

SECTION 08 43 33

FOLDING GLASS STOREFRONTS

SECTION 08 35 13

FOLDING GLASS DOORS

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 sliding-folding thermally broken aluminum-framed glass panel 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 (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 062000, Finish Carpentry
 - 4. Section 07 27 00, Air Barriers: Building wrap
 - 5. Section 07 62 00, Sheet Metal Flashing and Trim: Flashing and other sheet metal work.
 - 6. Section 07 90 00, Joint Protection
 - 7. Section 08 42 23, Glass Entrance Swing
 - 8. Section 08 51 13, Aluminum Windows: NanaWall SL88 / 89, 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 SL80 / 81

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 1304, Voluntary Specifications for Forced Entry Resistance of Side-Hinged Door Systems
 - d. AAMA 2604, Voluntary Specifications, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
 - e. AAMA/WDMA/CSA 101/I.S.2/A440, NAFS, North American Fenestration Standard - Specification for Windows, Doors and Skylights
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 E283, Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - d. ASTM E330, Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - e. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
 - f. ASTM E413, Classification for Rating Sound Insulation
 - g. ASTM E547, Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
 - h. ASTM E1332, Standard Classification for Rating Outdoor-Indoor Sound Attenuation
 - i. ASTM F842, Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact
 4. BSI Group. The British Standards Institution; <http://www.bsigroup.com/en-GB/>
 - a. PAS 24 (Publicly Available Specification), Enhanced security performance requirements for door assemblies
 5. Construction Products Directive (CPD), a legal mandate of the European Commission; http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/construction-products/index_en.htm
 - a. CE Mark; http://ec.europa.eu/growth/single-market/ce-marking/index_en.htm
 6. CPSC. Consumer Product Safety Commission; www.cpsc.gov
 - a. CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials
 7. DIN. "Deutsches Institut für Normung" (German institute for standardization); www.en-standard.eu/din-standards
 - a. DIN EN 1627, Pedestrian doorsets, windows, curtain walling, grilles and shutters - Burglar resistance - Requirements and classification
 - b. DIN EN 1630, Pedestrian doorsets, windows, curtain walling, grilles and shutters - Burglar resistance - Test method for the determination of resistance to manual burglary attempts
 - c. 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
 - d. DIN 52210-4, Tests in Building Acoustics - Airborne And Impact Sound
 - e. DIN EN ISO 10077, Thermal Performance of Windows, Doors and Shutters
 8. EN Standards - Construction Materials and Building (European Standards); www.en-standards.eu

standard.eu/din-standards

- a. EN 1027, Windows and Doors - Water Tightness
 - b. EN 1026, Windows and Doors - Air Permeability
 - c. EN 12211, Windows and Doors - Resistance to Wind Load
 - d. EN 1191, Windows and Pedestrian Doors - Mechanical Durability
9. Energy Star, U.S. Environmental Protection Agency (EPA) Program; www.energystar.gov
10. 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
 - c. NFRC 400, Procedure for Determining Fenestration Product Air Leakage
 - d. NFRC 500, Procedure for Determining Fenestration Product Condensation Resistance Rating Values

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, stacking layout, typical head jamb, side jambs and sill details, type of glazing material, handle height and field measurements.
- D. Certificates: Submit CE Mark certificate.
- E. 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.

- F. 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 (EAc1): Optimize Energy Performance:
 - 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 3 below can apply to reusing salvaged Folding Glass Storefront.

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

G. 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, 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. Regulatory Requirements: Folding Glass Storefront to be CE Mark certified.

NOTE: The CE mark serves as verification that the product conforms with the essential requirements of the Construction Products Directive (CPD), a legal mandate of the European Commission. CE certified windows and doors provide building professionals with a uniform set of technical standards to evaluate and specify product performance with added assurance that NanaWall products are safe and fit for purpose.

- B. Manufacturer Qualifications: Manufacturer capable of providing complete, precision built, engineered, pre-fitted units with a minimum twenty-five (25) 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.
- C. 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.

- D. 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 certified trained installer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Product by Manufacturer: **NanaWall SL80 / SL81** 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)
 - b. Document 00 63 25, Substitution Request Form (During Construction)

2.02 PERFORMANCE / DESIGN CRITERIA

NOTE: Select one of the eight Performance Criteria paragraphs below for different Sill and Opening types, deleting paragraphs not chosen.
 Choose the Higher Weather Performance Raised Sill, Hybrid Sill, Flush Sill or Low Profile Saddle Sill for Inward or Outward Opening Units.
 Weeps, when provided, are to be drilled in the field by the installer to manufacturer's requirements.

