

SECTION 08 35 13
FOLDING GLASS DOORS

SECTION 08 43 33
FOLDING GLASS STOREFRONT

NOTE: Modify footers to align when using this section name and number.

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes furnishing and installing a top-hung sliding-folding aluminum-framed glass door or storefront system that includes:
 - 1. Aluminum frame.
 - 2. Threshold.
 - 3. Panels.
 - 4. Sliding-folding and locking hardware.
 - 5. Weather stripping.
 - 6. Glass and glazing.
 - 7. Insect screen by others (optional).
 - 8. Accessories as required for a complete working installation.
- B. Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, Specification Sections, apply to this Section.
 - 2. Section 06 10 00, Rough Carpentry: Wood framing R.O. and blocking.
 - 3. Section 06 20 00, Finish Carpentry.
 - 4. Section 07 27 00, Air Barriers: Building paper and building wrap.
 - 5. Section 07 62 00, Sheet Metal Flashing and Trim: Flashing gutters, and other sheet metal work.
 - 6. Section 07 90 00, Joint Protection.
 - 7. Section 08 42 23, Glass Entrance Swing Doors.
 - 8. Section 08 51 13, Aluminum Windows: NanaWall SL48, tilt-turn, casement window.
 - 9. Section 09 22 16, Non-Structural Metal Framing: Metal framing R.O. and reinforcement.
 - 10. Section 10 22 39, Folding Glass Partitions: NanaWall SL45.

1.02 REFERENCES

- A. Reference Standards in accordance with Division 01 and current editions from the following:
 - 1. AAMA. American Architectural Manufacturers Association; www.aamanet.org
 - a. AAMA 502, Voluntary Specification for Field Testing of Newly Installed Fenestration Products.

- b. AAMA 611, Voluntary Specification for Anodized Architectural Aluminum.
- c. AAMA 920, Operation / Cycling Performance.
- d. AAMA 1303.5, Voluntary Specification for Forced Entry Resistant Aluminum Sliding Glass Doors.
- e. AAMA 2604, Voluntary Specifications, Performance Requirements, and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
- f. AAMA 2605, Voluntary Specifications, Performance Requirements, and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- g. AAMA CAWM 300, Forced Entry Resistance for Sliding Glass Doors.
- 2. ANSI. American National Standards Institute; www.ansi.org
 - a. ANSI Z97.1, Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
- 3. ASTM. ASTM International; www.astm.org
 - a. ASTM C1036, Standard Specification for Flat Glass.
 - b. ASTM C1048, Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
 - c. ASTM E90-09, Standard Test Method for Laboratory Measurements of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - d. ASTM E283, Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - e. ASTM E330, Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - f. ASTM E331, Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 - g. ASTM E413, Classification for Rating Sound Insulation.
 - h. ASTM E547, Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
 - i. ASTM E1332, Standard Classification for Rating Outdoor-Indoor Sound Attenuation.
- 4. CPSC. Consumer Product Safety Commission; www.cpsc.gov
 - a. CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials.
- 5. DIN. "Deutsches Institut für Normung" (German institute for standardization); www.en-standard.eu/din-standards
 - a. DIN EN 1191, Windows and doors – Resistance to repeated opening and closing- Test method; German version EN 1191: 2000.
 - b. DIN EN ISO 717-1, Acoustics – Rating of sound insulation in buildings and building elements.
 - c. DIN EN ISO 9001, 2015 quality management system registration.
 - d. DIN EN ISO 10140-1, 2, 4 & 5, Airborne sound measurement.
 - e. DIN EN ISO 12400, Windows and pedestrian doors – Mechanical durability – Requirements and classification.
 - f. DIN EN ISO 14001, 2015 environmental management system registration.
 - g. DIN 52210-3, Testing of acoustics in buildings - Airborne and impact sound insulation - Laboratory measurements of sound insulation of building elements and field measurements between rooms.
 - h. DIN 52210-4, Tests in Building Acoustics - Airborne and Impact Sound.

6. FL. Florida Building Commission - Product Approval;
https://floridabuilding.org/pr/pr_app_srch.aspx
7. NFRC. National Fenestration Rating Council; www.nfrc.org
 - a. NFRC 100, Procedure for Determining Fenestration Product U-factors.
 - b. NFRC 200, Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.
8. HPD. Health Product Declaration v2.3; <https://www.hpd-collaborative.org/>

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate Folding Glass Storefront system and framing R.O.
- B. Preinstallation Meetings: See Section 01 30 00.

