

SECTION 08 35 13
WOOD FRAMED FOLDING GLASS DOOR

SECTION 08 43 11
FOLDING WOOD-FRAMED 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, folding / paired-panel, wood framed glass panel system that includes:
 - 1. Wood 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 52 00, Wood Windows: NanaWall WD68, tilt-turn, casement window
 - 9. Section 09 22 16, Non-Structural Metal Framing: Metal framing R.O. and reinforcement
 - 10. Section 10 22 41, Wood Framed Folding Glass Partitions: NanaWall WD65

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 1303.5, Voluntary Specifications for Forced-Entry Resistant Aluminum Sliding Glass Doors
- d. AAMA 1304, Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems
- e. AAMA CAWM 300, Forced Entry Resistance Tests for Sliding Glass Doors
- f. 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
- 4. CPSC. Consumer Product Safety Commission; www.cpsc.gov
 - a. CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials
- 5. CSA Group (Canadian Standards Association); www.csagroup.org/global/en/home
 - a. CSA A440S1 - The Canadian supplement to North American (NAFS) standards
- 6. Energy Star, U.S. Environmental Protection Agency (EPA) Program; www.energystar.gov
- 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
 - 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. Pre-installation 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. 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 (EAc1): 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 3 below can apply to reusing salvaged Folding Glass Storefront.

- 4). MR Credit 3: Materials Reuse - 5% (MRc3.1) or 10% (MRc3.2)
 - 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, 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. Condition wood components to average prevailing relative humidity before installation. Do not subject wood components to extreme nor rapid changes in heat or humidity.
 3. Do not use forced heat to dry out building.
 4. Store flat in a well-ventilated area out of direct sunlight 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 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 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 WD65** 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: Select one of the six Performance Criteria paragraphs below for different Sill and Opening types, deleting paragraphs not chosen. Select the Standard Sill, Low Profile Saddle Sill, or Flush Sill and an Inward or Outward Opening.

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.

See manufacturer's latest published data regarding performance.

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

- A. Performance Criteria (Lab Tested): **Standard Sill - Inward Opening**
1. Air Infiltration (ASTM E-283):
 - a. 0.15 cfm/ft² (0.77 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.23 cfm/ft² (1.18 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 2. Structural Load Deflection (ASTM E-330): **Pass**
 - a. Design Pressure - Positive: 25 psf (1200 Pa)
 - b. Design Pressure - Negative: 25 psf (1200 Pa)
- B. Performance Criteria (Lab Tested): **Standard Sill - Outward Opening**
1. Air Infiltration (ASTM E-283):
 - a. 0.12 cfm/ft² (0.64 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.38 cfm/ft² (1.95 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 2. Structural Load Deflection (ASTM E-330): **Pass**
 - a. Design Pressure - Positive: 25 psf (1200 Pa)

- b. Design Pressure - Negative: 25 psf (1200 Pa)
- C. Performance Criteria (Lab Tested): **Low Profile Saddle Sill - Inward Opening**
 - 1. Air Infiltration (ASTM E-283):
 - a. 0.10 cfm/ft² (0.50 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.25 cfm/ft² (1.27 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - 2. Water Penetration (ASTM E-547 and ASTM E-331): With weep holes.
 - a. No uncontrolled water leakage at a static test pressure of 2.1 psf (100 Pa)
 - 3. Structural Load Deflection (ASTM E-330): Pass
 - a. Design Pressure - Positive: 25 psf (1200 Pa)
 - b. Design Pressure - Negative: 25 psf (1200 Pa)
- D. Performance Criteria (Lab Tested): **Low Profile Saddle Sill - Outward Opening**
 - 1. Air Infiltration (ASTM E-283):
 - a. 0.10 cfm/ft² (0.50 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.25 cfm/ft² (1.27 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - 2. Water Penetration (ASTM E-547 and ASTM E-331): With weep holes.
 - a. No uncontrolled water leakage at a static test pressure of 2.1 psf (100 Pa)
 - 3. Structural Load Deflection (ASTM E-330): Pass
 - a. Design Pressure - Positive: 25 psf (1200 Pa)
 - b. Design Pressure - Negative: 25 psf (1200 Pa)
- E. Performance Criteria (Lab Tested): **Flush Sill - Inward Opening**
 - 1. Air Infiltration (ASTM E-283):
 - a. 0.10 cfm/ft² (0.50 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - b. 0.25 cfm/ft² (1.27 L/s/m²) at a static air pressure difference of 6.24 psf (300 Pa)
 - 2. Structural Load Deflection (ASTM E-330): Pass
 - a. Design Pressure - Positive: 25 psf (1200 Pa)
 - b. Design Pressure - Negative: 25 psf (1200 Pa)
- F. Performance Criteria (Lab Tested): **Flush Sill - Outward Opening**
 - 1. Air Infiltration (ASTM E283):
 - a. 0.10 cfm/ft² (0.50 L/s/m²) at a static air pressure difference of 1.57 psf (75 Pa)
 - 2. Structural Load Deflection (ASTM E330): Pass
 - a. Design Pressure - Positive: 25 psf (1200 Pa)
 - b. Design Pressure - Negative: 25 psf (1200 Pa)

