red ink made in a neat and legible manner, with additional explanatory drawings or sketches as required. The Project Record Drawings shall have marked the correct location of Work items and equipment where it differs from the location shown on the drawings, and any other information pertinent or useful in nature.
- H. Project Manual and Addenda: Contractor shall legibly mark up each section to record:
 - 1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
 - 2. Changes made by change order or field order.
 - 3. Other items not originally specified.
- I. At completion of Project, deliver 3 copies of the Project Record Documents to the Owner prior to request for final payment. Accompany submittal with transmittal letter containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each Record Document.

5. Certification that each document as submitted is complete and accurate.
6. Signature of Contractor or his authorized representative.

1.6 WARRANTY

- A. The Contractor shall provide a general one-year warranty for all work performed.
- B. As required by individual Specification Sections, provide extended warranties on parts of the Work as specified.
- C. Provide the Owner with four executed copies of all required warranties.
- D. Deliver to the Owner all required warranties prior to the application for Final Payment.
- E. Delivery of required warranties does not relieve the Contractor of obligations assumed under provisions of the Contract.
- F. Warranties provided directly by contractor are to be written using company letterhead documents.
- G. A warranty may require multiple signatures if specified to be a joint warranty. Refer to individual warranty requirements in the appropriate Specification Section.
- H. The warranty format shall be as follows:

Name of Project

Scope of Work

We warrant the Work to be in accordance with the Contract Documents. We shall provide all labor, material, tools, and equipment necessary to correct work not in conformance with the Contract Documents or that becomes or is found to be defective within years after the Date of Substantial Completion. We will bear the cost of making good any damage caused by the defective work, including damage caused by its correction or removal, to the Owner's property or to property for which the Owner is liable. This warranty shall not apply to work which has been abused, neglected, or altered by others or to work for which the Owner has previously given the Contractor a written acceptance of the defect. The warranty period shall begin at Noon on the date of Substantial Completion.

Company

Signature

Date

Title

1.7 OPERATIONS AND MAINTENANCE DATA

- A. The Contractor shall deliver to the Owner at the final inspection all operations and maintenance data as required elsewhere in this Specification. This data shall be provided in loose-leaf binders.

1.8 SPARE PARTS AND MAINTENANCE MATERIALS

- A. The Contractor shall deliver all spare parts and maintenance materials as required elsewhere in this Specification to the Owner at the final inspection.

1.9 CLOSEOUT PROCEDURES

- A. Removal of Protection: Except as otherwise indicated or requested by the Owner, remove temporary protection devices and facilities which were installed during the course of the Work to protect existing or previously completed Work during the remainder of the construction period.
- B. Compliance: Comply with safety standards and governing regulations for cleaning operations. Do not discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner. Where extra materials of value remaining after completion of associated work have become the Owner's property, dispose of these materials to the Owner's best advantage as directed.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTIONS – NOT USED

END OF SECTION

DIVISION 02 – EXISTING CONDITIONS
SECTION 024119
SELECTIVE STRUCTURE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. All labor, material, equipment, special tools and services required to complete the work required for the project as indicated on the Drawings and in the Specifications, including but not limited to:
 - a. Demolition of selected portions of the structure as indicated in the Contract Documents.
 - b. Demolition and removal from the job site of miscellaneous features as indicated in the Contract Drawings.
 - c. Removal from the job site and legal disposal of existing debris and accessories as shown on the Drawings.
 - d. Supply and maintenance of dumpsters to accommodate debris removals.
2. Materials Ownership
 - a. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.
 - b. Storage or sale of removed items or materials on-site will not be permitted.

1.2 REFERENCES AND REGULATORY REQUIREMENTS

- A. Conform to applicable laws, ordinances, and the State Building Code for demolition of structures, safety of adjacent structures, dust control, runoff control, and disposal.
- B. Comply with ANSI A10.6.
- C. Comply with applicable requirements of NFPA Standard No. 241.75: Safeguarding Building Construction & Demolition Operations.
- D. Obtain required permits from authorities.
- E. Do not close or obstruct roadways, sidewalks, and hydrants without permits.
- F. Do not close or obstruct egress width to any entrance or exit.
- G. Do not disable or disrupt fire or life safety systems without three days prior written notice to the Owner.
- H. Conform to applicable regulatory procedures when discovering hazardous or

contaminated materials.

1.3 SUBMITTALS

- A. Pre-demolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, which might be misconstrued as damage caused by demolition operations. This submittal should be delivered before Work begins.

1.4 QUALITY CONTROL

- A. Work in this Section shall be under the immediate control of a person (Contractor's superintendent or other designated person) experienced in this type of work. The person identified with immediate control of the work shall have supervised three verifiable projects of similar magnitude and type. Supervising person shall be present during all operations.
- B. The Contractor shall comply with all Federal, State and Municipal laws, codes, ordinances and regulations applicable to the Work in this Contract and also with all requirements of the National Fire Protection Association, the National Electric Code, and the Occupational Safety and Health Administration (OSHA). If the above laws, codes or ordinances conflict with this Specification, then the laws, codes or ordinances shall govern, except in such cases where the Specification exceeds them in quality of materials or labor, then the Specifications shall be followed.

1.5 PROJECT CONDITIONS

- A. Contractor shall coordinate with the Owner for the required access and staging areas needed to accommodate demolition operations at grade areas.
- B. Demolition Efforts
 - 1. The Contractor shall collect all debris generated by the demolition process and legally dispose of off the Owner's property. Do not stockpile debris. Remove dumpsters containing debris upon filling to capacity or completion of the work.
 - 2. The Owner assumes no responsibility for actual condition of features and components to be selectively demolished. Conditions existing at time of inspection for bidding purpose will be maintained by the Owner as far as practical.
- C. Utility Services
 - 1. Maintain existing utilities required to remain, keep in service, and protect against damage during demolition operations.
 - 2. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction and the Owner. Provide temporary services during interruptions to existing utilities, as acceptable to the governing authorities and Owner.
 - 3. Disconnect, seal, and remove utilities or services in selective demolition area

before starting selective demolition operations.

- D. Damages: Promptly repair damages to adjacent construction, on or off site, caused by demolition operations at no cost to the Owner.
- E. Prevent insect and rodent infiltration. If necessary, employ an exterminator and treat entire structure in accordance with governing health regulations for rodent and insect control.
- F. Hazardous Materials: Notify the Owner if asbestos-containing materials are encountered during demolition.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas intended for demolition and note conditions or defects that will adversely affect the execution and/or quality of the work.
- B. Notify Owner in writing of any such conditions or defects. Do not begin work until unsatisfactory conditions are corrected. Failure to notify Owner prior to beginning work constitutes acceptance by Contractor of the surfaces and conditions under which the work is to be performed, and acceptance by Contractor for the performance of the work.
- C. Inventory and record the condition of items to be removed and salvaged.
- D. Engage a professional demolition engineer to perform an engineering survey of existing conditions of structure to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- E. Verify that hazardous materials have been remedied before proceeding with selective demolition operations.

3.2 PROTECTION

- A. Provide temporary protection during the course of the work to prevent water entry into the structure and walls and to maintain the structure in a weather tight condition. Ensure that protection is in place and water tight before ending day's work.
- B. Be prepared for unexpected weather changes so that temporary protection can be quickly installed.
- C. Provide, erect, and maintain temporary barriers and security devices. Prevent spread of dust, odors, and noise to permit continued Owner's occupancy. Refer to Specification Section 015600.
- D. Provide protection on existing surfaces and features to remain. Secure protection to prevent wind events from shifting or moving temporary protection. Securement

methods shall not penetrate the surfaces or features. Protection shall define the path over which demolished material will be transported.

- E. Conduct demolition operations and remove debris to ensure minimum interference with the interior of the structure, roads, streets, walks, adjacent structures, and utilities.
- F. Conduct operations with minimum interference to public or private accesses. Maintain protected egress and access at all times.
- G. Protect existing landscaping materials, structures, and utilities which are not to be demolished.

3.3 DEMOLITION REQUIREMENTS

- A. Coordinate regular removal and replacement of filled dumpsters from the job site during off hours only, unless pre-approved by the Owner in advance.
- B. Do not remove any part of the work that will leave the remaining work unstable, until adequate temporary bracing and shoring have been provided, or until permanent bracing or construction is in place. Cease operations immediately if adjacent structures appear to be in danger. Notify Owner and authority having jurisdiction. Do not resume operations until directed.
- C. If deteriorated materials, not intended for removal, are encountered during demolition, stop all work in that area and notify the Owner immediately.
- D. Demolish and remove existing construction to the extent required and as indicated. Use methods required to complete work within limitations of governing regulations and as follows:
- E. Where required, neatly cut materials to be removed. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
- F. Explosives: The use of explosives will not be permitted.

3.4 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: except for items to be salvaged, etc, remove demolished materials from project site and legally dispose of them in an EPA approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of structure by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Separate recyclable demolished materials from other demolished materials to the maximum extent possible. Separate recyclable materials by type.

1. Provide containers or other storage method for controlling recyclable materials until they are removed from Project site.
 2. Stockpile processed materials on site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from demolition area. Do not store within the drip lines of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Transport materials off Owner's property and legally dispose of them.
- C. Remove from site and legally dispose of debris, rubbish, and other materials resulting from demolition operations.
- D. Burning of removed materials will not be permitted on the site.
- 3.5 PATCHING AND RESTORATION
- A. Neatly patch and finish disturbed existing surfaces damaged by demolition.
 - B. Verify all patch locations, methods, and procedures with Engineer prior to beginning repairs.
- 3.6 CLEANING
- A. Clean adjacent floor and wall surfaces to remove dust, dirt, debris, sludge, etc., regardless of existing conditions prior to demolition.

END OF SECTION

DIVISION 6 – WOOD, PLASTICS, AND COMPOSITES

SECTION 061053

MISCELLANEOUS ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Wood furring strips installed for attachment of fiber cement siding.
- B. Related Sections:
 - 1. Section 061643 – Gypsum Sheathing
 - 2. Section 072727 – Fluid-Applied Membrane Air Barriers
 - 3. Section 074646 – Fiber Cement Siding

1.2 REFERENCES

- A. American Wood Preservers Association (AWPA): AWPA U1, Use Category System: User Specification for Treated Wood.
- B. ASTM International (ASTM):
 - 1. ASTM D2898, Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing
 - 2. ASTM D3201, Standard Test Method for Hygroscopic Properties of Fire-Retardant Wood and Wood-Based Products
 - 3. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials
 - 4. ASTM E488, Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements
 - 5. ASTM F1667, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples

1.3 DELIVERY, STORAGE, AND HANDLING

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

PART 2 PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum

dressed sizes for dry lumber.

3. Provide dressed lumber, S4S, unless otherwise indicated.
4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 2. Use treatment that does not promote corrosion of metal fasteners.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
- C. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.
- D. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
- E. Application: Treat wood furring in connection with air barriers and fiber cement siding.

2.3 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 1. Where carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or of Type 304 stainless steel.
- B. Nails, Wire, Brads, and Staples: ASTM F1667
- C. Power-Driven Fasteners: NES NER-272.
- D. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
- E. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified

independent testing and inspecting agency.

1. Material: Stainless steel with bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate framing, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Where wood-preserved-treated lumber is installed adjacent to metal continuous flexible flashing separator between wood and metal decking.
- C. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- D. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.
- E. Use fasteners of appropriate type and length. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated. Pre-drill members when necessary to avoid splitting wood.