Air infiltration and water penetration 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): **Higher Weather Performance Raised Sill - Inward Opening**
1. Air Infiltration (EN 1026):
 - a. 0.03 cfm/ft² (0.15 L/s/m²) at a static air pressure difference of 2.1 psf (100 Pa)
 - b. 0.06 cfm/ft² (0.30 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 2. Water Penetration (EN 1027):
 - a. No uncontrolled water leakage at a static test pressure of 7.5 psf (360 Pa)
 3. Structural Loading (ASTM E330):
 - a. Windload Resistance:
 - 1). Design Pressure Positive: 45 psf (2160 Pa)
 - 2). Design Pressure Negative: 50 psf (2400 Pa)
- B. Performance Criteria (Lab Tested): **Higher Weather Performance Raised Sill - Outward Opening**
1. Air Infiltration (EN 1026):
 - a. 0.04 cfm/ft² (0.20 L/s/m²) at a static air pressure difference of 2.1 psf (100 Pa)
 - b. 0.08 cfm/ft² (0.40 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 2. Water Penetration (EN 1027):
 - a. No uncontrolled water leakage at a static test pressure of 7.5 psf (360 Pa)
 3. Structural Loading (ASTM E330):
 - a. Windload Resistance:
 - 1). Design Pressure Positive: 50 psf (2400 Pa)
 - 2). Design Pressure Negative: 45 psf (2160 Pa)
- C. Performance Criteria (Lab Tested): **Hybrid Sill - Inward Opening**
1. Air Infiltration (ASTM E283):
 - a. 0.03 cfm/ft² (0.15 L/s/m²) at a static air pressure difference of 1.57psf (75 Pa)
 - b. 0.09 cfm/ft² (0.46 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 2. Water Penetration (ASTM E331, ASTM E547):
 - a. No uncontrolled water leakage at a static test pressure of 7.5 psf (360 Pa)
 3. Structural Loading (ASTM E330):
 - a. Windload Resistance:
 - 1). Design Pressure - Positive: 45 psf (2160 Pa)
 - 2). Design Pressure - Negative: 50 psf (2400 Pa)

- D. Performance Criteria (Lab Tested): **Hybrid Sill - Outward Opening**
1. Air Infiltration (ASTM E283):
 - a. 0.08 cfm/ft² (0.40 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.15 cfm/ft² (0.76 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 2. Water Penetration (ASTM E331, ASTM E547):
 - a. No uncontrolled water leakage at a static test pressure of 7.5 psf (360 Pa)
 3. Structural Loading (ASTM E330):
 - a. Windload Resistance:
 - 1). Design Pressure - Positive: 55 psf (2620 Pa)
 - 2). Design Pressure - Negative: 45 psf (2160 Pa)
- E. Performance Criteria (Lab Tested): **Low Profile Saddle Sill - Inward Opening**
1. Air Infiltration (ASTM E283):
 - a. 0.15 cfm/ft² (0.76 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 2. Water Penetration (ASTM E331, ASTM E547):
 - a. No uncontrolled water leakage at a static (with weeps) test pressure of 6.00 psf (300 Pa)
 3. Structural Loading (ASTM E330):
 - a. Windload Resistance:
 - 1). Design Pressure Positive: 45 psf (2160 Pa)
 - 2). Design Pressure Negative: 55 psf (2620 Pa)
- F. Performance Criteria (Lab Tested): **Low Profile Saddle Sill - Outward Opening**
1. Air Infiltration (ASTM E283):
 - a. 0.19 cfm/ft² (0.96 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 2. Water Penetration (ASTM E331, ASTM E547):
 - a. No uncontrolled water leakage at a static (with weeps) test pressure of 6.00 psf (300 Pa)
 3. Structural Loading (ASTM E330):
 - a. Windload Resistance:
 - 1). Design Pressure Positive: 55 psf (2620 Pa)
 - 2). Design Pressure Negative: 45 psf (2160 Pa)
- G. Performance Criteria (Lab Tested): **Flush Sill - Inward Opening**
1. Structural Loading (ASTM E330):
 - a. Windload Resistance:
 - 1). Design Pressure Positive: 45 psf (2160 Pa)
 - 2). Design Pressure Negative: 55 psf (2620 Pa)
- H. Performance Criteria (Lab Tested): **Flush Sill - Outward Opening**
1. Structural Loading (ASTM E330):
 - a. Windload Resistance:
 - 1). Design Pressure Positive: 55 psf (2620 Pa)
 - 2). Design Pressure Negative: 45 psf (2160 Pa)

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

- I. Performance Criteria (Lab Tested):
1. System - Cycle Testing Performance (EN 1191): Class 3; 10,000 cycles

NOTE: Retain Burglary Resistance subparagraphs below when desired; these two additional security options are available for an upcharge.

1. Forced Entry Resistance (ASTM F842, AMMA 1304, CAWM 300): Meets Grade 40; +F2
2. Unit Burglary Resistance: EN 1627-30, Class RC2/ RC2N (Resistance Class 2) certified
3. Lockset Burglary Resistance: PAS 24 certified

NOTE: For storefront units requiring acoustic performance keep the following paragraph. Edit to suit project conditions.

