

**SECTION 10 2238.13  
SLIDING AND STACKING GLASS DOOR SYSTEMS**

***USE THIS SECTION WHEN SPECIFYING OVERHEAD SUPPORTED FOLDING GLASS PANEL PARTITIONS. SECTION INCLUDES OVERHEAD TRACK ASSEMBLY, MOUNTING BRACKETS, MOUNTING HARDWARE, ROLLER ASSEMBLIES, ALUMINUM RAILS FOR GLASS PANELS, AND ACCESSORIES. GLASS IS FURNISHED BY GLAZING SUB-CONTRACTOR AND SPECIFIED IN SECTION 08 80 00.***

***THIS SPECIFICATION SECTION IS A MANUFACTURER SPECIFIC PRODUCT SPECIFICATION USING THE PROPRIETARY METHOD OF SPECIFYING APPLICABLE TO PROJECT SPECIFICATIONS AND MASTER GUIDE SPECIFICATIONS. THIS SPECIFICATION SECTION SHOULD BE EDITED TO MEET SPECIFIC PROJECT DESIGN CRITERIA BY A KNOWLEDGEABLE CONSTRUCTION SPECIFIER. OPTIONS ARE SHOWN IN BRACKETS [ ]. CHOOSE OPTIONS THAT MEET DESIGN CRITERIA, AND REMOVE BRACKETS AND UNUSED OPTIONS BEFORE PRINTING.***

**PART 1 - GENERAL**

*1.01 Section Includes*

- A. Folding glass panel partitions.

*1.02 Related Requirements*

- A. Section 05 50 00 - Metal Fabrications: Supplementary supports for overhead track assembly, not specified in this section.
- B. Section 08 71 00 - Door Hardware.
- C. Section 08 80 00 - Glazing.

*1.03 Reference Standards*

- A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2005.
- B. ASME - B18.2.2 Square and Hex Nuts (Inch Series).
- C. ASME - B18.3 Socket Cap, Shoulder and Set Screws Hex and Spline Keys (Inch Series).
- D. ASME - B18.9 Plow Bolts.
- E. ASME - B18.21.1 Lock Washers (Inch Series).
- F. ASME - B18.22.1 Plain Washers.
- G. ASTM A 36 - Standard Specification for Carbon Structural Steel; 2005.
- H. ASTM A 240 - Stainless Steel Sheet and Plate.
- I. ASTM A 276 - Standard Specification for Stainless Steel Bars and Shapes; 2008a.

- J. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- K. ASTM A 314 - Standard Specification for Stainless Steel Billets and Bars for Forging.
- L. ASTM A 480 - General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
- M. ASTM A 563 - Standard Specification for Carbons and Alloy Steel Nuts.
- N. ASTM A 574 - Standard Specification for Alloy Steel Socket-Head Cap Screws.
- O. ASTM A 582 - Standard Specification for Free-Machining Stainless Steel Bars.
- P. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2003.
- Q. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- R. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2006.
- S. ASTM B247 - Standard Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings; 2009.
- T. ASTM A 283 - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2003 (Reapproved 2007).
- U. ASTM B 455 - Standard Specification for Copper-Zinc-Lead Alloy (Leaded-Brass) Extruded Shapes; 2005.
- V. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2005.
- W. ASTM C 1036 - Standard Specification for Flat Glass; 2006.
- X. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; 2004.
- Y. ASTM F 593- Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
- Z. ASTM F 594 - Standard Specification for Stainless Steel Nuts.
- AA. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.
- AB. GANA (GM) - GANA Glazing Manual; 2004.

***Specifier's Note: Article below includes submittal of relevant data to be furnished by Contractor before, during, and after construction. Coordinate this Article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.***

#### *1.04 Submittals*

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's descriptive literature for each component in all-glass entrance assembly.