1.04 SUBMITTALS

- A. For Contractor submittal procedures see Section 01 30 00.
- B. Product Data: Submit manufacturer's printed product literature for each Folding Glass Storefront system to be incorporated into the Work. Show performance test results and details of construction relative to materials, dimensions of individual components, profiles, and colors.
- C. Product Drawings: Indicate Folding Glass Storefront system component sizes, dimensions and framing R.O., configuration, swing panels, direction of swing and stacking, typical head jamb, side jambs and sill details, type of glazing material, handle height.
- D. Installation, Operation, and Maintenance Data: Submit Owner's Manual from manufacturer. Identify with project name, location and completion date, and type and size of unit installed.

NOTE: Delete the following Article if LEED is not applicable; edit to meet project LEED requirements.

- E. Sustainable Design Submittals (USGBC [LEED®](#)): Refer to Section 01 81 15, LEED Design Requirements.
 1. **LEED 2009** (v3) Credits. Complete online LEED forms and submit other required materials as follows:
 - a. Energy and Atmosphere (EA) Credits:
 - 1). EA Credit 1 (EA1): Optimize Energy Performance: System.
 - b. Materials and Resources (MR) Credits:
 - 1). MR Credit 1.1 (MRc1.1): Building Reuse - Maintain Existing Exterior Walls, Floors and Roof.
 - 2). MR Credit 1.2 (MRc1.2): Building Reuse - Maintain Existing Interior Nonstructural Elements.
 - 3). MR Credit 2 (MRc2): Construction Waste Management.

NOTE: MR Credit 1 above and 3 below can apply to reusing salvaged Folding Glass Storefront.

- 4). MR Credit 3 (MRc3): Materials Reuse - 5% (MRc3.1) or 10% (MRc3.2).

NOTE: MR Credit 5 below can apply to projects within 500 miles (805 km) of the NanaWall fabrication shop located in Richmond, CA 94801.

- 5). MR Credit 5 (MRc5): Regional Materials: 10% (MRc5.1) or 20% (MRc5.2) Extracted, Processed & Manufactured Regionally.
 - a). Submit percentage of products made from plant materials with a less than 10-year harvest cycle against the total value of building materials on the project.
- c. Indoor Environmental Quality (EQ) Credits:
 - 1). IEQ Credit 2 (IEQc2): Increased Ventilation - Case 2 - Naturally Ventilated Spaces.
 - 2). IEQ Credit 8.1 (IEQc8.1): Daylight & Views - Daylight 75% of Spaces.

- 3). IEQ Credit 8.2 (IEQc8.2): Daylight & Views - Views for 90% of Spaces.
- 4). IEQ Credit 9 (LEED for Schools - IEQc9): Enhanced Acoustical Performance.
- 2. **LEED v4 for Building Design and Construction (BD&C) Credits.** Complete online LEED forms and submit other required materials as follows:
 - a. Energy and Atmosphere (EA) Credits:
 - 1). EA Credit 2 (EAc2): Optimize Energy Performance.
 - b. Materials and Resources (MR) Credits:

NOTE: MR Credit 1 below can apply to reusing salvaged Folding Glass Storefront.

- 1). MR Credit 1 (MRc1): Building Life-Cycle Impact Reduction; Option 3 - Building and Material Reuse.
- c. Indoor Environmental Quality (EQ) Credits:
 - 1). EQ Credit 7 (EQc7): Daylight
 - 2). EQ Credit 8 (EQc8): Quality Views
 - 3). EQ Credit 9 (EQc9): Acoustic Performance
 - a). Submit calculations or measurements for occupant spaces to meet sound transmission class ratings between adjacent spaces and reverberation time requirements within a room.

F. LEED Closeout Documentation:

NOTE: Edit below to meet project LEED requirements.

