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SECTION 00310 - PROPOSAL FORM

(To be submitted on Contractors Letterhead)

City of Gulf Breeze
City Clerk
1070 Shoreline Drive
Gulf Breeze, Florida 32561

Date: JUNE 30, 2011

Time: 2:00 p.m. local time

City Clerk:

The undersigned Contractor, hereinafter called "Bidder", proposes to furnish all labor and material for **GULF BREEZE COMMUNITY CENTER ADDITION AND RENOVATIONS** for the City of Gulf Breeze, Gulf Breeze, Florida, hereinafter called the "Owner", in accordance with the drawings and specifications prepared by Bay Design Associates Architects, and in full accordance with instructions to bidders, contract and construction documents relating thereto on file in the office of the Recreational Facilities Director for the sum of:

Base Bid:

Base Bid 1: _____ Dollars

($_____).

For Alternate Bid items see Section 01230, "Alternates".

Alternate No. 1 (Deduct)_____ Dollars

($_____).

Alternate No. 2 (Deduct)_____ Dollars

($_____).

Alternate No. 3 (Deduct)_____ Dollars

($_____).

Alternate No. 4 (Deduct)_____ Dollars

($_____).

Alternate No. 5 (Deduct)_____ Dollars

($_____).

Alternate No. 6 (Deduct)_____ Dollars

($_____).

Alternate No. 7 (Deduct)_____ Dollars

($_____).

Alternate No. 8 (Add) _____ Dollars

($_____).

Alternate No. 9 (Deduct)_____ Dollars

($_____).

Alternate No. 10 (Add) _____ Dollars

($_____).

There is enclosed a Bid Bond (for Base Bid amount only) in the amount of $_____ payable to the Owner, the required bid deposit, as a guarantee and for the purposes set out in the Instructions to Bidders and Notice to Contractors for bids.

The Bidder hereby agrees that the above proposal shall remain in full force and effect for a period of forty-five (45) calendar days commencing from the next regularly scheduled City Council Meeting and that the Bidder will not revoke or cancel this proposal or withdraw from the competition within said 45 day period, and that in the event the contract is awarded to this Bidder, he will, within ten (10) consecutive calendar days after it is awarded, enter into written contract with the Owner in accordance with the accepted bid and give a contract performance bond with good and sufficient sureties satisfactory to the Owner in the amount of 100% of the accepted bid and give a payment bond in accordance with Florida Statute 255.05; and that in the event of Bidder's default or breach of any said agreement, said bid deposit shall be forfeited to Owner as liquidated damages.

The Bidder further agrees, that if awarded the contract, to substantially complete said work in accordance with the dates set forth **Section 01100, Instructions to Bidders, paragraph 1.15** after receiving a written Notice to Proceed, and finally complete work within Forty Five (45) calendar days after Substantial Completion of each phase. Liquidated damages shall be assessed against the final payment in the amount of two hundred and fifty dollars ($500.00) for each consecutive calendar day the Contractor is late in achieving Substantial Completion and three hundred dollars ($300.00) for each consecutive calendar day the Contractor is late in achieving Final Completion.

Acknowledgment is hereby made of receipt of the following addenda issued during the bidding

period:

Addendum No._____ Dated _____

Addendum No._____ Dated _____

Bidder (signed):_____

Title: _____

NOTE:
The following form for the List of Subcontractors and the Public Entity Crimes forms shall be submitted to the Owner by the successful bidder only no later than 11:00 a.m. on the day following the bid opening.

SUBCONTRACTORS
(Submit on Contractor's Letterhead)

City of Gulf Breeze
City Clerk
1070 Shoreline Drive
Gulf Breeze, Florida 32561

Date: _____

The undersigned, hereinafter called "Bidder", lists below the names of the subcontractors who will perform the phase of the work indicated:

Phase Of Work	Name of Subcontractor	License Number
Masonry		
Roofing		
Plumbing		
Mechanical		
Electrical		
Kitchen Equipment		

The Contractor declares that he has fully investigated each subcontractor listed and has received and has in his files, evidence that each subcontractor maintains a fully equipped organization capable, technically and financially, of performing the pertinent work, and that he has made similar installations in a satisfactory manner.

Bidder (signed) _____

Title _____

SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a),
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to The City of Gulf Breeze, FL

   by _____
   (print the individual's name and title)
   for _____
   (print name of entity submitting sworn statement)
   whose business address is _____

   _____
   and (if applicable) its Federal Employer Identification Number (FEIN) is:

   _____
   (If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to an directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to changes brought by indictment or information after July 1, 1997, as a result of a jury verdict, non jury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:

   1. A predecessor or successor of a person convicted of a public entity crime; or
   2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5. I understand that a "person" as defined in Paragraph 287.133(1)(e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or

which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Indicate which statement applies)

_____ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1997.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members or agents who are active in the management of the entity, or an affiliate of the entity has been charged with an convicted of a public crime subsequent to July 1, 1997.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1997. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and Final Order entered by the Hearing Officer determined that is was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Attach a copy of the final order)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH I (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR A CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
Signature

Sworn to a subscribed before me this _____ day of _____ in the year 2011.

Personally known _____ _____

OR produced identification _____ Notary Public-State of _____

_____ My commission expires _____

(Type of Identification

(Printed typed or stamped commissioned name of notary public)

SECTION 01210 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:

1. Lump-sum allowances.

C. Related Sections include the following:

1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
2. Division 1 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.5 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's **overhead, profit, and** related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation**, taxes**, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.6 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
4. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 1: Brick shall be “Heritage Velour” (modular size) by Carolina Ceramics **NO SUBSTITUTIONS**.

B. Allowance No. 2: Carpet Tiles – allow **$35/square yard installed** including all materials, labor and accessories.

C. Allowance No. 3: Resilient Flooring – **allow $35/square yard installed** including all materials, labor and accessories.

D. Allowance No. 4: Contingency Allowance: Include the sum of ~~$200,000.00~~ **$250,000.00**:

1. This allowance includes material cost, receiving, handling, and installation and Contractor overhead and profit.

E. Allowance No. 5: Permits and Fees Allowance: Include the sum of **$8,000.00**:

This allowance includes building permit fee and NPDES stormwater fees. Specialty trades (mechanical, plumbing, electrical, tel.com) are responsible for paying applicable permit fees for their work.

Water/sewer tap and impact fees and Gulf Power relocation and service connection fees will be paid directly by the City. The cost of relocating existing gas line will also be paid by the City.

END OF SECTION 01210

SECTION 01230 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: **DELETE** Audio/Visual Work associated with Gymnasium (Room 116) Refer to Specification Section 17750 and A/V drawings

B. Alternate No. 2: **DELETE** Audio/Visual Work associated with Gymnasium (Room 001) Refer to Specification Section 17750 and A/V drawings

C. Alternate No. 3: **DELETE** Audio/Visual Work associated with Multipurpose Room (Room 113) Refer to Specification Section 17750 and A/V drawings

D. Alternate No. 4: **DELETE** Audio/Visual Work associated with Multipurpose Room (Room 104) Refer to Specification Section 17750 and A/V drawings

E. Alternate No. 5: **DELETE** Audio/Visual Work associated with Multipurpose Room (Room 004) Refer to Specification Section 17750 and A/V drawings

F. Alternate No. 6: **DELETE** Audio/Visual Work associated with Multipurpose Room (Room 016) Refer to Specification Section 17750 and A/V drawings

G. Alternate No. 7: **DELETE** Food Service Equipment in Kitchen/Concession (Room 111) – Specification Section 11400

H. Alternate No. 8: **ADD** Re-finish / re-stripe existing Gymnasium floor (Room 001) to match new Gymnasium

I. Alternate No. 9: **DELETE** Telescoping Stands on East side of Gymnasium (Room 116) – Specification Section 12260

J. Alternate No. 10: **ADD** cost aluminum roof panels and associated work above cost for steel panels specified in BASE BID – Specification Section 07411

3.2 AWARDING OF ALTERNATES

A. The Owner reserves the right to award alternate bid items in any order or combination which he deems to be in the best interest of the City of Gulf Breeze..

