



## SECTION 08600

### METAL-FRAMED SKYLIGHTS

#### **1.1 SYSTEM DESCRIPTION**

##### **A. DESIGN REQUIREMENTS**

- 1 Extended Aluminum members with attachment of exterior glass retainers with 1/4-in. x 20 stainless steel screws and snap-on beauty caps.
- 2 Condensation guttering system integral with skylight framing members for positive drainage of condensation.
- 3 Flush glazed exterior horizontal joints with field applied structural silicone.

##### **B. PERFORMANCE REQUIREMENTS**

- 1 Structural Members: Of sufficient sizes to support design loads as prescribed by governing building codes.
- 2 The deflection of the framing member in a direction normal to the plane of glass when subjected to a uniform load deflection test in accordance with ASTM E330, and per the above specified loads, shall not exceed  $L/175$ , up to 1-in. maximum, for clear spans under 20-ft., or  $L/240$  for clear spans greater than 20-ft.
- 3 The deflection of the framing member in a direction parallel to the plane of glass, when carrying its full dead load, shall not exceed an amount which will reduce the glass or panel bite below 75% of the design dimension and the member shall have a 1/8-in. min. clearance between itself and the edge of the fixed panel, glass, or component immediately adjacent, nor shall it impair the function of or damage any joint seals.
- 4 Water Penetration: No water penetration shall occur when the system is tested in accordance with ASTM E331 using a differential static pressure of (20% of the inward acting design wind load pressure, but not less than (12psf). Water penetration is defined as the appearance of uncontrolled water other than condensation on the interior surface of any part of the skylight.
  - a. Drain water penetrating at joints, as well as condensation occurring within the system to exterior face of the work.

- 5 Thermal Movement: Provide for such expansion and contraction of component materials as will be caused by regional surface temperatures without causing buckling, stress on glass, failure of seals, undue stress on structural elements, reductions of performance or other detrimental effects.
- 6 Where permitted by code, a 1/3 increase in allowable stress for wind seismic load shall be acceptable, but not in combination with any reduction applied to combined loads. In no case shall allowable values exceed the yield stress.
- 7 Compression flanges of flexural members may be assumed to receive effective lateral bracing only from anchors to the building structure and horizontal glazing bars or interior trim which are in contact with 50% of the member's total depth.
- 8 The skylight framing is designed to be self-supporting between the support construction. The skylights will impose reactions to the support construction. All adjacent and support construction must support the transfer of all loads including horizontal and vertical, exerted by the skylights. Design or structural engineering services for the supporting structure or building components not included in the skylights scope are not included under this section.
- 9 Optional limited reaction design: The skylight framing is to be designed to exert no horizontal reactions under vertical gravity type loads, (dead, snow, live). Unbalanced live loads, (wind, seismic, ect.) acting upon the skylight will produce horizontal reactions that cannot be controlled by the skylights but must be resisted by the support structure.

## **1.2 QUALITY ASSURANCE**

- A. Work of this section, including design, engineering, fabrication, finishing, preparation at the job site, erection and glazing of the skylight manufacturer. The manufacturer shall be regularly engaged in the preceding phases of construction of skylights and able to demonstrate that he has performed successfully on comparably sized projects and of comparable design complexity over at least the previous ten years.
- B. Royalite Mfg. Inc. has over twenty-five years of experience in the design, engineering, manufacturing and installation of skylights. Our skylight systems have been subjected to rigorous testing during the course of development and have been applied in thousands of practical applications.

## **1.3 WARRANTY**

- A. Submit manufacturer's warranty certifying that skylight work was furnished and installed in accordance with the Contract Documents.
- B. Certify that skylight frame is free of defects in design, material, and construction for a period of (5) years from the Date of Skylight Completion.
- C. Warrant glass against defective materials, delamination, seal failure, and defects in manufacture per the glass manufacture's standard warranties. Glass breakage is not warranted.

- D. Warrant structural sealant for a period of 5 years per sealant manufacture's standard warranty of merchantable quality. Warranty shall certify that cured sealant:
  - 1 Will not become brittle or crack due to weathering or normal expansion and contraction of adjacent surfaces.
  - 2 Will not harden beyond a Shore A durometer of 50, nor soften below min. of 10 points.
  - 3 Will not change color significantly when used with compatible back-up materials.
  - 4 Will not bleed significantly.
- E. Warranty service becomes effective only following payment in full for the contract amount.