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PHOENIX V ASSOCIATION INC.

ORANGE BEACH, AL

SLIDING GLASS DOOR / WINDOW REPLACEMENT & EXTERIOR RESTORATION

DECEMBER 2025

PROJECT MANUAL
BID SPECIFICATIONS

PREPARED BY:
BECI

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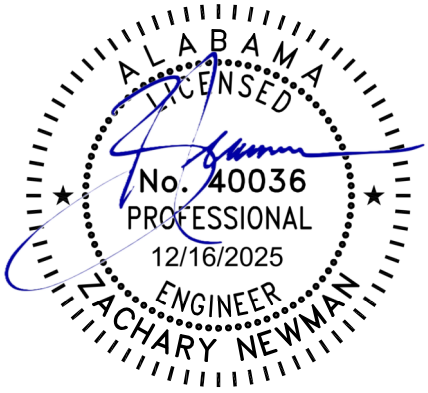

SECTION 00100 – INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 DEFINITIONS

A. Bidding Documents include instructions to Bidders, the Bid Proposal Form, and the proposed Contract Documents, including any Addenda, issued before the receipt of Bids. Complete sets of Bidding Documents shall be used in the preparation of Bids. Neither the Owner nor Engineer assumes any responsibility for errors or misrepresentations resulting from using an incomplete set of Bidding Documents.

B. Addenda are written, or graphic instruments issued before execution of the Owner-Contractor Agreement to clarify, revise, add or delete information in original Bidding Documents or previous Addenda. Addenda will become part of the Contract Documents when the Agreement is executed.

1.2 EXAMINATION OF CONDITIONS AND DOCUMENTS

A. The Bidder is responsible for being familiar with the site conditions and reviewing the Bidding Documents. Upon request in writing, the Owner shall permit each Bidder access to private areas of proposed work.

1.3 QUALIFICATIONS OF BIDDERS

A. Any invited and pre-qualified Bidder may submit a Bid provided:

1. Bidder can provide documented evidence of financial responsibility.
2. All License requirements and insurance are current.

B. Each Bidder and Bidder’s proposed Subcontractors, Sub-Subcontractors, and lower tiers of Sub-Subcontractors shall be properly licensed under local municipal laws governing each respective trade in the area in which the Project is located.

C. If Bidder believes there may be a question concerning Bidder’s qualifications, Bidder may ask for an opinion from the Engineer at any time before submitting a Bid.

1.4 PREPARATION OF BID

A. Bids shall include sales, use, and all other applicable taxes.

B. All blank spaces on the Bid Proposal Form shall be completely filled in that apply to the respective specialty contractor. Bid prices shall be typed or printed in both words and figures. In case of conflict between words and figures, unless obviously incorrect, the words shall govern.

C. All signatures shall be in ink, and the name of the person signing shall also be typed or printed below the signature.

D. Any alteration of the Bid Proposal Form will be grounds for rejecting the submitted Bid.

E. Each Bidder shall submit, with the Bid Proposal, a Work Approach Plan and Preliminary Gantt Style Construction Schedule describing the general methodology and sequencing required to complete all work included in Base Bid 1. The Work Approach Plan and Schedule shall clearly delineate all activities related to coatings and exterior façade

restoration, and all activities involving sliding glass door and window replacement.

F. The Work Approach Plan shall describe proposed unit access logistics, weather-dependent considerations, temporary weather-tight enclosure procedures, interior protection measures, and general material handling and debris management practices. The Preliminary Construction Schedule shall identify anticipated sequencing for Base Bid 1 activities, durations for major phases of work, and any procurement considerations associated with long-lead sliding glass door or window assemblies. The separation between SGD/window replacement work and coating/stucco work shall be clearly reflected. Submitted Plans and Schedules will be reviewed by the Engineer and Owner for completeness; however, such review shall not relieve the Bidder of the obligation to meet all Contract requirements. A fully detailed schedule will be required from the awarded Contractor as specified in the Contract Documents.

1.5 BID BOND – PERFORMANCE BOND

A. A Bid Bond is not required for this Project.

B. A Performance and Payment Bond will be quoted for the Owner's consideration.

1.6 SUBMISSION OF BIDS

A. Each Bid shall be submitted electronically and marked with information as follows:

1. Bidder's Name _____
2. Bid for (Name of Project) _____
3. Contractor's License Number_____

B. Bids must be delivered electronically to Phoenix V Association Inc. by 3:00 PM on February 3rd, 2026, to the attention of Norm Anderson at ncabuilder@gmail.com. The Bidder alone is solely responsible for the timely delivery of the Bid.

C. Simultaneously email Bids to BECI at Derek Lewis; dlewis@be-ci.com

1. Cc: Jeff Alawine; jalawine@be-ci.com
2. Cc: Melanie Johnson; mjohnson@be-ci.com
3. Cc: admin@be-ci.com

1.7 WITHDRAWALS AND MODIFICATION OF BID

A. Bids may be withdrawn on personal, written, or telegraphic requests received from Bidders before opening time. Withdrawn Bids may be resubmitted up to opening time. Negligence or error on the part of the Bidder in preparing his Bid confers no right for withdrawal of the Bid after it has been opened. No Bid may be withdrawn for sixty (60) calendar days after the day of Bid opening.

B. Modifications in writing or by telegraph for Bids already submitted will be considered if received before opening time but will not be considered after. Failure of the Bid modification to be delivered on time will not confer on the Bidder the right to modify it or withdraw it later.

1.8 OPENING OF BIDS

A. Bids will be opened privately.

1.9 REJECTION OF BIDS

A. The Owner reserves the right to reject any and all bids and waive any technical defects in the execution, and information in, the submission of any Bid.

1.10 AWARDING OF CONTRACT

A. The successful Bidder must sign a Contract Agreement provided by the Owner. The Agreement form shall be a completed version of the AIA Document A105 "*Standard Short Form of Agreement Between Owner and Contractor*," 2017 Edition, a draft of which is enclosed.

1.11 SUBMISSION OF POST-BID INFORMATION

A. Upon request by the Engineer, the selected Bidder shall, within seven (7) consecutive calendar days thereafter, submit the following:

1. Statement of items of work performed by Bidder's own forces and by Bidder's Subcontractors.
2. A list of Subcontractors' names for the principal portions of the work for Owner review for acceptability. Prior to the award of the Contract, the Engineer will notify the Bidder in writing of any Subcontractors then rejected by the Owner. Subcontractors accepted by the Owner shall be used on the work for which they were proposed and accepted and shall not be changed except with the written notification by the Engineer of the Owner's approval.
3. Notarized certification that the Contractor can bond the Project for the full Contract amount. The certification shall attest that the bonding company is currently licensed to provide the required bond instruments in the State of Alabama and shall require a bonding company with an "A" rating.
4. A Certificate of Insurance meeting the requirements described in General Conditions Specification Section 0700.

1.12 MATERIAL AND EQUIPMENT SUBMISSIONS

A. The Contract award is based upon the materials and equipment described in the Drawings and Specifications, without consideration of substitutes or equals. Where the Specifications indicate "or equal," the material or equipment must be submitted for approval, in writing, prior to the submission of a Bid. Substitution request shall be submitted in accordance with Section 01003 – Substitution Request Form.

1.13 CONTRACT REQUIREMENTS

A. The Contract Agreement provided by the Owner constitutes the sole Contract Agreement between Contractor and Owner regarding the Project and supersedes all oral negotiations and prior writings with respect to the subject matter hereof. BECI's Drawings and Details and Project Manual shall be incorporated as a part of this Agreement. Notwithstanding the foregoing, in the case of conflict between the Contract Agreement and other contract documents, including, without limitation, BECI's Drawings and Details and Project Manual, the Contract Agreement shall control.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 00100

SECTION 00300 - BID PROPOSAL FORM

BID SET **DECEMBER 2025**

PROJECT: **PHOENIX V ASSOCIATION INC.**
SLIDING GLASS DOOR / WINDOW REPLACEMENT & EXTERIOR RESTORATION
24400 PERDIDO BEACH BOULEVARD
ORANGE BEACH, ALABAMA, 36561

BID TO: **PHOENIX V ASSOCIATION INC.**
C/O: NORMAN ANDERSON, PROGRAM MANAGER
24400 PERDIDO BEACH BOULEVARD
ORANGE BEACH, ALABAMA, 36561
E-mail: ncabuilder@gmail.com

ENGINEER **DEREK LEWIS, BRANCH MANAGER**
COPY TO: BECI-PENSACOLA
600 UNIVERSITY OFFICE BOULEVARD, BUILDING 1, SUITE 1A
PENSACOLA, FLORIDA 32541
E-mail: dlewis@be-ci.com
Cc: jalawine@be-ci.com, mjohnson@be-ci.com, admin@be-ci.com

BID DUE DATE: **FEBRUARY 03, 2026, at 3:00 PM CST**

BID FROM: Bidder's Name:_____

Address:
_____

Telephone No:(__ __ __) __ __ __ - __ __ __ __

Facsimile No: (__ __ __) __ __ __ - __ __ __ __

Alabama Contractor License No:_____

1.00 GENERAL

1.01 The undersigned CONTRACTOR agrees, if this Proposal is accepted, to agree with the OWNER, in the form stipulated in the Contract Documents, to perform and furnish the Work according to the Contract Documents for the Proposal Price and within the time indicated in this Proposal and according to the other terms and conditions of the Contract Documents.

A. As indicated in this Proposal, the Proposal Price shall include the total Price for overhead and profit, labor, equipment, state and local taxes, insurance, permits, and incidentals required to perform the Work.

1.02 In submitting this Proposal, CONTRACTOR represents, as more fully outlined in the Agreement, that:

A. This Proposal will remain subject to acceptance for sixty (60) calendar days after the day of the receipt of the Proposal.

B. The Owner has the right to accept or reject this Proposal for a period of sixty (60) calendar days after the day of the receipt of the Proposal.

C. CONTRACTOR will sign and submit the Agreement with the Performance and Payment Bond and other documents stated in the Contract Requirements within seven (7) days after OWNER'S Notice of Award date.

D. CONTRACTOR has examined copies of all Contract Documents.

E. CONTRACTOR has visited the site and become familiar with the general, local, and site conditions.

F. CONTRACTOR is familiar with federal, state, and local laws and regulations.

H. CONTRACTOR has received the following Addenda, receipt of which is hereby acknowledged:

DATE	NUMBER
_____	_____
_____	_____
_____	_____

1.03 Questions regarding the Contract Documents shall be directed in writing to BECI at:

Attention: Mr. Derek Lewis
Email: dlewis@be-ci.com

Copy: Mr. Jeff Alawine
Email: jalawine@be-ci.com

1.04 Questions regarding the Contract Documents may not be answered if received less than 48 hours before the time and date established for receipt of the Proposal.

2.00 SCOPE OF WORK

A. The Contractor is to complete the Work described herein according to the Contract Documents for the Lump Sum Price provided. The Contractor must also submit a Price for the Unit Costs. The quantity allowance indicated for specific work activities, where an allowance is referenced below, will be audited as the Work progresses, and the Contract will be adjusted up or down based on the actual quantity used and its corresponding Unit Cost Pricing. Quantities and dimensions enumerated herein and depicted on the Drawings must be verified by the Contractor for accuracy and correctness.

B. Provide all Permits, Licenses, and Fees, including but not limited to Permit Fees, Licensing Fees, Plan Review Fees, Special Inspection Fees, and compliance with all regulatory Ordinances and Inspections required to perform proposed work.

C. Provide all necessary insurance, including Workman's Compensation and General Liability Insurance. Reference General Conditions Specification 00700 for Insurance Requirements and Limits Schedule.

D. Provide all safety barriers and enforce all OSHA rules concerning construction and project safety. Provide all tools and equipment (i.e., cranes, material hoist, and scaffolding) required to perform the work properly.

E. The Contractor shall provide a weather-tight seal at all openings at the end of each workday and during all inclement weather, without exception. Any damage caused due to the Contractor's failure to seal the openings shall be corrected to its original condition by the Contractor at no additional charge to the Owner. Any interior space left unconditioned must have commercial-grade dehumidifiers installed to maintain a suitable relative humidity satisfactory to the Consultant until the space is conditioned again.

F. The Contractor shall survey all surrounding work areas and report any pre-existing damage to the Owner in writing before commencing work. Document all pre-existing conditions of microbial growth before and during wall restoration activities. The Contractor shall be responsible for remediating microbial growth.

G. The Contractor shall be responsible for the protection of property, including all areas on-site, during the course of work. All damage caused by the Contractor shall be repaired by the Contractor, at their expense, to its original condition to the complete satisfaction of the Engineer and Owner. The Contractor shall protect any furniture not removed before work commences and all adjacent property from damage and paint splatter during work.

H. The Contractor shall be responsible for using reasonable efforts to protect the existing landscaping. Where landscaping interferes with the Work of the Contract, the Contractor shall notify the Owner before commencing work. NOTE: The Owner's approval is required before removing or modifying any existing landscaping.

I. Where work is to be performed, the **Contractor** will be responsible for the removal and storage of all furniture, blinds, decoration, drapes, etc., within seven (7) feet from the interior space and

south balconies. The Contractor shall be responsible for (1) unit protection including but not limited to interior unit documentation, floor protection, zip wall and plastic, and performing the course of construction, (2) installation of new sheetrock and providing a Level 4 finish for new areas of drywall, (3) applying the new interior paint and salvaged trim provided by the owner, (4) repairing any broken interior tile within one (1) foot of the exterior South wall and (5) providing a deep clean of each unit. The **Owner** will be responsible for providing one (1) gallon of interior paint for the Contractor to use and ½ gallon of interior trim paint. Once all work is complete, the Contractor shall reinstall any removed items and return furniture to its original location. Access through the Unit's interior shall be limited to crew members and small handheld tools, or as approved by the Owner. All remaining materials and equipment shall be brought from the exterior of the building. A designated service elevator with a removable ceiling panel may be utilized to accommodate oversized materials and equipment. The Contractor shall coordinate in advance with the Owner and the elevator service provider (TKE) for the removal and reinstallation of the ceiling panel. The Contractor shall utilize the dedicated elevator during approved work hours and shall provide and maintain adequate protection to the elevator cab, doors, tracks, finishes, and adjacent surfaces for the duration of construction activities. It is the Owner's intent that upon completion of the specified scope of work by the Contractor, that each Unit shall be considered fully complete and ready for occupancy or intended use, with no further action, work, or provision required by the Owner.

J. The Contractor shall provide a mock-up for review and approval at one (1) unit, Unit No. 1514. The selected unit will undergo all defined scope activities, with each phase of work comprehensively documented. This includes the installation of the sliding glass door and window, metal stud repair, drywall repair, and interior painting. The unit will also undergo concrete repairs, expansion joint installation, deck coating application, and exterior coating application on the exterior south balcony. The unit mock-up may necessitate special-order materials, such as the deck coating and exterior coatings. Upon completion of the mock-up, the Engineer will review it for compliance with the Drawings and Details. Following the Engineer's review, the Owner or Owner's Representative will evaluate the mock-up and provide a written sign-off. Once the Owner has signed off, the approved mock-up shall serve as the standard for workmanship and quality for the remainder of the project. All items requiring a mock-up are specified in the Project Specifications. The Mock-up Unit is to be completed the week of August 24th through August 28th.

K. Upon completing the work, the Contractor is to clean and remove all equipment, materials, and trash from the entire property. At no additional cost to the Owner, the Contractor shall restore any damage to sod, shrubs, or pavement caused by the Contractor, as well as clean all flooring on common walkways and south balconies without damaging existing flooring finishes. After coating activities, thoroughly clean all surfaces. Scraping with razors shall not be permitted to clean any glazing.

L. The Contractor shall submit, as part of the Bid Package, a Work Approach Plan and Preliminary Gantt Style Construction Schedule describing the general sequencing and logistical approach for completing all Work under Base Bid 1. The Work Approach Plan shall clearly define the Contractor's methodology for performing the major project components and activities associated with sliding glass door (SGD) and window replacement, and all coating and façade-related work.

M. The Work Approach Plan shall, at a minimum, include the following:
1. Clearly outline the sequencing and general phasing of all SGD and window replacement work and all coating- and façade-restoration activities.
2. Identify anticipated mobilizations, unit access logistics, and general coordination procedures for occupied and unoccupied units.
3. Describe the Contractor's proposed strategy for interior protection, temporary weather-tight enclosure, material staging, debris management, and communication/notification practices with the Owner or Owner's Representative.
4. Reflect anticipated durations and sequencing considerations associated with procurement of long-lead sliding glass doors, windows, and coating materials.

N. The Preliminary Gantt Style Construction Schedule shall, at a minimum, include the following on a floor-by-floor basis:
1. All SGD and window replacement activities, including unit protection, removal and replacement of north and south SGDs and south windows, substrate preparation, metal stud repairs, interior finish restoration, and required inspections.
2. All coating and façade restoration activities, including stucco repair, expansion joint installation, coating system preparation and application, deck coating installation, and handrail stanchion repairs.

O. The Engineer and Owner will review the submitted Work Approach Plan and Preliminary Schedule for completeness and general feasibility. Acceptance of these items during the bid review does not relieve the Contractor of contractual obligations to meet performance requirements, sequencing constraints, or quality standards. A fully developed and detailed Construction Schedule will be required from the awarded Contractor prior to the start of Work, in accordance with the Contract Documents.

2.01 BASE BID NO. 1: SOUTH WALL SLIDING GLASS DOOR (SGD) AND WINDOW REPLACEMENT & EXTERIOR RESTORATION

The following is a breakdown of the scope of work pertaining to the South Wall Sliding Glass Door (SGD) and Window Replacement and Exterior Restoration of the Phoenix V Condominium building. The exterior restoration project shall include the following:

a. Replacement of the South balcony Sliding Glass Doors & Windows
b. Replacement of 1 & 17 stacks Northeast and Northwest Balcony Sliding Glass Doors
c. Repair & Replacement of Metal Framing Studs (South Wall) as Required
d. Installation of Expansion Joints at Wall Transitions
e. Miscellaneous Repairs to Cracks & Spalls in Concrete (Unit Price / As Required)
f. Installation of South Balcony Deck Coatings
g. Removal and Replacement of Failed Sealants
h. Preparation and Application of new coatings to all existing exterior painted surfaces, including, but not limited to, the Main Building, Parking Garage, Perimeter Property Wall, South Balcony Storage Doors and Frames, and Standing Seam Metal Roof Panels. The existing Steel Doors in the common areas will not be painted.
i. Drill Weep Hole and Epoxy Fill of Handrail Stanchions (Unit Price / As Required)

Scope Item 2.01.1 – South Wall Sliding Glass Door (SGD) and Window Replacement

Table 1:

BECI Estimated Sliding Glass Doors (SGDs) and Windows (Scope Item 2.01.1)	Quantity	Type
Replace South Wall 72"x97" Fixed Window	30	EA
Replace South Wall 48"x97" Fixed Window	57	EA
Replace South Wall 36"x97" Fixed Window	131	EA
Replace South Wall 24"x97" Fixed Window	58	EA
Replace South Wall 75"x97" SGD	60	EA
Replace South Wall 72"x97" SGD	462	EA
***Contractor to verify Quantities and Dimensions. ***		

Table 2:

BECI Estimated Metal Framing and Drywall Repairs (Scope Item 2.01.1)	Quantity	Type
Stud Clips	2,150	EA
Supplemental 16-Gauge Studs (3.625" x 4')	750	EA
Interior Drywall for Supplemental Framing Repairs	6,000	SF
R-13 Insulation for Supplemental Framing Repairs	6,000	SF
Interior Base Moulding with Quarter Round	2,800	LF
***Contractor to verify Quantities. ***		

A. **Before any Sliding Glass Door (SGD) and window replacement activities** are performed, the Contractor shall document all pre-existing conditions, including existing damage or indications of microbial growth. During demolition activities, any interior space left unconditioned must have commercial-grade dehumidifiers installed to maintain a suitable relative humidity level satisfactory to the Engineer. The Engineer can request changes to the preventative measures as required. If any undocumented microbial growth is observed during the course of work or punch inspections, the Contractor shall be responsible for hiring a remediation specialist to evaluate the growth and provide a recommended scope of work for remediation efforts. The Contractor must then perform the scope of work provided by the remediation specialist at no additional cost to the Owner. After a punch inspection of the interior Unit is performed by the Engineer and the Unit is turned back over to the Owner, the Contractor is no longer responsible for remediation repairs. If these preventative measures are completed and documented, and growth still occurs, the Owner shall be responsible for the costs of the remediation efforts. Note that once a unit is turned over, the Owner is responsible for maintaining conditions that inhibit microbial growth.

B. The Contractor shall **remove and dispose of (demolition) the existing sliding glass doors** and the **South wall windows**. The Contractor shall remove twelve (12) inches of interior drywall from the base and head of the South balcony wall for the Engineer to observe the existing metal framing. The Contractor shall salvage any base trim moulding. Reference Table 2 for Interior Allowances.

C. Once demolition has been completed, the Contractor shall **remove severely corroded sections** of studs and tracks and apply a corrosion converter, such as CorrVerter MCI Rust Primer or an approved substitute, to all remaining rusty steel surfaces. For bidding purposes, the Contractor shall assume that all exposed interior studs and track at the base of the wall will be treated with a corrosion converter. Afterward, the Contractor shall install new 16-gauge 5" x 3"

steel clips at the base of salvageable, corroded studs and stud packs with less than two (2) inches of rust at the base of the existing studs, following the Drawings and Details. The clips shall be anchored to the deck with two (2) hammer-set anchors and fastened to the existing studs with four (4) self-tapping screws. New metal framing shall be installed in accordance with Section 05400 of the Project Manual and as depicted in the Drawings and Details. For bidding purposes, Reference Table 2 for Framing Repair Allowances.

D. The Contractor shall **sister new minimal forty-eight (48) inch supplemental cold-formed steel studs** to existing studs with more than two (2) inches of rust at the base of the existing studs within the wall according to the Drawings and Details. New supplemental studs shall be anchored to the deck with new 16-gauge clips with two (2) hammer-set anchors and fastened to the existing studs with two (2) self-tapping screws at eight (8) inches on-center vertically. New metal framing shall be installed in accordance with Section 05400 of the Project Manual and as depicted in the Drawings and Details. Locations that require new supplemental framing will require additional drywall removal, which is included in the quantity allowance. For bidding purposes, Reference Table 2 for Framing Repair Allowances.

E. Once the existing sliding glass doors have been removed, the Contractor shall pour a new **concrete curb** along the entire length of the door sills to a height that is flush with the interior slab and as depicted in the Drawings and Details. The Contractor shall utilize ground-penetrating radar (GPR) or equivalent concrete-scanning technology to locate and verify the position of all post-tension (PT) tendons, reinforcing steel, and embedded utilities prior to drilling or anchoring the curb for the installation of sliding glass doors. The Contractor is solely responsible for performing all necessary scanning to prevent damage to PT cables and shall repair, at their own cost, any damage resulting from failure to scan and avoid these elements properly. Refer to Section 03370 of the Technical Specifications and Details for material, products, and workmanship requirements for the new concrete curb. If any existing concrete repair material is present along the base of the wall-to-deck at the existing SGD's and Windows, this repair mortar will need to be removed prior to the new concrete curb installation.

F. The Contractor shall install new **Class-A windows and Class-A sliding glass doors** at all balconies, per the Drawings and Details, Section 08090 of the Technical Specifications, and the Manufacturer's requirements. Operable panel(s) shall be installed to match the original slider direction. When installing the new sliding glass doors and windows, the Contractor shall install new 0.032" pre-finished aluminum trim on the interior and exterior jambs and heads of the fenestrations that are color-matched to the frame to help minimize interior drywall and exterior stucco repairs.

G. Where work affects the existing **drywall finishes**, the Contractor shall install new R-13 Insulation and repair, prime, and provide a Level 4 finish on all affected drywall surfaces in accordance with Technical Specification Sections 07212 and 09290. The Contractor shall reinstall all salvaged base boards or install new matching base molding with quarter round. The Contractor shall then apply new interior paint and caulk. Note that an Allowance has been provided for Drywall and Insulation replacement at locations where new 4' supplemental studs must be installed; however, the allowance does not include the 12" removal from the base of the wall. This should be included in the lump sum for the project.

Scope Item 2.01.2 – Balcony Deck Preparation and Coating

Table 3:

Balcony Deck Repairs (Scope Item 2.01.2)	Quantity	Type
Overhead Partial Depth Repair	75	SF
Partial Depth Repair	75	SF
Column Partial Depth	50	SF
Slab Edge Repairs	500	LF
Stanchion Pocket Repairs	5	EA
Stanchion Post Repair	5	EA
Route and Seal Deck Cracks	750	LF
Corroded Rod Chair Repairs	250	EA
Low Spot Materials	8,500	SF
***Contractor to review Quantities. ***		

A. At the south balconies, the Contractor shall grind and remove all existing deck coatings and perimeter sealants. The Contractor shall sound all concrete and report any unsound, **spalled, or delaminated concrete** to the Engineer before commencing with concrete repairs. Remove any unsound or spalled concrete as directed by the Engineer. Terminate demolition of concrete with clean, saw-cut perimeters. Concrete repairs will be performed as directed by the Engineer and in accordance with ICRI guidelines, BE-CI Drawings and Details, and Section 03370 of the Technical Specifications. For bidding purposes, Reference Table 3 for Concrete Repair Allowances.

B. At the south balconies, the Contractor shall repair and fill all cracked and spalled concrete surrounding **embedded stanchion posts** at recessed pockets, loose pockets, corroded pockets, or as directed by the Engineer. After removing the grout material from the stanchion pocket, apply a primer to the pocket area. After properly drying the primer, fill the grout pocket with rapid-setting grout and anchoring cement, leaving a minimum of ⅜" below the deck surface. Once the grout has fully cured, fill the remaining pocket depth with self-leveling sealant to a point slightly above the deck per BE-CI Detail. All repairs shall be made per the Manufacturer's installation instructions and Technical Specification Section 03370. For bidding purposes, Reference Table 3 for Repair Allowances.

C. Throughout the entire building, the Contractor shall repair and fill any identified **hollow railing stanchion posts** that are discovered, as directed by the Engineer. The Contractor shall drill a ¼" hole in the railing stanchion posts approximately two (2) inches above the deck. Then, the Contractor shall fill the post with epoxy to the level of the newly drilled weep hole in accordance with the Manufacturer's Requirements.

D. Contractor shall route and seal all **horizontal cracks** in the concrete decks on the south balconies greater than hairline width (1/16" or greater), as directed by the Engineer, by saw cutting to a minimum ¼" wide x ¼" deep, then fill with a bond breaker, primer, and approved urethane sealant. Once the sealant fully cures, install a detail coat with embedded 6" fabric centered over the sealant. All hairline cracks (less than 1/16") shall receive a detail coat with a minimum of 2" on either side of the crack. For material, products, and workmanship requirements for detail coat, refer to Section 07160 of the Technical Specifications. For bidding purposes, Reference Table 3 for Concrete Repair Allowances.

E. As directed by the Engineer, the Contractor shall cut out and remove **rusted metals** embedded in horizontal surfaces to a depth of ¾" at all south balconies. Afterward, apply the approved primer to the exposed metal and surrounding repair cavity. Leave the repair area open until the Engineer has counted and approved the repairs at each location. After the Engineer has approved the repair, fill the cavity with a modified cementitious patching mortar. A single rust spot is not counted as a separate point if occurring within a three (3) inch radius of the primary rust stain—the final count is to be determined by the Engineer. Concrete repairs shall be performed as directed by Engineer and in accordance with ICRI Technical Guidelines and Section 03370 of the Technical Specifications. For bidding purposes, Reference Table 3 for Concrete Repair Allowances.

F. The Contractor is to install new backer rod and **sealant** at the horizontal floor-to-wall, floor-to-window, and floor-to-door interface, in accordance with Technical Specification Section 07920 and BE-CI Drawings and Details.

G. Once the concrete deck has been exposed and cleaned, existing sealants have been removed, and concrete repairs have been completed, the Contractor shall *flood test* each balcony and mark all water collection locations for the Engineer's review after a 24-hour period. At balconies that collect water, the Contractor shall install **low spot repair materials** as directed by the Engineer and in accordance with Section 03370 of the Technical Specifications and the Manufacturer's guidelines. Once the material is completely cured, additional flood testing may be requested by the Engineer again to ensure that no further low spot repair materials are required. Note that low spot repair materials are meant to push water away from critical areas, such as sliding glass doors or walls. It is not the intent to slope the entire balcony, and it is understood that isolated ponding will still occur. For bidding purposes, Reference Table 3 for Slopping Material Allowances.

H. Using the seed and lock method at the south balconies, the Contractor shall apply a three (3) coat urethane decorative pedestrian traffic **deck coating system** (base coat, intermediate coat (wear coat) with aggregate, and aliphatic urethane topcoat) to the top of the decks in accordance with Section 07160 of the Technical Specifications and BE-CI Drawings and Details.

Scope Item 2.01.3 – Building Exterior Coating

Table 4:

Estimated Building Exterior Quantities (Scope Item 2.01.3)	Quantity	Type
Route and Seal Stucco Cracks	1100	LF
Delaminated Stucco Cladding	4,000	SF
Delaminated Stucco Finish/Coating	8,000	SF
Remove and Replace Failed Sealants	10,000	LF
Install New Sealants	1,000	LF
Partial Depth Repair	25	SF
Corroded Rod Chair Repairs	25	EA
Stucco Expansion Joint	2,500	LF
***Contractor to verify Quantities. ***		

A. At all exterior locations, such as common walkways, perimeter walls, and at any other locations on the building as directed by the Engineer, the Contractor shall perform partial depth **concrete repairs** and embedded metal repairs in accordance with Scope Item 2.01.2. Work shall include sounding of concrete, saw-cut demolition and removal of unsound or spalled concrete, cut-out and removal of rusted embedded metals, application of approved corrosion-inhibiting primer, and restoration with a modified cementitious repair mortar. All work shall be performed as directed by the Engineer and in accordance with ICRI Technical Guidelines, BECI Drawings and Details, and Section 03370 of the Technical Specifications. For bidding purposes, reference Table 4 for Concrete Repair Allowances.

B. Before coating and pressure cleaning, the Contractor shall visually inspect the stucco cladding. **Stucco Cracks** greater than 1/16" in width shall be routed and sealed by cutting to a minimum of ¼" wide x ¼" deep and then filling with a primer, bond breaker, and sealant. Hairline cracks less than 1/16" in width shall be filled with textured brush grade sealant. All hairline cracks shall be addressed. All repairs are to be performed following Technical Specifications Section 09220. For bidding purposes, Reference Table 4 for Stucco Repair Allowances.

C. Remove and replace all areas of **delaminated stucco finish and delaminated wall coatings** at the exterior walls as directed by the Engineer. The new stucco finish shall be installed flush with the areas not removed. The Contractor shall ensure that a new stucco finish is installed and integrated with the surrounding stucco with properly blended edges to match as closely as possible to the existing finish. Install all new stucco following the Technical Specification Section 09220 and the Manufacturer's installation instructions. Removing the stucco finish on an entire panel may be necessary for an aesthetically pleasing finish, depending on the size and location of the affected area. For bidding purposes, Reference Table 4 for Repair Allowances.

D. At the South Balcony Closet Walls, the Contractor shall remove four (4) inches of existing stucco cladding for the installation of a **new stucco expansion joint**, as depicted in the Project Drawings. The new expansion joint shall be installed in a continuous, slab-to-slab configuration and in accordance with the Drawings and Details, Technical Specification Section 09220 and Section 07920. All adjacent substrates shall be properly prepared prior to installation to ensure continuity of the air and water barrier and compatibility with surrounding finishes. For bidding purposes, Reference Table 4 for Repair Allowances.

E. Before applying coatings and pressure cleaning, the Contractor shall remove and replace all failed building joint and perimeter **sealants,** and backing materials to an appropriate substrate. The Contractor shall remove and replace all failed sealants, including sealants at control joints, expansion joints, reveal joints, louvers, exterior doors, perimeters of all wall penetrations, and base of wall sealants. At locations where sealants do not exist, such as at unsealed wall penetrations, and as directed by the Engineer, new sealants should be installed. All sealants shall be installed in accordance with the sealant manufacturer’s installation guidelines and Technical Specification Section 07920.

F. The Contractor shall apply new coatings to all existing painted surfaces, including but not limited to the parking garage perimeter walls, perimeter site walls, guard shack, standing seam metal roofs, south balcony closet doors and frames, and exterior walls. Before applying new coatings, **clean** all exterior surfaces with appropriate **pressure washing** equipment. The Contractor's responsibility shall be to adjust the water pressure, not to damage existing surfaces. It shall also

be the responsibility of the Contractor to prevent water damage to the unit interiors, storage rooms, electrical fixtures, fire alarm equipment, furniture, and other neighboring areas while performing pressure cleaning. Apply new sealants before pressure cleaning and protect new sealants from damage during the pressure cleaning operation.