END OF SECTION 01230

SECTION 07411 - METAL ROOF AND WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Standing-seam metal roof and wall panels.
2. Metal soffit panels.

B. Related Sections:

1.2 PERFORMANCE REQUIREMENTS

A. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.

B. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. To meet wind loads as indicated in structural drawings for “Components and Cladding” and “Roof Net Uplift Diagram”.

2. Wind Loads: Determine loads based on the following minimum design wind pressures:

a. Structural Drawings table for “Components and Cladding” and “Roof Net Uplift Diagram”.

3. Deflection Limits: Metal roof panel assemblies shall withstand wind and snow loads with vertical deflections no greater than **1/180** of the span.

C. Energy Performance: Provide roof panels with solar reflectance index not less than ~~**78**~~ **50** when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. LEED Submittals:

1. Product Test Reports for Credit SS 7.2: For roof panels, indicating that panels comply with solar reflectance index requirement.
2. Product Data for Credit MR 4.1 **and Credit MR 4.2**: Indicating percentages by weight of postconsumer and preconsumer recycled content for products having recycled content.

a. Include statement indicating costs for each product having recycled content.

C. Shop Drawings: Show fabrication and installation layouts of metal roof panels; details of edge conditions, side-seam and endlap joints, panel profiles, corners, anchorages, trim, flashings, closures, and accessories; and special details. Distinguish between factory- and field-assembled work.

D. Samples: For each type of exposed finish required.

E. Delegated-Design Submittal: For metal roof panel assembly indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

F. Coordination Drawings: Roof plans, drawn to scale, based on input from installers of the items involved.

G. Manufacturer Certificates: Signed by manufacturer certifying that roof panels comply with energy performance requirements specified in "Performance Requirements" Article.

1. Submit evidence of meeting performance requirements.

H. Product test reports.

I. Maintenance data.

J. Warranties: Samples of special warranties.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Preinstallation Conference: Conduct conference at **Project site**.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace metal roof panel assemblies that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five (5) years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: **20** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL MATERIALS

A. **BASE BID** Metallic-Coated Steel Sheet: Restricted flatness steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.

1. Recycled Content: Provide steel sheet with average recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content is not less than **25** percent.
2. **BASE BID**: Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40 (Class AZM150 coating designation, Grade 275); structural quality.

ALTERNATE BID: Aluminum Sheet: Coil-coated sheet, ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.

3. Surface: **Smooth, flat** finish.
4. Exposed Coil-Coated Finish:
   a. 2-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat.
5. Concealed Finish: Manufacturer's standard white or light-colored acrylic or polyester backer finish.

B. Panel Sealants:

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing; 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C 920; as recommended in writing by metal roof panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.2 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: 30 to 40 mils (0.76 to 1.0 mm) thick minimum, consisting of slip-resisting, polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D 1970.

2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.
3. Products: Subject to compliance with requirements, **available products that may be incorporated into the Work include, but are not limited to, the following**:

    a. Carlisle Coatings & Waterproofing Inc., Div. of Carlisle Companies Inc.; CCW WIP 300HT.
    b. Grace Construction Products; a unit of Grace, W. R. & Co.; Ultra.
    c. Henry Company; Blueskin PE200 HT.
    d. Metal-Fab Manufacturing, LLC; MetShield.
    e. Owens Corning; WeatherLock Metal High Temperature Underlayment.

B. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.

2.3 SUBSTRATE BOARDS

A. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M; **Regular, 1/2 inch (13 mm)**.

B. Substrate-Board Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FMG 4470, designed for fastening substrate board to substrate.

2.4 MISCELLANEOUS METAL FRAMING

A. Miscellaneous Metal Framing, General: ASTM C 645, cold-formed metallic-coated steel sheet, **ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized** or coating with equivalent corrosion resistance unless otherwise indicated.

B. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches (32 mm), wall attachment flange of 7/8 inch (22 mm), and depth required to fit insulation thickness indicated.

1. Nominal Thickness: **As required to meet performance requirements**.

2.5 MISCELLANEOUS MATERIALS

A. Panel Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal roof panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

B. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.6 STANDING-SEAM METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.
2. Manufacturers: Subject to compliance with requirements, **manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**:

    a. AEP-Span.
    b. Architectural Building Components.
    c. Architectural Metal Systems.
    d. Architectural Roofing and Siding, Inc.
    e. ATAS International, Inc.
    f. Berridge Manufacturing Company.
    g. Butler Manufacturing; a BlueScope Steel company.
    h. CENTRIA Architectural Systems.
    i. Copper Sales, Inc.
    j. Dimensional Metals, Inc.
    k. Fabral.
    l. Flexospan Steel Buildings, Inc.
    m. Galvamet; Galvacer Building Systems.
    n. IMETCO.
    o. Integris Metals.
    p. MBCI; a division of NCI Building Systems, L. P.
    q. McElroy Metal, Inc.
    r. Metal-Fab Manufacturing, LLC.
    s. Metal Sales Manufacturing Corporation.
    t. Metecno-Morin; Division of Metecno Inc.
    u. Modern Metal Systems, Inc.
    v. Petersen Aluminum Corporation.
    w. Steelox Systems, L.L.C.
    x. Ultra Seam Incorporated.
    y. United Steel Deck Inc.; Subsidiary of Bouras Industries Inc.
    z. VICWEST; Div. of Jenisys Engineered Products.

3. Profile: **Vertical-rib, seamed**-joint, as indicated on Drawings.

4. Material**: BASE BID:** Aluminum-zinc alloy-coated steel sheet, thickness as required to meet specified loads.

    ALTERNATE BID: Aluminum sheet, thickness as required to meet specified loads.

    a. Exterior Finish: **2-coat fluoropolymer**.
    b. Color: **As selected by Architect from manufacturer's full range**.

5. Clips: **Floating to accommodate thermal movement**.

   a. Material: **Metallic coated (Stainless for aluminum panels) steel**.

6. Joint Type: **As standard with manufacturer**.
7. Panel Coverage: 16" or as required to meet specified loads.
8. Panel Height: **As standard with manufacturer.**

2.7 METAL SOFFIT PANELS

A. General: Provide factory-formed metal soffit panels designed to be installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners **and factory-applied sealant** in side laps. Include accessories required for weathertight installation.

B. Metal Soffit Panels: Match profile and material of metal roof panels.

1. Finish: **Match finish and color of metal roof panels**.
2. Sealant: Factory applied within interlocking joint.
3. 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. AEP-Span.
   b. Architectural Building Components.
   c. ATAS International, Inc.
   d. Berridge Manufacturing Company.
   e. CENTRIA Architectural Systems.
   f. Cheney Flashing Company.
   g. Copper Sales, Inc.
   h. Dimensional Metals, Inc.
   i. Englert, Inc.
   j. Fabral.
   k. IMETCO.
   l. MBCI; a division of NCI Building Systems, L. P.
   m. McElroy Metal, Inc.
   n. Merchant & Evans.
   o. Metal-Fab Manufacturing, LLC.
   p. Metal Sales Manufacturing Corporation.
   q. Petersen Aluminum Corporation.
   r. Ultra Seam Incorporated.

4. Profile: **Flush** as indicated on Drawings.
5. Material: Same material, finish, and color as metal roof panels.

6. Material: **BASE BID:** Aluminum-zinc alloy-coated steel sheet, thickness as required to meet design loads.

   ALTERNATE BID: Aluminum sheet, thickness as required to meet specified loads.

a. Exterior Finish: **2-coat fluoropolymer**.
b. Color: **Match finish and color of metal roof panels**.

7. Panel Coverage: **12 inches (305 mm)**.
8. Panel Height: **As standard with manufacturer**.
9. Sealant: Factory applied within interlocking joint.

2.8 ACCESSORIES

A. Roof Panel Accessories: Provide components approved by roof panel manufacturer and as required for a complete metal roof panel assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal roof panels.
2. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
3. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

B. Flashing and Trim: Formed from same material as roof panels, prepainted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal roof panels. All flashing and trim shall be fabricated in accordance with SMACNA requirements.

