



SECTION 08 63 00
METAL-FRAMED SKYLIGHTS - CUSTOM FABRICATED

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Custom fabricated metal framed skylights.

1.2 RELATED SECTIONS

- A. Division 01 - General Requirements.
- B. Section 05 12 00 - Structural Steel.
- C. Section 07 12 00 - Built-Up Bituminous Roofing.
- D. Section 07 13 00 - Sheet Waterproofing.
- E. Section 07 14 00 - Fluid-Applied Roofing.
- F. Section 07 15 00 - Sheet Metal Waterproofing.
- G. Section 07 20 00 - Thermal Protection.
- H. Section 07 53 00 - Elastomeric Membrane Roofing.
- I. Section 07 57 00 - Coated Foamed Roofing.
- J. Section 07 60 00 - Flashing and Sheet Metal: Metal curb flashings.
- K. Section 07 92 00 - Joint Sealants.
- L. Section 08 80 00 - Glazing.

1.3 REFERENCES

- A. American National Standards Institute (ANSI)
 - 1. ANSI Z97.1 - Safety Glazing Materials Used in Buildings - Safety Performance

Specifications and Methods of Test.

- B. ASTM International (ASTM):
1. ASTM A193 - Standard Specifications for Alloy-Steel and Stainless Steel Materials for High Temperature Service.
 2. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 3. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 4. ASTM B221 - Standard Specification for Aluminum-Alloy Bar, Rod, and Wire.
 5. ASTM B316 - Standard Specification for Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods.
 6. ASTM C719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cycle Movement.
 7. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
 8. ASTM C1036 - Standard Specification for Flat Glass.
 9. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
 10. ASTM D395 - Standard Test Methods for Rubber-Property - Compression Set.
 11. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension.
 12. ASTM D1171 - Standard Test Method for Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens).
 13. ASTM D2240 - Standard Test Method for Rubber Property - Durometer Hardness.
 14. ASTM E283 - Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 15. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 16. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 17. ASTM E773 - Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units.
 18. ASTM E774 - Standard Specification for Classification of Durability of Sealed Insulating Glass Units.
 19. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
- C. Fenestration and Glazing Industry Alliance (FGIA):
1. FGIA 501.1 - Standard Test Method for Metal Curtain Walls for Water Penetration Using Dynamic Pressure.
 2. FGIA 501.2 - Field Check of Metal Curtain Walls for Water Leakage.
 3. FGIA 501.3 - Field Check of Water Penetration Through Installed Exterior Windows, Curtain Walls, and Doors by Uniform Air Pressure Difference.
 4. FGIA 603.8 - Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum.
 5. FGIA 605.2 - Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.
 6. FGIA 606.1 - Voluntary Guide Specification and Inspection Methods for Integral Color Anodic Finishes for Architectural Aluminum.
 7. FGIA 607.1 - Voluntary Guide Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
- D. Florida Building Code (FBC):
1. FBC TAS 201 - Impact Test Procedures.
 2. FBC TAS 202 - Criteria for Testing Impact and Non-Impact Resistant Building

- Envelope Components Using Uniform Static Air Pressure Loading.
- 3. FBC TAS 203 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
- E. Glass Association of North America (GANA):
 - 1. Glazing Manual.
- F. Insulating Glass Certification Council (IGCC):
 - 1. Classification of Insulating Glass Units.
- G. National Fenestration Rating Council (NFRC):
 - 1. NFRC 100 - Procedure for Determining Fenestration Product U-factors.
 - 2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.
 - 3. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.01 30 00.
- B. Shop Drawings: Submit plan, section, elevation, and perspective drawings as necessary to depict each specified skylight. Include flashing, connection, and termination details.
- C. Structural calculations prepared by a structural engineer qualified in the design of sloped glazed systems licensed in the state where the project is located.
- D. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Test Reports: Independent testing agency or evaluation service reports verifying compliance with specified performance requirements, including air, water, and structural performance data.
 - 2. Manufacturer's color chart listing the full range of colors available for aluminum finishing.
 - 3. Preparation instructions and recommendations.
 - 4. Storage and handling requirements and recommendations.
 - 5. Installation methods and requirements.
- E. Verification Samples: 12 x 12 inch (305 x 305 mm) glass samples.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of ten years documented experience.
 - 1. Satisfactory completion of projects of similar scope and complexity.
 - 2. Include design, engineering, and fabrication, under single manufacturer.
- B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
- C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
- D. Verify dimensions of curb construction and material by field measurements before fabrication and document measurements on design drawings.
- E. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
 - 1. The Intent of the mock-up is to demonstrate quality of workmanship and visual

