SECTION 08114 – STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Steel doors.
2. Steel door frames.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other Work.

1. Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.

C. Schedule: For doors and frames using same reference numbers as those on Drawings.

D. Finish Samples: For each exposed finish.

E. Construction Samples: Approximately 12 by 12 inches.

1. Doors: Show vertical-edge, top, and bottom construction; insulation; face stiffeners; and hinge and other applied hardware reinforcement. Include louver section and glazing stops if applicable.
2. Frames: Show profile, welded corner joint, welded hinge reinforcement, stops, and silencers.

F. Oversize Fire-Rated Construction Certification: For fire-rated assemblies exceeding size limits of labeled assemblies, by a testing agency acceptable to authorities having jurisdiction.

1.3 QUALITY ASSURANCE

A. Fire-Rated Assemblies: Complying with NFPA 80, listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire 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.

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. Republic Builders Products, Inc.
2. Fire door Corporation of Florida.
3. Allied Steel Products, Inc.

2.2 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, commercial steel (CS), Type B; pickled and oiled. Thickness indicated is minimum thickness according to HMMA 803, Steel Tables.

B. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, commercial steel (CS), Type B. Thickness indicated is minimum thickness according to HMMA 803, Steel Tables.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, commercial steel (CS), Type B; with G60 zinc (galvanized). Thickness indicated is minimum thickness of uncoated base metal.

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

2.3 DOORS

A. General: Flush-design, 1-3/4 inches thick, of seamless hollow construction, unless otherwise indicated.

1. Visible joints or seams around glazed or louvered panel inserts are permitted.
2. Single-Acting Swing Doors: Bevel vertical edges 1/8 inch in 2 inches.

B. Nonmetallic Core: Laminated with waterproof adhesive to both door faces, of construction indicated.

1. Honeycomb Core: Resin-impregnated Kraft paper with maximum 1-inch cells and minimum 42-psi crushing strength.

C. Fire Door Cores: As required to provide fire-protection and temperature-rise ratings indicated.

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

E. Top and Bottom Channels: Spot weld metal channel not less than thickness of face sheet to face sheets not more than 6 inches o.c.

1. Reinforce tops and bottoms of doors with inverted horizontal channels of same material as face sheet so flanges of channels are even with bottom and top edges of face sheets.
2. For exterior doors, close bottom edge with metallic-coated steel closing channel and top edge with filler channel of same material, so webs of channels are flush with bottom and top door edges.

F. Hardware Reinforcement: Fabricate reinforcing plates from same material as door to comply with the following:

1. Hinges and Pivots: 0.167 inch thick by 1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
2. Lock Face, Flush Bolts, Closers, and Concealed Holders: 0.093 inch thick.
3. All Other Surface-Mounted Hardware: 0.053 inch thick.

G. Interior Doors: Fabricate face sheets of doors from 0.042-inch- thick, cold-rolled, stretcher-leveled steel sheets and other metal components from hot- or cold-rolled steel sheets snap-on casing to conceal all fasteners casing attachment design shall be integral with frame profile forming or formed flat sided for attachment of wood trim. Provide closure reinforcement plates behind the snap-on casing for door mounted closers.

H. Exterior Doors: Fabricate face sheets of doors from 0.053-inch- thick, stretcher-leveled, metallic-coated steel sheets. Provide weep-hole openings in bottom of doors to permit entrapped moisture to escape. Seal joints in top edges of doors against water penetration.

2.4 FRAMES

A. General: Full-welded unit construction, with corners mitered, reinforced, and continuously welded full depth and width of frame.

1. Exterior Frames: Formed from 0.0785-inch- thick 14 ga., metallic-coated steel sheets.
2. Interior Frames: Formed from cold- or hot-rolled steel sheet of the following thicknesses:

a. Openings up to and Including 48 Inches Wide: 0.067 inch., (16 ga.).
b. Openings More Than 48 Inches Wide: 0.0785 inch., (14 ga.).

B. Hardware Reinforcement: Fabricate from same material as frame. Minimum thickness of steel reinforcing plates for hardware as follows:

1. Hinges and Pivots: 0.167 inch thick by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
2. Strikes, Flush Bolts, and Closers: 0.093 inch.
3. Surface-Mounted, Hold-Open Arms and Panic Devices: 0.093 inch.

C. Mullions and Transom Bars: Closed or tubular mullions and transom bars. Fasten mullions and transom bars at crossings and to jambs by butt-welding. Reinforce joints between frame members with concealed clip angles or sleeves of same metal and thickness as frame.

D. Head Reinforcement: Where installed in masonry, leave vertical mullions in frames open at top for grouting.

E. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.

F. Jamb Anchors: Weld jamb anchors to frames near hinges and directly opposite on strike jamb.

1. Masonry Construction: Formed of same material as frame; not less than 0.053 inch thick; with leg not less than 2 inches wide by 10 inches long.

a. Two anchors per jamb up to 60 inches in height.
b. Three anchors per jamb from 60 to 90 inches in height.