2.9 FABRICATION

A. Fabricate and finish metal roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal roof panel side laps with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will seal weathertight and minimize noise from movements within panel assembly.

D. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Substrate Board: Install substrate boards over roof **deck** on entire roof surface. Attach with substrate-board fasteners.

1. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.

B. Miscellaneous Framing: Install subpurlins, eave angles, furring, and other miscellaneous roof panel support members and anchorage according to metal roof panel manufacturer's written instructions.

3.2 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated on Drawings, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.

B. Apply slip sheet over underlayment before installing metal roof panels.

C. Install flashings to cover underlayment to comply with requirements specified in Division 7 Section "Sheet Metal Flashing and Trim."

3.3 METAL ROOF AND WALL PANEL INSTALLATION

A. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.

B. Metal Soffit Panels: Provide metal soffit panels full width of soffits. Install panels perpendicular to support framing.

1. Flash and seal panels with weather closures where metal soffit panels meet walls and at perimeter of all openings.

3.4 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
3. Provide elbows at base of downspouts to direct water away from building.

3.5 CLEANING

A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction.

END OF SECTION 07411

SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Steel doors.
2. Steel door frames.
3. Sidelight frames
4. Borrowed-light frames.
5. Fire-rated door and frame assemblies.
6. Fire-rated window frames.
7. Louvers in doors.

B. Related Sections include the following:

1. Division 4 Section "Unit Masonry Assemblies" for installing anchors and grouting frames in masonry construction.
2. Division 8 Section "Flush Wood Doors" for wood doors installed in steel frames.
3. Division 8 Section "Door Hardware " for door hardware and weather stripping.
4. Division 8 Section "Glazing" for glass in glazed openings in doors and frames.
5. Division 9 Section "Gypsum Board Assemblies" for spot-grouting frames installed in steel-framed gypsum board partitions.
6. Division 9 Section "Painting" for field painting factory-primed doors and frames.

1.3 DEFINITIONS

A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.4 SUBMITTALS

A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.

B. Shop Drawings: Show the following:

1. Elevations of each door design.
2. Details of doors including vertical and horizontal edge details.
3. Frame details for each frame type including dimensioned profiles.

4. Details and locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, accessories, joints, and connections.
7. Coordination of glazing frames and stops with glass and glazing requirements.

C. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

1.5 QUALITY ASSURANCE

A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.

B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252.

1. Test Pressure: Test at atmospheric pressure.
2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
3. Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F maximum in 30 minutes of fire exposure.

C. Fire-Rated Window Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 257.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.

B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.

C. Store doors and frames at building site under cover. Place units on minimum 4-inch- high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4-inch spaces between stacked doors to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Steel Doors and Frames:

a. Amweld Building Products, Inc.
b. Benchmark Commercial Doors; a division of General Products Co., Inc.
c. Ceco Door Products; a United Dominion Company.
d. Copco Door Co.
e. Curries Company.
f. Deansteel Manufacturing, Inc.
g. Kewanee Corporation (The).
h. Mesker Door, Inc.
i. Pioneer Industries Inc.
j. Republic Builders Products.
k. Steelcraft; a division of Ingersoll-Rand.

2.2 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.

C. Metallic-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with an A40 zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.

D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized; suitable for unexposed applications; stretcher-leveled standard of flatness where used for face sheets.

2.3 DOORS

A. General: Provide doors of sizes, thicknesses, and designs indicated.

B. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level:

1. Level ~~1~~ 2 and Physical Performance Level C, (Standard Duty), Model 1 (Full Flush), A60 galvanized.

C. Exterior Doors: Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:
1. Level 4 ~~2~~ and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush). Doors to be hurricane rated, A60 galvanized.

D. Door Louvers: Provide louvers for interior doors, where indicated, that comply with SDI 111C, with blades or baffles formed of 0.020-inch- thick, cold-rolled steel sheet set into 0.032-inch-thick steel frame.

1. Sightproof Louvers: Stationary louvers constructed with inverted V-shaped or Y-shaped blades.

2. Lightproof Louvers: Stationary louvers constructed with baffles to prevent light from passing from one side to the other, any angle.

E. Vision Lite Systems: Manufacturer's standard kits consisting of glass lite moldings to accommodate glass thickness and size of vision lite indicated.

2.4 FRAMES

A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.

B. Frames of ~~0.042~~ 0.053 inch- thick steel (A60 Galvanized) sheet for:
1. Interior Wood and Hollow Metal doors .

C. Frames of ~~0.053~~ 0.067 inch- thick steel sheet (A60 Galvanized) for:
1. Exterior Hurricane rated Level ~~2~~ 4 steel doors.

D. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.

E. Plaster Guards: Provide 0.016-inch- thick, steel sheet plaster guards or mortar boxes to close off interior of openings; place at back of hardware cutouts where mortar or other materials might obstruct hardware operation.

F. Supports and Anchors: Fabricated from not less than 0.042-inch- thick, electrolytic zinc-coated or metallic-coated steel sheet.

1. Wall Anchors in Masonry Construction: 0.177-inch- diameter, steel wire complying with ASTM A 510 may be used in place of steel sheet.

G. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

2.5 FABRICATION

A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.

B. Exterior Door Construction: For exterior locations and elsewhere as indicated, fabricate doors, panels, and frames from metallic-coated steel sheet. Close top and bottom edges of doors flush as an integral part of door construction or by addition of 0.053-inch- thick, metallic-coated steel channels with channel webs placed even with top and bottom edges.

C. Interior Door Faces: Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from the following material:

1. Cold-rolled steel sheet (A60 Galvanized).
2. Metallic-coated steel sheet where indicated.

D. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.

E. Clearances for Non-Fire-Rated Doors: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between pairs of doors. Not more than 3/4 inch at bottom.

F. Clearances for Fire-Rated Doors: As required by NFPA 80.

G. Single-Acting, Door-Edge Profile: Square edge.

H. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

I. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.

J. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.

K. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.

1. Unless otherwise indicated, provide thermal-rated assemblies with U-value of 0.41 Btu/sq. ft. x h x deg F] or better.

L. Sound-Rated (Acoustical) Assemblies: Where shown or scheduled, provide door and frame assemblies fabricated as sound-reducing type, tested according to ASTM E 1408, and classified according to ASTM E 413.

1. Unless otherwise indicated, provide acoustical assemblies with STC sound ratings of 33 or better.

M. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.

1. For concealed overhead door closers, provide space, cutouts, reinforcement, and provisions for fastening in top rail of doors or head of frames, as applicable.

N. Frame Construction: Fabricate frames to shape shown.

1. Fabricate frames with mitered or coped and continuously welded corners .
2. Provide welded frames with temporary spreader bars.
3. Provide terminated stops where indicated.

O. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.

P. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

Q. Glazing Stops: Manufacturer's standard, formed from 0.032-inch- thick steel sheet.

1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
2. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.

R. Astragals: As required by NFPA 80 to provide fire ratings indicated.

2.6 FINISHES

A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.

B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

1. Place frames before construction of enclosing walls and ceilings.
2. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.
3. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
4. Install fire-rated frames according to NFPA 80.

C. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.

1. Fire-Rated Doors: Install within clearances specified in NFPA 80.
2. Smoke-Control Doors: Install to comply with NFPA 105.

3.2 ADJUSTING AND CLEANING

A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08110

SECTION 08411 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. **Exterior** storefront framing.
2. Storefront framing for ribbon walls.
3. Storefront framing for punched openings.
4. **Exterior** manual-swing entrance doors.

1.3 DEFINITIONS

A. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

1.4 PERFORMANCE REQUIREMENTS

A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:

1. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
2. Dimensional tolerances of building frame and other adjacent construction.
3. Failure includes the following:

a. Deflection exceeding specified limits.
b. Thermal stresses transferring to building structure.
c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
d. Glazing-to-glazing contact.
e. Noise or vibration created by wind and by thermal and structural movements.
f. Loosening or weakening of fasteners, attachments, and other components.
g. Sealant failure.
h. Failure of operating units.

