

SECTION 08950

TRANSLUCENT WALL AND ROOF ASSEMBLIES

PART GENERAL

SECTION INCLUDES

Insulated translucent roof assembly.

Insulated translucent wall panel assembly.

Operable windows in translucent wall assembly.

RELATED SECTIONS

Section 03300 - Cast-In-Place Concrete: Concrete structural members supporting roof and wall system.

Section 05120 - Structural Steel: Steel structural members supporting roof and wall system.

Section 06100 - Rough Carpentry: Wood structural members supporting roof and wall system.

Section 07620 - Sheet Metal Flashing and Trim.

Section 07900 - Joint Sealers.

REFERENCES

AAMA 605.2 - Specification for High Performance Organic Coatings on Architectural Extrusions and Panels; American Architectural Manufacturers Association.

AAMA 606.1 - Voluntary Guide Specifications and Inspection Methods for Integral Color Anodic Finishes for Architectural Aluminum; American Architectural Manufacturers Association.

AAMA 607.1 - Voluntary Guide Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum; American Architectural Manufacturers Association.

ASTM C 236 - Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box.

ASTM C 297 - Standard Test Method for Tensile Strength of Flat Sandwich Constructions In Flatwise Plane.

ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.

ASTM D 1002 - Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal).

ASTM D 1037 - Standard Test methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.

ASTM D 1183 - Standard Test Methods for Resistance of Adhesive to Cyclic Laboratory Aging Conditions.

ASTM D 1435 - Standard Practice for Outdoor Weathering of Plastics.

ASTM D 2244 - Standard Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates.

ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.

ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

ASTM E 661 - Standard Test Method for Performance of Wood and Wood-Based Floor and Roof Sheathing Under Concentrated Static and Impact Loads.

NFRC 100 - Thermal Properties; National Fenestration Rating Council.

#### SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Manufacturer's printed descriptive literature, specifications, and installation instructions; show compliance with specified performance requirements.

Shop Drawings: Specifically prepared for this project. Include layouts, details of framing members, type and thickness of flashing and closures, interface with adjacent construction, fasteners and anchors, and sealers. If field measurements are taken prior to fabrication, include field measurements on shop drawings, clearly identified as such.

Design Data: Structural calculations of horizontal and vertical forces generated at structural supports.

Selection Samples: Finish color charts or range samples, for initial color selection.

Verification Samples: Actual metal samples with color selected, for verification.

Fiberglass Glazing Sheet Samples: Two 12 inch (300 mm) square samples.

#### QUALITY ASSURANCE

Manufacturer Qualifications: Minimum of 10 years experience in the fabrication and installation of products similar to those specified.

Installer Qualifications: Manufacturer personnel or manufacturer's authorized installer.

Pre-Installation Meeting: Convene just prior to start of site operations. Require attendance of installer and installation personnel. Cover procedures required to maintain proper working conditions and to coordinate with other work.

#### DELIVERY, STORAGE, AND HANDLING

Arrange deliveries to avoid delays but to minimize on-site storage.

Deliver products in labelled protective packages.

Deliver, handle, and store in strict compliance with manufacturer's instructions and recommendations.

Store panels on long edge several inches above ground, using blocking to prevent warping.

Cover stored products to protect from damage due to weather, direct sunlight, excessive temperatures, and construction operations.

#### WARRANTY

Provide manufacturer's written warranty for roof/wall assembly warranting that assembly is free of defects in material and workmanship. Include repair or replacement of defective work for 5 years from date of completion. Defects are defined to include uncontrolled leakage of water, abnormal aging or deterioration, and failure to perform as specified.

Provide manufacturer's written warranty for fiberglass glazing sheet warranting that material is free of defects. Include replacement of defective materials for 10 years from date of completion. Defects are defined to include fiberbloom, delamination of coating from exterior sheet, and discoloration of more than 15 percent.

#### PART PRODUCTS

##### MANUFACTURERS

Provide products made by Skywall Translucent Systems, Division of Butler Manufacturing Company, 803 Airport Road, Terrell, TX. ASD. Tel: (800) 259-7941. Fax: (972) 551-6129.

Requests for substitution will be considered in accordance with provisions of Section 01600.

Substitutions: Not permitted.

For manufacturers not listed, submit evidence of ability to provide products that meet both performance and product requirements, including list of projects of similar design and complexity completed within the last 5 years.

Provide primary materials that are made by a single manufacturer.

#### WALL AND ROOF ASSEMBLIES

Wall and Roof Assemblies - Performance Requirements:

Design to withstand the following loads:

Snow load on roof and sloped walls: \_\_\_ psf (\_\_\_ kPa).