- C. Shop Drawings: Drawings showing layout, dimensions, identification of components, and interface with adjacent construction. Coordinate shop drawings with shop drawings for glazing specified in Section 08 80 00.
1. Include field measurements of openings.
  2. Include scaled (ie., 1 inch = 1 foot) floor plan and reflected ceiling plan of folding panel partition layout, including parking area. Provide dimensions, clearances, material call-outs, detail references, and schedule of part numbers, and quantities.
  3. Include elevations showing:
    - a. Appearance of all-glass entrance layouts.
    - b. Locations and identification of manufacturer-supplied door hardware and fittings.
    - c. Locations and sizes of cut-outs and drilled holes for other door hardware.
    - d. Stacking area.
  4. Include details of:
    - a. Panel rails.
    - b. Track assembly, including intersections, roller access splices, corners, end caps.
    - c. Vertical support and lateral bracing of overhead track assembly.
    - d. Hardware.
  5. Schedule: Listing of each type component in glass panel folding partition assemblies, including type, size, and thickness of glass used, and, cross-referenced to shop drawing plans, elevations, and details.
  6. Templates for fabrication of each type of glass panel folding partition assemblies.
- D. Selection Samples: Two sets, representing manufacturer's full range of available metal materials and finishes.
- E. Certificates: Contractor's certification that installer of folding glass panel partition assemblies meets specified qualifications.
- F. Calculations: Design calculations for anchorage of overhead track to supporting member. Calculations shall include Engineer's seal, and signature. Engineer shall be licensed to practice in [California] [State in which the Project is located] [\_\_\_\_\_].
- G. Operation and Maintenance Data: For manufacturer-supplied operating hardware.

***Specifier's Note: Article below to include qualifications, prerequisites, standards, limitations, and criteria to establish the requirements for the level of quality for products and workmanship for the work of this section. Coordinate Article with Division 1 Quality Assurance Section.***

*1.05 Quality Assurance*

- A. Source Qualifications: CRL is ISO9001-2008 certified, with over 10 years of continuous manufacture of architectural glass panel folding partition assemblies.
- B. Installer Qualifications: Minimum three years of experience installing entrance assemblies similar to those specified in this section.

*1.06 Delivery, Storage, and Handling*

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

*1.07 Warranty*

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. See manufacturer for additional information on extended warranty periods for high performance coatings for track assemblies exposed to view.
  - 1. Powder coating - Spraylat Newlar - 15 year.

**PART 2 - PRODUCTS***2.01 Manufacturers*

- A. Rails, track assembly, rollers, and door hardware for SPS Stacking Glass Partition System:

**C.R. Laurence Co, Inc. (CRL)**

Tel: (800) 421-6144 or (323) 588-1281 Ext. 7700

Fax: (800) 587-7501 or (323) 584-5289

Email: [architectural@crlaurence.com](mailto:architectural@crlaurence.com)[www.crl-arch.com](http://www.crl-arch.com)

***Specifier's Note: Select the paragraph below titled Exterior Assemblies only for entrance assemblies located at exterior walls. Insert project windload requirements, if Article is used. Wind pressures depend on many issues so not all systems are designed to the same wind pressure. For the standard CRL Stacking Partition System installation the system is designed for a minimum plus or minus 25 psf. For larger panel sizes allowable wind loads can be less. For interior applications the design is for a minimum 5 psf.***

*2.02 Assemblies*

- A. Factory fabricated assemblies consisting of frameless glass panels fastened with top and bottom rails in straight [or curved] configuration as indicated on the drawings; CRL SPS Stacking Partition System is basis for design. Interior installations; standard system design criteria for wind pressure is 5 psf minimum positive and negative.
  - 1. Exterior Assemblies: Designed to resist the following wind pressures:

- a. Positive Pressure: [10] [25] [35] [\_\_\_\_] pounds per square inch.
- b. Negative Pressure: [10] [25] [35] [\_\_\_\_] pounds per square inch.
2. Operational Loads: Designed to withstand door operation under normal traffic without damage, racking, sagging, or deflection.
3. Prepared for all specified hardware whether specified in this section or not.
4. Finished metal surfaces protected with strippable film.
5. Factory assembled to greatest extent practicable; may be disassembled to accommodate shipping constraints.