2 Metal-Stud Partitions: Insert type with notched clip to engage metal stud, formed of same material as frame, not less than 0.042 inches thick.

a. Three anchors per jamb up to 60 inches in height.
b. Four anchors per jamb from 60 to 90 inches in height.
c. Five anchors per jamb from 90 to 96 inches in height.
d. One additional anchor per jamb for each 24 inches or fraction thereof more than 96 inches in height.

3. In-Place Concrete or Masonry: Anchor frame jambs with minimum 3/8-inch diameter concealed bolts into expansion shields or inserts 6 inches from top and bottom and 26 inches o.c., unless otherwise indicated. Reinforce frames at anchor locations. Except for fire-rated openings, apply removable stop to cover anchor bolts, unless otherwise indicated.

G. Floor Anchors: For each jamb and mullion that extends to floor, formed of same material as frame, 0.067 inch thick, as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners, welded to bottom of jambs and mullions.
2. Separate Topping Concrete Slabs: Adjustable type with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

H. Head Anchors: 2 head anchors for frames more than 42 inches wide and mounted in steel-stud walls.

I. Head Strut Supports: 3/8-by-2-inch vertical steel struts extending from top of frame at each jamb to supporting construction above, unless frame is anchored to masonry or to other structural support at each jamb.

J. Structural Reinforcing Members: Installed as part of frame assembly, where indicated.

K. Head Reinforcement: For frames more than 48 inches wide in masonry wall openings, continuous steel channel or angle stiffener, 0.093 inch thick for full width of opening, welded to back of frame at head.

L. Spreader Bars: Removable, located across bottom of frames, tack welded to jambs and mullions.

M. Rubber Door Silencers: Except on weather-stripped doors, drill stop in strike jamb to

receive three silencers on single-door frames and drill head jamb stop to receive two silencers on double-door frames. Install plastic plugs to keep holes clear during construction.

2.5 FABRICATION

A. Fabricate doors and frames rigid, neat in appearance, and free of defects, warp, or buckle. Weld exposed joints continuously and grind smooth. 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. Exposed Fasteners: Provide countersunk flat or oval heads for exposed screws and bolts.

C. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, fabricate doors and frames as thermal-insulating assemblies, tested according to ASTM C 236 or ASTM C 976.

1. Provide thermal-rated assemblies with U-factor or 0.3 Btu/sq. ft. x h x deg F, unless other indicated.

D. Sound-Rated (Acoustical) Assemblies: Fabricate door and frame assemblies as sound-reducing type, tested according to ASTM E 1408, and classified according to ASTM E 413.

1. STC: 33 or better.

E. Hardware Preparation: Prepare doors and frames to receive hardware, including cutouts, reinforcement, mortising, drilling, and tapping, according to final hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A115 Series specifications for door and frame preparation for hardware.

1. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
2. Locate hardware as indicated or, if not indicated, according to HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

2.7 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for cleaning, treating, priming and, when specified, finishing.

B. Finish products specified in this Section after fabrication.

C. Steel Sheet Finishes:

1. Surface Preparation: SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Factory Priming for Field-Painted Finish: Immediately after surface preparation, apply fast-curing, corrosion-inhibiting, lead- and chromate-free, universal primer, ANSI A224.1, compatible with finish coats indicated. Apply smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install doors and frames according to DHI A115.IG and manufacturer's written instructions.

B. Frames:

1. Set masonry anchorage devices where required for securing frames to in-place concrete or masonry construction.

   a. Set anchorage devices according to anchorage device manufacturer's written instructions. Leave drilled holes rough, not reamed, and free of dust and debris.

2. Floor anchors may be set with powder-actuated fasteners.
3. Placing Frames: Set frames accurately in position; plumb; align, and brace securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

   a. At existing concrete or masonry construction, set frames and secure in place with machine screws and masonry anchorage devices.
   b. At fire-rated openings, install frames according to NFPA 80.
   c. Field splice only at approved locations. Weld, grind, and finish as required to conceal evidence of splicing on exposed faces.

C. Doors: Fit non-fire-rated doors accurately in their respective frames, with the following clearances:

1. Jambs and Head: 3/32 inch.
2. Meeting Edges, Pairs of Doors: 1/8 inch.
3. Bottom: 3/8 inch, unless otherwise indicated.
   a. At Threshold or Carpet: 1/8 inch.

D. Fire-Rated Doors: Install with clearances as specified in NFPA 80.

E. Touchup: Immediately after erection, touchup finish to match undamaged finish.

END OF SECTION

SECTION 08200 – FIBERGLASS REINFORCED DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section Includes The Following:
   1. Fiberglass Reinforced Plastic (FRP) Doors
   2. Fiberglass Reinforced Plastic (FRP) Frames

1.2 RELATED SECTIONS

A. Related Sections Include The Following:
   1. Division 0 - Bidding and Contract Requirements
   2. Division 1 - General Requirements
   3. Division 8 - Finish Hardware
   4. Division 8 - Glazing

1.3 QUALITY ASSURANCE

A. Doors shall be certified and labeled to meet FBC (5th Edition Florida Building Code 2014, with an Ultimate Wind Speed Vult=170 MPH (Normal Wind Speed Vasd=132 MPH, for Risk Category II, Exposure D). At a minimum, exterior doors are to meet the applicable requirements of 5th edition FBC 2014, 1710 including air infiltration, water infiltration, and pressure requirements. The contractor is responsible for providing testing results that comply with these code requirements.