B. Delegated Design: Design aluminum-framed systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Structural Loads:

1. Wind Loads: **As indicated on Drawings.**.

D. Deflection of Framing Members:

1. Deflection Normal to Wall Plane: Limited to **1/175 of clear span for spans up to 13 feet 6 inches (4.1 m) and to 1/240 of clear span plus 1/4 inch (6.35 mm) for spans greater than 13 feet 6 inches (4.1 m)** or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19 mm), whichever is less.
2. Deflection Parallel to Glazing Plane: Limited to **amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components directly below them to less than 1/8 inch (3.2 mm) and clearance between members and operable units directly below them to less than 1/16 inch (1.5 mm)**.

E. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:

1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
2. When tested at **150** percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding **0.2** percent of span.
3. Test Durations: As required by design wind velocity, but not fewer than 10 seconds.

F. Windborne-Debris-Impact-Resistance Performance: Provide aluminum-framed systems that pass missile-impact and cyclic-pressure tests when tested according to **ASTM E 1886 and testing information in ASTM E 1996 and Florida Building Code test protocols.**

1. Large-Missile Impact: For aluminum-framed systems located within 30 feet (9.1 m) of grade.
2. Small-Missile Impact: For aluminum-framed systems located more than 30 feet (9.1 m) above grade.

G. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of **0.06 cfm/sq. ft. (0.03 L/s per sq. m)** of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of **6.24 lbf/sq. ft. (300 Pa)**.

H. Water Penetration under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than **6.24 lbf/sq. ft. (300 Pa)**.

1. Maximum Water Leakage: **No uncontrolled water penetrating aluminum-framed systems or water appearing on systems' normally exposed interior surfaces from sources other than condensation**. Water leakage does not include water controlled by flashing and gutters that is drained to exterior and water that cannot damage adjacent materials or finishes.

I. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures.

Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
2. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.

    a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of **180 deg F (82 deg C)**.
    b. Low Exterior Ambient-Air Temperature: **0 deg F (minus 18 deg C)**.

3. Interior Ambient-Air Temperature: **75 deg F (24 deg C)**.

J. Structural Sealant: Capable of withstanding tensile and shear stresses imposed by aluminum-framed systems without failing adhesively or cohesively. When tested for preconstruction adhesion and compatibility, cohesive failure of sealant shall occur before adhesive failure.

1. Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
2. Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate because sealant-to-substrate bond strength exceeds sealant's internal strength.

K. Structural-Sealant Joints: Designed to produce tensile or shear stress of less than 20 psi (138 kPa).

1.5 SUBMITTALS

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

B. LEED Submittal:

1. Product Data for Credit EQ 4.1: For adhesives and sealants used inside of the weatherproofing system, including printed statement of VOC content.

C. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.

1. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
2. For entrance doors, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.

D. Samples for Initial Selection: For units with factory-applied color finishes.

E. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.

F. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12-inch (300-mm) lengths of full-size components and showing details of the following:
1. Glazing.

G. Other Action Submittals:

1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

H. Delegated-Design Submittal: For aluminum-framed systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail fabrication and assembly of aluminum-framed systems.

I. Qualification Data: For qualified Installer.

J. Welding certificates.

K. Preconstruction Test Reports: For sealant.

L. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems, indicating compliance with performance requirements.

M. Source quality-control reports.

N. Quality-Control Program for Structural-Sealant-Glazed System: Include reports.

O. Field quality-control reports.

P. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.

Q. Warranties: Sample of special warranties.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.

C. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.

D. Quality-Control Program for Structural-Sealant-Glazed System: Develop quality control program specifically for Project. Document quality-control procedures and verify results for aluminum-framed systems. Comply with ASTM C 1401 recommendations including, but not

limited to, system material-qualification procedures, preconstruction sealant-testing program, procedures for system fabrication and installation, and intervals of reviews and checks.

E. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.

1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

F. Preconstruction Sealant Testing: For structural-sealant-glazed systems, perform sealant manufacturer's standard tests for compatibility with and adhesion of each material that will come in contact with sealants and each condition required by aluminum-framed systems.

1. Test a minimum five samples each of metal, glazing, and other material.
2. Prepare samples using techniques and primers required for installed systems.
3. For materials that fail tests, determine corrective measures necessary to prepare each material to ensure compatibility with and adhesion of sealants including, but not limited to, specially formulated primers. After performing these corrective measures on the minimum number of samples required for each material, retest materials.

G. Accessible Entrances: Comply with applicable provisions in **the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and Chapter 11 of the Florida Building Code.**.

H. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.

I. Structural-Sealant Glazing: Comply with ASTM C 1401, "Guide for Structural Sealant Glazing" for design and installation of structural-sealant-glazed systems.

J. Structural-Sealant Joints: Design reviewed and approved by structural-sealant manufacturer.

K. Welding Qualifications: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code - Aluminum."

L. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

M. Preinstallation Conference: Conduct conference at **Project site**.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, excessive deflection.
b. Noise or vibration caused by thermal movements.
c. Deterioration of metals**, metal finishes,** and other materials beyond normal weathering.
d. Adhesive or cohesive sealant failures.
e. Water leakage through fixed glazing and framing areas.
f. Failure of operating components.

2. Warranty Period: **Two** years from date of Substantial Completion.

B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.

1. Warranty Period: **Five** years from date of Substantial Completion.

1.9 MAINTENANCE SERVICE

A. Entrance Door Hardware:

1. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of entrance door hardware.
2. Initial Maintenance Service: Beginning at Substantial Completion, provide **six** months' full maintenance by skilled employees of entrance door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper entrance door hardware operation at rated speed and capacity. Provide parts and supplies the same as those used in the manufacture and installation of original equipment.

B. Structural-Sealant-Glazed Systems:

1. Initial Maintenance Service: Beginning at Substantial Completion, provide **six** months' full maintenance by skilled employees of structural-sealant-glazed system Installer. Include **quarterly** preventive maintenance, repair or replacement to ensure long-term performance and durability of structural-sealant-glazed system as required for proper entrance door hardware operation at rated speed and capacity. Provide parts and supplies the same as those used in the manufacture and installation of original system.

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**:

B. Basis-of-Design Product: Subject to compliance with requirements, provide **product indicated on Drawings** or comparable product by one of the following:
1. Arch Aluminum & Glass Co., Inc.
2. Commercial Architectural Products, Inc.
3. EFCO Corporation.
4. Kawneer North America; an Alcoa company.
5. Pittco Architectural Metals, Inc.
6. TRACO.
7. Tubelite.
8. United States Aluminum.
9. Vistawall Architectural Products; The Vistawall Group; a Bluescope Steel company.
10. YKK AP America Inc.

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Structural Profiles: ASTM B 308/B 308M.
5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.

1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.3 FRAMING SYSTEMS

A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Construction: **Non-Thermally broken Structurally glazed**.
2. Glazing System: **Retained by structural sealant at edges required by windload testing, glazing gasket elsewhere**.
3. Glazing Plane: **As indicated**.

B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
2. Reinforce members as required to receive fastener threads.
3. Use exposed fasteners with countersunk Phillips screw heads**, finished to match framing system**.

D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A 123/A 123M or ASTM A 153/A 153M.

E. Concealed Flashing: **Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials**.

F. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type.

1. Provide sealants for use inside of the weatherproofing system that have a VOC content of **250** g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 GLAZING SYSTEMS

A. Glazing: As specified in Division 8 Section "Glazing."

B. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

C. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

D. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type, and as follows:

1. Structural Sealant: ASTM C 1184, single-component neutral-curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in aluminum-framed systems indicated.

a. Provide sealants for use inside of the weatherproofing system that have a VOC content of **100** g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
b. Color: **Black**.

2. Weatherseal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.

a. Provide sealants for use inside of the weatherproofing system that have a VOC content of **250** g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
b. Color: Matching structural sealant.

