# OKLAHOMA STATE UNIVERSITY - BUILDING DESIGN STANDARDS

*DESIGNER NOTE: SPECIFIC APPROVAL MUST BE OBTAINED FROM OSU ARCHITECTURE SERVICES 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*

## PART 1 GENERAL

### 1.01 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 degrees F., indoor temperature of 70 degrees F., 40 percent 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 inch 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 percent of the design dimension and the member shall have a 0.125 inch 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 percent 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.

4. Thermal Movement: Provide such expansion and contraction of component materials as will be caused by a surface temperature range of ±50 degrees F. without causing buckling, stresses on glass, failure of seals, undue stress on structural elements, reduction of performance or other detrimental effects.

1.02 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 registered in the State of Oklahoma and qualified in the design of self-supporting, sloped glazed systems.

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 ultraviolet 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.

1.03 QUALITY ASSURANCE:

A. Installer Qualifications:

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

1.04 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 backup materials.

4. Will not bleed significantly.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

A. EPI Architectural Systems, Inc.

B. Fisher Skylights, Inc.

C. Skyline Products.

D. An approved equal.

2.02 MATERIALS:

A. Extrusions shall be 6063T5 alloy and temper (ASTM B331 alloy 6063T5). 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.

**END OF SECTION 08630**