G. After proper preparation of the exterior of the existing painted structures, the Contractor shall apply a minimum of two (2) coats of acrylic **coatings** to the prepared substrate to achieve the specified warranty and to achieve an aesthetically pleasing finish. At locations of new stucco cladding, install one (1) coat of elastomeric coating and one (1) coat of acrylic coating. Note that Primer is required on all patched or chalky surfaces, as recommended by the Manufacturer's technical representative. Refer to Section 09910 of the Technical Specification for the type of acrylic coating and warranty requirements. For the exterior doors and frames, and standing seam metal roofs at the guard shack, main building, and ground floor areas, the Contractor shall apply new high-performance coatings in accordance with the Technical Specification Section 09960 and the Manufacturer's recommendations. The color shall be pre-determined by the Owners.

LUMP SUM BID OF $_____ for BASE BID NO. 1
_____ AND __/100 Dollars

3.00 ALTERNATES

INTENTIONALLY LEFT BLANK

4.00 UNIT COSTS

It shall be understood that the Unit Costs quoted herein will be used to adjust the Contract Allowances within the Base Bid, upward or downward, as actual usage dictates. The term Cost is considered to include Contractor's total Price for overhead and profit, labor, equipment, state and local taxes, insurance, permits, and any incidentals required to perform the work. The assumed allowances are considered to be part of the Base Bid, and Final allowance figures will be adjusted according to actual usage and unit cost pricing.

4.01 UNIT COST NO. 01: STUD CLIP INSTALLATION

Quote the amount to be added or deducted to Base Bid No. 1 to install one stud clip at the corroded metal studs and supplemented metal framing at the rough openings as directed by the Engineer (includes attachment and clip, not a vertical member).

Add or Deduct the Sum of: $ _____/EA

4.02 UNIT COST NO. 02: INSTALLATION OF SUPPLEMENTAL FRAMING

Quote the cost to be added or deducted to Base Bid No. 1 to install one (1) forty-eight (48) inch supplemental cold-formed metal framing at locations with more than 2" of severe corrosion at the base of the metal stud. New supplemental studs shall be anchored to the deck with new 16-gauge clips with two (2) hammer-set anchors and fastened to the existing studs with two (2) self-tapping screws at eight (8) inches on-center vertically. Supplemental studs to be sistered to existing studs throughout the building should include a new forty-eight (48) inch section of stud and the clip. Supplemental cold-formed metal framing shall be installed, as directed by the Engineer in accordance with Technical Specification Section 05400 and BECI's Drawings and Details

Add or Deduct the Sum of: **$ _____/EA**

4.03 UNIT COST NO. 03: REMOVE AND REPLACE INTERIOR DRYWALL

Quote the cost to be added or subtracted from Base Bid No. 1 to remove and replace (1) square foot of interior drywall with Level 4 finish at the interior side of new framing, along with new interior paint provided by the owner in accordance with Technical Specification 09290 and the Manufacturer's Requirements.

Add or Deduct the Sum of: **$_____/SF**

4.04 UNIT COST NO. 04: INSULATION REPLACEMENT

Quote the cost to be added or deducted from Base Bid No. 1 to remove and replace one (1) square foot of R-13 batt insulation in accordance with Technical Specification 07212 and the Manufacturer's Requirements.

Add or Deduct the Sum of: **$ _____SF**

4.05 UNIT COST NO. 05: INTERIOR WOOD BASE MOULDING

Quote the cost to be added or deducted from Base Bid No. 1 to remove and replace one (1) linear foot of 4" wood base moulding with quarter round in accordance with Technical Specification 07212 and the Manufacturer's Requirements.

Add or Deduct the Sum of: **$ _____/LF**

4.06 UNIT COST NO. 06: INSTALLATION OF SUPPLEMENTAL FRAMING

Quote the cost to be added or deducted to Base Bid No. 1 to install one (1) ninety-six (96) inch cold-formed metal framing at locations where the metal stud needs complete replacement or a new stud must be installed for additional reinforcing. New full length studs shall be anchored to

the deck and ceiling with new 16-gauge clips with two (2) hammer-set anchors. Full length supplemental cold-formed metal framing shall be installed, as directed by the Engineer in accordance with Technical Specification Section 05400 and BECI's Drawings and Details

Add or Deduct the Sum of: **$ _____/EA**

4.07 UNIT COST NO. 07: OVERHEAD PARTIAL DEPTH AND SPALLED CONCRETE REPAIR

Quote the amount to be added or deducted from Base Bid No. 1 to perform one (1) square foot (SF) of overhead partial depth and spalled concrete repairs at a depth of four inches (4"). Concrete spalls are to be repaired with appropriate repair mortar and methods in accordance with Technical Specification Section 03370.

Add or Deduct the Sum of: **$ _____/SF**

4.08 UNIT COST NO. 08: DECK PARTIAL DEPTH AND SPALLED CONCRETE REPAIR

Quote the amount to be added or deducted from Base Bid No. 1 to perform one (1) square foot (SF) of partial depth and spalled concrete repairs at a balcony deck at a depth of four inches (4"). Concrete spalls are to be repaired with appropriate repair mortar and methods in accordance with Technical Specification Section 03370.

Add or Deduct the Sum of: **$ _____/SF**

4.09 UNIT COST NO. 09: CONCRETE COLUMN REPAIR

Quote the cost to be added or deducted to Base Bid No. 1 to perform one (1) square foot (SF) of concrete column repairs. Concrete repairs shall be performed as directed by the Engineer and in accordance with ICRI Technical Guidelines and Section 03370 of the Technical Specifications.

Add or Deduct the Sum of: **$ _____/SF**

4.10 UNIT COST NO. 10: SLAB EDGE REPAIR

Quote the cost to be added or deducted from Base Bid No. 1 to repair one (1) linear foot (LF) of concrete at a slab edge, including repair of any exposed steel reinforcing at a depth of four (4) inches. Concrete repairs shall be performed as directed by the Engineer and in accordance with ICRI Technical Guidelines, Section 03370 of the Technical Specifications, and the Manufacturer's requirements.

Add or Deduct the Sum of: **$ _____/LF**

4.11 UNIT COST NO. 11: STANCHION POCKET REPAIR

Quote the cost to be added or deducted to Base Bid No. 1 to perform one (1) stanchion pocket repair. Concrete repairs shall be performed as directed by Engineer and in accordance with ICRI Technical Guidelines and Section 03370 of the Technical Specifications.

Add or Deduct the Sum of: **$ _____/EA**

4.12 UNIT COST NO. 12: EPOXY STANCHION POSTS

Quote the cost to be added or deducted to Base Bid No. 1 to install epoxy at one (1) stanchion post. The Contractor shall drill a ¼" hole in the railing stanchion posts approximately two (2) inches above the deck. Then, the Contractor shall fill the post with epoxy in accordance with the Manufacturer's Requirements.

Add or Deduct the Sum of: **$ _____/EA**

4.13 UNIT COST NO. 13: ROUTING AND SEALING CRACKS IN CONCRETE DECKING

Quote the cost to be added or deducted from Base Bid No. 1 to route and seal one (1) linear foot (LF) of cracking in the concrete slab. The Contractor shall route and seal all cracks in the concrete greater than hairline width (1/16" or greater) by saw cutting to a minimum of ¼" wide x ¼" deep, then fill with a bond breaker, primer, and sealant. Concrete crack repairs shall be performed as directed by the Engineer and in accordance with ICRI Technical Guidelines and Section 03370 of the Technical Specifications. Once the sealant fully cures, install a detail coat centered over the sealant. For material, products, and workmanship requirements for the detail coat, refer to Section 07160 of the Technical Specifications.

Add or Deduct the Sum of: **$ _____/LF**

4.14 UNIT COST NO. 14: EMBEDDED METAL (RUST SPOT) REPAIR

Quote the cost to be added or deducted from Base Bid No. 1 to grind back one (1) rust spot to a minimum depth of ¾ inch. Then prime with an approved primer and patch with a modified overhead mortar. Rust spots shall include, but are not limited to, rusted stirrups, tie wires, rebar, and rebar support chairs embedded in vertical or horizontal surfaces. Concrete repairs shall be performed as directed by Engineer and in accordance with ICRI Technical Guidelines and Section 03370 of the Technical Specifications. Once the repairs have been completed, install a new finish to match the existing in accordance with Technical Specification Section 09220 and the Manufacturer's installation instructions. *A single rust spot is not counted as a separate point if occurring within a three (3) inch radius of the primary rust stain*.

Add or Deduct the Sum of: **$ _____/EA**

4.15 UNIT COST NO. 15: LOW-SPOT REPAIR MATERIAL INSTALLATION

Quote the cost to be added or deducted from Base Bid No. 1 to install low-spot repair materials to one (1) square foot (SF) of the deck where required due to ponding and as directed by the Engineer. Repair materials shall be installed to the bare structural concrete deck in accordance with Technical Specification 03370.

Add or Deduct the Sum of: **$ _____/SF**

4.16 UNIT COST NO. 16: ROUTE AND SEAL STUCCO CRACK

Quote the amount to be added to or deducted from Base Bid No. 1 to route and seal one (1) linear foot (LF) of cracking in the stucco cladding surface. As directed by the Engineer, route and seal cracks by saw cutting to a minimum ¼" wide x ¼" deep, then filling with a bond breaker, primer, and sealant. All repairs shall be performed in accordance with Technical Specifications Section 09220 and the Manufacturer's requirements. All joints to be routed and sealed must be finished to provide an aesthetic condition acceptable to the Owner.

Add or Deduct the Sum of: **$ _____/LF**

4.17 UNIT COST NO. 17: STUCCO REMOVAL AND REPLACEMENT

Quote the cost to be added or deducted to Base Bid No. 1 for removal and replacement of one (1) square foot (SF) area of delaminated stucco cladding in the field of the wall, as directed by the Engineer (Inclusive of accessories, scratch coat, base coat, and finish coat). Install new direct applied stucco cladding in accordance with Technical Specification Section 09220 and Manufacturer's installation instructions.

Add or Deduct the Sum of: **$ _____/SF**

4.18 UNIT COST NO. 18: STUCCO RESURFACING

Quote the cost to be added or deducted to Base Bid No. 1 for resurfacing one (1) square foot (SF) area of stucco cladding surrounding the stucco removal and replacement areas, as directed by the Engineer (Inclusive of the lamina with mesh for final surfacing and finish coat). Ensure that the new stucco finish is installed and integrated with the surrounding stucco with properly blended edges to match as closely as possible to the existing finish. Stucco resurfacing shall be performed per Technical Specification Section 09220 and the Manufacturer's installation instructions.

Add or Deduct the Sum of: **$ _____/SF**

4.19 UNIT COST NO. 19: REMOVE AND REPLACE FAILED SEALANTS

Quote the cost to be added or deducted to Base Bid No. 1 to remove and replace one (1) linear foot (LF) of failed sealant. All sealants shall be installed following the sealant manufacturer's installation guidelines and Technical Specification Section 07920.

Add or Deduct the Sum of: **$ _____/LF**

4.20 UNIT COST NO. 20: NEW SEALANT INSTALLATION

Quote the cost to be added or deducted to Base Bid No. 1 to install one (1) linear foot (LF) of new sealant. All sealants shall be installed following the sealant manufacturer's installation guidelines and Technical Specification Section 07920.

Add or Deduct the Sum of: **$ _____/LF**

4.21 UNIT COST NO. 21: INSTALLATION OF STUCCO EXPANSION JOINT

Quote the cost to be added to or deducted from Base Bid No. 1 to remove four (4) inches of existing stucco cladding and install one (1) linear foot (LF) of new stucco expansion. The expansion joint shall be installed in accordance with the Drawings and Details, Technical Specification Section 09220, and Section 07920, as well as the applicable manufacturer's installation requirements.

Add or Deduct the Sum of: **$ _____/LF**

4.21 UNIT COST NO. 21: TIME AND MATERIAL

Quote the amount to add for time and material work that may not be covered under the previous Base Bids, Alternates, or Unit Costs. Provide an hourly rate for both skilled and unskilled workers. Also, provide a contractor markup for overhead, management, and profit. All material will be based on actual cost provided by proper documentation. All receipts must indicate the delivery site and date.

Add the Sum of:
For Skilled Labor **$ _____/Hour**
For Unskilled Labor **$_____ /Hour**
Contractor Mark-up **_____ /Percent**

5.00 TIME OF COMPLETION

BIDDER agrees that, upon receipt of the Notice to Proceed, the work will be substantially complete and ready for final payment pursuant to the Conditions of the Contract on or before the dates or within the number of **calendar** days indicated in the Agreement.

5.01 The Project's Construction will begin on September 8, 2026, with Contractor mobilization beginning on August 17, 2026, when the primary staging area becomes available. The designated mockup unit is Unit 1514, and the Contractor shall complete all mockup activities from August 24 to 28, 2026, to allow for review and approval prior to commencing full production work. All RFIs, shop drawings, and required submittals must be submitted in sufficient time to meet these deadlines, with shop drawings due no later than April 2026 to ensure timely procurement and delivery.

5.02 The Contractor shall plan and staff the Work with consideration for typical seasonal weather conditions. If adverse weather delays the SGD replacement or coating schedule and affects the project's critical path, the Contractor shall implement acceleration measures, including additional labor, extended hours, or resequencing, to recover lost time. A Change Order will be processed for the additional cost due to acceleration only when the Contractor provides documentation demonstrating that the delay is weather-related, impacts the critical path, and cannot be mitigated through normal resourcing. Only the direct, verifiable costs will be eligible for reimbursement. Failure to perform required acceleration may be treated as a delay, subject to the liquidated damages provisions.

5.03 For Base Bid No. 1 _____DAYS

Date BIDDER can proceed with a Full Crew, Materials, and equipment to commence mobilization _____DATE.

5.04 Should satisfactory completion of work "NOT" be complete by the time in the Agreement, liquidated damages in the amount of Two-Thousand Dollars ($2,000.00) per calendar day will be assessed and applied against the payment of invoices (Maximum 30 Days). Should the work "NOT" be completed by the time specified in the Agreement, the contractor shall be responsible for reimbursing the associated costs pertaining to the Owner-supplied staging rentals.

5.05 The Contractor shall furnish and maintain adequate labor, supervision, equipment, and materials to meet all project schedule milestones established in the Agreement and as defined in the approved Work Approach Plan and Preliminary Construction Schedule. The Contractor is responsible for proactively adjusting staffing levels, sequencing, and work shifts to prevent schedule slippage; if progress on any specific work area (including an individual unit stack or floor elevation) falls behind schedule, the Contractor shall continue to commence and advance Work on all subsequent floors and stacks per the originally approved schedule and shall separately staff the delayed area to recover lost time. Failure to maintain scheduled start dates for other floors or stacks due to a localized delay will be considered non-compliance with scheduling time obligations. In addition to any other damages, liquidated damages of $2,000 per floor or stack that falls behind its scheduled start or completion date will be assessed for each occurrence.

6.00 PAYMENT AND PERFORMANCE BONDS

6.01 BIDDER agrees to furnish a Performance Bond with a Labor and Material Payment Bond covering the full Contract Price, pursuant to the Contract Documents, for an additional amount equal to:

Percentage of Contract Price: _____ **%**

7.00 ACCEPTANCE

7.01 The form of Agreement shall be the completed version of the enclosed AIA Document A105 "Standard Short Form of Agreement between Owner and Contractor," 2017 Edition, as provided by the Owner.

7.02 The Owner reserves the right not to disclose the Bid Prices.

7.03 Contractor agrees to hold prices for sixty (60) days. The Owner reserves the right to accept or reject this proposal for a period of sixty (60) days from the Bid Due Date.

8.00 DISCLOSURES

8.01 BIDDER is required to list below all major subcontractors whose Prices are incorporated in the Bid Price. Generally, trades listed should be those involving major money amounts or special technical items. If none is used, write "None". If the Bidder does not list any subcontractors on the bid form that perform work on this project, any unapproved subcontractor who attempts to work on the project will be removed from the job, and the Bidder will have to go through the necessary approval procedures.

Trade	Subcontractor
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Submitted On: _____, 20_____

By: _____(Seal)

Firm Name: _____

Name of Person Authorized to Sign: _____

Business Address: _____

Telephone No.: _____

END OF SECTION 00300

SECTION 00700 – GENERAL CONDITIONS

PART 1 - GENERAL

1.1 FORM OF AGREEMENT

A. The form of Agreement shall be the completed version of the enclosed AIA Document A105 “Standard Short Form of Agreement between Owner and Contractor,” 2017 Edition, as provided.

1.2 PERMIT, FEES, AND UTILITY SERVICE COSTS

A. The Contractor shall secure and pay for all Owner permits and plan review in connection with the Work. Costs of permits and plan review shall be included in Bid.

1.3 CHANGES IN CONTRACT PRICE OR TIME

A. No claims for increases to Contract Price will be allowed to the Contractor unless authorized by written Change Order by the Owner, describing Work involved and amount of increase or decrease allowed, and the appropriate supportive documentation for unit costs and labor breakdown.

B. Contractor proceeding with Work without making claim will constitute acceptance of the Work as a part of Contractor’s original Contract. The Engineer shall not be responsible for delays, additional costs, or liabilities arising from unforeseen site conditions, force majeure events, or other circumstances beyond the Engineer's control.

C. Time extensions will not be approved unless formally submitted for approval with supportive documentation on BECI’s delay forms. Supporting documentation shall include but may not be limited to a daily weather report stating temperature, humidity, precipitation and wind speed and direction. Delay forms are due to BECI’s office by 4:00 p.m. the day of request or it will not be considered. Acceptance and rejection of delays shall be solely at the discretion of BECI.

1.4 INSURANCE

A. The Contractor shall take out and maintain required insurances during the life of this Contract, such as Workman's Compensation, Automobile Liability, Commercial General Liability, and Umbrella/Excess Liability and as otherwise necessary to protect Contractor and Contractor’s Subcontractors performing Work covered by this Contract.

B. The Contractor shall furnish the Owner with certificates of each of the required policies, prior to beginning construction of this Project.

C. Insurance Limits Schedule: See schedule attached to the end of this Section for limits of coverage for Contractor's liability insurance. A completed copy of this form with ORIGINAL signatures must be provided prior to execution of Agreement.

D. Indemnification Insurance:

1. Contractor shall indemnify and hold harmless the Owner and his agents, and the Owner's Representative and his consultants, from and against all claims, damages, losses, and expenses including attorney's fees arising out of or resulting from the performance of the Work.

2. In any and all claims against the Owner or any of his agents or employees by any employee of the Contractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation specified herein shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor under Workmen's compensation acts, disability benefit acts or other employee benefit acts.
3. The contractor shall indemnify and hold harmless the Owner and Engineer against all claims arising from deviations from the Engineer-approved designs or specifications, whether authorized or unauthorized, unless such deviations are explicitly approved in writing by the Engineer.

E. Contractor's Liability Insurance:

1. Contractor shall not commence Work until he has obtained all the insurance hereunder and such insurance has been approved by the Owner. Contractor shall not commence Work on his Contract until all insurance required has been obtained and approved. The insurance shall include the interest of the Owner, and the Owner's Representative and his consultants, as an additional insured. Approval by the Owner shall not relieve or decrease the liability of the Contractor.

F. Property Insurance:

1. Unless otherwise provided, the Owner shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. This insurance shall include the interests of the Owner and shall insure against the perils of Fire, Extended Coverage, Vandalism, and Malicious Mischief.
2. Any insured losses will be handled as set forth in the contract.
3. The Owner and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided as specified herein.

1.5 TESTING AND INSPECTIONS

A. Inspections and tests required to establish compliance with the Contract Documents will be made by a pre-qualified, testing agency and will be paid by the Owner, except as otherwise provided in the Contract Documents. When the initial tests indicate non-compliance with the Contract Documents, subsequent retesting occasioned by non-compliance shall be performed by the same agency and the cost thereof borne by the Contractor. Representatives of the testing agency shall have access to the Work at all times. The Contractor shall provide facilities for such access in order that the agency may properly perform its function. The Testing Agency shall provide the Owner and Owner’s Engineer, and Product Manufacturer copies of all test data recorded during or after such testing.

B. Inspections or tests required by codes or ordinances, or by a plan approval authority and made by a legally constituted authority shall be the responsibility of, and paid for by, the Contractor, unless otherwise provided by the Contract Documents.

1.6 RECORD DOCUMENTS

A. From the start of construction until final inspection and completion of this Project, the Contractor shall have one set of Specifications and Drawings in the field office or on-site,

on which detailed notations as to the locations of all Work will be recorded. At the completion of construction, this set will be transmitted to the Engineer.

B. The Contractor shall supply the Engineer, prior to all work beginning, detailed recorded data indicating all supplementary field quantities, measurements, and data used to prepare the work.

C. Contractor shall complete daily field reports and maintain the daily reports on-site. Please refer to Section 01000, paragraph 1.08.C.1 for content requirements of the daily reports. Daily field reports shall be submitted to Engineer on a weekly basis on every Tuesday by 10:00 a.m. Central Time.

1.7 LAYING OUT WORK

A. The Contractor shall immediately, upon entering the Project site for purpose of beginning Work, locate all general reference points as furnished by Owner, and take necessary action to prevent their destruction, layout his own Work and be responsible for lines, elevations, and measurements of the building, grading and other Work executed by him under this Contract.

B. The Contractor must exercise proper precaution to verify figures shown on the Drawings before laying out Work and will be held responsible for any error resulting from his failure to exercise such precautions. Said errors shall be corrected by the Contractor at NO EXTRA COST to the Owner.

C. In cases of disagreement among the Contract Documents, provide a written request to the Engineer for an opinion. The Engineer will provide clarification for ambiguities in the Contract Documents. Final resolution will be subject to Owner approval.

1.8 GUARANTEE

A. Neither the final payment nor any provision in the Contract Documents shall constitute an acceptance of the Work not performed in accordance with the Contract Documents, or relieve the Contractor of liability in respect to any express warranties or responsibilities for any faulty materials or workmanship, which shall be replaced at NO ADDITIONAL COST to the Owner.

B. The Engineer is not responsible for the contractor's means, methods, techniques, sequences, or procedures of construction, nor for the contractor's failure to carry out the Work in accordance with the Contract Documents.

1.9 WARRANTY

A. The Contractor shall secure warranties and deliver electronic copies of each warranty to the Owner upon completion of the Work. Warranty dates shall commence on the date of Substantial Completion and accepted in writing by the Owner and the Engineer.

B. Contractor shall repair or replace defective work as required by the Contract Documents and applicable warranties.

1.10 PROGRESS SCHEDULE

A. A detailed schedule shall be submitted within seven (7) days after award of the Contract.

Submit an update of schedule as required by the Engineer.

B. Two-week “Look-Ahead” schedules will be required every other week once the project has begun to specifically schedule daily activities and deal with changes in the schedule from unforeseen conditions, weather, or other delays.

1.11 CONSTRUCTION TIME

A. Project completion date shall be as stated in the Agreement.

B. Work shall be allowed seven (7) days a week, Monday through Sunday, between 7:00 a.m. and 5:00 p.m. Work outside these hours shall require the Owner's written approval prior to commencement of such work.

1.12 PAYMENT SCHEDULE

A. Applications for payment shall be made monthly as stipulated by the Contract. The form of Application for Payment shall be a notarized, “Application and Certification for Payment,” supported by a "Continuation Sheet," as provided in the Contract exhibits Prior to submitting the first application submit a Schedule of Values breakdown for approval by the Engineer.

1.13 PROJECT CLOSEOUT

A. Upon completion of the Work under this Contract, and before final payment will be issued; the Contractor shall complete the following.

1. Reference applicable Specifications for requirements.
2. Submit warranties, final certifications, and closeout documents.
3. Submit maintenance manuals and information required to keep warranties in force.
4. Remove temporary facilities from the site, along with tools and elements.
5. Complete final clean up. Touch up and repair and restore marred exposed finishes.
6. Any other conditions to find payment set forth in the contract.
7. Submit any final lien release from material suppliers, subcontractors, vendors and all other entities involved with the project which have lien rights on the project.

B. For record documents submittal requirements, refer to Subparagraph 1.08.C. Project Record Documents in Section 01000.

1.14 INSURANCE REQUIREMENTS AND INDEMNIFICATION

Prior to the commencement of the work, and as a condition of site access, the Contractor shall deliver to the Owner a valid and currently dated Certificate of Insurance (COI).

I. INSURANCE REQUIREMENTS. The Contractor shall procure, and cause subcontractors of all tiers to purchase and maintain, and maintain the following types of coverage and limits until Owner’s acceptance of the Project or the issuance of final Certificate(s) of Occupancy for the entire Project or for such greater period as specified below, per the following standards:

A. COMMERCIAL GENERAL LIABILITY INSURANCE: Insurance shall include Premises & Ongoing Operations, Independent Contractors, Blanket Contractual Liability, Personal

Injury, and Products/Completed Operations on an "occurrence form". Such policy shall not include XCU exclusions, nor punitive damage exclusions.

1. Commercial General Liability (CGL) Insurance shall include fire legal liability, hostile fire, products and completed operations liability. There shall be coverage for domestic certified acts of terrorism.

2. All coverage required shall be provided on an occurrence form with the following minimum limits:

   $2,000,000 Products / Completed Operations Aggregate
   $2,000,000 Per Project Aggregate
   $1,000,000 Any One Occurrence
   $1,000,000 Any One Person or Organization (Personal Injury)

   The deductible for property damage and bodily injury shall be no greater than $50,000 per claim, unless Contractor has received prior approval from the Owner.

3. Subcontractors may carry lesser limits with the prior written consent of Owner (and/or its member(s), investor(s) or Lender(s)).

4. Completed Operations coverage must be maintained for the duration of the applicable statute of repose in the state of jurisdiction for the Project.

5. The General Aggregate limit shall apply to each project individually.

B. AUTOMOBILE LIABILITY (BODILY INJURY AND PROPERTY DAMAGE LIABILITY): Including coverage for all owned, hired and non-owned automobiles. The combined single limit shall be $1,000,000 per occurrence.

C. WORKERS COMPENSATION AND EMPLOYERS LIABILITY: Coverage A: Statutory Workers Compensation Insurance for the state in which the Work is to be performed.

   Coverage B: Employers Liability Insurance with minimum limits of liability as follows:

   $500,000. Each Accident
   $500,000. Each Employee for Injury by Disease
   $500,000. Aggregate for Injury by Disease

   Coverage C: Other States Insurance. If the Work under this Agreement involves such exposure, the Contractor's Workers Compensation Insurance shall provide coverage for the United States Longshoremen and Harbor Workers Act.

D. EXCESS/UMBRELLA COVERAGE: Coverage must be following form of the Contractor's Commercial General Liability, Automobile Liability, and Employer's Liability limits of liability, and at least as broad as the primary policies' coverage. The limits must be at least $1,000,000 per occurrence and $1,000,000 aggregate limit. This coverage must be

maintained for the shorter of: five (5) years following completion of the Work or the duration of the applicable statute of repose in the state of jurisdiction for the Project.

E. PROFESSIONAL LIABILITY (ERRORS & OMISSIONS) as to Contractor only:
Coverage shall be required in an amount not less than the greater of $1,000,000 per claim and in the aggregate or 10% of the Guaranteed Maximum Price (per claim and in the aggregate). If the coverage is written on a claims-made basis, the policy shall provide for either Full Prior Acts or have a Retroactive Date that is previous to the date that the Contractor began performing work under this contract. This coverage must be maintained for the duration of the applicable statute of repose in the state of jurisdiction for the Project.

In the event any Aggregate limit of liability available to pay claims emanating from this Project has been eroded below $750,000, the Contractor is obligated to advise Owner of such reduction of limits and will, at the request of Owner, seek additional aggregate limits of liability under the same policy or through the purchase of a new policy. This additional coverage will be at the cost of the Contractor.

F. Evidence of coverage must be provided to Owner for review prior to commencement of any construction at the Project.

G. In lieu of Additional Insured status for the Owner on Contractor's CGL policy, the Contractor may, if approved by Owner, provide an Owner's Protective Liability policy with comparable limits.

II. REQUIREMENTS OF INSURANCE POLICIES

A. All insurance policies shall be issued by an insurer or insurers with an A.M. Best rating of A X or better or a Standard and Poor's rating of "AA", or equivalent rating from another agency acceptable to the Owner and be authorized in the state where the project is located. All insurance acquired pursuant to this Agreement shall be in form, amounts and with coverage and deductibles satisfactory to Owner, in Owner's sole discretion.

B. The Commercial General Liability, Umbrella Liability, Auto Liability, Pollution Liability and Employer's Liability shall name Owner, the Additional Insureds (defined below), and their members, managers, directors, officers, employees, agents, affiliates, successors, assigns, any lender and any other parties as stipulated by Owner as additional insureds as respects any liability arising out of the Contractor's or Subcontractor's operations in the performance of the Work. Such additional insured status may be written on a "blanket" basis, but coverage must be at least as broad as that afforded by ISO form CG 2010 and CG 20 37 (07-2004 editions) or their equivalent. Regardless of the form(s) used, the coverage as additional insured shall include the Products / Completed Operations hazards. The additional insured coverage afforded the Additional Insureds must be stated to be primary and noncontributory, and any coverage carried by the Additional Insureds shall be secondary with respect to any claim arising out of the Contractor's operations in the performance of the Work. The Owner's parent companies may also need to be listed as additional insured when requested. The Contractor and Subcontractors are obligated

to obtain and provide to Owner the actual insurance carrier endorsements and not just evidence the required coverage in the body of the certificate of insurance.

"Additional Named Insured" includes:

- Phoenix V Association, Inc. "Additional Insureds" includes:
- Virtuous Management Group
- Owner's Representative/Consultant (Norman C. Anderson)
- BECI (Project Engineer)

C. All insurance policies are to include and specifically list that certified and non-certified acts of terrorism are covered for the full limits of the policy provided.

D. The amount of any deductible or self-insured retention under any insurance policy must be reasonably acceptable to the Owner.

E. Contractor may provide required insurance under blanket policies. Contractor shall not maintain any insurance on the Project that does not name Owner as Loss Payee and Additional Insured.

F. Contractor shall pay the premiums for the insurance policies as the same become due and payable. Contractor shall deliver to the Owner, within ten (10) days of the Owner's request, a certificate of the Contractor or the Contractor's insurance agent setting forth the particulars as to all such insurance policies, that all premiums due thereon have been paid currently and that the same are in full force and effect. Contractor shall also deliver to the Owner certified copies of the insurance policies required to be maintained pursuant to the section within ten (10) days after the issuance of the policies by the insurer. Notwithstanding the foregoing, Owner shall not be deemed by reason of the custody of such insurance policies to have knowledge of the contents thereof. Not later than fifteen (15) days prior to the expiration date of each of the insurance policies the Contractor shall deliver to the Owner a certificate of insurance evidencing renewal of coverage as required herein. Not later than sixty (60) days after the renewal of each of the insurance policies, Contractor shall deliver to Owner an original or certified copy (as required pursuant to this Section) of a renewal policy or policies.

G. Each insurance policy shall contain a provision whereby the insurer agrees that so long as the Project is outstanding, such policy shall not be canceled or fail to be renewed, lapsed or materially changed without in each case, at least thirty (30) days prior written notice to the Owner.

H. The Owner has the right at any time during the Project and for two (2) years after Project completion to request any and all information related to the insurance coverage in place. This information will include and not be limited to the applications used for the placement, 5-year current hard copy loss information and any additional reasonable requests. This information will be used for the purpose of tracking policy limits, deductibles, policy aggregates and continued adequacy of insurance coverages in place.

I. Any insurance carried by Owner shall be for its sole benefit and shall not inure to the benefit of the Contractor and Insurance required from Contractor shall be primary to any available insurance, if any, to Owner.

J. All required policies, other than professional liability, shall provide that insurers have waived rights of subrogation against Owner. The required insurance shall be primary without right of contribution from any insurance, which may be carried by Owner.

K. The required limits are minimum limits established by Owner and nothing contained herein shall be construed to mean the required limits are adequate or appropriate to protect the Contractor from greater loss.

III. SUBCONTRACTOR INSURANCE REQUIREMENTS. The Contractor shall ensure that each of its Subcontractors and on-site suppliers of every tier carries and maintains the same insurance policies under the same requirements (including without limitation minimum policy limits, coverages, endorsements, additional insured status and coverage terms) set forth herein, except as may otherwise be approved in advance in writing by the Owner.

IV. CERTIFICATE HOLDER.
Phoenix V Association, Inc. 24400
Perdido Beach Blvd. Orange Beach, AL
36561

INDEMNIFICATION:

To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the Owner, and all of its elected or appointed directors, officers, managers, agents, employees and members of all of its boards and commissions, from and against any/all claims, actions, damages, losses and expenses, including but not limited to attorney's fees, for any actual or alleged injury to any person or persons, including death, or any damage to or destruction of property, arising out of or in connection with the project.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 00700

SECTION 01000 – GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT IDENTIFICATION

A. Project Title: PHOENIX V ASSOCIATION INC. – SLIDING GLASS DOOR / WINDOW REPLACEMENT & EXTERIOR RESTORATION

B. Project Location: 24400 Perdido Beach Blvd, Orange Beach, AL 36561

1.2 SUMMARY

A. The scope of work involves: South SGD and Window Replacement, Northeast and Northwest corners SGD Replacement, Concrete Repairs, South Balcony Deck Coatings, Replacement of failed sealants, stucco repairs, expansion joint installation, and application of new exterior coatings (Reference Section 00300 for Complete Scope).