B. Referenced Standards
   1. Door Assemblies
      a) Florida Building code (FBC)
      b) International Building/ Residential Codes (I-Codes)
      c) ASTM E 330 Uniform Static Load
      d) ASTM E 1886-97 Impact and Cycling, Large Missile Impact
      e) ASTM C 518 Heat Transfer
      f) ASTM D 1761 Mechanical Fasteners
   2. Laminate Properties
      a) ASTM D 882 Tensile Strength
      b) ASTM D 790 Flexural Strength
      c) ASTM D 2583 Barcol Hardness
      d) ASTM D 256 Impact Resistance
      e) ASTM D 792 Density/Specific Gravity Of Laminate
      f) ASTM D 1761 Mechanical Fasteners
      g) ASTM E 84 Surface Burning Characteristics
      h) ASTM G 155 Gelcoat Xenon Arc light exposure test
   3. Core Properties
      a) ASTM C 177 Thermal Properties
      b) ASTM D 1622 Density/Specific Gravity
      c) ASTM E 84 Surface Burning Characteristics
      d) WDMA TM-10 and TM-5 Firestop ASTM E 152 U.L. 10(b)

C. Qualifications
1. Manufacturer Qualifications: A company specialized in the manufacture of fiberglass reinforced plastic (FRP) doors and frames as specified herein with a minimum of 25 years documented experience and with a record of successful in-service performance for the applications as required for this project.
2. Installer Qualifications: An experienced installer who has completed fiberglass door and frame installations similar in material, design, and extent to those indicated and whose work has resulted in construction with a record of successful in-service performance.
3. Source Limitations: Obtain fiberglass reinforced plastic doors and frames through one source fabricated from a single manufacturer, including fire rated fiberglass frames.
4. Source Limitations: Hardware and accessories for all FRP doors as specified in Section 08710 should be provided and installed by the fiberglass door and frame manufacturer.

1.4 SUBMITTALS
A. Product Technical Data Including:
1. Acknowledgment that products submitted meet requirements of standards referenced.
2. Manufacturer shall provide certificate of compliance with current local and federal regulations as it applies to the manufacturing process.
3. Manufacturer's installation instructions.
4. Schedule of doors and frames indicating the specific reference numbers as used on drawings, door type, frame type, size, handing and applicable hardware.
5. Details of core and edge construction. Include factory-construction specifications.
6. Certification of manufacturer's qualifications.

B. Submittal Drawings For Customer Approval Shall Be Submitted Prior To Manufacture And Will
Include The Following Information And Formatting.
1. Summary door schedule indicating the specific reference numbers as used on owner’s drawings, with columns noting door type, frame type, size, handing, accessories and hardware.
2. A drawing depicting front and rear door elevations showing hardware with bill of material for each door.
3. Drawing showing dimensional location of each hardware item and size of each door.
4. Individual part drawing and specifications for each hardware item and FRP part or product.
5. Construction and mounting detail for each frame type.

C. Samples:
1. Provide one 21 x 18 inch completely assembled (hinged) door and frame corner section,
with faces and edges representing typical color and finish.

D. Operation and Maintenance Manual
1. Include recommended methods and frequency for maintaining optimum condition of fiberglass doors and frames under anticipated traffic and use conditions.
2. Include one set of final as built drawings with the same requirements as mentioned

in Section B above.

3. Include certificate of warranty for door and frame listing specific door registration numbers.
4. Include hardware data sheets and hardware manufacturer's warranties.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Each door and frame should be delivered individually crated for protection from damage in cardboard containers, clearly marked with project information, door location, specific reference number as shown on drawings, and shipping information. Each crate should contain all fasteners necessary for installation as well as complete installation instructions.
B. Doors should be stored in the original container out of inclement weather for protection against the elements.
C. Handle doors pursuant to the manufacturer's recommendations as posted on outside of crate.

1.6 WARRANTY

A. Warranty all fiberglass doors and frames for a period of 25 years against failure due to corrosion. Additionally, warranty all fiberglass doors and frames on materials and workmanship for a period of 10 years, including warp, separation or delamination, and expansion of the core.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

Subject to compliance with the Contract Documents, the following manufacturer is acceptable:

A. Corrim Company, LLC. Florida Product Approval FL14311.1.

2.2 FRP DOORS

A. Door Fabrication: Doors thickness to be nominal 1 ¾ inches thick. Lock stiles on non-rated and rated active leaves shall be factory beveled 1/8" in 2". Provide doors with completely seamless construction on all six (6) surfaces.
B. Face Sheets: FRP face sheets shall be manufactured using a corrosion resistant resin system with light stabilizing additives. The resin shall be reinforced with fiberglass, 50% average by weight for enhanced strength. Face sheets shall be a minimum of 0.125 inch thick fiberglass. Face sheets will be smooth seamless finish.
C. Stiles and Rails: Stiles and rails shall be 1 ½ inch square pultruded fiberglass tubes. Non-rated and 20 minute doors will have a full width horizontal 1 ½ inch square pultruded fiberglass tube every 24 inches in height for internal reinforcement. A 1 ½ inch square solid fiberglass block shall be used at all hardware reinforcements and corner intersections. A minimum of 1,150 pounds screw withdrawal force shall be required per screw. The bottom rail shall allow for 1 ¼ inches of height alterability

without loss of the panel's integrity. Absolutely no metal or wood reinforcements, including #2 SPF (Spruce Pine Fir), will be allowed in any part of the stile and rail confirguration.

