SECTION 084115 - OPERABLE GLAZED PANEL SYSTEMS

PART 1 - GENERAL

0.1 SUMMARY

A. Section Includes: Manually operated, glazed panel systems, including the following:

1. Factory-assembled, thermally broken aluminum-framed operable panel systems, including the following types:

a. Folding panel systems; designated on Drawings as XA, XA1, XB1, and XB2.
b. Single-track sliding systems; designated on Drawings as XC and XD.

2. Sliding/folding and locking hardware.
3. Thresholds and weatherstripping.
4. Glass and glazing.

0.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

0.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For operable glazed panel systems.

1. Include plans, elevations, sections, details, numbered panel installation sequence, and attachments to other work.
2. Indicate stacking and operating clearances. Indicate location and installation requirements for hardware and track, blocking, and direction of travel.

C. Samples: For each type of exposed material and finish, and for accessories involving color selection.

D. Delegated-Design Submittal: For operable glazed panel systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

0.4 INFORMATIONAL SUBMITTALS

A. Setting Drawings: For embedded items and cutouts required in other work.

B. Sample Warranty: For manufacturer's special warranty.

0.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For operable glazed panel systems to include in maintenance manuals. Include information for hardware, track, and other operating components.

0.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Engineering Responsibility: Prepare data for operable glazed panel systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.

C. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

0.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of operable glazed panel systems that fail in materials or workmanship within specified warranty period.

1. Warranty Periods:

a. Operable Glazed Panel Systems: 2 years from date of Substantial Completion.
b. Roller Systems: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

0.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design operable glazed panel systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. General Performance: Operable glazed panel systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:

1. Movements of supporting structure indicated on Drawings, and deflection from uniformly distributed and concentrated live loads.
2. Dimensional tolerances of building frame and other adjacent construction.
3. Failure includes the following:

a. Deflection exceeding specified limits.
b. Thermal stresses transferring to building structure.
c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
d. Noise or vibration created by wind and by thermal and structural movements.
e. Loosening or weakening of fasteners, attachments, and other components.
f. Failure of operating units.

C. Structural Loads:

1. Wind Loads: As indicated on Drawings.

D. Air Infiltration: Provide operable glazed panel systems with maximum air leakage through fixed glazing and framing areas of 0.18 cfm/sq. ft. (0.09 L/s per sq. m) of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa).

E. Water Resistance: No uncontrolled water entry when subjected to differential pressure of 8.24 lbf/sq. ft. when tested according to ASTM E 547.

F. Thermal Transmittance: NFRC 100 maximum whole-unit U-factor of 0.34 Btu/sq. ft. x h x deg F (1.83 W/sq. m x K).

G. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-unit SHGC as follows:

1. Folding Panel Systems: 0.26.
2. Single-Track Sliding Systems: 0.19.

H. Thermal Movements: Provide operable glazed panel systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
2. Interior Ambient-Air Temperature: 75 deg F (24 deg C).

0.2 OPERABLE GLASS PANELS

A. Operable Glass Panels: Aluminum-framed operable glazed panel system, including panels, seals, suspension system, operating hardware, and accessories.

1. Basis-of-Design Products: Subject to compliance with requirements, provide the following products by NanaWall Systems, Inc.:

a. Folding Panel Systems: SL70.
b. Single-Track Sliding Systems: HSW60.

2. Comparable Products: Subject to compliance with requirements, provide the basis-of-design products or comparable products by one of the following:

a. LaCantina Doors, Oceanside CA (LaCANTINADOORS.com); LaCantina Folding Systems.
b. Solar Innovations (solarinnovations.com).

B. Panel Operation: Manually operated, as follows:

1. Folding Panel Systems: Continuously hinged panels.
2. Single-Track Sliding Systems: Individual sliding panels.

C. System Mounting: As follows:

1. Folding Panel Systems: Floor mounted with stainless-steel rollers.
2. Single-Track Sliding Systems: op hung.

D. Panel Construction: As required to support panel from suspension components and with reinforcement for hardware attachment. Fabricate panels with tight hairline joints and concealed fasteners. Fabricate panels so finished in-place system is rigid; level; plumb; aligned, with tight joints and uniform appearance; and free of bow, warp, twist, deformation, and surface and finish irregularities.

1. Factory-Glazed Fabrication: Glaze operable glass panels in the factory where practical and possible for applications indicated. Comply with manufacturer's written instructions and with requirements in Section 088000 "Glazing."

E. Glass and Glazing: As follows:

1. Safety Glass Standard : Provide glass products complying with testing requirements in 16 CFR 1201, Category II.

2. Glass: Manufacturer's standard safety glass and glass assemblies as indicated and complying with requirements in Section 088000 "Glazing" and as follows:

    a. Basis-of-Design Product: Vitro Architectural Glass (formerly PPG); Solarban 60.
    b. Tempered Glass: ASTM C 1048, Kind FT (fully tempered), Type I (transparent flat glass), Class 1 (clear), Quality-Q3.
    c. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass as indicated, separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.