1.3 SALES AND USE TAXES

A. The laws of the State of Alabama provide that sales and use taxes are payable by the Contractor upon the tangible personal property incorporated in the Work, and such taxes shall be paid by the Contractor.

1.4 DEFINITIONS

A. General: Except as specifically defined otherwise, the following definitions supplement definitions of the Contract, General Conditions, and other general Contract Documents, and apply generally to the Work.

B. Owner: Phoenix V Association Inc.

C. Owner’s Representative: Norman Anderson

D. Engineer/Consultant: BE-CI or BECI – Pensacola

E. Approved by Owner or Engineer: Approval by the Owner or Engineer in no case releases the Contractor from responsibility to fulfill requirements of Contract Documents.

F. Project Site: Space available to Contractor at location of Project, either exclusively, or to be shared with separate Contractors, for performance of the Work.

G. Furnish: Supply and deliver to Project Site, ready for unloading, unpacking, assembly, installation, and similar subsequent requirements.

H. Install: Operations at Project Site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar requirements.

I. Provide: Furnish and install, complete and ready for intended use.

J. Installer: Entity (firm or person) engaged to install Work, by Contractor, subcontractor, or sub-subcontractor. Installers are required to be skilled in Work they are engaged to install.

K. Testing Laboratory: An entity engaged for the Project to provide inspections, tests, interpretations, reports and similar services.

L. Work: All items specified to be completed by the Contractor within the Project Manual and Drawings and Details.

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

1. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.5 STANDARDS AND REGULATIONS

A. Industry Standards: Applicable standards of the construction industry referred to herein have the same force and effect on performance of the Work as if copied directly into the Contract Documents or bound and published therewith. Standards referenced in the Contract Documents or in governing regulations have precedence over non-referenced standards, insofar as different standards may contain overlapping or conflicting requirements. Comply with standards in effect as of the date of the Contract documents, unless otherwise indicated.

B. Comply with applicable standards for Work, promulgated by organizations, associations, institutes, societies, boards, and generally recognized organizations including the following.

1.	Aluminum Association	AA
2.	American Concrete Institute	ACI
3.	American Forest & Paper Association	AFPA
4.	American National Standards Institute	ANSI
5.	APA – The Engineered Wood Association	APA
6.	American Society of Civil Engineers	ASCE
7.	American Society for Testing and Materials	ASTM
8.	American Wood Preservers Association	AWPA
9.	AWCI International	AWCI
10.	American Welding Society	AWS
11.	Builders Hardware Manufacturers Association	BHMA
12.	Code of Federal Regulations	CFR
13.	FM Global	FMG
14.	Federal Specification	FS
15.	International Concrete Restoration Institute	ICRI
16.	Metal Lath/Steel Framing Association	ML/SFA
17.	National Association of Architectural Metal Manufacturers	NAAMM
18.	National Fire Protection Association	NFPA
19.	National Roofing Contractors Association	NRCA
20.	Occupational Safety and Health Administration	OSHA
21.	Product Standard of the National Bureau of Standards	PS
22.	Sheet Metal and Air Conditioning Contractors National Association	SMACNA
23.	Southern Pine Inspection Bureau	SPIB
24.	Steel Structures Painting Council	SSPC
25.	Underwriter’s Laboratories Inc.	UL
26.	Western Wood Products Association	WWPA

C. Where more than one quality is set forth in these standards and reference is made in the Contract Documents to which specific quality is intended, the better quality shall be the

basis for bidding. Where under these standards options occur, the Engineer will determine the option to use.

1.6 SUBMITTALS

A. Submit electronic prints for all shop drawings and electronic copies of all product data, samples, and schedules, accompanied by a letter of transmittal. Subcontractors and suppliers are to submit shop drawings and make requests for approvals through the Contractor. Submittals must include the following, as appropriate to the category of submittal:

1. The Specification Section(s) pertinent to the submittal.
2. Names of materials, components, or equipment and their installation locations.
3. Working and erection dimensions.
4. Arrangement and sectional views.
5. Necessary details, including complete information for making connections between Work under this Contract and work under other contracts, if any.
6. Kinds of materials and finishes.

B. Examine submittals prior to transmittal. Any submittals received without the Contractor's approval stamp will be returned without review and require resubmittal for full compliance as specified herein. At his discretion, the Engineer may also return submittals lacking complete data as stipulated for submittals.

C. The Technical Specifications will further define submittal requirements. The Owner and Engineer may request additional submittals at his discretion.

D. The submittals shall be submitted electronically with tabs or section separators that distinguish which submittals shall be submitted to which sections. It is the contractor's responsibility to organize the submittals in order of technical section and product information. Any submitted substitution to products specified shall be accompanied by a written description and request by the contractor as to the reason for the substitution.

E. Transmit each item required. Identify Project, Contractor, subcontractor, major supplier and manufacturer; identify pertinent Drawing sheet and detail number, and Specification Section number, as appropriate.

1. Clearly identify in writing any variations or deviations from Construction Documents. Submit required product or system simultaneously with request, to ensure no time is lost if deviation/variation is not approved.
2. Indicate if submittal is a re-submittal.
3. Submit initial progress schedules and schedule of values in duplicate within ten (10) days after date established in Notice to Proceed. Engineer will review and return schedules to Contractor within ten (10) days. If required, revise and resubmit within seven (7) days.

F. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified: all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto, all materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work, and all information relative to Contractor's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and

programs incident thereto.

G. Submit all shop drawings, product data and samples within fourteen (14) days of notice to proceed. Engineer will review and return submittals to Contractor within ten (10) days. Revise and resubmit as required, within seven (7) days, identifying changes made since previous submittal.

1. Notify Engineer in writing, at time of submission, of any deviations in submittals from requirements of the Construction Documents.
2. Begin no fabrication or work, which requires submittals until return of submittals stamped "Reviewed" by Engineer.

H. Distribute copies of reviewed submittals stamped "Reviewed" by Engineer to job site file, subcontractors, and other concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

I. Substitutions: Reference Paragraph 1.7 herein for substitution requests.

J. Submittals will be reviewed for compliance with the design concept for this Project and returned to the Contractor. A submittal which has been reviewed does not relieve the Contractor of responsibility for the accuracy of submittals, or for the quantities of materials and equipment, the proper fitting and construction of the Work, the furnishing of materials, tools, equipment, or similar items required by the Contract Documents, whether or not shown, indicated, or specified.

K. Engineer’s review of shop drawings, samples, or product data which deviate from the Contract Documents does not authorize changes to the Contract Sum. Submit in writing at the time of submission any changes to the Contract Sum affected by such deviations; otherwise, claim for extra costs will not be considered.

L. No Work required by submittals shall be performed until the submittals have been reviewed by the Engineer. The Contractor will not be allowed a time extension or extended overhead due to untimely or repeated submission of submittals.

M. The Contractor shall revise and resubmit the submittals as required by the Engineer until compliance thereof is obtained.

1.7 MATERIAL AND EQUIPMENT

A. Provide materials and equipment pursuant to Contract Documents and the requirements of all applicable laws, ordinances, and codes.

B. Provide new, unused materials and equipment of standard first grade commercial quality, and suitable for intended use as defined by the Contract Documents. Materials and equipment that are determined not to meet these standards will be rejected.

C. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    a. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials.
    b. Contractor's certification that proposed substitution complies with

requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.

c. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
d. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time.
e. Cost information, including a proposal of change, if any, in the Contract Sum.
f. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified.
g. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
h. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
i. Samples, where applicable or requested.
j. Certificates and qualification data, where applicable or requested.
k. Research reports evidencing compliance with building code in effect for Project.

D. After the Agreement has been executed, Engineer will consider a formal request for variation (or deviation) of minor products, systems or criteria as field conditions justify, only for the benefit of the owner under the following conditions:

1. Extended delivery time would seriously delay completion of project, or specified item is no longer available, or for unforeseen reasons beyond control of Contractor.
2. Request is accompanied by complete data on proposed variation substantiating compliance with Construction Documents including product identification and description, performance and test data, references and samples where applicable, and an itemized comparison of proposed variation with products specified or named by Addenda, with data relating to Contract time schedule, design and artistic effect where applicable and its relationship to separate contracts.
3. Request is accompanied by accurate cost data on proposed variation in comparison with product specified, whether or not modification of Contract Sum is to be a consideration.

E. Request for substitutions based on above Item C, when forwarded by Contractor to Engineer, are understood to mean that Contractor:

1. Represents that he has personally investigated proposed substitute product and determined that it is equal or superior in all respects to that specified.
2. Will provide the same guarantee for substitution that he would for that specified.
3. Certifies that cost data presented is complete and includes all related costs under this Contract but excludes costs under separate contracts and Engineer's re-design costs, and that he waives all claims for additional costs related to substitutions which subsequently become apparent.
4. Will coordinate installation of accepted substitute, making such changes as may be required for Work to be complete in all respects.

F. Approval, by Engineer, of substitute materials and equipment shall not relieve Contractor from his responsibility to supply and install any additional materials,

equipment or labor required to make substitution properly function within intent of Construction Documents, as issued for Bid, whether or not such additional materials, equipment or labor are shown on data submitted with request for approval and whether or not recognized by Engineer or Contractor. Contractor shall supply and install such required additional material, equipment or labor solely at his own expense and at no additional cost to Owner

G. Review of shop drawings by the Engineer is for general conformance to the design concept and Contract Documents and does not relieve the contractor of responsibility for dimensions, quantities, or compliance with regulatory requirements.

H. The Engineer shall not be held liable for any claims, damages, or deficiencies arising from modifications or alterations to the Engineer's designs, plans, or specifications made without the Engineer's written consent.

1.8 CONTRACT CLOSE-OUT

A. Close-out Procedures:

1. Provide all required Close-Out Documents and submit electronically to Engineer. Any Close-Out documents packages not adhering to this requirement will be returned to the Contractor.
2. The value for Close-Out Documents will be no less than 5% of the Contract Total.
3. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.
4. Owner will occupy Project for the purpose of conduct of business, under provision stated in Certificate of Substantial Completion.
5. When Contractor considers Work has reached final completion, submit required written certification that Construction Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Construction Documents and ready for Engineer's inspection.
6. In addition, to submittals required by the conditions of the Contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
7. Engineer will issue final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

B. Re-inspection/Additional Inspection Fees:

1. Should status of completion of Work require re-inspection by Engineer due to failure of Work to comply with Contractor's claims on initial inspection, Owner will deduct the amount of Engineer's compensation for re-inspection services from final payment to Contractor.
2. Should the work exceed the contract substantial completion date, the Contractor will be responsible for Engineer site visits/support for the Owner. Owner will deduct the amount of the services from the final payment. Compensation for Engineer after the contract substantial completion date shall be in addition to any liquidated damages included in the Agreement.

C. Project Record Documents:

1. Contractor shall maintain and submit to Engineer on a weekly basis daily field

reports (Reference Section 00700). Field reports shall include:

a. Weather conditions (i.e., temperature, precipitation, wind, etc.)
b. Manpower on-site and hours worked.
c. A summary of day's construction activities.
d. A summary of any problems incurred during the day.
e. Any information important to the project.

2. Record information on an as-built set of drawings. Legibly mark each item to record actual construction, including:

a. Field changes of dimension and detail.
b. Changes made by modifications.
c. Details not on original Contract Drawings.
d. References to related shop drawings and modifications.

3. Store documents separate from those used for construction.
4. Keep documents current; do not permanently conceal any work until required information has been recorded.
5. At contract close-out, submit documents with transmittal letter containing date, project title, Contractor's name and address, list documents, and signature of Contractor.

D. Operation and Maintenance Data:

1. Prepare instructions and data in the form of an instruction manual by personnel experienced in maintenance and operation of described products.
2. Submit the following:

a. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer and Contractor.
b. Part 2: Operation and maintenance instructions, arranged by Specification Division. For each Specification Division, give names, addresses, and telephone numbers of Subcontractors and Supplies. List appropriate design criteria, list of materials, maintenance instructions, shop drawings and product data.

E. Warranties:

1. Provide electronic notarized copies. Execute Contractor's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents submitted in order of individual Specification Sections.
2. All warranties will be dated based on the established Substantial Completion Date.
3. Provide manufacturer's warranties for each individual specification section meeting specification requirements. Attach copy of manufacturer's inspection punch list, any required letters of clarification, and flashing endorsement.
4. Provide the specific Contractor's warranty required in each applicable individual specification section.

1.9 PROTECTION OF PROJECT

A. Properly store and protect all materials, equipment, and the entire Work provided under the Contract from the time such materials and equipment are delivered to the site of the Work until Final Acceptance of the entire Work. At all times, take necessary precautions to prevent damage to materials, equipment, installed work, and existing work to remain (including landscaping) due to weather, construction activities or other causes. Repair

such damage as acceptable to Owner or replace completely if repairs are not acceptable or not feasible.

B. Erect and maintain barricades, fences, warning and danger signs, lights, and similar devices for the protection of the work, safety of the public, and pursuant to applicable code requirements.

C. Submit a written project security and safety plan to the Owner and Engineer for approval prior to commencement of work.

1.10 CLEANING UP

A. At all times keep the premises free from accumulation of waste materials and debris caused by construction operations. Perform this activity on a daily basis.

B. Upon final completion of Work, completely remove all construction waste from the premises and properly dispose. Perform final cleaning and maintain cleaning until entire Work of the Project is accepted by Owner.

C. The Contractor shall manage waste disposal and coordinate with the Owner for on-site waste containment.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 01000

Sworn Statement of Payment Obligations

Project: _____

Contractor: _____

Draw Number: _____(insert zero if not related to a draw)

Date of Pay App:_____(leave blank if not related to an application for payment)

The undersigned authorized representative of contractor being duly sworn hereby warrants and certifies that the following is a complete and accurate list of each person or entity (including, without limitation, contractors, subcontractors, sub-subcontractors, vendors, suppliers, materialmen, equipment companies, and non-employee laborers) with whom the above named Contractor has contracted (whether in writing or not) related to the above referenced Project and that the amounts paid or owed to such entities as of the date hereof are correctly and fully set form opposite their names as follows:

A	B	C	D	E (See
Name of Subcontractors, Suppliers, Etc.	**Service Provided**	**Total Amount Owed to this Sub/Supplier for Previous Pay Applications which have not yet been paid**	**Amount Owed to this Sub/Supplier for this Pay Application (Do not include amounts from Column C)**	**Balance Become Due (Column C + D)**

Subscribed and sworn to before me this _____day of_____20___

Signed: _____

Printed Name: _____

_____
Notary Public

State of_____County of _____

[END OF SECTION 01001]

			Rejected Item - See Notes Revise and Resubmit - See Notes Outstanding Items	SUBMITTAL REQUEST				
Item No.	**Section**	**Name**	**Description**	**Reviewed**	**Rejected**	**Furnish as Corrected**	**Revise and Resubmit**	**Notes**
1	**00100**	**Instructions to Bidders**	Statement of items of work performed by Contractor and Subcontractors					
2			Notarized certification that the Contractor is capable of bonding the Project					
3	**00700**	**General Conditions**	Insurance Certificates					
4			Detailed schedule					
5			Site Specific Safety Plan					
6			Site Plan (Staging plan, Lay down area, Dumpster Area, Portable Toilet Locations, Etc)					
7			Schedule of Values					
8	**01732**	**Selective Demolition**	Schedule of Demolition Activities					
9			Required Permits and Notices					
10	**03370**	**Concrete Rehabilitation**	Concrete Bonding Agents - Product Data and Manufacturer's Letter of Certification Stating that Material Complies					
11			Repair Materals - Product Data and Manufacturer's Letter of Certification Stating that Material Complies					
12			Certified test reports verifying compliance with ASTM C928 (for rapid setting repair materials) or relevant standards.					
13			Manufacturer's Sample Warranty - 5 year Material					
14	**05400**	**Cold-Formed Metal Framing**	Product Data - Cold-formed steel framing materials, load-bearing wall framing, fasteners and accessories					
15			Shop Drawings - Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners					
16			Mock-Ups - Complete mock-ups of all unique conditions. Leave in place for review by Engineer.					
17	**07160**	**Traffic Deck Coating System**	Traffic Deck Coating - Manufacturer's System Product Data, Installation Instructions, Recommendations					
18			Primer - Product Data					
19			Base Coat - Product Data and manufacturer's letter of Certification Stating that Material Complies					
20			Intermediate Coat (Wear Coat) - Product Data and Manufacturer's Letter of Certifications Stating that Material Complies					
21			Top Coat - Product Data and Manufacturer's Letter of Certifications Stating that Material Complies					
22			Color Samples - 3 Sets of Color Chips					
23			Sample Warranty - Manufacturer's 5 Year Material and Labor Warranty					
24	**07212**	**Batt Insulation**	Action Submittals - Product Data					
25			Informational Submittals - Installer's Certification & Product Test Reports					
26	**07270**	**Fluid-Applied Membrane**	Fluid-Applied Membrane Air Barriers - Manufacturer's Product Data, Installation Instructions, Recommendations					
27			Fluid-Applied Flashing - Manufacturer's Product Data, Installation Instructions, Recommendations					
28	**07620**	**Sheet Metal Flashing and Trim**	Sheet Metal Flashing and Trim - Manufacturer's Product Data, Color Charts, Installation Instructions					
29			Fasteners - Product Data					
30			Shop Drawings - Complete Shop Drawings for Each Metal Type and Installation					
31			Manufacturer's Sample Warranty - 20 Year Finish Warranty					
32	**07920**	**Building Sealants**	Product Data: Manufacturer's technical data sheets for each type of sealant, including physical properties, compliance with standards, and cure time.					
33			Product Data: Data on primers and backing materials, including compatibility with substrates and sealants.					
34			Samples: Sealant Color Samples. Provide a range of standard colors for selection. Custom color matching if specified.					
35			Mockups: A mockup of sealant application, demonstrating joint preparation, installation, and finished appearance.					
36			Quality Control Submittals: Results of field adhesion tests and reports documenting corrective actions taken for non-compliant joints.					
37			Warranty Documentation: Manufacturer's warranty for the performance of the sealants.					
38			Warranty Documentation: Installer's warranty for workmanship, covering leaks, adhesion failures, and other defects.					
39	**08090**	**Door and Window Replacement**	Doors & Windows - Product Data, Manfuacturer's Standard Construction Details, Profiles and Dimensions of Individual Components, Data on Finishes, Hardware, and accessories					
40			Shop Drawings - Schedule of Layout, Installation Details, Full-Size Details, Glazing Details, Hardware and Accessories					
41			Samples for Verification					
42			Product Test Reports					
43			Sample Warranties - Project specific warranties (Contractor, Manufacturer, etc.)					
44	**08800**	**Glazing**	Glazing - Product Data					
45			Qualification Data - For Installer, Glass Testing Agency, Sealant Testing Agency					
46			Product Test Reports					
47			Manufacturer's Sample Warranty - Coated Glass - 10 year					
48			Manufacturer's Sample Warranty - Laminated Glass - 10 year					
49			Manufacturer's Sample Warranty - Insulated Glass - 10 year					
50	**09220**	**Cement Plaster Stucco System**	Manufacturer's Specifications, Certification, Recommendations and Installation Instructions					
51			Base Coat - Product Data and Letter from Manufacturer stating that material complies					
52			Finish Coat - Product Data					
53			Cement Board - Product Data					
54			Reinforcing Mesh - Product Data					
55			Sample Manufacturer Warranty - 10 years (Material and Labor)					
56			Primer - Product Data					
57	**09290**	**Gypsum Board Drywall**	Gypsum Board - Manufacturer's Product Data, Shop Drawings, Manufacturer's Written Instructions.					
58			Accessory Materials - Manufacturer's Product Data, Shop Drawings, Manufacturer's Written Instructions.					
59			Physical Samples and Mockups					

			Rejected Item - See Notes Revise and Resubmit - See Notes Outstanding Items	SUBMITTAL REQUEST				
Item No.	**Section**	**Name**	**Description**	**Reviewed**	**Rejected**	**Furnish as Corrected**	**Revise and Resubmit**	**Notes**
60	09910	Acrylic Coatings	Product Data - For each product, include Manufacturer's Specifications, Recommendations, and Installation Instructions					
61			Letter of Certification Stating that Material Complies					
62			Drawn Down Cards - 3 Sets of Samples For All Scheduled Areas					
63			Field Data - Field Measurements and Materials Quantities					
64			Manufacturer's Sample Warranty - 10 Year Material & Labor Warranty (Vertical)					
65			Manufacturer's Sample Warranty - 5 Year Material & Labor Warranty (Overhead)					
66	09960	High-Performance Coatings	Product Data - For each product, include Manufacturer's Specifications, Recommendations, and Installation Instructions					
67			Letter of Certification Stating that Material Complies					
68			Field Data - Field Measurements and Materials Quantities					
69			Manufacturer's Sample Warranty - 10 Year Material & Labor Warranty					

Substitution Request Form

Project: _____ Date: _____

From: _____ A/E Project No.: _____

To: _____ Contract For:

Re: _____ _____

Specification: _____ Title: _____

Description: _____ Article/Paragraph: _____

Section: _____ Page: _____

Proposed Substitution: _____

Trade Name: _____ Model No.: _____

Manufacturer: _____ Phone No: _____

Address: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified. Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product and in accordance with Technical Specification 01000 Section 1.7 Substitutions.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including BECI design, detailing, and construction costs caused by the substitution.

Submitted by: _____ Signed by:_____

Firm: _____ Phone: _____

Address: _____

BECI'S REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01000 Submittal Procedures.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01000 Submittal Procedures.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by:_____ Date:_____

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

[END OF SECTION 01003]

SECTION 01732 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Selective demolition includes the following:

1. Removal of the South balcony Sliding Glass Doors & Windows
2. Removal of 1 & 17 stacks Northeast and Northwest Balcony Sliding Glass Doors
3. Removal of Metal Framing Studs (South Wall) as Required
4. Removal of Wall Cladding for the Installation of Expansion Joints at Wall Transitions
5. Removal of Stucco and Concrete for Miscellaneous Repairs to Cracks & Spalls (Unit Price / As Required)
6. Removal of South Balcony Deck Coatings
7. Removal of Failed Sealants

1.2 REFERENCES

A. American National Standards Institute (ANSI) A10.6 - Safety Requirements for Demolition.

B. National Fire Protection Association (NFPA) 241 - Safeguarding Construction, Alteration, and Demolition Operations.

C. Occupational Safety and Health Administration (OSHA) Construction Safety Act, Part 1926.

1.3 SUBMITTALS

A. Schedule of Selective Demolition Activities: The Contractor is required to submit and indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure the Owner's on-site operations and tenants' occupancy activities are uninterrupted.
2. Interruption of utility services.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Access provisions.
5. Locations of temporary partitions and means of egress, including for tenants affected by Selective Demolition operations.
6. Site plan identifies storage areas for debris and non-accessible areas and accommodations for parking and use of the existing property.

B. Submit required permits and notices authorizing selective demolition, certificates of severance of utility services (if required), methods of traffic maintenance, permit for transport and disposal of debris, location of disposal area, and other information as required.

1.4 CLOSEOUT SUBMITTALS

A. Submit a list of items that have been removed and salvaged.

1.5 QUALITY ASSURANCE

A. Demolition Firm Qualifications: A firm with a minimum of three (3) years of experience in similar work performance. Submit a project list with a description of the Work performed and a contact name and number to the Engineer upon request.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction, including obtaining necessary permits. The Contractor shall be responsible for all costs and damages related to non-compliance with disposal regulations.

C. Standards: Comply with the latest editions of ANSI A10.6 and NFPA 241, as adopted by authorities having jurisdiction at the time of the Contract.

D. Pre-Demolition Conference: Meet with the Owner or Owner's Representative, Engineer, and related trades to discuss sequencing and installation procedures.

1.6 SITE CONDITIONS

A. Before starting any phase of the Work that impacts or takes place within, any space affecting tenants, prepare the areas for executing the Work.

B. Any condition that could affect the performance of selective demolition work must be documented and reported to the Engineer. The Contractor is responsible for identifying and addressing such conditions as required to perform the Work safely and per Contract Documents.

C. Commencement of Selective Demolition Work will constitute the Contractor's acceptance of existing conditions. The Engineer shall not be responsible for any delays, additional costs, or conflicts arising from unforeseen site conditions or deviations from Contract Documents unless explicitly approved in writing by the Engineer. If unforeseen conditions require additional Work, the Contractor shall submit a change order request with cost and schedule implications for approval by the Owner and Engineer before proceeding.

D. The Contractor is responsible for protecting all adjacent construction from damage. Existing structures or installations destroyed or damaged as a result of Selective Demolition Work, including landscaping, will be replaced or repaired by the Contractor to the Owner's satisfaction and at no additional cost to the Owner.

E. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a detailed written report to the Engineer and Owner's Representative. Upon direction from Engineer, revise the Selective Demolition schedule as necessary to continue the overall Project progress without delay.

1.7 SEQUENCING AND SCHEDULING

A. Prepare a detailed demolition plan, including methods, sequence of operations, and coordination with affected trades, and submit for Engineer review prior to commencement of Work. Additionally, plan selective demolition work following the approved shoring plan submitted to Engineer.

B. The Contractor is solely responsible for planning and effectively implementing the Work, including the safety of persons and property protection.

C. Coordinate scheduling plan with Owner's Representative and Engineer regarding availability of storage and work trailer areas and similar requirements. The Contractor shall be prepared to modify or revise the entire plan to accommodate the Owner's requirements. Please include in the schedule the number of working days required to complete the Work in its entirety, coordination between selective demolition and installation of new Work, and disposal of construction debris generated by selective demolition work.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Provide safe, well-maintained equipment with qualified operators and proper insurance coverage, as required for Selective Demolition Work.

2.2 REPAIR MATERIALS

A. Comply with material and installation requirements specified in individual Specification Sections.

B. Where materials are not specified, use repair materials identical to existing materials, of equivalent or better quality. Match adjacent finishes as closely as possible. All repair materials must meet or exceed all local building code requirements.

PART 3 - EXECUTION

3.1 PREPARATION AND PROTECTION

A. Protect all adjacent Work and materials with suitable coverings or other approved methods during the progress of the Work. Protect against any possibility of flying debris and damage. Repair or replace any damaged existing building surface or element with new Work of equivalent kind and quality and to the Owner's satisfaction, at no additional cost to the Owner.

B. Construct barricades as required and necessary. Remove, mask, or otherwise protect adjacent construction, existing buildings, the pool, and property, including but not limited to glass, glazing, aluminum framing, hardware, fixtures, and similar items in each area of Selective Demolition Work.

C. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.

D. Provide and maintain temporary weather protection during the interval between Selective Demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or other damage occurs to the structure or interior areas of the existing building.

E. Provide and maintain protection for the Work against wind, storms, cold and heat, and any other source of potential damage. At the end of each day's work, cover all new Work vulnerable to damage. If low temperatures make it impossible to continue operations safely despite cold weather precautions, cease Work and notify the Owner's Representative and Engineer.

F. Provide all necessary fences, warning signals, signs, and lights before any selective demolition work commences; maintain secure outdoor storage areas during the entire course of the Work. Provide overhead protection for pedestrian and vehicular traffic at the edge of the building and as required by the Engineer.

G. Office activities and services shall not be disrupted and take precedence over construction services. Note that some drives, roads, parking, access ways, and staging areas dedicated to construction must be shared with others. The Contractor must coordinate the use of such areas to minimize congestion and aid in expediting the Work of all entities using the property.

H. Keep the Work clean and free from unsightly or dangerous accumulations of materials or trash at the end of each day's Work. Provide fences or adequate protection around any dangerous openings, materials, or equipment to protect all persons from injury by coming in contact with the same.

I. Remove and replace any work damaged by failure to provide the protection required as specified herein before with new Work of equivalent kind and quality at no additional cost to the Owner.

J. Coordinate arrangements with the Owner for security procedures on the property.

3.2 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new restoration Work and as indicated in the Construction Documents. Use methods required to complete the Work within the limitations of governing regulations and as follows:

1. Proceed with Selective Demolition systematically, from higher to lower levels.
2. Neatly cut openings and holes plumb, square, and true to the dimensions required.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of them off-site.
5. Dispose of demolished items and materials promptly.

3.3 PATCHING AND REPAIRS

A. General: Promptly repair damage to adjacent construction caused by Selective Demolition operations.

B. Repairs: Where repairs to existing surfaces are required, leave the area in a condition suitable for new materials.

C. Restore: Restore exposed finished of patched areas and extend restoration into adjoining construction to eliminate evidence of patching and refinishing.

END OF SECTION 01732

SECTION 03370 – CONCRETE REHABILITATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes preparation and concrete cracking, partial depth, and spall repair at the south balconies and common areas as specified herein and as directed by Engineer.

1. Bonding agents.
2. Patching mortar.
3. Joint filler.
4. Epoxy crack-injection materials.
5. Corrosion-inhibiting materials.

B. Related Sections:

1. **Section 03370 – Concrete Rehabilitation**
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09920 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 REFERENCES

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

1. ASTM C150: Standard Specification for Portland Cement.
2. ASTM A185: Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
3. ASTM A 615: Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete.
4. ASTM A 653 Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alley Coated (Galvannealed) by the Hot-Dip process.
5. ASTM C33: Standard Specification for Concrete Aggregates.
6. ASTM C94: Standard Specification for Ready-Mixed Concrete.
7. ASTM C150: Standard Specification for Portland Cement.
8. ASTM C260: Standard Specification for Air-Entraining Admixtures for Concrete.
9. ASTM C309: Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
10. ASTM C469: Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression.

11. ASTM C494: Standard Specification for Chemical Admixtures for Concrete
12. ASTM C881: Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.
13. ASTM C1042: Standard Test Method for Bond Strength of Latex Systems Used With Concrete.

B. American Concrete Institute (ACI):

1. ACI 301: Standard Specification for Structural Concrete.
2. ACI 308R: Guide to Curing Concrete.
3. ACI309R: Guide for Consolidation of Concrete.
4. ACI 318: Building Code Requirements for Structural Concrete.
5. ACI 546R: Concrete Repair Guide.

C. International Concrete Repair Institute (ICRI):

1. ICRI Guideline 310.1R: Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion.
2. ICRI Guideline 320.1R: Guide for Selecting Application Methods for Repair of Concrete Surfaces.

1.3 SUBMITTALS

A. Submittals shall be provided electronically in accordance with Section 01000, Item 1.06.

B. Product Data:

1. For each type of product.
    a. Include construction details, material descriptions, chemical composition, physical properties, test data, and mixing, preparation, project application types consisting of horizontal, vertical or overhead locations and application instructions.

C. Shop Drawings:

1. Shoring and Bracing, if required by Engineer: Provide Drawings or documentation to ensure that structure and temporary supports withstand the anticipated loads during construction and the effect of demolition on the capacity of the structure. Submit design calculations, sealed by an engineer licensed in state of Project, for shoring and bracing where required by the extent of structural repairs or removal of deteriorated concrete and subsequent replacement.

1.4 MOCKUPS

A. Contractor to provide a mock-up of each type of repair, as directed by the Engineer. Mock-ups shall include one of each of the different repair types. Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Partial Depth Concrete Repair
2. Column Partial Depth Repair
3. Slab Edge Repair
4. Stanchion Pocket Repair
5. Stanchion Post Repair
6. Route and Seal Deck Crack
7. Corroded Rod Chair Repair

8. Low Spot Materials Application

B. Manufacturer's representative or designated representative will review technical aspects, including surface preparation, application, and workmanship.

C. Obtain Engineer's written approval of mock-up before start of material application elsewhere, including approval of aesthetics, color, and texture.

D. Mock-up shall serve as standard for judging workmanship on remainder. Therefore, mock-ups should be maintained during construction.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.

B. Store cementitious materials off the ground, under cover, and in a dry location.

C. Where mixing components is required, use complete pre-measured units in accordance with manufacturer's recommendations. Do not use partial units.

1.6 FIELD CONDITIONS

A. Environmental Limitations for Epoxies: Do not apply when air and substrate temperatures are outside limits permitted by manufacturer. During hot weather, cool epoxy components before mixing, store mixed products in shade, and cool unused mixed products to retard setting. Do not apply to wet substrates unless approved by manufacturer.

1. Use only Class A epoxies when substrate temperatures are below or are expected to go below 40 deg F within eight hours.
2. Use only Class A or B epoxies when substrate temperatures are below or are expected to go below 60 deg F within eight hours.
3. Use only Class C epoxies when substrate temperatures are above and are expected to stay above 60 deg F for eight hours.

B. Cold-Weather Requirements for Cementitious Materials:

1. Do not apply unless concrete surface and air temperatures are above 40 deg F and will remain so for at least 48 hours after completion of Work.
2. Comply with the following procedures:
    a. When air temperature is below 40 deg F, heat patching-material ingredients and existing concrete to produce temperatures between 40 and 90 deg F.
    b. When mean daily air temperature is between 25 and 40 deg F, cover completed Work with weather-resistant insulating blankets for 48 hours after repair or provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after repair.
    c. When mean daily air temperature is below 25 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after repair.