D. Core: A 1 ½ inch thick rigid block of polyurethane shall be laminated to the interior face of the panels. The "R" factor shall be 12. The polyurethane insulation shall be Class A and CFC free. Foam properties comply with ASTM E-84 and the International Building Code (IBC).
E. Hardware Preparations: Doors shall be reinforced and mortised for hardware with 1 ½ inches x 1 ½ inches of solid fiberglass to allow application of hinges and locks, in accordance with the hardware schedule, hardware manufacturer's instructions and templates. Reinforcement Blocking: Non-swelling polymer or firestop blocking will be used for all lockset, surface mounted hardware and thru-bolted hardware blocking. Pilot holes for full mortise butt hinges will be pre-drilled by the factory. All hardware shall be attached / installed by using pilot hole and stainless steel wood screws.
F. Finish: Gelcoat Matte, Finish, 25 mil, from manufacturer's full range of colors. Finish on door and frame units will match. Secondary painting to achieve color is not acceptable.

2.3 FRP FRAMES

A. Fabrication: FRP frames shall be rigid, neat in appearance, free from defects and the finish shall match the doors. All frames shall be 100% pultruded fiberglass with an average 50% glass content by weight which results in an industrial fiberglass frame as strong as a 14 gauge hollow metal frame. Standard one piece FRP profile with integral stop: 5 ¾" x 2" equal rabbet.
B. Finish: Gelcoat Matte, Finish, 25 mil, from manufacturer's full range of colors. Finish on door and frame units will match. Secondary painting to achieve color is not acceptable.
C. Head and Jamb: One piece frame, resin bonded and assembled at factory.
D. Reinforcements and Braces / Supports: Frames shall be reinforced and mortised for hardware in accordance with hardware schedule, manufacturer's instructions and templates. Absolutely no metal reinforcements will be allowed in any part of the RFP frame configuration. Corner Reinforcement: 4 inches x 4 inches x 5 3/8 inches x ¼ inch thick pultruded fiberglass angle. Attached to head bar at factory using stainless steel screws. Mortise Hinge Reinforcement: 3 inches x 7 inches x 9/16 inch (or 3/8 inch) thick RFP material attached to frame by means of bonding and stainless steel countersunk screws. Closer Reinforcement: 1 ½ inches x 19 inches x ¾ inch thick FRP material attached to frame by means of bonding. Strike Reinforcement: 1 ½ inches x 9 inches x ¾ inch thick FRP material attached to frame by means of bonding and stainless steel countersunk screws.

2.4 HARDWARE

A. See Section 08710
B. Due to the special nature of the material in this section, all related hardware as specified must be furnished and installed by the door and frame manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION CONDITIONS

A. Verification of Conditions
   1. Openings are correctly prepared to receive doors and frames.
   2. Openings are correct size and depth in accordance with shop drawings or submittals.

B Installer's Examination
   1. Have the installer examine conditions under which construction activities of this section are to be performed and submit a written report if conditions are unacceptable.
   2. Transmit two copies of the installer's report to the architect within 24 hours of receipt.
   3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.

3.2 INSTALLATION

A. Install door-opening assemblies in accordance with shop drawings and manufacturer's printed installation instructions, using installation methods and materials specified in installation instructions.
B. Field alteration of doors or frames to accommodate field conditions is strictly prohibited.
C. Site tolerances: Maintain plumb and level tolerance specified in manufacturer's printed installation instructions.

3.3 ADJUSTING

A. Adjust doors in accordance with door manufacturer's maintenance instructions to swing open and shut without binding and to remain in place at any angle without being moved by gravitational influence.
B. Adjust door hardware to operate correctly in accordance with hardware manufacturer's maintenance instructions.

3.4 CLEANING

A. Clean surfaces of door opening assemblies and exposed door hardware in accordance with respective manufacturer's maintenance instructions.

3.5 PROTECTION OF INSTALLED PRODUCTS

A. Protect door opening assemblies and door hardware from damage by subsequent construction activities until final inspection.

END OF SECTION 08200

SECTION 08311 – ACCESS DOORS AND FRAMES

GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Access doors and frames.
2. Fire-rated access doors and frames.

1.2 SUBMITTALS

A. Product Data: For each type of access door.

B. Coordination Drawings: Drawn to scale and coordinating access door and frame installation with ceiling support, ceiling-mounted items, and concealed Work above ceiling.

