



SECTION 086 200
ALUMINUM FRAME WALKABLE GLASS SKYLIGHTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
1. Walkable glass skylights mounted on site-erected walls and curbs
- B. References:
1. ASTM International (ASTM):
 - i. **ASTM E 2751** - Standard Practice for Design and Performance of Supported Laminated Glass Walkways
 - ii. **ASTM E 283** - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 - iii. **ASTM E 331** - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - iv. **ASTM E 547** - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference
 - v. **ASTM E 330** - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
 - vi. **ASTM E 548** – Standard Guide for General Criteria Used for Evaluating Laboratory Competence

1.2 PERFORMANCE REQUIREMENTS

- A. Structural loads including anchorage, capable of withstanding the effects of the following design loads when supporting full dead loads:
1. Concentrated Load: 450 lbf applied to 2" x 2" square area that produces the most severe stress or deflection.
 2. Distributed Load: 100psf.

- B. ASTM E 2751 walkable compliance 3 glass plies to sustain the full design load with any one glass ply broken
- C. Deflection limits of the entire length of framing members in direction normal to glazing plane is limited to 1/360 of clear span.
- D. Comply with A440 performance class and grade: PG 50
- E. Air Infiltration: ASTM E 283-91 minimum performance ± 600 Pa (± 12.53 psf)
- F. Water Penetration: ASTM E 331-00 and E 547-00 minimum performance 600 Pa (12.53 psf)
- G. Wind Resistance: ASTM E 330 minimum performance ± 2400 Pa (± 50.13 psf) Serviceability, +4800 Pa (+100.25psf), -3600 Pa (-75.19psf) Safety
- H. Thermal Transmittance: NFRC 100 (no curb) maximum U-factor of 0.35 Btu/sq. ft. x h x deg F.
- I. Condensation Control: Efficient thermal arrangement mitigating risk of internal condensation and the requirement for internal gutters. No visible internal framework with the exception of supporting members between multi-lite sections.

1.3 SUBMITTALS

- A. Shop drawings available for metal-framed skylights. Including plans, details, and attachments to other work.
- B. Manufacturer's samples available for initial selection for factory-finished aluminum and glazing options
- C. Product test reports available from a qualified testing agency indicating skylights comply with requirements based on comprehensive testing of current products.

1.4 QUALITY ASSURANCE

- A. Manufacturer: Registered to ISO 9001 and ISO 14001 Quality Standards including in-house engineering for product design activities. A minimum of 10 years-experience manufacturing, designing and installing standard and custom skylight products.
- B. Installation: Installer shall be trained and approved by the manufacturer or an experienced installer who is specialized in installing metal-framed skylights like those indicated in this specification with a minimum of 5 years-experience.
- C. Testing Agency: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
- D. Finishes: Architectural powder coating by a Qualicoat Certified (non-chromate) applicator.

1.5 PROJECT CONDITIONS

- A. Field Measurements: Skylights indicate fitting to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Established Dimensions: Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating skylights without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.6 WARRANTY

- A. General Warranty: Provide written manufacturer's warranty covering skylights that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures.
2. Failure of systems to meet performance requirements.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Water leakage; defined as uncontrolled water appearing on normally exposed interior surfaces of skylights from sources other than condensation, resulting from defects in skylight materials or workmanship. (Water controlled by flashing and gutters and drained back to the exterior and that cannot damage adjacent materials or finishes is not water leakage). Water leakage resulting from improper installations do not form part of this warranty.
5. Warranty Period: 10 years from date of shipment from the manufacturer for skylights installed by an installer approved by the manufacture or 2 years installed by others.

- B. Finish Warranty: Provide written manufacturer's warranty covering finish defects. "Defects" is defined as peeling, chipping, chalking, fading, abnormal aging or deterioration, and failure to perform as required.

Warranty Period for Powder Coat Finish: Minimum 10 years from date of shipment from the manufacturer.

- C. Glass Warranty: Provide written manufacturer's warranty covering defects in the insulating glass unit. "Defects" is defined as seal failure or delamination.

1. Warranty Period for Insulating or Laminated Glass: Minimum 10 years from date of shipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Provide products by Glazing Vision Inc, Hartford, CT (833-759-3667).

- B. Substitutions: Manufacturers shall not be considered without prior approval in writing no later than ten (10) calendar days prior to bid. Substitute manufacturers must have been in the custom skylight business for not less than a period of 15 years and must submit to the Architect the following:
 - 1. List of similar projects successfully completed within the last five years.
 - 2. Proof of financial capability.
 - 3. Complete details of proposed skylight.
 - 4. Complete specifications for Architect's review.

2.2 FRAMING MATERIALS

- A. Framing Members: Extruded aluminum alloy 6063-T6 with minimum effective thickness of 0.17 inches.
- B. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories; compatible with adjacent materials.
 - 1. Connections to Supporting Structure: 300 Series Stainless Steel.

2.3 GLAZING MATERIALS

- A. Insulating Glass: Minimum 2-inch IGU consisting of tempered triple laminated exterior lite, ½-inch sealed argon filled space incorporating thermal warm-edge spacer, and laminated safety glass with low "E" interior lite. Glass must meet the requirements of AAMA Glass Design for Sloped Glazing for the project.
- B. Glazing Sealant: Neutral-curing low modulus silicone sealant recommended by skylight and sealant manufacturers for this use.
 - 1. Sealant is capable of withstanding 50 percent movement in both extension and compression (total of 100 percent movement) when tested for adhesion and cohesion under maximum cyclic movement according to ASTM C 719.
 - 2. Sealant complies with ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O, as applicable to substrates including other sealants with which it comes in contact.
 - 3. Color: Black.

2.4 FABRICATION

- A. Factory assemble framing
- B. Factory glaze units.

2.5 ALUMINUM FINISHES

- A. Powder Coated High-Performance Architectural Coating: comply with Qualicoat standard Color: _____

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine curb substrates and conditions with installer present for compliance with requirements for installation tolerances and other conditions affecting skylight performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- B. Where aluminum will contact pressure-treated wood, separate dissimilar materials by methods recommended by manufacturer.
- C. Ensure curb top surfaces are insulated from support steels and all metallic weathering preventing thermal bridging.

3.3 INSTALLATION

- A. General: Comply with manufacturer's written instructions for protecting, handling, and installing skylight components.
- B. Following manufacturer's installations instructions and job specific drawings to ensure proper installation.
- C. Coordinate with installation of roof deck and other substrates to receive skylight units.
- D. Coordinate with installation of vapor barriers, roof insulation, roofing, and flashing as required to assure that each element of the work performs properly and that combined elements are waterproof and weather tight. Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.
- E. Complete internal finishing post skylight installation.

3.4 CLEANING

- A. Clean exposed metal and glass surfaces according to manufacturer's instructions during installation. Touch up damaged metal coatings.
- B. Final cleaning by others.

END OF SECTION 086 200