

SECTION 08 6300

METAL FRAMED SKYLIGHTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Custom fabricated fixed metal framed skylights.
- B. Related Sections:
 - 1. Division 01 - Administrative, procedural, and temporary work requirements.
 - 2. Section [07 5100 - Built-Up Bituminous Roofing.] [____ - ____.]
 - 3. Section [07 5200 - Modified Bituminous Membrane Roofing.] [____ - ____.]
 - 4. Section [07 5300 - Elastomeric Membrane Roofing.] [____ - ____.]
 - 5. Section [07 5400 - Thermoplastic Membrane Roofing.] [____ - ____.]
 - 6. Section [07 5600 - Fluid-Applied Roofing.] [____ - ____.]
 - 7. Section [07 5700 - Coated Foam Roofing.] [____ - ____.]

1.2 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
 - 1. 501.1 - Standard Test Method for Metal Curtain Walls for Water Penetration Using Dynamic Pressure.
 - 2. 501.2 - Field Check of Metal Curtain Walls for Water Leakage.
 - 3. 501.3 - Field Check of Water Penetration Through Installed Exterior606.1 - Windows, Curtain Walls and Doors by Uniform Air Pressure Difference.
 - 4. 603.8 - Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum.
 - 5. 605.2 - Specifications for High Performance Organic Coatings on Architectural Extrusions and Panels.
 - 6. 606.1 - Voluntary Guide Specification and Inspection Methods for Integral Color Anodic Finishes for Architectural Aluminum.
 - 7. 607.1 - Voluntary Guide Specifications and Inspection Methods for Clear Anodize Finishes for Architectural Aluminum.
 - 8. Sloped Glazing literature.
- B. American National Standards Institute (ANSI) Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
- C. ASTM International (ASTM):
 - 1. A193 - Standard Specifications for Alloy-Steel and Stainless Steel Materials for High Temperature Service.
 - 2. A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 - 3. B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - 4. B221 - Standard Specification for Aluminum-Alloy Bar, Rod, and Wire.
 - 5. B316 - Standard Specification for Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods.
 - 6. C719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cycle Movement.
 - 7. C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
 - 8. C1036 - Standard Specification for Flat Glass.
 - 9. C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
 - 10. D395 - Standard Test Methods for Rubber-Property - Compression Set.
 - 11. D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension.
 - 12. D1171 - Standard Test Method for Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens).

13. D2240 - Standard Test Method for Rubber Property - Durometer Hardness.
14. E283 - Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.
15. E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
16. E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
17. E773 - Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units.
18. E774 - Standard Specification for Classification of Durability of Sealed Insulating Glass Units.
19. E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.

D. Glass Association of North America (GANA) - Glazing Manual.

E. Insulating Glass Certification Council (IGCC) - Classification of Insulating Glass Units.

1.3 SYSTEM DESCRIPTION

A. Complete, weather and air tight skylight assembly.

B. Performance Requirements:

1. Structural members: Sufficient size to support design loads in accordance with Building Code.
2. Deflection of framing members: Maximum L/175 when subject to uniform load deflection test in accordance with ASTM E330 under specified loading.
3. Water penetration: No water penetration when system is tested in accordance with ASTM E331.
4. Water penetration; defined as appearance of uncontrolled water other than condensation on interior surface of any part of skylight.
 - a. Drain water entering at joints or glazing reveals and all condensation occurring within unit construction to exterior.
 - b. Air Infiltration: Maximum 0.06 cubic feet per minute per square foot of fixed area when tested in accordance with ASTM E283.
 - c. Thermal movement: Design, fabricate, and install skylight assembly to be free from objectionable distortion and stresses in fastening and joinery due to expansion and contraction when subjected to temperature variance.

1.4 SUBMITTALS

A. Submittals for Review:

1. Shop Drawings: Submit plan, section, elevation, and perspective drawings as necessary to depict each specified skylight. Include flashing, connection, and termination details.
2. Product Data: Manufacturer's data sheets on each product to be used, including:
 - a. Preparation instructions and recommendations.
 - b. Storage and handling requirements and recommendations.
 - c. Installation methods.
3. Samples:
 - a. [12 x 12] [__ x __] inch glass samples.
 - b. [6] [__] inch long extrusions samples showing specified finish.

B. Sustainable Design Submittals:

1. Regional Materials: Indicate cost of products harvested, extracted, recovered, or manufactured within 500 mile radius of Project site.
2. Recycled Content: Certify percentages of post-consumer and pre-consumer recycled content.

C. Quality Control Submittals:

1. Manufacturer's certification that skylight system was designed, fabricated, installed in accordance with specified requirements.
2. Certificate of Compliance from Professional Structural Engineer performing system design.