3.2 WOOD FURRING INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

END OF SECTION

DIVISION 6 – WOOD, PLASTICS, AND COMPOSITES

SECTION 061643

GYP SUM SHEATHING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Fiberglass-mat faced, moisture and mold-resistant gypsum sheathing.
- B. Related Sections:
 - 1. Section 012200 – Unit Prices
 - 2. Section 012900 – Payment Procedures
 - 3. Section 024119 – Selective Demolition

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM C473 Standard Test Methods for Physical Testing of Gypsum Panel Products.
 - 2. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - 3. ASTM C1002 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.
 - 4. ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - 5. ASTM C1280 Standard Specification for Application of Gypsum Sheathing.
 - 6. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 7. ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers.
 - 8. ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
 - 9. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
 - 10. ASTM C1396 Standard Specification for Gypsum Board
 - 11. ASTM E 136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C
 - 12. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

- B. Gypsum Association (GA): GA-253 Application of Gypsum Sheathing.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's specifications and installation instructions for each product specified.

1.4 WARRANTY

- A. Provide products that offer twelve months of coverage against in-place exposure damage (delamination, deterioration, and decay) commencing with the date of installation of the product in such structure.
- B. Manufacturer's Warranty: Five years against manufacturing defects.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177:
 - 1. Thickness: 1/2 inch.
 - 2. Weight: 1.9 lb/sq. ft.
 - 3. Edges: Square.
 - 4. Surfacing: Fiberglass mat on face, back, and long edges.
 - 5. Racking Strength (Ultimate, not design value) (ASTM E72): Not less than 540 pounds per square foot, dry.
 - 6. Flexural Strength, Parallel (ASTM C473): 80 lbf, parallel.
 - 7. Humidified Deflection (ASTM C1177): Not more than 2/8 inch.
 - 8. Permeance (ASTM E96): Not less than 23 perms.
 - 9. R-Value (ASTM C518): 0.56.
 - 10. Mold Resistance (ASTM D3273): 10, in a test as manufactured.
 - 11. Microbial Resistance (ASTM D6329, UL Environmental GREENGUARD 3-week protocol): Will not support microbial growth.
 - 12. Basis of Design Product: DensGlass Sheathing, Georgia-Pacific Gypsum LLC.
- B. Fire-Rated Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177, Type X:
 - 1. Thickness: 5/8 inch.
 - 2. Weight: 2.5 lb/sq. ft.
 - 3. Edges: Square.
 - 4. Surfacing: Fiberglass mat on face, back, and long edges.
 - 5. Racking Strength (Ultimate, not design value) (ASTM E72): Not less than 654 pounds per square foot, dry.
 - 6. Flexural Strength, Parallel (ASTM C1177): 100 lbf, parallel.

7. Humidified Deflection (ASTM C1177): Not more than 1/8 inch.
8. Permeance (ASTM E96): Not less than 17 perms.
9. R-Value (ASTM C518): 0.67.
10. Mold Resistance (ASTM D3273): 10, in a test as manufactured.
11. Microbial Resistance (ASTM D6329, UL Environmental GREENGUARD 3-week protocol): Will not support microbial growth.
12. Basis of Design Product: DensGlass Fireguard Sheathing, Georgia-Pacific Gypsum LLC.

2.2 ACCESSORIES

- A. Screws: ASTM C1002, corrosion resistant treated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: After removal of existing EIFS, inspect condition of existing sheathing to identify areas of deterioration to be removed and replaced.

3.2 INSTALLATION

- A. General: In accordance with GA-253, ASTM C1280 and per the manufacturer's recommendations.

3.3 PROTECTION

- A. Protect gypsum board installations from damage and deterioration until date of Substantial Completion.

END OF SECTION

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 071800

PEDESTRIAN TRAFFIC MEMBRANE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Medium duty traffic membrane system.
- B. Related Sections:
 - 1. Section 024119 – Selective Structure Demolition
 - 2. Section 072727 – Fluid-Applied Membrane Air Barriers
 - 3. Section 079200 – Sealants

1.2 DEFINITIONS

- A. The term "manufacturer's recommendations", or variations thereon it shall mean "manufacturer's recommendations which are found in publications available to and commonly used by the general architectural and consulting professions."

1.3 SUBMITTALS

- A. Joint and Several Warranty Form meeting the requirements of Article 1.6.
- B. Skid Resistance Addenda Form to Joint and Several Warranty meeting the requirements of Articles 1.6 and 3.4.
- C. Bond Test Addenda Form to Joint and Several Warranty meeting the requirements of Articles 1.6 and 3.4.
- D. Literature for all manufactured products, including manufacturer's specifications, test data and installation instructions or applicator's manual.
- E. 12" x 12" samples of each membrane system to be used. Sample shall be applied to plywood or similar rigid material.
- F. 1/4-lb. (\pm) sample of aggregate type intended to be used. Provide two (2) samples, one sent to THP for record, and other sample sent to Membrane Manufacturer for laboratory testing and sieve analysis.
- G. Letter from Membrane Manufacturer stating sample aggregate was received, tested, and reviewed, and is approved for use for the specified system and jobsite conditions. Letter shall include the following information:
 - 1. Sieve or partical size analysis.
 - 2. Grain Shape.
 - 3. Hardness (Moh's Scale)
 - 4. Moisture Content (ASTM C-566)
 - 5. Specific Gravity (ASTM C-128)

6. Bulk Density (ASTM C-29)
7. Chemical Analysis
- H. If requested, copy of letter of approval per Article 1.4 Paragraph B.
- I. If requested, resume per Article 1.4 Paragraph C.
- J. If requested, letters of Certification per Article 1.4 Paragraphs E, F, and G.
- K. Safety Data Sheets on all materials which are classified as hazardous materials.
- L. Maintenance manuals with the following information.
 1. Project name.
 2. Project location.
 3. Date.
 4. Owner's name.
 5. Coating system(s).
 6. Drawings indicating the coating systems and their location in the structure.
 7. Schematic drawing of each membrane type identifying each element of the membrane system by dry film thickness and manufacturer's reference number or name.
 8. Recommendations for routine care and maintenance.
 9. List of three (3) approved Contractors nearest the project location authorized to perform repairs.
 10. Identify common causes of damage and instructions for temporary patching until permanent repair can be made.
 11. Upon completion of the Work and prior to final payment, provide a fully executed warranty.

1.4 QUALITY ASSURANCE

- A. The Contractor shall comply with all Federal, State and Municipal laws, codes, ordinances, and regulations applicable to the Work in this Contract and also with all requirements of the National Fire Protection Association, the National Electric Code, and the Occupational Safety and Health Administration (OSHA). If the above laws, codes or ordinances conflict with this Specification, then the laws, codes or ordinances shall govern, except in such cases where the Specification exceeds them in quality of materials or labor, then the Specifications shall be followed.
- B. The membrane applicator shall be approved by the manufacturer and shall have been an approved manufacturer's applicator for the membrane products, as identified on the subcontractor supplemental proposal form, for a minimum of three consecutive years. If requested, the contractor shall provide written confirmation from the manufacturer within three calendar days of the request.

- C. The membrane applicator and its superintendent shall meet the following minimum requirements:
 - 1. Installed the approved membrane materials as identified on the Bid Form in a traffic membrane system in three previous similar projects. Each of the three projects shall have been a minimum of 5,000 square feet in size.
 - 2. Installed the approved membrane materials as identified on the Bid Form in a traffic membrane system currently in use within the last two years.
- D. Conform to the Field Quality Control requirements in Part 3 of this Section.
- E. Membrane manufacturer to certify that aggregate specified is acceptable for use in the membrane system.
- F. Membrane manufacturer to certify that sealants in contact with membrane are compatible with membrane system.
- G. Membrane manufacturer to certify that substrate surfaces in contact with any component of the vehicular traffic membrane are compatible.
- H. Field Samples:
 - 1. Prior to beginning surface preparation, prepare a sample area in the initial phase work area for the project to be used as the minimum standard of acceptability for cleanliness and surface texture to be achieved throughout the work. The area shall be at least 400 sq. ft. Size and location shall be as directed by the Engineer. The standard shall be jointly reviewed and approved by both the Engineer and the Manufacturer relative to Article 3.2 paragraph B.4 prior to start of full-scale surface preparation work. The approved standard shall remain uncoated until all surface preparation work is completed.
 - 2. After approval, the sample area shall be covered with 6 mil thick plastic sheets. Edges shall be continuously taped, as well as splices, and the perimeter shall be weighted down. The sample area shall be kept covered unless viewing is needed for comparative purposes or until final preparation for membrane application. Contractor shall monitor the area to ensure the integrity of the covering. Neither foot nor vehicular traffic shall be allowed on the covering unless additional protective measures are taken to protect the cleanliness of the sample area.
- I. Manufacturer's Representation:
 - 1. For installation of membrane materials, a technically competent employee of the membrane manufacturer, approved by the Engineer and not associated with the installation crew, shall be on site before and during the installation of the membrane system during the first Work Area plus one additional Work Area which reflects changing environmental conditions, if requested by the Engineer.
 - 2. Application of the membrane shall not begin until the manufacturer's technician has approved the cleanliness and surface texture of the substrate.
 - 3. The technician shall remain on site for the length of time necessary to observe the

installation of the total membrane system.

4. The technician shall review all Contract application techniques and procedures and shall advise the Contractor when, where and as required to obtain Specification compliance.
 5. The Contractor and the membrane Manufacturer shall comply with the terms set forth in items 1 through 4 above at no additional cost to the Owner.
- J. An employee of the applicator who has been trained by the membrane manufacturer on the installation of the approved membrane system shall be present during all applications of the membrane system.
- K. Within twenty-four hours of application of membrane materials submit log required by Article 3.4 Paragraph F to Engineer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to job site in sealed, undamaged containers. Each container shall be identified with material's name, date of manufacture and lot number.
- B. Only those materials being used during any one work shift may be stored in the current work area. Materials being used for shift work shall be uniformly distributed throughout the intended work area not to overload or otherwise distress the structural system. All other materials, if stored on site, shall be stored at the designated staging area.
- C. Coating materials shall be kept sealed when not in use.
- D. Storage and handling of materials shall conform to the manufacturer's requirements and the requirements of the applicable environmental protection and safety regulatory agencies.
- E. Storage areas shall be heated or cooled as required to maintain the temperatures within the range recommended by the coating manufacturer.
- F. The handling and use of toxic or flammable solvents shall conform to the requirements of the applicable safety regulatory agencies, recommended by the manufacturer.

1.6 WARRANTY

- A. Completed installation shall be warranted jointly and severally on a single document by manufacturer and applicator against defects of materials and workmanship. The length of the warranty period shall not be less than (5) years from the date of substantial completion of the Project.
- B. Manufacturer and installer shall further warrant the skid resistance and bond strength of the installed systems. The test may be measured at any single location, and shall meet the specified criteria in Part 3, Article 3.4. The length of the warranty period shall not be less than five (5) years from the date of substantial completion of the Project.
- C. Warranty documents shall not require the signature of the Owner to be effective, shall not limit the Owner's legal remedies otherwise allowed per the project contract, and shall not limit the venue of any potential legal jurisdiction.