- appearance.
- 2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
- 3. Retain mock-up during construction as a standard for comparison with completed work.
- 4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.6 PRE-INSTALLATION CONFERENCE

- A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
 - 1. 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.
- C. Protect from damage due to weather, excessive temperature, and construction operations.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 WARRANTY

- A. Skylight manufacturer shall warrant for 10 years after the Date of Substantial Completion against defects in design, materials, and workmanship and cover labor associated with warranty claims for first 2 years of warranty period.
- B. Glazing manufacturer shall warrant for 10 years after date of substantial completion against defective materials, seal failure, delamination, coatings, and defects in manufacture. Breakage not included.
- C. Manufacturer Finish Warranty:
 - 1. Anodized Color and Film Integrity: 1 year from date of substantial completion.
 - 2. Anodized Color and Film Integrity: 5 years from date of substantial completion.
 - 3. Anodized Color and Film Integrity: 10 years from date of substantial completion.
 - 4. Paint Cracking, Chalking and Color: 1 year from date of substantial completion.
 - 5. Paint Cracking, Chalking and Color: 5 years from date of substantial completion.
 - 6. Paint Cracking, Chalking and Color: 10 years after date of substantial completion.
 - 7. Paint Cracking, Chalking and Color: 20 years after date of substantial completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Kingspan Light + Air, available at: exclusively through Logistics Lighting with an extended warranty and National Account pricing. Contact for quotes or product questions: Sales@LogisticsLighting.com or 307-633-9696 or Toll-Free at 844-455-7283 website: www.LogisticsLighting.com

- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00.

2.2 SYSTEM DESCRIPTION

- A. Skylight assembled from extruded aluminum members capable of withstanding loads as defined by local jurisdiction building code.
- B. Performance Requirements:
 - 1. Structural Members: Sized to support design loads in accordance with Building Code requirements.
 - a. Maximum Deflection of framing members:
 - 1) Clear Spans up to 13 ft 6 inches (4115 mm): $L/175$.
 - 2) Clear Spans greater than 13 ft 6 inches (4115 mm): $L/240 + 1/4$ inch (6 mm).
 - 3) Deflection per Glazing Lite: Not to exceed $3/4$ inch (19 mm).
 - 4) Maximum Allowable Deflection of Any Framing Member Parallel to the Plane of the Glass: No greater than $1/8$ inches (3 mm).
 - 2. Water penetration: Meets requirements of ASTM E331 that allows for no water infiltration at a test pressure of 15 psf (718 Pa).
 - a. Water penetration: defined as appearance of uncontrolled water other than condensation on interior surface of any part of skylight.
 - b. Provide Integrated Water Management system that drains water entering at joints or glazing reveals and all condensation occurring within unit construction to building exterior.
 - 3. Air Infiltration: Less than 0.3 cu ft per minute per sq ft (0.09 cu m per minute per sq m) of fixed area when tested to 6.24 psf (299 Pa) in accordance with ASTM E283.
 - 4. Air Exfiltration: Less than 0.3 cu ft per minute per sq ft (0.09 cu m per minute per sq m) of fixed area when tested to 6.24 psf (299 Pa) in accordance with ASTM E283.
 - 5. 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.
 - 6. Skylight framing is designed to be self-supporting. The skylight will impose reactions to the support structure, which include horizontal and vertical loads, due to dead load, live load, and wind load.
 - 7. Compression flanges of flexural members may be assumed to receive effective lateral bracing only from anchors to the building structure and horizontal structural members which are at least 50 percent of the main structural rafter's total depth.

