

## SECTION 08125

### INTERIOR ALUMINUM DOOR AND SIDELIGHT FRAMES

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Related Documents: Provisions established in General and Supplementary Conditions of the Contract, Division 1 General Requirements, and the Drawings are collectively applicable to this Section.
- B. Section Includes:
  - 1. Extruded aluminum door and window frames for interior applications.

##### 1.2 REGULATORY REQUIREMENTS

- A. Conform to applicable local building codes for fire rated requirements of metal door/metal frame and wood door/metal frame assemblies.

##### 1.3 SUBMITTALS

- A. Submit shop drawings, and manufacturer's installation instructions, under provisions of Section 01330.
- B. Indicate door configuration, anchor types and spacing, location of cutouts for hardware, reinforcement, and finish.
- C. Indicate frame elevations, internal reinforcement, closure method, and cut outs.
- D. Indicate glass opening sizes and locations, glass types, and glazing details.

##### 1.4 DELIVERY, STORAGE AND PROTECTION

- A. Protect products under provisions of Section 01600.
- B. Protect frames with resilient packaging.

#### PART 2 PRODUCTS

##### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements herein, provide products from one of the following:
  - 1. Alcoa Magnolia Operations.
  - 2. Raco Division of United States Aluminum.
  - 3. Wilson Partitions
- B. Products specified and detailed are based on Raco products.
- C. Substitutions: Under provisions of Section 01600.
- D. Acceptable Products:
  - 1. Interior Door Frames: Raco Altura Solutions Interior Office Fronts, with fixed throat frames to accommodate wall thicknesses indicated on Drawings; height as indicated on Drawings; with applied full face trim of 1-1/2 inch width.
  - 2. Interior Borrowed Light and Storefront Framing: Race Altura Solutions Office Fronts, fixed throat frames to accommodate wall thicknesses indicated on Drawings; height as indicated on Drawings with applied full face trim of 1-1/2 inch width.

##### 2.2 FRAMES

- A. Frames: ASTM B 221, 606B-T5 alloy, 0.062 inch thick (0.130 inch thick at anchorage and reinforcement areas) extruded aluminum material, knock-down style.

##### 2.3 ACCESSORIES

- A. Silencers: Nylon backed wool pile, continuous.
- B. Anchors: Three per jamb, typically, of type to suit supportive construction.
- C. Fasteners: Cadmium or zinc plated steel.

- D. Glazing Splines: Resilient PVC or neoprene, as standard with manufacturer.
- 2.4 FABRICATION
- A. Fabricate frames for knock down field assembly.
  - B. Fabricate frames with hardware reinforcement plates welded in place. Provide lock bolt guard boxes.
  - C. Reinforce frames wider than 48 inches with roll formed steel channels fitted tightly into frame head, flush with top.
  - D. Fabricate to profiles as shown, with throat size to accommodate wall construction.
  - E. Attach fire rated label to each frame and door unit where label is required.
- 2.5 FINISH
- A. Factory Applied Paint Finish: Comply with AAMA(2603)603.8 and AA-DAF-45, factory applied backed enamel coating.
  - B. Color: Color to be selected by Architect from manufacturer's standard color range.
- 2.6 INSTALLATION
- A. Install frames in accordance with manufacturer's instructions.
  - B. Coordinate with wallboard construction for anchor placement.
  - C. Coordinate installation of glass and glazing.
  - D. Install roll formed steel reinforcement channels between 2 abutting frames. Anchor to structure and floor.
  - E. Set frames plumb, level, and true alignment, securely fastened to the floor and adjoining walls.
  - F. Install doors accurately in frames, maintaining specified clearances.
- 2.7 TOLERANCES
- A. Maximum Diagonal Distortion: 1/8 inch measured with straight edge, corner to corner.
- 2.8 ADJUSTING AND CLEANING
- A. Adjust hardware for smooth, quiet and balanced door movement.

**END OF SECTION**

## SECTION 08210

### FLUSH WOOD DOORS

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 1 - General Requirements, and Drawings are applicable to this Section.
- B. Section Includes:
  - 1. Flush wood doors; flush and flush glazed configuration; fire rated and non-rated.

##### 1.2 SUBMITTALS

- A. Submit under provisions of Section 01330.
- B. Shop Drawings: Illustrate door opening criteria elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, identify cutouts for glazing.
- C. Product Data: Indicate door core materials and construction; veneer species, type and characteristics; factory machining criteria, factory finishing criteria.
- D. Samples: Submit 2 samples of door construction, 12 x 12 inch in size cut from bottom corner of door.
- E. Samples: Submit [2samples of door veneer 12 x 12 inch in size illustrating [wood grain, stain color, and sheen.
- F. Manufacturer's Installation Instructions: Indicate special installation instructions.

##### 1.3 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain doors from single manufacturer to ensure uniformity in quality, appearance and construction.
- B. Perform work in accordance with AWI Quality Standard , Premium Grade.
- C. Finish doors in accordance with AWI Quality Standard Section 1500, grades identified in schedule. Veneer and finish to match adjacent paneling and trim at Room 101.
- D. Provide only 5 ply architectural doors.
- E. Qualifications
  - 1. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum 3 years documented experience.

##### 1.4 REGULATORY REQUIREMENTS

- A. Fire Door Construction: Conform to ASTM E 152, NFPA 252, and UL 10C.
- B. Installed Fire Rated Door Assembly Conform to NFPA 80 for fire rated class as scheduled.

##### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Package, deliver and store doors in accordance with AWI Section 1300. Protect doors with resilient packaging. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges if stored more than one week. Break seal on-site to permit ventilation.
- C. Comply with manufacturer's instructions and with requirements of NWWDA pamphlets "Recommended Handling and Finishing Instructions for Wood Fire Doors" and "How to Store, Handle, Finish, Install and Maintain Wood Doors."
- D. Deliver to site after wet construction operations are completed and dry and building has reached average prevailing relative humidity.
- E. Deliver in manufacturer's original unopened protective covering or container, clearly marked with manufacturer's name, brand name and identifying door opening number on covering.

- F. Storage:
    - 1. Store in clean, dry, ventilated area protected from sunlight.
    - 2. Avoid extreme heat, cold, dryness or humidity.
    - 3. Store flat over level surface above floor on wood blocking.
    - 4. Under bottom door and over top of stack, furnish plywood or corrugated cardboard for protection.
  - G. Handling: Do not drag doors across one another or across other surfaces.
- 1.6 FIELD MEASUREMENTS
- A. Verify that field measurements are as indicated on shop drawings.
- 1.7 COORDINATION
- A. Coordinate work under provisions of Section 01310.
  - B. Coordinate the work with door opening construction, door frame and door hardware installation, and keying schedule.
- 1.8 WARRANTY
- A. Provide warranty under provisions of Section 01780 to the following term:
  - B. Life of Installation: Interior doors.
  - C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, telegraphing core construction.
  - D. Include hanging, installation of hardware and refinishing which may be required due to repair or replacement of defective doors.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements indicated, provide products of one of the following:
  - 1. Marshfield Door Company.
  - 2. Eggers Industries.
  - 3. Algoma Hardwoods, Inc.
  - 4. VT Industries, Inc.
- B. Substitutions: Under provisions of Section 01600.

### 2.2 DOOR TYPES

- A. Flush Interior Doors: 1-3/4 inches thick; solid core construction, fire rated as indicated.

### 2.3 DOOR CONSTRUCTION

- A. Core (Solid, Non-Rated): AWI Section 1300, Type PC Bonded Particle Core.
- B. Core (Solid, Fire Rated): AWI Section 1300, Types as scheduled.

### 2.4 FLUSH DOOR FACING

- A. Wood Veneer Facing - Flush Interior Doors: AWI Premium quality; Vertical grain, Douglas Fir. Where adjacent to paneling at Room 101, veneers and finish shall match and be coordinated.

### 2.5 ADHESIVE

- A. Facing Adhesive: Type II - water resistant.

### 2.6 ACCESSORIES

- A. Glazing Stops: Rolled steel shape, mitered corners; prepared for countersink style tamper proof screws, capable of meeting fire ratings scheduled.

### 2.7 FABRICATION

- A. Fabricate non-rated doors in accordance with AWI Quality Standards requirements.