PART 2 PRODUCTS

2.1 APPROVED MANUFACTURERS

- A. Lymtal International
- B. Neogard Corporation
- C. Sika Corporation

2.2 MATERIALS

A. Medium Duty Traffic Membrane System:

1. Iso-flex 760 Aliphatic System by Lymtal International, comprised of:
 - a. Primer
 - Iso-Flex Epoxy SF, Primer 750, or Primer 757.
 - Apply at manufacturer's recommended application rate.
 - b. Base Coat
 - Iso-Flex 750 Base Coat
 - Apply at 40 mils dry film thickness.
 - c. Top Coat
 - Iso-Flex 760 Aliphatic Top Coat
 - Apply at 18 mils dry film thickness.
 - Aggregate seeded and back rolled to provide slip resistant surface.
 - d. Aggregate
 - Unimin 12/20 by US Silica, either Ottawa, MN or Voca, Texas.
 - Install at membrane manufacturer's maximum application rate.
 - Uniformly distributed with no bare spots.
2. FC System by Neogard Corporation, comprised of:
 - a. Primer
 - Neogard 7760/7761 VOC
 - Apply at manufacturer's recommended application rate.
 - b. Base Coat
 - Neogard FC7500/FC7960
 - Apply at 40 mils dry film thickness.
 - c. Top Coat
 - Neogard FC7540/FC7964
 - Apply at 18 mils dry film thickness.
 - Aggregate seeded and back rolled to provide slip resistant surface.

- d. Aggregate
 - 12/20 silica by Carmeuse Industrial Sands, Brady, Texas
 - Install at membrane manufacturer's maximum application rate.
 - Uniformly distributed with no bare spots.
 3. Sikalastic Traffic System by Sika Corporation, comprised of:
 - a. Primer
 - Sikalastic FTP Lo-VOC Primer or MT Primer.
 - Apply at manufacturer's recommended application rate.
 - b. Base Coat
 - Sikalastic 720 Base Coat
 - Apply at 40 mils dry film thickness.
 - c. Top Coat
 - Sikalastic 745 Aliphatic Top Coat
 - Apply at 18 mils dry film thickness.
 - Aggregate seeded and back rolled to provide slip resistant surface.
 - d. Aggregate
 - Unimin 12/20 by US Silica, either Ottawa, MN or Voca, Texas.
 - Install at membrane manufacturer's maximum application rate.
 - Uniformly distributed with no bare spots.
- B. Vapor Barrier:
1. Lyntal Systems: One or two step systems, with or without aggregate, as recommended by the manufacturer.
 2. Neogard Systems: One or two step systems, with or without aggregate, as recommended by the manufacturer.
 3. Sika Systems: One or two step systems, with or without aggregate, as recommended by the manufacturer.
- C. Individual steps of any systems inclusive of greater than 5 percent solvents by either weight or volume calculations shall require monitoring by a licensed industrial hygienist for fumes and odors within work areas, at open air intakes within 200 ft. of work areas, and inside occupied spaces adjacent to work areas. Credentials of licensed hygienist and a monitoring plan must be approved by the Engineer in advance of the start of any membrane work.
- D. Membrane color shall be manufacturer's standard gray, unless otherwise indicated in the Documents.
- E. Intermediate coat and lock coat materials shall be U.V. stable.

PART 3 EXECUTIONS

3.1 EXAMINATION

- A. Contractor and membrane manufacturer shall jointly review existing substrates (original concrete, past or new concrete repairs or overlays, past membrane or coating systems) to ensure compatibility with the specified membrane system. Submit in writing any materials which may cause membrane adhesion to substrate less than normally anticipated or other compatibility or performance difficulties. Failure to review and identify deleterious products/materials, and if failure of the membrane is a result of adhesion difficulties or chemical or physical incompatibilities with substrate materials, the Contractor and Manufacturer shall be responsible for all costs related to correcting the deficient Work. Manufacturer is bound to meet the above noted responsibilities equally with the Contractor regardless of the provisions of other agreements.
- B. Inspect deck surface for any visibly distressed concrete. If encountered, chain drag area to determine extent of distressed or delaminated area and repair as indicated on the Drawings, and Specification Section 030100.
- C. Examine areas for slab cracks to be routed and sealed.

3.2 PREPARATION

- A. Protection:
 - 1. Erect barriers and barricades to protect adjoining areas from dirt, steel shot and debris generated from this work. Refer to Section 015600.
 - 2. Cover exposed drain grates during shotblasting/grinding operations. Recoat with approved rust inhibitive or galvanizing paint grates damaged by blasting operations. Similarly protect and recoat if necessary other, in place metal elements. Drains to be functional during non-working hours and during periods of inclement weather.
 - 3. Cover exposed drain grates to protect from membrane material. Drains to be functional during non-working hours and during periods of inclement weather. Do not allow membrane material to enter drain piping system.
- B. Concrete (General):
 - 1. Preparation and cleaning procedures shall be in strict accordance with this Specification, unless more stringent requirements are recommended by the system manufacturer.
 - 2. Surface must be dry. New concrete shall be at least 28 days old and proven dry via mat tests, to be considered for membrane system installation without installation of a vapor barrier. Review manufacturer requirements relative to site conditions in advance of performing the work.
 - 3. Surfaces shall be free from all traces of dirt, salt, grease, oil, asphalt, laitance, curing compounds, paint stripes, coatings and other foreign materials. Use manufacturer approved degreasing agents if necessary.

4. Concrete surfaces shall be cleaned using shotblast equipment (with integral vacuum process) to achieve standard of cleanliness per Article 1.5 Paragraph G. The size of shot and travel speed of the equipment shall be chosen to provide a uniformly clean surface and profile; basis for bid must be two perpendicular normal speed passes, or one slow speed pass.
5. Areas which cannot be adequately cleaned by shotblasting shall be cleaned by grinding with accompanying vacuum procedures.
6. Surfaces that become contaminated by dirt or moisture after initial shotblasting or grinding, shall be cleaned again by shotblasting or grinding to manufacturer's requirements at no additional cost to the Owner.
7. Minimum standard of acceptability applies to all surfaces intended to receive membrane regardless of surface preparation procedure or process.
8. The use of acids in surface preparation procedures and techniques is prohibited.
9. After completion of shotblasting/grinding, and prior to application of membrane materials, repair all scaled, freeze-thaw damaged and loose, pop-out areas, cracks and all damage made apparent by the shotblasting/grinding procedures, in a manner approved by the Engineer. Such repair work shall be part of the Base Bid without unit price adjustment. Areas requiring patching will be subject to re-shotblast or re-grinding where a patch exceeds one (1) square foot in area.
10. Grind all high spots or transition grind all depressions per details, and clean to manufacturer's requirements.

3.3 INSTALLATION

A. General:

1. Install materials in strict accordance with all safety and weather conditions required by product literature and Local, State and Federal regulations.
2. Fumes and dust shall be controlled to prevent harmful or undesirable effects in surrounding areas. All potential avenues for penetration of fumes or dust into surrounding occupied areas shall be sealed prior to the start of the work.
3. All exposed membrane edges and termination details shall be taped to provide straight, neat edges.
4. Install base coat membrane materials on concrete surfaces only when concrete temperature has stabilized or is falling. Do not install base coat membrane on concrete surfaces when surface temperature is rising.
5. Install membrane materials only if the temperature of the surfaces to be coated is 5 degrees or higher than the dew point temperature measured at the job site.

B. Sealants: Refer to Section 079200.

C. Membrane:

1. Install detail coat 4" wide by 20 mil thick (dry film thickness) over properly primed

cracks, caulked joints, joints between concrete pours, or leveling repairs, junctures and other locations in the membrane area which is a deviation from the nominal membrane plane, except where otherwise indicated by the Specifications or Drawings.

2. The membrane system shall turn up 4" at all vertical surfaces unless shown otherwise on the drawings. Detail coat is required at all turn-ups to vertical surfaces. Detail coat at turn-ups shall be the same as the detail coat required by Part 3, Article 3.3 Paragraph C.1.
3. Contractor shall ensure the specified/recommended application rates of all components of the membrane system. Base coat(s), intermediate coat, and lock coat of each application of the membrane system shall be distributed onto the deck by calibrated, notched squeegees. Squeegees showing signs of wear shall be discarded.
4. Contractor shall ensure specified/recommended application rates of liquid products on vertical or sloped surfaces using non-sag grade materials or by multiple applications of material over previous applications which are fully cured.
5. Each fluid-applied component of the membrane system shall be back-rolled to properly distribute materials across the deck and eliminate squeegee marks.
6. Use of power rollers either to distribute the membrane system or to backroll squeegee marks shall not be permitted.
7. No traffic shall be allowed on membrane areas for at least 48 hours after completion of membrane installation. Provide extended cure time with no vehicular traffic exposure if temperatures fall below 50°F.

3.4 FIELD QUALITY CONTROL

A. Bond Test:

1. Bond tests of the installed membrane systems may be performed by the Engineer during and after the membrane work on this project. Tests shall be conducted using a calibrated instrument which measures in-place bond strength by applying a direct axial pull on a 3 inch diameter steel disk epoxied to the completed membrane top surface.
2. A membrane phase for the purpose of bond testing is an area of base coat installed in a single work shift. If examined, a membrane phase will be tested at (3) locations per phase no sooner than 10 days after completion of the entire membrane system and no sooner than 14 days if temperatures fall below 40°F for two or more days. Contractor shall assume a total of 4 test locations in the Base Bid.
3. The acceptance criteria for initial tests of a Phase shall average bond strength of 200 psi for all locations, with no single location testing below 150 psi. Any Phase failing to meet the initial acceptance criteria may be retested at a later date by the Engineer. Retests of Phase shall include at least 4 separate test locations not

sooner than 14 days after the initial tests. The acceptance criteria for retests of a Phase shall average bond strength of 200 psi for all locations, with no single location testing below 175 psi.

4. Any Phase failing to meet the initial test and retest acceptance criteria shall be considered "deficient" and shall be cause for the Contractor to execute or provide one of the following remedies:
 - a. Extend Standard Guarantee to include an additional 5 years (for a total of 10 years) on membrane system intercoat bond and bond to the concrete for the "deficient" areas.
 - b. Removal and replacement of the "deficient" area, including all necessary preparatory work and Engineering costs to coordinate and observe the work, at no additional cost to the Owner.
5. Any additional bond testing requested by the Contractor to limit the extent of the "deficient" area(s) as determined by initial tests and retests as defined above shall be paid for by the Contractor.
6. Contractor shall include as part of his proposal the costs of repairing all test locations.

B. Skid Test:

1. Prior to any membrane preparation work and after membrane installation, the Engineer may conduct tests to determine values of the static coefficient of friction between the coated and uncoated floor surfaces and the neoprene base of the Engineer's test equipment.
2. Determination of the coefficient of friction will consist of a series of individual tests for each surface type. The initial coefficient of friction is defined as the average of the tests performed on the concrete surfaces prior to membrane preparatory work. The final coefficient of friction is defined as the averages of the tests performed on each type of completed membrane system surface.
3. The final, average static coefficient of friction shall be a minimum of 0.85 under wet and dry conditions and equal to or greater than 110% of the initial coefficient of friction. No individual test area shall have a coefficient less than 0.80 or 95% of the initial coefficient of friction. Any membrane system that does not conform, as determined by the Engineer, to the specified acceptance criteria shall be subject to rework, upgrading or replacement of the deficient areas, including necessary preparatory work, at no additional cost to the Owner.