### 2.03 Overhead Track

- A. Intelli-Track™ Overhead Track Assembly: Extruded aluminum pre-fabricated in straight, [and curved] sections, with corner and intersection fittings for supporting glass panels hung from Intelli-Track™ Rollers. Track is available in standard (S90) profile or flanged (L90) profile for drop ceiling installation. Joints in track assembly are reinforced with 16 gauge stainless steel junction plates.
  1. Track size: 3-5/8 inch wide by 3-9/16 inch high. Standard lengths are 120 inches (3.05 m) and 240 inches (6.10 m). Track sections are pre-drilled for support fasteners/anchorage at 24 inches on center.
  2. Finish: Mill finish [White Powder Coat; meeting testing requirements of 4,000 salt spray test in accordance with AAMA 2605]. [Custom cladding].
  3. Fittings: Self-Guiding [Manual]. Corner, angled intersections, roller access splice, and end stops to provide for parking and change in direction.
- B. Roller Assembly: Intelli-Track™ Rollers provide directional control, prevent accidental panel rotation, and allow smooth movement of glass panels. Two (2) rollers per panel have load carrying capacity of 470 lbs (213 kg).
  1. Bearings: Double sealed high-carbon chromium stainless steel body; ASTM A276, or ASTM A314; Type 440A, 440B, or 440C.
  2. Rollers: Austenitic stainless steel; ASTM A582; Type 303.
  3. Body: ASTM B247 forged aluminum, with satin anodized finish Class 1.
- C. Track Suspension System - standard: Standard track suspension system provides 6 inch (152.4 mm) vertical adjustment from top of track to underside of structural member. Support assembly consists of steel top bracket, and aluminum bottom bracket, suspension rods, and hardware.
- D. Track Suspension System - Extended support: Extended support system provides up to 40 inch (1016 mm) vertical adjustment from top of track to underside of structural member. Extended support system includes angled support brackets for lateral bracing.

## 2.04 Glass Panel Rails

***Specifiers Note: Select material and finish for top and bottom rails for glass panels; delete materials and finish paragraphs not used.***

- A. Glass panel rails: Sufficient to structurally support glazing and doors under specified loads.
  - 1. Door rails: Extruded aluminum; ASTM B221, 6063 T6 alloy, with end caps, slide block, end brackets, stainless steel clamp bar, cork pad, with [without] keyed cylinder [thumb-turn] lock at bottom [ top] rail. Door rails incorporate CRL patented Wedge-Lock™ Glass Securing System, and Kwik-Adjust™ pivot alignment system for jamb alignment and centering.

***Specifier's Note: Select rail style from list below. Delete rail styles selections not used. Selections include square, or tapered design, 4, 6, 10 inch sizes, selected for glass thickness of 1/2 or 3/4 inch thickness, and convertible sliding/pivoting doors.***

- 2. Style S312: Tapered; 4 inch by 2 inch top and bottom rail for 1/2 inch (12 mm) thick glass.
- 3. Style S412: Square; 4 inch by 2 inch top and bottom rail for 1/2 inch (12 mm) thick glass.
- 4. Style S512: Square; 4 inch by 2 inch top and 6 inch by 2 inch bottom rail for 1/2 inch (12 mm) thick glass.
- 5. Style S612: Square; 4 inch by 2 inch top and 10 inch by 2 inch bottom rail for 1/2 inch (12 mm) thick glass.
- 6. Style S712: Square; 6 inch by 2 inch top and bottom for 1/2 inch (12 mm) thick glass.
- 7. Style S812: Square; 6 inch by 2 inch top and 10 inch by 2 inch for 1/2 inch (12 mm) thick glass.
- 8. Style S334: Tapered; 4 inch by 2 inch top and bottom rail for 3/4 inch (19 mm) thick glass.
- 9. Style S534: Square; 4 inch by 2 inch top and 6 inch by 2 inch for 3/4 inch (19 mm) thick glass.
- 10. Style S634: Square; 4 inch by 2 inch top and 10 inch by 2 inch bottom rail for 3/4 inch (19 mm) thick glass.
- 11. Style S434: Square; 4 inch by 2 inch top and bottom rail for 3/4 inch (19 mm) thick glass.
- 12. Style S212: Square convertible sliding/pivoting door; 6 inch by 2 inch top and 10 inch by 2 inch bottom rail for 1/2 inch (12 mm) thick glass.