C. Hot-Weather Requirements for Cementitious Materials: Protect repair work when temperature and humidity conditions produce excessive evaporation of water from patching materials. Provide artificial shade and wind breaks, and use cooled materials as required. Do not apply to substrates with temperatures of 90 deg F and above.

D. Environmental Limitations for High-Molecular-Weight Methacrylate Sealers: Do not apply when concrete surface temperature is below 55 deg F or above 90 deg F. Apply only to dry substrates.

1.7 SEQUENCING AND SCHEDULING

A. Contractor shall coordinate each portion of this work with the Engineer, to ensure structural integrity of the existing and repaired components.

B. Contractor shall coordinate each portion of this work with the owner's Representative and Engineer, to minimize annoyance and inconvenience to building occupants.

C. Contractor shall coordinate each portion of this work with other trades to ensure that all construction can be completed once it is begun.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Sika Corporation
2. Sto Corp.

2.2 STEEL REINFORCEMENT PRIMERS AND CONCRETE BONDING AGENTS

A. Multi-component, epoxy-modified, cementitious product specifically formulated as a bonding agent for cement or epoxy-based repair mortars and an anti-corrosion coating.

1. For application on steel reinforcement to protect against corrosion and on existing concrete to act as a bonding agent before concrete repairs (including railing stanchion pocket repairs).
2. Acceptable Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. **Sikagard P 8100 AP**
b. **Sto's Bonding & Anti-Corrosion Agent (#80246)**
c. **Sika Armatec 1C**
d. **Sika Armatex-110 EpoCem**

2.3 CONCRETE BONDING AGENTS

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Manufactured product that consists of water-insensitive epoxy adhesive, portland cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.

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

a. **Sika Armatex 1C**
b. **Sika Armatec® 110 EpoCem®**

c. **STO Bonding & Anti-Corrosion Agent (#80246)**

B. Mortar Scrub Coat: Mix consisting of 1-part portland cement and 1-part fine aggregate complying with ASTM C144, except 100 percent passing a No. 16 sieve.

2.4 PATCHING MORTAR

A. Patching Mortar Requirements:

1. Only use patching mortars that are recommended by manufacturer for each applicable horizontal, vertical, or overhead use orientation.
2. Color and Aggregate Texture: Provide patching mortar and aggregates of colors and sizes necessary to produce patching mortar that matches existing, adjacent, and exposed concrete. Blend several aggregates if necessary to achieve suitable matches.
3. Coarse Aggregate for Patching Mortar: ASTM C33/C33M, Size No. 8, Class 5S washed aggregate. Add to patching-mortar mix only as permitted by patching-mortar manufacturer.

B. Cementitious Patching Mortar: Packaged, dry mix for repair of concrete.

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

a. **Sika MasterEmaco® S 466 CI**
b. **Sika Sikacrete® 211 SCC Plus**

2. Compressive Strength: Not less than 5000 psi at 28 days when tested in accordance with ASTM C109/C109M.

C. Rapid-Strengthening, Cementitious Patching Mortar: ASTM C928/C928M packaged, dry mix for repair of concrete.

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

a. **Sika MasterEmaco® N 425 CI**
b. **Sika SikaTop® 123 Plus**

2. Compressive Strength: Not less than 2000 psi within three hours when tested in accordance with ASTM C109/C109M.

2.5 JOINT FILLER

A. Epoxy Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Shore A durometer hardness of at least 80 in accordance with ASTM D2240.

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

a. **Sika Sikadur 51 NS.**

B. Color: To be selected by the Owner from full range of industry colors.

2.6 EPOXY CRACK-INJECTION MATERIALS

A. Epoxy Crack-Injection Adhesive: ASTM C881/C881M, bonding system Type IV free, or low, of VOCs.

1. Acceptable Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    a. **Sika Sikadur® Crack Fix**
2. Capping Adhesive: Product manufactured for use with crack-injection adhesive by same manufacturer.
3. Color: To be selected by the Owner from full range of industry colors.

2.7 CORROSION-INHIBITING MATERIALS

A. Corrosion-Inhibiting Treatment: Waterborne solution of alkaline corrosion-inhibiting chemicals for concrete-surface application that penetrates concrete by diffusion and forms a protective film on steel reinforcement.

1. Acceptable Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    a. **Sika® Armatec®-110 EpoCem**

2.8 MISCELLANEOUS MATERIALS

A. Curing Materials: For ready-mixed concrete or packaged repair materials.

B. Formwork Materials: Form-facing materials must comply with ACI 301 requirements.

C. Water: Potable.

D. Cleaning Agent: Commercial muriatic acid solution.

2.9 MIXES

A. General: Mix products, in clean containers, in accordance with manufacturer's written instructions.

1. Do not add water, thinners, or additives unless recommended by manufacturer.
2. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovel or trowel as unit of measure.
3. Do not mix more materials than can be used within time limits recommended by manufacturer. Discard materials that have begun to set.

B. Mortar Scrub Coat: Mix dry ingredients with enough water to provide consistency of thick cream.

C. Dry-Pack Mortar: Mix required type(s) of patching-mortar dry ingredients with just enough liquid to form damp cohesive mixture that can be squeezed by hand into a ball but is not plastic.

D. Concrete Mixture Materials: Ready mixed.

1. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.
2. Portland Cement: ASTM C150/C150M, Type I, II, or III unless otherwise indicated.
3. Fly Ash: ASTM C618, Class C or F.
4. Slag Cement: ASTM C989/C989M, Grade 100 or 120.

5. Silica Fume: ASTM C1240 amorphous silica.
6. Aggregates: ASTM C330/C330M, nominal maximum aggregate size, gradation and types appropriate for the dimension of the repair area and project application.
7. Air-Entraining Admixture: ASTM C260/C260M.
8. Chemical Admixtures: Certified and as recommended by manufacturer for project applications to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

E. Grout for Use with Preplaced Aggregate: Proportion in accordance with ASTM C938. Add grout fluidifier to mixing water followed by portland cement, pozzolan, and fine aggregate.

PART 3 - EXECUTION

3.1 CONCRETE REHABILITATION

A. Have concrete-rehabilitation work performed only by qualified concrete-rehabilitation specialist.

B. Comply with manufacturers' written instructions for surface preparation and product application.

3.2 EXAMINATION

A. Notify Architect seven days in advance of dates when areas of deteriorated or delaminated concrete and deteriorated reinforcing bars will be located.

B. Locate areas of deteriorated or delaminated concrete using hammer or chain-drag sounding and mark boundaries. Mark areas for removal by simplifying and squaring off boundaries. At columns and walls, make boundaries level and plumb unless otherwise indicated.

C. Perform surveys as the Work progresses to detect hazards resulting from concrete-rehabilitation work.

D. Inspect exposed concrete surfaces, including exterior building cladding, panel joint edges, and similar surfaces, for cracks, spalled areas, honeycombs, exposed reinforcing steel and other deficiencies prior to beginning repair work. Conspicuously mark each anomaly for examination by Engineer, prior to excavation as required for correction of work as outlined in this Section.

E. If required by the Engineer, install shoring prior to any excavation and/or removal of any building components. If required by state or local jurisdiction, submit a threshold plan, prepared by a Florida licensed Threshold (Special Inspector) Engineer, along with the estimated cost for these services and shoring. Due to the unforeseen nature of this requirement, reasonable costs for this service are reimbursable.

F. Examine exposed metal surfaces that are rusting and require repair to verify the following:

1. All bolts, fasteners and/or welds will not be compromised by removal of rusted section.
2. Surfaces are free from ice, frost, dirt, grease, oil, curing compounds, form release agents, paints, impregnations, all loose material, and foreign matter likely to affect

the bond or performance of the repair materials.

3. Expansion and control joint provisions are in accordance with the Contract Documents and Project requirements.
4. Concrete is structurally sound, and all cracks have been repaired.
5. Manufacturer’s recommendations and requirements have been met for the material which is being installed.

3.3 PREPARATION

A. Ensure that supervisory personnel are on-site and on duty when concrete-rehabilitation work begins and during its progress.

B. Protect persons, motor vehicles, surrounding surfaces of building being repaired, building site, plants, and surrounding buildings from harm resulting from concrete-rehabilitation work.

1. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
2. Use only proven protection methods appropriate to each area and surface being protected.
3. Provide temporary barricades, barriers, and directional signage to exclude public from areas where concrete-rehabilitation work is being performed.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of concrete-rehabilitation work.
5. Contain dust and debris generated by concrete-rehabilitation work and prevent it from reaching the public or adjacent surfaces.
6. Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment that ensure that such water will not create a hazard or adversely affect other building areas or materials.
7. Protect floors and other surfaces along haul routes from damage, wear, and staining.
8. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.
9. Protect adjacent surfaces and equipment by covering them with heavy polyethylene film and waterproof masking tape or a liquid-strippable masking agent. If practical, remove items, store, and reinstall after potentially damaging operations are complete.
10. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
11. Dispose of debris and runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

C. Preparation for Concrete Removal: Examine construction to be repaired to determine best methods to safely and effectively perform concrete-rehabilitation work. Examine adjacent work to determine what protective measures will be necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed in the course of repair.

1. Verify that affected utilities have been disconnected and capped.
2. Inventory and record the condition of items to be removed for reinstallation or salvage.

3. Provide and maintain shoring, bracing, and temporary structural supports as required to preserve stability and prevent unexpected or uncontrolled movement, settlement, or collapse of construction being demolished and construction and finishes to remain. Strengthen or add new supports when required during progress of removal work.

D. Reinforcing-Bar Preparation: Remove loose and flaking rust from exposed reinforcing bars by high-pressure water cleaning, abrasive blast cleaning, needle scaling, or wire brushing until only tightly adhered light rust remains.

1. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in two or more adjacent bars, cut bars and remove and replace as indicated on Drawings.
2. Remove additional concrete as necessary to provide at least 3/4-inch clearance at existing and replacement bars.
3. Splice replacement bars to existing bars in accordance with ACI 318 by lapping, welding, or using mechanical couplings.

E. Preparation of Floor Joints for Repair: Saw-cut joints full width to edges and depth of spalls, but not less than 3/4 inch deep. Clean out debris and loose concrete; vacuum or blow clear with compressed air.

F. Surface Preparation for Corrosion-Inhibiting Treatment: Clean concrete to remove dirt, oils, films, and other materials detrimental to treatment application.

1. Allow surface to dry before applying corrosion-inhibiting treatment.

G. Surface Preparation for Composite Structural Reinforcement: Clean concrete where reinforcement and epoxy patching mortar is to be placed to remove dirt, oils, films, and other materials detrimental to epoxy patching mortar.

1. Roughen surface of concrete by sand blasting.
2. Remove delaminated material and deteriorated concrete surface material.
3. Sweep and vacuum roughened surface to remove debris.

3.4 REMOVAL OF CONCRETE

A. Do not overload structural elements with debris.

B. Saw-cut perimeter of areas indicated for removal to a depth of at least 1/2 inch. Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.

C. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.

D. Remove additional concrete if necessary to provide a depth of removal of at least 1/2 inch over entire removal area.

E. Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar and to provide at least 3/4-inch clearance around bar.

1. Sandblasting, chisel and hammer, or wire brush to remove loose concrete and rust on reinforcing steel bars. Remove loose, scaly rust; thin, tightly bonded rust will not require removal.
2. Where corrosion has occurred due to the presence of chlorides, the steel shall be high pressure washed after the mechanical cleaning.

3. At exposed reinforcing steel bars, remove concrete from around exposed bars for a minimum of ¾ inch around reinforcing to permit proper placement of patching compound.
4. If the reinforcing steel has lost more than 25% of its cross-section (or 20% if two or more adjacent bars are affected), then the Contractor shall notify the Engineer and request, in writing, how to proceed with repairing reinforcing steel. Any work beyond adding supplemental bars will be considered an additional expense.

F. Test areas where concrete has been removed by tapping with hammer, and remove additional concrete until unsound and disbonded concrete is completely removed.

G. Provide surfaces with a fractured profile of at least 1/8 inch that are approximately perpendicular or parallel to original concrete surfaces. At columns and walls, make top and bottom surfaces level unless otherwise directed.

H. Thoroughly clean removal areas of loose concrete, dust, and debris.

3.5 APPLICATION OF BONDING AGENTS

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion System: Apply to reinforcing bars and concrete by stiff brush or hopper spray in accordance with manufacturer's written instructions. Apply to reinforcing bars in two coats, allowing first coat to dry two to three hours before applying second coat. Allow to dry before placing patching mortar or concrete.

B. Epoxy Bonding System: Apply to reinforcing bars and concrete by brush, roller, or spray in accordance with manufacturer's written instructions, leaving no pinholes or other uncoated areas. Apply to reinforcing bars in at least two coats, allowing first coat to dry before applying second coat. Place patching mortar or concrete while epoxy is still tacky. If epoxy dries, recoat before placing patching mortar or concrete.

3.6 INSTALLATION OF PATCHING MORTAR

A. Place patching mortar as specified in this article unless otherwise recommended in writing by manufacturer or where dry-pack mortar is indicated.

1. Provide forms where necessary to confine patch to required shape.
2. Wet substrate and forms thoroughly and then remove standing water.

B. Pretreatment: Apply specified bonding agent or mortar scrub / slurry coat.

C. General Placement: Place patching mortar by troweling toward edges of patch to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.

D. Vertical Patching: Place material in lifts of not more than 3 inches or less than 1/4 inch. Do not feather edge.

E. Overhead Patching: Place material in lifts of not more than 2 inches or less than 1/4 inch. Do not feather edge.

F. Consolidation: After each lift is placed, consolidate material and screed surface.

G. Multiple Lifts: Where multiple lifts are used, score surface of lifts to provide a rough

surface for placing subsequent lifts. Allow each lift to reach final set before placing subsequent lifts.

H. Finishing: Allow surfaces of lifts that are to remain exposed to become firm and then finish to a surface matching adjacent concrete.

I. Curing: Wet-cure cementitious patching materials, including polymer-modified cementitious patching materials, for not less than seven days by water-fog spray or water-saturated absorptive cover.

3.7 INSTALLATION OF DRY-PACK MORTAR

A. Use dry-pack mortar for deep cavities. Place as specified in this article unless otherwise recommended in writing by manufacturer.

1. Provide forms where necessary to confine patch to required shape.
2. Wet substrate and forms thoroughly and then remove standing water.

B. Pretreatment: Apply specified bonding agent or mortar scrub / slurry coat.

C. Place dry-pack mortar into cavity by hand, and compact tightly into place. Do not place more material at a time than can be properly compacted. Continue placing and compacting until patch is approximately level with surrounding surface.

D. After cavity is filled and patch is compacted, trowel surface to match profile and finish of surrounding concrete. A thin coat of patching mortar may be troweled into the surface of patch to help obtain required finish.

E. Wet-cure patch for not less than seven days by water-fog spray or water-saturated absorptive cover.

3.8 APPLICATION OF EPOXY CRACK-INJECTION MATERIALS

A. Clean cracks with oil-free compressed air or low-pressure water to remove loose particles.

B. Clean areas to receive capping adhesive of oil, dirt, and other substances that would interfere with bond.

C. Place injection ports as recommended by epoxy manufacturer, spacing no farther apart than thickness of member being injected. Seal injection ports in place with capping adhesive.

D. Seal cracks at exposed surfaces with a ribbon of capping adhesive at least 1/4 inch thick by 1 inch wider than crack.

E. Inject cracks wider than 0.003 inch to a depth of 8 inches.

F. Inject epoxy adhesive, beginning at widest part of crack and working toward narrower parts. Inject adhesive into ports to refusal, capping adjacent ports when they extrude epoxy. Cap injected ports and inject through adjacent ports until crack is filled.

G. After epoxy adhesive has set, remove injection ports and grind surfaces smooth.

3.9 APPLICATION OF CORROSION-INHIBITING MATERIALS

A. Apply corrosion-inhibiting treatment to surfaces indicated on Drawings, from wall to wall or curb to curb and from joint to joint in the perpendicular direction and extent where treatment is to be applied.

B. Apply by brush, roller, or airless spray in two coats at manufacturer's recommended application rate. Remove film of excess treatment by high-pressure washing before patching treated concrete or applying a sealer or overlay.

3.10 CONCRETE CRACK REPAIRS

A. Cracks in surfaces are to be repaired as follows:

1. Dynamic cracks and joints 1/16 of an inch wide and greater shall be routed to a minimum of ¼ of an inch by ¼ of an inch and be cleaned. Seal cracks using approved urethane sealant. Sealant shall be applied to inside area of crack only, not applied to deck surface. Allow sealant minimum cure time.
2. Seal joints 1 inch or less with specified urethane sealant. Be sure to maintain proper ratio of width to depth.
3. Expansion joints exceeding 1-inch-wide, including the primary wide expansion joint system, shall not be coated.
4. Notify Engineer in writing of cracks greater than 1-inch.

3.11 FIELD QUALITY CONTROL

A. Contractor shall inspect completed work to ensure all holes, cracks and voids have been filled, and all joints and cracks have been properly treated.

B. Any improperly applied repair materials must be removed and surfaces properly prepared and patched with cementitious materials, and then re-inspected by Engineer.

C. Engineer shall approve all phases of work prior to subsequent work being performed. Any subsequent work that has commenced without written approval by Engineer must be removed for inspection by Engineer, and then reinstalled, all at no expense to the Owner.

END OF SECTION 03370

SECTION 05400 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Load-bearing wall framing.
2. Exterior non-load-bearing wall framing.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. **Section 05400 – Cold Formed Metal Framing**
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 REFERENCES:

A. American Society of Civil Engineers (ASCE) 7 - Minimum Design Loads.

B. American Society for Testing and Materials (ASTM):

1. ASTM A1003 - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
2. ASTM C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Board and Metal Plaster Bases.
3. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
4. ASTM C1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.

C. Steel Stud Manufacturers Association (SSMA) Product Technical Guide (2022): Complies with the 2022 International Building Code (IBC) and features the industry’s standardized nomenclature and product identification information.

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Cold-formed steel framing materials.

2. Post-installed anchors.
3. Power-actuated anchors.
4. Sill sealer gasket.

B. Shop Drawings:

1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Product Certificates: For each type of code-compliance certification for studs and tracks.

C. Product Test Reports: For each listed product, for tests performed by manufacturer and witnessed by a qualified testing agency, or by a qualified testing agency.

1. Steel sheet.
2. Expansion anchors.
3. Power-actuated anchors.
4. Mechanical fasteners.
5. Miscellaneous structural clips and accessories.

1.5 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association, the Steel Stud Manufacturers Association, or the Supreme Steel Framing System Association.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect and store cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling as required in AISI S202.

PART 2 - PRODUCTS

2.1 COLD-FORMED METAL FRAMING

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

1. AllSteel & Gypsum Products, Inc.
2. Consolidated Fabricators Corp.
3. Craco Manufacturing., Inc.
4. Custom Stud, Inc.
5. Design Shapes in Steel.
6. Frametek Steel Products.
7. Jaimes Industries, Inc.

8. Marino\Ware.
9. MBA Metal Framing
10. Mill Steel Framing; Mill Steel Company
11. SCAFCO Corporation.
12. Steel Construction Systems.
13. The Mill Steel Co
14. United Metal Products, Inc.
15. US Frame Factory

2.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.

1. Design Loads (W): As indicated on Drawings.
2. Deflection Limits (Δ_{al}): Design framing systems to withstand design loads without deflections greater than the following:
    a. Exterior Load-Bearing Wall Framing: Horizontal deflection of:
        1) L/240 for the wall height for exterior siding or EIFS.
        2) L/360 for the wall height for stucco cladding.
    b. Exterior Non-Load-Bearing Framing: Horizontal deflection of:
        1) L/120 for the wall height for flexible finishes.
        2) L/240 for the wall height for elastic finish cladding, such as gypsum panels.
        3) L/360 for the wall height for brittle finish cladding, such as plaster or tile.
3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.
4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
    a. Upward and downward movement of 1/2 inch.
5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

B. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing complies with AISI S100 and AISI S240.

C. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency acceptable to authorities having jurisdiction.

2.3 COLD-FORMED STEEL FRAMING MATERIALS

A. Framing Members, General: Comply with AISI S240 for conditions indicated.

B. Steel Sheet: ASTM A1003/A1003M, Structural Grade, Type H, metallic coated, of grade and

coating designation as follows:

1. Grade: ST50H.
2. Coating: G90 or equivalent.

C. Steel Sheet for Vertical Deflection Clips: ASTM A653/A653M, structural steel, zinc coated, of grade and coating as follows:

1. Grade: 50, Class 1.
2. Coating: G90.

2.4 LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. SSMA Stud Profile: **Match existing framing.**
2. Span Length: 100 inches.
3. Spacing: 16 inches.
4. Anchor Spacing: Matching steel studs, or as depicted on Drawings.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with straight flanges, and as follows:

1. SSMA Track Profile: **Match existing framing.**

C. Steel Box or Back-to-Back Headers: Manufacturer's standard C-shapes used to form header beams, of web depths indicated, unpunched, with stiffened flanges.

D. Steel Single- or Double-L Headers: Manufacturer's standard L-shapes used to form header beams, of web depths indicated.

2.5 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. SSMA Stud Profile: **Match existing framing.**
2. Span Length: 100 inches.
3. Spacing: 16 inches.
4. Anchor Spacing: Matching steel studs, or as depicted on Drawings.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with straight flanges, and as follows:

1. SSMA Track Profile: **Match existing framing.**

C. Vertical Deflection Clips, Exterior: Manufacturer's standard clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.

D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure.

E. Double Deflection Tracks: Manufacturer's double, deep-leg, U-shaped steel tracks, consisting of nested inner and outer tracks; unpunched, with unstiffened flanges.

F. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

2.6 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from ASTM A1003/A1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:

1. Supplementary framing.
2. Bracing, bridging, and solid blocking.
3. Anchor clips.
4. End clips.

2.7 ANCHORS, CLIPS, AND FASTENERS

A. Steel Shapes and Clips: ASTM A36/A36M, zinc coated by hot-dip process according to ASTM A123/A123M.

B. Anchor Bolts: ASTM F1554, Grade 55, threaded carbon-steel carbon-steel nuts, and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A153/A153M, Class C, or mechanically deposition according to ASTM B695, Class 50.

C. Post-Installed Anchors: Fastener systems with bolts of same basic metal as fastened metal, if visible, unless otherwise indicated; with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC193, ICC-ES AC58, or ICC-ES AC308 as appropriate for the substrate.

1. Uses: Securing cold-formed steel framing to structure.
2. Type: Torque-controlled expansion anchor, Torque-controlled adhesive anchor, or, adhesive anchor.
3. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn 5, unless otherwise indicated.
4. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 2 (Type 316), stainless steel bolts, ASTM F593, and nuts, ASTM F594.

D. Power-Actuated Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

E. Mechanical Fasteners: ASTM C1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.

1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.

F. Welding Electrodes: Comply with AWS standards.

2.8 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: ASTM A780/A780M, MIL-P-21035B, or SSPC-Paint 20.

B. Zinc Enriched Primer: To protect steel from corrosion by combining a barrier coating with the sacrificial galvanic protection of zinc.

C. Cement Grout: Portland cement, ASTM C150/C150M, Type I; and clean, natural sand, ASTM C404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

D. Nonmetallic, Nonshrink Grout: Factory-packaged, nonmetallic, noncorrosive, nonstaining grout, complying with ASTM C1107/C1107M, and with a fluid consistency and 30-minute working time.

E. Shims: Load-bearing, high-density, multimonomer, nonleaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.

F. Sill Sealer Gasket: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

2.9 FABRICATION

A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.

1. Fabricate framing assemblies using jigs or templates.
2. Cut framing members by sawing or shearing; do not torch cut.
3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
    a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners and install according to Shop Drawings, with screws penetrating joined members by no fewer than three exposed screw threads.
4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies by means that prevent damage or permanent distortion.

C. Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable variation of 1/8 inch in 10 feet and as follows:

1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error are not to exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the

Work.

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

3.2 PREPARATION

A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that required to obtain fire-resistance ratings indicated. Protect remaining fire-resistive materials from damage.

C. Install load-bearing shims or grout between the underside of load-bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.

3.3 INSTALLATION, GENERAL

A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed steel framing according to AISI S200, AISI S202, and manufacturer's written instructions unless more stringent requirements are indicated.

C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.

1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.

D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.

1. Cut framing members by sawing or shearing; do not torch cut.
2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
    a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners, install according to Shop Drawings, and comply with requirements for spacing, edge distances, and screw penetration.

E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

F. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

G. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

3.4 INSTALLATION OF LOAD-BEARING WALL FRAMING

A. Place studs at spacing indicated and not more than 2 inches from abutting walls and at each side of openings.

B. Construct corners using minimum of three studs.

C. Install continuous top and bottom tracks sized to match studs. Align tracks accurately and securely anchor at corners, ends, and spacings.

1. Anchor Spacing: Matching steel studs and as depicted on Drawings.

D. Squarely seat studs against top and bottom tracks, with gap not exceeding 1/8 inch between the end of wall-framing member and the web of track.

1. Fasten both flanges of studs to top and bottom tracks.
2. Space studs as follow:

a. Stud Spacing ($w_{stud\ spacing}$): As indicated in Part 2, above.

E. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar configurations.

F. Align studs vertically where floor framing interrupts wall-framing continuity. Where studs cannot be aligned, continuously reinforce track to transfer loads.

G. Align floor and roof framing over studs according to AISI S200, Section C1. Where framing cannot be aligned, continuously reinforce track to transfer loads.

H. Anchor studs abutting structural columns or walls, including masonry walls, to supporting structure.

I. Install headers over wall openings wider than stud spacing. Locate headers above openings. Fabricate headers of compound shapes indicated or required to transfer load to supporting studs, complete with clip-angle connectors, web stiffeners, or gusset plates.

1. Frame wall openings with not less than a double stud at each jamb of frame. Fasten jamb members together to uniformly distribute loads.
2. Install tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with clip angles or by welding, and space jack studs same as full-height wall studs.

J. Install supplementary framing, blocking, and bracing in stud framing indicated to support fixtures, equipment, services, casework, heavy trim, furnishings, and similar work requiring attachment to framing.

1. If type of supplementary support is not indicated, comply with stud manufacturer's written recommendations and industry standards in each case, considering weight or load resulting from item supported.

K. Install miscellaneous framing and connections, including supplementary framing, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.5 INSTALLATION OF EXTERIOR NONLOADBEARING WALL FRAMING

A. Place studs at spacing indicated and not more than 2 inches from abutting walls and at each side of openings.

B. Construct corners using minimum of two studs.

C. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

D. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:

1. Stud Spacing ($w_{stud\ spacing}$): As indicated in Part 2, above.

E. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.

F. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.

1. Connect vertical deflection clips to infill studs and anchor to building structure.
2. Connect drift clips to cold-formed steel framing and anchor to building structure.

G. Install miscellaneous framing and connections, including clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.6 INSTALLATION TOLERANCES

A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error are not to exceed minimum fastening requirements of sheathing or other finishing materials.

3.7 REPAIR

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

3.8 FIELD QUALITY CONTROL

A. Comply with Drawings and Details, as well as with requirements of this specification.

B. Complete mock-ups of all unique conditions. Leave in place for review by Engineer. Do not proceed with general work until mock-up is reviewed and approved by Engineer.

3.9 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05400

SECTION 06160 - SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wall sheathing.
2. Sheathing joint-and-penetration treatment materials.
3. Rough hardware.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. **Section 06160 – Sheathing**
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 ACTION SUBMITTALS

A. Product Data:

1. Wall sheathing.
2. Sheathing joint-and-penetration treatment materials.
3. Fasteners.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: Work performed under this section shall only be by installers with minimum five (5) years documented experience in the application of specified products and systems on projects of similar size and scope.

1.4 QUALITY ASSURANCE

A. Mockups: Install exterior sheathing mock-up for review by Engineer, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: As tested in accordance with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 WALL SHEATHING

A. Glass-Mat Gypsum Sheathing, Walls: ASTM C1177/C1177M.

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

a. Georgia-Pacific: DensGlass
b. Certain Teed: GlasRoc
c. USG Corporation: Securock

2. Type and Thickness: Type X, 5/8 inch thick.

2.3 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Paper-Surfaced and Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Section 07920 "Joint Sealants."

B. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.

1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.

C. Sheathing Tape for Foam-Plastic Sheathing: Pressure-sensitive plastic tape recommended by sheathing manufacturer for sealing joints and penetrations in sheathing.

2.4 FASTENERS

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

1. Provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M of Type 304 stainless steel.
2. Provide fasteners with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours in accordance with ASTM B117.

B. Nails, Brads, and Staples: ASTM F1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.

1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C1002.
2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C954.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. Table 2304.10.1, "Fastening Schedule," in the ICC's International Building Code.
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for fastener.

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate wall sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 INSTALLATION OF GYPSUM SHEATHING

A. Comply with GA-253 and with manufacturer's written instructions.

1. Fasten gypsum sheathing to wood framing with nails or screws.
2. Fasten gypsum sheathing to cold-formed metal framing with screws.
3. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.

4. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.

B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.

C. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent panels without forcing. Abut ends over centers of studs, and stagger end joints of adjacent panels not less than one stud spacing. Attach at perimeter and within field of panel to each stud.

1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
2. For sheathing under stucco cladding, panels may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

D. Vertical Installation: Install vertical edges centered over studs. Abut ends and edges with those of adjacent panels. Attach at perimeter and within field of panel to each stud.

1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
2. For sheathing under stucco cladding, panels may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

E. Seal sheathing joints in accordance with sheathing manufacturer's written instructions.

1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient amount of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.
2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

3.3 FIELD QUALITY CONTROL

A. ABAA Quality Assurance Program: Perform examinations, preparation, installation, testing, and inspections under ABAA's Quality Assurance Program.

B. BECI will verify the below:

1. Verify sheathing materials and inspect sheathing connections/joint details.
2. Verify connector materials, nails, bolts, anchoring, and other fastening..
3. Material Verification: Confirm the type, thickness, and grade of sheathing per the approved plans and specifications.
4. Panel Installation: Inspect for proper orientation of sheathing panels. Ensure face grain or long dimension is perpendicular to supports. Verify edge and end spacing.
5. Fastener Inspection: Verify fastener type, size, spacing, and pattern. Ensure nails, screws, or staples meet specified standards. Confirm edge distances and avoidance of overdriven fasteners. Inspect for corrosion resistance.

END OF SECTION 06160

SECTION 07160 - TRAFFIC DECK COATING SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes properly preparing the exposed concrete slab at the south balconies and installing a three-layered system of flexible fluid applied urethane deck coating, including an epoxy primer, one-component polyurethane basecoat, wear coat with aggregate broadcast to refusal, and an aliphatic topcoat of a single-component moisture-curing polyurethane and as noted in the Contract Documents.

B. Drawings and general provisions of the Contact, including General and Supplementary conditions apply to this section.

C. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. **Section 07160 – Traffic Deck Coating System**
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 REFERENCES

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

1. ASTM C 884: Test Method for Thermal Compatibility Between Concrete and Epoxy Resin.
2. ASTM C 957: Standard Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproof Membrane with Integral Wearing Surface.
3. ASTM D 56: Standard Test Method for Flash Point by Tag Closed Cup Tester.
4. ASTM D 412: Standard Test Method for Vulcanized Rubber and Thermoplastic Elastomers - Tensile
5. ASTM D 1004: Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting.

6. ASTM D 1259: Standard Test Methods for Nonvolatile Content of Resin Solutions.
7. ASTM D 1475: Standard Test Method for Density of Liquid Coatings, Inks and Related Products.
8. ASTM D 2240: Standard Test Method for Rubber Property – Durometer Hardness.
9. ASTM D 4541: Test Method for Pull-Off Strength of Coating Using Portable Adhesion-Testers.
10. ASTM E 96: Test Method for Water Vapor Transmission of Materials.

1.3 SUBMITTALS

A. Product Data:

1. Submit electronic copies of product Manufacturer's specifications, recommendations, sample warranties, and installation instructions for deck coating materials.
2. Submit electronic copies of manufacturer's published data, letter of certification of certified test laboratory report which states that each material complies with requirements and is intended for application shown.

B. Color Samples:

1. For verification purposes resubmit until required color and texture are achieved.
2. Provide three (3) sets of samples for south balconies to receive new coatings, as directed by Owner and do not proceed until final acceptance by Owner is granted. Contractor's inability to follow these instructions may result in recoating applications at the Contractor's own expense.

C. Field Data:

1. Prior to commencing with the Work, provide the Engineer with accurate field measurements and material quantities for each south balcony.
2. Failure to comply with this requirement will result in stoppage work and the Contractor shall be responsible for any time delays resulting from such stoppage.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Work performed under this section shall only be by installers with minimum three (3) years documented experience in the application of specified products and systems on projects of similar size and scope.
2. Contractor shall be approved by manufacturer for installation of their products.
3. Contractor shall submit the names of two prior successful installations to Engineer.