- C. The Engineer may direct the Contractor to make test cuts in the membrane for testing purposes. Tests cuts shall be 2" x 2" and will be in partially-completed or fully-completed membrane. A maximum of 3 total tests per separate installation phase may be made. Contractor shall include as part of his Proposal the costs of taking test cuts as and where directed by the Engineer and the costs of patching test cut areas.

- D. The Engineer will periodically monitor application rates of the membrane system individual components and will notify job foremen of discrepancies noted.
- E. The Contractor shall keep at the site and maintain in proper condition an adequate number (at least one per application crew) of wet film thickness gages and shall continuously use such to ensure the specified thickness of each membrane coat is uniformly maintained. The periodic monitoring of application rates per Article 3.4 Paragraph D shall not relieve the Contractor of the responsibility of verifying specified coating thickness.
- F. Contractor shall provide information required by Part 3, Article 3.6.

3.5 CLEANING

- A. Empty containers shall be removed from the project work areas at the end of each working day. Cloths soiled with coating that might constitute a fire hazard shall be placed in suitable metal safety containers or shall be removed from the building at the end of each working day. Special care shall be taken in storage or disposal of flammable materials. Comply with health, fire and environmental regulations.
- B. All spilled coating material shall be completely removed from hardware, adjacent floor areas, metal work, etc. Remove spilled coating by approved methods.
- C. Repaint in matching color all curbs, columns, walls, etc., where existing paint was removed during preparation for membrane application.
- D. All hardware, adjacent floor areas, metal work, etc., and the general premises shall be left clean and free of all construction dirt and debris.

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3.6 MEMBRANE APPLICATION LOG

DAILY MEMBRANE APPLICATION LOG					
Project:					
Date:	Time Start	Time End			
Work Area (Give Description)					
Membrane Materials Applied Type and Quantity					
Crew Size	Size of Area Materials Applied (in Square Feet)				
Temperature Data (°F)					
	Start				End
Deck					
Air					
Relative Humidity (%)					
Dewpoint					
Note: Contractor shall estimate quarter points in time between the start and end of membrane application. Record air and deck temperatures at those times.					
Superintendent's Signature:					

END OF SECTION

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 072400

EXTERIOR INSULATION AND FINISH SYSTEM RESTORATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes all labor, material, equipment, special tools and services required to complete the work required for the project as indicated on the Drawings and in the Specifications, including but not limited to:
 - 1. Inspection of existing EIFS to identify locations of isolated distress.
 - 2. Unit Price EIFS repairs:
 - a. EIFS lamina repairs.
 - b. EIFS crack repairs, including re-anchoring of loose insulation panels.
 - c. Full-depth EIFS patching.
 - 3. Cleaning and preparation of existing EIFS systems for new coating.
 - 4. Repair of disbanded sealant at EIFS control joints, performed on a Unit Price basis
- B. Related Sections:
 - 1. Section 012200 – Unit Prices
 - 2. Section 012900 – Payment Procedures
 - 3. Section 079200 – Sealants
 - 4. Section 099100 – High Performance Coatings

1.2 REFERENCES

- A. ASTM C578: Rigid Cellular Polystyrene Thermal Insulation.
- B. EIMA (Exterior Insulation Manufacturers Association): Guideline Specification for Exterior Insulation and Finish Systems, Class PB and Class PM.

1.3 DEFINITIONS

- A. Reinforcing Mesh: A balanced, open weave, glass fiber fabric embedded between the base coat and finish coats of lamina.
- B. Finish Lamina Coat: Adds lasting color and texture to the exterior wall.

1.4 SUBMITTALS

- A. Manufacturer's data on all manufactured products.
- B. Manufacturer's installation instructions including but not limited to preparation requirements, installation techniques, jointing requirements, acceptable weather conditions for installation, and curing time for each component of the system.
- C. Samples: Submit two 12" x 12" size samples illustrating coating color and texture

proposed for the work.

1.5 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. EIFS manufacturer shall accept the repair procedures and that the products specified are compatible with the existing products to which they are to be applied.
- C. Applicator:
 - 1. A company specializing in performing Work of this section with minimum five years documented experience and approved by manufacturer.
 - 2. A company having successfully completed a minimum of three projects of similar size and nature within the last five years.
 - 3. Applicator shall be approved by the manufacturer for installation of the approved EIFS materials.
- D. Provide access to work area for Owner representative or Engineer to inspect quality of work, progress, unit price items and field conditions. Access to be completed during normal working hours. If access requires mechanical equipment (man-lift, etc.), provide necessary operators.
- E. The Contractor shall comply with all Federal, State and Municipal laws, codes, ordinances and regulations applicable to the Work in this Contract and also with all requirements of the National Fire Protection Association, the National Electric Code, and the Occupational Safety and Health Administration (OSHA). If the above laws, codes or ordinances conflict with this Specification, then the laws, codes or ordinances shall govern, except in such cases where the Specification exceeds them in quality of materials or labor, then the Specifications shall be followed.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to job site in sealed, undamaged containers/packaging.
- B. Storage and Protection:
 - 1. Protect materials in a dry place, off ground and under cover to protect them from moisture and other damage.
 - 2. Do not use materials showing evidence of water or other damage.
 - 3. Storage and handling of materials shall conform to the requirements of the applicable safety regulatory agencies.
 - 4. Storage areas shall be heated or cooled as required to maintain the temperatures within the range recommended by the manufacturer.
- C. Protect adhesives and finish materials from freezing by storing in environment recommended by manufacturer.

1.7 PROJECT CONDITIONS

A. Environmental Requirements

1. Install materials in strict accordance with all safety and weather conditions required by product literature or as modified by applicable rules and regulations of Local, State and Federal authorities having jurisdiction.
2. Fumes and dust shall be controlled to prevent harmful or undesirable effects in surrounding areas. Do not allow fumes, dirt, dust or debris to enter structure.
3. When toxic or flammable solvents are used, the Contractor shall take all necessary precautions as recommended by the manufacturer. In all cases, the handling and use of toxic or flammable solvents, including adequate ventilation and personal protective equipment, shall conform to the requirements of the applicable safety regulatory agencies.

1.8 SEQUENCE

- A. Perform cleaning of EIFS surfaces prior to performance of EIFS repairs.

1.9 SCHEDULING

- A. Schedule Work to maintain integrity of exterior wall to prevent water penetration behind EIFS and into the structure.
- B. Allow sufficient time for curing of EIFS materials prior to sealant application.

1.10 WARRANTY

- A. Repairs shall be warranted for labor and material for a period of 2 years against defects due to installation or material deficiencies.

PART 2 PRODUCTS

2.1 EXTERIOR INSULATION AND FINISH SYSTEM

- A. Basis of Design: StoTherm Classic NEXt by STO Corporation.
- B. Acceptable Alternative System: Outsulation by Dryvit Systems, Inc.

2.2 COMPONENTS

- A. Expanded Polystyrene Insulation (EPS)
1. ASTM C578, Type II conforming to the following:
 - a. Thickness: to match existing.
 - b. Thickness Tolerance: 1/32 inch maximum.
 - c. Edges: Square.
 - d. Fire Hazard Classification: Meeting requirements of local and state governing authorities.
- B. Primer/Adhesive and Base Coat: Recommended by manufacturer.
- C. Heavy Duty Reinforcing Mesh
1. Basis of Design

- a. 80918 Intermediate Mesh by Sto.
 - 1) High impact classification of 300 inch-lbs minimum.
 - 2) Nominal weight of 11 oz. per square yard.
 - 3) Interwoven, coated glass fiber mesh.
2. Alternate Products
 - a. Panzer 15 Reinforcing Mesh by Dryvit.
- D. Finish Coat Materials, EIMA Class PB: Synthetic vinyl composition, polymer base, as recommended by manufacturer. Color and texture to match existing.

2.3 ACCESSORIES

- A. Insulation Adhesive: Recommended by manufacturer.
- B. Insulation Fasteners
 1. Washers: 1 $\frac{3}{4}$ " diameter polypropylene plastic washer with key openings for base coat penetration.
 2. Screw Fastener: Minimum number 6 self-drilling corrosion resistant screw of sufficient length to penetrate the framing a minimum of 3/8".
- C. Cleaning Solution
 1. Provide cleaning solution per the following mixture and ratio:
 - a. Warm water: 1 gallon.
 - b. Household bleach: 1 quart.
 - c. Trisodium phosphate (TSP): 8 ounces.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces intended to receive the specified work and note conditions or defects that will adversely affect the execution and/or quality of the work.
- B. Notify Owner in writing of any such conditions or defects. Do not begin work until unsatisfactory conditions are corrected. Failure to notify Owner prior to beginning work constitutes acceptance by Contractor of the surfaces and conditions under which the work is to be performed, and acceptance by Contractor for the performance of the work.

3.2 PROTECTION

- A. Provide temporary protection during the course of the work to prevent water entry into the structure and walls and to maintain the structure in a weather tight condition. Ensure that protection is in place and water tight before ending day's work.
- B. Be prepared for unexpected weather changes so that temporary protection can be quickly installed.
- C. Protect all existing adjacent surfaces that are to remain and are not included in the work

of this Section.

- D. Provide safeguards from work of this Section for pedestrian traffic and adjacent property. Do not permit drift of dust or liquids.
- E. Use safeguards recommended by manufacturers of products specified herein for personnel handling and applying said materials.
- F. Protect surrounding areas from construction activities, dirt, dust and debris.

3.3 CLEANING

- A. Prior to the start of EIFS repairs, perform cleaning of all exposed EIFS surfaces.
- B. Apply the cleaning solution to the surface by brush or spray and allow to soak for a period of 15-20 minutes. For heavy deposits, lightly scrub the affected area with a soft to medium synthetic bristle scrub brush.
- C. After the cleaning solution has soaked the surface, rinse thoroughly by pressure washing with clean water at 300 to 500 psi with 30 degree fan tip nozzle. Keeping the nozzle three feet from the surface. Do not allow the cleaning solution dry before rinsing.
- D. Do not use a hard bristle brush and exceed 500 psi when power washing or the existing EIFS finish coat may delaminate.

3.4 EIFS REPAIRS

- A. General
 - 1. Tape around perimeter of repair area to maintain straight, neat lines of termination.
 - 2. Perform neat excavations into existing EIFS system. Maintain sharp edges, straight lines and cuts that are perpendicular to the surface of the structure façade.
 - 3. Excavations shall be rectangular or square with 90 degree corners.
 - 4. Clean dust, debris and dirt from surfaces to receive new EIFS coating. Perform cleaning immediately prior to new coating installation.
 - 5. Install new materials per the manufacturer's requirements and EIMA recommendations.
- B. Replacement of Deteriorated EIFS
 - 1. Remove area of deteriorated EIFS and exterior sheathing. Refer to Owner for extent of removal. Extent of removal should be to first stud or anchorage area beyond the deteriorated area.
 - 2. Install new EPS insulation. Install tight to exposed edges of existing EPS insulation. Refer to details on Drawings. Install insulation with adhesive troweled vertically and in accordance with EIFS manufacturer's requirements.
 - 3. Apply base coat with reinforcing mesh per manufacturer's requirements. Overlap new base coat and mesh onto existing base coat and mesh. Refer to details on the Drawings. Mesh is to wrap insulation at all exposed edges per details.

4. After curing of base coat, install top coat per manufacturer's requirements. Finish on new top coat to match existing finish on adjoining EIFS areas.