- 1. **LEED 2009 (v3).** Submit completed LEED™ submittal Worksheet Templates for the following credits:
 - a. EAc1, MRc1.1, MRc1.2, MRc2, MRc3, MRc5, MRc6, IEQc2, IEQc8.1, IEQc8.2, IEQc9
- 2. **LEED v4 (BD&C).** Submit information and documentation to complete LEED™ Worksheet Templates for the following credits:
 - a. EAc2, MRc1, EQc7, EQc8, EQc9

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer capable of providing complete, precision built, engineered, pre-fitted units with a thirty five (35) years' experience in the sale of folding-sliding door systems for large openings in the North American market.
 - 1. Manufacturer to have ISO 9001: 2015 quality management system registration.
 - 2. Manufacturer to have ISO 14001: 2015 environmental management system registration.
- B. Installer Qualifications: Installer experienced in the installation of manufacturer's products or other similar products for large openings. Installer to provide reference list of at least three (3) projects of similar scale and complexity successfully completed in the last three (3) years.
 - 1. Installer to be trained and certified by manufacturer.
- C. Single Source Responsibility: Furnish Folding Glass Storefront system materials from one manufacturer for entire Project.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's instructions and recommendations, Section 01 60 00 requirements, and as follows:
 - 1. Deliver materials to job site in sealed, unopened cartons or crates.
 - a. Upon receipt, inspect the shipment to ensure it is complete, in good condition and meets project requirements.

2. Store material under cover in a clean and dry location, protecting units against weather and defacement or damage from construction activities, especially to the edges of panels.
- 1.07 FIELD CONDITIONS
- A. Field Measurements: Contractor to field verify dimensions of rough openings (R.O.) [**and threshold depressions to receive sill.**] Mark field measurements on product drawing submittal.
- 1.08 WARRANTY
- A. Manufacturer Warranty: Provide Folding Glass Storefront system manufacturer's standard limited warranty as per manufacturer's published warranty document in force at time of purchase, subject to change, against defects in materials and workmanship.
 1. Warranty Period beginning with the earliest of 120 days from Date of Delivery or Date of Substantial Completion:
 - a. Rollers and Insulated Glass Seal Failure: Ten (10) years.
 - b. All Other Components Except Screens: Ten (10) years.
 - 1). Exception: Five (5) years if NOT installed by manufacturer's specific system approved or certified trained installer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Product by Manufacturer: **NanaWall SL45** by **NANA WALL SYSTEMS, INC.** (www.nanawall.com)

NANA WALL SYSTEMS, INC.

100 Meadow Creek Drive, Corte Madera, CA 94925

Toll Free (800) 873-5673

Telephone: (415) 383-3148

Fax: (415) 383-0312

Email: info@nanawall.com

1. Substitution Procedures: See Section 01 20 00; Submit completed and signed:
 - a. Document 00 43 25, Substitution Request Form (During Procurement), or
 - b. Document 00 63 25, Substitution Request Form (During Construction)

2.02 PERFORMANCE / DESIGN CRITERIA

NOTE: Weeps, when provided, are to be drilled in the field by the installer to manufacturer's requirements.

Air infiltration and water testing results are only applicable if the unit matches the tested panel and unit size, direction of opening, and type of sill.

Structural load testing results are only applicable for the test unit size and type of locking and rods.

Comparative analysis charts published by manufacturer shows which panel sizes, if any, meets the structural loading design pressures specifically required for the project. Check for limitations on the use of these charts in the jurisdiction of the project.

Forced entry testing results are only applicable for the test unit type of locking.

Check for requirements in the jurisdiction of the project.

See manufacturer's latest published data regarding performance.

It is expected that the installed system's performance would be not more than 2/3rds of the following certified laboratory test data in accordance with AAMA 502.

A. Performance Criteria (Lab Tested):

NOTE: Select one of the four Performance Criteria below for different Sill types, deleting paragraphs not chosen.

1. **Standard Sill – Inward and Outward Opening:**

- a. Air Infiltration (ASTM E-283) - 0.27 cfm/ft² (1.38 L/s/m²) at a static air pressure difference: of 1.57 psf (75 Pa).
- b. Water Penetration (ASTM E-331, ASTM E-547) - with weep holes by others: No uncontrolled water leakage at a static test pressure of 1.56 psf (75 Pa).