13. Style S112: Square convertible sliding/pivoting door; 6 inch by 2 inch top and bottom rails for 1/2 inch (12 mm) thick glass.
- B. Setting blocks: Aluminum and neoprene; size as recommended by manufacturer.
- C. Gaskets: E.P.D.M. gasket as recommended by manufacturer.
- D. Weatherstripping: Low profile aluminum [clear polycarbonate] extrusion with wool pile weatherstripping as recommended by manufacturer. [Available to fit 4 inch tapered or square door rails]. Finish: [Polished Stainless Steel], [Polished Brass], [Brushed Stainless Steel], [Bronze Anodized], [Satin Anodized].

### 2.05 Door Hardware

***Specifiers Note: Select type of door pulls; delete door pulls not used.***

- A. Door pulls: Locking ladder pulls with concealed deadbolt lock [Center lock with extension rod through bottom rail into floor with dustproof keeper] [deadbolt handles].
- B. Locking devices: Slide bolts; floor bolts, dustproof keepers.
- C. Lock cylinders: Keyed cylinders; DRA10 [thumbturn; DRA22] [dummy cylinder; DRA30], finish to match finish of rail, unless noted otherwise.
- D. Pivots: Assembly consisting of aluminum body; alloy 6063-T6, and stainless steel bearings, pins, shafts; ASTM A582 Type 303, or 304 (18-8).
- E. Finish: Match finish of rails.

### 2.06 Materials

- A. Glass: As specified in Section 08 80 00 Glazing; fully tempered. Note: Laminated glass should not be used with CRL Wedge-Lock rails. However, laminated glass can be used with fully framed glass panels (supplied by others).
  1. Thickness: [1/2 inch, (6 mm)] or [3/4 inch, (19 mm)].
  2. Size: [\_\_\_\_\_]. Maximum width: 72 inches (1.82 m). Maximum height: 120 inches (3.05 m) for 1/2 inch (6 mm) thick glass panels [156 inches for 3/4 inch (19 mm) thick glass panel].
  3. Weight: [\_\_\_\_\_]. Maximum weight per panel: 470 lbs (213 kg).

***Specifier's Note: Use the following paragraph if glass panels are a part of this Section.***

- B. Glass: Tempered float glass meeting requirements of ASTM C 1036, Type I, Quality Q3, fully tempered in accordance with ASTM C 1048, Kind FT, and as follows:
  1. Thickness: [1/2 inch (12 mm)] or [3/4 inch (19 mm)].
  2. Color: Clear, Class 1.