B. Adhesion Testing:

1. Manufacturer's representative shall be required to perform field adhesion tests at beginning of project prior to installation of deck coating. Tests should be performed by embedding a cheese cloth in base coating or top coating (depending on application) on the prepared decking. After curing, the cloth should be pulled ninety degrees from the deck surface until failure. Failure must be reviewed by Engineer. Engineer will determine pass/fail with assistance of manufacturer's representative. Manufacturer's representative shall provide a letter documenting the requests of the testing and his recommendations for the installation, if they differ from the manufacturer's published literature.

2. Field adhesion test shall be performed at a minimum of five (5) locations on the south balconies decks. Locations to be selected by Engineer.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver products to job site in original unopened packages with labels identifying manufacturer, product identification, and batch numbers when appropriate.

B. Store materials in accordance with manufacturer's recommendations.

1.6 MOCK-UP

A. At the start of the project, Contractor shall perform mock-up of required deck coatings. Work in pre-selected areas, as directed by the Engineer. A minimum of forty (40) square feet area shall serve as the mock-up for south balconies. Mock-up shall be done at a full balcony location.

B. Mock-up will be reviewed for conformance with the Contract Documents, color, texture, millage requirements, uniformity appearance and workmanship. If mockup is not satisfactory, prepare additional mock-ups until Owner's approval is obtained.

C. Obtain Engineer's written approval of mock-up before start of material application elsewhere, including approval of aesthetics, color, texture, and appearance.

D. Mock-up shall serve as standard for judging workmanship on remainder of project. Therefore, mock-up should be maintained during construction.

E. Final acceptance of color will be from project-applied fully cured mock-up sample and approved by the Owner.

1.7 PROJECT CONDITIONS

A. Environmental Requirements:

1. Comply with manufacturer's recommendations for environmental conditions under which materials may be applied and cured.

2. Apply no materials when subject to windblown dust, sand, fog or rain or when relative humidity exceeds 85 percent; or to damp or wet surfaces; or when there is a threat of rain within the next 24 hours. Allow surfaces to attain temperature and conditions specified before proceeding with coating system application.
3. Do not apply materials on wet surfaces and protect form rapid drying causing streaks or discoloration.
4. Apply coatings only when ambient temperature is above 40 degrees and rising at application time and will remain above 40 degrees F (4 degrees C) for at least 24 hours after application, and less than 90 degrees F.

B. Apply coating to substrate, which indicates acceptable moisture level when tested by a moisture meter or other appropriate means.

1.8 SEQUENCING AND SCHEDULING

A. Coordinate each portion of the Work with other trades to ensure that all work can be completed once it has commenced, and to provide for appropriate interfacing with other work.

1.9 WARRANTY

A. Manufacturer Warranty: Urethane Deck Coating: Provide a warranty from the manufacturer against defective materials and labor for a minimum period of five (5) years after completion and final acceptance of the work. Material related defects shall be corrected at no expense to the Owner during the warranty period.

B. Contractor Warranty: Provide a written warranty agreeing to repair defects in workmanship for a minimum period of two (2) years after completion and final acceptance of the Work. Material and workmanship related defects shall be corrected at no expense to the Owner during the warranty period.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products from one of the following manufacturers:

1. NeoGard®
   2728 Empire Central
   Dallas, TX 75235
   (800) 321-6588
   www.neogard.com

B. Other manufacturers and systems will be considered only if submitted and approved by the Engineer 48 hours prior to bid deadline.

C. All primary materials shall be from a single manufacturer. To assure system compatibility, mixing and matching of various products from different manufacturers is prohibited.

D. All secondary materials shall be in accordance with primary materials manufacturer's recommendations or requirements.

2.2 MATERIALS

A. General:

1. All materials shall be new, and of best commercial quality.

B. Above Grade Urethane Deck Coating:

1. Type: Polyurethane waterproofing, traffic bearing membrane system.
2. Use: For application on all balconies above grade at the north and south elevations.
3. Material Properties:

   a. Tensile Strength – As stipulated by the following values, tested in accordance with ASTM D 412:
      1) ≥ 2500 psi (Top Coat)
   b. Elongation – As stipulated by the following values, tested in accordance with ASTM D 412:
      1) ≥ 250 %
   c. Adhesion (Pull-off) – As stipulated by the following values, tested in accordance with ASTM D 4541:
      1) ≥ 400 psi (Base Coat)
   d. Abrasion Resistance – As stipulated by the following values, tested in accordance with ASTM D 4541:
      1) ≤ 10 mgms loss – mgms loss/1,000 cycles (Top Coat)

4. Acceptable Products:

   a. Neogard® Peda-Gard™ Aliphatic

C. System Components:

1. Primer:
   a. Concrete primer as required by Neogard (contact Neogard Representative before bidding)
      i. Neogard: 7760/7761, 7780/7781, 7797/7798

2. Reinforcing Fabric:

    a. Neogard 86220 Reinforcing Fabric

3. Sealant:
    a. SikaFlex NP 1
    b. Neogard 70991 urethane sealant
    c. Sherwin-Williams Loxon H1

4. Aggregate:
    a. Neogard 7992 Silica (Quartz) 16/30 Sand Aggregate

5. Base Coat:
    a. Neogard 70410 Urethane Coating
    b. Neogard 7430 Urethane Coating

6. Wear Coat:
    a. Neogard 7430 Urethane Coating

7. Top Coat:
    a. Neogard 7470 Aliphatic Urethane Coating
    b. Neogard 57010 Acrylithane HS2

8. Cleaning Solvent:
    a. Neogard 20653 Xylene Thinner Neogard 7055 Odorless Reducer

PART 3 – EXECUTION

3.1 PROTECTION OF SURROUNDING WORK AREA

A. General

1. Surrounding work area (walls, doors, windows, plants, elevators, stairs, etc.) must be protected from application of the waterproofing system. Screen enclosures, handrails, swimming pools, and other architectural factors should be taken into consideration.
2. Using paper and/or plastic cover walls to at least thirty-six (36) inches above prepared surface and tape securely.
3. Filament tape should be used on all aluminum, fiberglass, and tile.
4. Masking tape and/or grout tape is usually used on painted surfaces to avoid peeling of paint upon tape removal

3.2 SURFACE PREPARATION

A. Substrates must be sound and free of dust, dirt, laitance, paints, oil, grease, curing compounds, and all other foreign material. Any foreign material, including the existing

coating, must be removed mechanically, by scarifying, shot blasting, grinding or sandblasting.

B. Repairing Spalls and Low-Spots: All surface spalls, low-spots and imperfections greater than ¼ of an inch in depth are to be repaired with the appropriate repair mortar and methods. See Section 03370 and ICRI guidelines for repair procedures.

C. Verify substrate has properly cured. If efflorescence is present, mechanically remove it before proceeding. Concrete should have a minimum compressive strength of 3,000 psi and be cured for a minimum of 28 days or 80 percent of design strength.

D. Unless otherwise directed by Engineer, cracks in surfaces to receive the coating are to be repaired as follows prior to coating applications:

1. Hairline cracks of 0.014 inches and less do not require pre-striping.
2. Static joints and cracks less than 1/16 of an inch are to be pre-striped with base coat to yield thickness of 30 dry mils. Base coat shall fill and overlap the joint or crack 2 inches on each side with feathered edges.
3. Dynamic cracks and joints 1/16 of an inch wide and greater shall be routed to a minimum of ¼ of an inch by ¼ of an inch and be cleaned. Seal cracks using approved urethane sealant. Sealant shall be applied to inside area of crack only, not applied to deck surface. Allow sealant minimum cure time. Apply a detail coating of base coat to yield thickness of 30 dry mils. Base coat should be installed 4” wide, centered over the crack. **Note: Cured sealant must be solvent wiped. Allow solvent to flash of prior to installation of Base Coat detail stripe.**
4. Sealed joints 1 inch or less with specified urethane sealant. Be sure to maintain proper ratio of width to depth. After the sealant has cured, detail sealed joints with polyurethane Base Coat material extended a minimum distance of 2” on either side of joint to yield thickness of 30 dry mils.
5. Expansion joints exceeding 1-inch-wide, including the primary wide expansion joint system, shall not be coated.

E. Final Surface Condition: Remove all dust, laitance and contaminated materials to provide a clean, dense and dry surface.

3.3 APPLICATION OF URETHANE COATING ABOVE GRADE

A. Primer: Where required, thoroughly mix primer and apply at a rate of 300 sf/gal (0.33 gal/100 sf) to all concrete surfaces. Within 24 hours of application of primer, base coat must be applied. If base coat cannot be applied within 24 hours, re-prime.
B. Base Coat: Thoroughly mix 70410 and apply at a rate of 66 sf/gal (1.5 gal/100 sf or 24 wet mils), to yield 18 dry mils. Extend base coat over cracks and control joints which have received detail treatment.
C. Wear Coat: Thoroughly mix 7430 and apply at a rate of 200 sf/gal (0.5 gal/100 sf or 8 wet mils) to yield 6 dry mils, and immediately broadcast aggregate, evenly distributed, into wet coating at the rate of 10 lbs/100 sf. When dry, remove excess aggregate.

D. Topcoat: Thoroughly mix 7470 series and apply at a rate of 150 sf/gal (0.66 gal/100 sf or 10 wet mils) to yield 8 dry mils.
E. System coating thickness is 32 dry mils exclusive of primer and aggregate.

3.4 CURING AND SEALING

A. After application of final coat, allow a minimum curing time of 48 hours before pedestrian use and 72 hours before vehicular use. Extend the curing time in cool-weather conditions.

B. Protect installed Work and prohibit traffic or storage upon the coated surfaces for 48 hours following application of the final coat.

3.5 CLEANING

A. Keep the area clean during repair operations. Remove and clean promptly all mortar or coating spills and splatters. Collect and maintain site in a clean and orderly condition. Remove debris daily from site.

B. Remove all mortar or coating splatters, spills from the repair area, and adjacent areas acceptable to the Engineer.

3.6 MAINTENANCE

A. Surfaces may be cleaned with commercial detergents as recommended by manufacturer. It is recommended that a maintenance agreement be established between the owner and applicator.

B. Periodic inspection and repair of damaged surfaces will greatly prolong the performance and life of the system.

END OF SECTION 07160

SECTION 07212 - BATT INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Installation of new R-13 Batt Insulation at the South Elevation.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. **Section 07212 – Batt Insulation**
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Installer's Certification: Listing type, manufacturer, and R-value of insulation installed in each element of the building thermal envelope.

1. Indicate initial installed thickness, settled thickness, settled R-value, installed density, coverage area, and number of bags installed.
2. Sign, date, and post the certification in a conspicuous location on Project site.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

1.4 DELIVERY, STORAGE, AND HANDLING

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

B. Protect foam-plastic board insulation as follows:

1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.
3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indexes less than Class A, 25 and 450 when tested in accordance with ASTM E84.

B. Fire-Resistance Ratings: Comply with ASTM E119 or UL 263; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from listings of another qualified testing agency.

C. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

D. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.

E. Thermal-Resistance Value (R-Value): R-13 in accordance with ASTM C518.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products, applications and applicable codes.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Install insulation with manufacturer's R-value label exposed after insulation is installed.

D. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

E. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.2 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

A. Blanket Insulation: Install in cavities formed by framing members in accordance with the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit

between edges of insulation and adjoining framing members.

3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
4. Attics: Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
5. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
6. For wood-framed construction, install blankets in accordance with ASTM C1320 and as follows:
    a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.

B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft..
2. Detailing Foam Insulation for Voids: Apply in accordance with manufacturer's written instructions.

C. Loose-Fill Insulation: Apply in accordance with ASTM C1015 and manufacturer's written instructions.

1. Level horizontal applications to uniform thickness as indicated, lightly settle to uniform density, but do not compact excessively.

END OF SECTION 07212

SECTION 07270 - FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Work of this section includes application of fluid-applied air and water resistive barrier over new exterior grade wall sheathing and as described in Section 00300 of the Project Manual and as depicted in BECI's Drawings and Details.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. **Section 07270 – Fluid Applied Membrane Air Barrier**
7. Section 07620 – Sheet Metal Flashing and Trim
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9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 SUBMITTALS

A. Product data: Submit manufacturer's product data including membrane and accessory material types, technical and test data, composition, descriptions and properties, installation instructions and substrate preparation requirements.

B. Shop Drawings: Provide Installation Guideline Illustrations.

C. Field Data:

1. Prior to commencing with the Work, provide the Engineer with accurate field measurements and material quantities for exterior walls.
2. Failure to comply with this requirement will result in stoppage work and the Contractor shall be responsible for any time delays resulting from such stoppage.

D. Warranty: Submit copy of manufacturer's warranty as specified herein.

1.3 QUALITY ASSURANCE

A. Manufacturer's qualifications: Air and water-resistive barrier systems shall be manufactured and marketed by a firm with a minimum of five (5) years of experience in the production and sales of air and water-resistive barrier systems. Manufacturers proposed for use, but not named in these specifications, shall submit evidence of ability to meet all requirements specified, and include a list of projects of similar design and complexity completed within the past five (5) years.

B. Installer's qualifications: The installer shall demonstrate qualifications to perform the work of this section by submitting the following:

1. Verification that installer has been trained by and is approved to perform work as herein specified by air and water-resistive barrier system manufacturer.
2. Work performed under this section shall only be by installers with minimum three (3) years documented experience in the application of specified products and systems on projects of similar size and scope.
3. Evidence of proper equipment and trained field personnel to successfully complete the project.

C. Inspection and testing: Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover installed products or assemblies until they have been inspected, tested, and approved.

D. Regulations: Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOC).

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from damage, weather, excessive temperatures, and construction operations. Remove damaged material from site and dispose of in accordance with applicable regulations.

B. Protect air and water-resistive barrier components from freezing and extreme heat. Store materials at temperatures of 40 degrees Fahrenheit to 100 degrees Fahrenheit.

C. Sequence deliveries to avoid delays and to minimize on-site storage.

1.5 PROJECT CONDITIONS

A. Weather conditions: Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials used.

1. Do not apply when surface or air temperature are below 40 degrees Fahrenheit or above 110 degrees Fahrenheit.
2. Proceed with installation only when the substrate construction and preparation work are complete and in condition to receive the membrane system.
3. Exposure limitations: Schedule work to ensure that air and water-resistive barrier system is covered and protected from UV exposure within 180 days of

installation. If air and water-resistive barrier membrane system cannot be covered within 180 days after installation, apply temporary UV protection as recommended by membrane manufacturer.

1.6 WARRANTY

A. Provide Contractor's two (2) year workmanship warranty against leakage and defects

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Performance requirements: Comply with the specified performance requirements and characteristics as herein specified.

1. Air-Barrier Assembly Air Leakage: In accordance with ASTM E2357.
2. Air Permeance: Per ASTM E2178.
3. Ultimate Elongation: ASTM D412, Die C.
4. Adhesion to Substrate: ASTM D4541.
5. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

B. Performance description:

1. The building enclosure shall be constructed with a continuous, air and water-resistive barrier to control water and air leakage into and out of the conditioned space.
2. Joints, penetrations and paths of water and air infiltration shall be made watertight and airtight.
3. Air-barrier assemblies to be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
4. System shall be capable of withstanding positive and negative combined wind, stack, and HVAC pressures on the enclosure without damage or displacement.

2.2 MANUFACTURER

A. Subject to compliance with the requirements, provide products from one of the following manufacturers:

1. Sika (Senergy)
   201 Politico Avenue
   Lyndhurst, NJ 07071
   www.usa.sika.com

2. STO Corp.

3800 Camp Creek Parkway SW
Building 1400, Suite 120
Atlanta, Georgia 30331
www.stocorp.com

B. Other manufacturers and systems will be considered only if submitted and approved by the Engineer 48 hours prior to bid deadline.

C. All primary materials shall be from a single manufacturer. To assure system compatibility, mixing and matching of various products from different manufacturers is prohibited.

D. All secondary materials shall be in accordance with primary materials manufacturer's recommendations or requirements.

2.3 MATERIAL

A. General:

1. All materials shall be new, and of best commercial quality.

B. Fluid-Applied Air and Water Barrier

1. Type: Single component, Silyl-Terminated-Poly-Ether (STPE) roller-applied, highly durable, seamless, elastomeric waterproofing membrane.
2. Use: Air and water barrier at plywood sheathing and concrete substrate.
3. Material Properties:

   a. Form: Viscous liquid, mild odor, yellow color
   b. Adhesion to Substrates: ≥ 15 psi
   c. Air Leakage Resistance: < 0.2 L/s●m^2 @ 75 Pa
   d. Water Vapor Transmission: 18-19 perms ASTM E 96
   j. Volatile organic content (VOC): less than 30 g/L

4. Acceptable Products

   a. Sika (Senergy): Senershield -R / -RS / -VB
   b. STO: StoGuard

C. Fluid Applied Flashing

1. Type: Single component air barrier and waterproof material.
2. Use: To be applied into rough openings, sheathing joints, cracks, and penetrations within the substrate.
3. Material Properties:

   a. Form: Viscous paste, mild odor
   b. Total Solids: 98%

c. Hardness, Shore A: 40 – 45
d. Tensile Strength: 250 psi
e. Elongation at Break: 400% ASTM D 412
f. Water Vapor Permeability (@DFT): 6.18 perms @ 20 mils or 7.2 perms @ 30 mils
j. Volatile organic content (VOC): less than 21 g/L.

4. Acceptable Products

a. Sika: SikaWall MaxFlash or SikaWall Sheathing Fabric
b. STO: Sto RapidGuard

D. Transition Membrane / Reinforcing Fabric

1. Type: Flexible air barrier membrane for use on vertical above grade wall construction over properly prepared concrete, concrete masonry (CMU), glass matt gypsum, and Exterior or Exposure I wood-based sheathing.
2. Use: For use at sheathing transitions to provide flexible connections to achieve continuity of the air barrier assembly.
3. Material Properties:

a. Elongation: 260%
b. Tensile Strength: 60 psi
c. Water Vapor Permeance: 1.48 perms
d. Air Leakage: ≤ 0.02 L/m²·s
e. Adhesion: ≥ 60 psi

4. Acceptable Products:

a. STO: StoGuard Mesh
b. Sika: Sika Sheathing Fabric

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the Work of this section. Notify design professionals in writing of any discrepancies. Commencement of the Work or any parts thereof shall mean acceptance of the prepared substrates.

B. All surfaces must be sound, dry, clean, and free of grease, dirt, excess mortar or other contaminants.

C. Where curing materials are used they must be clear resin based without oil, wax or pigments

D. Condition materials to room temperature prior to application to facilitate extrusion and handling.

3.2 SURFACE PREPARATION

A. Apply primary weather-resistive barrier and necessary additional components, over new exterior sheathing, to provide a complete system in strict accordance with manufacturer's recommendations.

B. Surfaces must be fully cured, structurally sound, clean, dry, and free of frost, damage, and all bond-inhibiting materials, including dirt, dust, efflorescence, form oil and other foreign material.

C. Mask off adjoining surfaces not to be covered by fluid-applied flashing membrane and sealant to prevent contact affecting other construction as required.

D. Refer to manufacturer's product data for requirements for condition of and preparation of substrates.

1. Surfaces shall be sound and free of voids, spalled areas, loose aggregate, and sharp protrusions.
2. Remove contaminants such as grease, oil, and wax from exposed surfaces.
3. Remove dust, dirt, loose stone, and debris.
4. Use materials and methods that are acceptable to manufacturer of the air and water-resistive barrier system.
5. Ensure surface is prepared to receive materials in accordance with manufacturer installation instructions.

E. Surfaces to receive edge primer may be dry or damp. Do not apply to surfaces which are sufficiently wet to transfer water to the skin when touched. Surfaces must be protected from rain for two (2) hours following application.

F. Surfaces to receive all other weather-resistive barrier may be dry, damp or wet to the touch. Brush away any standing water present before application. These products will tolerate rain immediately after application.

3.3 INSTALLATION OF ACCESSORIES

A. Install accessory materials in accordance with air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.

1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over each substrate.
3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.

4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.

B. Connect and seal exterior wall air-barrier material continuously to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.

C. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.

D. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

E. Wall Openings: Prime concealed, perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply so that a minimum of 3 inches of coverage is achieved over each substrate. Maintain 3 inches of full contact over firm bearing to perimeter frames, with not less than 1 inch of full contact.

F. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.

G. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.

H. Seal top of through-wall flashings to air barrier with an additional 6-inch- wide, transition strip.

I. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.

J. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches beyond repaired areas in strip direction.

3.4 INSTALLATION OF PRIMARY AIR-BARRIER MATERIAL

A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier in accordance with air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.

1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
2. Limit priming to areas that will be covered by air-barrier material on same day.

Reprime areas exposed for more than 24 hours.

3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.

B. Air Barriers: Apply continuous unbroken air-barrier material to substrates according to a total dry film thickness as recommended in writing by manufacturer to comply with performance requirements. Apply air-barrier material in full contact around protrusions such as masonry ties.

C. Do not cover air barrier until it has been tested and inspected by testing agency.

D. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.5 INSTALLATION OF JOINT TREATMENT

A. Apply approved product for seams, joints, cracks, gaps, primed rough edges at sheathing, rough openings:

1. Fill or bridge damaged surfaces, voids, or gaps larger than one-half (1/2) inch with mortar, wood, metal, sheathing, or other suitable material.
2. Fill surface defects over driven fasteners, voids, and gaps measuring one-half (1/2) inch or less with approved joint and seam filler.
3. Using a dry knife, trowel, or spatula, tool and spread the product. Spread one (1) inch beyond seam at each side to manufacturer’s recommended thickness.
4. Allow to skin before installing other waterproofing or air barrier components.
5. Apply in accordance with manufacturer’s Installation Guideline illustrations.

3.6 INSTALLATION OF FLUID-APPLIED FLASHING AT ROUGH OPENINGS

A. Apply approved fluid-applied flashing over surfaces prepared with joint and seam filler to seal and waterproof rough openings:

1. Apply a thick bead of approved fluid-applied flashing over any visible gaps in the prepared rough opening.
2. Immediately press and spread the wet product into gaps, nails heads, and corner transition joints.
3. Allow treated surface to skin.
4. Starting at the top, apply a thick bead of approved fluid-applied flashing in a zigzag pattern to the structural wall surrounding the rough opening.
5. Spread the wet product to create an opaque, monolithic flashing membrane which surrounds the rough opening and extends 4 to 6 inches over the face of the structural wall. Apply and spread additional product as needed to create an opaque, monolithic flashing membrane free of voids and pin holes achieving the 12 to 14 mil thickness of membrane.
6. Apply additional product in a zigzag pattern over a structural framing inside the rough opening.

7. At sills, extend flexible flashing on building face a minimum of 4 to 6 inches beyond and 3 inches above sill-jamb intersection.

3.7 FIELD QUALITY CONTROL

A. ABAA Quality Assurance Program: Perform examinations, preparation, installation, testing, and inspections under ABAA's Quality Assurance Program.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:

1. Continuity of air-barrier system has been achieved throughout the building envelope with no gaps or holes.
2. Air-barrier dry film thickness.
3. Continuous structural support of air-barrier system has been provided.
4. Site conditions for application temperature and dryness of substrates have been maintained.
5. Maximum exposure time of materials to UV deterioration has not been exceeded.
6. Surfaces have been primed, if applicable.
7. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
8. Termination mastic has been applied on cut edges.
9. Strips and transition strips have been firmly adhered to substrate.
10. Compatible materials have been used.
11. Transitions at changes in direction and structural support at gaps have been provided.
12. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
13. All penetrations have been sealed.

D. Air barriers will be considered defective if they do not pass tests and inspections.

1. Apply additional air-barrier material, in accordance with manufacturer's written instructions, where inspection results indicate insufficient thickness.
2. Remove and replace deficient air-barrier components for retesting as specified above.

E. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.

3.8 CLEANING AND PROTECTION

A. Protect air-barrier system from damage during application and remainder of construction period, in accordance with manufacturer's written instructions.

1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials in accordance with air-barrier manufacturer's written instructions.
2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.

B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

C. Remove masking materials after installation.

END OF SECTION 07270

SECTION 07620 – SHEET METAL FLASHING AND TRIM

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes labor, materials, equipment, insurance, and incidents as required to fabricate and install new sheet metal indicated by the Drawings, Details, and Project Manual.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. **Section 07620 – Sheet Metal Flashing and Trim**
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.02 REFERENCES

A. Aluminum Association (AA):

1. Designation System for Aluminum Finishes.

B. American Architectural Manufacturers Association (AAMA):

1. AAMA 2605: Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

C. American Society for Testing and Materials (ASTM):

1. ASTM B 209: Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
2. ASTM E 154: Methods for Testing Materials for Use as Vapor Barriers Under Concrete Slabs and as Ground Cover in Crawl Spaces.

D. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA):

1. Architectural Sheet Metal Manual.
2. Residential Sheet Metal Guidelines.

1.03 SUBMITTALS

A. Submittals shall be submitted electronically and labeled sets in accordance with Section 01000, Item 1.06.

B. Project Data: For each product.

1. Submit electronic copies of manufacturer's specifications, recommendations, and installation instructions for prefinished aluminum flashings.
2. Submit electronic copies of manufacturer's published data, letter of certification or certified test laboratory report which states that each material complies with requirements and is intended for application shown.

1.04 PERFORMANCE REQUIREMENTS

A. Wind Uplift Resistance: Sheet metal systems shall be designed to withstand wind loads derived from ASCE 7-22. Internal components may vary with design pressure, but exposed surfaces shall provide a consistent appearance from elevation-to-elevation. Design sheet metal system to resist the following wind-uplift pressures:

a. Zone 4 (Wall Area Field): **72.3** PSF; **-72.3** PSF.

b. Zone 5 (Wall Area Corner): **72.3** PSF; **-117.2** PSF.

i. Location: **8** feet in each direction from building corner.

B. The various sheet metal assemblies include, but are not limited to, sidewall flashings and diverter flashings shall be installed to provide for such expansion and contraction of component materials, as well as caused by a surface temperature ranging from 0°F to 180°F, without causing buckling, failure to joint seals, undue stress on structural elements including permanent set, damaging loads on fasteners, reduction of performance or other detrimental effects, including panel distortions.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Work to be performed by a Contractor regularly engaged for at least three (3) years in commercial fabrication and installation of sheet metal.
2. Contractor must be currently doing business with, or have satisfactorily completed recent projects for a minimum of three (3) established General Contractors.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to job site with packages and labels intact identifying manufacturer, product name and lot numbers when appropriate.

B. Store materials in accordance with applicable manufacturer's recommendations.

C. Store approved materials in a suitable and designated area at the jobsite. Support materials off the ground and protect from weather.

D. Use necessary means to ensure safe storage and use of materials, as well as prompt and safe disposal of waste.

1.07 SITE CONDITIONS

A. Environmental Requirements:

1. Do not proceed with work under threatening or during unfavorable weather conditions.
2. If work is interrupted by weather, provide the necessary protection for new materials and to keep building watertight.

B. Existing Conditions:

1. Coordinate the Work with existing construction not included within this Section.
2. Sequence the Work in order to provide proper interfacing with adjoining building elements, as well as ensuring the waterproofing integrity of the Work.
3. Contractor shall secure field measurements required for proper installation of Work covered by this Section. Exact measurements are Contractor's responsibility.

1.08 SEQUENCING AND SCHEDULING

A. Coordinate each portion of this Work with other trades to ensure that all construction can be completed once it is begun.

B. Coordinate each portion of this work with the Owner's Representative and the Engineer, in order to minimize annoyance and inconvenience to the building occupants.

1.09 WARRANTY

A. Manufacturer's Warranty: Provide a manufacturer's twenty (20) year warranty for polyvinylidene fluoride resin finish. Defects shall be corrected at no expense to the Owner during the warranty period.

B. Contractor Warranty: Provide a written warranty agreeing to repair defects in material and workmanship for a minimum period of five (5) years after completion and final acceptance of the Work. Defects shall be corrected at no expense to the Owner during the warranty period.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Pre-Finished Aluminum – 0.032” Pre-Finished Aluminum.

B. Fasteners: Hex head type, #12 stainless-steel sheet metal screws with EPDM or neoprene rubber washers (if exposed)

2.02 FABRICATION

A. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work.

B. Form work to fit substrates, comply with material manufacturer’s written instructions and current recommendations. Form exposed metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.

C. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.

D. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with recognized industry standards.

E. Separation: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer or fabricator.

2.03 METAL FINISHES

A. High performance Organic Coating: Prepare, Pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer’s instructions.

B. Provide finish designation prefixed by AA. Comply with the system established by the Aluminum Association for designating aluminum finishes.

C. Chemical Finish: Cleaned with inhibited chemicals and acid chromate-fluoride-phosphate conversion coated.

D. Fluoropolymer Three-Coat System: A standard two-coat thermo-cured system, composed of specially formulated Inhibitive primer and fluoropolymer color coat,

containing not less than 70% polyvinyldene by weight. Finish sheet metal with clear coat.

E. Resin manufacturers: Subject to compliance with requirements, provide products containing resin by one of the following:

1. "Kynar 500", EIFS Atochem North America Inc.
2. "Hylar 5000", Ausimont USA, Inc.
3. "Newlar", Spraylat Powder Coatings.

PART 3 – EXECUTION

3.01 PREPARATION

A. Prepare substrate to receive metal. Ensure no direct contact between dissimilar metals.

3.02 INSTALLATION

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of sealant.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install continuous cleats with fasteners spaced not more than 12 inches o.c.
6. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
8. Do not field cut sheet metal flashing and trim by torch.
9. Do not use graphite pencils to mark metal surfaces

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

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 ft. with no joints within 24 inches of corner or intersection.

2. Use lapped expansion joints.

D. Fasteners: Use fastener sizes that penetrate wood blocking, wood substrate or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.

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

F. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated.

a. Embed hooked flanges of joint members not less than 1 inch into sealant.
b. Form joints to completely conceal sealant.
c. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
d. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.

2. Prepare joints and apply sealants to comply with requirements in Section 07920 "Joint Sealants”.

3.03 INSTALLATION TOLERANCES

A. Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 ft. on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.04 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

3.05 FIELD QUALITY CONTROL

A. General Requirements for Field Inspections: Owner will engage a qualified testing agency to perform inspections.

1. Material Verification: Confirm the type, thickness (gauge), and finish of sheet metals. Verify compliance with ASTM A653 for galvanized steel and ASTM B209 for aluminum.
2. Substrate and Preparation: Inspect substrates for cleanliness, smoothness, and readiness for flashing installation. Confirm compatibility of the substrate with the sheet metal material to avoid galvanic corrosion.
3. Attachment: Verify the type, size, and spacing of fasteners. Ensure fasteners are corrosion-resistant and compatible with the sheet metal material.
4. Thermal Movement: Verify that provisions for thermal expansion and contraction are included, such as expansion joints or slip joints. Inspect for signs of stress or deformation from improper thermal movement accommodation.
5. Drainage and Water Management: Ensure flashing directs water away from the structure, particularly at valleys, hips, ridges, parapets, and drip edges.

END OF SECTION 07620

SECTION 07920 – BUILDING SEALANTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes sealant joint preparation and installation, inclusive of backer rod.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. **Section 07920 – Building Sealants**
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.02 REFERENCES

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

1. ASTM C 717: Terminology of Building Seals and Sealants.
2. ASTM C 920: Standard Specification for Elastomeric Joint Sealants.
3. ASTM C 1016: Test Method for Determination of Water Absorption by Sealant Backup (Joint Filler) Material."
4. ASTM C 1193: Standard Guide for Use of Elastomeric Joint Sealants.
5. ASTM C 1521: Standards for Evaluating Adhesion of Installed Weatherproofing Sealant Joints

B. International Concrete Repair Institute (ICRI):

1. "Guide for Selecting and Specifying Concrete Surface Preparation" (Guide No. 03732).

1.03 SUBMITTALS

A. Submittals shall be submitted electronically and labeled sets in accordance with Section 01000, Item 1.06.

B. Project Data:

1. Submit electronic copies of manufacturer's specifications, recommendations, and installation instructions for building joint sealants.
2. Submit electronic copies of manufacturer's published data, letter of certification or certified test laboratory report which states that each material complies with requirements and is intended for application shown.

C. Samples:

1. Contractor shall submit one unopened cartridge for each color and type of sealant to be used.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Work performed under this section shall only be by installers with minimum five (5) years documented experience in the application of specified products and systems on projects of similar size and scope.
2. Each subcontractor shall be approved by manufacturer for installation of their products.
3. Contractor shall submit the names of two prior successful installations to Engineer.

B. Pre-Installation Conference:

1. Meet with Owner, Engineer, and related trades to discuss sequencing and installation procedures.

C. Adhesion Testing:

1. Manufacturer's representative shall be required to perform field adhesion pull tests. Tests should be performed per ASTM C 1521 and shall be accepted by the Engineer. Contractor will be required to provide the Owner, Engineer and manufacturer a field adhesion log at the close of the project.
2. Sealant joints in each different combination of substrate shall be tested and approved according to this section.
3. Field adhesion pull tests and inspections shall be performed by Engineer at random locations throughout the course of the project. If tests and/or inspections reveal non-compliant Work or Work that was not installed per Specifications, and/or manufacturer's guidelines, remove Work until is properly preformed. Contractor shall assist in spot-checking of remainder of Work.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver products to job site in original unopened packages with labels identifying manufacturer, product identification, and batch numbers when appropriate.