2. **Low Profile Saddle Sill – Inward and Outward Opening:**

- a. Air Infiltration (ASTM E-283) -: 0.25 cfm/ft² (1.28 L/s/m²) at a static air pressure difference: of 1.6 psf (75 Pa).
- b. Water Penetration (ASTM E-331, ASTM E-547) - with weep holes by others: No uncontrolled water leakage at a static test pressure of 3.76 psf (180 Pa).

3. **Flush Sill – Inward and Outward Opening:**

- a. Air Infiltration (ASTM E-283) -: 0.25 cfm/ft² (1.28 L/s/m²) at a static air pressure difference: of 1.6 psf (75 Pa).

NOTE: For ADA Compliant Flush Sill, the U-channel is 1/2 inch (12 mm).

4. **ADA Compliant Flush Sill – Inward and Outward Opening:**

- a. Air Infiltration (ASTM E-283)-: 0.25 cfm/ft² (1.28 L/s/m²) at a static air pressure difference of 1.6 psf (75 Pa).

NOTE: Items below are common to all sill types, except as noted.

5. Structural Loading (ASTM E-330):

- a. Load Structure: At 1.5 times design wind pressure with no glass breakage or permanent damage to fasteners or storefront components.
- b. Design Pressure: Positive and Negative at 35 psf (1675 Pa)

6. Forced Entry (AAMA-1303.5 and AAMA CAWM 300): Meets requirements.

7. Swing Panel - Operation / Cycling Performance (AAMA 920): 500,000 cycles

8. Acoustical Performance (DIN 52210-3,4): With 40 dB glass, unit STC (Rw) of 36

NOTE: Acoustical system STC and Rw ratings per ASTM E413 and DIN EN ISO 717-1 are testing of full panel systems by an independent and accredited acoustical laboratory in accordance with ASTM E90-09 and DIN EN ISO 10140-1, 2, 4 & 5 test procedure. A complete and unedited written test report is available upon request.

See manufacturer's latest published data regarding performance.

- a. [System STC (Rw) 35 (35) and OITC 30 with 5/16-inch (8 mm) STC 37 laminated glass]
- b. [System STC (Rw) 30 (31) and OITC 27 with 1/4-inch (6 mm) STC 32 tempered glass]

NOTE: Acoustical system STC (Rw) ratings below are engineer-calculated conversion of European tests per ASTM E413 and ASTM E1332 for the full panel system with flush sill. Calculations of the system STC (Rw) from the other glazing STC is available on request.

- c. [System STC (Rw) 34 (34) with 1/4-inch (6 mm) STC 36 enhanced laminated glass]
 - d. [System STC (Rw) 33 (33) with 1/4-inch (6 mm) STC 35 laminated glass]
 - e. [System STC (Rw) 30 (30) with 1/4-inch (6 mm) STC 31 tempered glass]
9. Florida Product Approval - Wind Loading (Units with panel sizes up to 3' 7" (1.07 m) wide x 10' 0" (3.05 m) high) subject to manufacturer size chart: FL 37258

NOTE: SL45 inswing and outswing systems are approved by the State of Florida.

FL 37258 weblink is:

https://floridabuilding.org/pr/pr_app_dtl.aspx?param=wGEVXQwtDqtSbRRiMAsojlg7yMtiGzZ9Kb%2b0unxzPqWJ78u99619ag%3d%3d

- 10. Thermal Performance U-factor: NFRC 100 rated, certified, and labeled.
- 11. Solar Heat Gain Coefficient (SHGC) + Visible Light Transmission (VT): NFRC 200 rated, certified, and labeled

NOTE: Use Performance Method for California's Title 24.

- 12. Health Product Declaration (HPD): Meets requirements

NOTE: Health Product Declaration (HPD) in accordance with HPD Standard v2.3 tested with threshold level of hazards from substances present at or above 1000 parts per million (ppm). No residual or impurities were present above the threshold level from the system components.

No VOC emission as per LEED requirements. Contact NanaWall for more information.