2.5 ENTRANCE DOOR SYSTEMS

A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.

1. Door Construction: **1-3/4-inch (44.5-mm) overall thickness, with minimum 0.125-inch- (3.2-mm-) t**hick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.

2. Basis of design: Kawneer 350 IR with 9/16" impact glazing, CO-9 pulls, AdamsRite G86 concealed rod exit device.

a. Thermal Construction: **High-performance plastic connectors separate aluminum members exposed to the exterior from members exposed to the interior**.

3. Door Design: **Medium stile; 3-1/2-inch (88.9-mm) nominal width**.

a. Accessible Doors: Smooth surfaced for width of door in area within 10 inches (255 mm) above floor or ground plane.

~~B. Entrance Door Hardware: As specified in Division 8 Section "Door Hardware."~~

2.6 ENTRANCE DOOR HARDWARE

A. General: Provide entrance door hardware **and entrance door hardware sets indicated in door and frame schedule and entrance door hardware sets indicated in "Entrance Door Hardware Sets" Article** for each entrance door to comply with requirements in this Section.

1. Entrance Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and **named manufacturers' products**.
2. Opening-Force Requirements:

a. Egress Doors: Not more than 15 lbf (67 N) to release the latch and not more than 30 lbf ((133 N))to set the door in motion[**and not more than 15 lbf (67 N) to open the door to its minimum required width**.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of entrance door hardware are indicated in "Entrance Door Hardware Sets" Article. Products are identified by using entrance door hardware designations as follows:

1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in "Entrance Door Hardware Sets" Article.

C. Opening-Force Requirements:
1. Latches and Exit Devices: Not more than 15 lbf (67 N) required to release latch.

D. Pivot Hinges: BHMA A156.4, Grade 1.

1. Offset-Pivot Hinges: Provide top, bottom, and intermediate offset pivots at each door leaf.

E. Mortise Auxiliary Locks: BHMA A156.5, Grade 1.

~~F. Manual Flush Bolts: BHMA A156.16, Grade 1.~~

G. Automatic and Self-Latching Flush Bolts: BHMA A156.3, Grade 1.

H. Panic Exit Devices: BHMA A156.3, Grade 1, listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305. Equal to “AdamsRite G86 Concealed Vertical Rod” exit device.

I. Cylinders: **As specified in Division 8 Section "Door Hardware."**

1. Keying: **Master** key system. Permanently inscribe each key with a visual key control number and include notation **to be furnished by Owner**.

J. Strikes: Provide strike with black-plastic dust box for each latch or lock bolt; fabricated for aluminum framing.

K. Operating Trim: BHMA A156.6.

L. Closers: BHMA A156.4, Grade 1, with accessories required for a complete installation, sized as required by door size, exposure to weather, and anticipated frequency of use; adjustable to meet field conditions and requirements for opening force.

M. Door Stops: BHMA A156.16, Grade 1, floor or wall mounted, as appropriate for door location indicated, with integral rubber bumper.

N. Weather Stripping: Manufacturer's standard replaceable components.
1. Sliding Type: AAMA 701, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

O. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.

P. Silencers: BHMA A156.16, Grade 1.

Q. Thresholds: BHMA A156.21, raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch (13 mm).

R. Finger Guards: Manufacturer's standard collapsible neoprene or PVC gasket anchored to frame hinge-jamb at center-pivoted doors.

2.7 ACCESSORY MATERIALS

A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 7 Section "Joint Sealants."

1. Provide sealants for use inside of the weatherproofing system that have a VOC content of **250** g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30-mil (0.762-mm) thickness per coat.

2.8 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:

1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fitted joints with ends coped or mitered.
3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
4. Physical and thermal isolation of glazing from framing members.
5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
6. Provisions for field replacement of glazing from **exterior**.
7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

E. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.

F. Storefront Framing: Fabricate components for assembly using **shear-block system**.

G. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.

1. At exterior doors, provide compression weather stripping at fixed stops.
2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.

H. Entrance Doors: Reinforce doors as required for installing entrance door hardware.

1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
2. At exterior doors, provide weather sweeps applied to door bottoms.

I. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

J. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

A. Clear Anodic Finish: AAMA 611, **AA-M12C22A41, Class I, 0.018 mm** or thicker.

2.10 SOURCE QUALITY CONTROL

A. Structural-Sealant-Glazed Systems: Perform quality-control procedures complying with ASTM C 1401 recommendations, including, but not limited to, system material-qualification procedures, sealant testing, and system fabrication reviews and checks.

B. Structural-sealant-glazed system will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, 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 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
6. Seal joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

D. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" to produce weathertight installation.

E. Install components plumb and true in alignment with established lines and grades, and without warp or rack.

F. Install glazing as specified in Division 8 Section "Glazing."

1. Structural-Sealant Glazing:

a. Prepare surfaces that will contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.
b. Install weatherseal sealant according to Division 7 Section "Joint Sealants" and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.

G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.

1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

H. Install perimeter joint sealants as specified in Division 7 Section "Joint Sealants" to produce weathertight installation.

3.3 ERECTION TOLERANCES

A. Install aluminum-framed systems to comply with the following maximum erection tolerances:

1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
2. Alignment:

a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm).
b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).

B. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).

3.4 FIELD QUALITY CONTROL

A. Testing Services: Testing and inspecting of representative areas to determine compliance of installed systems with specified requirements shall take place as follows and in successive phases as indicated on Drawings. Do not proceed with installation of the next area until test results for previously completed areas show compliance with requirements.

1. Structural-Sealant Compatibility and Adhesion: Structural sealant shall be tested according to recommendations in ASTM C 1401.

a. Destructive Test Method A, "Hand Pull Tab (Destructive)," in ASTM C 1401, Appendix X2, shall be used.

1) A minimum of **two** areas on each building face shall be tested.

2) Repair installation areas damaged by testing.

2. Structural-Sealant Glazing Inspection: After installation of aluminum-framed systems is complete, structural-sealant glazing shall be inspected and evaluated according to recommendations in ASTM C 1401.

B. Repair or remove work if test results and inspections indicate that it does not comply with specified requirements.

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

D. Aluminum-framed assemblies will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports.

3.5 ADJUSTING

A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.

1. For entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches (75 mm) from the latch, measured to the leading door edge.

END OF SECTION 08411

SECTION 08800 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Windows.
2. Doors.
3. Storefront framing.
4. Glazed entrances.
5. Interior borrowed lites.

B. Related Sections:

1. Division 8 Section "Aluminum Storefront and Entrances".

1.3 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.

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. Delegated Design: Design glass, including comprehensive engineering analysis according to **ASTM E 1300and Florida Building Code** by a qualified professional engineer, using the following design criteria:

1. Design Wind Pressures: As indicated 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. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch (25 mm), whichever is less.
4. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

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

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Adhesion and Compatibility Testing: Test each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.

1. Testing will not be required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
2. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
3. Test no fewer than **eight** Samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
4. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

1.6 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

B. LEED Submittals:

1. Product Data for Credit EQ 4.1: For glazing sealants used inside of the weatherproofing system, including printed statement of VOC content.

C. Glass Samples: For each type of **glass product other than clear monolithic vision glass products**]; 12 inches (300 mm) square.

1. Tinted glass.
2. Insulating glass.
3. Impact resistant glass

D. Glazing Accessory Samples: For **sealants** in 12-inch (300-mm) lengths. **Install sealant Samples between two strips of material representative in color of the adjoining framing system.**

E. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

F. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

G. Product Certificates: For glass and glazing products, from manufacturer.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for **tinted insulating glass glazing sealants impact resistant glass**.

1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

I. Preconstruction adhesion and compatibility test report.

J. Warranties: Sample of special warranties.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved by coated-glass manufacturer.

B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

C. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

D. Source Limitations for Glass: Obtain **tinted float glass, coated float glass laminated glass and insulating glass** from single source from single manufacturer for each glass type.

E. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

F. 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. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

G. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of **the SGCC or another certification agency acceptable to authorities having jurisdiction**. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

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. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Install glazing in mockups specified in Division 8 Section "**Aluminum-Framed Entrances and Storefronts**" to match glazing systems required for Project, including glazing methods.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

J. Preinstallation Conference: Conduct conference at **Project site**.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review temporary protection requirements for glazing during and after installation.

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 glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F (4.4 deg C).

1.10 WARRANTY

A. 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: Two years from date of Substantial Completion.

B. 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: **Five** years from date of Substantial Completion.

C. 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: Five years from date of Substantial Completion.

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. 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 Florida Building Code test protocols. 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 30 feet (9.1 m) of grade.
2. Small-Missile Test: For glazing located more than 30 feet (9.1 m) 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.
2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
3. 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 deg F (W/sq. m x K).
4. 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.
5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.2 GLASS PRODUCTS

A. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.

B. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
2. For uncoated glass, comply with requirements for Condition A.
3. For coated vision glass, comply with requirements for Condition C (other coated glass).

C. Uncoated Tinted Float Glass: Class 2, complying with other requirements specified.

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

2. Tint Color: **Gray**.

2.3 LAMINATED GLASS

A. 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: Clear unless otherwise indicated.

B. 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. Interlayer Color: Clear unless otherwise indicated.

C. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Laminated-Glass Types" Article.

2.4 INSULATING GLASS

A. 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 **manufacturer's standard** primary and secondary.
2. Spacer: **Manufacturer's standard spacer material and construction**.
3. Desiccant: Molecular sieve or silica gel, or blend of both.

B. 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**.

2.5 GLAZING SEALANTS

A. General:

1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. VOC Content: For sealants used inside of the weatherproofing system, not more than 250 g/L when calculated according to 40 CFR 59, Subpart D.
4. Colors of Exposed Glazing Sealants: **As selected by Architect from manufacturer's full range**.

B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.

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

a. Dow Corning Corporation; 790.
b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
c. May National Associates, Inc.; Bondaflex Sil 290.
d. Pecora Corporation; 890.
e. Sika Corporation, Construction Products Division; SikaSil-C990.
f. Tremco Incorporated; Spectrem 1.

2.6 GLAZING TAPES

A. 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 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.7 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.

G. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.8 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. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

2.9 INSULATING-LAMINATED-GLASS TYPES

A. Glass Type : Low-e-coated, tinted, insulating laminated glass.

1. Overall Unit Thickness: **1-5/16 inch**
2. Thickness of Outdoor Lite: As required to meet design wind pressures..
3. Outdoor Lite: Tinted **heat-strengthened float glass or fully tempered float glass as required. Basis of Design: PPG "Solarban 60" with Low "E" coating on #2 surface.**
4. Interspace Content: **Air**.
5. Indoor Lite: Clear laminated glass with two plies of **glass as required to meet testing requirements.**.

   a. Thickness of Each Glass Ply: As required.
   b. Interlayer Thickness: As required.

6. Low-E Coating: **Pyrolytic or sputtered on second ~~or third~~** surface.
7. Provide safety glazing labeling.

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 50 inches (1270 mm).

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 (3-mm) 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.

3.4 SEALANT GLAZING (WET)

A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.5 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.

END OF SECTION 08800

SECTION 08950 TRANSLUCENT CANOPY SYSTEMS

PART 1GENERAL

1.01 RELATED DOCUMENTS:

A. The General Conditions of the Contract, including Supplementary Conditions and Division 1 – General Requirements, apply to the work of this Section.

1.02 Scope:

A. The design, manufacture and installation of an aluminum and polycarbonate insulating translucent system. A complete assembly of extruded cellular UV resistant polycarbonate glazing panels incorporated into a complete aluminum sub-framing system, tested and warranted by the manufacturer.

B. All anchors, brackets, and hardware attachments necessary to complete the specified structural assembly, when included within project scope.

C. Weatherability and water-tightness performance requirements.

D. All flashings up to adjoining work are also required as part of the system and shall be included, unless specifically noted as being supplied by others.

E. Experienced labor with supervision to complete the entire system installation.

1.03 RELATED WORK SPECIFIED ELSEWHERE:

A. Division 5 - Structural Steel.
B. Division 7 - Sealants.

1.04 QUALITY ASSURANCE.

A. Materials and Products shall be manufactured by a company continuously and regularly employed in the manufacture of glazing systems using cellular polycarbonate panel systems for a period of at least ten (10) years. Manufacturers shall provide a list of at least ten (10) projects having been in place a minimum of five (5) years.

B. Erection shall be by the manufacturer or an installer experienced in erection of systems of the type specified.

C. The manufacturer shall be responsible for the configuration and fabrication of the complete system, and will ensure that it fully meets all requirements of this specification.

1.05 SUBMITTALS:

A. Submit three (3) each of the following to the Architect for review at the same time the Shop Drawings are submitted.

1. Each aluminum frame section – 6” long.

2. Samples of aluminum illustrating the specified finish.

3. Glazing gaskets – 6” long – each type.

4. Samples of glazing, each minimum 6” x 6”, in specified color.

5. Test Data.

6. Product Literature.

B. Shop Drawings

1. Shop drawings shall include plans, elevations, sections and details of the system. Flashings, sealants and anchorage details shall be clearly indicated.

2. Note gauges of brake metals, finishes of frames and hardware. Also note dimensions (if known) of the work to be performed by other trades.

3. Label fastening devices as to type and spacing.

C. Product Data

1. Submit proposed manufacturer’s catalog cuts and specifications to clearly illustrate and describe the submitted system. See Article 1.04D and Article 2.01

1.06 Delivery, Storage and Handling

A. Deliver materials to the jobsite in the manufacturer’s original and unopened containers and bearing labels as to type of material and manufacturer’s name. Delivered materials shall be identical to approved samples.

B. Store materials under cover in a dry, clean location, off the ground. Remove from the jobsite any materials that are damaged or otherwise not suitable for installation and replace with acceptable materials.

1.07 Warranty

A. Warranty required as per Section 4.01, following.

Part 2 PRODUCTS

2.01 Basis of Design product: Translucent Panel and framing system based on system as manufactured by Awning Works, Inc. “Solar-View Canopy” system. Contact: Jarrett Schechner (js@awningworksinc.com) Clearwater, FL (727) 524-1118, fax (727) 524-3110.

2.02 Materials

A. The Aluminum Members of the System shall conform to the following:

1. The extrusions shall be 6063-T5, 6005-T5 or 6105-T5 alloy and temper. All sections shall be formed true to detail and free from defects impairing appearance, strength or durability.

~~2. The rabbet depth at the edges of the framing shall (at an absolute minimum) be based on ¾” minimum engagement plus 1/8” for cutting tolerance plus .005 x that glazing dimension (in inches) which affects that rabbet. For example, a 100” long glazing will require a minimum of ¾” + 1/8” + (.005 x 100) = 1.475”. Under no~~

~~circumstances, even in the coldest possible weather, should panel engagement be less than ¾".~~

3. Gasketing is to be elastomeric, incorporating a low friction coating on the surfaces that contact the glazing. Gasketing shall be tested for chemical compatibility with the glazing, and test reports evidencing same shall be presented to the Architect.

4. Fasteners, where exposed, shall be stainless steel, 300 Series, with stainless backed neoprene washers. Where not exposed, they may be stainless or zinc-plated steel in accordance with ASTM Specifications A165-55 or A164-55.

5. Exposed surfaces of the aluminum-framing members shall be finished as follows:

   Anodized: 204 R1
   Anodize Color: Clear

6. Aluminum and/or galvanized steel flashings and other brake metal components shall be minimum .040" thick (if aluminum) or 24 ga. thick (if steel) (thicker where so specified on the drawings). The finish on this metal shall match as closely as possible that which is on the extruded aluminum framing members.