Wind load on walls: \_\_\_ psf (\_\_\_ kPa) positive, \_\_\_ psf (\_\_\_ kPa) negative, and \_\_\_ psf (\_\_\_ kPa) within \_\_\_ feet (\_\_\_ m) of corners.

Seismic loads: As required by applicable code.

Dead loads.

Wall and Roof Assemblies: Aluminum framing system with translucent panels, factory-fabricated, complete with all flashings, connections, supports, and anchors.

Fabricate to actual dimensions of constructed work where possible; otherwise, allow for field adjustment using trim or flashing of adjustable size or configuration.

Exposed Aluminum Finish (Interior and Exterior): Two coat fluoropolymer coating, of 70 percent Kynar(R)/Hylar(R) resin, complying with AAMA 605.2.

Exposed Aluminum Finish (Interior and Exterior): Clear anodic finish, AA-M12C22A31, with AAMA 607.1 Class II clear coating 0.4 to 0.7 mils (0.010 to 0.018 mm) thick.

Exposed Aluminum Finish (Interior and Exterior): Clear anodic finish, AA-M12C22A41, with AAMA 607.1 Class I clear coating 0.7 mils (0.018 mm) or thicker.

Exposed Aluminum Finish (Interior and Exterior): Color anodic finish, AA-M12C22A44, with AAMA 606.1 Class I electrolytically deposited color coating 0.7 mils (0.018 mm) or thicker.

Color: Medium bronze.

Color: Dark bronze.

Color: Black.

Color: \_\_\_\_\_.

Color: Selected from full range of manufacturer's standard colors.

Color: Match Architect's sample.

## PANELS

Panels - Performance Requirements:

Insulating value: U-value of 0.15 (0.85).

Insulating value: U-value of 0.24 (1.36).

Insulating value: U-value of 0.40 (2.27).

Determine insulating value by testing in accordance with ASTM C 236; NFRC 100 certification of value is acceptable.

Uniform load deflection: 3.5 inches (89 mm),

maximum, under 34 psf (16 kPa) uniform loading, when tested in accordance with ASTM E 72.

Permanent set under concentrated load: 0.09 inch (2.3 mm), maximum, under \_\_\_ pounds (\_\_\_ kg) load, when tested in accordance with ASTM E 72 with 4 by 12 foot (1220 by 3658 mm) panel.

Concentrated load strength: Support 300 pound (136 kg) load without failure, applied to 3 inch (75 mm) diameter disc and tested in accordance with ASTM E 661.

Internal Adhesive Tensile Strength: 750 psi (5.2 MPa), minimum, when tested in accordance with ASTM C 297 before and after two exposures to six cycles each of ASTM D 1037 aging conditions.

Internal Adhesive Shear Strength: 700 psi (4.8 MPa), minimum, when tested in accordance with ASTM D 1002 after accelerated aging in accordance with ASTM D 1183.

Panels: Double-faced, insulated, translucent fiberglass sandwich panels, composed of flat fiberglass glazing sheet laminated to aluminum grid core by heat and pressure process.

Panel thickness: 2-3/4 inches (70 mm).

Grid pattern: Shoji, 12 by 24 inches (305 by 610 mm).

Grid pattern: Shoji, 8 by 20 inches (100 by 508 mm).

Grid pattern: Staggered, 12 by 24 inches (305 by 610 mm).

Grid pattern: Staggered, 8 by 20 inches (100 by 508 mm).

Grid pattern: Square, 12 by 12 inches (305 by 305 mm).

Exterior sheet thickness: 0.070 inch (1.8 mm).

Interior sheet thickness: 0.045 inch (1.1 mm).

Sheet color(s): As selected from manufacturer's standard colors.

Exterior Sheet Color: Bronze.

Exterior Sheet Color: White.

Exterior Sheet Color: Crystal.

Interior Sheet Color: White.

Interior Sheet Color: Crystal.

Grid Core: Extruded aluminum, alloy 6063-T6; I-beam shaped, minimum 7/16 inch (11 mm) wide; continuous perimeter members interlocking with muntins/mullions; flat bonding contact surface without high or low points.

Adhesive: Cover entire width of core member surface,

with neat sharp bonding line edge.

White spots at intersections: Not more than 4 in each 50 square feet (4.6 sq m) of panel; not more than 3/64 inch (1 mm) in width.

Fiberglass Glazing Sheet: Fiberglass reinforced resin sheet, uniform in color, free of ridges, wrinkles, clusters of air bubbles or pinholes, and with the following characteristics:

Interior Sheet Flammability: Flame spread not more than 20 and smoke developed not more than 200, when tested in accordance with ASTM E 84; burn extent not more than 1 inch, when tested in accordance with ASTM D 635.