B. LEED Characteristics:

1. **LEED 2009** (v3)

- a. MRc1.1: *NanaWall* exterior glass wall systems, not demolished in a renovation project, are reused in the same location.
- b. MRc1.2: *NanaWall* interior glass wall systems, not demolished in a renovation project, are reused in the same location.
- c. MRc2: *NanaWall* cardboard shipping crates are made of 60% recycled material and are 100% recyclable.
- d. MRc3: *NanaWall's* components easily disassemble and reassemble to "Use as salvaged... or reused materials."
- e. MRc5: *NanaWall* glazing, panel, track, and door manufacturing final assembly plant is located in Richmond, CA 94801.
- f. IEQc2: *NanaWall* systems provide natural ventilation in the open position, assisting in the 90% required natural ventilation of occupied spaces of ASHRAE 62.1.
- g. EQc8.1: *NanaWall* glass wall assembly borrowed light brings daylight deeper into the floor plate.
- h. EQc8.2: *NanaWall* glass wall assemblies provide direct outdoor lines of sight.

2. **LEED v4 for Building Design and Construction** (BD&C)

- a. MRc1: *NanaWall* can be easily disassembled for salvage and reuse.
- b. EQc7: *NanaWall* glass wall assembly borrowed light brings daylight deeper into the floor plate.
- c. EQc8: *NanaWall* glass wall assemblies provide direct outdoor lines of sight.

C. Design Criteria:

- 1. Sizes and Configurations: As indicated by the Drawings for selected number and size of panels, location of swing panels, location of track and stacking.
- 2. Unit Operation: Sliding and folding hardware with top and bottom tracks.
- 3. Panel Configuration:
 - a. [Straight]
 - b. [Segmented curve]
 - c. [90° angle turn]

- d. [135° angle turn]
- e. [Window/ door combination]
- 4. Stack Storage Configuration:
 - a. [Inswing type]
 - b. [Outswing type]
 - c. [Inswing and outswing]
 - d. [FoldFlat® against wall]
- 5. Mounting Type: Top-hung
- 6. Panel Type: [Hinged] [Unhinged]
 - a. Primary swing panel of paired swing panels, looking from inside, to be on the [left] [right].
 - b. [Entry/Egress panel hinged to side jamb.]
- 7. Panel Pairing Configuration: See drawings.

NOTE: Sizes and Configurations: <https://www.nanawall.com/resources/sl45/cad/standard>
 See manufacturer drawings for selected custom dimensions within maximum frame sizes possible as indicated in manufacturer's literature.
 See drawings for selected number of panels and configuration.

2.03 MATERIALS

- A. Sliding-Folding Glass Storefront Description: Monumental top-hung system designed for straight runs, segmented angle changes, and capable of folding flat against adjacent walls. Manufacturer's standard frame and panel profiles, with head and floor tracks, side jambs and panels with dimensions as shown on Drawings.

- 1. Panels and Frames
 - a. Panels
 - 1). Single lite.

NOTE: Single lite above is standard; other options below may require an upcharge.

- 2). [Horizontal mullion(s) at specified height(s) from the bottom of the panel.]
- 3). [Simulated divided lites in pattern as shown on Drawings.]
- 4). Panel Size (W x H): As indicated.

NOTE: Maximum panel sizes of 3' 7" x 8' 6" (1.1 x 2.6 m) to 2' 11" x 9' 6" (0.9 x 2.9 m).

- 5). Rail Depth: 1-3/4 inch (45 mm)
- 6). Top Rail and Stile Width: 2-1/8 inch (53 mm)
- 7). Bottom Rail Width: 2-1/8 inch (53 mm)

NOTE: Width above is standard; other options below may require an upcharge.

- a). [Manufacturer's standard kickplate with height indicated.]
- b. Frame
 - 1). Matching top track and side jambs
 - a). Top Track Width: 2-1/2 inch (64 mm)
 - b). Top Track and Side Jambs Depth: 1-3/4 inch (45 mm)

NOTE: Select from the following Sill types, edit to suit, and delete those not meeting project requirements. For ADA Compliant Flush Sill, the U-channel is 1/2 inch (12 mm).