7. Attachment of glazing sheets to the transverse structural elements (i.e. purlins or girts) or to structural members parallel to the translucent panels shall be achieved by means of:

   ~~Two-piece sliding clips, consisting of an aluminum base portion and a stainless steel upper portion which constrains the polycarbonate sheets. The base shall be designed so as to hold the polycarbonate panels safely above the substrate as well as above the heads of the fasteners which attach it to the substrate. In addition, this base will incorporate elastomeric cushions on which the panels can rest and/or move.~~

   Manufacturer's standard system

B. The polycarbonate glazing panels ~~and battens~~ for the system shall conform to the following:

1. Appearance:
   A. The extruded panels shall be uniform in color with an integral extruded multi-cell core. The panel's exterior skins shall be interconnected and spaced apart by supporting continuous ribs, perpendicular to the skins. In addition, the space between the two exterior skins, in a cross section, shall be divided by two parallel intermediate walls.

   B. Panels shall consist of a polycarbonate resin with permanent, co-extruded, ultraviolet protective layers on both sides of the panels. These protective layers shall be co-extruded by the manufacturer during the original extrusion of the panel and shall be a permanent part of both the interior and exterior of the panels. Post-applied coating or films of dissimilar materials are unacceptable. Battens shall be of similar polycarbonate materials and shall be surface coated with a similar protective coating.

C. Both the panels and the battens shall be formed using resin which contains small glass beads. These beads provide diffusion of the light as it passes through the panels.

D. Panel thickness shall be a minimum 25 mm ~~.63"~~ with the upright portion of standing seams incorporated into each side.

E. ~~Panel Width shall not exceed 2'~~.

2. Translucent Panel System:

A. Panel shall be extruded in one single length. Transverse connections are not acceptable. The panels shall incorporate standing seams which are extruded at each side of the panels. Welding or gluing or otherwise attaching standing seams is not acceptable.

B. Perimeter framing and mullions are to be dry glazed profiles, using no sealant, welding, or adhesives.

C. Perimeter framing members, exclusive of cover caps, ~~shall □~~ shall not incorporate an integral structural polyurethane thermal break.

D. In general, concealed fasteners are to be used for all aluminum framing.

E. Fasteners which are exposed to the weather shall be 300 Series stainless steel.

F. In system construction, the use of adhesives, plastic welding, or sealants is not allowed.

G. Free thermal movement of the panels shall be allowed to occur without compromising the weathertightness of the completed system.

3. Air Infiltration:

A. Per ASTM D-283 at a test pressure of 6.24 PSF, maximum air infiltration shall be 0.003 CFM/sq. ft. of glazing area.

4. Water Penetration:

A. There shall be no water penetration when tested vertically per ASTM E-331 at test pressure of 20 PSF.

5. Maintenance:

A. The system shall require no scheduled re-coating to maintain its weathering or structural performance or for UV protection.

B. Refer to Section 3.03 for cleaning and protection procedures.

6. Thermal Performance:

A. Light Transmission: clear = 65%

7. Flammability:

A. The system shall incorporate approved light-transmitting panels, with a CC1 fire rating classification as tested per ASTM D-635 or equivalent.

8. Loading:

A. The panel system shall be capable of meeting the design load for this project based on relevant code requirements and laboratory testing per ASTM E-330 shall evidence this fact.

9. The interior cells of the cellular polycarbonate sheets shall be blown clean prior to being sealed. The top and bottom of each sheet shall be sealed with an air permeable filter tape.

10. The open end of each panel shall rest on a continuous metal setting fin which is designed to allow atmospheric air to reach the air permeable tape at the bottoms of the panels. Setting blocks, or any other method that would tend to restrict air access, are not acceptable.

11. Glazing shall be installed in accordance with panel and system manufacturer's guidelines.

12. The color of the standing seam panels and the polycarbonate snap-on battens shall be:

Clear

C. Fasteners

1. Bolts, anchors and other fastening devices shall be as required for the strength of the connections and shall be suitable for conditions encountered. Washers shall be of the same metals as fasteners.

2. Fasteners exposed to the weather shall be 300 Series stainless steel and shall utilize stainless steel washers with neoprene seals.

3. Concealed fasteners shall be stainless steel or zinc plated steel as per ASTM A-165.

2.03 Workmanship

A. Carefully and accurately design, fabricate and assemble work with proper provision for thermal contraction and expansion. Work shall conform to profiles and sections noted on the shop drawings. Work shall be assembled with joints in a neat and finished manner.

B. Fasteners: Of a strength and spacing sufficient to meet the testing requirements as stated in Section 1.03B and to resist the specified load requirements or code requirements.

C. Protect contact points between unprotected dissimilar metals (except stainless steel) using continuous separators of FRP or PVC tape (or approved equal).

2.04 Design Loading

A. Design load for this project is in accordance with structural drawings and Florida Building code/ ASCE 7..

Part 3 EXECUTION

3.01 Examination

A. All submitted opening sizes, dimensions and tolerances are to be field verified by the installer unless otherwise stipulated.

B. Installer to examine site conditions to verify readiness. Notify general contractor or owner about any defects requiring correction. Do not work until conditions are satisfactory.

3.02 Installation

A. Install components in strict accordance with manufacturer's instructions and approved shop drawings. Use proper fasteners and hardware for material attachments as specified.

B. Use methods of attachment to structure which include provisions for thermal movement.

C. Remove all protective coverings on polycarbonate panels during or immediately after installation.

3.03 Cleaning and Protection

A. During installation, protect exposed surfaces against accumulation of paint, caulking, disfiguration and damage.

B. Follow panel manufacturer's instructions when cleaning exposed panel surfaces.

C. Follow panel manufacturer's guidelines when removing foreign substances from panel surfaces. Use only solvents that are deemed acceptable for use.

D. The exterior shall be cleaned as each phase of the work is completed.

E. Before final acceptance, repair and/or replace any defective materials or work.

Part 4 RESPONSIBILITIES OF OWNER AND MANUFACTURER

4.01 Warranty

A. The Manufacturer of the window/skylight hereby warrants to the Building Owner that, if within five (5) years from the last date of substantial installation or the date of sale of the window/skylight system, the Owner notifies the Manufacturer in writing that the window/skylight system leaks due to defects in the window/skylight system, Manufacturer will, at its option, repair or provide replacements only for those components of the window/skylight system found to be defective. In no event shall Manufacturer have liability for special, indirect, consequential or punitive damages. Anything in this warranty notwithstanding, the glazing panels and battens utilized in the window/skylight system shall be covered only by the Standard Warranty of the glazing manufacturer.

B. The above-stated warranty shall be invalid in the event of structural movement of the building(s), negative air pressure inside the building(s), acts of God, alteration to the window/skylight system by anyone other than the Manufacturer or its authorized representative, or abuse/unreasonable use of the window/skylight system. Further, this warranty shall be invalid in the event of non-payment of the invoice(s) covering the purchase of the window/skylight system within the terms provided in those invoices.

C. Manufacturer makes no warranties or representations, expressed or implied, which extend beyond this warranty and specifically disclaims all other warranties, including but not limited to warranties of merchantability and fitness for a particular purpose.

END OF SECTION 09850

SECTION 09510 - ACOUSTICAL CEILINGS
PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Suspended metal ceiling grid system.
2. Acoustical panels.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM):
1. A641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
2. C635 - Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
3. C636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
4. E1264 - Standard Classification of Acoustical Ceiling Products.

B. Ceiling and Interior Systems Construction Association (CISCA) - Ceiling Systems Handbook.

C. Underwriters Laboratories, Inc. (UL) - Fire Resistance Directory.

1.3 SUBMITTALS

A. Submittals for Review:
1. Samples:
a. 12 x 12] inch acoustical panel samples.
b. 6 inch long suspension system samples showing each profile.

B. Quality Control Submittals:
1. Certificates of Compliance: Certification from an independent testing laboratory that acoustical panels meet fire hazard classification requirements.

C. Sustainable Design Submittals:
1. Recycled Content.
2. Regional Materials.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 5 years documented experience in work of this Section.