Exterior Sheet Protective Coating: DuPont Tedlar, 1 mil (0.025 mm) thick, field-refinishable; applied by licensed sheet manufacturer for architectural use.

Exterior Sheet Fade Resistance: Use colorfast resins; color difference (Delta E) after weathering of not more than 4.0 units, determined in accordance with ASTM D 2244 after 5 years outdoor weathering in South Florida at 45 degrees facing south, conducted in accordance with ASTM D 1435.

Exterior Sheet Strength: Uniform in strength; withstand impact of 60 pounds-force (267 N), when tested in accordance with Free Falling Ball test.

## COMPONENTS

Exposed Structural Members: Extruded aluminum, alloy 6063-T5 or 6061-T6, box-beam shaped.

Type: Thermally broken, with metal surfaces in contact with outdoor air separated from metal surfaces in contact with indoor air.

Batten receiving channels: Continuous, extruded as part of the structural member.

Battens and Perimeter Closures: Fasten panels to structural members using screwed clamp-tight pressure bar/batten assemblies, with matching perimeter closure pieces.

Screws: Self-tapping Type 304 stainless steel screws.

Sealed with manufacturer's standard flexible sealing tape, factory applied under controlled conditions.

Windows: Extruded aluminum frame and sash, complete with glazing and accessories.

Type: Project Out; with following performance:

Air infiltration: Maximum 0.01 cfm per minute per foot (0.055 cu m/hr per m) of crack, when tested at 6.24 psf (3 kPa) static pressure differential.

Water penetration: None, at 15 psf (7 kPa) static pressure differential.

Strength: Withstand 90 psf (43 kPa) uniform positive and negative pressure without damage.

Type: Project In; with following performance:

Air infiltration: Maximum 0.19 cfm per minute per foot (0.10 cu m/hr per m) of crack, when tested at 6.24 psf (3 kPa) static pressure differential; maximum 0.07 cfm per minute per foot (0.4 cu m/hr per m) of crack, when tested at 1.57 psf (0.75 kPa) static pressure differential.

Strength: Withstand 90 psf (43 kPa) uniform positive and negative pressure without damage.

Type: Casement.

Type: Fixed.

Frame and Sash Members: Alloy 6063-T5; minimum wall thickness of 0.078 inch (2.0 mm) for frame members, 0.125 inch (3.2 mm) where fasteners are attached and where required for structural integrity, and 0.063 inch (0.8 mm) for operating sash members.

Sash Members: Double hollow tubular shapes.

Main Frame and Sash Corners: Mitered and reinforced with two heavy duty corner blocks per joint, sealed and hydraulically staked.

Weatherstripping: Triple compound foam compression seals.

Hardware: Concealed operating units; heavy-duty 4-bar stainless steel hinges; die-cast zinc-alloy cam-type locking handles; manufacturer's standard finish.

Glazing Seals: EPDM rubber wedge-type gasket at interior; double-sided adhesive glazing tape and silicone sealant cap bead at exterior.

Glazing: 6 mm thick float glass, untinted.

Glazing: 1 inch (25 mm) thick sealed insulating glass units, float glass, untinted.

Glazing: 1-9/16 inches (39.7 mm) thick translucent glazing panel of same type as wall/roof assembly.

Screens: Tubular extruded aluminum frames with rigid corner construction, 18 by 14 aluminum screen cloth.

Wickets: Provide access wickets in screens at sash operating handles.



PART EXECUTION

EXAMINATION

Take field measurements to verify that fabricated work will fit spaces intended.

Verify that areas in which work is to be installed are ready for installation.

Do not proceed until unsatisfactory conditions have been corrected.

INSTALLATION

Install in strict accordance with manufacturer's instructions and recommendations and with approved shop drawings; provide a complete weatherproof assembly.

Anchor securely to supporting structure, but allow for differential and thermal movement.

Separate aluminum members from dissimilar metals with protective coating or sheet capable of preventing electrolytic action.

Ensure that weep and condensation control measures function properly.

Coordinate with other work.

CLEANING AND REPAIR

Remove labels, part number markings, sealant smears, handprints, and construction dirt; protect installed work from damage.

Clean all exposed surfaces immediately prior to final inspection, using non-abrasive materials and methods recommended by manufacturer.

Repair damaged components and finishes in accordance with manufacturer's recommendations; replace work that cannot be repaired to the satisfaction of the Architect.

END OF SECTION