C. Samples: For each exposed finish.

D. Schedule: Door and frame schedule, including types, general locations, sizes, construction details, latching or locking provisions, and other data pertinent to installation.

1.3 QUALITY ASSURANCE

A. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 and that are labeled and listed by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction per test method indicated.

1. Vertical Access Doors: NFPA 252, UL 10B.
2. Horizontal Access Doors and Frames: ASTM E 119.

B. Size and Location Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment, and indicate on schedule.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

1. Hot-Dip Galvanized Steel: Coat to comply with ASTM A 123/A 123M for steel and iron products and ASTM A 153/A 153M for steel and iron hardware.

B. Steel Sheet:

1. Electrolytic Zinc Coated: ASTM A 591/A 591M, Commercial Steel (CS), with Class C coating and phosphate treatment to prepare surface for painting.

C. Drywall Beads: Edge trim formed from 0.0299-inch (0.76-mm) zinc-coated steel sheet formed to receive joint compound and in size to suit thickness of gypsum panels indicated.

D. Plaster Bead: Casing bead formed from 0.0299-inch (0.76-mm) zinc-coated steel sheet with flange formed out of expanded metal lath and in size to suit thickness of plaster.

E. Paint:

1. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664; selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide sound foundation for field-applied topcoats despite prolonged exposure.
2. Shop Primer for Metallic-Coated Steel: Organic zinc-rich primer complying with SSPC-Paint 20 and compatible with topcoat.
3. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

2.2 ACCESS DOORS AND FRAMES

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. Karp Associates, Inc.
2. J. L. Industries, Inc.
3. Larsen's Manufacturing Company.

C. Flush, Insulated, Fire-Rated Access Doors and Trimless Frames:

1. Material: Prime-painted steel sheet.
2. Surface Type: Gypsum board.
3. Locations: Walls and ceilings.
4. Fire-Resistance Rating: 1 hour.
5. Temperature-Rise Rating: 250 deg F (139 deg C) at the end of 30 minutes.
6. Door: Flush panel with core of mineral-fiber insulation enclosed in sheet metal with a minimum thickness of 0.036 inch (0.9 mm).
7. Frame: Minimum 0.060-inch- (1.5-mm-) thick sheet metal with drywall bead.
8. Hinges: Concealed pin type.
9. Automatic Closer: Spring type.
10. Latch: Self-latching bolt operated by key with interior release.
11. Lock: Key-operated cylinder lock with interior release, with master keying to match keying requirements specified in Division 8 Section “Door Hardware.”

D. Flush Access Doors and Frames with Exposed Trim:

1. Material: Prime-painted steel sheet.
2. Surface Type: Gypsum Board.
3. Locations: Walls and ceilings.
4. Door: Minimum 0.060-inch thick sheet metal, set flush with exposed face flange of frame.
5. Frame: Minimum 0.060-inch thick sheet metal with 1-inch wide, surface-mounted trim.
6. Hinges: Continuous piano hinge.
7. Latch: Screwdriver operated cam latch.
8. Lock: Key-operated cylinder lock, with master keying to match keying requirements specified in Division 8 Section “Door Hardware.”

2.3 FABRICATION

A. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.

1. For cylinder lock, furnish two keys per lock and key all locks alike to match master keying requirements in Division 8 Section “Door Hardware.”

PART 3 - EXECUTION

3.1 INSTALLATION

A. Advise installers of other work about specific requirements relating to access door installation, including sizes of openings to receive access door and frame, as well as locations of supports, inserts, and anchoring devices.

B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.

C. Install access doors with trimless frames flush with adjacent finish surfaces or recessed to receive finish material.

D. Adjust doors and hardware after installation for proper operation.

END OF SECTION 08311

SECTION 08330 – OVERHEAD COILING DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Overhead coiling service doors.

1.2 RELATED SECTIONS

A. Section 09900 - Painting: Field applied finish.

B. Section 16000 - Raceway and Boxes: Conduit from electric circuit to door operator and from door operator to control station. Wiring Connections: Power to disconnect.

1.3 DESIGN / PERFORMANCE REQUIREMENTS

A. Overhead coiling service doors:
   1. Wind Loads: Design door assembly to withstand wind/suction load of 61.42 psf without damage to door or assembly components in conformance with ASTM E 330.
   2. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.
   3. Certification of compliance with 170 mph, (Ultimate Wind Speed), Exposure D, risk category II per Florida Building Code 2014, Section 1609. Wind load requirements for all exterior doors, frame and hardware assemblies.
   4. At minimum, exterior doors to meet the applicable requirements of 5th edition FBC 2014, 1710 including air infiltration, water infiltration, and pressure requirements. The contractor is responsible for providing testing results that comply with these code requirements.

B. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.4 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Details of construction and fabrication.
   4. Installation instructions.

B. Shop Drawings: Include detailed plans, elevations, details of framing members, anchoring methods, required clearances, hardware, and accessories. Include relationship with adjacent construction.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.

E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

F. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years experience in the fabrication and installation of security closures.