1.5 QUALITY ASSURANCE

- A. Include design, engineering, fabrication glazing, and erection under single manufacturer.
- B. Manufacturer Qualifications:
 - 1. Regularly engaged in work of this Section for minimum 10 years .
 - 2. Satisfactory completion of projects of similar scope and complexity.
- C. Mockup:
 - 1. Size: [4 feet wide x 8 feet high.] [__.]
 - 2. Include attachments, framing, glazing, trim, and sealers.
 - 3. Locate [where directed.] [____.]
 - 4. Approved mockup may [not] remain as part of the Work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

1.7 WARRANTIES

- A. Provide manufacturer's [__] year warranty against defective materials, delamination, seal failure, and defects in manufacture.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Bristolite Daylighting Systems, 401 E Goetz, Ave, Santa Ana, CA 92707, phone 714.540.8950, fax 714.540.5415, www.bristolite.com.

2.2 MATERIALS

- A. Aluminum Extrusions:
 - 1. ASTM B221, 6063-T5, 6061-T6, or 6063-T6 alloy and temper.
 - 2. Recycled content: Minimum [__] percent, with minimum [__] percent classified as post consumer.
- B. Laminated Glass: Nominally [5/16] [7/16] [9/16] inch thick [clear] [[____] color tinted] [annealed] [heat strengthened] glass [with reflective coating] using a [0.030] [0.060] PVB interlayer.

**** OR ****

- C. Insulating Units: Nominally 1-1/16 inches thick, consisting of 1/4 inch thick [heat strengthened] [tempered] [clear] [[____] color tinted] glass [with reflective coating] exterior lite, 1/2 inch air space, and 1/2 inch thick clear annealed laminated interior lite with 0.030 PVB interlayer.

**** OR ****

- D. Insulated Units: Nominally 1-5/16 inches thick, consisting of 1/4 inch thick [heat strengthened] [tempered] [clear] [[____] color tinted] glass [with reflective coating] exterior lite, 1/2 inch air space, and [7/16] [9/16] inch thick clear heat strengthened laminated interior lite with [0.030] [0.060] PVB interlayer.

2.3 FABRICATION

- A. Factory fabricate and preassemble skylights in largest size assemblies consistent with shipping and

handling.

- B. Fabricate flashings, trim, closures, and other accessory items from minimum 0.032 inch thick aluminum.
- C. Attach cap retainers using stainless steel fasteners located so that glazing strips are compressed to provide uniform compression seal, maximum 12 inches on center.
- D. Clips for attachment of rafter bars: Aluminum or stainless steel, shop-riveted, bolted, or welded to rafter bars to attain fully rated structural loading.
- E. Welding: Heliarc process. Dress exposed welds where practical.
- F. Waterproofing not reliant on additional continuous exterior silicone sealant beads. Horizontal flush butt joints may rely on continuous silicone seal.
- G. Use silicone or neoprene setting blocks for support of glass, sized and located in accordance with glass manufacturer's recommendations. At no point shall glass contact metal.
- H. Provide properly designed weep system for drainage to exterior without excessive air infiltration.

2.4 FINISHES

- A. Aluminum: [Standard] [Custom] color organic coating to AAMA [603.8.] [605.2.]
- B. Aluminum: Anodic coating to AAMA 607.1, [Class I Clear A41.] [Class II Clear Anodize A31.]

PART 3 EXECUTION

3.1 PREPARATION

- A. If not originally coated, coat aluminum surfaces in contact with masonry, concrete, or dissimilar materials with heavy coat of zinc chromate or bituminous paint.

3.2 INSTALLATION

- A. Install skylights in accordance with manufacturer's instructions and approved Shop Drawings.
- B. Install skylights plumb and true without warping or racking of panels.
- C. Anchor system in accordance with approved Shop Drawings.
- D. During erection, provide for thermal movement from minimum ambient air temperature range of 100 degrees F without creating undue stresses.
- E. Apply sealant where indicated on Shop Drawings. Before application, clean surfaces as recommended by sealant manufacturer.
- F. Allowable Tolerances:
 - 1. Maximum variation from plane or location shown on Shop Drawings: 1/8 inch in 12 feet or 1/2 inch in total length.
 - 2. Maximum offset from true alignment between two members abutting end-to-end, edge-to-edge in line, or separated by less than 3 inches: 1/32 inch.

3.3 FIELD QUALITY CONTROL

- A. Water Penetration:
 - 1. Field test in accordance with AAMA 501.3 at air pressure difference [equal to 20 percent of positive design wind pressure with minimum of 6.24 PSF and maximum of [12] [] PSF in

- areas [indicated on Drawings.] [Selected by_Architect.]
2. Acceptable results: No uncontrolled water penetration as defined in AAMA 501.3.

3.4 PROTECTION

- A. Protect installed products until Final Completion.

3.5 ADJUSTING

- A. Touch-up, repair, or replace damaged products prior to Substantial Completion.

END OF SECTION