4. Glass Acoustical Performance (DIN 52210-3, 4): Rw (STC)

NOTE: Acoustical system STC ratings below are engineer-calculated conversions of European tests for the full panel system with the higher weather performance sill per ASTM E413 and ASTM E1332.

38 (38); double IGU, 4 mm + 10 mm tempered glass

45 (45); double IGU, 11 mm + 9 mm laminated glass

5. Thermal Performance (U-factor): NFRC 100 rated but expired certification
6. Solar Heat Gain Coefficient (SHGC) + Visible Light Transmission (VT): NFRC 200 rated but expired certification
7. Air Leakage: NFRC 400 rated but expired certification
8. Condensation Resistance Factor (CRF): NFRC 500 rated but expired certification

J. LEED Characteristics:

1. LEED 2009 (v3)
 - a. EAc1: *NanaWall* systems using low U-Value designed double or triple IGU and thermally broken frames can provide significant energy performance.
 - b. MRc1.1: *NanaWall* exterior glass wall systems, not demolished in a renovation project, are reused in the same location.
 - c. MRc1.2: *NanaWall* interior glass wall systems, not demolished in a renovation project, are reused in the same location.
 - d. MRc2: *NanaWall* cardboard shipping crates are made of 60% recycled material and are 100% recyclable.
 - e. MRc3: *NanaWall's* components easily disassemble and reassemble to "Use as salvaged... or reused materials."
 - 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. EAc2: *NanaWall* systems using low U-Value designed double or triple IGU and thermally/ acoustically broken frames can provide significant energy performance.
 - b. MRc1: *NanaWall* can be easily disassembled for salvage and reuse.
 - c. EQc7: *NanaWall* glass wall assembly borrowed light brings daylight deeper into the floor plate.
 - d. EQc8: *NanaWall* glass wall assemblies provide direct outdoor lines of sight.

K. Design Criteria:

1. Sizes and Configurations: As indicated by the Drawings for selected number and size of

- 1). Matching top track and side jambs
 - a). Top Track Width: 3-13/16 inch (97 mm)
 - b). Side Jambs Width: 3-13/16 inch (97 mm)
 - c). Top Track and Side Jambs Depth: 3-7/16 inch (87 mm)

NOTE: Select from the following Sill types, edit to suit and delete those not meeting project requirements.

- 2). Sill Type:
 - a). [Higher weather performance raised sill (thermally broken)]
 - b). [Flush sill (thermally broken)]
 - c). [Low profile saddle sill (thermally broken)]
 - d). [Hybrid sill (thermally broken)]
 - 3). Finish: Aluminum with
 - a). [a clear anodized finish.]
 - b). [a dark bronze anodized finish.]
 - c). [finished to match panel only with higher weather performance sill.]
 - 4). Cover plate over sill NOT acceptable.
2. Aluminum Extrusion: AIMgSi0.5 alloy, 6063-T5 (F-22 - European standard)
 - a. Thickness: 0.078 inch (2.0 mm) nominal
 - b. Thermal Break: 3/4 to 15/16 inch (20 to 24 mm) wide polyamide plastic reinforced with glass fibers. Thinner or poured and de-bridged type thermal breaks not acceptable.
 3. Aluminum Finish: Inside and Outside;
 - 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.]
 - i. [High Gloss]
 - ii. [Matte]
 - c). [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 [**double**] [**triple**] 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:
 - a). [15/16 inch (24 mm) thick]
 - b). [1-3/8 inch (35 mm) thick]
 - 2). Triple IGU:
 - a). [1-9/16 inch (40 mm) thick.]
- b. IGU Fill:
 - 1). [Low-E]
 - 2). [Argon filled]
 - 3). [Air filled]
 - 4). [Krypton filled]
- c. Glass Lite Type:
 - 1). Standard

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

- 2). [Low iron]
- 3). [Solar bronze]
- 4). [Solar gray]
- 5). [Bird safe]
- d. Glass Spacers: Manufacturer’s standard
 - 1). [gray finish with capillary tubes]
 - 2). [dark bronze finish with capillary tubes]
 - 3). [gray finish without capillary tubes]
 - 4). [dark bronze finish without capillary tubes]
- e. IGU Surface:
 - 1). Clear
 - 2). [Low- E coating on # 2 surface of double or triple IGU]

C. Locking Hardware and Handles:

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

- 1. Main Entry Panel(s) for Models WITH a [**Pair of**] Swing Panel: Provide manufacturer’s [**standard lever handles**] or [**lever handles with return**] on the inside and outside, and a locket with lockable latch, multi-point locking with a dead bolt and rods at the top and bottom on primary panel [only].
 - a. Rods to be concealed and not edge mounted.
 - b. After turn of key or thumb-turn, depression of handles withdraws latch.
 - c. Lifting of handles engages rods and turn of key or thumb-turn engages deadbolt and operates lock.