C. Re-Fastening of Existing EIFS

1. Carefully remove existing top coat in area to receive new anchor. Remove finish coat to expose base coat and reinforcing mesh. Do not damage base coat and existing reinforcing mesh. Removal area to be a minimum of three inches square.
2. Carefully chip existing base coat from face of insulation, leaving reinforcing mesh intact. Slit reinforcing mesh to accommodate the installation of new anchoring system under mesh.
3. Install new anchor with washer under reinforcing mesh, and through insulation, exterior sheathing and into structure. Install washer and head of fastener so that it is tight to surface of insulation.
4. Install new base coat to conceal new anchor assembly and existing reinforcing mesh. Base coat to engage existing reinforcing mesh and penetrate into key openings of washer. Install base coat per manufacturer's requirements.
5. After cure of base coat, clean existing top coat around repair area and allow to dry.
6. Install top coat over base coat and finish to match surrounding EIFS. Install top coat per manufacture's requirements.

D. EIFS Seam Repair

1. At locations where seams between insulation boards have separated or cracked, re-anchor existing EIFS to structure.
2. After re-anchoring of EIFS system is complete, repair seam and cracks per the following:
 - a. Carefully remove top coat along seam. Removal shall be 6" wide centered on seam. Do not damage base coat or mesh reinforcing during removal.
 - b. Carefully chip base coat from mesh reinforcing, leaving reinforcing intact. Where damaged, overlay new piece of mesh overlapping existing, intact mesh by 2".
 - c. Install new base coat, completely encapsulating mesh.
 - d. After base coat has cured, install new top coat and finish to match surrounding EIFS.

3.5 FINAL CLEANING

- A. After completion of repair work, clean entire EIFS surface of repaired wall to remove all dust dirt and debris and provide a uniform color to the finished lamina.
- B. Remove all waste debris, excess materials etc. from site and disposal of legally.

END OF SECTION

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 072726

FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Liquid-applied air and water-resistive barrier system installed as part of new cladding system at Breezeway exterior walls.
- B. Related Section: Section 061643 – Gypsum Sheathing

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data sheets, installation instructions, and SDS.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum 2 years experience in work of this Section.
- B. Mockup:
 - 1. Apply air barrier to verify details under submittals and to demonstrate tie-ins with adjoining construction, other termination conditions, and method of installation.
 - 2. Size: 4 feet wide x 4 wide.
 - 3. Approved mockup may remain as part of the Work.

1.4 PROJECT CONDITIONS

- A. Environmental Requirements: Do not apply air barrier at temperatures below 0°F or if frost or moisture is present on surfaces to be coated.

1.5 WARRANTY

- A. Provide manufacturer's 20-year material warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design is products manufactured by Momentive Performance Materials, Inc.
- B. Requests for substitutions will be considered relative to criteria listed in Section 2.3.

2.2 MATERIALS

- A. Fluid-Applied Air Barrier: GE Elemax 2600.
- B. Liquid Flashing (Detail Sealant/Adhesive): GE Elemax 5000 Liquid Flashing.
- C. Reinforcing Fabric: RF100; width as dictated by project conditions.
- D. Silicone Transition Membrane: GE UST2200 UltraSpan; width as dictated by project conditions.

2.3 PERFORMANCE REQUIREMENTS

- A. UV Exposure: No limit.
- B. Application Temperature: 0 to 158 degrees F.
- C. Performance Properties:

Property	Value ⁽¹⁾	Test Method
Required Dry Film Thickness	17 mils (430 µ) dry	Apply 19 mils (480 µ) wet
Air Permeance – tested at 1.57 psf (75 Pa)	0.00004 cfm/ft ² (0.0002 L/s.m ²)	ASTM E2178
	0.00008 cfm/ft ² (0.0004 L/s.m ²)	CAN/ULC-741
Assembly Air Leakage - tested at 1.57 psf (75 Pa)	0.0002 cfm/ft ² (0.0009 L/s.m ²)	ASTM E2357
	0.0004 cfm/ft ² (0.0019 L/s.m ²) Class A1	CAN/ULC-742
Water Resistance	Pass	AATCC 127
Water Penetration	No water penetration observed after 15 min. @ 62.5 psf (2993 Pa)	ASTM E331
Water Penetration	No water penetration after structural, racking, restrained environmental conditioning: Tested for 15 minutes at 2.86 psf (137 Pa)	ASTM E331
Resistance to Wind-Driven Rain	Pass: No visual leaks or moisture weight gain observed after 24 hrs @ 26 psf (1245 Pa)	ASTM D6904
Water Vapor Permeance	10.5 perms @ 17 mils (430 µ) DFT	ASTM E96 Procedure BW (Inverted Water Method)
Water Vapor Permeance	10.2 perms @ 17 mils (430 µ) DFT	ASTM E96 Procedure B (Water Method)
UV & Weathering Resistance	7.9 perms @ 17 mils (430 µ) DFT	ASTM E96 Procedure A (Desiccant Method)
	No degradation after 5000 hours	ASTM G154
Self Sealability around Nails	Pass @ 17 mils (430 µ) DFT	ASTM D1970
Crack Bridging Ability (1/16 inch or 1.5 mm)	Pass	ASTM C1305
Mildew Resistance	0 - No Growth	ASTM D5590
Service Temperature Range	Minus 40 F to plus 300 degrees F (minus 40 to plus 149 degrees C)	
Pull off Strength (concrete)	126 psi (0.87 MPa)	ASTM D4541
Pull off Strength (fiberglass mat faced gypsum sheathing)	44 psi (0.30 MPa) ⁽²⁾	ASTM D4541
Tensile Strength	204 psi (1.40 MPa)	ASTM D412 ⁽³⁾
Elongation	542 percent	ASTM D412 ⁽³⁾
Multi-Story Wall Assembly Burn Test	Passed in assembly tested and acceptable for use in various wall assemblies per engineering analysis	NFPA 285
Surface Burning	Flame Spread: 10	ASTM E84

Property	Value ⁽¹⁾	Test Method
Sequential Testing- Weathering	Smoke Developed: 185 NFPA Class A, UBC Class 1	
UV Light Exposure		ICC-ES AC212
Accelerated Aging		ICC-ES AC212
Hydrostatic Pressure Test	No water penetration after UV exposure and accelerated aging: Tested for 5 hours with 21.7 in (55 cm) of hydrostatic head	AATCC 127
Freeze-Thaw	No cracking, checking, crazing, erosion, delamination or other deleterious effects.	ICC-ES AC212 ASTM E2485 Method B
Water Resistance	No deleterious effects after 14 day exposure	ASTM D2247
Tensile Bond	Minimum 15 psi (105 kPa)	ASTM C297

Notes:

- (1) Average value. Actual value may vary.
- (2) Full strength of silicone not realized due to failure of fiberglass mat / sheathing substrate prior to coating failure.
- (3) Samples were prepared per ASTM D2370 and tested in accordance with ASTM D412.

PART 3 EXECUTION

3.1 PREPARATION

A. Condition of Surfaces:

1. Clean, dry and free of contaminants that could interfere with proper bonding of materials.
2. Sheathing joints: Treated per manufacturer's installation details.
3. Masonry joints: Struck flush. Fill cracks greater than crack-bridging ability of material, routed and filled where necessary, with trowel application of liquid flashing prior to application of liquid membrane.

B. Remove loose mortar and other contaminations by wire brush or similar abrasion to provide stable clean surface for application.'

C. Remove grease, oil, bitumen, form release agents, paints, curing compounds, and other contaminants.

D. Mask adjoining surfaces not to be covered by air barrier.

E. Spot treat over and under fasteners with liquid flashing or air barrier material.

3.2 INSTALLATION

- A. Install air barrier in accordance with manufacturer's instructions.
- B. Transition and Detailing Treatment:
 - 1. Install appropriate materials to treat sheathing joints, expansion joints, rough openings, transitions, terminations, penetrations, and other similar surface irregularities.
 - 2. Perform detailing before or after air barrier membrane application.
- C. Treat sheathing joints less than 1/2 inch in width using any of following methods:
 - 1. Liquid flashing.
 - 2. 4 inch reinforcing fabric embedded in air barrier material and centered on joint.
- D. Inside and Outside Corners: Extend liquid flashing or reinforcement minimum 3 inches onto each angle change using any of following methods:
 - 1. Liquid flashing.
 - 2. Minimum 6 inch reinforcing fabric embedded in air barrier material and centered on joint.
 - 3. Silicone transition membrane set in liquid flashing and centered on corner.
- E. Rough Openings. Extend liquid flashing or reinforcement minimum 3 inches onto vertical wall and into rough opening using any of following methods:
 - 1. Liquid flashing.
 - 2. Minimum 6 inch reinforcing fabric embedded in air barrier material and Centered on joint.
 - 3. Minimum 6 inch silicone transition membrane set in liquid flashing and centered on corner.
- F. Pipe and Duct Penetrations: Treat using any of following methods:
 - 1. Liquid flashing.
 - 2. Reinforcing fabric embedded in air barrier material and centered on joint. Ensure that reinforcing fabric extends minimum 2 inches onto wall.
- G. Static Joints less than 1/2 inch in width and Expansion Joints:
 - 1. Treat using minimum 6 inch silicone transition membrane set in liquid flashing or air barrier material and centered on joint.
 - 2. Ensure that transition membrane extends minimum 1 inch onto wall.
- H. Transitions: Treat using any of following methods:
 - 1. Liquid flashing.
 - 2. Reinforcing fabric embedded in air barrier material and centered on joint.
 - 3. Silicone transition membrane set in liquid flashing.

I. Air Barrier:

1. Apply by spray, power roller, roller, or brush at to minimum dry film thickness recommended by manufacturer.
2. Touch up damaged areas using same procedures as initial application, at any time after application; coating may be wet or cured.

3.3 PROTECTION

- A. Protect air barrier from damage during application and for remainder of construction.
- B. If damage occurs, repair per manufacturer's instructions.

3.4 CLEANING

- A. Clean air barrier materials from surfaces that will be exposed in completed work using cleaning agents and procedures recommended by manufacturer.
- B. Remove masking materials after installation.

END OF SECTION

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 074646

FIBER CEMENT SIDING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Factory-finished fiber cement panels, time, and accessories.
- B. Related Sections:
 - 1. Section 061053 – Miscellaneous Rough Carpentry
 - 2. Section 072727 – Fluid-Applied Membrane Air Barriers

1.2 REFERENCES

- A. ASTM C1186 - Standard Specification for Flat Fiber-Cement Sheets
- B. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.
- C. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- B. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- C. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches , representing actual product, color, and patterns.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

- A. Product Warranty: Limited, non-pro-rated product warranty.
 - 1. Panels: 30 years.
 - 2. Trim: 15 years.
- B. Finish Warranty: Limited product warranty against manufacturing finish defects.
 - 1. When used for its intended purpose, properly installed and maintained according to manufacturer's instructions, finish will not peel, crack, or chip for a period of 15 years. Finish warranty includes the coverage for labor and material.
- C. Workmanship Warranty: Installer's 2-year warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design is products manufactured by James Hardie Building Products, Inc.
- B. Requests for substitutions will be considered relative to criteria listed in Section 2.2.