- B. Fabricate fire rated doors in accordance with AWI Quality Standards and to UL requirements. Attach fire rating label to door.
- C. Astragals for Fire Rated Double Doors: Steel, Z shaped, overlapping and recessed at face edge, specifically for double doors.
- D. Provide lock blocks at lock edge and top of door for closer for hardware reinforcement.
- E. Vertical Exposed Edge of Stiles: Of same species as veneer facing for transparent finish.
- F. Fit door edge trim to edge of stiles after applying veneer facing.
- G. Bond edge banding to cores.
- H. Factory machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware. Provide solid blocking for through bolted hardware.
- I. Factory pre-fit doors for frame opening dimensions identified on shop drawings.

## 2.8 FINISH

- A. Refer to section 09910. Coordinate finish with other Douglas Fir plywood and trim.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify frame opening conditions under provisions of Section 01450.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

### 3.2 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions.
- B. Install [fire rated] [and] [non-rated] doors in accordance with AWI Quality Standard [,NFPA 80] and to Warnock Hersey requirements.
- C. Trim non-rated door width by cutting equally on both jamb edges.
- D. Trim door height by cutting bottom edges to a maximum of 3/4 inch. Trim fire door height at bottom edge only, in accordance with fire rating requirements.
- E. Pilot drill screw and bolt holes.
- F. Machine cut for hardware. Core for handsets and cylinders.
- G. Coordinate installation of doors with installation of frames specified in Section 08110 and hardware specified in Section 08710.
- H. Coordinate installation of glass and glazing.

### 3.3 INSTALLATION TOLERANCE

- A. Conform to AWI requirements for fit and clearance tolerances.
- B. Maximum Diagonal Distortion (Warp): 1/8 inch measured with straight edge or taught string, corner to corner, over an imaginary 36 by 84 inch surface area.
- C. Maximum Vertical Distortion (Bow): 1/8 inch measured with straight edge or taught string, top to bottom, over an imaginary 36 by 84 inch surface area.
- D. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taught string, edge to edge, over an imaginary 36 by 84 inch surface area.

### 3.4 ADJUSTING

- A. Adjust work under provisions of Section 01770.
- B. Adjust door for smooth and balanced door movement.

END OF SECTION

## SECTION 08410

### ALUMINUM-FRAMED STOREFRONTS AND WINDOWS

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 1 - General Requirements, and Drawings are applicable to this Section.
- B. Section Includes:
  - 1. Aluminum doors, frames and glazed lights.
  - 2. Anchors, brackets, and attachments.
  - 3. Door hardware.
  - 4. Perimeter sealant.

##### 1.2 SYSTEM DESCRIPTION AND PERFORMANCE

- A. Architectural Requirements
  - 1. Drawings are diagrammatic and do not purport to identify or solve problems of thermal or structural movement, glazing or anchorage.
  - 2. Requirements shown by details are intended to establish basic dimensions of units, sightlines and profiles of members.
  - 3. Provide concealed fastening wherever possible.
- B. Structural Requirements
  - 1. System to provide for expansion and contraction within system components caused by a cycling temperature range of 170 F degrees without causing detrimental effects to system or components.
  - 2. Design and size members to withstand dead loads and live loads caused by pressure and suction of wind as calculated in accordance with building code, and measured in accordance with ANSI/ASTM E 330.
  - 3. Limit mullion deflection to L/200, or flexure limit of glass with full recovery of glazing materials, whichever is less.
  - 4. System to accommodate, without damage to system or components, or deterioration of perimeter seal: Movement within system; movement between system and perimeter framing components; dynamic loading and release of loads; and deflection of structural support framing.
  - 5. Storefront manufacturer shall be responsible for design and engineering of storefront system, including necessary modifications to meet specified requirements and maintaining visual design concepts.
  - 6. Attachment considerations shall take into account site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening or fracturing connection between units and building structure or between units themselves.
  - 7. Design anchors, fasteners and braces to be structurally stressed not more than 50% of allowable stress when maximum loads are applied.
  - 8. Engineer storefront and entrances to be free from rattles, wind whistles and noise due to thermal and structural movement and wind pressure.
- C. Environmental Requirements
  - 1. Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior. No leakage shall occur in wall when tested in accordance with ASTM E 331 at test pressure of 2.86 pounds per square foot.
  - 2. Limit air infiltration through assembly to 0.06 cu ft/min/sq ft of assembly surface area, measured at a reference differential pressure across assembly of 1.57 lbs/sq ft. as measured in accordance with ANSI/ASTM E 283.
  - 3. Maintain continuous air and vapor barrier throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

### 1.3 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 01330.
- B. Include system and component dimensions; descriptive literature on components within assembly; framed opening requirements and tolerances; anchorage and fasteners; glass and infills; door hardware requirements; and affected related work.
- C. Submit manufacturer's installation instructions under provisions of Section 01330.
- D. Submit samples under provisions of Section 01330.
- E. Submit 2 samples, illustrating prefinished aluminum surface (4 by 4 inches) and specified glass (12 by 12 inches).

### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with AAMA SFM-1 and AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.
- B. Conform to requirements of ANSI A117.1 and local accessibility amendments.

### 1.5 QUALIFICATIONS

- A. Manufacturer and Installer: Company specializing in manufacturing aluminum glazing systems with minimum 3 years documented experience.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and handle system components under provisions of Section 01600.
- B. Store and protect system components under provisions of Section 01600.
- C. Provide wrapping to protect prefinished aluminum surfaces.

### 1.7 COORDINATION

- A. Manufacturer shall be responsible for details and dimensions not controlled by job conditions and shall show on his shop drawings required field measurements beyond his control.
- B. Coordinate with responsible trades to establish, verify and maintain field dimensions and job conditions.

### 1.8 ENVIRONMENTAL CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F during and 48 hours after installation.

### 1.9 WARRANTY

- A. Provide 2 year warranty jointly signed by manufacturer and installer under provisions of Section 01780.
- B. Warranty: Cover complete system for failure to meet specified requirements.

### 1.10 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings and as instructed by the manufacturer.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements herein, provide products from one of the following:
  - 1. Kawneer Company, Inc.
  - 2. US Aluminum.
  - 3. Vistawall Architectural Products.
  - 4.
- B. Substitutions: Under provisions of Section 01600.
- C. The products listed below are based on Vistawall as a standard of quality.

## 2.2 ACCEPTABLE PRODUCTS

- A. Vistawall HP-1750, front set, exterior loaded, thermally broken system, 1-3/4" x 6-3/4" mullion profile, (at south wall Room 101).
- B. Vistawall 3000 Thermal Multiplane, glass set as indicated on drawings, thermally broken, 2" x 4-1/2" mullion profile, (at other exterior locations except Lobby #100).
- C. Sash Storefront System: Vistawall S52 and S54 sash units (at chimney framing) for 1" glazing.
- B. Door style: Design standard: Narrow Stile.

## 2.3 MATERIALS

- A. Extruded Aluminum: ANSI/ASTM B 221; 6060-T5 alloy, temper.
- B. Sheet Aluminum: ASTM B 209; 5005-H16 alloy, temper.
- C. Fasteners: Stainless steel.

## 2.4 FABRICATED COMPONENTS

- A. General: Form section true to details with clean, straight, sharply defined profiles, free from defects impairing strength or durability.
- B. Frames: 1-3/4 and 2 wide by 4-1/2 inch profile, thermally broken with interior portion of frame insulated from exterior portion, flush glazing stops. Frames for interior glazing need not be thermally broken.
- C. Doors: 1-3/4 inches thick, fabricated of 3/16 inch wall thickness, stile and rail widths as selected by Architect; welded corners; square glazing stops for insulated glass units; beveled glazing stops for single glazed units.
- D. Flashings: Form from sheet aluminum with same finish as extruded sections. Apply finish after fabrication. Material thickness as required to suit condition without deflection or "oil canning".

## 2.5 GLASS AND GLAZING MATERIALS

- A. Glass and Glazing Materials: As specified in Section 08800.

## 2.6 SEALANT MATERIALS

- A. Sealant and Backing Materials: As specified in Section 07920 of types described below

## 2.7 HARDWARE

- A. Weatherstripping: Polymeric Sealair Weathering system, continuous at head, jamb, sill, and meeting stile.
- B. Balance of Hardware: Refer to Section 08710.