- d. [Secondary Swing Panel: Provide two-point locking with flat handles on inside only for the secondary swing panel.]
- e. Lever Handle - Finish:
 - 1). Brushed satin stainless steel
 - 2). [Black titanium stainless steel]

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

- 3). [Oil rubbed bronze solid brass.]
 - 4). [Satin nickel solid brass.]
 - 5). [White solid brass.]
 - f. Locking:
 - 1). Standard profile cylinder
 - 2). [Adaptor for Small Format Interchangeable Core (SFIC) by others]
2. Main Entry Panel: 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 that there is no latch.

3. Main Entry Panel(s) for Models WITH a [Pair of] Swing Panel: No hardware or locking provided by manufacturer; Field installed panic device by Section 08 71 00.

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

4. Secondary Panels and Pairs of Folding Panels: Provide manufacturer's [**flat handles**] [**removable custodial handles**] and concealed two-point locking hardware operated by 180° turn of handle between each pair. Face applied flush bolt locking NOT acceptable.
- a. Flat Handle - Finish:
 - 1). Brushed satin stainless steel
 - 2). [Black titanium stainless steel]
5. Handle Height: 41-3/8 inch (105 cm) centered from bottom of panel or as otherwise indicated.
6. Locking rods with standard end caps at the top and bottom. Rods to have a stroke of 15/16 inch (24 mm).
7. 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 and threshold. All running carriages to be with sealed, self-lubricating, ball bearing multi-rollers. Surface mounted hinges and running carriages NOT acceptable.

NOTE: Weight of panels borne by the bottom of the guide channel in the sill is NOT acceptable.

1. Lower Running Carriage Carrying Capacity: 220 lbs. (100 kgs)
2. Upper guide carriage and lower running carriage provided with two vertical stainless steel wheels and two horizontal polyamide wheels.
3. Vertical wheels to ride on top of stainless steel guide track covers over the full length of the sill track.
4. Wheels riding on aluminum surfaces NOT acceptable.
5. Hinges: [**Clear**] [**Dark bronze**] anodized aluminum with stainless steel security hinge pins and set-screws.

6. Adjustment: Provide folding/sliding hardware capable of compensation and adjustments without needing to remove panels from tracks, in width, 1/16 inch (1.5 mm) per hinge and in height, 5/64 inch (2 mm) up and down.
- E. Weather stripping: Manufacturer's double layer EPDM between panels and EPDM gasket, Q-lon 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: Tapered pins or stainless steel screws for connecting frame components.

2.04 FABRICATION

- A. Folding Glass Wall: Extruded aluminum frame and panel profiles, corner connectors and hinges, sliding and folding hardware, locking hardware and handles, glass and glazing and weather stripping.
 1. Each unit factory pre-assembled and shipped with complete system 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. Provide sidelights, transoms, corner posts, or single or double doors as indicated.

NOTE: Screen ONE XL is 'non-pleated' while Screen Classic is 'pleated.'
Select 'ONE XL' or 'Classic,' deleting option not chosen.

- B. Insect Screen Panels: Fully retractable non-pleated screen made of ultra-strong, UV resistant fiberglass mesh housed in a single cartridge riding on a single track.
 1. Basis of Design Product by Manufacturer: **Screen ONE XL** or an Architect acceptable equivalent subject to project requirements.
 2. Finish - Aluminum Top Track, Side Jambs and Vertical Struts:
 - a. White powder coated
 - b. [Black powder coated]

NOTE: Above options are standard.

- C. Insect Screen Panels: A series of top-hung collapsible pleated UV resistant fiberglass mesh screen panels riding on a single narrow ADA compliant 1/4 inch (5 mm) floor track. Each 4 inch (10 cm) wide vertical cassette can expand to 3'-3" (1 m) wide.
 1. Basis of Design Product by Manufacturer: **Screen Classic** or an Architect acceptable equivalent subject to project requirements.
 2. Finish - Aluminum Top Track, Side Jambs and Vertical Struts:
 - a. White powder coated
 - b. [Clear anodized]
 - c. [Dark bronze anodized]

NOTE: Above options are standard. Check with NanaWall regarding powder coated and other available finishes, which may require an upcharge.

- d. [RN powder coated with color as selected by architect.]
3. Screen Track Stacking: [Within opening] [Extended beyond opening]

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 for readiness to receive Work.
 - b. Verify structural integrity of the header for deflection with live and dead loads limited to the lesser of L/720 of the span or 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 requirements of L/720 or 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. Field Tests and 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 particular requirements of a specific construction project.

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