2.2 MATERIALS

- A. Requirements for fiber cement siding and trim materials:
 - 1. Complies with ASTM C1186 as Type A, Grade II.
 - 2. Complies with ASTM C1185 for dimensional tolerances, water tightness, flexural strength, warm water resistance, heat/rain resistance, freeze/thaw resistance, and UV accelerated weathering.
 - a. Density: 83 lb/ft³ min.
 - b. Water absorption: 36% by mass max.
 - 3. Complies with ASTM E136 as a noncombustible material.
 - 4. Complies with ASTM E84 Flame Spread Index = 0, Smoke Developed Index = 5.
 - 5. Complies with ASTM E119 1-Hour Fire Resistance Rating

2.3 SIDING

- A. Vertical Siding: HardiePanel HZ5 siding as manufactured by James Hardie Building Products, Inc.
 - 1. Texture: Smooth
 - 2. Size: 4 feet by 10 feet.
- B. Trim: HardieTrim HZ5 trim and batten boards as manufactured by James Hardie Building Products, Inc.

1. Texture: Smooth
2. Thickness: 4/4 (3/4") or 5/4 (1"), as noted in the Drawings.
3. Width: As noted in the drawings.

2.4 ACCESSORIES

- A. Furring Strips: Pressure-treated, 1-inch thick. Refer to Specification Section 061053
- B. Rigid Insulation: Extruded polystyrene (XPS) rigid foam insulation, ASTM C578 type IV, 1" thick, cut as required to be friction-fit between furring strips.
- C. Sheet Metal Flashing: Prefinished .032-inch aluminum complying with ASTM B209, formed in compliance with SMACNA recommendations. Finish color to be selected by Owner to match prefinished siding.
- D. Flashing Tape: 3M Air and Vapor Barrier 3015 or 3M Ultra Conformable Flashing Tape 3015 UC. Substitutions will be considered based on documented testing of adhesion to specified liquid-applied air barrier.
- E. Fasteners: Provide stainless steel nails in sufficient length to penetrate not less than 1 inch into wood furring strips.
- F. Sealant: Refer to Specification Section 079200.

2.5 FINISHES

- A. Factory Finish:
 1. Product: ColorPlus Technology by James Hardie.
 2. Definition: Factory-applied finish; defined as a finish applied in the same facility and company that manufactures the siding substrate.
 3. Process:
 - a. Factory-applied finish by fiber cement manufacturer in a controlled environment within the fiber cement manufacturer's own facility utilizing a multi-coat, heat cured finish within one manufacturing process.
 - b. Each finish color must have documented color match to delta E of 0.5 or better between product lines, manufacturing lots or production runs as measured by photospectrometer and verified by third party.
 4. Protection: Factory applied finish protection such as plastic laminate that is removed once siding is installed
 5. Accessories: Complete finishing system includes pre-packaged touch-up kit provided by fiber cement manufacturer. Provide quantities as recommended by manufacturer.
- B. Panel and Trim Colors: To be selected by Owner from manufacturer's standard color options.

PART 3 EXECUTION

3.1 PREPARATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Clean surfaces thoroughly prior to installation.
- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.2 INSTALLATION, VERTICAL SIDING PANELS

- A. Install materials in accordance with manufacturer's installation instructions.
- B. Install metal flashing and provide a ¼-inch gap at horizontal panel joints.
- C. Place fasteners no closer than 3/8 inch from panel edges and 2 inches from panel corners.
- D. Allow minimum vertical clearance between the edge of siding and any other material in accordance with the manufacturer's installation instructions.
- E. Maintain 6" min. clearance between siding and adjacent finished grade.
- F. Refer to Tables 2 and 3 in National Evaluation Service Report No. NER-405 for specific fastener requirements.
- G. Factory Finish Touch Up: Apply touch up paint to cut edges in accordance with manufacturer's printed instructions.
 - 1. Touch-up nicks, scrapes, and nail heads in pre-finished siding using the manufacturer's touch-up kit pen.
 - 2. Touch-up of nails shall be performed after application, but before plastic protection wrap is removed to prevent spotting of touch-up finish.
 - 3. Use touch-up paint sparingly. If large areas require touch-up, replace the damaged area with new pre-finished siding. Match touch up color to siding color through use of manufacturer's branded touch-up kits.

3.3 INSTALLATION, TRIM BOARDS

- A. Install materials in accordance with manufacturer's installation instructions.
- B. Install flashing above trim at all wall openings.
- C. Fasten through trim into furring strips. Fasteners must penetrate minimum 1 inch. Additional fasteners may be required to ensure adequate security.
- D. Place fasteners no closer than 3/4 inch and no further than 2 inches from side edge of trim board and no closer than 1 inch from end. Fasten maximum 16 inches on center.
- E. Maintain clearance between trim and adjacent finished grade.
- F. Inside Corner Trim: Trim inside corner with a single trim board on both sides of corner.
- G. Outside Corner Trim: Attach trim on both sides of corner with 16 gage corrosion resistant

finish nail 1/2 inch from edge spaced 16 inches apart, weather cut each end spaced minimum 12 inches apart.

- H. Allow 1/8-inch gap between trim and siding where shown in the Drawings.
- I. Seal gaps with sealant.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 079200

SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. All labor, material, equipment, special tools and services required to complete the work required for the project as indicated on the Drawings and in the Specifications, including but not limited to:
 - a. Installation of cove, crack, and construction joint sealant related to pedestrian traffic membrane.
 - b. Installation of new sealant at joints within siding and between siding and adjacent materials.
 - c. Installation of cove joint sealant at joint between slabs-on-grade and exterior walls.
 - d. Removal and replacement of control joints within EIFS at identified areas of disbanded sealant, to be performed on a Unit Cost basis.

B. Related Sections:

1. Section 012200 – Unit Prices
2. Section 071800 – Pedestrian Traffic Membrane
3. Section 072400 – EIFS Restoration
4. Section 099100 – High Performance Coatings
5. Section 074646 – Fiber Cement Siding

1.2 DEFINITIONS

- A. Where the term "manufacturer's recommendations," or variations thereon, are found in this Specification, it shall mean "manufacturer's recommendations which are found in publications available to and commonly used by the general architectural and consulting professions."

1.3 SUBMITTALS

- A. Copies of literature for all manufactured products, including manufacturer's specifications, test data, installation instructions or applicator's manual, and Safety Data Sheets (on all materials which are classified as hazardous materials).
- B. If requested by Owner, field samples of sealants installed on site.
- C. Upon completion of the Work and prior to final payment, provide a fully executed warranty.

1.4 QUALITY ASSURANCE

- A. The Contractor shall comply with all Federal, State and Municipal laws, codes, ordinances and regulations applicable to the Work in this Contract and also with all requirements of the National Fire Protection Association, the National Electric Code, and the Occupational Safety and Health Administration (OSHA). If the above laws, codes or ordinances conflict with the Specification, then the laws, codes or ordinances shall govern, except in such cases where the Specification exceeds them in quality of materials or labor, then the Specifications shall be followed.
 - B. The sealant installer must be acceptable to the manufacturer.
 - C. The Contractor shall review locations where joint sealant work is specified and shall submit in writing existing conditions and newly specified details which would cause sealant material to fail. Failure to review existing conditions or identify details or procedures which will cause failure of sealant material to perform as specified, the Contractor shall become responsible for all costs relating to correcting the deficient work, including all direct and indirect costs to the Owner.
 - D. The Owner may, at his discretion, choose to remove up to a six-inch length of sealant in locations at a time after installation and initial curing of sealant to verify installation as specified. The Contractor shall include in his Bid the costs to repair one such location for each 100 ft. of sealant installation. If inspections of these locations by the Owner reveal deficient installation of sealant, the Owner may remove additional sealant to further quantify the length of deficient sealant. The Contractor shall repair all deficient locations of sealant found by the Owner at no additional cost and no extension of time for the work.
- A. Sealant materials shall be certified to be compatible by the manufacturer for use with the membrane system.
 - B. Mock-ups:
 - 1. Sealant foreman and crew assigned to project to complete mock-ups.
 - 2. Control and Cove Joints: Demonstrate removal and cleaning technique, backer rod installation, sealant installation and tooling technique.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to job site in sealed, undamaged containers. Each container shall be identified with material's name, date of manufacture and lot number.
- B. Only those materials being used during any one work shift may be stored in the Work area. Coordinate location of storage area with the Owner.
- C. Sealant materials shall be kept sealed when not in use.
- D. Storage and handling of materials shall conform to the requirements of the applicable safety regulatory agencies.
- E. Storage areas shall be heated or cooled as required for maintaining the product

temperatures within the range recommended by the manufacturer.

1.6 PROJECT CONDITIONS

- A. Install sealant materials in strict accordance with all safety and weather conditions required by product literature or as modified by applicable rules and regulations of Local, State and Federal authorities having jurisdiction.
- B. Fumes and debris shall be controlled to prevent harmful or undesirable effects in surrounding areas.
- C. When toxic or flammable solvents are used, the Contractor shall take all necessary precautions as recommended by the manufacturer. In all cases, the handling and use of toxic or flammable solvents, including adequate ventilation and personal protective equipment, shall conform to the requirements of the applicable safety regulatory agencies.

1.7 WARRANTY

- A. New exposed sealant work shall be warranted for a period of five (5) years against defects due to installation or material deficiencies, including but not limited to excessive softness, excessive entrapped air in cured cross sections, disbonding, cohesive failure, leakage and ultra violet exposure degradation.
- B. The manufacturer shall warrant all silicone material for a period of twenty (20) years against defects due to material failure, including but not limited to excessive softness, excessive entrapped air in cured material, disbonding, cohesive failure, leakage and ultra violet exposure degradation.
- C. All required testing and quality assurance operations necessary to furnish the warranty are Contractor and manufacturer's responsibility.

PART 2 PRODUCTS

2.1 CRACK AND JOINT SEALANTS (FOR TRAFFIC MEMBRANE)

- A. Multi component, unmodified, polyurethane sealant for use at joints at areas to receive traffic membrane. Approved products manufacturers include:
 - 1. Sika 2c NS-TG/SL by Sika Corp.
 - 2. Dymeric 240FC by Tremco, Inc.
 - 3. Isoflex 880/881 by Lymtal International.
- B. Minimum compression or extension of 25% of the nominal joint width without adhesive or cohesive failure.
- C. Primer(s) as recommended by sealant manufacturer for each substrate.
- D. Sealants in areas to be coated with membrane per Section 071800 shall be gun grade (non sag) unless otherwise noted on the Drawings or in this Section.
- E. Cove sealants shall be gun grade (non-sag).
- F. Backer Rod or Bond Breaker Tape: Backer Rod shall be closed cell, polyethylene in

sizes to maintain 25 percent compression. Backer rod shall not be used except where indicated on the Drawings or unless approval for each intended application location is obtained from the Owner. Alternative use of bond breaker tape in size appropriate for the width of joint and approved for use by the sealant manufacturer will be allowed on a case-by-case basis.

2.2 SILICONE SEALANTS

A. Approved Products:

1. Dowsil 795 by Dow Corning
2. Spectrum 3 by Tremco
3. SCS9000 SilPruf NB by GE
4. Pecora 895 NST by Pecora

B. Primer(s) as recommended by the sealant manufacturer for each substrate.

C. Backer Rod: Backer Rod shall be soft bi-cellular polyethylene foam in sizes to maintain between 25-50% compression. Backer rod shall not be used except where indicated on the Drawings or unless approval for each intended application location is obtained from the Owner.