## 2.8 FABRICATION

- A. Fabricate doors and frames allowing for minimum clearances and shim spacing around perimeter of assembly, yet enabling installation.
- B. Rigidly fit and secure joints and corners with internal reinforcement, except that door corners will be welded. Make joints and connections flush, hairline, and weatherproof.
- C. Develop drainage holes with moisture pattern to exterior.
- D. Prepare components to receive anchor devices. Fabricate anchorage items.
- E. Arrange fasteners, attachments, and jointing to ensure concealment from view.
- F. Prepare components with internal reinforcement for door hardware.
- G. Reinforce framing members for imposed loads.

## 2.9 FINISHES

- A. Aluminum: Black anodized

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this Section.
- B. Verify dimensions, tolerances, and method of attachment with other work.
- C. Beginning of installation means acceptance of existing conditions.

### **3.2 INSTALLATION**

- A. Install wall system, doors, and glazing in accordance with manufacturer's instructions and AAMA - Metal Curtain Wall, Window.
- B. Use anchorage devices to securely attach frame assembly to structure.
- C. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- D. Install sill flashings.
- E. Coordinate attachment and seal of air and vapor barrier materials. Install sill flashings.
- F. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- G. Install hardware using templates provided. Refer to Section 08710 for installation requirements.
- H. Install glass [and infill panels] in accordance with Section 08810, using exterior dry method of glazing.
- I. Install perimeter 2 part polyurethane type sealant, backing materials, and installation requirements in accordance with Section 07920.
- J. Adjust operating hardware for smooth operation.

### **3.3 TOLERANCES**

- A. Maximum Variation from Plumb: 0.06 inches every 3 feet non-cumulative or 1/16 inches per 10 feet, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

### **3.4 ADJUSTING**

- A. Adjust work under provisions of Section 01770.
- B. Adjust operating hardware [and sash] for smooth operation.

### **3.5 CLEANING/REPAIRING/REPLACEMENT**

- A. Remove protective material from prefinished aluminum surfaces.
- B. Wash down exposed surfaces using a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.
- D. Replace scratched, cracked, chipped or otherwise damaged glass and framing.

### **3.6 PROTECTION OF FINISHED WORK**

- A. Protect finished work under provisions of Section 01500.
- B. Protect finished work from damage.

**END OF SECTION**

## SECTION 08710

### DOOR HARDWARE

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes: Furnish and deliver all items of finish hardware required to adequately trim and hang all doors, as is hereinafter specified and listed in the hardware sets. This further includes hardware for doors and frames of unusual profile or shape or other special conditions. Hardware shall be provided with all necessary standard and special fasteners, screws, bolts, expansion shields or anchors to properly secure hardware to its intended door, frame or other surface.
- B. Related Sections: Other Sections within this specification which relate to products supplied and installed under finish hardware are as follows, but not limited to:
- |                         |               |
|-------------------------|---------------|
| 1. Aluminum Door Frames | Section 08125 |
| 2. Flush Wood Doors     | Section 08210 |
| 3. Aluminum Storefront  | Section 08410 |

##### 1.2 REFERENCES

- A. The following documents should be used in estimating and detailing and considered as a standard of quality and performance, if applicable:
- |               |  |
|---------------|--|
| 1. I.B.C.     | International Building Code 2003 Edition.  |
| 2. NFPA-80    | Fire Doors & Windows (current year adopted).   |
| 3. NFPA-101   | Life Safety Code (current year adopted).   |
| 4. NFPA-105   | Smoke Control Door Assembly. (current year adopted)                                      |
| 5. ANSI-117.1 | Current Edition Providing Accessibility and Usability for Physically Handicapped People. |
| 6. A.D.A.A.G  | Americans with Disabilities Act Accessibility Guidelines.                                |
| 7. T.A.S.     | Texas Accessibility Standards.   |

##### 1.3 SUBMITTALS

- A. General Requirements: Make all submittals in accordance with Section 01300.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
- |                        |  |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
|------------------------|--|----|--|----|----------------------------|----|---|----|---|----|---|----|---------------------------------------|----|-------------------------------------|
| 1. Format:             | Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."  |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| 2. Organization:       | Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.  |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| 3. Content:            | Include the following information: <table><tr><td>a.</td><td>Type, style, function, size, label, hand, and finish of each door hardware item.</td></tr><tr><td>b.</td><td>Manufacturer of each item.</td></tr><tr><td>c.</td><td>Fastenings and other pertinent information.</td></tr><tr><td>d.</td><td>Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.</td></tr><tr><td>e.</td><td>Explanation of abbreviations, symbols, and codes contained in schedule.</td></tr><tr><td>f.</td><td>Mounting locations for door hardware.</td></tr><tr><td>g.</td><td>Door and frame sizes and materials.</td></tr></table> | a. | Type, style, function, size, label, hand, and finish of each door hardware item. | b. | Manufacturer of each item. | c. | Fastenings and other pertinent information. | d. | Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule. | e. | Explanation of abbreviations, symbols, and codes contained in schedule. | f. | Mounting locations for door hardware. | g. | Door and frame sizes and materials. |
| a.                     | Type, style, function, size, label, hand, and finish of each door hardware item.   |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| b.                     | Manufacturer of each item.   |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| c.                     | Fastenings and other pertinent information.  |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| d.                     | Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.  |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| e.                     | Explanation of abbreviations, symbols, and codes contained in schedule.  |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| f.                     | Mounting locations for door hardware.  |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| g.                     | Door and frame sizes and materials.  |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |
| 4. Submittal Sequence: | Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data,   |    |  |    |                            |    |   |    |   |    |   |    |                                       |    |                                     |

Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule..

- B. Product Data: Provide a catalog cut, clearly marked and identified, illustrating and describing each product included in the Hardware Schedule. Formulate these catalog cuts into sets and include a set with each copy of the Hardware Schedule submitted.
- C. Samples: If so requested by the Architect, provide a sample of any product or item requested, properly marked and tagged, for the opening for which it is intended.
- D. Templates: Provide copies of templates to manufacturers or trades whose work includes preparation of their products to receive hardware.
- F. Keying: Provide a keying schedule, listing the levels of keying, (GGMK, GKD, MKD or KA) as well as an explanation of the key system's function, the key symbols used and the numbers of the doors controlled. Provide in conjunction with the Door Index/Keying Schedule (which lists the door number, schedule heading, lock type and individual key symbol and remarks or special instructions) mentioned in above. Project shall be Masterkeyed and/or Grand Masterkeyed and provide two (2) keys per lockset or cylinder.
- G. Wiring Diagrams: For any electrified hardware furnished on this project, provide complete wiring diagrams along with riser drawings and elevations, showing locations where such material is to be installed. These documents shall be submitted with Hardware Schedule. Verify and coordinate with the electrical systems installer. Integration shall take effect into central system as specified by Owner.
- H. Operations and Maintenance Data: Provide latest, revised and updated schedule of finish hardware, complete with catalog cuts and keying schedule. In addition, furnish one (1) copy of maintenance and parts manuals for those items for which they are readily available and normally provided. Submit in accordance with provisions of Section 01782.

#### 1.4 QUALITY ASSURANCE

- A. Substitutions: Request for substitutions for alternative hardware items will not be accepted on this project. Specification indicates one (1) specified and two (2) acceptable alternative manufacturers' products listed hereinafter in the Hardware Schedule. If any specified product is listed as a "No Substitution" product, the specified product shall be supplied as specified.
- B. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Supplier Qualifications: Door hardware supplier with warehousing facilities in Project's vicinity and who is or employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
  - 1. The hardware supplier shall be engaged regularly in the furnishing, delivery and servicing of contract builder's hardware and must be experienced and knowledgeable in all phases of estimating, detailing, scheduling, masterkeying, shipping and installation practices.
  - 2. When electro-mechanical or electronic hardware is supplied, a qualified individual with a minimum five- (5) year's experience shall be available for assistance.
- D. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.
- E. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
- F. Regulatory Requirements: Comply with provisions of the following:
  - 1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," and ANSI A117.1.
- G. Fire-Rated Door Assemblies: Provide door hardware for 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 252.

- H. Although multiple manufacturers are listed, obtain each type of hardware (hinges, latch & locksets, exit devices, closers, etc.) from a single manufacturer.
- J. Keying Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
  - 1. Set up a new factory masterkeyed system for Owner.
  - 2. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
  - 3. Preliminary key system schematic diagram.
  - 4. Requirements for key control system.
  - 5. Address for delivery of keys.
  - 6. Location of Key Cabinet.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Marking and Packaging: All items of hardware shall be delivered to the jobsite in the manufacturer's original cartons or boxes. Each item of hardware shall be marked with the abbreviation set forth on the shop drawings to insure that the product reaches its installation destination without needing specific hardware product number knowledge.
- B. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- C. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

#### 1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements
- B. Electrical System Roughing-in: Coordinate layout and installation of electrified door hardware with connections to power supplies.