NOTE: Items below are common to all sill types.

- G. Performance Criteria (Lab Tested):
 - 1. Forced Entry (AAMA CAWM 300): Pass
 - 2. Folding Glass Storefront Units tested to AAMA/WDMA/CSA 101/I.S.2/A440

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

- 3. Glass Acoustical Performance (ASTM E-413 and ASTM E-1332): STC (Rw)

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

- a. [System STC (Rw) 36 (36); double IGU, air filled, 8 mm + 4 mm tempered glass]
- 4. Thermal Performance (U-factor): NFRC 100 rated, certified, and labeled.
- 5. Solar Heat Gain Coefficient (SHGC) + Visible Light Transmission (VT): NFRC 200 rated, certified, and labeled
- 6. Air Leakage: NFRC 400 rated, certified, and labeled.
- 7. Condensation Resistance Factor (CRF): NFRC 500 rated, certified, and labeled.

NOTE: The NFRC 100, 200, 400, and 500 ratings of the WD65 Folding Glass Storefront System meet **Prescriptive Method** requirements for U-factor, SHGC, Air Leakage, and CRF of **California Title 24, Chapter 3, Building Envelope Requirements**.

For the listing of Nana Wall product NFRC testing reports go to the following website <http://search.nfrc.org/search/searchdefault.aspx>; click on **Door** (Find Ratings for Door Products); click on the **Search by Manufacturer** button; click **Manufacturers**, scroll down to and click on **Nana Wall Systems, Inc.**, and click on the **Find Products** button.

- 8. EPA Energy Star: Meets requirements

NOTE: **Energy Star** values for DOORS with > 50% glass can be achieved through the use of specific glass units meeting the following requirements:

Northern & North-Central Region: ≤ 0.30 U-factor 0.40 SHGC

South-Central & Southern Region: ≤ 0.30 U-factor 0.25 SHGC

Energy Star Air Leakage Rating Requirements (ASTM E-283 in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440-11):

Swinging Door: ≤ 0.5 cfm/ft² (2.56 L/s/m²)

For Guidance only as Nana Wall Systems is not a participant of the Energy Star Program.

H. 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 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.
- I. Design Criteria:
1. Sizes and Configurations: As indicated by the Drawings for selected number and size of panels, location of swing panels, and location of tracks 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/ open corner]
 - d. [135° angle turn]
 - e. [Window door combination]
 4. Stack Storage Configuration:
 - a. [Inswing type]
 - b. [Outswing type]
 - c. [Inside-outside combination]
 - d. [FoldFlat® against Wall]
 5. Mounting Type: Top-hung
 6. Paired Panel Type: [Unhinged] [Hinged]
 - 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/wd65/configurations/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. Solid Wood Framed Folding Glass Storefront Description: 2-5/8 inch (66 mm) thick for single, double, and triple glazed frame profiles, top-hung system designed for straight runs, segmented and angle changes, capable of folding flat against adjacent walls. Manufacturer's standard frame and panel profiles, with head and floor track, side jambs and panels with dimensions as shown on Drawings.
1. Panels and Frame:
 - a. Panels
 - 1) Single lite.