B. Installer Qualifications: Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.

C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials in a dry, warm, ventilated weathertight location.

1.7 PROJECT CONDITIONS

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

1.8 COORDINATION

A. Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

1.9 WARRANTY

A. Warranty: Manufacturer’s limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 3 years or 20,000 cycles, whichever occurs first.

B. Warranty: Manufacturer’s limited door warranty for 2 years for all parts and components.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: info@overheaddoor.com.

B. Requests for substitutions will be considered in accordance with provisions of P.B.C. Front End documents.

2.2 OVERHEAD COILING SERVICE DOORS – 620 Series

A. Heavy Duty Industrial Doors: Overhead Door Corporation, 620 Series Stormtite Service Doors.
   1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
      a. Flat profile type F-265 for doors up to 18 feet 4 inches (5.59 m) wide, fabricated of:
         1) 22 gauge stainless steel.
   2. Finish:
      a. Stainless Steel: Slats and hood stainless in accordance with ASTM A 653, number four finish.
   3. Weatherseals:
      a. Vinyl bottom seal, exterior guide and internal hood seals.
      b. Interior guide weatherseal.
      c. Lintel weatherseal.
   4. Bottom Bar:
      a. Two galvanized steel plates.
   5. Guides: Three structural steel angles.
      a. Finish: Hot dipped galvanized steel for guides, bottom bar and head plate.
   6. Brackets:
      a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
      b. Galvanized steel to support counterbalance, curtain and hood.
   7. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
   8. Hood: Provide with internal hood baffle weatherseal.
      a. 24 gauge galvanized steel with intermediate supports as required.
      b. Chain hoist for doors up to 96 SF.
      c. Chain hoist for doors over 96 SF.
   9. Windload Design:
      a. Standard windload shall be 61.42 PSF.
      b. Miami Dade NOA 13-1121.06.
   10. Locking:
      a. Chain keeper locks for chain hoist operation.
   11. Wall Mounting Condition:
      a. Face-of-wall mounting.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify opening sizes, tolerances and conditions are acceptable.

B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.

D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

E. Coordinate installation of electrical service with Section 16000. Complete wiring from disconnect to unit components.

F. Install perimeter trim and closures.

G. Instruct Owner’s personnel in proper operating procedures and maintenance schedule.

3.4 ADJUSTING

A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.

B. Remove labels and visible markings.

C. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes fixed windows.

B. See Division 8 Section "Glazing" for glazing requirements for aluminum windows, including those specified to be factory glazed

1.2 PERFORMANCE REQUIREMENTS

A. General: Provide aluminum windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified and that are of minimum test size required by AAMA/NWWDA 101/I.S.2.

B. Structural Performance: Provide aluminum windows capable of withstanding the following, including wind loads based on the basic wind speed indicated:

1. Deflection: Based on passing AAMA/NWWDA 101/I.S.2, Uniform Load Deflection Test or on glass framing system designed to limit lateral deflections of glass edges to less than 1/175 of glass-edge length at design pressure based on structural computations.

2. Structural Design: All window and systems shall be signed and sealed for an Ultimate Wind Speed Vult=170 MPH, (Normal Wind Speed Vasd=140 MPH) Exposure D – Risk Category II, as per 5th Edition Florida Building Code 2014, Section 1609.

3. C-60 Commercial Grade Window Assembly

C. Air Infiltration: Maximum rate not more than 6.24 when tested according to AAMA/NWWDA 101/I.S.2, Air Infiltration Test.

D. Water Resistance: No water leakage as defined in AAMA/NWWDA referenced test methods at a water test pressure equaling 8.0 psf when tested according to AAMA/NWWDA 101/I.S.2, Water Resistance Test.

E. Forced-Entry Resistance: Comply with Performance Level 10 requirements when tested according to ASTM F 588.

F. Thermal Movements: Provide aluminum windows, including anchorage, that accommodate thermal movements of units resulting from the following maximum change (range) in ambient and surface temperatures without buckling, distortion, opening of joints, failure of joint sealants, damaging loads and stresses on glazing and connections, and other detrimental effects. Base engineering calculation on actual surface temperatures of materials due to solar heat gain and nighttime-sky heat loss.

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

G. Life-Cycle Testing: Test according to AAMA 910 and comply with AAMA/NWWDA 101/I.S.2.

H. Specific Product Performance Requirements: Comply with Section 2.2 of AAMA/NWWDA 101/I.S.2 as applicable to types of aluminum windows indicated.

1.3 SUBMITTALS

A. Product Data: For each type of aluminum window indicated.

B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other Work, and operational clearances.

1. Include structural analysis data indicating structural test pressures and design pressures from basic wind speeds indicated and deflection limitations of glass framing systems, signed and sealed by the qualified professional engineer responsible for their preparation.