#### 1.7 MAINTENANCE

- A. 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 door hardware.
- B. Maintenance Service: If there are any products listed hereinafter that normally require a maintenance or service contract, provide the Owner and Architect with details and costs of said contract.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURES

- A. Products listed in the following with an asterisk (\*) shall denote specified manufacturers in Hardware Schedule. The remaining two (2) listed manufacturers will be acceptable substitutions. If only one manufacturer is listed this shall be considered a "No Substitution" specification, as set forth in "Quality Assurance" Article.

#### 2.2 MATERIALS

- A. Screws and Fasteners: Provide all screws and fasteners of the proper size and type to properly anchor or attach the item of hardware scheduled. Provide all fasteners with Phillips heads, unless security type screws (spanner-head or torx-head) are hereinafter specified.
- B. Hinges: Where hinges are specified, they shall be as follows:
  - 1. On doors to exterior openings and main corridor doors, and other doors of high frequency use, provide a continuous, gear type hinge of appropriate weight. For exterior outswinging

- doors, provide set screw in barrel making hinge non-removable when door is closed.
- 2. Where regular ball bearing hinges are listed for other doors, provide one hinge for each 30-inch of door height.
- 3. The width of the hinges shall be sufficient to clear all trim that is mounted to the doorframe.
- 4. ACCEPTABLE MANUFACTURERS----Ives\*, Stanley, Hager.
- C. Pivots: Provide pivots where specified. Follow manufactures requirements for number of pivots and weight limitations.
  - 1. Standard warranty shall be for the life of opening.
  - 2. ACCEPTABLE MANUFACTURERS----Ives\*, Rixson, ABH.
- D. Floor Closers: Provide where specified.
  - 1. ACCEPTABLE MANUFACTURERS----Rixson\*
- E. Locks: All locks shall incorporate a six pin tumbler keying system. Keying system must be guaranteed of no duplication of change keys, master keys or grandmaster keys located in this project. All keying must be coordinated with architect/owner. All locks shall be Grade 1 operational cylindrical as is hereinafter listed in the Hardware Schedule.
  - 1. ACCEPTABLE MANUFACTURERS----Schlage\*.
- F. Lock Trim: Cylindrical locks are to be furnished with lever handle trim, with levers having a return to within 1/2 inch of the door face, as is hereinafter listed in the Hardware Schedule.
- G. Flush Bolts: Manual flush bolts to have 12-inch rods for doors 7'6". Doors over 7'6" high shall have bolts with top rods of 24 inch to allow ease of access to bolt lever. Furnish dust proof strikes for all bottom bolts.
  - 1. ACCEPTABLE MANUFACTURERS----Ives\*, Trimco, Rockwood.
- H. Exit Devices: Exit Devices shall be rim or vertical rod type as called for in the Hardware Schedule. Devices shall be of the touch-pad type as is hereinafter specified in the Hardware Schedule. Exit devices must be constructed as to allow the cylinder to be removed and rekeyed, without removing the device from the door either by removable core cylinders or construction of exit device. Exit devices must be constructed as to allow the conversion from one function to another simply within lock stile case and selecting proper outside trim as specified hereinafter in the Hardware Schedule. Devices to be furnished with outside trim, which has matching lever handles to locks. Touch pads shall be stainless steel.
  - 1. ACCEPTABLE MANUFACTURERS----Von Duprin\*, Corbin-Russwin, Falcon.
- I. Surface Door Closers: Door closers shall be of cast iron or aluminum and be of rectangular design and furnished with a full cover. They shall be furnished with backcheck, delayed action and hold- open as listed in the Hardware Schedule. Closers shall be mounted out of the line of sight wherever possible (i.e., room side of corridor doors, etc.) with parallel arm mounting on out swinging doors. Mount closers top jamb or on brackets and/or drop plates, where special conditions call for it. Adjustable opening force and delayed closing in accordance with applicable accessibility code. Provide concealed closers where specified.
  - 1. ACCEPTABLE MANUFACTURERS----LCN, Falcon, Sargent.
- J. Door Pulls: Door pulls to be ADA compliant with a 2 1/2 inch projection from back of pull to face of door. All door pulls to be thru bolted or back to back mounting.
  - 1. ACCEPTABLE MANUFACTURERS----Ives\*, Trimco, Rockwood.
- K. Protective Plates: Protective plates shall be mop (6"), kick (10") or armor (34") and shall be .050 brass, bronze or stainless steel, with three (4) beveled edges, drilled and countersunk for screws. Plates to be mounted to avoid louvers and/or glass kits.
  - 1. ACCEPTABLE MANUFACTURERS----Ives\*, Trimco, Rockwood.
- L. Door Stops and Holders: Where a door strikes a wall at approximately 90 degrees, a suitable door stop shall be provided, either a wall bumper or floor stop. Where doors are undercut, provide floor stops with adequate height to properly stop the door. If door does not strike a wall, an overhead stop shall be required. Provide proper blocking for wall bumpers at stud walls and in frame and door for overhead stops.
  - 1. ACCEPTABLE MANUFACTURERS----Ives\*, Trimco, Glynn-Johnson\*.

M. Thresholds and Weatherstrip: Weatherstripping to have aluminum housing and specified insert, and have elongated holes. Door sweeps to be surface mounted of aluminum/stainless steel housing with specified insert. Thresholds shall be of saddle type with no more than 1/2 inch in rise. Weatherstripping and smoke seals must be surface mounted on doorstop and have 1/4" adjustment slots.

1. ACCEPTABLE MANUFACTURERS----NGP\*, Hager, DHSI\*.

### 2.3 FINISHES

A. Hardware finishes shall match and be maintained to BHMA symbols, as is specified hereinafter in the Hardware Schedule. Strict adherence to base metals and finish is required.

### 2.4 KEYING

A. Keying of locks and cylinders throughout project shall be scheduled through a key meeting with Architect, owner and hardware supplier. Key schedule shall be prepared and submitted to the Owner for approval. Copies of final key schedule with the bitting instructions shall be submitted as part of the Project Record Documents.

### 2.5 KEY CONTROL

A. Provide key cabinet(s) manufactured by of sufficient capacity to handle all keys, plus 50 percent expansion. Provide key control cross-reference chart and accountability (sign-out) tags.  
ACCEPTABLE MANUFACTURERS: Telkee\*, Lund, Larson.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Steel Doors and Frames: Comply with DHI A115 series.
  - 1. Surface-Applied Door Hardware: Drill and tap doors and frames according to SDI 107.
- B. Wood Doors: Comply with DHI A115-W series.

### 3.3 INSTALLATION

- A. Installation shall be by a qualified installer with a minimum five- (5) year's experience in the installation of commercial grade hardware. Manufacturer's instructions shall dictate templating and installation.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- C. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.

- 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- D. Key Control System: Place keys on markers and hooks in key control system cabinet, as determined by final keying schedule.
- E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

3.4 FIELD QUALITY CONTROL

- A. A final inspection shall take place by the hardware installer and hardware supplier to insure correct installation and operation, and check for any damaged or defective items. Observe and inspect that all hardware has been installed to its correct destination in proper working order.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
  - 1. Door Closers: Adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.
- B. At completion of the installation and before turn over of the project, make final adjustments to door closures and other items of hardware. Leave all hardware clean and fully operable. Should any item be found to be defective, it shall be repaired or replaced as directed.