2.3 METAL FRAMED SKYLIGHTS

- A. Basis of Design: Kingspan KlearSky Metal Framed Skylight Solution as manufactured by Kingspan Light + Air, LLC.
 - 1. An Integrated roof-mounted skylight system consisting of factory-produced, mechanically optimized, thermally enhanced, structurally engineered framing assembly and glazing systems designed for transferring daylight and views to interior spaces, complying with ICC AC-17.
- B. KlearSky Optimized Framing System:
 - 1. Aluminum Framing Extrusions: 6005-T5 alloy and temper for structural members.
 - 2. QuickLink Purlin Cross: Engineered aluminum component for streamlined purlin positioning and simplified assembly.
 - 3. Compression Ring: Simplified apex connection providing a simple fast installation.
 - 4. Integrated Purlin and Glazing-Stop: Single extrusion combining glazing stop and purlin. Reducing component assembly complexity and providing enhanced water

- management and condensation control.
 - 5. Frame Assembly:
 - a. Thermally Improved Assembly: Field assembled systems are thermally improved.
 - 6. Sill Closure Structurally Glazed: Structural silicone connection between glass and frame to allow for uninterrupted water runoff.
- C. Glazing Systems:
- 1. Laminated Glass System: Clear heat strengthened laminated glass lite using 0.060 inch (1.5 mm) Clear PVB Interlayer.
 - a. Glass Thickness: 5/16 inch (8 mm).
 - b. Glass Thickness: 7/16 inch (11 mm).
 - c. Glass Thickness: 9/16 inch (14 mm).
 - d. Glass Thickness: ____ inch (____ mm).
 - 2. Laminated Glass System : Clear heat strengthened laminated glass lite using 0.030 inch (0.76 mm) Clear PVB Interlayer.
 - a. Glass Thickness: 1/4 inch (6 mm).
 - b. Glass Thickness: 3/8 inch (10 mm).
 - c. Glass Thickness: 1/2 inch (13 mm).
 - 3. Insulating Laminated Glass System:
 - a. Outboard Lite: 1/4 inch (6 mm) clear heat strengthened outboard lite.
 - 1) Low-emissivity coating on surface No. 2.
 - b. Air Space: 1/2 inch (13 mm).
 - c. Inboard Lite: Clear heat strengthened laminated glass lite using 0.060 inch (1.54 mm) clear PVB interlayer.
 - 1) Warm edge spacer.
 - 2) Inboard Lite Thickness: 5/16 inches (8 mm).
 - a) Unit Thickness: 1-1/16 inch (27 mm).
 - 3) Inboard Lite Thickness: 7/16 inches (11 mm).
 - a) Unit Thickness: 1-3/16 inch (30 mm).
 - 4) Inboard Lite Thickness: 9/16 inches (14 mm).
 - a) Unit Thickness: 1-5/16 inch (33 mm).

2.4 FINISHES

- A. Material: Aluminum.
 - 1. Finish: Organic coating.
 - a. Color: As determined by the Architect from Manufacturer's standard and custom offerings.
 - b. Quality Standard: AAMA 2603.
 - c. Quality Standard: AAMA 2604.
 - d. Quality Standard: AAMA 2605.
 - e. Number of Coats: 2.
 - f. Number of Coats: 3.
 - g. Number of Coats: 4.
 - 2. Finish: Anodic coating to AAMA 611. Class: Clear.
 - 3. Finish: Anodic coating to AAMA 611. Class: Bronze Anodize.
 - 4. Finish: Mill finish.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until the substrates have been properly constructed and prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. If not originally coated, coat aluminum surfaces in contact with masonry, concrete, or dissimilar materials with heavy coat of zinc chromate or bituminous paint.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions, approved submittals, shop drawings, and in proper relationship with adjacent construction.
 - 1. Install skylights plumb and true without warping or racking of panels.
 - 2. Anchor system in accordance with approved Shop Drawings.
 - 3. Apply manufacturer-approved sealant where indicated on Shop Drawings. Before application, clean surfaces as recommended by sealant manufacturer.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.
- B. Water Penetration and Leakage: Field check in accordance with AAMA 501.2. There shall be no uncontrolled water leakage as defined in AAMA 501.2. Water supply to the skylights, with adequate water pressure, is to be furnished by the General Contractor.
- C. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.

3.5 CLEANING AND PROTECTION

- A. Clean products in accordance with the manufacturer's recommendations.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION