

**SECTION 08620  
COOLLITE UNIT SKYLIGHTS**

**PART 1 GENERAL**

**1.04 SYSTEM DESCRIPTION**

- A. A complete skylight assembly that is weather tight and air tight conforming to the performance requirements in this section. Base skylight unit must be tested to: NFRC and AAMA/WDMA/CSA101/I.S.2/A440-08 and AAMA/WDMA/CSA 101/I.S.2/A440-05.
- B. Performance Requirements
1. Optical performance: Must have a minimum of 54% VLT (Visible Light Transmission) with 100% Haze/Diffusion.
  2. Thermal performances: Must have a maximum 0.26 SHGC (Solar Heat Gain Coefficient) and a maximum 0.45 U Factor and 2.22 R Value.
  3. Mechanical performance: Must be Federal and California – OSHA CFR compliant.
  4. Deflection: of skylight framing members shall not exceed L/175 when subject to a uniform load deflection test in accordance with ASTM E330, and per the above specified loads.
  5. Water Penetration: No water penetration shall occur when skylight is tested in accordance with ASTM E331. 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 to the exterior all water entering at joints or glazing reveals as well as all condensation occurring within unit construction.
  6. Air Infiltration: Air infiltration through the skylight assembly when tested in accordance with ASTM E283 shall not exceed 0.06 cubic feet per minute per square foot of fixed area.
  7. Thermal Movement: Skylight assembly shall be so designed and

anchored that there will be no problematic distortion or stresses in fastening and joinery due to expansion and contraction when subjected to temperature variance.

### 1.05 QUALITY ASSURANCE

- A. The work in this section including design, engineering, fabrication and glazing and erection shall be the responsibility of the skylight manufacturer. The skylight manufacturer shall have been regularly engaged in the specialized type of work for at least 10 years and have satisfactorily completed projects of a similar scope.

### 1.06 SUBMITTALS

- A. Submit shop drawings indicating methods of construction.

### 1.07 WARRANTY

- A. Certify that skylight system will remain free from defects in material and workmanship and remain free of leakage for a period of 5 years from the date of substantial completion.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Specifications are based on **Bristolite Skylights, Inc...Coollite model skylights.**  
**Manufacturer:** Bristolite Daylighting Systems, Santa Ana, CA 92707, tele; 714.540.8950; fax; 714.540.5415; web; [www.bristolite.com](http://www.bristolite.com), model Coollite - XXXX-ALT-CM-2-COO-WPM-MF; NO SUBSTITUTIONS ALLOWED.
- B. Substitution will be considered only when the following conditions have been met.
  - 1. Products of other manufacturers must be pre-qualified to bid not less than 10 days prior to bid date.
  - 2. Submit supporting performance data, 3<sup>rd</sup> party test reports and technical data and drawings to validate full compliance with performance, design and materials of construction specifications.

## 2.02 MATERIALS

- A. Frame: The frame must be manufactured with 6063-T6 architectural grade aluminum. The frame dimensions must be a minimum of 0.075 inch thick, 2.25 inches in depth on the horizontal leg and 2.0 inches in depth on the vertical leg. The Frame must have an AAMA compliant thermal break whereas the aluminum on the outside of the frame is completely separated from the aluminum on the inside of the frame. The bridge between the exterior and the interior of the frame must be a long life, polyurethane thermal barrier. Styrofoam and PVC insulation is not an acceptable substitute for an AAMA compliant thermal break. The frame must be squared (90 degree corners) and flat (on one plane) by the insertion of corner stabilizers prior to full heli-arc welding. The frame must have a full perimeter condensation trough measuring a minimum of .625 inches wide and 0.375 inches deep with a minimum of six non-clog weep holes routed to the outside of the frame.
- B. Frame cap: The frame cap must be manufactured with 6063-T6 architectural grade aluminum. Frame cap dimensions must be a minimum of 0.050 inch thick, 1.75 inches in depth on the horizontal leg and 2.0 inches in depth on the vertical leg. The frame cap must be squared and flat prior to full heli-arc welding.
- C. Glazing: The outer dome must be formed from Plaskolite, flawless, Optix, clear, acrylic subsequently coated on the number two side with Bristolite Coollite spectrally selective infrared and ultraviolet blocking coating and must be a minimum thickness of 0.177 inches. The outer dome must be of a simple bubble shape and may not have a rib shaped design with tight radii to eliminate shadowing and the resultant restriction of light into the interior of the building. There must be a minimum 1.0 inch air space between the outer dome and inner dome to produce the low solar heat gain and excellent insulating values in the preceding performance section of this specification. To achieve maximum light transmission to the interior of the building the inside curb dimension of the skylight may not be less than the stated opening size; meaning for example a 5' x 6' skylight must have a minimal 60" by 72" inside curb dimension (ICD). The inner dome must be made from Plaskolite, flawless, K12 prism pattern, 25% impact modified, white, Duraplex prismatic and must be a minimum thickness of 0.118 inches. The inner dome must also be formed in the contour of a plain bubble shape. All glazing material must be tested for and PASS: A) UBC-26-7 and ASTM D635-06 Rate-of-Burn achieving a minimum CC2 rating. B) ASTM D-2843-99 Smoke Density Test C) ASTM D1929-96 Ignition Temperature Test (Self Ignition).

- D. Glazing Sealant: Only Monsanto/Exxon UL Listed Santoprene thermoplastic with a minimum 50 durometer per ASTM C-509. Silicone caulking is not allowed.
- E. Finish: Mill finish unless otherwise specified and approved on submittal documentation.

## **2.03 FABRICATION**

- A. Skylights shall be factory fabricated, preassembled and glazed.
- B. All welding shall be by the heliarc process. Frame corners to be mitered and fully welded watertight.
- C. Skylights shall have a properly designed non-clog weep system for drainage to the exterior without excessive air infiltration.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Prior to beginning work of this section, an authorized representative shall examine the associated support structure to determine that it is properly prepared and ready to receive the skylight. No installation shall proceed until any discrepancies have been resolved.

### **3.02 PREPARATION**

- A. Aluminum surfaces in contact with masonry, concrete or dissimilar materials if not organically coated shall be given a heavy coat of zinc chromate or bituminous paint.

### **3.03 INSTALLATION**

- A. Installer shall comply with manufacturer recommendations and generally accepted practices.
- B. Install skylights plumb, true without warping or racking.
- C. Anchor self flashing skylight to roof or curb mount skylight to curb in strict accordance with approved shop drawings.

- D. Install fasteners in all pre-drilled skylight frame holes.

### **3.04 FIELD QUALITY CONTROL**

### **3.05 CLEANING AND PROTECTION**

- A. Glazing shall be left in scratch free condition inside and out.
- B. If glazing cleaning is necessary use only mild soap (dish soap) and water with a scratch free sponge, cloth or soft bristle brush.
- C. Remove all debris created by this work.

END OF SECTION