3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.8 HARDWARE SCHEDULE

**Hardware Group No. 001: Provide each PR door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
1		HARDWARE BY PARTITION MANUFACTURER		

**Hardware Group No. 103AT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
4	EA HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA ENTRANCE LOCK	ND53PD OME	626	SCH
1	EA DOOR STOP	WS407CCV OR FS436 AS REQ	626	IVE
1		PERIMETER SEAL BY FRAME MANUFACTURER		

**Hardware Group No. 201T: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
4	EA HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA STOREROOM LOCK	ND80PD OME	626	SCH
1	EA SURFACE CLOSER	4031 MTG BRKTS, SPCRS AND PLATE AS REQ	626	LCN
1	EA DOOR STOP	WS407CCV OR FS436 AS REQ	626	IVE
1	SET SEAL/SILENCERS	5050B H & J (AT RATED OPENINGS) OR BRN SILENCERS		NGP

**Hardware Group No. 203ABT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
4	EA HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA STOREROOM LOCK	ND80PD OME	626	SCH
1	EA ROLLER BUMPER	RB471/RB472	626	IVE
1		PERIMETER SEAL BY FRAME MANUFACTURER		

**Hardware Group No. 207AT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
4	EA HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA STOREROOM LOCK	ND80PD OME	626	SCH
1	EA SURFACE CLOSER	4031 MTG BRKTS, SPCRS AND PLATE AS REQ	626	LCN
1	EA OVERHEAD STOP	450S SIZE AS REQ	630	GLY
1		PERIMETER SEAL BY FRAME MANUFACTURER		

**Hardware Group No. 307AXT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
4	EA HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA PRIVACY SET	ND40S OME	626	SCH
1	EA SURFACE CLOSER	4031 MTG BRKTS, SPCRS AND PLATE AS REQ	626	LCN
1	EA OVERHEAD STOP	450S SIZE AS REQ	630	GLY
1	EA MORTISE DOOR BOTTOM	AMDB3-2 X AMU	BLK	DHS
1		PERIMETER SEAL BY FRAME MANUFACTURER		

**Hardware Group No. 403AT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
4	EA HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA PASSAGE SET	ND10S OME	626	SCH
1	EA DOOR STOP	WS407CCV OR FS436 AS REQ	626	IVE
1		PERIMETER SEAL BY FRAME MANUFACTURER		

**Hardware Group No. 501AHT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
4	EA HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA CLASSROOM LOCK	ND70PD OME	626	SCH
1	EA SURFACE CLOSER	4031 MTG BRKTS, SPCRS AND PLATE AS REQ	626	LCN
1	EA WALL STOP & HOLDER	WS45	626	IVE
1		PERIMETER SEAL BY FRAME MANUFACTURER		

**Hardware Group No. 502S1: Provide each PR door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
8	EA HINGE	5BB1 4.5 X 4.5	652	IVE
2	EA MANUAL FLUSH BOLT	FB458 (24" TOP)	626	IVE
1	EA DUST PROOF STRIKE	DP2	626	IVE
1	EA CLASSROOM LOCK	ND70PD OME	626	SCH
1	EA OVERHEAD STOP	450S SIZE AS REQ (ACTIVE LEAF)	630	GLY
1	EA DOOR STOP	WS407CCV OR FS436 AS REQ (INACTIVE LEAF)	626	IVE
2	EA SILENCER	SR64 OR SR65	GRY	IVE

**Hardware Group No. 502S3: Provide each PR door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
8	EA HINGE	5BB1 4.5 X 4.5	652	IVE
2	EA MANUAL FLUSH BOLT	FB458 (24" TOP)	626	IVE
1	EA DUST PROOF STRIKE	DP2	626	IVE
1	EA CLASSROOM LOCK	ND70PD OME	626	SCH
1	EA OVERHEAD STOP	450S SIZE AS REQ (INACTIVE LEAF)	630	GLY
1	EA DOOR STOP	WS407CCV OR FS436 AS REQ (ACTIVE LEAF)	626	IVE
2	EA SILENCER	SR64 OR SR65	GRY	IVE

**Hardware Group No. 502ST: Provide each PR door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
8	EA HINGE	5BB1 4.5 X 4.5	652	IVE
2	EA MANUAL FLUSH BOLT	FB458 (24" TOP)	626	IVE
1	EA DUST PROOF STRIKE	DP2	626	IVE
1	EA CLASSROOM LOCK	ND70PD OME	626	SCH
2	EA OVERHEAD STOP	450S SIZE AS REQ	630	GLY
2	EA SILENCER	SR64 OR SR65	GRY	IVE

**Hardware Group No. 507AHT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
4	EA HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA CLASSROOM LOCK	ND70PD OME	626	SCH
1	EA SURFACE CLOSER	4031 MTG BRKTS, SPCRS AND PLATE AS REQ	626	LCN
1	EA OVERHEAD HOLDER	450H SIZE AS REQ	630	GLY
1		PERIMETER SEAL BY FRAME MANUFACTURER		

**Hardware Group No. 715AT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
1	SET PIVOT SET	7226	626	IVE
2	EA PIVOT	7226 INT	626	IVE
1	EA PANIC HARDWARE	CD33A-NL-OP LENGTH AS REQ	626	VON
1	EA RIM CYLINDER	20-022	626	SCH
1	EA MORTISE CYLINDER	26-021 X XQ11-947	626	SCH
1	EA OFFSET DOOR PULL	8190-0	630	IVE
1	EA SURFACE CLOSER	4031 SCUSH MTG BRKTS, SPCRS AND PLATE AS REQ	626	LCN
1	EA DOOR SWEEP	200NA LENGTH AS REQ	AL	NGP
1	EA THRESHOLD	896V LENGTH AS REQ	AL	NGP
1		PERIMETER SEAL BY FRAME MANUFACTURER		

**Hardware Group No. 750GHT: Provide each PR door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
8	EA HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA PANIC HARDWARE	9947(WDC)L-DT 996L-DT #16 LGTH & HGHT AS REQ	626	VON
1	EA PANIC HARDWARE	9947(WDC)L 996L #16 LGTH & HGHT AS REQ	626	VON
1	EA RIM CYLINDER	20-022	626	SCH
1	SET ASTRAGAL	672A	CLR	NGP

2	EA CONCEALED CLOSER	2030	626	LCN
2	EA WALL STOP & HOLDER	WS45	626	IVE
1	EA SOUND SEAL	#105 "CUSH 'N' SEAL" X HEAD AND JAMBS	BLK	DHS

**Hardware Group No. 754AT: Provide each PR door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
2	SET PIVOT SET	7226	626	IVE
4	EA PIVOT	7226 INT	626	IVE
1	EA PANIC HARDWARE	CD3347A-EO LGTH & HGHT AS REQ	626	VON
1	EA PANIC HARDWARE	CD3347A-NL-OP LGTH & HGHT AS REQ	626	VON
1	EA RIM CYLINDER	20-022	626	SCH
2	EA MORTISE CYLINDER	26-021 X XQ11-947	626	SCH
2	EA OFFSET DOOR PULL	8190-0	630	IVE
2	EA CONCEALED CLOSER	2030	626	LCN
2	EA FLOOR STOP	FS441	626	IVE
2	EA DOOR SWEEP	200NA LENGTH AS REQ	AL	NGP
1	EA THRESHOLD	896V LENGTH AS REQ	AL	NGP
1		MEETING STILE SEAL BY FRAME MANUFACTURER		
1		PERIMETER SEAL BY FRAME MANUFACTURER		

MOUNT STOP TO AVOID TRIPPING HAZARD

**Hardware Group No. 755AT: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
1	SET PIVOT SET	7226	626	IVE
2	EA PIVOT	7226 INT	626	IVE
1	EA PANIC HARDWARE	CD33A-NL-OP LENGTH AS REQ	626	VON
1	EA RIM CYLINDER	20-022	626	SCH
1	EA MORTISE CYLINDER	26-021 X XQ11-947	626	SCH
1	EA OFFSET DOOR PULL	8190-0	630	IVE
1	EA CONCEALED CLOSER	2030	626	LCN
1	EA FLOOR STOP	FS441	626	IVE
1	EA DOOR SWEEP	200NA LENGTH AS REQ	AL	NGP
1	EA THRESHOLD	896V LENGTH AS REQ	AL	NGP
1		PERIMETER SEAL BY FRAME MANUFACTURER		

MOUNT STOP TO AVOID TRIPPING HAZARD

**Hardware Group No. 768GRT: Provide each PR door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
2	EA FLOOR CLOSER	PH-F27 NHO X 180 (PIVOTS TO BE BHMA 640 FINISH)	626	RIX
4	SETINT PIVOT	FM19	626	RIX
1	EA FIRE EXIT HARDWARE	9947(WDC)L-DT-F 996L-DT #16 LGTH & HGHT AS REQ	626	VON
1	EA FIRE EXIT HARDWARE	9947(WDC)L-F 996L #16 LGTH & HGHT AS REQ	626	VON
1	EA RIM CYLINDER	20-022	626	SCH
1	SETASTRAGAL	672A	CLR	NGP
2	EA MAGNETIC HOLD- OPEN	SEM 1970 X TRANSFORMER AS REQ	AL	LCN
1	EA SOUND SEAL	#105 "CUSH 'N' SEAL" X HEAD AND JAMBS	BLK	DHS