1. Basis of Design: SOF Rod by Nomaco

PART 3 EXECUTIONS

3.1 GENERAL

- A. Remove existing sealants in joint cavities, coves and other locations and clean surfaces to remove residue. Grind and vacuum clean all joint cavities, coves and other locations scheduled for new sealant as required by the sealant manufacturer within 24 hours of sealant installation.
- B. Primer shall be used for all sealant installations regardless of manufacturer's requirements, unless a letter from the manufacturer states use of a primer is detrimental. Allow primer to cure per manufacturer's recommendation prior to sealant installation.
- C. Joint cavities that become contaminated by dirt or moisture after initial preparation shall be cleaned again at no additional cost to the Owner.
- D. Modify the depth of existing joints by additional routing or positioning of backer rod to maintain a width to depth ratio of 2 to 1 unless otherwise noted on the drawings. At no location is the sealant width allowed to exceed 1-1/2".
- E. In areas indicated on the Drawings or otherwise directed by the Owner, remove existing failed and disbanded sealant.
- F. Reinstall new sealant where existing sealant is removed.

3.2 NEW SEALANT

- A. Perform joint cavity preparation requirements.

- B. Clean joint cavity and apply primer as recommended by the sealant manufacturer.
- C. Install backer rod or bond-breaker tape where required. Vary size of backer rod if necessary, based on field conditions per Article 2.1 F or 2.2.C.
- D. Install sealant as indicated in the Drawings.

3.3 MISCELLANEOUS SEALANTS

- A. Install miscellaneous sealants around drains, pipe penetrations in floors, and elsewhere. Install per Article 3.2 and as indicated on the Drawings.

3.4 CLEAN-UP

- A. During the progress of the Work, remove from the project all discarded coating materials, rubbish, cans and rags.
- B. All sealant material and drops shall be completely removed from hardware, adjacent floor areas, metal work, etc., and the premises shall be left clean and in orderly condition.
- C. All hardware, adjacent floor areas, metal work, etc., and the general premises shall be left clean and free of all construction dirt and debris.
- D. Empty containers shall be removed from the structure at the end of each working day. All cloths soiled with coating that might constitute a fire hazard shall be placed in suitable metal safety containers or shall be removed from the structure at the end of each working day. Special care shall be taken in storage or disposal of flammable materials. Comply with health and fire regulations.

END OF SECTION

DIVISION 08 - OPENINGS
SECTION 081100
METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: New pressed steel hollow metal doors and frames to replace existing.
- B. Related Sections:
 - 1. Section 079200 – Sealants
 - 2. Section 099100 – High Performance Coatings

1.2 REFERENCES

- A. Specified American National Standards Institute (ANSI) Standards.
- B. Specified American Society for Testing and Materials (ASTM) Standards.
- C. Door and Hardware Institute “Recommended Locations for Builders Hardware for Standard Steel Doors and Frames.”
- D. National Fire Protection Association (NFPA) Standard No. 80.
- E. Steel Door Institute (SDI) references:
 - 1. SDI-100: Recommended Specifications – Standard Steel Doors and Frames.
 - 2. SDI-105: Recommended Erection Instructions for Steel Frames.
 - 3. SDI-117: Manufacturing Tolerances – Standard Steel Doors and Frames.

1.3 SUBMITTALS

- A. Product data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.
- B. Shop drawings showing fabrication and installation of standard steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
- C. Label Construction Certification: For door assemblies required to be fire rated and exceeding limitations of labeled assemblies, submit manufacturer’s certification that each door and frame assembly has been constructed to conform to design, materials, and construction equivalent to requirements for labeled construction.

1.4 QUALITY ASSURANCE

- A. Provide doors and frames complying with ANSI/ADI-100 and as herein specified.

- B. Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies whose fire resistance characteristics have been determined per ASTM E 152 and which are labeled and listed by UL, Factory Mutual, Warnock Hersey, or other testing and inspecting organization acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery doors and frames cardboard-wrapped or crated to provide protection during transit and job storage.
- B. Inspect doors and frames upon delivery for damage. Minor damage may be repaired provided refinished items are equal in all respects to new work and acceptable to Owner; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4-inches high wood blocking. If cardboard wrapper on door becomes wet, remove carton immediately. Provide ¼" spaces between stacked doors to promote air circulation.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify openings by field measurements before fabrication and indicate measurements on shop drawings.
- B. Do not install rusted doors or frames.

1.7 COORDINATION

- A. Coordinate installation of anchorages for standard steel frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, anchor bolts, and items with integral anchors, that are embedded in masonry. Deliver such items to Project site in time for installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide standard steel doors and frames by one of the following:
 1. Amweld Building Products, Inc.
 2. Ceco Corp.
 3. Curries Company.
 4. Kewanee Corp.
 5. Republic Builders Products Corp.
 6. Steelcraft Manufacturing Co.

2.2 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A569 and ASTM A568.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A366 and ASTM A568.

- C. Supports and Anchors: Fabricate of not less than 18-gage sheet steel. Hot-dip galvanizing per ASTM A153.
- D. Inserts, Bolts, Fasteners: Manufacturer's standard units. Hot-dip galvanizing per ASTM A153.
- E. Shop Applied Paint: Rust-inhibitive primer, either air-drying or baking, suitable as a base for specified finish paints.
- F. Supports and Anchors: After fabrication, galvanize according to ASTM A153, Class B.

2.3 DOORS

- A. ANSI/SDI-100, Grade III, extra heavy-duty, seamless, minimum 14 gauge, cold-rolled sheets steel faces, hot dipped galvanized per ASTM A525, G60. Top channel turned web up to eliminate dirt pockets.

2.4 FRAMES

- A. Provide metal frames for doors as shown on drawings.
- B. Joints machine mitered, arc-welded on faces, and ground smooth.
- C. Minimum gages: 12 gauge.
- D. Hot-dipped galvanized per ASTM A-525, G60.
- E. Wall Anchors: 18 gauge anchors for existing masonry walls, minimum 3 per jamb.
- F. Floor Anchors: Minimum 18 gauge welded to each jamb.
- G. Spreader Bars: Provide one removable spreader bar at frames under 6 inches deep, two at frames 6 inches or deeper, tack welded to bottom of jambs.
- H. Weather Seal: Manufacturer's standard surface-applied weatherstrip.

2.5 HARDWARE

- A. Latchset: Schlage L Series Grade 1 mortise lock #L9480B, with 07 standard lever, B rose trim, and 626 Satin Chrome finish. Order less SFIC core (NKU to reuse existing cores and keys).
- B. Automatic Door Bottom: Pemko 4131CSL, clear anodized aluminum finish.
- C. Threshold: Mill finish aluminum, to match profile of threshold at existing doors.

2.6 FABRICATION

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warn or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI-100 requirements.
- B. Internal Construction: Manufacturer's standard honeycomb, polyurethane, polystyrene, unitized steel grid, vertical steel stiffeners, or rigid mineral fiber core with internal sound deadener on inside of face sheets where appropriate in accordance with SDI standards.
- C. Clearances:

1. Jamb and heads: $\frac{1}{8}$ inch.
 2. Meeting edges, pairs of doors: $\frac{1}{4}$ inch.
 3. Bottom where no threshold occurs: $\frac{3}{4}$ inch.
 4. Bottom at threshold: $\frac{1}{8}$ inch above threshold.
- D. Fabricate exposed faces of doors and panels from only cold-rolled steel.
- E. Tolerances: Comply with SDI 117.
- F. Fabricate frames, concealed stiffeners, reinforcement, edge channels, and moldings from either cold-rolled or hot-rolled steel.
- G. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- H. Hardware Preparation:
1. Hardware locations to match existing.
 2. Prepare units to receive finish hardware, including cutouts, reinforcing drilling and tapping with templates for hardware supplier in compliance with ANSI A115.
 3. Door reinforcing plates: 8 gauge for hinges; 14 gauge for closure; 16 gauge for other hardware.
 4. Frame reinforcing plates: 8 gauge for hinges; 16 gauge for other reinforcement.
 5. Cover boxes for cutouts: 26 gauge welded to back of frame.
 6. Provide set bolts or spacers for through-bolted hardware.
- I. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at project site.
- J. Shop Painting: Clean, treat, and apply primer to exposed surfaces of steel door and frame units.
1. Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.
 2. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General:
1. Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.
 2. Install in accordance with reference standard criteria for squareness, alignment, twist, and plumbness.
- B. Placing Frames: Comply with provisions of SDI-105.

1. Set frames accurately in position, plumbed, square, aligned, and braced securely until permanent anchors are set.
 2. In masonry construction, locate 3 wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb.
 3. Install fire-rated frames in accordance with NFPA Standard No. 80.
- C. Door Installation: Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI-100.
1. Install fire-rated doors with clearances as specified in NFPA Standard No. 80.

3.2 ADJUSTING AND CLEANING

- A. Prime Coat Touch-up: Immediately after erection, sand smooth any damaged areas of prime coat and apply touch-up of compatible air-drying primer, ready for finish painting per Section 099100.
- B. Final Adjustments:
1. Check and readjust operating hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.
 2. Adjust doors to proper fit and swing; leave in proper noise-free operating condition acceptable to Architect.
 3. Adjust hardware for proper noise-free operation and function, acceptable to Architect.
- C. Cleaning:
1. Remove grout and other bonding material from hollow metal work immediately after installation.
 2. Clean exposed door and frame surfaces to paintable condition acceptable to Architect.
 3. Clean hardware surfaces to new condition.

END OF SECTION

DIVISION 9 – FINISHES
SECTION 099100
HIGH PERFORMANCE COATINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes all labor, material, equipment, special tools and services required to complete the work required for the project as indicated on the Drawings and in the Specifications, including but not limited to:
 - 1. Base Bid:
 - a. Cleaning, surface preparation, and installation of primer and new coating on existing EIFS to remain.
 - b. Surface preparation and installation of topcoats on new factory-primed metal doors and frames.
 - 2. Alternates:
 - a. Alternate 1: Removal of loose and peeling paint, spot priming, and recoating surfaces of all Level 3 Breezeway ceilings.
 - b. Alternate 2: Cleaning, surface preparation, and installation of new coating system at exterior surfaces of frames and sash members at existing aluminum windows.
- B. Related Sections:
 - 1. Section 015600 – Barriers
 - 2. Section 072400 – EIFS Restoration
 - 3. Section 081100 – Metal Doors and Frames

1.2 REFERENCES

- A. ASTM D 16 – Terminology Related to Paint, Varnish, Lacquer, and Related Products.
- B. The Society for Protective Coatings (SSPC):
 - 1. SSPC-SP1 – Solvent Cleaning.
 - 2. SSPC-SP2 – Hand Tool Cleaning.

1.3 DEFINITIONS

- A. "Coating" as used herein means all paint systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.
- B. "Dry Film Thickness" as used herein means the thickness of a coat in a fully cured state measured in mils (1/1000 inch).
- C. "Well-adhered" as used herein means materials that cannot be removed by lifting with a

dull putty knife.

1.4 SUBMITTALS

- A. Submit manufacturer's technical information including coating label analyses and application instructions.
- B. Submit complete line of manufacturer's color samples for each product.
- C. Letter of approval that the contractor is a certified installer by the manufacturer.
- D. Prior required project experience.
- E. Contractor resumes.
- F. Manufacturer's sample warranty.