- 2). Sill Type:
 - a). [Standard sill]
 - b). [Low Profile Saddle sill]
 - c). [Flush sill]
 - d). [ADA Compliant Flush sill]
 - e). [Surface Mounted Interior sill for interior application]
 - 3). Sill Finish: Aluminum with
 - a). [a clear anodized finish.]
 - b). [a dark bronze anodized finish.]
 - c). [finished to match panel (only with standard sill).]
 - 4). For ADA Compliance at Swing Panel: Provide gasket to cover the channel in the sill at swing panels.
2. Aluminum Extrusion: AlMgSi0.5 alloy, 6063-T5 (F-22 - European standard)
 - a. Thickness: 0.078 inch (2.0 mm) nominal
3. Panel and Frame Aluminum Finish
 - a. [Same (one-color)]
 - b. [Different (two-tone)]

NOTE: Select finish type below, edit to requirements and delete items not used.

- c. Anodized (AAMA 611):
 - 1). [Clear]
 - 2). [Dark Bronze]
 - d. Powder Coat (AAMA 2604):
 - 1). Color as chosen from manufacturer's powder coating finish chart from
 - a). [Manufacturer's standard selection of 50 colors - matte.]
 - b). [Manufacturer's full RAL selection - high gloss.]
 - c). [Custom finish.]
 - e. PVDF Coat (AAMA 2605): Fluoropolymer Kynar with color to match custom finish.
- B. Glass and Glazing:
1. Safety Glazing: In compliance with ASTM C1036, ASTM C1048, ANSI Z97.1 and CPSC 16CFR 1201.

NOTE: Unlike wet glazing, NanaWall's standard dry glazing method helps reduce instances of seal failure.

2. Manufacturer's [**tempered**] [**and**] [**laminated**] glass lites in [**single**] [**double**] insulated glazing units, dry glazed with glass stops on the inside.

NOTE: Select and edit glass type(s) to meet building code, wind-load design, acoustic, bullet resistant and/or security, and other project requirements with other glass available from manufacturer.

Custom layouts with horizontal mullions, simulated divided lites, inserts, and high bottom rails are possible. Contact NanaWall for availability of other commercial glass types.

- a. Insulated Glass Unit (IGU) Lites:
 - 1). Double IGU: 13/16 inch (20 mm) thick.

- b. Single Glass:
 - 1). [1/4 inch (6 mm) STC 36 enhanced laminated glass to achieve unit STC of 34]
 - 2). [1/4 inch (6 mm) STC 35 laminated glass to achieve unit STC of 33.]
 - 3). [1/4 inch (6 mm) STC 31 tempered glass to achieve unit STC of 30.]
- c. IGU Fill:
 - 1). Air Fill
 - 2). [Argon filled]
- d. Glass Spacers: Manufacturer's standard
 - 1). [silver gray finish with capillary tubes]
 - 2). [black finish with capillary tubes]
 - 3). [silver gray finish without capillary tubes]
 - 4). [black finish without capillary tubes]
- e. Glass Lite Type:
 - 1). Standard (Light Transmission (LT) 89%)

NOTE: Items below are options and may require an upcharge.

- 2). [Low iron (Light Transmission (LT) 91%)]
- 3). [Solar bronze]
- 4). [Solar gray]
- 5). [Bird safe]
- f. IGU Surface:
 - 1). Clear
 - 2). [Low- E coating on # 2 surface of double IGU]
 - 3). [Low- E coating on # 2 and # 4 surface of double IGU]

NOTE: Select one of the below Main Entry Panel paragraphs WITH or WITHOUT Swing Panels, deleting all others. Edit to suit project requirements.

C. Locking Hardware and Handles:

- 1. Main Entry [**Pair of**] Panel(s) for Models WITH Swing Panel(s): Provide manufacturer's [**Standard lever handles**] [**Lever handles with return**] on the inside and outside and a lockset with a lockable latch and multi-point locking with a dead bolt and rods at the top and bottom on primary panel [**only**].

NOTE: Locking is independently tested for acoustics, structural, air, water, and forced entry.

- a. Locking:
 - 1). Standard European profile cylinder
 - 2). [Adapter to accommodate a 5-7 pin SFIC core (SFIC core supplied by others)]
- b. Rods to be concealed and not edge mounted.
- c. After turn of key or thumb-turn, depression of handles withdraws latch.
- d. Lifting of handles engages rods and turn of key or thumb-turn engages deadbolt and operates lock.
- e. [Secondary Swing Panel: Provide two-point locking with flat handles on inside only for secondary swing panel.]
- f. Lever Handle - Finish:
 - 1). Brushed satin stainless steel

- 2). [Black titanium stainless steel]

NOTE: Handles above are standard; other options below may require an upcharge.
Lever handle with return only available in "Brushed satin stainless steel."
Other compatible lever, L-shaped, and push-pull handle styles and finishes are available from other suppliers.