HOLD OPENS TO RELEASE UPON ACTIVATION OF FIRE ALARM SYSTEM

**Hardware Group No. 768RT: Provide each PR door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
2	EA FLOOR CLOSER	PH-F27 NHO X 180 (PIVOTS TO BE BHMA 640 FINISH)	626	RIX
4	SETINT PIVOT	FM19	626	RIX
1	EA FIRE EXIT HARDWARE	9947(WDC)L-DT-F 996L-DT #16 LGTH & HGHT AS REQ	626	VON
1	EA FIRE EXIT HARDWARE	9947(WDC)L-F 996L #16 LGTH & HGHT AS REQ	626	VON
1	EA RIM CYLINDER	20-022	626	SCH
1	SETASTRAGAL	672A	CLR	NGP
2	EA MAGNETIC HOLD- OPEN	SEM 1970 X TRANSFORMER AS REQ	AL	LCN
1	SET SEAL/SILENCERS	5050B H & J (AT RATED OPENINGS) OR BRN SILENCERS		NGP

HOLD OPENS TO RELEASE UPON ACTIVATION OF FIRE ALARM SYSTEM

**Hardware Group No. 801: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
3	EA HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA DOOR PULL	215	630	ROC
1	EA PUSH PLATE	8200 4" X 16"	630	IVE
1	EA SURFACE CLOSER	4031 MTG BRKTS, SPCRS AND PLATE AS REQ	626	LCN
1	EA DOOR STOP	WS407CCV OR FS436 AS REQ	626	IVE
3	EA SILENCER	SR64 OR SR65	GRY	IVE

**Hardware Group No. 803T: Provide each SGL door(s) with the following:**

Quantity	Description	Model Number	Finish	Mfr
1	SET PIVOT SET	7253	626	IVE
1	EA ROLLER LATCH	RL30-A	626	IVE
1	EA FLUSH CUP PULL	17N	626	HAG
1	EA APPLIED STOP	AS895	626	IVE

**END OF SECTION**

## SECTION 08800

### GLAZING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Related Documents: General and Supplementary Conditions of the Contract, Division 1 - General Requirements, and Drawings are collectively applicable to this Section.
- B. Section Includes:
  - 1. Glass glazing for storefront glazing, windows and doors.
  - 2. Glazing accessories.
  - 3. Window (spandrel) panels

##### 1.2 PERFORMANCE REQUIREMENTS

- A. Size glass to withstand dead loads and positive and negative live loads acting normal to plane of glass as calculated in accordance with applicable code, to a design pressure of 20 lb/sq ft as measured in accordance with ANSI/ASTM E 330.
- B. Limit glass deflection to 1/200 or flexure limit of glass with full recovery of glazing materials, whichever is less.

##### 1.3 SUBMITTALS

- A. Submit product data under provisions of Section 01330.
- B. Submit samples under provisions of Section 01330.
- C. Submit 2 samples, 12 by 12 inches in size, illustrating glass unit, coloration, design.

##### 1.4 DELIVERY, STORAGE, AND PROTECTION

- A. Deliver products to site under provisions of Section 01600.
- B. Store and protect products under provisions of Section 01600.

##### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with FGMA Glazing Manual.

##### 1.6 ENVIRONMENTAL REQUIREMENTS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

##### 1.7 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop Drawings.

##### 1.8 COORDINATION

- A. Coordinate Work under provisions of Section 01310.
- B. Coordinate the Work with glazing frames, wall openings, and perimeter air and vapor seal to adjacent Work.

##### 1.9 WARRANTY

- A. Provide 5 year manufacturer's warranty under provisions of Section 01780.
  - 1. Warranty: Include coverage for
    - a. Reflective coating on mirrors and replacement of same.
    - b. Delamination of laminated glass and replacement of same.
- B. Provide 10 year manufacturer's warranty under provisions of Section 01780.
  - 1. Warranty: Include coverage for insulated glass units.

## PART 2 PRODUCTS

### 2.1 GLASS MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements indicated, provide products of one of the following:
  - 1. Pittsburgh Plate Glass (P.P.G.)
  - 2. Libby Owens Ford (L.O.F.)
  - 3. Viracon.
- B. Substitutions: Under provisions of Section 01600.

### 2.2 GENERAL

- A. Heat strengthened and/or temper glass lites as required by code and as recommended by manufacturer complying with ASTM C 1048 and ANSI Z97.1.
- B. Temper units without tong marks.
- C. Glass unit thicknesses are indicated as minimums, to be increased as required by wind loading and spans encountered. Glass manufacturer to prepare loading and span calculations to document thickness of glass.

### 2.3 GLASS MATERIALS

- A. Float Glass: ASTM C 1036, glazing select quality; 1/4 inch thick minimum.
- B. Safety Glass: ASTM C 1048, glazing select quality; Kind FT,(fully tempered) 1/4 inch thick minimum. Provide not less than 1/2 inch thick at butt glazed applications.
- C. Insulated Glass Units: SIGMA No. 64-7-2 double pane with glass to elastomer edge seal; outer pane of 1/4" thick clear glass with low E coating on no. 2 surface; inner pane of 1/4" thick clear glass; interpane space purged dry hermetic air; total unit thickness of 1 inch; fully temper both lights (per ASTM C1048) in doors and elsewhere as required by referenced codes; with black spacers.
  - 1. Acceptable Product: **PPG Solarban 60**
- D. Spandrel glass: Silicone painted or ceramic frit on #2 surface of 1" insulated glass unit

### 2.4 GLAZING COMPOUND MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements herein, provide products from one of the following:
  - 1. Pecora.
  - 2. General Electric.
  - 3. Dow Corning.
- B. Substitutions: Under provisions of Section 01600.

### 2.5 GLAZING COMPOUNDS

- A. Glazing Compound: FS TT-G-410; grey color.
- B. Butyl Sealant: FS TT-S-001657; Shore A hardness of 10- 20; black color; non-skinning.
- C. Silicone Sealant: FS TT-S-1543; Class A single component; solvent curing; capable of water immersion without loss of properties; cured Shore A hardness of 5; color as selected by Architect.
  - 1. Acceptable Products
    - a. 2001 Ultraclear Silicone Sealant, Dow Corning.
    - b. SCS 1201, General Electric.
    - c. Progtaze, Tremco.

### 2.6 GLAZING ACCESSORIES

- A. Setting Blocks: Neoprene; 70 to 90 Shore A durometer hardness; 4 inch long by 3/8 inch wide by 1/4 high.
- B. Spacer Shims: Neoprene; 50 Shore A durometer hardness; 3 inch long by 1/4 inch wide by 1/4 inch thick; self adhesive one face.
- C. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; black color.
  - 1. Acceptable Product: Tremco 440.

- D. Glazing Splines: Resilient polyvinylchloride extruded shape to suit glazing channel retaining slot, meeting ASTM D 1667, black color.
- E. Glazing Clips: Manufacturer's standard type.
- F. Mirror Mastic:
  - 1. Combination of asphaltic bitumens, fibers and mineral spirits.
  - 2. Acceptable Products:
    - a. 7HR4 Bedding Compound, Pecora.
    - b. Mirro-Mastic, Palmer Products Corporation.
- G. Setting Angles: 0.060 inch aluminum z-clips on T-angles sized as required.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify surfaces of glazing channels or recesses are clean, free of obstructions, and ready for work of this Section.
- B. Beginning of installation means acceptance of substrate.

### **3.2 PREPARATION**

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses.
- C. Prime surfaces scheduled to receive sealant.
- D. Carefully measure glass openings and provide minimum required tolerances and clearances.

### **3.3 GENERAL**

- A. Comply with manufacturers' recommended installation procedures and as outlined herein.
- B. Prevent nicks, abrasions and other damage likely to develop stress on edges.
- C. Comply with CPSC and MSGC for provisions of tempering of glass in and near doors and adjacent to walking surfaces, unless local codes are more stringent.

### **3.4 EXTERIOR DRY METHOD - PREFORMED GLAZING**

- A. Cut glazing spline to length; install on glass pane. Seal corners by butting tape and dabbing with butyl sealant.
- B. Place setting blocks at 1/4 points.
- C. Rest glass on setting blocks and push against fixed stop with sufficient pressure to attain full contact at perimeter of pane.
- D. Install removable stops without displacement of glazing spline. Exert pressure for full continuous contact.
- E. Trim protruding tape edge.