1.5 QUALITY ASSURANCE

- A. The contractor shall be a certified installer by the manufacturer.
- B. The contractor shall be approved by the manufacturer and shall have no less than (5) years of experience in performance of similar work in size and complexity.
- C. All work under this Section shall be under the immediate control of the Contractor's superintendent(s) experienced in this type of work. The person(s) shall have supervised three prior projects of similar magnitude and type and shall be present during all operations. This person(s) shall be approved by the Owner.
- D. Regulatory Requirements
 - 1. The Contractor shall comply with all Federal, State and Municipal laws, codes, ordinances and regulations applicable to the Work in this Contract and also with all requirements of the National Fire Protection Association, the National Electric Code, and the Occupational Safety and Health Administration (OSHA). If the above laws, codes or ordinances conflict with this Specification, then the laws, codes or ordinances shall govern, except in such cases where the Specification exceeds them in quality of materials or labor, then the Specifications shall be followed.
- E. Provide access to work area for Owner representative or Engineer to inspect quality of work, progress, unit price items and field conditions. Access to be completed during normal working hours. If access requires mechanical equipment (man-lift, etc.), provide necessary operators.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:
 - 1. Name or title of material.
 - 2. Fed. Spec. number, if applicable.
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Manufacturer's name.

5. Contents by volume, for major pigment and vehicle constituents.
6. Thinning instructions.
7. Application instructions.
8. Color name and number.

B. Storage and Protection

1. Protect materials in a dry place, off ground and under cover to protect them from moisture and other damage.
2. Do not use materials showing evidence of water or other damage.
3. Storage and handling of materials shall conform to the requirements of the applicable safety regulatory agencies.
4. Storage areas shall be heated or cooled as required to maintain the temperatures within the range recommended by the manufacturer.

1.7 PROTECTION

- A. Place coating or solvent soaked rags, waste, or other materials which might constitute a fire hazard in metal containers and remove from premises at the close of each day's work.
- B. Protect the work of all other trades against damage, marking or injury by suitable covering during the progress of the coating and finishing work. Repair any damage done.
- C. Protect and filter debris and chemicals from entering storm drains. Direct water runoff from all cleaning processes to the filtration system before allowing it to enter the storm drain system.
- D. During all cleaning operations, coordinate drain protection with the local municipality.

1.8 PROJECT CONDITIONS

A. Environmental Requirements

1. Install coating materials in strict accordance with all safety and weather conditions required by product literature or as modified by applicable rules and regulations of Local, State and Federal authorities having jurisdiction.
2. Fumes and dust shall be controlled to prevent harmful or undesirable effects in surrounding areas. Do not allow fumes, dirt, dust or debris to enter structure.
3. When toxic or flammable solvents are used, the Contractor shall take all necessary precautions as recommended by the manufacturer. In all cases, the handling and use of toxic or flammable solvents, including adequate ventilation and personal protective equipment, shall conform to the requirements of the applicable safety regulatory agencies.
4. Apply water base coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50°F and 90°F, unless otherwise permitted by coating manufacturer's printed instructions.

5. Apply solvent-thinned coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 45°F and 95°F, unless otherwise permitted by coating manufacturer's printed instructions.
6. Do not apply coating in snow, rain, fog or mist; or when relative humidity exceeds 85 percent or to damp or wet surfaces unless otherwise permitted by coating manufacturer's printed instructions.
7. Apply coating to surfaces that are cured and dry per manufacturer's tolerances.

1.9 WARRANTY

A. Coating System Warranty

1. The applicator shall furnish a (5) year warranty to the Owner for all types of new coating installed. New coating work shall be warranted against defects due to installation, including but not limited to debonding and inadequate preparation.
 - a. All required testing and quality assurance operations necessary to furnish warranty are Contractor and manufacturer's responsibility.
2. The manufacturer shall furnish a (5) year warranty to the Owner for all types of new coating installed. New coating work shall be warranted against material defects, including but not limited to debonding, cohesive failure, cracking, and ultra violet exposure degradation.
 - a. All required testing and quality assurance operations necessary to furnish warranty are Contractor and manufacturer's responsibility.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Sherwin Williams.
- B. Tnemec Company.

2.2 MATERIALS

- A. No lead-based products are permitted.
- B. Use no thinners other than those specified by manufacturer.
- C. Use only paints and coatings that are compatible with concrete and previously coated surfaces.
- D. Use only primers and undercoats that are suitable for each surface to be covered and that are compatible with finish coating required.
- E. Notify Engineer in writing of any anticipated problems in using coating systems specified on existing substrates.
- F. Provide cleaners for removal of loose paint, dirt, and pollutants; which are compatible with all primers, intermediate coats, and finish coat. Thoroughly rinse all clean agents before applying primer or finish coats. Pre-approve cleaning agents with paint manufacturer.

- G. All products must be provided by a single manufacturer.

2.3 MATERIALS AND PROCEDURES

A. General Cleaning Requirements.

1. All biological growth, efflorescence, lime run, and surface contaminants must be removed prior to application of new coating.
2. If previously coated, existing coating must be adhered to the substrate per the manufacturer's requirements. Manufacturer shall approve the surface preparation and existing conditions before the contractor applies coating to ensure the product warranty will be honored.

B. EIFS: Materials and procedures are listed in order of process/application. Apply per manufacturers recommendations.

1. Surface Preparation

- a. Cleaner: Refer to Specification Section 072400 for cleaners to remove soot, dirt, and pollutants. Thoroughly rinse all cleaning agents before applying primer or finish coats.
- b. SSPC-SP13 – Low pressure, warm water cleaning.

2. Approved manufacturer's systems

a. Sherwin Williams

- 1) Conditioner: Loxon Conditioner.
- 2) Primer: One (1) coat Loxon Concrete & Masonry Primer. Application rate recommended by the manufacturer to achieve a total dry film thickness of 4.0-6.0 mils.
- 3) Finish Coats: Two (2) coats Conflex XL. Application rate recommended by the manufacturer to achieve a total dry film thickness of 6.0-7.5 mils per coat.

b. Tnemec

- 1) Conditioner: Apply one coat of conditioner per manufacturer's recommendations to previously coated surfaces to adhere minor existing chalk to the substrate before applying primer.
- 2) Primer: One (1) coat Elastogrip FC 151. Application rate recommended by the manufacturer to achieve a total dry film thickness of 4.0-6.0 mils.
- 3) Finish Coats: Two (2) coats Enviro-Crete 156. Application rate recommended by the manufacturer to achieve a total dry film thickness of 4.0-8.0 mils per coat.

C. New Factory-Primed Metal Doors and Frames: Materials and procedures are listed in order of process/application. Apply per manufacturers recommendations.

1. Surface Preparation: SSPC-SP1 Solvent Cleaning.

2. Approved finish coats:
 - a. Two (2) coats Sherwin Williams Shercryl HPA, applied at 2.0 to 4.0 mils DFT.
 - b. Two (2) coats Endura-Tone Series 1028, applied at 2.0 to 4.0 mils DFT.
- D. Breezeway Exterior Ceilings (Alternate 1): Materials and procedures are listed in order of process/application. Apply per manufacturers recommendations.
 1. Surface Preparation:
 - a. SSPC-SP2 Hand Tool Cleaning to remove all loose and peeling paint.
 - b. Clean and dry surfaces.
 2. Approved coating system:
 - a. Spot primer: One (1) coat Sherwin Williams DTM PrimeRx, applied at 3.5 mils DFT.
 - b. Finish Coat: One (1) coat Sherwin Williams Pro Duration Exterior Acrylic, applied at 2.2 to 3.0 mils DFT.
- E. Aluminum Windows (Alternate 2): Materials and procedures are listed in order of process/application. Apply per manufacturers recommendations.
 1. Surface Preparation: SSPC-SP1 Solvent Clean to remove all visible oil, grease, soil, and other contaminants.
 2. Approved coating system:
 - a. Primer: One (1) coat Sherwin Williams DTM Bonding Primer, applied at 3.0 to 5.1 mils DFT.
 - b. Finish Coats: Two (2) coats Sherwin Williams Shercryl HPA, applied at 2.0 to 4.0 mils DFT.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces intended to receive coatings and note conditions or defects that will adversely affect the execution and/or quality of the work.
- B. Starting of cleaning and coating work will be construed as applicator's acceptance of surfaces and conditions within any particular area.
- C. Notify Owner in writing of any such conditions or defects. Do not begin work until unsatisfactory conditions are corrected. Failure to notify Owner prior to beginning work constitutes acceptance by Contractor of the surfaces and conditions under which the work is to be performed, and acceptance by Contractor for the performance of the work.

3.2 PREPARATION

- A. Protection
 1. Provide adequate protection of all surrounding surfaces not intended to receive

coating from damage due to preparation, cleaning or coating procedures. Repair damage at no cost to the Owner.

2. Program coating so that construction dirt, dust, and debris will not fall onto wet, newly coated surfaces.
3. When toxic or flammable solvents are used, the coating contractor shall take all necessary precautions as recommended by the manufacturer. In all cases, the handling and use of toxic or flammable solvents, including adequate ventilation and personal protective equipment, shall conform to the requirements of the applicable safety regulatory agencies.
4. Provide the necessary protection to contain all dust, dirt, debris and coating chips within work area. Do not allow to migrate into structure interior spaces or storm drain system.
5. Provide "Wet Paint" signs as required to protect newly coated finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of coating operations.

B. Surface Preparation

1. Perform preparation and cleaning procedures in accordance with coating manufacturer's instructions and as herein specified, for each particular substrate condition.
2. Remove all surface contamination such as chalk, loose coating, mill scale dirt, foreign matter, rust, rust stains, mold, mildew, mortar, efflorescence, weld splatter and slag, and sealers from surfaces to be coated.
3. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-coated or provide surface-applied protection prior to surface preparation and coating operations. Remove, if necessary, for complete coating of items and adjacent surfaces. Following completion of coating of each space or area, reinstall removed items.
4. Do not field coat the following work:
 - a. Sealant Joints.
 - b. Prefinished and natural finished items including but not limited to prefinished equipment, acoustic materials, finished mechanical and electrical equipment such as light fixtures and grilles.
 - c. Non-ferrous metal surfaces including aluminum, stainless steel, chromium plate, copper, and tern coated stainless steel except where noted coated.
 - d. Operating parts and labels.

C. MATERIALS PREPARATION

1. Mix and prepare coating materials in accordance with manufacturer's directions.
2. Stir materials before application to produce a mixture of uniform density and stir as

required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using. Continuously agitate zinc-rich primers.

3. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of coating in a clean condition, free of foreign materials and residue.

3.3 APPLICATION

A. General

1. Apply coating in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
2. Apply additional coats when undercoats, stains, or other conditions show through final coat of coating, until coating film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
3. Generally, coating surfaces behind movable equipment same as similar exposed surfaces. Coating surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
4. Do not coat over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable coating film.

B. Scheduling Coating

1. Apply first-coat material to surfaces that have been cleaned, pretreated, or otherwise prepared for coating as soon as practicable after preparation and before subsequent surface deterioration.
2. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until coating has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of coating does not cause lifting or loss of adhesion of the undercoat.
3. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate to establish a total dry film thickness as indicated.

C. Application

1. Apply prime coat of materials which is required to be coated or finished, and which has not been prime coated by others.
2. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
3. Pigmented (Opaque) Finishes: Complete cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will

not be acceptable.

4. Completed Work: Match approved samples for color, texture and coverage.
Remove, refinish, or recoat work not in compliance with specified requirements.

3.4 CLEANING

- A. During progress of work, remove from site discarded coating materials, rubbish, cans, and rags at end of each work day.
- B. Upon completion of coating work, clean window glass and other coating-spattered surfaces. Remove spattered coating by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

3.5 SCHEDULES

- A. All coating colors to be selected by Owner.

END OF SECTION