B. Store materials in accordance with manufacturer's recommendations.

1.06 MOCK-UP

A. At the start of the project, Contractor shall perform mock-up of required sealant Work in a pre-selected area of the building, as directed by the Engineer. A minimum of one mock-up shall be required for each different combination of substrate to be sealed.

B. Install mock-ups and test in presence of sealant manufacturer's representative and Engineer to assure installation procedures are consistent with warranty requirements.

C. Manufacturer's representative or designated representative will review technical aspects; surface preparation, application, and workmanship.

D. Obtain Engineer's written approval of mock-up before start of material application elsewhere, including approval of aesthetics, color, texture, and appearance.

E. Mock-up shall serve as standard for judging workmanship on remainder of project. Therefore, mock-up should be maintained during construction.

1.07 PROJECT CONDITIONS

A. Comply with manufacturer's recommended minimum and maximum installation temperatures.

B. Do not install sealants when surface temperatures of substrates exceed 110º F, are below 40º F, or when substrate conditions exhibit frost, moisture or in fogging conditions. Do not install sealants when inclement weather is forecasted within 24 hours of scheduled work.

1.08 WARRANTY

A. Provide manufacturer's five (5) or ten (10) year material and labor waterproof warranty.

B. Provide two (2) year workmanship warranty against leakage associated with the Work.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with the requirements, provide products from one of the following manufacturers:

1. Sherwin-Williams

101 Prospect Avenue NW
Cleveland, OH 44115
www.sherwin-williams.com

2. Sika Corporation
201 Polito Avenue
Lyndhurst, New Jersey 07071
www.sikausa.com

3. STO Corp.
3800 Camp Creek Parkway SW
Building 1400, Suite 120
Atlanta, Georgia 30331
www.stocorp.com

B. Other manufacturers and systems will be considered only if submitted and approved by the Engineer 48 hours prior to bid deadline.

C. All primary materials shall be from a single manufacturer. To assure system compatibility, mixing and matching of various products from different manufacturers is prohibited.

D. All secondary materials shall be in accordance with primary materials manufacturer's recommendations or requirements.

2.02 GENERAL

A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors: Provide color of exposed joint sealers indicated or, if not otherwise indicated, as selected by Owner from manufacturer's standard colors.

2.03 MATERIALS

A. General:

1. All materials shall be new, and of best commercial quality.

B. Hybrid Sealant:

1. Type: One-part, low modulus, high-movement, non-sag, fast-curing, moisture cure, hybrid sealant.
2. Use: For application at stucco-to-stucco, metal-to-stucco, penetrations, and metal-to-metal interfaces.
3. Material Properties: Conform to ASTM C920, Type S, Grade NS, Class 50, Use NT, M, A, and O.

4. Acceptable Products:

    a. Sherwin-Williams Loxon H1
    b. Sikaflex® HY 100
    c. StoSeal STPE Sealant

C. Silicone Sealant:

1. Type: One-part, neutral-cure, silicone sealant.
2. Use: For application at glazing and perimeter sealants.
3. Material Properties: Conform to ASTM C920, Type S, Grade NS, Class 50, Use A, G, M, O, and NT.
4. Acceptable Products:

    a. Dow Corning® 795 Silicone Building Sealant
    b. Dow Corning® 790 Silicone Building Sealant
    c. Sherwin Williams GE SCS 2000

D. Self-Leveling Sealant:

1. Type: Self-leveling sealant.
2. **Use:** For application at railing stanchion pockets repairs.
3. Acceptable Products:

    1. Sikaflex 1c SL
    2. Sikaflex® SL 1

E. Urethane Sealant:

1. Type: One-part, high-performance, gun grade, elastomeric polyurethane sealant.
2. Use: For application at deck-to-wall interfaces where deck coating is to be applied over.
3. Material Properties: Conform to ASTM C920, Type S, Grade NS, Class 35, Use NT, M, A,T, O and I.
4. Acceptable Products:

    a. Sikaflex® NP 1
    b. Neogard 70991

F. Exposed Expansion Joint Sealant:

1. Type: Factory-applied, low-modulus silicone with an open-cell polyurethane foam infused with a water-based, non-drying acrylic dispersion.
2. Use: For application in building facades of masonry, precast, brick, natural stone, metal curtain wall, window mullions, GFRP and most other substrates. Additionally, application shall include interface of control joint accessories. (Do not use as bedding sealant for stucco accessories)

3. Material Properties: Conform to ASTM C920, Type S, Grade NS, Class 50, Use NT, M, A, G, and O.
4. Acceptable Products:

    a. Sika Seismic Colorseal®
    b. Sika Horizonal Colorseal® (Ref. Product Literature for Uses)

G. Backer Rod:

1. Type: Closed cell polyethylene compatible with respective sealant.
2. Use: For application as a bond breaker and filler for sealants, where recommended by respective sealant manufacturer.
3. Material Properties: Backer rod shall be sized and shaped to control depth of sealant and to provide 25 percent compression upon insertion. Fillers shall be installed to prevent sealant depths great than the manufacturer's recommendations.
4. Acceptable Products:

    a. Not Specified

H. Miscellaneous Materials:

1. Joint Cleaner: As recommended by the manufacturer.
2. Bond Breaker: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.
3. Masking Tape: Pressure sensitive adhesive paper tape.
4. Primer: As recommended by manufacturer.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Inspect areas involved in Work to establish extent of Work, access, and need for protection of surrounding construction.

B. Examine joints to be sealed for construction, identify conditions which would adversely affect execution of work and report any adverse conditions to the Engineer before continuing. Failure of the Contractor to report any adverse conditions prior to commencing with the work, may result it requiring the areas to be removed for inspection and re-worked, at no extra cost to the Owner.

C. Provide additional joint preparation, beyond that outlined in Specifications, as required by sealant manufacturer and Engineer's recommendations based on mock-ups and field adhesion tests.

3.02 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces:

1. Priming will be required on masonry substrates and metal surfaces as determined from in-field adhesion pull tests. Where primer is necessary, apply sealant within time constraints set by manufacturer. Note that primer application must be performed prior to installation of backer rod or bond breaker tape.
2. Allow primer to dry before applying joint sealants. Depending on temperature and humidity, primer will be tack free in 15 to 120 minutes.
3. Prime and seal on same working day.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

D. Bond Breaker:

1. Sealant backer rod shall be of minimum diameter 25% greater than the joint width.
2. Backer rod shall be installed with a blunt instrument. Any rod punctured during installation shall be removed and replaced with a new backer rod. Do not twist rod while installing or install twisted backer rod.
3. Backer rod shall be installed so that sealant depth is one-half the joint width, unless otherwise indicated.

4. Do not install backer rod without applying sealants; protect backer rod from exposure to moisture and ultraviolet degradation.
5. Where joint depth does not permit installation of backer rod, install adhesive-backed polyethylene bond-breaker tape along entire back of joint to prevent 3-sided adhesion of joint sealant.

3.03 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.

F. Joint Design:

1. The joint width shall not be less than ¼ inch.
2. The joint depth shall not be less than 1/8 inch, nor greater than ¾” inch, unless approved by manufacturer.
3. Sealant bead depth should be less than the joint width. Ideally, the ratio of joint width to sealant depth should be 2:1.
4. For joint widths greater than one inch, consult the manufacturer’s technical representative.
5. Comply with manufacturer’s requirements for correct sizing, selection and installation of building sealants with respect to joint movements and construction material temperatures for this project. Size joints in accordance with procedures outlined in Appendix of ASTM C 962.

G. Methods:

1. Apply fresh sealants with a cartridge-type caulking gun, bulk-loading gun, or air pressure equipment following the manufacturer's written instructions.
2. Apply sealants in a continuous operation, filling bottom up to avoid entrapping air throughout the entire joint cross-section.

H. Finishing:

1. Using clean, dry tool with rounded edge, and of appropriate width for each joint, tool freshly installed sealant to provide preferred concave profile, to ensure intimate contact between sealant and substrate, and to provide a neat appearance. Where surface aggregate does not permit proper tooling, install sealant and backer rod so that face of joint is recessed behind exposed aggregate, and sealant is bonded to firm, even surface.
2. Complete tooling in continuous strokes of sealant application and before skin forms. Tool "dry," do not use soaps, water, oil and/or solvents as tooling aids. Finger tooling will not be permitted.
3. Where masking materials are used, remove immediately after tooling the sealant and remove any excess sealant, to create a uniform installation.
4. Where applicable, allow self-leveling sealers to cure undisturbed.

3.04 PROTECTION

A. Protect the newly installed surfaces and leave undisturbed for at least 48 hours, or as recommended by manufacturer.

B. Protect adjacent surfaces from damage. Soiled or ruined adjacent surfaces shall be reported to the Engineer and repaired by the Contractor to the satisfaction of the Owner at no additional expense.

3.05 CLEANUP

A. The surfaces of materials adjacent to the joints where sealant was applied shall be cleaned free of excess sealant or other soiling due to sealing operations. The surfaces shall be cleaned as work progresses.

B. On non-porous surfaces, excess sealants should be scraped from the surface, and the remainder should be cleaned with Xylene or mineral spirits before the sealant cures.

C. On porous surfaces, excess sealant should be allowed to cure and then be removed by abrasion or other mechanical means.

D. Leave finished work in neat, clean condition with no evidence of spill over onto adjacent surfaces.

END OF SECTION 07920

SECTION 08090 – DOOR AND WINDOW REPLACEMENT

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

1. Aluminum-framed sliding glass doors.
2. Aluminum windows (fixed).

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. **Section 08090 – Door and Window Replacement**
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA):

1. AAMA 501.2: Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.
2. AAMA 502: Voluntary Specification for Field Testing of Windows and Sliding Glass Doors.

B. American Society for Testing and Materials (ASTM):

1. ASTM E 1105: Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.

C. International Building Code (IBC) 1020: Emergency Escape and Rescue

D. National Association of Architectural Metal Manufacturers (NAAMM): Metal Finishes Manual for Architectural and Metal Products.

E. National Fire Protection Association (NFPA) 101: Safety to Life from Fire in Buildings and Structures.

1.3 SUBMITTALS

A. Product Data: For each type of fenestration unit required; include the following:

1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes.

B. Shop Drawings: For each type of fenestration unit required. Include information not fully detailed in manufacturer's standard product data and the following:

1. Plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

C. Samples for Verification: The Engineer reserves the right to require samples that show fabrication techniques, workmanship, and design of fenestrations, hardware, and accessories.

D. Product Test Reports: From a qualified testing agency indicating that each required type, grade, and size of fenestration complies with performance requirements indicated, based on comprehensive testing of current products within the last four years. Test results based on downsized test fenestrations will not be accepted.

E. Warranties: Sample, project specific warranties specified in this Section.

F. Delegated-Design Submittal: Fenestrations herein shall comply with performance requirements and design criteria. Shop drawings shall include analysis data, calculations, and means of attachment signed and sealed by the qualified Professional Engineer responsible for the preparation.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Authorized representative who is trained and approved by fenestration manufacturer.

B. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum fenestrations that meet or exceed the performance requirements indicated and of documenting this performance by test reports and calculations.

C. Delegated Design Engineer Qualifications: A professional engineer who is legally qualified to practice in the state where Project is located and who is experienced in providing engineering services of the type indicated. Engage a qualified professional engineer to design reinforcing mullions.

D. All fenestration products must have appropriate markings, permanent labels, or stickers

which indicate compliance with wind-borne debris code requirements.

E. Obtain fenestrations from single source from single manufacturer.

1.5 MOCKUPS

A. Complete in-situ mock-up of each fenestration system at the commencement of the project. Mock-ups shall be inclusive of the fenestration and all surrounding work. Leave mock-up units in place for the duration of the project and as final assemblies. Engineer shall approve mock-up prior to Contractor commencing with Work covered by this Section. Additionally, Contractor shall successfully pass the specified water testing prior to commencing with Work covered by this Section. Testing shall be performed prior to the installation of drywall or interior finish wall/roof materials.

B. Fenestrations shall be field tested in accordance with AAMA 502, using Test Method A:

1. One (1) test shall be performed immediately after in-situ mock-up installation of each fenestration type. Additional tests shall be performed at the 10%, 50% and 90% completed install. At each percentage milestone, a minimum of two (2) fenestration assemblies shall be tested for each fenestration type. Engineer shall select assemblies to be tested. For each failed test, retesting shall be performed after remedial work is completed and until passing. For each failed test, one (1) additional specimen of the same type shall be tested. All additional tests shall be paid by the Contractor at their own expense. All testing, initial and retest, shall be by a third-party testing agency selected by the Owner.
2. Water penetration resistance tests shall be conducted at a static test pressure equal to 2/3 of the tested and rated laboratory performance test pressure as indicated by the applicable product designation in AAMA/WDMA/CSA 101/I.S. 2/A440. Test pressure shall not be less than 1.9 psf.
3. Failure shall be the penetration of water beyond a plane parallel to the glazing intersecting the innermost edges of the product, not including interior trim and hardware.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual fenestration openings by field measurements before fabrication and show recorded measurements on Shop Drawings.

1. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace aluminum fenestrations that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure to meet performance requirements.

b. Structural failures, including excessive deflection, water leakage, condensation, and air infiltration.
c. Faulty operation of movable sash and hardware.
d. Deterioration of materials and finishes beyond normal weathering.
e. Failure of insulating glass.

2. Warranty Period:

a. Fenestration: **Ten (10) years** from date of Substantial Completion.
b. Glazing Units: **Ten (10) years** from date of Substantial Completion.
c. Hardware: **Three (3) years** from date of Substantial Completion.
d. Aluminum Finish: **Ten (10) years** from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:

1. Minimum Performance Class: **Class AW**.
2. Minimum Performance Grade: **Grade 40**.
3. Mulled Fenestration Systems: Evaluate and rate combination assemblies as single systems as determined by AAMA 450 in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 requirements.

C. Structural Performance: No evidence of failure or permanent deflection of either the frame or panel after testing according to ASTM E 330 at a static positive (inward) and negative (outward) pressure difference of 150 psf.

1. Failure, as defined in AAMA/NWWDA 101/I.S.2, consists of any damage that causes the sash to be inoperable, glass breakage, permanent damage to fasteners or hardware, or permanent deformation of any mainframe or sash member in excess of 0.4 percent of its span.

D. Wind Resistance: In accordance with ASCE 7-22; Design fenestration systems to resist the following wind pressures:

1. Zone 4 (Wall Area Field): **72.3** PSF; **-72.3** PSF.
2. Zone 5 (Wall Area Corner): **72.3** PSF; **-117.2** PSF.
   i. Location: **8** feet in each direction from building corner.

E. Impact Resistant: No change in condition of the specimen indicative of deterioration under repeated load or incipient failure, such as cracking, fastener loosening, local yielding or loss of adhesive bond.

1. Large Missile Test: For glazed openings located within 30 feet of grade.
2. Small Missile Test: For glazed openings located more than 30 feet above grade.

F. Glass and Glazing: ***All units shall be factory-glazed by the manufacturer.*** Reference Section 08800, “Glazings”.

G. Energy Performance: Certified and labeled by manufacturer for energy performance as follows:

1. Thermal Transmittance (U-Factor): As determined in accordance with NFRC 100.

   a. Fixed Fenestrations: Not more than 0.5 BTU/hr•ft^2•°F.
   b. Operable Fenestrations: Not more than 0.62 BTU/hr•ft^2•°F.

2. Solar Heat-Gain Coefficient (SHGC): As determined in accordance with NFRC 200:

   a. Fixed Fenestrations: Not more than 0.25.
   b. Operable Fenestrations / Doors: Not more than 0.33.

3. Condensation-Resistance Factor (CRF): Provide aluminum fenestrations tested for thermal performance in accordance with AAMA 1503, showing a CRF of 45.

H. Deflection Performance: No deflection of the frame greater than L/175 of its span during testing according to ASTM E 330 at a static positive (inward) and negative (outward) pressure difference of 150 psf.

I. Operating Force: Adjust each moving panel before performing tests to the maximum force to open the panel is 40 lbf and the maximum force required to maintain motion is 25 lbf.

J. Thermal Movements: Provide aluminum fenestrations, including anchorages, which allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.

2.2 MANUFACTURERS

A. Subject to compliance with requirements, available manufacturers offering products that shall be incorporated into the Work include, and is limited to, the following:

1. EFCO Corp.
   Commercial Architectural Components, LLC
   6140 Enfinger Rd.,
   Pace, FL 32571

Contact: Tim Schlessman
Email: tschless@cacsales.net
Phone: (417) 489-1749

B. Contractor shall notify the Engineer in writing of any discrepancies between the specified products and the requirements.

2.3 SLIDING GLASS DOORS

A. Subject to compliance with requirements, provide the following products:

1. Basis of Design Sliding Glass Doors: **EFCO Series 5XPT**

B. Contractor shall notify the Engineer in writing of any discrepancies between the specified products and the requirements.

2.4 WINDOWS

A. Subject to compliance with requirements, provide the following products:

1. Basis of Design Fixed Windows: **EFCO Series 5FXT**

B. Contractor shall notify the Engineer in writing of any discrepancies between the specified products and the requirements.

2.5 HARDWARE

A. General: Manufacturer's standard hardware complying with requirements in AAMA 907; fabricated from a corrosion-resistant material compatible with aluminum; designed to smoothly operate, tightly close, and securely lock fenestration products; and sized to accommodate panel weight and dimensions.

1. Provide all hardware and accessories in sizes and configurations as indicated on Drawings.

B. Fasteners: Noncorrosive and compatible with fenestration members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Do not use exposed fasteners to the greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

C. Anchors, Clips, and Accessories: Provide anchors, clips, and accessories of aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron for fenestrations, complying with ASTM B456 or ASTM B633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

1. Windborne-Debris Impact Resistance: Provide anchors of same design used in windborne-debris impact-resistance testing.

D. Nail Fins: Manufacturer's standard mounting flanges with holes pre-punched for mechanical fasteners.

E. Contractor to provide head and jamb receptors at all units. Contractor also to provide subsill with end dams mechanically attached to subsill and sealed. Products shall be manufactured by the unit manufacturer for the specified unit and for this purpose.

2.6 INSECT SCREENS

A. General: Design fenestrations to accommodate screens in a tight-fitting, removable arrangement, fully integrated with frames. Provide screen for each operable fenestration panel.

B. Aluminum Frames: Manufacturer's standard extruded-aluminum profile finished to match fenestration frame; fabricated from aluminum alloy complying with requirements in SMA 1201; with mitered or coped joints or corner extrusions, concealed fasteners, and removable PVC or PE spline/anchor concealing edge of frame.

C. Fiberglass Mesh Fabric: ASTM D3656/D3656M, manufacturer's standard mesh of PVC-coated fiberglass.

1. Mesh Color: 1816 Charcoal, BetterVue Charcoal

2.7 FABRICATION

A. Fabricate fenestrations in sizes and configuration as indicated on Drawings. Include a complete system for assembling components and anchoring.

B. Fabricate sliding vinyl-framed fenestrations that are reglazable without dismantling panel framing.

C. Weep Holes: Provide weep holes and internal drainage passages to conduct infiltrating water to the exterior.

D. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

E. Factory-Glazed Fabrication: Glaze all aluminum-framed fenestrations in the factory. Comply with requirements and AAMA / WDMA / CSA 101 / I.S.2 / A440.

2.8 FINISHES

A. General: Comply with NAAMM "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish designations prefixed by AA comply the system established by the Aluminum Association for designating aluminum finishes.

C. High Performance Organic Coating: AA-C12C42R1x. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's instructions.

1. Fluoropolymer Two-Coat System: Manufacturer's standard two-coat thermocured system, composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than seventy (70) percent polyvinylidene resin by weight; complying with AAMA 2605. Minimum 1.0 mil thickness for total coating system.

a. Color: White

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine opening substrates, structural support, anchorage, and conditions for installation tolerances, rough opening dimensions, levelness of sill plate, coordination with wall flashings, and other built-in components, operational clearances, and other conditions affecting performance of work.

1. Masonry and Concrete Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
2. Wood Frame Walls: Dry, clean, sound, and well-nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in the opening and within three (3) inches of the opening.
3. Metal Surfaces: Dry, clean, free of grease, oil, dirt, rust and corrosion, and welding slag, without sharp edges or offsets at joints.

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

3.2 INSTALLATION

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing fenestrations, hardware, accessories, and other components.

B. Windborne-Debris Impact Resistance: Anchor fenestrations that have been tested for windborne-debris impact resistance to structure using anchoring method, fastener type, and fastening frequency identical to that used in windborne-debris impact-resistance testing

C. Set fenestrations level, plumb, square, true in line, without distortion, without warp or rack of frames and panels, and without impeding thermal movement; anchored securely in place to structural support; and in proper relation to wall flashing, vapor retarders, air barriers, water/weather barriers, and other adjacent construction.

1. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in "Dissimilar Materials" Paragraph in Appendix B in AAMA/NWWDA 101/I.S.2.

D. Set sill members in bed of sealant or with gaskets as indicated, to provide weathertight construction.

1. Refer to Section 07920 – Building Sealants for compounds, fillers, and gaskets to be installed concurrently with fenestration units.
2. End dams of subsill shall be incorporated with specified weather resistive barrier and as depicted in Drawings and Details.

E. Install fenestrations, and components to drain condensation, water penetrating joints, and moisture migrating within fenestrations to the exterior.

F. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 ADJUSTING

A. Adjust operating panels and hardware to provide a tight fit at contact points and weatherstripping, for smooth operation and weathertight closure. Lubricate hardware and moving parts.

B. Operable panels shall be adjusted per manufacturer’s instruction to provide minimal operating force.

3.4 CLEANING

A. Clean surfaces promptly after installing fenestrations. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealing compounds, dirt, and other substances.

B. Remove all package labels and clean glass promptly after installing. Comply with requirements of Section 08800 – Glazing for cleaning and maintenance.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during the construction period.

3.5 PROTECTION

A. Institute and maintain suitable protections through remainder of construction period to ensure that, except for normal weathering, fenestration units will be without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08090

SECTION 08800 – GLAZING

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Sliding Glass Doors.
2. Fixed Windows.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. **Section 08800 – Glazing**
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

C. Interspace: Space between lites of an insulating-glass unit.

D. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.

E. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

F. Deterioration of Insulating Glass: Failure of the hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1.3 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI Z97.1: Glazing Materials Used in Buildings – Safety Performance Specifications and Method of Test.

B. American Society for Testing and Materials (ASTM):

1. ASTM E 987: Test Method for Deglazing Force of Fenestration Products.

C. Code of Federal Regulations (CFR):

1. 16 CFR 1201: Safety Standard for Architectural Glazing Materials.

D. Glass Association of North America (GANA):

1. Glazing Manual.

1.4 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Design glass, including comprehensive engineering analysis according to ASTM E 1300 by a qualified professional engineer, using the following design criteria:

1. Design Wind Pressures: As shown on Drawings.
2. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical,

design glass to resist design wind pressure based on glass type factors for short-duration load.

3. Probability of Breakage of Vertical Glazing: For glass surfaces sloped more than 15 degrees from vertical, design glass for a probability of breakage not greater than 0.008.
4. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

C. Performance Requirements: Each required door unit must comply with the following performance requirements.

1. Impact Resistant: No change in condition of the specimen indicative of deterioration under repeated load or incipient failure, such as cracking, fastener loosening, local yielding or loss of adhesive bond.

    a. Glazed openings located within 30 feet of grade shall meet the requirements of the Large Missile Test.
    b. Glazed openings located more than 30 feet above grade shall meet the requirements of the Small Missile Test.

2. Deglazing: No disengagement of the glazing surround members of operable panels when tested according to ASTM 987 at 70 lbf on the vertical rails and 50 lbf for other rails.
3. Condensation Resistance Test (CRF): Test unit in accordance with AAMA 1503.1. Condensation Resistance Factor (CRF) shall not be less than 51 frame when glazed with 0.47 center of glass U-Factor.
4. Condensation Resistance (CR): With ventilators closed and locked, test unit in accordance with NFRC 500-2010. CR shall not be less than 37 when glazed with 0.47 center of glass U-Factor.
5. Thermal Transmittance Test (Conductive U-Factor): With ventilators closed and locked, test unit in accordance with NFRC 100-2010. Conductive thermal transmittance (U-Factor) shall not be more than 0.61 BTU/hr•ft^2•°F when glazed with 0.47 center of glass U-Factor.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

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

1.5 SUBMITTALS

A. Product Data: For each type of product.

B. Glass Samples: For each type of the following products; 12 inches (300 mm) square. Prior to final submittal, provide samples of tinted glass for the Owner’s consideration.

1. Coated glass; 3 samples.
2. Laminated glass; 3 samples.
3. Insulating glass; 3 samples.

C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

D. Qualification Data: For Installer, manufacturers of insulating-glass units with sputter-coated, low-E coatings, glass testing agency and sealant testing agency.

E. Product Certificates: For each glass system.

F. Product Test Reports: For tinted glass, insulating glass and glazing sealants, for tests performed by a qualified testing agency.

1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

G. Sample Warranties: Project specific warranties specified in Section 1.07.

1.6 QUALITY ASSURANCE

A. Manufacturer: Fabrication processes, including low emissivity and reflective coatings, insulating, laminated, silk-screening and tempering shall be manufactured by a single manufacturer with a minimum of ten (10) years of fabrication experience and meet ANSI / ASQC 9002 1994.

B. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under the National Glass Association Glazier Certification Program as Level 2 (Senior Glaziers) or Level 3 (Master Glaziers).

C. Source Limitations for Glass: Obtain clear float glass, tinted float glass, coated float glass, laminated glass and insulating glass from single source from single manufacturer for each glass type.

D. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

E. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and

GANA's "Glazing Manual."

2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR-A7, "Sloped Glazing Guidelines."

3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."

4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

F. Safety Glass Standard: Where safety glass is indicated or required by authorities having jurisdiction, provide the type of products indicated that comply with ANSI Z97.1 and testing requirements of 16 CFR for category II materials.

1. Subject to compliance with requirements, provide safety glass permanently marked with the certification label of the Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.

G. Glazing Standards: Comply with recommendations of the GANA "Glazing Manual," except where more stringent requirements are indicated.

H. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

I. Mock-ups: Install mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution. Project, including glazing methods. Mock-ups should be constructed after contract execution and prior to mobilization. Locations to be determined by Association.

J. Mock-ups: Before glazing, install mock-ups for each glass product indicated in in the Project Schedule to verify selections and to demonstrate aesthetic effects and qualities of materials and execution.

1. Construction: Install mock-ups with glass and glazing systems specified for the project, including typical lite size, framing systems and glazing systems.
2. Scheduling: Notify Engineer seven days in advance of dates and times when mock-ups will be available for viewing.
3. Quality Assurance: Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed work. Accepted mock-ups may become part of the completed work if undisturbed at the time of substantial completion.
4. Review temporary protection requirements for glazing during and after installation.

1.7 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form in which coated-glass manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.

C. Manufacturer's Special Warranty on Laminated Glass: Manufacturer's standard form in which laminated-glass manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated- glass standard.

1. Warranty Period: 10 years from date of Substantial Completion.

D. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.9 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40°F (4.4°C).

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.

1. Minimum Glass Thickness for Exterior Lites: Not less than ¼”.

2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.

B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.

C. Windborne-Debris-Impact Resistance: Provide exterior glazing that passes basic-protection testing requirements in ASTM E 1996 for Wind Zone 4 when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on the Project and shall be installed in same manner as glazing indicated for use on the Project.

1. Large-Missile Test: For glazing located within thirty (30) feet of grade.
2. Small-Missile Test: For glazing located more than thirty (30) feet above grade.

D. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For laminated glass lites, properties are based on products of construction indicated. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
2. U-Factors: Center-of-glazing values, according to NFRC 100 and based on

LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x °F (W/sq. m x K).

3. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
4. Visible Reflectance: Center-of-glazing values, according to NFRC 300.
5. Visible Light Transmittance from Interior: Comply with FDEP-Chapter 62B-34, General Permits for Activities Seaward of the Coastal Construction Control Line which states that “all windows and glass doors on the seaward and shore-perpendicular sides of any new dwellings or additions shall be tinted to transmittance value (light transmission for inside to outside) of 45% or less through the use of tinted glass or window film or screens.” Provide testing report as evidence of compliance.

2.2 LAMINATED GLASS

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

1. Viracon.
2. Old Castle Building Envelope.
3. Trulite

B. Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.

1. Construction: Laminate glass with polyvinyl butyral interlayer to comply with interlayer manufacturer's written recommendations
2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
3. Interlayer Color: To be selected by Owner.

C. Windborne-Debris-Impact-Resistant Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, with "Windborne-Debris-Impact Resistance" Paragraph in "Glass Products, General" Article, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.

1. Construction: Laminate glass with the following to comply with interlayer manufacturer's written recommendations:

a. Polyvinyl butyral interlayer.

2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
3. Tint Color: To be selected by Owner from Manufacturer's standard colors.

D. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Laminated-Glass Types" Article.

2.3 INSULATING GLASS

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

1. Viracon.
2. Old Castle Building Envelope.
3. Trulite

B. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.

1. Sealing System: Dual seal, with primary and secondary

a. Manufacturer's standard
b. Polyisobutylene and silicone

2. Spacer: Mill finished Aluminum spacer.
3. Desiccant: Molecular sieve or silica gel, or blend of both.
4. Tint Color: To be selected by Owner for Manufacturer's standard colors.

C. Glass: Comply with applicable requirements in "Glass Products" Article and in "Laminated Glass" Article as indicated by designations in "Insulating-Glass Types" Article and in "Insulating-Laminated-Glass Types" Article.

2.4 GLAZING GASKETS

A. Note: Use of neoprene glazing materials is not permitted with water-based Siliconized Elastomeric Opacifying Coating

B. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from [one of] the following:

1. EPDM complying with ASTM C 864.
2. Silicone complying with ASTM C 1115.
3. Thermoplastic polyolefin rubber complying with ASTM C 1115.

C. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned

EPDM, silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.

1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.5 GLAZING TAPES

A. Warning: Do not use double faced tapes in contact with water-based silicone elastomeric opacifying coating.

B. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

2.6 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.7 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

B. Grind smooth and polish exposed glass edges and corners.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.

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

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken

glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass lites where length plus width is larger than fifty (50) inches.

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 CLEANING AND PROTECTION

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into

contact with glass, remove substances immediately as recommended in writing by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.5 INSULATING-LAMINATED-GLASS SCHEDULE

A. Glass Type A: Low-E-coated, Insulating-Laminate-Coated Glass.

1. Overall Unit Thickness: As required by manufacturer for specified assemblies.
2. Minimum Thickness of Outdoor Lite: ¼ inch.
3. Outdoor Lite: Tinted fully-tempered float glass.
4. Tint Color: To be selected by Owner for Manufacturer's standard colors.
5. Interspace Content: Dried Glass required by Manufacturer to meet specified Performance requirements.
6. Indoor Lite: Clear laminated glass with two plies of heat-strengthened float glass.

    a. Minimum Thickness of Each Glass Ply: ¼ inch.
    b. Outer Ply: Clear.
    c. Interlayer Color & Thickness: Clear / 0.060 inch.
    d. Inner Ply: Clear.

7. Performance Requirements:

    a. Visible Light Transmittance: 45 percent maximum (See Paragraph 2.01.D.5.).
    b. U-Value: 45 percent maximum.
    c. Solar Heat Gain Coefficient: 48 percent maximum.
    d. Shading Coefficient: 55 percent maximum.
    e. Light of Solar Heat Gain: 1.10 minimum.

8. Safety glazing required.

END OF SECTION 08800

SECTION 09220 – CEMENT PLASTER STUCCO SYSTEM

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes the installation of new Cement Plaster Stucco System as indicated in the Drawings and Details and shall include all related accessories, including glass fiber reinforcing lath and sheathing. The bases of design for this system is BASF's Sentry Stucco Plus.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. **Section 09220 – Cement Plaster Stucco System**
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.02 REFERENCES

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

1. ASTM C 150 – Specification for Portland Cement.
2. ASTM D 1682 – Test for Break Load and Elongation of Textile Fabrics.
3. ASTM E 84 (UL 723) – Tests for Surface Burning Characteristics of Building Materials.
4. ASTM G23 Operating Light and Water Exposure Apparatus (Carbon-Arc Type) for Exposure of Non-metallic Materials.
5. ASTM G53 Operating Light and Water Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials.
6. ASTM C67 Sampling and Testing Brick and Structural Clay Tile.
7. ASTM B117 Standard Method of Salt Spray (Fog) Testing.
8. ASTM D968 Abrasion Resistance of Organic Coatings by Falling Abrasive.

9. ASTM E96 Water Vapor Transmission (Method B)

B. Others:

1. FS TT-C-555B Coating Textured for Interior and Exterior Masonry Surfaces.
2. MIL-Y-114OG Yarn, Cord, Sleeving, Cloth and Tape-Glass.
3. Mil. Std. 810B Mildew Resistance (Method 508)

1.03 SYSTEM DESCRIPTION

A. Furnished and install plaster finishes at locations described in the contract documents.

B. Structural Requirements:

1. Work included within this section shall be performed in such a manner as to achieve the desired results with regard to structural integrity of the renovated area.
2. Any and all structural damage to existing building components caused or brought about by the performance of this work shall be replaced and repaired to the satisfaction of the Owner at no additional expense.