### **3.5 EXTERIOR WET METHOD - SEALANT AND SEALANT**

- A. Place setting blocks at 1/4 points and install glass pane.
- B. Install removable stops with pane centered in space by inserting spacer shims both sides at 24 inch intervals, 1/4 inch below sightline.
- C. Fill gap between pane and stops with sealant to depth equal to bite of frame on pane, but not more than 3/8 inch below sightline.
- D. Apply sealant to uniform line, flush with sightline. Tool or wipe sealant surface with solvent for smooth appearance.

### **3.6 INTERIOR DRY METHOD - TAPE AND TAPE**

- A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sightline.
- B. Place setting blocks at 1/4 points.
- C. Rest glass on setting blocks and push against tape for full contact at perimeter of pane.
- D. Place glazing tape on free perimeter of pane in same manner described above.
- E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

F. Knife trim protruding tape.

3.7 INTERIOR WET METHOD - COMPOUND AND COMPOUND

- A. Install glass resting on setting blocks, spaced at 1/4 points. Install applied stop and center pane by use of spacer shims at 24 inch centers, kept 1/4 inch below sightline.
- B. Locate and secure glass pane using spring wire clips.
- C. Fill gaps between pane and stops with glazing compound until flush with sightline. Tool surface to straight line.

3.8 CLEANING/PROTECTION

- A. After installation, mark pane with an "X" by using plastic tape or removable paste.
- B. Clean all surfaces of glazing materials, mortar, plaster, paint and other soiling or contaminates.
- C. Remove labels after work is completed.
- D. Wash and Polish both faces not more than one week prior to Owners acceptance of work.
- E. Replace broken, scratched, chipped, or otherwise damaged glass.

**END OF SECTION**

## SECTION 8810

### FIRE RATED GLASS & FRAMING

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Section Includes: Fire rated framing system.
1. SAFTI*fire* GPX Framing fire resistive, temperature rise, framing system with decorative cladding for 60 minute interior and exterior applications.
  2. Applications of fire rated framing includes:
    - a. sidelites with fire rating requirement as specified.
- B. Related Sections:
1. Section 087100: Finish Hardware.

##### 1.02 REFERENCES

- A.American Society for Testing and Materials (ASTM):
1. ASTM E119 Methods for Fire Tests of Building Construction and Materials.
  2. ASTM E152 Methods of Fire Tests of Door Assemblies.
  3. ASTM E163 Methods for Fire Tests of Window Assemblies.
  4. ASTM E2074: Standard Test Method for Fire Tests of Door Assemblies, including Positive Pressure Testing of Side-hinged and Pivoted Swinging Door Assemblies.
  5. ASTM E2110-1: Standard Test for Positive Pressure of Fire Tests of Window Assemblies.
- B.National Fire Protection Association (NFPA):
- 1.NFPA 80: Fire Doors and Windows.
  2. NFPA 251: Fire Tests of Building Construction and Materials.
  3. NFPA 252: Fire Tests of Door Assemblies.
  4. NFPA 257: Fire Tests of Window Assemblies.
- C. Underwriters Laboratories, Inc. (UL):
1. UL 9: Standard for Safety of Fire Tests of Window Assemblies.
  2. UL 10B: Standard for Safety of Fire Tests of Door Assemblies.
  3. UL 10C: Standard for Safety of Positive Pressure Fire Tests of Door Assemblies.
  4. UL 263: Fire Tests of Building Construction and Materials.
- F. Consumer Product Safety Commission (CPSC):
1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials.
- G. Glass Association of North America (GANA)
1. GANA – Glazing Manual.
  2. FGMA – Sealant Manual.
- H. Dallas Building Code

##### 1.03 SYSTEM DESCRIPTION

- A.Performance Requirements:
1. Fire Rating: 60 minutes.
  2. Testing Laboratory: Fire test shall be conducted by a nationally recognized independent testing laboratory.
- B.Listings and Labels:

1. Fire rated framing system shall be under current follow-up service by a nationally recognized independent laboratory and maintain a current listing or certification. Assemblies shall be labeled in accordance with limits of listings.

C. Appearance:

1. Fire rated wall/door assembly shall have a neat finished appearance with minimum joints at decorative cover intersections.

#### 1.04 SUBMITTALS

A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedure Section.

1. Shop Drawings: Submit shop drawings showing layout, profiles and product components.
2. Samples: Submit samples for finishes, colors and textures.
3. Technical Information: Submit latest edition of manufacturer's product data providing product descriptions, technical data and installation instructions.

#### 1.05 DELIVERY, STORAGE AND HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

C. Delivery: Deliver materials to specified destinations in manufacturer's or distributor's packaging undamaged, complete with installation instructions.

D. Storage and Protection: Store off ground, under cover, protected from weather and construction activities and at temperature conditions recommended by manufacturer.

#### 1.06 FABRICATION DIMENSIONS

A. Field Measurements: Verify actual measurements for openings by field measurements before fabrication. Show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

#### 1.07 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document. Manufacturer's warranty is not intended to limit other rights that the Owner may have under the Contract Documents.

1. Warranty Period: 5 years from date of shipping.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS – FIRE RATED (DOOR) (OPENING) (WALL ASSEMBLY)

A. Manufacturer of Framing System: SAFTI *fire*<sup>™</sup> GPX Framing as manufactured and distributed by SAFTI *FIRST*<sup>™</sup> Fire Rated Glazing Solutions, a division of O'Keeffe's Inc.

1. Contact: 325 Newhall Street, San Francisco, CA 94124-2693; Telephone 888/653-3333; Fax 415/824-5900; email [info@safte.com](mailto:info@safte.com); Web site [www.safte.com](http://www.safte.com)

B. Manufacturer of Glazing Material: (SuperLite<sup>™</sup> I IGU) ( SuperLite<sup>™</sup> I-XL IGU) (SuperLite<sup>™</sup> C IGU) (SuperLite<sup>™</sup> C/S IGU) (SuperLite<sup>™</sup> C/P IGU) (SuperLite<sup>™</sup> C/SP IGU) (SuperLite<sup>™</sup> II-XL) (SuperLite<sup>™</sup> II-XL IGU) as manufactured and distributed by SAFTI *FIRST*<sup>™</sup> Fire Rated Glazing Solutions, a division of O'Keeffe's Inc.

1. Contact: 325 Newhall Street, San Francisco, CA 94124-2693; Telephone 888/653-3333; Fax 415/824-5900; email [info@safte.com](mailto:info@safte.com); Web site [www.safte.com](http://www.safte.com)

C. Substitutions: as allowed in specifications for consideration.

## 2.02 MATERIALS – FRAMING

A. Fire resistive, temperature rise framing system rated for 60 minutes.

Properties:

1. Frame thickness: 3" wide by 4" deep
2. Internal framing: Internal tube steel framing shall conform to ASTM A501. Formed steel retainers shall be galvanized conforming to ASTM A527.
3. Insulation: The framing system shall insulate against the effects of fire, smoke and heat transfer from either side. The perimeter of the framing system to the rough opening shall be firmly packed with mineral wool fire stop insulation or appropriately rated intumescent sealant.
4. Fasteners: Type recommended by manufacturer.
5. Framing covers: Powder coated extruded aluminum alloy 6063-T5 (standard) or aluminum alloy 5052 when anodized. Ornamental metal (finish specified by the Architect: stainless steel, bronze, etc.). Wood or wood veneer.
6. Glazing accessories: The glazing material perimeter shall be separated from the perimeter framing system with approved flame retardant glazing tape. The SuperLite™ glazing panel shall be caulked continuously around the edge to the tube steel frame utilizing neutral cure silicone.

## 2.03 MATERIALS – GLASS

A. Assemblies shall be glazed with SuperLite™ glazing products. If assembly is required to meet ASTM E 119, SuperLite™ II-XL will be used.

B. Properties:

1. Individual Lites shall be permanently identified with a listing mark.
2. Glazing material installed in "Hazardous Locations" (subject to human impact) shall be certified to meet the applicable requirements for fire rated assemblies referenced in ANSI Z97.1 Standard for Safety Glazing Materials Used In Buildings and/or CPSC 16 CFR 1201 Safety Standard for Architectural Glazing Materials.
3. Temperature rise on the unexposed side of glazing material shall be limited to 250 degrees Fahrenheit when required.
4. Visible daylight transmission: Varies by glazing type. Refer to SuperLite™ product data for more information.
5. STC rating shall be a minimum of Varies by glazing type. Refer to SuperLite™ product data for more information.