- 3). [Oil rubbed bronze solid brass]
4). [Satin nickel solid brass]
5). [White solid brass]
2. Main Entry Panel For Models WITH a [**Pair of**] Swing Panel(s): Provide GU Rhondo lever handles on the inside and outside with single-point single motion locking, emergency egress, interconnected lock for interior application.
- a. Locking:
- 1). European profile cylinder
2). [Adapter to accommodate a 5-7 pin SFIC core (SFIC core supplied by others)]
3. Main Entry [**Pair of**] Panel(s) for Models WITH Swing Panel(s) attached to a side jamb: Provide manufacturer's push-pull handles with separate lockset and dead bolt.

NOTE: Option above is recommended with a door closer by others but, in order to slide the swing panel, it needs to be attached to a side jamb or disengaged.

- a. Locking:
- 1). European profile cylinder
2). [Adapter to accommodate a 5-7 pin SFIC core (SFIC core supplied by others)]
- b. Push-pull handles in a brushed stainless steel finish only.
4. Main Entry [**Pair of**] Panel(s) for Models WITH [**Single**] [**Paired**] Swing Panel(s): No hardware or locking provided by manufacturer; Field installed panic device(s) by Section 08 71 00 prepped for commercial application.

NOTE: Structural test load results will not apply for locking devices by others.

- a. Panic hardware (prepped, supplied, and installed by others):
- 1). [Von Duprin 33/35A Series Narrow Stile Rim Exit Device]

NOTE: Using push/pull handles on panic device hardware by others invalidates manufacturer's design wind-load pressure test.

5. Main Entry [**Pair of**] Panel(s) for Inswing Models WITHOUT Swing Panel(s): Provide manufacturer's standard L-shaped handle on the inside, flat handle on the outside and lock set with profile cylinder. Operation of lock set is by turn of key from the outside and with a thumb-turn from the inside with a two point locking hardware operated by 180° turn of the handle.
- a. L-Shaped Handles - Finish:
- 1). Brushed satin stainless steel
2). [Black titanium stainless steel]
6. Main Entry [**Pair of**] Panel(s) for Outswing Models WITHOUT Swing Panel(s): Provide manufacturer's standard flat handle on both sides and a lock set with a profile cylinder. Operation of lock set is by turn of key from the outside and from the inside with a two-point locking hardware operated by 180° turn of the handle.

NOTE: Key operation from the inside may not meet egress requirements.

7. Main Entry [**Pair of**] Panel(s) for Models WITHOUT Swing Panel(s): Provide manufacturer's standard flat handle on inside only with concealed two-point locking hardware operated by 180° turn of handle.

NOTE: With the option above, the main entry panel is operable from inside only and there is no latch.

8. Secondary Swing Panels and Pairs of Folding Panels: Provide manufacturer's [**Flat handles**] [**Removable custodial handles**] and concealed one or two-point locking hardware operated by 180° turn of handle.

NOTE: Locking is independently tested for structural, air, water, and forced entry.

- a. Face applied flush bolt locking not acceptable (except for units with paired panels).
- b. Flat Handle - Finish:
 - 1). Brushed satin stainless steel
 - 2). [Black Titanium stainless steel]

NOTE: Handles above are standard; other options below may require an upcharge.

- 3). [Powder coated aluminum with color finish to match frame.]

NOTE: Finishes to match are closest matches available by the manufacturer.
Review for acceptability.

9. Handle Height: 41-3/8 inch (105 cm) centered from bottom of panel or as otherwise indicated.
 10. Aluminum locking rods with fiberglass reinforced polyamide end caps at the top and bottom. Rods to have a stroke of 15/16 inch (24 mm).
 11. Additional profile cylinders to be [**keyed alike.**] [**keyed differently.**]
- D. Sliding- Folding Hardware: Provide manufacturer's standard combination sliding and folding hardware with top and bottom tracks.
1. For each pair of folding panels, provide independent cardanic suspension for four (4) wheeled rollers coated with fiberglass reinforced polyamide upper running carriage and lower guide carriage.
 2. Swing Panel Hinges:
 - a. Zinc die cast with finish closest match to finish of frame and panels and stainless-steel security hinge pins with set screws.