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

- 2) [Horizontal mullion(s) at height(s) indicated from the bottom of the panel.]
- 3) [Single lite with simulated divided lites in pattern as indicated.]
- 4) Panel Size (W x H): As indicated.

NOTE: Maximum panel width for the 2-5/8 inch (66 mm) profile is 3' 3" (1 m). Maximum panel height: 10' 0" (3.05 m). Minimum panel width: 1' 8" (0.51 m).
Refer to NanaWall size chart. E.g. 3' 3" x 9' 0" (1.0 x 2.75 m) or 2' 11" x 10' 0" (0.9 x 3.05 m).

NOTE: Glass panels higher than 8' 6" (2.6 m) need to be stiffened with a horizontal mullion.

- 5) Rail Depth: 2-5/8 inch (66 mm)
- 6) Top Rail and Stile Width:
 - a). 3-1/16 inch (78 mm)

NOTE: 3-1/6 inch above is standard; other options below may require an upcharge.

- b). [2-5/8 inch (66 mm)]
 - c). [3-3/4 inch (95 mm)]
 - d). [4-3/4 inch (120 mm)]
- 7). Bottom Rail Width:
 - a). Match top rail and stile width
 - b). [Manufacturer's standard kickplate with height indicated.]

NOTE: When selecting kickplate option for the bottom rail, select and indicate a height of between 5 and 12 inches (127 and 305 mm); this option may require an upcharge.

- b. Frame:
 - 1). Matching top track and side jambs
 - a). Top Track Width: 2-1/2 inch (64 mm)
 - b). Side Jambs Width: 2-5/8 inch (66 mm)
 - c). Top Track Depth: 2-5/8 inch (66 mm)
 - d). Side Jambs Depth: 2-5/8 inch (66 mm)
- 2. Sill - Extruded Aluminum:

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

- a. [Standard sill]
- b. [Low profile saddle sill]
- c. [Flush sill]
- d. [Surface mounted interior sill for interior application]
- e. Finish:
 - 1). [Clear anodized]
 - 2). [Dark bronze anodized]
- f. For ADA Compliance: Provide gasket to cover the channel in the sill at swing doors.
- 3. Wood: Cross-grained, triple laminated solid wood with mortise and tenon, and glued and pinned corners. Veneered wood not acceptable.

NOTE: Sapeli Mahogany is LEED credit qualified. Others available upon request.

- a. Species:
- 1). [Sapeli Mahogany]
 - 2). [European Pine]
 - 3). [Red Grandis]
 - 4). [Western Hemlock]
 - 5). [Meranti]

NOTE: Below wood options may require an upcharge. Maple and Cherry is available for interior application only.

- 6). [European Oak]
 - 7). [Maple]
 - 8). [Cherry]
- b. Wood Finish: Provide factory water-based, open pore [**clear sanding sealer for stain**] [**base coat applied for paint**] with one additional clear coat; See Section 09 90 00 for field finish.

NOTE: Before installation, field finish wood with a minimum two coats for final protective finish.

4. Aluminum Extrusion: Attached to interior wood with thermal isolating polyamide connectors.
- a. Alloy: AIMgSi0.5; 6063-T5 (F-22 - European standard)
 - b. Thickness: 0.078 inch (2.0 mm) nominal
 - c. Finish (AAMA 611): Clear, anodized

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**] [**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, security, and other project requirements with other glass available from manufacturer.

Contact NanaWall for availability of other commercial glass types.

- a. Glass Lite / Insulated Glass Unit (IGU):
- 1). Single: [1/4 inch (6 mm) thick.]
 - 2). Double IGU: [15/16 inch (24 mm) thick.]
 - 3). Triple IGU: [1-1/8 inch (28 mm) thick.]

NOTE: Subparagraphs below are options for Double and Triple IGU items above.

- a. IGU Fill:
- 1). [Air filled]
 - 2). [Argon filled]
- b. Glass Lite Type:

NOTE: Standard reduced iron heat soaked tempered glass with a VLT of 89%.
Low Iron is a VLT of 91%.

- 1). Standard reduced iron

NOTE: Items below may require an upcharge.

- 2). [Low iron]
- 3). [Solar bronze]
- 4). [Solar gray]
- c. 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]
- d. 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]
 - 4). [Low-E coating on # 2 and # 5 surface of 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 Panels: Provide manufacturer's [**Standard lever handles**] or [**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. 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 matching dummy lever handles on both sides and concealed flush bolts that operate the rods at the top and the bottom for the secondary swing panel.]