        1) Coating: Manufacturer’s standard low-E coating.
        2) Spacer: Aluminum with dark bronze, color anodic finish.

    d. Glass Overall Thickness: 15/16 inch.
    e. Minimum Thickness of Each Glass Lite: 6 mm.
    f. Outdoor Lite: Fully tempered float glass.
    g. Interspace Content: Argon.
    h. Indoor Lite: Fully tempered float glass.
    i. Low-E Coating: Sputtered on second surface.
    j. Visible Light Transmittance: 70 percent minimum.
    k. Winter Nighttime U-Factor: 0.24 maximum.
    l. Solar Heat Gain Coefficient: 0.39 maximum.
    m. Outdoor Visible Reflectance: 11 percent.
    n. Indoor Visible Reflectance: 12 percent.
    o. Light to Solar Gain Ratio: 1.79 LSG.

3. Glazing System: Manufacturer's standard factory-glazing system.

F. Dimensions: Fabricate operable glazed panel systems to form an assembled system of dimensions indicated and verified by field measurements.

1. Panel Width: Equal widths as indicated.

G. Panel Frame Materials:

1. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use, corrosion resistance, and finish indicated; ASTM B 221 (ASTM B 221M) for extrusions; manufacturer's standard strengths and thicknesses for type of use.

    a. Frame Reinforcement: Manufacturer's standard steel or aluminum.

H. Hardware: Manufacturer's standard as required to operate operable glazed panel system and accessories; with decorative, protective finish.

1. Sliding/Folding Hardware: Provide manufacturer's standard combination sliding and folding hardware with top, and bottom tracks and threshold. Provide running carriages with sealed, self-lubricating, ball-bearing multi-rollers.
2. Hinges: Zinc die cast, finished with manufacturer's standard color closest to frame finish; with stainless steel security hinge pins with set screws.
3. Threshold and Sill Cap/Track: Provide extruded-aluminum threshold and track of thickness, dimensions, and profile indicated; designed to comply with performance requirements indicated and to drain to the exterior; with manufacturer's standard finish.

    a. Floor Track: Thermally broken; low profile, ADA compliant.

b. Sill Finish: Dark bronze anodized.

4. Door Handles: Provide manufacturer's standard handles.
5. Locks: Provide manufacturer's standard concealed locking hardware; all keyed alike.
6. Exposed Hardware Finish: Stainless-steel with black titanium finish.

I. Panel Frame Finishes:

1. Aluminum: Baked powder coating.

a. Colors: As selected by Architect from manufacturer’s full range.

0.3 SUSPENSION SYSTEMS

A. Tracks: Manufacturer’s standard metal track system mounted directly to overhead structural support, unless otherwise indicated, designed for operation, size, and weight of operable glazed panel system indicated. Size track to support glazed panel system operation and storage without damage to suspension system, operable glazed panel systems, or adjacent construction. Limit track deflection to no more than 0.10 inch (2.54 mm) between bracket supports. Provide a continuous system of track sections and accessories to accommodate configuration and layout indicated for glazed panel system operation and storage.

B. Carriers: Trolley system as required for configuration type, size, and weight of glazed panel system and for easy operation; with ball-bearing wheels.

C. Track Finish: Manufacturer's standard, factory-applied, decorative finish unless otherwise indicated.

0.4 ACCESSORIES

A. Pass Doors: Swinging door built into and matching panel materials, construction, finish and thickness, complete with frames and operating hardware. Hinges finished to match other exposed hardware.

1. Accessibility Standard: Fabricate doors to comply with applicable provisions in ICC A117.1 and the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities.
2. Single Pass Door: Sizes as indicated.
3. Pass-Door Hardware: Equip pass door with the following. Where basis-of-design products are listed, provide the named product or approved comparable product.

a. Door Seals: Manufacturer’s standard.
b. Panic Hardware: Sargent 9400 Series.
c. Concealed Door Closer: Norton 7900 Series.
d. Lock: Operable by thumb turn from inside, with blank plate on outside.

PART 3 - EXECUTION

0.1 INSTALLATION

A. Install operable glazed panel systems and accessories after other finishing operations, including painting, have been completed in area of installation.

B. Install panels from marked packages in numbered sequence indicated on Shop Drawings.

C. Broken, cracked, chipped, deformed, or unmatched panels are not acceptable.

D. Broken, cracked, deformed, or unmatched gasketing or gasketing with gaps at butted ends is not acceptable.

0.2 ADJUSTING

A. Adjust operable glazed panel systems, hardware, and other moving parts to function smoothly, and lubricate as recommended by manufacturer.

B. Adjust pass doors to operate smoothly and easily, without binding or warping.

0.3 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain operable glazed panel systems.

END OF SECTION