B. Fire Hazard Classification: Class A rated, tested to ASTM E1264.

1.5 PROJECT CONDITIONS

A. Environmental Requirements: Install in approximately same conditions of temperature and

humidity as will prevail after installation.

1.6 MAINTENANCE

A. Extra Materials: 2 percent square feet of acoustical panels.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Suspension System:
1. Armstrong World Industries, Inc. (www.armstrong.com/commceilingsna)
2. Chicago Metallic Corporation. (www.chicago-metallic.com)
3. USG Interiors, Inc. (www.usg.com)

B. Acceptable Manufacturers - Acoustical Units:
1. Armstrong World Industries, Inc. (www.armstrong.com/commceilingsna)
2. Certainteed Corporation (www.certainteed.com)
3. USG Interiors, Inc. (www.usg.com)

C. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Suspension Grid System:
1. ASTM C635, intermediate duty, die cut, interlocking ends.
2. Grid type: Exposed T.
3. Material: Galvanized steel.
4. Runners: 1-1/2 inches high, 15/16 inch exposed width, flush profile.
5. Perimeter molding: Angle shape.
6. Finish: Factory applied enamel paint, sprayed and baked, white color
7. Accessories: clips, splices.
8. Recycled content: Minimum 25 percent, with minimum 15 percent classified as post consumer.

B. Acoustical Panels: ACT 1:
1. Source: Medium Texture mineral fiber.
2. Size: 24 x 24 inches x 3/4 inch thick.
3. Edge configuration: Reveal.
4. Performance requirements: Tested in accordance with ASTM E1264.
5. Recycled content: Minimum 70 percent, with minimum 25 percent classified as post consumer.
6. Basis of Design: Armstrong Cirrus, Angled Tegular

C. Acoustical Panels: ACT 2:
1. Source: Ceramic and mineral fiber with vinyl face (unperforated).
2. Size: 24 x 24 inches x 5/8 inch thick.
3. Edge configuration: Square.
4. Performance requirements: Tested in accordance with ASTM E1264.
5. Recycled content: Minimum 70 percent, with minimum 25 percent classified as post

consumer.
6. Basis of Design: Armstrong Ceramaguard, Square Lay-in

D. Acoustical Panels: ACT 3:
1. Source: Impact resistant mineral fiber, medium texture.
2. Size: 24 x 24 inches x 5/8 inch thick.
3. Edge configuration: Reveal.
4. Performance requirements: Tested in accordance with ASTM E1264.
5. Recycled content: Minimum 70 percent, with minimum 25 percent classified as post consumer.
6. Basis of Design: Armstrong Tundra, Beveled-Tegular

E. Acoustical Panels: ACT 4:
1. Source: Impact resistant mineral fiber, medium texture.
2. Size: 24 x 24 inches x 5/8 inch thick.
3. Edge configuration: Square.
4. Performance requirements: Tested in accordance with ASTM E1264.
5. Recycled content: Minimum 70 percent, with minimum 25 percent classified as post consumer.
6. Basis of Design: Armstrong School Zone Fine Fissured, Square Lay-in

2.3 ACCESSORIES

A. Support Channels: Galvanized steel; size and type to suit application.

B. Hanger Wire:
1. ASTM A641, minimum 12 gage galvanized steel.
2. Recycled content: Minimum 75 percent, with minimum 40 percent classified as post consumer.

C. Hold Down Clips: Minimum 24 gage spring steel, manufacturer's standard profile.

D. Impact Clips (New Gymnasium): Minimum 24 gage spring steel, manufacturer's standard profile.

E. Touch-Up Paint: Color to match acoustical panels and suspension grid.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install ceilings in accordance with ASTM C636 and CISCA Handbook.

B. Minimize panels less than one half size.

C. Install molding around perimeters and abutting surfaces. Miter molding at exterior corners; cut

flanges and bend web to form interior corners.

D. Space hanger wires maximum 48 inches on center. Install additional hangers where required to support light fixtures and ceiling supported equipment.

E. Do not suspend hangers directly from metal deck. Attach steel channel horizontally to adjacent framing members; place hanger at regular spacing.

F. Hang suspension system independent of walls, columns, ducts, pipes, and conduit.

G. Where ducts or other equipment prevent regular spacing of hangers:
   1. Reinforce nearest related hangers to span extra distance, or:
   2. Suspend steel channel horizontally beneath duct or equipment; place hanger at regular spacing.

H. Install main tees at maximum 48 inches on center.

I. Install cross tees to form 24 x 24 inch modules. Lock cross tees to main tees.

J. Support ends of tees on flange of perimeter molding.

K. Place acoustical panels with edges resting flat on suspension grid.

L. Cutting Acoustic Units:
   1. Cut to fit irregular grid and perimeter edge trim and around penetrations.
   2. Locate cuts to be concealed.
   3. Cut and field paint exposed edges of reveal edge units to match factory edge.

M. Place impact clips over cross tees at mid point of each module.

N. Installation Tolerances: Ceilings level to 1/8 inch in 12 feet measured in any direction.

3.2 ADJUSTING

A. Touch up minor scratches and abrasions to match factory finish.

END OF SECTION

SECTION 09960 - HIGH-PERFORMANCE COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Epoxy coating systems applied to concrete and masonry surfaces.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. D4258 - Standard Practice for Surface Cleaning Concrete for Coating.
   2. D4259 - Standard Practice for Abrading Concrete.
   3. D4260 - Standard Practice for Liquid and Gelled Acid Etching of Concrete.
   4. D4261 - Standard Practice for Surface Cleaning Concrete Unit Masonry for Coating.

B. Society for Protective Coatings (SSPC) - Painting Manual.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Manufacturer's data on materials proposed for use. Include product analysis, performance characteristics, and surface preparation materials and procedures.
   2. Samples:
      a. 3 x 3 inch coating samples showing available colors.
      b. After color selection, submit 12 x 12 inch coating system samples on representative substrate.

B. Sustainable Design Submittals:
   1. Regional Materials.
   2. Low-Emitting Materials.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Minimum 5 years experience in work of this Section.

1.5 PROJECT CONDITIONS

A. Apply coatings under dry and dust free conditions.

B. Ambient Temperature: Between 60 and 90 degrees F.

C. Humidity: Less than 50 percent.

D. Provide lighting level of 80 footcandles measured mid-height at substrate surface.

1.6 MAINTENANCE

A. Extra Materials: 1 gallon of each coating.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Carboline Co. (www.carboline.com)
   2. Tnemec Co., Inc. (www.tnemec.com)
   3. Dex-O-Tex

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Coatings: ~~As scheduled at end of Section, or approved substitute~~
   1. Walls: Equal to Dex-O-Tex “Wallcote E”
   2. Floors: Equal to Dex-O-Tex “Posi-Tred O” with non-slip coating.

B. Maximum Volatile Organic Compound (VOC) Content: 150 grams per liter.

2.3 ACCESSORIES

A. Thinners and Cleaners: Types recommended by manufacturer.
B. Integral Cove base and trim accessories

2.4 MIXES

A. Mix materials in accordance with manufacturer's instructions.

PART 3 EXECUTION

3.1 EXAMINATION

A. Measure moisture content of masonry and concrete surfaces using electronic moisture meter. Do not apply coatings unless moisture content of surfaces are below following maximums:
   1. Masonry: 12 percent.
   2. Concrete: 12 percent.

3.2 PREPARATION

A. Clean substrate; remove loose and foreign matter that could impede adhesion or performance of coating.

3.3 APPLICATION

A. Apply coatings in accordance with manufacturer's instructions.

B. Apply primer immediately after surface preparation to prevent contamination of surface.

C. Install integral cove base at all wall/floor intersections. Provide pre-formed inside corners where required.

D. Apply coatings uniformly without visible laps, sags, curtains, holidays, and objectionable brush marks.

E. Allow each coat to cure completely before applying additional coats.

F. Ensure that each coat is undamaged prior to applying succeeding coat.

3.4 ADJUSTING

A. Touch up minor damage or refinish as required.

3.5 CLEANING

A. Remove coatings from adjacent surfaces.

END OF SECTION