3. Prepare glazing panels for indicated fittings and hardware before tempering.
  4. Polish edges that will be exposed in finished work to bright flat polish.
  5. Temper glass materials horizontally; visible tong marks or tong mark distortions are not permitted.
- C. Extruded Aluminum Components: Conforming to ASTM B 221, Alloy 6063-T6.
  - D. Aluminum sheet: ASTM B209, Alloy 5052-H32 (used for non-structural cladding applied to overhead track assembly when required by design).
  - E. Aluminum bars, and plate: ASTM B221, Alloy 6061-T6.
  - F. Steel plate: ASTM A36.
  - G. Stainless Steel Components: Conforming to ASTM A 666, Type 304 [316].
  - H. Brass Components: Conforming to ASTM B 455, UNS C38500, Architectural Bronze.
  - I. Sealant: One-part silicone sealant, conforming to ASTM C 920, Type S, Grade NS, Class 50, Use NT, G and A, clear [Color: \_\_\_\_\_, or as selected from manufacturer's standard color selection].
  - J. Threaded rods: 3/8 inch dia.; ASTM A 307. Grade A. ASTM F1554, Grade 36 minimum.
  - K. Threaded rods - stainless steel: 3/8 inch dia.; ASTM F 593 CW.
  - L. Fasteners:
    1. Bolts: ASTM A307 dimensions per ASME B18.9.
    2. Stainless steel bolts: ASTM F593, Group 2, condition CW, 316 stainless steel bolts, dimensions per ASME B18.9.
    3. Cap screws: ASTM A 574, dimensions per ASME B18.3.
    4. Nuts: ASTM A 563, grade matched to bolt, dimensions per ASME B18.2.2.
    5. Stainless steel nuts: ASTM F 594, Group 2.
    6. Flat washers: ASME B18.22.1, Type B regular.
    7. Locking washers: ASME B18.22.1 Split lock or tooth lock.

***Specifier's Note: Use the following Cladding and Finishes Articles when non-structural sheet metal cladding is required at overhead track assembly.***

### *2.07 Cladding*

- A. Break-formed sheet metal to shape required shape, adhered to track or rails with double sided tape. Cladding is available in following metals:
  1. Aluminum: 0.050 inch (1.3 mm) thickness. Finish: Satin Anodized, Dark; Black Anodized; Bronze Anodized.
  2. Stainless Steel: 0.0375 inch (0.95 mm) thickness. Finish: Brushed; Polished.



3. Brass: 0.040 inch (1 mm) thickness. Finish: Satin Brass; Polished Brass.
4. Custom finish cladding is available to meet Architect's design requirements.

### *2.08 Finishes*

- A. Anodized [Architectural metal cladding] finish. [Six (6) Standard architectural finishes, powder coating and custom PVDF coatings are available upon request. Select from architectural finishes listed below, or specify custom finish desired.]
  1. Dark Bronze Anodized
  2. Satin Anodized.
  3. Brushed Stainless (clad finish).
  4. Polished Stainless (clad finish).
  5. Polished Brass (clad finish).

## **PART 3 – EXECUTION**

### *3.01 Examination*

- A. Verify that supports for overhead track assembly are acceptable.
- B. Verify track supports are laterally braced and will permit track to be level within 1/8 inch (3 mm) of required position and parallel to the floor surface.
- C. Verify floor flatness of 1/8 inch in 10 feet (3 mm / 3 m), non-cumulative.
- D. Verify wall plumbness of 1/8 inch in 10 feet (3 mm / 3 m), non-cumulative.
- E. Do not begin installation until substrates and openings have been properly prepared.
- F. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### *3.02 Preparation*

- A. Clean substrates thoroughly prior to installation.
- B. Prepare substrates using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### *3.03 Installation*

- A. Install track assembly, panels, rails, doors, hardware and mounting assemblies in accordance with manufacturer's written instructions, and approved shop drawings.
- B. Install glass and accessories in accordance with GANA Glazing Manual.
- C. Tolerances:
  1. Horizontal Components and Sight Lines: Not more than 1/8 inch in 10 feet (1:1000) variation from level, non-cumulative.
  2. Vertical Components and Sight Lines: Not more than 1/8 inch in 10 feet (1:1000) variation from plumb, non-cumulative.

3. Variation from Plane or Indicated Location: Not more than 1/16 inch (1.5 mm).
- D. Installation of door hardware not supplied by glass panel folding partition manufacturer is specified in Section 08 71 00.

*3.04 Adjusting*

- A. Adjust glass panels, to operate correctly, without binding.
- B. Adjust door hardware for smooth operation.

*3.05 Cleaning*

- A. Clean installed work to like-new condition.

*3.06 Protection*

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

END OF SECTION