C. Logo: Each piece of fire rated glazing shall be labeled with a permanent logo.

## 2.03 FABRICATION

A. Assemblies shall be furnished knocked down for field assembly and will be glazed in the field unless specified otherwise.

B. Door assemblies shall be factory prepared for field mounting of hardware.

C. Fabrication Dimensions: Fabricate to approved dimensions. The general contractor shall guarantee dimensions within required tolerance. Obtain approved shop drawings prior to fabrication.

## 2.04 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designing finishes.

B. Covers shall be chemically cleaned and pretreated; then, finished with : **Black anodized aluminum**

- C. Protect finishes on exposed surfaces from damage by applying strippable, temporary protective covering before shipping.

### **PART 3 EXECUTION**

#### **3.01 MANUFACTURER'S INSTRUCTIONS**

- A. Compliance: Comply with manufacturer's product data including product technical bulletins and installation instructions.

#### **3.02 EXAMINATION**

- A. Site Verification of Conditions: Verify substrate conditions, have been previously installed under other sections, and are acceptable for product installation in accordance with manufacturer's instructions. Openings shall be plumb, square and within allowable tolerances. The Architect/Engineer shall be notified of any conditions that jeopardize the integrity of the proposed fire wall/door framing system. Do not proceed until such conditions are corrected.

#### **3.03 INSTALLATION**

- A. Fire wall/door installation shall be by a licensed contractor and in strict accordance with the approved shop drawings.

#### **3.04 CLEANING AND PROTECTION**

- A. Protect glass from contact with contaminating substances resulting from construction operations. Remove such substances by method approved by manufacturer.
- B. Wash glass on both faces not more than four days prior to date schedule for inspections intended to establish date of Substantial Completion. Wash glass by method recommended by glass manufacturer.
- C. Remove temporary coverings and protection of adjacent work areas.
- D. Remove construction debris from project site and legally dispose of debris.

**END OF SECTION**

## SECTION 08950

### TRANSLUCENT INSULATED DAYLIGHTING

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Translucent daylighting system (refer to Alternate #6)

##### 1.2 RELATED SECTIONS

- A. Section 07540- Thermoplastic Membrane Roofing.

##### 1.3 REFERENCES

- A. ASTM D 635 - Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
- B. ASTM E 84 - Surface Burning Characteristics of Building Materials.

##### 1.4 DESIGN REQUIREMENTS

- A. Basic Wind Speed: 90 mph.
- B. Exposure Category: A
- C. Maximum Allowable Deflection of Structural Members: Maximum of  $L/100$  of clear span.

##### 1.5 SUBMITTALS

- A. Comply with Section 01330 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including materials, components, fabrication, finish, and installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings, including plans, elevations, sections, and details, indicating dimensions, tolerances, profiles, anchorage, connections, fasteners, hardware, provisions for expansion and contraction, drainage, flashing, finish, and attachments to supports of glazing, framing, and options.
- D. Samples: Submit manufacturer's samples for each glazing type, framing system, finish, and color specified.
- E. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- F. Warranty: Submit manufacturer's standard warranty.

##### 1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
  - 1. Continuously engaged in translucent insulated daylighting manufacturing with a minimum of 10 years successful experience.
  - 2. Able to demonstrate successful performance on comparable projects.
  - 3. Responsible for all components, including structural design.
- B. Installer's Qualifications:
  - 1. Authorized by manufacturer to install translucent glazing products.
  - 2. Trained by manufacturer's standard training methods and policies.

##### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and location of installation.
- B. Storage:
  - 1. Store materials in a clean, dry area indoors in accordance with manufacturer's instructions.
  - 2. Keep temporary protective coverings in place.
  - 3. Do not expose panels to direct sunlight for extended periods.

##### 1.8 WARRANTY

- A. Warranty Period: Ten years on weatherization starting on date of substantial completion.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. Duo-Gard Industries Inc., 40442 Koppernick Road, Canton, Michigan 48187. Toll Free (800) 872-4404. Phone (734) 207-9700. Fax (734) 207-7995. Web Site www.duo-gard.com.

### 2.2 GLAZING

Product: Series 3000 Base plate, pressure plate and cap system glazed with polycarbonate structured sheet filled with Translucent Nanogel Aerogel

- A. Sheet Thickness: 16 mm.
- C. Profile: triple wall.
- D. Color: Clear
- E. U-Value, ASTM C 236: .23.
- F. Light Transmission, ASTM D 1003: 50 percent.
- G. Fire Tests:
  - 1. Flame Spread, ASTM E 84: Class A
  - 2. Smoke Density, ASTM E 84: Class A
  - 3. Smoke Developed, ASTM D 635: CC1.
- H. Sheet widths: 36 to 48 inches depending on structural requirements
- I. Air Infiltration, ASTM E 283-1999: Leakage not to exceed 0.04 when tested at 1.57 PSF and not to exceed 0.07 when tested at 6.24 PSF
- J. Water Penetrations, ASTM E 331 – 2000: No water leakage at 30 PSF

### 2.3 STRUCTURAL FRAMING SYSTEM

- A. Framing System: Series 3000 BPC System with low profile pressure cap for easy water flow
  - 1 Alloy: 6063 T5
- B. Combined Maximum Deflection: 1 inch.
- B. Provide additional aluminum structure where and if required
- D. Glazing system required to span opening without additional support

### 2.4 MATERIALS

- A. Glazing Panels:
  - 1. Panels: Polycarbonate structured sheets.
  - 2. UV Stabilization: Coextruded into panels, not coated.
  - 3. Resist Yellowing, ASTM D 2244: Maximum 10 delta for a minimum of 10 years.
  - 4. Sheet Appearance: Uniform in color.
  - 5. Expansion and Contraction: Design and install components with provisions for expansion and contraction due to a 120 degree F temperature variation.
  - 6. Gaskets and Dry Seals: EPDM.
- B. Joint Sealant:
  - 1. Factory-Applied Sealant: Gunnable, nonhardening, elastomeric sealant. ASTM C 920, Type S, Class 12, Grade NS. Fed Spec TT-S-1657, Type 1.n.
  - 2. Field-Applied Sealant: Approved by translucent insulated daylighting manufacturer. As specified in Section 07920.
- C. Field Fasteners:
  - 1. Comply with translucent insulated daylighting manufacturer's instructions for fastener types, quantities, and usage.
  - 2. Cadmium-plated or better. Prevent oxidation or electrolytic interaction with framing.
  - 3. Aluminum-to-Aluminum Connections: Self-drilling screws, No. 10 and No. 12, of sufficient length for full-thread engagement, as determined by manufacturer.

- 2.5 COLOR AND FINISH
- A. Aluminum Finish:
    - 1. Manufacturer's standard

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine areas to receive translucent insulated daylighting. Notify Architect of conditions that would adversely affect installation or subsequent utilization of daylighting. Do not proceed with installation until unsatisfactory conditions are corrected.

#### **3.2 PREPARATION**

- A. Ensure supports to receive translucent insulated daylighting are clean, flat, level, plumb, square, accurately aligned, and correctly located.

#### **3.3 INSTALLATION**

- A. Install translucent insulated daylighting in accordance with manufacturer's instructions at locations indicated on the drawings.
- B. Install daylighting level, plumb, square, accurately aligned, correctly located, and without warp.
- C. Anchor daylighting securely in place to supports. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
- D. Install daylighting including flashing, fasteners, hardware, gaskets, joint sealants, and glazing materials required for a complete, weathertight installation.
- E. Sheet Metal Flashing: Install sheet metal flashing as specified in Section 07620.
- F. Joint Sealants: Install joint sealants as specified in Section 07920.
- G. Repair minor damages to metal finish or glazing in accordance with manufacturer's instructions and as approved by Architect. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

#### **3.4 CLEANING**

- A. Clean translucent insulated daylighting in accordance with manufacturer's instructions.
- B. Clean inside and outside of daylighting immediately after installation and after joint sealants have cured.
- C. Remove temporary protective coverings at time of installation (interior) and after installation is complete (exterior).
- D. Remove excess joint sealant in accordance with sealant manufacturer's instructions.
- E. Do not use harsh cleaning materials or methods that would damage metal finish or glazing.

#### **3.5 PROTECTION**

- A. Protect installed translucent insulated daylighting from damage during construction.
- B. Remove and replace damaged daylighting components as determined by Architect.

END OF SECTION