C. Primary materials shall be provided from one manufacturer. Secondary materials shall be required or recommended by primary materials manufacturer.

D. All work shall conform to applicable Federal, State and local laws and regulations.

1.04 SUBMITTALS

A. Product Data:

1. Electronic copy of manufacturer's specifications, recommendations, and installation instructions for the system.
2. Manufacturer's published data, letter of certification, or certified test laboratory report that each material complies with requirements and is intended for application shown.

B. Samples:

1. Submit two (2) samples of each stucco system illustrating finish coat color and texture.

C. Manufacturer's Shop Drawings:

1. If required by the Engineer, provide supplementary details as may be necessary for special conditions at this project as provided by the manufacturer.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. The system applicator shall provide satisfactory evidence of his qualifications to apply the system and have a minimum of five (5) years of experience.

B. Mock-ups

1. Prior to any stucco installation, prepare sample application in location directed by Engineer. For this project, one (1) south balcony shall serve as the mock-up for the cement board stucco system. The mock-up location for the conventional stucco system will be selected by the Engineer.
2. Manufacturer's technical representative shall be present for the installation of each mock-up for review and comment. Provide a report documenting each site visit.
3. Mock-up to constitute standard of acceptance for retaining work.

C. Pre-construction meeting:

1. A pre-construction meeting shall be conducted to review system details and necessary coordination with other trades.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver to the job site all materials in unopened, undamaged containers, clearly marked and identified with the system manufacturer's name, description of contents, and batch identification number.

B. Store materials inside, or under cover and off the ground and keep them dry, protected from the weather, direct sun light, surface contamination, damaging temperatures, damage from construction traffic and other causes.

C. Store pail materials in temperatures not less than 40°F or more than 110°F.

1.07 SITE CONDITIONS

A. Environmental Requirements:

1. Do not proceed with installation of new material under threatening or during unfavorable weather conditions. If work is interrupted by weather, provide the necessary protection for new materials and to keep building watertight.
2. Comply with manufacturer's recommended minimum and maximum installation temperatures.

B. Existing Conditions:

1. Contractor shall accept the conditions of the job site as they exist and perform

his work accordingly.

2. Any adverse condition which might affect the performance of the work described in these specifications must be brought to the attention of the Engineer in writing immediately upon its discovery.
3. Contractor shall be held responsible for protecting all adjacent construction from damage. Existing structures or installations which are destroyed or damaged by operations connected with this work, including landscaping, shall be replaced and/or repaired by the Contractor to the satisfaction of the Owner at no additional expense.
4. Contractor shall secure field measurements required for proper installation of work covered by this Section. Exact measurements are Contractor's responsibility.

1.08 SEQUENCING AND SCHEDULING

A. Coordinate each portion of this work with selective demolition, furring and metal lathing installation, and the Engineer.

B. Conduct renovation operations in such a manner so as to not interfere with, or disturb the building occupants; and so as to provide minimum disturbances to normal building activities.

C. Placement of materials, scaffolding and other equipment must be coordinated and approved by the Owner's Representative prior to the commencement of any work, and also during the various phases of the construction. Care shall be taken to protect the shingle roof from damage during scaffold placement and use.

D. Contractor shall coordinate each portion of this work related to mechanical or electrical equipment with skilled trades capable of disconnecting and re-connecting equipment and cables as required for proper installation, or in case of accidental damage.

1.09 WARRANTY

A. In the event any work related to this section is not in accordance with the Contract Documents or otherwise found to be defective within the specified warranty period, the Contractor and/or Manufacturer agrees to remove and replace the defective work and/or affected areas at no additional cost.

1. Manufacturer's ten (10) year limited labor and materials warranty for stucco cladding.
2. Contractor's two (2) year workmanship warranty.

B. Submit specifications to manufacturer prior to commencing work and obtain approval for warranty. Submit approval to Engineer.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with requirements, provide products from one of the following manufacturers:

1. Sika USA
   https://usa.sika.com/senergy/en/systems/stucco-systems.html
2. STO Corp.
   www.stocorp.com

B. Other manufacturers and systems will be considered only if submitted and approved by the Engineer 48 hours prior to bid deadline.

C. All primary materials shall be from a single manufacturer. To assure system compatibility, mixing and matching of various products from different manufacturers is prohibited.

D. All secondary materials shall be in accordance with primary materials manufacturer's recommendations or requirements.

2.02 CONVENTIONAL STUCCO MATERIALS

A. All materials shall be new and of best commercial quality. The basis of design for all stucco to be installed is Sika's Senergy® Sentry Stucco Plus Wall System.

B. Building Paper (Isolation Layer)

1. Required behind all application of lath.
   a. Fortifiber Building Systems Group's Super Jumbo Tex (60 Minute)

C. Lath

1. Open weave, three dimensional, self-furred, nominal ¼" thick glass fiber reinforcing lath designed for use with BASF's Senergy StuccoBase or field mic Exterior Cement Plaster conforming to ASTM C 926.
   a. Sika's PermaLath® 1000

D. Plaster Base Coat Materials:

1. Water: Clean and potable without foreign matter.
2. Plaster Sand: Must be clean and free from deleterious amounts of loam, clay, silt, soluble salts and organic matter. Sampling and testing must comply with ASTM C144 or ASTM C897. Sand to be provided in base coat mix.
3. Base Coat: Factory blended stucco mixture of Portland Cement, reinforcing fibers, and proprietary ingredients for scratch and brown coats. Conforms to ASTM C 926.

a. Acceptable Products:
   i. Sika's Senergy® StuccoBase for the locations of new stucco on the south elevation storage closet walls.

b. Approved Alternate Products:
   i. Sto's StoPowerwall® Stucco
   ii. Master Wall Inc.'s Cemplaster Fiberstucco

4. Bonding Agent: Surface applied bonding agent and additive as required by manufacturer.
5. Primer: 100% Acrylic based primer for stucco.

a. Acceptable Product:
   i. Senergy Stucco Prime by Sika. (Tint similar to approve finish color.)

b. Approved Alternate Products:
   i. Sto's Hot Prime
   ii. Master Wall Inc.'s Primer Coat Primer

E. Plaster Finish Materials:

1. Finish: 100% acrylic resin finish, air cured, compatible with base coat, finish color factory-mixed, color and finish texture as selected by Owner.

a. Acceptable Product:
   i. Sika's Senergy Senerflex Finish

b. Approved Alternate Products:
   i. Sto's StoPowerwall® Finish
   ii. Master Wall Inc.'s Superior Finish

2.03 ACCESSORIES

A. Starter track, L bead, J bead, angled termination bead, casing beads, corner beads, expansion joints and weep screed must comply with ASTM D1784 or C1063 for vinyl. Type as recommended by BASF Wall Systems and as depicted in Drawings and Details

B. Subject to compliance with requirements, provide products from the following manufacturer:

1. Alabama Metal Industries Corporation: www.amico-online.com
2. Clark Western Building Systems: www.clarkwestern.com.
3. Dietrich Metal Framing: www.dietrichindustries.com.
4. Niles Building Products: www.nilesbldg.com.
5. Plastic Components Inc.: www.plasticomponents.com.
6. Semco Southeastern Metals: www.semetals.com.

C. Lath Attachment Devices: Material and type required by ASTM C 1063 for installations indicated and as required by the International Building Code.

1. Lath Fasteners: ULP-302 (1 ¾") or Lath Plate (1 ¼") Mechanical Fastening Systems by Wind-Lock Corp.

a. Heavy Gauge Steel Framing (18 to 12 Gauge maximum): Metal type S, bulge head screws with ULP 302 (1 ¾") diameter washer or Lath Plate or 1 ¼" (32 mm) long x 1/8" (2.5 mm) diameter VersaPin Gripshank® fasteners by Aerosmith Fastening Systems with Lath Plates.

D. Air/Vapor Barrier: Installed in accordance with Section 07270.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify project site conditions under provisions of Section 01000.

B. Walls

1. Sheathing

a. Sheathing must be applied in accordance with project documents.
b. Sheathing must be securely fastened per manufacturers' recommendations, applicable building code and project requirements.
c. Sheathing must be applied with corrosion resistant fasteners.

2. Air/Vapor Barrier

a. Verify that the air/vapor barrier is installed over the sheathing per applicable building code requirements, manufacturers' installation instructions and Section 07270 prior to application of the cladding system.

3. Cement-Board Substrates

a. Acceptable substrates are cement-boards which satisfy ASTM C1235 (Type A, Exterior)
b. Cement-board must be securely fastened per manufacturer's recommendations, applicable building codes, and project requirements, but not less than eight (8) inches on center.
c. Wall sheathing shall have a maximum deflection not to exceed L/240 of span under positive or negative design loads unless otherwise approved in writing by the cladding system manufacturer.
d. Examine surfaces to receive new cladding system and verify that the

substrate and adjacent materials are dry, clean, and sound. Verify substrate is flat, free of fine, or plane irregularities.

e. Cement-board must be a single piece around corner of openings.
f. Cement-board must be fastened with corrosion resistant fasteners.
g. Cement-board and sheathing joints must be off set.

4. Flashings

a. Head, jamb and sills of all openings must be flashed with fluid applied flashing in accordance with manufacturer's installation instructions prior to window/door head flashing installation.
b. Windows and openings shall be flashed according to design and building code requirements, and BE-CI Drawings and Details.
c. Individual windows that are ganged to make multiple units require that the heads be continuously flashed and/or the joints between the units must be fully sealed.

5. Decks

a. Decks must be properly flashed prior to system application.
b. The system must be terminated a minimum of 1" above finished deck surface.

C. Unsatisfactory conditions shall be reported to the Engineer. Do not proceed until all unsatisfactory conditions have been corrected.

D. Supplemental framing/blocking may be required to secure cement-board at vertical control/expansion joints.

3.02 PREPARATION

A. Protect all surrounding areas and surfaces from damage and staining during application of cladding system.

B. Protect finished work at end of each day to prevent water penetration.

C. Prepare substrates in accordance with manufacturer's instructions.

3.03 MIXING

A. General: No additives are permitted unless specified in product mixing instructions. Close containers when not in use. Clean tools with soap and water immediately after use.

B. Base Coat:

1. Fiber-Reinforced Base Coat:

    a. Prepare in a container which is clean and free of foreign substances. Do not use container which has contained or been cleaned with a petroleum-based product.
    b. Mix Base Coat with a clean, rust-free paddle and drill until thoroughly blended before adding Portland cement.
    c. Mix one part (by weight) Portland cement with one part Base Coat. Add Portland cement in small increments, mixing until thoroughly blended after each additional increment.
    d. Clean, potable water may be added to adjust workability.

C. Primer and Finish Coats:

1. Mix the factory-prepared materials to a smooth, workable consistency.
2. A small amount of clean, potable water may be added to adjust workability.

3.04 APPLICATION

A. General: Apply stucco materials in accordance with Specifications and ASTM C920.

B. Apply to approved substrates in accordance with Manufacturer's instructions and government code requirements.

C. Conventional Stucco, for use at the south walls at the east and west buildings.

1. Air/Vapor Barrier

    a. All sheathing joints and windows/openings must be protected and the air/weather barrier applied in accordance with manufacturer's Moisture Protection Guidelines.
    b. Substrate shall be of a type approved by manufacturer.

2. Apply secondary moisture weather-resistive barrier once the primary barrier has properly cured. Install in ship-lapped fashion with no punctures, tears or rips.

3. Installation of Plastering Accessories

    a. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering. Install accessories of type indicated at following locations.
    b. External Corners: Install corner reinforcement at external corners.
    c. Terminations of Plaster: Install casing beads, unless otherwise indicated, include weeps where required by plaster manufacturer and depicted in Drawings and Details.

d. Control Joints: Install at locations indicated or, of not indicated, at locations complying with the following criteria and approved by Engineer:

   i. Where an expansion or contraction joint occurs in surface of construction directly behind plaster membrane.
   i. Distance between Control Joints: Not to exceed 18 feet (5.4 m) in either direction or a length-to-width ratio of 2-1/2 to 1.
   ii. Wall Areas: Not more than 144 sq. ft. (9 sq. m) in area.

e. Expansion Joints: Install at all construction and expansion joints that occur in the structure, including locations where plaster panel sizes or dimensions change. Extend joints full width or height at these locations.

4. Lathing

   a. Install lath over properly prepared substrate with minimum 3” overlap at vertical and horizontal edges and overlap on flange of plastering accessories. Last can be applied horizontally or vertically and should be applied such that it is flat and free of ripples, wrinkles, etc.
   b. Fasteners shall be installed so as there is 5/8” (16 mm) minimum penetration to framing 6” on center vertically and 16” on center horizontally or as required by the International Building Code.

5. Base Coat*:*

   a. Total thickness of base coats must meet code requirements for fire rated construction.
   b. Apply scratch coat to a nominal thickness of 3/8”, brown coat to a nominal thickness of 3/8”, over metal and self-furring reinforcement. No individual coat shall exceed ½ inch thickness.
   c. Apply base coat mixture with sufficient force to develop full adhesion between base coat mixture and the substrate.
   d. Apply first coat to completely embed lath. Cross rake slightly to provide key for second brown coat. Coat must be uniform in thickness.
   e. Apply second brown coat to provide the required total thickness. Coat must be uniform in thickness. Rod off to desired thickness, leveled with screeds, to provide a true, flat plane. Follow this by wood floating or darbying the surface. Fill all voids and dress surface for acrylic finish.
   f. Damp cure for at least 48 hours by lightly and evenly fogging the surface with water a least twice a day. Direct sunlight, hot temperatures, low humidity and wind may make additional logging necessary.
   g. Allow base coat to cure a minimum of 6 days prior to application of primer and finish coat application.

6. Primer:

   a. Apply PRIMER to the Base Coat with a 3/8" nap roller, or good-quality latex paint brush at a rate of approximately 175-275 square feet per gallon.

b. PRIMER shall be dry to the touch before proceeding to the finish coat application.

7. Finish Coat:

a. Apply finish directly to the base coat or primer with a clean stainless-steel trowel.
b. Apply and level finish during same operation to minimum obtainable thickness consistent with uniform coverage. Finish coat should be 1/8" thick nominal.
c. Maintain a wet edge on finish by applying and texturing continually over the wall surface.
d. Work finish to corners, joints, or natural breaks and do not allow material to set up within an uninterrupted wall area.
e. Float finish to match existing finish.

3.05 CLEANING

A. General:

1. Do not allow accumulation of empty containers or other excess items except in areas set aside for the purpose. Remove and properly discard all used material, packages, containers and debris from the project site caused by the application of plaster coating.
2. Prevent accidental spilling of coating materials; in event of a spill:

a. Remove spilled material and waste or other equipment used to clean up spill.
b. Clean surfaces to their original undamaged conditions.

B. Adjacent Surfaces:

1. Upon completion, remove all coating stains, splatters, etc., from any surface not designated to be coated. Any stained or ruined surface, including landscaping, shall be repaired or replaced to the satisfaction of the Owner at no additional expense.

3.06 PROTECTION

A. Freshly coated surfaces located in trafficable areas shall be legibly posted as such immediately following their completion. Provide barricades to protect work, if necessary.

B. Remove temporary protection and enclosure of other work. Repair surfaces which have been stained, marred, or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers, and equipment and clean area of plaster debris.

C. Installer shall advise the Contractor of requirements for the protection of plaster from deterioration and damage during the remainder of the construction period.

END OF SECTION 09220

SECTION 09225 – STUCCO REPAIR PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:

1. This section includes removing and replacing damaged stucco on the buildings as necessary, or as directed by the Engineer. New stucco cladding to be installed shall include all related accessories.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. **Section 09225 – Stucco Repair Procedures**
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 SYSTEM DESCRIPTION

A. Submittals shall be provided in electronic form in accordance with Section 01000.

B. Product Data:

1. Submit digital copies of product manufacturer’s specifications, recommendations, and installation instructions for joint sealant materials.
2. Submit digital copies of the manufacturer’s published data, letter of certification, or certified test laboratory report, which states that each material complies with requirements and is intended for the application shown.

C. Method Statement indicating the sequence and materials used to conduct repairs.

D. Shop Drawings:

1. Provide supplementary details depicting each type of crack repair.

2. Indicate on Drawings locations where resurfacing, refinishing, and/or recoating is required.

1.3 QUALITY ASSURANCE

A. Qualifications:

1. Work performed under this section shall only be by installers with minimum five (5) years documented experience in the application of specified products and systems on projects of similar size and scope.
2. Each Contractor shall be approved by manufacturer for installation of their products.
3. Contractor shall submit the names of two prior successful installations to Engineer.
4. Contractor shall be knowledgeable in the proper handling, use and installation of the stucco materials.
5. Contractor shall provide the proper equipment, manpower and supervision on the job site to perform the repair procedures in accordance with the stucco manufacturer's repair specifications.

B. Pre-Installation Conference:

1. Meet with Owner, Engineer, and related trades to discuss concrete rehabilitation sequencing and installation procedures.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver products to job site in original unopened packages with labels identifying manufacturer, product identification, and batch numbers when appropriate.

B. Store materials in accordance with manufacturer's recommendations.

1.5 MOCK-UP

A. At the start of the project, Contractor shall perform mock-up of required stucco repair work in a pre-selected area of the building, as directed by the Engineer. A minimum of one (1) mock-up of each of the unique conditions shall be required.

B. Manufacturer's representative or designated representative will review technical aspects; surface preparation, application, and workmanship.

C. Obtain Engineer's written approval of mock-up before start of material application elsewhere, including approval of aesthetics, texture, and appearance.

D. Mock-up shall serve as standard for judging workmanship on remainder of project. Therefore, mock-up should be maintained during construction.

1.6 PROJECT CONDITIONS

A. Contractor shall accept the conditions of the job site as they exist and perform his work accordingly.

B. Any adverse condition which might affect the performance of the work described in these specifications must be brought to the attention of the Owner in writing immediately upon its discovery.

C. Comply with manufacturer's recommended minimum and maximum installation temperatures.

D. Contractor shall be held responsible for protecting all adjacent construction from damage. Existing structures or installations which are destroyed or damaged by operations connected with this Work, including landscaping, shall be replaced and/or repaired by the Contractor to the satisfaction of the Owner at no additional expense.

E. Contractor shall secure field measurements required for proper installation of work covered by this Section. Exact measurements are Contractor's responsibility.

1.7 SEQUENCING AND SCHEDULING

A. Contractor shall coordinate each portion of this work with other trades to ensure that all construction can be completed once it is begun.

B. Contractor shall coordinate each portion of this work with the Owner's Representative, to minimize annoyance and inconvenience to building occupants.

1.8 WARRANTY

A. Manufacturer Warranty: Provide a warranty from the manufacturer against defective materials for a minimum period of five (5) years after completion and final acceptance of the work. Material related defects shall be corrected at no expense to the Owner during the warranty period.

B. Contractor Warranty: Provide a written warranty agreeing to repair defects in material and workmanship for a minimum period of two (2) years after completion and final acceptance of the work. Material and workmanship related defects shall be corrected at no expense to the Owner during the warranty period.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products from one of the following manufacturers:

1. STO Corp.
   www.stocorp.com

2. Sika USA
   https://usa.sika.com/senergy/en/systems/stucco-systems.html

B. Other manufacturers and systems will be considered only if submitted and approved by the Engineer 48 hours prior to the bid deadline.

C. All primary materials shall be from a single manufacturer. To assure system compatibility, mixing and matching of various products from different manufacturers is prohibited.

D. All secondary materials shall be in accordance with primary materials manufacturer's recommendations or requirements.

2.2 MATERIALS

A. Base Coat:

1. Base coat product that is mixed with Portland cement and is water resistant.
   a. Acceptable Manufacturers:
      i. Sto Corp.
      ii. Sika USA

2. Water: Clean and portable without any foreign matter.
3. Bonding Agent: Surface applied bonding agent and additive as required by the manufacturer.
4. Primer: 100% acrylic-based primer.

B. Finish Coat:
1. Acceptable Manufacturers:
   a. Sto Corp
   b. Sika USA

PART 3 – EXECUTION

3.1 GENERAL REPAIR PROCEDURE

A. Define repair areas based on sounding and remove stucco to sound substrate.

B. Extend repairs laterally to adjacent well-bonded material.

C. Base Coat:

1. After existing stucco has been removed, Contractor shall remove all surface contaminants which could inhibit bonding of the primer and base coat, including, not not limited to, oils, dust and debris. Substrate shall be prepared and cured as required by the Manufacturer. At the start of the project, the prepared substrate shall be reviewed by the Engineer for establishment of acceptable substrate. If required by Engineer, test bond strength of base coat to substrate as prescribed by ASTM C1583 at areas in questions
2. Apply substrate bonding agent to all concrete substrates to receive direct applied stucco system within 12 hours, but not prior to adequate curing of the substrate.
3. Apply base coat to a nominal thickness of to match existing and adjacent stucco. No individual coat shall exceed ½ inch thickness.
4. Apply base coat mixture with sufficient force to develop full adhesion between base coat mixture and the substrate.
5. Apply base coat to provide the required total thickness (match existing). Coat must be uniform in thickness. Cross rake slightly to provide key for brown coat. Rod off to desired thickness, leveled with screeds, to provide a true, flat plane. Follow this by wood floating or darbying the surface. Ensure that new base application is even with adjacent surfaces. Fill all voids and dress surface for acrylic finish.
6. Damp cure for at least 48 hours by lightly and evenly fogging the surface with water at least three (3) times a day. Direct sunlight, hot temperatures, low humidity and wind may make additional fogging necessary.
7. Allow base coat to cure a minimum of 6 days prior to application of primer and finish coat application.

D. Finish Coat:

1. Apply finish directly to the primer with a clean stainless-steel trowel.
2. Apply and level finish during same operation to minimum obtainable thickness consistent with uniform coverage. Finish coat should be 1/8” thick nominal.
3. Maintain a wet edge on finish by applying and texturing continually over the wall surface.
4. Work finish to corners, joints, or natural breaks and do not allow material to set up within an uninterrupted wall area.
5. Float to match adjacent finishes.

3.2 CRACK REPAIR

A. If cracks develop in a Stucco, they can be repaired by the methods described below. Before the repairs are made, the cause for cracks must be determined and addressed, and an assessment made as to whether the cracks are active or dormant. Areas exhibiting spalling or delamination from the substrate should be removed and replaced.

B. Surfaces to be repaired must be properly prepared to remove all contaminants.

C. Hairline surface cracks in the stucco textured coating of less than 1/32 inch can be bridged with coating installed at a dry film thickness as specified in the Contract Documents. Clean the existing surface prior to application.

D. Cracks up to 1/8” to be sealed with Sto Crack Filler or Master-Builder Solutions Master Protect FL 746. Tool surface flush with brown coat.

E. Cracks deeper than 1/8” cracks can be repaired in the following manner:

1. Cracks that align with a structural component where an expansion joint is required, must be repaired by installing an expansion joint, which coincides with the crack along the entire length of the floor line. Refer to sealant restoration and repair specified hereinafter.
2. Widespread cracking may be an indication of a serious defect in the stucco installation and/or the underlying construction. Repair only after a thorough investigation of the problem and corrective action is taken to address the defects in the substrate or stucco installation.
3. Route out the cracks and fill with patching compound. Tool patching compound flush with the brown coat.
4. Apply new finish to match surrounding texture and color.

F. Refer to Technical Specification 09910 for the acrylic coating.

3.3 FINISH REPAIR

A. Grind off the damaged finish and remove for approximately one (1) inch around the damaged area.

B. Mask and protect the existing finish surrounding the area to be repaired.

C. Apply new finish tinted to appropriate color, and float finish to match existing texture.

D. Remove protection and masking and use a dry paint brush to blend the wet finish into the existing finish. (Note: Use of a wet paint brush may cause color variations with darker colors.)

3.4 FIELD QUALITY CONTROL

A. Inspection for complete coverage should be made to ensure all holes, cracks, and voids have been filled, and all joints and cracks have been properly treated. Finished work is to be inspected by the Engineer to verify compliance with project specifications.

3.5 CLEANING

A. General:

1. Do not allow accumulation of empty containers or other excess items except in areas set aside for the purpose. Remove and properly discard all used material, packages, containers and debris from the project site caused by the application of plaster coating.
2. Prevent accidental spilling of coating materials; in event of a spill:

    a. Remove spilled material, waste, and/or other equipment used to clean up spill.
    b. Clean surfaces to their original undamaged conditions.

B. Adjacent Surfaces:

1. Upon completion, remove all coating stains, splatters, etc., from any surface not designated to be coated. Any stained or ruined surface, including landscaping, shall be repaired or replaced to the satisfaction of the Owner at no additional expense.

3.6 PROTECTION

A. Freshly coated surfaces located in trafficable areas shall be legibly posted as such immediately following their completion. Provide barricades to protect work, if necessary.

B. Remove temporary protection and enclosure of other work. Repair surfaces which have been stained, marred, or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers, and equipment and clean area of plaster debris.

C. Installer shall advise the Contractor of requirements for the protection of plaster from deterioration and damage during the remainder of the construction period.

END OF SECTION 09225

SECTION 09290 - GYPSUM BOARD DRYWALL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board drywall.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. **Section 09290 – Gypsum Board Drywall**
14. Section 09910 – Acrylic Coatings
15. Section 09960 – High-Performance Coatings

1.2 SUBMITTALS

A. Product Data: For the following:

1. Flexible gypsum board.
2. Interior trim.
3. Exterior trim.
4. Joint treatment materials.
5. Textured finishes.

B. Shop Drawings: Show locations and installation of control and expansion joints, including plans, elevations, sections, details of components, and attachments to other work.

C. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.
2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

D. Samples for Initial Selection: For each type of trim accessory and textured finish indicated.

E. Samples for Verification: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.
2. Textured Finishes: Manufacturer's standard size for each textured finish indicated

and on same backing indicated for Work.

1.3 MOCKUPS

1. Build mockups for the following:
   a. Each level of gypsum board finish indicated for use in exposed locations.
   b. Each texture finish indicated.
2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
3. Simulate finished lighting conditions for review of mockups.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, moisture damaged, and mold damaged.
   1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated in accordance with ASTM E119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated in accordance with ASTM E90 and classified in accordance with ASTM E413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. Flexible Gypsum Board: ASTM C1396/C1396M. Manufactured to bend to fit radii and to be more flexible than standard regular-type gypsum board of same thickness.
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. USG Corporation: USG Sheetrock® Brand Flexible Gypsum Panels

2. Thickness: 1/4 inch.
3. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

A. General: Comply with ASTM C1047.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C475/C475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping, drying-type, or all-purpose compound.
   a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use setting-type, sandable topping or drying-type, all-purpose compound.
4. Finish Coat: For third coat, use setting-type, sandable topping or drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound, drying-type, all-purpose compound, or high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

2.6 AUXILIARY MATERIALS

A. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

C. Steel Drill Screws: ASTM C1002 unless otherwise indicated.

1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

2.7 TEXTURE FINISHES

A. Primer: As recommended by textured finish manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION AND FINISHING OF PANELS, GENERAL

A. Comply with ASTM C840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

H. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.2 INSTALLATION OF INTERIOR GYPSUM BOARD

A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels as required by fire-resistance-rated

assembly, and minimize end joints.

a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.3 FIELD QUALITY CONTROL

A. Inspections: Ensure gypsum board is installed per manufacturer's instructions, project specifications, and applicable codes:

1. Verify proper alignment of boards on framing members with edges secured and not overhanging supports.
   a. Confirm that joints are staggered in adjacent rows of boards and properly aligned.
2. Inspect fastener type, spacing, and placement to ensure they meet specifications:
   a. Drywall screws/nails are flush with the surface but not over-driven or breaking the paper face.
   b. Fastener spacing is appropriate for ceiling (e.g., 7-8 inches) and wall (e.g., 12 inches) installations.
3. Ensure edges and corners are clean, smooth, and free of damage.
4. Check cutouts for penetrations (e.g., electrical boxes, plumbing) for proper fit and alignment.
5. Verify that joints are taped with approved joint tape (e.g., paper or fiberglass) and embedded in joint compound.

END OF SECTION 09290

SECTION 09910 – ACRYLIC COATING

PART 1 – GENERAL

1.1 SUMMARY

A. This section includes acrylic coatings applied over areas indicated within the Contract Documents. Work in this section includes surface preparation, priming, and finish coating.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07440 – Fiber-Cement Panels
8. Section 07620 – Sheet Metal Flashing and Trim
9. Section 07920 – Building Sealants
10. Section 08090 – Door and Window Replacement
11. Section 08800 – Glazing
12. Section 09220 – Cement Plaster Stucco System
13. Section 09225 – Stucco Repair Procedures
14. Section 09290 – Gypsum Board Drywall
15. **Section 09910 – Acrylic Coatings**
16. Section 09960 – High-Performance Coatings

1.2 REFERENCES

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

1. ASTM D 3359: Standard Test Methods for Measuring Adhesion by Tape Test.

1.3 SUBMITTALS

A. Product Data:

1. Submit electronic copies of product manufacturer’s specifications, recommendations, and installation instructions for acrylic coatings.
2. Submit electronic copies of manufacturer’s published data, letter of certification or certified test laboratory report which states that each material complies with requirements and is intended for application shown.

B. Color Samples: For verification purposes resubmit until required sheen, color, and texture are achieved.

1. Provide three (3) sets of samples for all areas designated or scheduled to receive new coatings, as directed by Owner and do not proceed until final acceptance by Owner is granted. Contractor's inability to follow these instructions may result in recoating applications at the Contractor's own expense.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Work performed under this section shall only be by installers with minimum five (5) years documented experience in the application of specified products and systems on projects of similar size and scope.
2. Each Contractor shall be approved by manufacturer for installation of their products.
3. Contractor shall submit the names of two prior successful installations to Engineer.

B. Pre-Installation Conference:

1. Meet with Owner, Engineer, and related trades to discuss sequencing and installation procedures.

C. Adhesion Testing:

1. Manufacturer's representative shall be required to perform field adhesion tests. Tests should be performed per ASTM D 3359, Measuring Adhesion by Tape, Method A and shall be accepted by the Engineer. A minimum adhesion rating of 4A is required on 0 to 5 scale.
2. Field adhesion tests shall be performed on each of the substrates and approved according to this section.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver products to job site in original unopened packages with labels identifying manufacturer, product identification, and batch numbers when appropriate.

B. Store materials in accordance with manufacturer's recommendations.

1.6 MOCK-UP

A. At the start of the project, Contractor shall perform mock-up of required coatings at a pre-selected area of the building, as directed by the Engineer and Owner's Representative. A minimum of one (1) mock-up will be required for each surface to be coated.

B. Mock-up will be reviewed for conformance with the contract documents, color, texture, millage requirements, uniformity appearance and workmanship. If mockup is not satisfactory, prepare additional mock-ups until Owner's approval is obtained.

C. Manufacturer's representative or designated representative will review technical aspects; surface preparation, application, and workmanship.

D. Obtain Engineer's written approval of mock-up before start of material application elsewhere, including approval of aesthetics, color, texture, and appearance.

E. Mock-up shall serve as standard for judging workmanship on remainder of project. Therefore, mock-up should be maintained during construction.

F. Final acceptance of colors will be from Project-applied fully cured mock-up samples and approved by the Owner.

1.7 PROJECT CONDITIONS

A. Environmental Requirements:

1. Comply with manufacturer's recommendations for environmental conditions under which materials may be applied and cured.
2. Apply no materials when subject to windblown dust, sand, fog or rain or when relative humidity exceeds 85 percent; or to damp or wet surfaces; or when there is a threat of rain within the next 24 hours. Allow surfaces to attain temperature and conditions specified before proceeding with coating system application.
3. Do not apply materials on wet surfaces and protect from rapid drying causing streaks or discoloration.
4. Apply coatings only when ambient temperature is above 40 degrees and rising at application time and will remain above 40 degrees F (4 degrees C) for at least 24 hours after application, and less than 90 degrees F.

B. At the direction of the Engineer, perform moisture meter tests to determine moisture content of substrates prior to coating application; comply with manufacturer's product data.

1. Ensure stucco cladding is adequately cured and exhibits a moisture content of ≤15% when tested using a moisture meter in accordance with ASTM F2659 or ASTM D4263, or as specified by the coating manufacturer.

C. At the direction of the Engineer, perform pH testing to determine alkalinity of substrates prior to coating application; comply with manufacturer's product data.

1. Freshly applied stucco or cement-based substrates can have high alkalinity (pH ≥12). High pH can affect the adhesion and durability of coatings.
2. If the stucco is fully cured (typically after 28 days), the pH should naturally drop to acceptable levels (usually ≤10).
3. Perform pH testing of stucco substrate using pH test strips or a calibrated pH meter in accordance with ASTM D4262. Ensure pH levels do not exceed 10.0, or as specified by the coating manufacturer, prior to coating application.

1.8 SEQUENCING AND SCHEDULING

A. Coordinate each portion of the Work with other trades to ensure that all Work can be completed once it has commenced, and to provide for appropriate interfacing with other Work.