C. Samples: For each exposed finish.

D. Field quality-control test reports.

E. Product test reports.

F. Maintenance data.

G. Energy Efficiency:

1. Submit documentation for Energy Star qualifications for products provided under work of this Section.

H. VOC data:

1. Adhesives:

a. Submit manufacturer's product data for adhesives. Indicate VOC limits of the product. Submit MSDS highlighting VOC limits.

b. Submit Green Seal Certification to GS-36 and description of the basis for certification

I. Submit environmental data in accordance with Table 1 of ASTM E2129 for products provided under work of this section.

1.4 QUALITY ASSURANCE

A. Installer: A qualified installer, approved by manufacturer to install manufacturer's products.

B. Fenestration Standard: Comply with AAMA/NWWDA 101/I.S.2, "Voluntary Specifications for Aluminum Windows," for minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

C. Glazing Publications: Comply with published recommendations of glass manufacturers and GANA's "Glazing Manual" unless more stringent requirements are indicated.

D. Mockups: Build mockups to demonstrate aesthetic effects.

1. Build mockups of windows on job site.

2. Perform tests specified in "Field Quality Control" Article. Modify mockup construction and perform additional tests as required to achieve specified minimum acceptable results.

3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. VOC emissions: Provide low VOC products.

1. Adhesives and sealants: Comply with California's South Coast Air Quality Management (SCAQMD) #1168.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace aluminum windows that fail in materials and workmanship within two years from date of Substantial Completion.

B. Warranty Period for Metal Finishes 10 years from date of Substantial Completion.

C. Warranty Period for Glass: Five years from date of Substantial Completion.

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:

1. Basis of Design: YKK AP America, Inc, - YHS 50 FI Storefront System for Insulating Glass (Florida Product Approval FL 14218.2) or approved equal.
2. Kawneer Company, Inc.

2.2 GLAZING

A. Glazing System: Manufacturer's standard factory-glazing system as indicated in Division 8 Section "Glazing".

2.3 FABRICATION

A. General: Fabricate aluminum windows, in sizes indicated, that comply with requirements and that meet or exceed AAMA/NWWDA 101/I.S.2 performance requirements for the following window type and performance class. Include a complete system for assembling components and anchoring windows.

1. Fixed Windows: C-60

B. Fabricate aluminum windows that are reglazable without dismantling sash or ventilator framing.

C. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator.

D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.

E. Provide water-shed members above side-hinged ventilators and similar lines of natural water penetration.

F. Subframes: Provide subframes with anchors for window units as shown, of profile and dimensions indicated but not less than 0.062-inch thick extruded aluminum. Miter or cope corners, and weld and dress smooth with concealed mechanical joint fasteners. Finish to match window units. Provide subframes capable of withstanding design loads of window units.

G. Glazing Stops: Provide snap-on glazing stops coordinated with Division 8 Section "Glazing" and glazing system indicated. Provide glazing stops to match sash and ventilator frames.

2.4 FINISHES

A. Aluminum High-Performance Organic Finish: Three coat thermo cured system with fluoropolymer coats containing not less than 70 percent polyvinylidence fluoride resin by weight, complying with AAMA 2605.

1. Color: As selected from manufacturer's full range, submit to Architect and Owner for approval.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.

B. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.

C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

D. Metal Protection: Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in "Dissimilar Materials" Paragraph in Appendix B in AAMA/NWWDA 101/I.S.2.

E. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

F. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

G. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels and clean surfaces.

H. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION

SECTION 08800 - GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes glazing for the following products and applications:

1. Windows.
2. Doors.
3. Glazed entrances.
4. Storefront framing.

1.2 PERFORMANCE REQUIREMENTS

A. General: Provide glazing systems capable of withstanding normal thermal movement without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions.

1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:

a. Specified Design Wind Loads: Ultimate Wind Speed Vult=170 mph (Normal Wind Speed Vasd=132 MPH), Exposure D, risk category II, per 5th Edition Florida Building Code 2014, Section 1606.
b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.

1. Load Duration: 60 seconds or less.

c. Thickness of Tinted and Heat-Absorbing Glass: Provide the same thickness for (Grey Tint) color throughout Project.

C. Thermal Movements: Provide glazing that allows for thermal movements resulting from a maximum change (range) of 120 deg F, 180 deg F in ambient and surface temperatures, respectively, acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.

2. Center-of-Glass U-Values: NFRC 100 methodology using LBL-35298 WINDOW 4.1 computer program, expressed as Btu/ sq. ft. x h x deg F.
3. Center-of-Glass Solar Heat Gain Coefficient: NFRC 200 methodology using LBL-35298 WINDOW 4.1 computer program.

1.3 SUBMITTALS

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

B. Samples: 12-inch- square, for each type of glass product indicated, other than monolithic clear float glass.

C. Sealant compatibility and adhesion test reports.

1.4 QUALITY ASSURANCE

A. Sealant Compatibility and Adhesion Testing: Use sealant manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Safety Glass: Category II materials complains with testing requirements in 16 CFR 1201 and ANSI Z97.1.

C. Glazing Publications: Comply with recommendations of the following, unless more stringent requirements are indicated.

1. GANA Publications: "Glazing Manual".
2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR-A7, "Sloped Glazing Guidelines."
3. SIGMA Publications: SIGMA TM-3000, "Vertical Glazing Guidelines."