NOTE: Secondary swing panel paragraph above is standard with pairs; hardware for Secondary Panel below is an option.

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

NOTE: Handles above are standard; optional handle types 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]
- g. Locking:
 - 1). Standard European profile cylinder

- 2). [Adapter to accommodate a 5-7 pin Small Format Interchangeable Core (SFIC) (SFIC core supplied by others)]
2. Main Entry Panel(s) for Models WITH Swing Panel: Provide manufacturer's push-pull handles with separate lockset and dead bolt.
 - a. Push-pull handles in a brushed stainless steel finish and stainless steel flat handles in a [**brushed satin finish.**] [**black titanium finish.**]

NOTE: Option is recommended with a door closer but, to slide the swing panel, it needs to be attached to a side jamb or disengaged. Suitable for end swing panel only with door closer by others.

- b. Locking:
 - 1). Standard European profile cylinder
 - 2). [Adapter to accommodate a 5-7 pin Small Format Interchangeable Core (SFIC) (SFIC core supplied by others)]
3. Main Entry Panel(s) for Models WITH a [**Pair of**] Swing Panel(s): No hardware or locking provided by manufacturer; Field installed panic device [**s on both panels**] 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]
4. Main Entry Pair of Panels on Inswing Models WITHOUT a Swing Panel: Provide manufacturer's standard L-shaped handle on the inside, flat handle on the outside and lockset with profile cylinder. Operation of lockset is by turn of key from the outside and with a thumb-turn from the inside with 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]
5. Main Entry Pair of Panels on Outswing Models WITHOUT a Swing Panel: Provide manufacturer's standard flat handle on the inside and outside and a lockset with profile cylinder. Operation of lockset is by turn of key from the outside and from inside with two-point locking hardware operated by 180° turn of the handle.

NOTE: Above keying operation from inside may not meet egress requirements.

6. 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 option above, main entry panel is operable from inside only and there is no latch. Other compatible lever handle styles and finishes are available from other suppliers.

7. Secondary Panels and Pairs of Folding Panels: Provide manufacturer's [**Standard flat handles**] [**Removable custodial handles**] and concealed one or two-point locking hardware operated by 180° turn of handle between each pair.

NOTE: Flat handles above are standard with removable custodial handles, that may require an upcharge. 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).
8. Flat Handle - Finish:
 - a. Brushed satin stainless steel
 - b. [Black titanium stainless steel]

NOTE: Handles above are standard, below may require an upcharge.

- c. [Dark brown powder coated]
- d. [Silver gray powder coated]
- 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 and threshold. All running carriages to be with sealed, self-lubricating, ball bearing multi-rollers. Surface mounted hinges and running carriages NOT acceptable.
 - 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. For ADA Compliance: Provide gasket to cover the channel in the sill at swing doors.
 - 3. Panel Hinges: [**Clear**] [**Dark bronze**] anodized aluminum hinges with stainless steel hinge pins.
 - 4. Adjustment: Provide hardware capable of compensation and adjustments without removing panels from tracks.
- E. Weather stripping: Manufacturer's double layer EPDM between panels and EPDM 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.
Double layer EPDM is standard.

2.04 FABRICATION

- A. Folding Glass Wall: Use solid, three-layer, cross grained, solid wood frame and panel profiles with male-female interlocking, hinges, sliding and folding hardware, locking hardware and handles, threshold and track, 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.
 - 4. Wood frame and panel components to be sealed with a clear sand sealer or primer.

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**.

CENTOR NORTH AMERICA, INC.

966-130 Corporate Boulevard, Aurora, IL 60502

Toll Free: (866) 255-0008

Telephone: (630) 957-1000

Fax: (630) 957-1001

Email: mail.us@centor.com

<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 for readiness to receive Work.
 - b. Verify 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. Wood Finishing: Field finish wood under Section 09 90 00, Painting and Coating; seal and finish promptly after installation and prior to exposure to weather.
5. Install panels, handles, lockset, screens, weather stripping, 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 requirements of a specific construction project.

www.nanawall.com