1.9 WARRANTY

A. Manufacturer Warranty: Provide manufacturer's ten (10) year material and labor warranty.

B. Contractor Warranty: Provide a written warranty agreeing to repair defects in material and workmanship for a minimum period of two (2) years after completion and final acceptance of the work. Material and workmanship related defects shall be corrected at no expense to the Owner during the warranty period.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements, provide products from the following manufacturers:

1. Sika Corp (https://usa.sika.com)
2. Sto Corporation (https://www.stocorp.com)
3. Pecora Corporation (www.pecora.com)
4. Sherwin Williams (www.sherwin-williams.com)

B. Other manufacturers and systems will be considered only if submitted and approved by the Engineer 48 hours prior to bid deadline.

C. All primary materials shall be from a single manufacturer. To assure system compatibility, mixing and matching of various products from different manufacturers is prohibited.

D. All secondary materials shall be in accordance with primary materials manufacturer's recommendations or requirements.

2.2 MATERIALS

A. General:

1. All materials shall be new and of best commercial quality.
2. Comply with the manufacturer's written instructions applicable to substrates and coating systems indicated.

B. Vertical Acrylic Coatings (10 Year Warranty)

1. Type: 100% acrylic, smooth waterproof coatings design to resist wind-driven rain and help prevent water penetration into the substrate.
2. **Use**: May be applied to concrete, masonry, stucco, EIFS, CMU, and wood.
3. Acceptable Products:

    a. Sika Thorocoat®-200
    b. StoColor Lotusan (80217R)
    c. Pecora: WeatherClad WT
    d. Sherwin Williams: Loxon® Self-Cleaning Acrylic Coating

C. Overhead and Concrete Coatings

1. Type: Water-based, 100% acrylic, microbial inhibiting agents.
2. **Use**: May be applied to concrete, CMU, brick, stucco.
3. Acceptable Products:

    a. Sika Thorocoat®-250
    b. StoColor® Acryl Flat
    c. Sherwin-Williams A-100®

D. Primers: As recommended in writing by respective coating Manufacturer.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with the requirements for maximum moisture content and other conditions affecting the performance of the Work. Immediately report any defects to the Engineer. Do not commence Work until unsatisfactory conditions have been corrected.

B. Verify the following:

1. Surfaces to receive coatings are free from frost, dirt, grease, oil, mold, fungus, efflorescence, laitance, curing compounds, form release agents, paints, water repellent compounds, peeling and chalking coatings, and any other foreign material that could be detrimental to the proper and timely performance of the Work.
2. Surfaces to receive coatings are structurally sound and all cracks and splits have been repaired in an acceptable manner.
3. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows (based on MPI recommendations):

    a. Concrete: 12 percent.
    b. Fiber-Cement Board: 12 percent.
    c. Masonry (Clay and Concrete Masonry Units): 12 percent.
    d. Wood: 15 percent.
    e. Portland Cement Plaster: 12 percent.

f. Gypsum Board: 12 percent.

4. Approval of colors and finish by the Owner. Contractor's inability to follow these instructions may result in recoating applications at the Contractor's own expense.

C. Commencement of Work constitutes acceptance of substrates and conditions within any particular area indicated or scheduled to receive acrylic coatings.

3.2 SURFACE PREPARATION

A. Comply with the manufacturer's written instructions applicable to substrates and coating systems indicated.

B. Prior to application of the acrylic coating system, remove and replace existing sealants in accordance with Contract Documents and Technical Specification 07920.

C. Pressure clean all surfaces to be coated to remove all dust, dirt, oil, grease, loose particles, laitance, foreign materials, peeling, and aged coatings, and chalk in accordance with manufacturer's recommend guidelines. When pressure cleaning exterior surfaces, be sure to use adequate pressure to prevent the intrusion of water through the building envelope. Allow surface to properly dry before proceeding (at least 24 hours or longer if surface if porous).

D. Clean mildew from surfaces by washing surface with manufacturer's recommended cleaners or a solution of 1 part liquid bleach and 3 parts water. When pressure cleaning exterior surfaces be sure to use adequate pressure (min of 2400 psf) to prevent the intrusion of water through the building envelope.

E. Remove all surface contamination in accordance with manufacturer's requirements and Contract Documents. Rinse thoroughly and allow to dry. Remove existing peeled or checked paint to a sound surface. Seal stains resulting from water, smoke, ink, pencil, and grease, as directed by manufacturer.

F. Ensure that substrate is sound, clean, dry, and free of dust, dirt, oils, grease, laitance, efflorescence, mildew, fungus, biological residues, chemical contaminants, and other contaminants that could prevent proper adhesion. Also, ensure that surfaces are less than 15% moisture content.

G. Stucco:

1. Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
2. Clean and prepare the substrate in accordance with ASTM D4258.
3. Repair existing Omega Diamond Wall Three-Coat Stucco System material approved by manufacturer and as described in Section 09920.
4. Allow new plaster to cure minimum of seven (7) days at 70 degrees F (21 degrees C) and 50 percent relative humidity or until pH level has reached 10. Allow longer cure times if temperatures are lower or relative humidity is higher.

5. After cleaning and profiling, prime chalky surfaces with primer approved by manufacturer.

H. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

I. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

J. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

K. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

L. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

M. Aluminum Substrates: Remove loose surface oxidation.

N. Wood Substrates:

1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
2. Sand surfaces that will be exposed to view, and remove sanding dust.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

O. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

P. Provide surface-applied protection for items not to be coated before surface preparation and coating.

3.3 APPLICATION

A. Apply coatings to locations indicated in the Project Documents.

B. Apply coating materials in accordance with manufacturer’s written instructions.

1. Use applicators and techniques suited for coatings and substrates indicated.
2. Apply coating only when moisture content of surfaces is within manufacturer’s recommended limits.

3. Comply with manufacturer's product data for drying time between coats and back rolling.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Do not apply coatings when inclement weather is forecasted or when temperature is forecasted to be below 40ºF or over 90ºF within 48 hours.

C. Use primer to stabilize all new and existing substrates or coatings after power washing. Ensure that primer for proper adhesion of coating material can bind existing surfaces or paint. Apply primers or block fillers acceptable to coating material manufacturer. Apply coating after primer and block filler have sufficiently dried.

D. Apply finish coating in manner and number of applications to achieve manufacturer's required **minimum** total dry film thickness for ten (10) year warranty and ten (10) or less pinholes per square foot. Note: The dry film thickness is not a nominal figure, but rather a minimum thickness requirement throughout.

E. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks. Make edges of coating adjoining other materials clean and sharp without overlapping. Ensure cut in areas of coatings are applied in such a manner that overlapping signatures are avoided.

F. Coating shall be applied continuously over substrate. When applying the coating, never stop the application until the entire surface has been coated. Always stop application at an edge, corner, or joint. Cut in elastomeric coating to completely cover urethane sealant joints and provide straight and true termination lines. Do not apply primer or elastomeric coating on frames over windows, doors or other pre-finished assemblies or silicone sealants.

G. 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, and crevices; receive a dry-film-thickness equivalent to that of flat surfaces.

H. Do not thin material with water or other additives. Open containers and stir material by hand to ensure any sediment is equally distributed. Batch (Box) material as required by manufacturer.

I. Final determination of all finishes shall be determined by compliance with the Contract Documents, Mock Ups, Owner and Engineer.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections:

1. Wet Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for wet film thickness during application.

    a. Contractor shall touch up and restore painted surfaces damaged by testing.
    b. If test results show that wet film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall apply additional coats as needed to provide wet film thickness that complies with paint manufacturer's written instructions.

2. Perform adhesion tests (ASTM D3359) at randomly selected intervals to ensure proper bonding to the substrate.

B. Inspections: Acrylic coating materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following

1. Material Verification: Verify acrylic coating type match submittals and project specifications. Ensure materials are properly mixed according to manufacturer instructions, including mixing times and ratios.
2. Surface Preparation: Ensure surfaces are free from dust, dirt, oil, grease, loose particles, laitance, foreign materials, peeling, and aged coatings, and chalk in accordance with manufacturer’s recommended guidelines
3. Application: Ensure primer is applied uniformly, if required by the manufacturer. Confirm application follows manufacturer’s recommended number of coats and thickness per coat. Check for consistent coverage without pinholes, sags, streaks, or missed areas.
4. Curing: Confirm uniform color, texture, and finish without defects.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from the Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
3. Allow empty paint cans to dry before disposal.

B. After completing coating work, clean glass and spattered surfaces. Remove spattered coatings by washing with soap and warm water or other approved methods, being careful not to scratch or damage adjacent finished surfaces. Scraping with razors shall not be permitted to clean glazings.

C. Protect work of other trades from damage whether being coated or not. Provide adequate signage throughout the property to protect the occupants during the

restoration process. Correct damage by cleaning, repairing, replacing, and recoating as approved by the Engineer. Leave in an undamaged condition.

D. After construction activities of other trades are complete, touch up and restore damaged or defaced coated surfaces.

END OF SECTION 09910

SECTION 099600 - HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of high-performance coating systems for metal and standing seam metal roofs.

B. Related Sections:

1. Section 03370 – Concrete Rehabilitation
2. Section 05400 – Cold Formed Metal Framing
3. Section 06160 – Sheathing
4. Section 07160 – Traffic Deck Coating System
5. Section 07212 – Batt Insulation
6. Section 07270 – Fluid Applied Membrane Air Barrier
7. Section 07620 – Sheet Metal Flashing and Trim
8. Section 07920 – Building Sealants
9. Section 08090 – Door and Window Replacement
10. Section 08800 – Glazing
11. Section 09220 – Cement Plaster Stucco System
12. Section 09225 – Stucco Repair Procedures
13. Section 09290 – Gypsum Board Drywall
14. Section 09910 – Acrylic Coatings
15. **Section 09960 – High-Performance Coatings**

1.2 DEFINITIONS

A. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.

B. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.

C. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
2. Indicate VOC content.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of coating system and each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: Cross-reference to coating system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Coatings: 10 percent, but not less than 1 gal of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of coating system indicated to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Engineer will select one surface to represent surfaces and conditions for application of each coating system.
    a. Roof: Provide samples of at least 10 sq. ft.
2. Final approval of color selections will be based on mockup.
    a. If preliminary color selection is not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
3. Approval of mockup does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply coatings only when temperature of surfaces to be coated and ambient air temperatures are between 50 and 115 deg F.

B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

C. Do not apply exterior coatings in snow, rain, fog, or mist.

1.8 WARRANTY

A. Manufacturer Warranty: Provide manufacturer’s ten (10) year material and labor warranty.

B. Contractor Warranty: Provide a written warranty agreeing to repair defects in material

and workmanship for a minimum period of two (2) years after completion and final acceptance of the work. Material and workmanship related defects shall be corrected at no expense to the Owner during the warranty period.

PART 2 - PRODUCTS

2.1 EXTERIOR HIGH-PERFORMANCE COATING

A. Subject to compliance with requirements, provide products from the following manufacturers:

1. Sherwin Willimas (https://usa.sherwin-williams.com)
2. Tnemec (https://www.tnemec.com/steelcon)

B. Other manufacturers and systems will be considered only if submitted and approved by the Engineer 48 hours prior to bid deadline.

C. All primary materials shall be from a single manufacturer. To assure system compatibility, mixing and matching of various products from different manufacturers is prohibited.

D. All secondary materials shall be in accordance with primary materials manufacturer's recommendations or requirements.

E. All materials shall be new and of best commercial quality.

F. Comply with the manufacturer's written instructions applicable to substrates and coating systems indicated.

G. **Products:** Standing Seam Metal Roof Coating (10 Year Warranty)

1. Type: 100% acrylic, smooth coating design to resist wind-driven rain and help prevent water penetration into the substrate.
2. Acceptable Products:

    a. Primer / First Coat
        1. Sherwin Williams Bond-Plex (1 Coat)
        2. Tnemec Series 66 HI-Build Epoxoline (1 Coat)
    b. Intermediate and Finish Coat
        1. Sherwin Williams Sheracryl (2 Coats)
        2. Tnemec Series 1072 Flouronar

PART 3 - INSTALLATION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

C. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and coating systems indicated.

B. Clean substrates of substances that could impair bond of coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.

C. Aluminum Substrates: Remove loose surface oxidation.

3.3 APPLICATION

A. Apply high-performance coatings according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

1. Use applicators and techniques suited for coating and substrate indicated.

B. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.

1. Contractor shall touch up and restore coated surfaces damaged by testing.
2. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials

from Project site.

B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from coating operation. Correct damage to work of other trades by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

END OF SECTION 099600

DRAFT

AIA® Document A105® – 2017

Standard Short Form of Agreement Between Owner and Contractor

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

« »Phoenix V Association, Inc
« »24400 Perdido Beach Blvd.
« »Orange Beach, AL 36561

and the Contractor:
(Name, legal status, address and other information)

« »« »
« »
« »
« »

for the following Project:
(Name, location and detailed description)

«Phoenix V Sliding Glass Door/Window Replacement and Exterior Restoration »
« »

The Owners Representative :
(Name, legal status, address and other information)

« »Norman Anderson, DBIA
« »24400 Perdido Beach Blvd
« »Orange Beach, AL 36561
« »ncabuilder@gmail.com 904-228-6483

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

.1 this Agreement signed by the Owner and Contractor;

.2 the drawings and specifications prepared by the Owners Representative, dated « », and enumerated as follows:

Drawings:

Number	Title	Date

Specifications:

Section	Title	Pages

.3 addenda prepared by the Owners Representative as follows:

Number	Date	Pages

.4 written orders for changes in the Work, pursuant to Article 10, issued after execution of this Agreement; and

.5 other documents, if any, identified as follows:

« TBD »

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The Contract Time is the number of calendar days available to the Contractor to substantially complete the Work.

§ 2.2 Date of Commencement:

Unless otherwise set forth below, the date of commencement shall be the date of this Agreement.
(Insert the date of commencement if other than the date of this Agreement.)

«February 27, 2026 »

§ 2.3 Substantial Completion:

Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion, as defined in Section 12.5, of the entire Work:
(Check the appropriate box and complete the necessary information.)

[«X»] By the following date: «May 14, 2027 »

ARTICLE 3 CONTRACT SUM

§ 3.1 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work. Subject to additions and deductions in accordance with Article 10, the Contract Sum is:

« » ($ TBD)

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work:
(Itemize the Contract Sum among the major portions of the Work.)

Portion of the Work	Value
	TBD

§ 3.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and hereby accepted by the Owner:
(Identify the accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

« »

§ 3.4 Allowances, if any, included in the Contract Sum are as follows:
(Identify each allowance.)

Item	Price
	TBD

§ 3.5 Unit prices, if any, are as follows:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)
TBD		

ARTICLE 4 PAYMENTS

§ 4.1 Based on Contractor's Applications for Payment certified by the Owners Representative, the Owner shall pay the Contractor, in accordance with Article 12, as follows:
(Insert below timing for payments and provisions for withholding retainage, if any.)

«Owner shall issue Progress payments to the Contractor no later than 30 days after the certificate of payment is certified by the Owners Representative.

For each progress payment made prior to Substantial Completion of the Work, the Owner shall withhold, as retainage, five ~~ten~~ percent (5%) of the estimated amount of Work properly done. ~~until the Work is fifty percent (50%) complete~~. Once the Work is halfway complete, no additional retainage may be held. Retainage shall become due and payable with the Final Certificate of Payment as set forth in Article 12.»

§ 4.2 Undisputed Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate of six percent (6%) per annum.

ARTICLE 5 INSURANCE

§ 5.1 The Contractor shall maintain the following types and limits of insurance as per the requirements set forth in Exhibit A Insurance Requirements hereto which is incorporated herein by reference, subject to the terms and conditions set forth in this Section 5.1:

§ 5.2 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance and shall provide property insurance to cover the value of the Owner's property. The Contractor is entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.

§ 5.3 The Contractor shall obtain an endorsement to its Commercial General Liability insurance policy to provide coverage for the Contractor's obligations under Section 8.12.

§ 5.4 Prior to commencement of the Work, each party shall provide certificates of insurance showing their respective coverages.

§ 5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, suppliers, agents, and employees, each of the other; and (2) the Owners Representative, Owners consultants, and any of their agents and employees, for damages caused by fire or other causes of loss to the extent those losses are covered by property insurance or other insurance applicable to the Project, except such rights as they have to the proceeds of such insurance.

ARTICLE 6 GENERAL PROVISIONS

§ 6.1 The Contract

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

§ 6.2 The Work

The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment, and services provided, or to be provided, by the Contractor to fulfill the Contractor's obligations.

§ 6.3 Intent
The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

§ 6.4 Ownership and Use of Owner's Drawings, Specifications and Other Documents
Documents prepared by the Owners Representative are instruments of the Owner's service for use solely with respect to this Project. The Owner shall retain all common law, statutory, and other reserved rights, including the copyright. The Contractor, subcontractors, sub-subcontractors, and suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may not be used for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owners Representative.

§ 6.5 Electronic Notice
Written notice under this Agreement may be given by one party to the other by email as set forth below.
(Insert requirements for delivering written notice by email such as name, title, and email address of the recipient, and whether and how the system will be required to generate a read receipt for the transmission.)

« »

ARTICLE 7 OWNER
§ 7.1 Information and Services Required of the Owner
§ 7.1.1 If requested by the Contractor, the Owner shall furnish all necessary surveys and a legal description of the site.

§ 7.1.2 Except for permits and fees under Section 8.7.1 that are the responsibility of the Contractor, the Owner shall obtain and pay for other necessary approvals, easements, assessments, and charges.

§ 7.1.3 Prior to commencement of the Work, at the written request of the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence.

§ 7.2 Owner's Right to Stop the Work
If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

§ 7.3 Owner's Right to Carry Out the Work
If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, correct such deficiencies. In such case, the Owners Representative may withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, provided the actions of the Owner and amounts charged to the Contractor were approved by the Owners Representative.

§ 7.4 Owner's Right to Perform Construction and to Award Separate Contracts
§ 7.4.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

§ 7.4.2 The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

ARTICLE 8 CONTRACTOR
§ 8.1 Review of Contract Documents and Field Conditions by Contractor
§ 8.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 8.1.2 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Owners Representative.

§ 8.2 Contractor's Construction Schedule

The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Owners Representative's information a Contractor's construction schedule for the Work.

§ 8.3 Supervision and Construction Procedures

§ 8.3.1 The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work.

§ 8.3.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner, through the Owners Representative, the names of subcontractors or suppliers for each portion of the Work. The Contractor shall not contract with any subcontractor or supplier to whom the Owner or Owners Representative have made a timely and reasonable objection.

§ 8.4 Labor and Materials

§ 8.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

§ 8.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 8.5 Warranty

The Contractor warrants to the Owner and Owners Representative that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 12.5.

§ 8.6 Taxes

The Contractor shall pay sales, consumer, use, and similar taxes that are legally required when the Contract is executed.

§ 8.7 Permits, Fees and Notices

§ 8.7.1 The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work.

§ 8.7.2 The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Owners Representative in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.

§ 8.8 Submittals

The Contractor shall promptly review, approve in writing, and submit to the Owners Representative shop drawings, product data, samples, and similar submittals required by the Contract Documents. Shop drawings, product data, samples, and similar submittals are not Contract Documents.

§ 8.9 Use of Site
The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner.

§ 8.10 Cutting and Patching
The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

§ 8.11 Cleaning Up
The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery, and surplus material; and shall properly dispose of waste materials.

§ 8.12 Indemnification
To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Owners Representative, Owner's consultants, and agents and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

ARTICLE 9 ~~ARCHITECT~~OWNERS REPRESENTATIVE
§ 9.1 The Owners Representative will provide administration of the Contract as described in the Contract Documents. The Owners Representative will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 9.2 The Owners Representative will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.

§ 9.3 The Owners Representative will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Owners Representative will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

§ 9.4 Based on the Owners Representative's observations and evaluations of the Contractor's Applications for Payment, the Owners Representative will review and certify the amounts due the Contractor.

§ 9.5 The Owners Representative has authority to reject Work that does not conform to the Contract Documents.

§ 9.6 The Owners Representative will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 9.7 On written request from either the Owner or Contractor, the Owners Representative will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents.

§ 9.8 Interpretations and decisions of the Owners Representative will be consistent with the intent of, and reasonably inferable from the Contract Documents, and will be in writing or in the form of drawings. When making such interpretations and decisions, the Owners Representative will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 9.9 The Owners Representative's duties, responsibilities, and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor, and Owners Representative. Consent shall not be unreasonably withheld.

ARTICLE 10 CHANGES IN THE WORK

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, and the Contract Sum and Contract Time shall be adjusted accordingly, in writing. If the Owner and Contractor cannot agree to a change in the Contract Sum, the Owner shall pay the Contractor its actual cost plus reasonable overhead and profit.

§ 10.2 The Owners Representative may authorize or order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. Such authorization or order shall be in writing and shall be binding on the Owner and Contractor. The Contractor shall proceed with such minor changes promptly.

§ 10.3 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

ARTICLE 11 TIME

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment.

§ 11.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the responsible party. Failure to maintain scheduled start dates for other floors or stacks due to a localized delay will be considered non-compliance with scheduling time obligations. In addition to any other damages, liquidated damages of $2,000 per floor or stack that falls behind its scheduled start or completion date will be assessed for each occurrence. ~~Failure to maintain scheduled start dates for other floors or stacks due to a localized delay will be considered non-compliance with time obligations. In addition to any other damages, liquidated damages of $2,000 per floor or stack that falls behind its scheduled start or completion date will be assessed for each occurrence.~~

ARTICLE 12 PAYMENTS AND COMPLETION

§ 12.1 Contract Sum

The Contract Sum stated in this Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 12.2 Applications for Payment

§ 12.2.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Owners Representative an itemized Application for Payment for Work completed in accordance with the values stated in this Agreement. The Application shall be supported by data substantiating the Contractor's right to payment as the Owner or Owners Representative may reasonably require, such as evidence of payments made to, and waivers of liens from, subcontractors and suppliers. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 12.2.2 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or other encumbrances adverse to the Owner's interests.

§ 12.3 Certificates for Payment

The Owners Representative will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; (2)

issue to the Owner a Certificate for Payment for such amount as the Owners Representative determines is properly due, and notify the Contractor and Owner in writing of the Owners Representative's reasons for withholding certification in part; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Owners Representative's reason for withholding certification in whole. If certification or notification is not made within such seven day period, the Contractor may, upon seven additional days' written notice to the Owner and Owners Representative, stop the Work until payment of the amount owing has been received. The Contract Time and the Contract Sum shall be equitably adjusted due to the delay.

§ 12.4 Progress Payments

§ 12.4.1 After the Owners Representative has issued a Certificate for Payment, the Owner shall make payment in the manner provided in the Contract Documents.

§ 12.4.2 The Contractor shall promptly pay each subcontractor and supplier, upon receipt of payment from the Owner, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.

§ 12.4.3 Neither the Owner nor the Owners Representative shall have responsibility for payments to a subcontractor or supplier.

§ 12.4.4 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

§ 12.5 Substantial Completion

§ 12.5.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 12.5.2 When the Contractor believes that the Work or designated portion thereof is substantially complete, it will notify the Owners Representative and the Owners Representative will make an inspection to determine whether the Work is substantially complete. When the Owners Representative determines that the Work is substantially complete, the Owners Representative shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, establish the responsibilities of the Owner and Contractor, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 12.5.3 Liquidated Damages - If the Contractor fails to achieve Substantial Completion as provided in this section 12.5 and by the date set forth is section 2.3, liquidated damages shall be assessed at the rate of $2,000.00 (Two Thousand Dollars and No Cents) per day, limited to 30 days.

§ 12.6 Final Completion and Final Payment

§ 12.6.1 Upon receipt of a final Application for Payment, the Owners Representative will inspect the Work. When the Owners Representative finds the Work acceptable and the Contract fully performed, the Owners Representative will promptly issue a final Certificate for Payment.

§ 12.6.2 Final payment shall not become due until the Contractor submits to the Owners Representative releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests, or encumbrances arising out of the Contract.

§ 12.6.3 Acceptance of final payment by the Contractor, a subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall take reasonable precautions to

prevent damage, injury, or loss to employees on the Work and other persons who may be affected thereby, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

ARTICLE 14 CORRECTION OF WORK

§ 14.1 The Contractor shall promptly correct Work rejected by the Owners Representative as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

§ 14.2 In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

§ 14.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

ARTICLE 15 MISCELLANEOUS PROVISIONS

§ 15.1 Assignment of Contract

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

§ 15.2 Tests and Inspections

§ 15.2.1 At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

§ 15.2.2 If the Owners Representative requires additional testing, the Contractor shall perform those tests.

§ 15.2.3 The Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Contract is executed. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 15.3 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules.

ARTICLE 16 TERMINATION OF THE CONTRACT

§ 16.1 Termination by the Contractor

If the Work is stopped under Section 12.3 for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Owners Representative, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.

§ 16.2 Termination by the Owner for Cause

§ 16.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** is otherwise guilty of substantial breach of a provision of the Contract Documents.

§ 16.2.2 When any of the above reasons exist, the Owner, after consultation with the Owners Representative, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

- **.1** take possession of the site and of all materials thereon owned by the Contractor, and

.2 finish the Work by whatever reasonable method the Owner may deem expedient.

§ 16.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 16.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

§ 16.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 17 OTHER TERMS AND CONDITIONS

(Insert any other terms or conditions below.)

EXHIBIT A - INSURANCE REQUIREMENTS

This Agreement entered into as of the day and year first written above.
(If required by law, insert cancellation period, disclosures or other warning statements above the signatures.)

« »

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
« »« »	« »« »
(Printed name and title)	*(Printed name and title)*
	LICENSE NO.:
	JURISDICTION:

EXHIBIT A - INSURANCE REQUIREMENTS

I. INSURANCE REQUIREMENTS. The Contractor shall procure, and cause subcontractors of all tiers to purchase and maintain, and maintain the following types of coverage and limits until Owner's acceptance of the Project or the issuance of final Certificate(s) of Occupancy for the entire Project or for such greater period as specified below, per the following standards:

A. COMMERCIAL GENERAL LIABILITY INSURANCE: Insurance shall include Premises & Ongoing Operations, Independent Contractors, Blanket Contractual Liability, Personal Injury, and Products/Completed Operations on an "occurrence form". Such policy shall not include XCU exclusions, nor punitive damage exclusions.

1. Commercial General Liability (CGL) Insurance shall include fire legal liability, hostile fire, products and completed operations liability. There shall be coverage for domestic certified acts of terrorism.

2. All coverage required shall be provided on an occurrence form with the following minimum limits:

$2,000,000 Products / Completed Operations Aggregate
$2,000,000 Per Project Aggregate
$1,000,000 Any One Occurrence
$1,000,000 Any One Person or Organization (Personal Injury)

The deductible for property damage and bodily injury shall be no greater than $50,000 per claim, unless Contractor has received prior approval from the Owner.

3. Subcontractors may carry lesser limits with the prior written consent of Owner (and/or its member(s), investor(s) or Lender(s)).

4. Completed Operations coverage must be maintained for the duration of the applicable statute of repose in the state of jurisdiction for the Project.

5. The General Aggregate limit shall apply to each project individually.

B. AUTOMOBILE LIABILITY (BODILY INJURY AND PROPERTY DAMAGE LIABILITY): Including coverage for all owned, hired and non-owned automobiles. The combined single limit shall be $1,000,000 per occurrence.

C. WORKERS COMPENSATION AND EMPLOYERS LIABILITY:
Coverage A: Statutory Workers Compensation Insurance for the state in which the Work is to be performed.

Coverage B: Employers Liability Insurance with minimum limits of liability as follows:

$500,000. Each Accident
$500,000. Each Employee for Injury by Disease
$500,000. Aggregate for Injury by Disease

Coverage C: Other States Insurance. If the Work under this Agreement involves such exposure, the Contractor's Workers Compensation Insurance shall provide coverage for the United States Longshoremen and Harbor Workers Act.

D. EXCESS/UMBRELLA COVERAGE: Coverage must be following form of the Contractor's Commercial General Liability, Automobile Liability, and Employer's Liability limits of liability, and at least as broad as the primary policies' coverage. The limits must be at least $1,000,000 per occurrence and $1,000,000 aggregate limit. This coverage must be maintained for the shorter of: five (5) years following completion of the Work or the duration of the applicable statute of repose in the state of jurisdiction for the Project.

E. Evidence of coverage must be provided to Owner for review prior to commencement of any construction at the Project.

F. In lieu of Additional Insured status for the Owner on Contractor's CGL policy, the Contractor may, if approved by Owner, provide an Owner's Protective Liability policy with comparable limits.

II. REQUIREMENTS OF INSURANCE POLICIES

A. All insurance policies shall be issued by an insurer or insurers with an A.M. Best rating of A X or better or a Standard and Poor's rating of "AA", or equivalent rating from another agency acceptable to the Owner and be authorized in the state where the project is located. All insurance acquired pursuant to this Agreement shall be in form, amounts and with coverage and deductibles satisfactory to Owner, in Owner's sole discretion.

B. The Commercial General Liability, Umbrella Liability, Auto Liability, Pollution Liability and Employer's Liability shall name Owner, the Additional Insureds (defined below), and their members, managers, directors, officers, employees, agents, affiliates, successors, assigns, any lender and any other parties as stipulated by Owner as additional insureds as respects any liability arising out of the Contractor's or Subcontractor's operations in the performance of the Work. Such additional insured status may be written on a "blanket" basis, but coverage must be at least as broad as that afforded by ISO form CG 2010 and CG 20 37 (07-2004 editions) or their equivalent. Regardless of the form(s) used, the coverage as additional insured shall include the Products / Completed Operations hazards. The additional insured coverage afforded the Additional Insureds must be stated to be primary and non-contributory, and any coverage carried by the Additional Insureds shall be secondary with respect to any claim arising out of the Contractor's operations in the performance of the Work. The Owner's parent companies may also need to be listed as additional insured when requested. The Contractor and Subcontractors are obligated to obtain and provide to Owner the actual insurance carrier endorsements and not just evidence the required coverage in the body of the certificate of insurance.

"Additional Named Insured" includes:
- Phoenix V Association, Inc.

"Additional Insureds" includes:
- Virtuous Management Group
- Norman C. Anderson
- BECI
- Any Owner's Representative/Consultant (TBD)

C. All insurance policies are to include and specifically list that certified and non-certified acts of terrorism are covered for the full limits of the policy provided.

D. The amount of any deductible or self-insured retention under any insurance policy must be reasonably acceptable to the Owner.

E. Contractor may provide required insurance under blanket policies. Contractor shall not maintain any insurance on the Project that does not name Owner as Loss Payee and Additional Insured.

F. Contractor shall pay the premiums for the insurance policies as the same become due and payable. Contractor shall deliver to the Owner, within ten (10) days of the Owner's request, a certificate of the Contractor or the Contractor's insurance agent setting forth the particulars as to all such insurance policies, that all premiums due thereon have been paid currently and that the same are in full force and effect. Contractor shall also deliver to the Owner certified copies of the insurance policies required to be maintained pursuant to the section within ten (10) days after the issuance of the policies by the insurer. Notwithstanding the foregoing, Owner shall not be deemed by reason of the custody of such insurance policies to have knowledge of the contents thereof. Not later than fifteen (15) days prior to the expiration date of each of the insurance policies the Contractor shall deliver to the Owner a certificate of insurance evidencing renewal of coverage as required herein. Not later than sixty (60) days after the renewal of each of the insurance policies, Contractor shall deliver to Owner an original or certified copy (as required pursuant to this Section) of a renewal policy or policies.

G. Each insurance policy shall contain a provision whereby the insurer agrees that so long as the Project is outstanding, such policy shall not be canceled or fail to be renewed, lapsed or materially changed without in each case, at least thirty (30) days prior written notice to the Owner.

H. The Owner has the right at any time during the Project and for two (2) years after Project completion to request any and all information related to the insurance coverage in place. This information will include and not be limited to the applications used for the placement, 5-year current hard copy loss information and any additional reasonable requests. This information will be used for the purpose of tracking policy limits, deductibles, policy aggregates and continued adequacy of insurance coverages in place.

I. Any insurance carried by Owner shall be for its sole benefit and shall not inure to the benefit of the Contractor and Insurance required from Contractor shall be primary to any available insurance, if any, to Owner.

J. All required policies, other than professional liability, shall provide that insurers have waived rights of subrogation against Owner. The required insurance shall be primary without right of contribution from any insurance, which may be carried by Owner.

K. The required limits are minimum limits established by Owner and nothing contained herein shall be construed to mean the required limits are adequate or appropriate to protect the Contractor from greater loss.

III. SUBCONTRACTOR INSURANCE REQUIREMENTS. The Contractor shall ensure that each of its Subcontractors and on-site suppliers of every tier carries and maintains the same insurance policies under the same requirements (including without limitation minimum policy limits, coverages, endorsements, additional insured status and coverage terms) set forth herein, except as may otherwise be approved in advance in writing by the Owner.

IV. CERTIFICATE HOLDER.

Phoenix V Association, Inc.
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