SECTION 07820
METAL FRAMED SKYLIGHTS

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:
   1. Metal framed skylight system.
   2. Glass.

B. Related Sections:
   1. Section 07830 - Translucent Panel Skylights.
   2. Section 07900 - Joint Sealers.
   3. Section 08800 - Glazing.

1.2 SYSTEM DESCRIPTION:

A. System:
   1. Designed by manufacturer to withstand wind and snow loads and to be and remain free from air and water leakages and excessive condensation with outdoor temperature of -10° F., indoor temperature of 70° F., 40% relative humidity.

B. Design Loads: Per IBC requirements.

C. Performance Requirements:
   1. The deflection of a 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 1/175 nor 1" of its clear span for clear spans less than 20 feet or 1/240 of clear spans greater than 20 feet.

   2. The deflection of a 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 0.125" minimum 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.

   3. Water Penetration: No water penetration shall occur when 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 6.25 psf. Water penetration is defined as the appearance of uncontrolled water other than condensation on the interior surface of any part of the skylight.

Designer Note: Specific approval must be obtained from UCB staff prior to incorporating skylights into building design. For daylighting of interior spaces, consider use of clerestories. Use of translucent panel skylights is preferable to metal framed glass skylights because of energy efficiency and glare.
4. Thermal Movement: Provide such expansion and contraction of component materials as will be caused by a surface temperature range of ±50° F. without causing buckling, stresses on glass, failure of seals, undue stress on structural elements, reduction of performance or other detrimental effects.

1.3 SUBMITTALS:

A. Shop drawings indicating details and interfaces.

B. Calculations: Submit structural calculations prepared in accordance with the Aluminum Association's Specifications for Aluminum Structures (SAS30) by a structural engineer qualified in design of self-supporting sloped glazed systems licensed in the State of Colorado.

C. Certification:

1. With regard to structural silicone joinery:
   
a. Submit certification that adhesion of sealant to samples of metal and glass is adequate when tested in accordance with ASTM C794.

b. Submit certification that materials in contact with sealant are compatible with sealant after being exposed to 2000-4000 micro watt ultra-violet radiation for 21 days.

c. Submit statement that stress on each detailed sealant joint will not exceed design stress of sealant when exposed to specified wind loads.

1.4 QUALITY ASSURANCE:

A. Installer Qualifications:

1. Work shall be accomplished by mechanics having had at least two years experience in this type of work.

1.5 WARRANTY:

A. Furnish manufacturer's written warranty against defective design, materials, and workmanship and against air and water leakage and excessive condensation for a period of ten years from date of final acceptance.

B. Warrant glass against defective materials, delamination, seal failure, and defects in manufacturing per the glass manufacturer's standard warranties.

C. Warrant structural sealant for a period of ten years per sealant manufacturer'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 a minimum of 10 points.

3. Will not change color significantly when used with compatible back-up materials.

4. Will not bleed significantly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Super Sky Products, Inc.

B. EPI Architectural Systems, Inc.

C. Fisher Skylights, Inc.

D. Skyline Products.

E. Approved substitute.

2.2 MATERIALS:

A. Extrusions shall be 6063-T5 alloy and temper (ASTM B331 alloy 6063-T5). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A164.

B. Perimeter anchors shall be aluminum or steel provided the steel is properly isolated from the aluminum.

C. Flashing shall be aluminum, .090" thick under 5" girth; .125" thick at 5" girth and larger.

D. Glazing Material:

1. Glazing material for sloped surfaces shall be Heat Mirror or "Low E" insulating units 1" thick. Provide exterior light of fully tempered glass and interior light of laminated glass.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Set on a curb which is a minimum of 8" in height above lowest point of roof surface.

3.2 TOLERANCES:

A. All parts of the work, when completed, shall be within the following tolerances:
1. Maximum variation from plane or location shown on approved shop drawings: 0.125" per 12 feet of length or 0.5" 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": 1/32".

END OF SECTION 07820