NOTE: Zinc die cast above is standard; stainless steel option below has an upcharge.
Finishes to match are closest matches available by the manufacturer. Review for acceptability.

- b. [Stainless steel hinges and security hinge pins with set-screws.]
 3. Adjustment: Provide 1/16 inch (1.5 mm) in width per hinge adjustments without removing panels from tracks and without needing to remove panels from tracks.
- E. Weather stripping: Manufacturer's double layer EPDM between panels, EPDM gasket and Q-Ion gasket, or brush seal between panel and frame, or brush seals with a two-layer fiberglass reinforced polyamide fin attached at both inner and outer edge of bottom of door panels with a recessed sill or on frame for sealing between panels and between panel and frame.

NOTE: The manufacturer's weather stripping is determined at the factory by the direction of swing, the panel configuration, the type of locking, and the type of sill.

- F. Fasteners: Stainless steel screws for connecting frame components.

2.04 FABRICATION

- A. Extruded aluminum frame and panel profiles, corner connectors and hinges, sliding and folding hardware, locking hardware and handles, glass and glazing, and weather stripping components needed to construct a folding glass wall.
1. Each unit factory pre-assembled and shipped with all components and installation instructions.
 2. Exposed work to be carefully matched to produce continuity of line and design with all joints.
 3. No raw edges visible at joints.

2.05 ACCESSORIES

- A. **Insect Screen by Others:** Fully retractable non-pleated screen made of ultra-strong, polyester / PVC mesh riding on a single track.
1. Basis-of-Design Product by Manufacturer: **S4 Screen & Shade System by Centor.**

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<https://centor.com/us/screens/centor-s4-insect-screen-and-shade>

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examination and Acceptance of Conditions per Section 01 70 00 and as follows:
1. Carefully examine rough openings with Installer present, for compliance with requirements affecting Work performance.
 - a. Examine surfaces of openings and verify dimensions; verify rough openings are level, plumb, and square with no unevenness, bowing, or bumps on the floor; and other conditions as required by the manufacturer to receive Work.
 - b. Verify the structural integrity of the header for deflection with live and dead loads limited to 1/4 inch (6 mm). Provide structural support for lateral loads, and both wind load and eccentric load when the panels are stacked open.

NOTE: Prior to installing NanaWall, it is recommended that all building dead loads be applied to the header. Allow a reasonable amount of time for the dead load's effect on the header; only then can the building's live load be used to meet the above requirement of 1/4 inch (6 mm). If this is not done, both dead and live loads need to be considered.

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

3.02 INSTALLATION

- A. General: Install Folding Glass Storefront system in accordance with the Drawings, approved submittals, manufacturer's recommendations and installation instructions, and as follows:
1. Properly flash, waterproof, and seal around opening perimeter.
 2. Securely attach anchorage devices to rigidly fit frame in place, level, straight, plumb, and square. Install frame in proper elevation, plane and location, and in proper alignment with other work
 3. When lower track is designed to drain, provide connections to allow for drainage.

4. Install panels, handles, lockset, screens, and other accessories in accordance with manufacturer's recommendations and instructions.

3.03 FIELD QUALITY CONTROL

- A. Inspections per Section 01 40 00 of the following:
 1. Verify the Folding Glass Storefront system operates and functions properly. Adjust hardware for proper operation.
- B. Non-Conforming Work: Repair or replace non-conforming work as directed by the Architect; see General and Supplementary Conditions, and Division 01, General Requirements.

3.04 CLEANING AND PROTECTION

- A. Keep units closed and protect Folding Glass Storefront installation against damage from construction activities.
- B. Remove protective coatings and use manufacturer recommended methods to clean exposed surfaces.

END OF SECTION

DISCLAIMER:

Nana Wall Systems, Inc. takes no responsibility for product selection or application, including, but not limited to, compliance with building codes, safety codes, laws, or fitness for a particular purpose. This guide specification is not intended to be verbatim as a project specification without appropriate modifications for the specific use intended and the requirements of a specific construction project.

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