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form, made out to Owner and signed by manufacturer, in which manufacturer agrees to furnish replacements for units that deteriorate from normal use by developing defects attributable to the manufacturing process, f.o.b. the nearest shipping point to Project site, within warranty period.

1. Coated Glass:

a. Defects: Peeling, cracking, and other indications of degradation of metallic coating.
b. Warranty Period: 10 years from date of Substantial Completion.

2. Laminated Glass:

a. Deterioration: Edge separation, delamination that materially obstructs vision through glass, and blemishes exceeding those allowed by referenced laminated glass standards.

b. Warranty Period: Five years from date of substantial completion.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. In other articles including schedules where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Product: Subject to compliance with requirements, provide the product specified.
4. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
5. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 GLASS MATERIALS

A. Annealed Float Glass: ASTM C 1036, Type I (transparent glass, flat), Quality q3 (glazing select); class as indicated in schedules at the end of Part 3.

B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent glass, flat); Quality q3 (glazing select); class, kind, and condition as indicated in schedules at the end of Part 3

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed.

C. Coated Glass, General: Provide coated glass complying with requirements indicated in this Article and in schedules at the end of Part 3.

1. Provide Kind HS (heat-strengthened) coated float glass in place of coated annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in “Performance Requirements” Article. Provide Kind FT (fully tempered) where safety glass is indicated.
2. Provide Kind HS (heat-strengthened) coated float glass, except provide Kind FT (fully tempered) products where coated safety glass is indicated.

D. Laminated Glass: Comply with ASTM C 1172 for kinds of laminated glass indicated and other requirements specified, including those in the Laminated-Glass Schedule at the end of Part 3.

1. Interlayer: Polyvinyl butyral sheet, clear or in colors, and of thickness indicated with a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after laminating glass lites and installation.

F. Impact Resistant Glass: Sungate 500 Low-E impact resistance glass as manufactured by PPG Industries, .090" thickness between two panes of glass under intense heat and pressure. High-performance glazing material that tests show can resist wind load requirements of Florida Building Code 2014 and Amendments, SECTION 1609.

2.3 GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements:

1. Compatibility: Select 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. Colors of Exposed Sealants: As selected by Architect from manufacturer's full color range.

B. Elastomeric Glazing Sealants: ASTM C 920, Type S (single component).

1. Low-Modulus Nonacid-Curing Silicone: With additional movement capability of 50 percent movement in extension and 50 percent movement in compression when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719.

a. Products:

1. Dow Corning; 790.
2. Sonneborn, Div of ChemRex, Inc.; Omniseal.
3. Tremco; Spectrem 1.

C. Cylindrical Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.4 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent with or without spacer rod as recommended in writing by

tape and glass manufacturers for application indicated and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tape: Closed-cell, PVC foam tape; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:

1. Type 1, for glazing applications in which tape acts as the primary sealant.
2. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.5 GLAZING GASKETS

A. Compression Gaskets: Molded or extruded gaskets of type and material indicated below and of profile and hardness required to maintain watertight seal:

1. EPDM dense compression gaskets complying with ASTM C 846.
2. EPDM soft compression gaskets complying with ASTM C 509, Type II, black.
3. Silcone dense compression gaskets complying with ASTM C 1115.

2.6 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.7 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

A. Fabricate glass and other glazing products in sizes required to glaze 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 standard, to comply with system performance requirements.

PART 3 - EXECUTION

3.1 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.

1. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
2. Protect glass edges from damage during handling and installation. Remove glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance from Project site and legally dispose of off Project site.
3. Apply primers to joint surfaces where required for adhesion of sealants, as determined by sealant compatibility and adhesion testing.
4. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
5. Provide spacers for glass lites where the length plus width is larger than 50 inches unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances.

B. Protection:

1. 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.
2. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter.

C. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged, including natural causes, accidents, and vandalism, during construction period.

3.2 MONOLITHIC FLOAT-GLASS SCHEDULE

A. Uncoated Annealed Kind HS Clear Float Glass FG: Class 1 (clear) Condition A (uncoated surfaces) where heat strengthening is required to resist thermal stresses induced by differential shading of individual glass lites or resist wind loads.

B. Uncoated Clear Fully Tempered Float Glass FG: Class 1 (clear) Kind FT (fully tempered).

C. Uncoated Tinted Annealed Heat-Strengthened Float Glass MG-[#]: Condition A uncoated surfaces) where heat strengthening is required to resist thermal stresses induced by differential shading of individual glass lites or to resist wind loads].

1. Products:
   a. PPG Industries Inc. Glass Group
2. Tint Color: to match existing windows.
3. Visible Light Transmittance: match existing
4. Solar Heat Gain Coefficient: match existing
5. Outdoor Visible Reflectance: match existing

D. Uncoated Tinted Fully Tempered Float Glass MG-[#]: Class 2 (tinted, heat-absorbing, and light-reducing), Kind FT (fully tempered), Condition A (uncoated surfaces) of same tint color and with same performance properties as non-fully-tempered tinted float glass.

END OF SECTION