

SECTION 08 62 00

TUBULAR DAYLIGHTING DEVICE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tubular daylighting device, consisting of roof dome, reflective tube, and diffuser assembly; configuration as indicated on the Drawings.
- B. Accessories.

1.02 PERFORMANCE REQUIREMENTS

- A. Completed tubular daylighting device assemblies shall be capable of meeting the following performance requirements:
 - 1. Air Infiltration Test:
 - a. Air infiltration will not exceed 0.4 cfm/sf aperture with a pressure delta of 1.57 psf across the tube when tested in accordance with ASTM E 283.
 - 2. Water Resistance Test:
 - a. No uncontrolled water leakage at 10.5 psf pressure differential with water rate of 5 gallons/hour/sf when tested in accordance with ASTM E 547.
 - 3. Uniform Load Test: All units tested with a safety factor of (3) for positive pressure and (2) for negative pressure, acting normal to plane of roof in accordance with ASTM E 330.
 - a. No breakage, permanent damage to fasteners, hardware parts, or damage to make daylighting system inoperable or cause excessive permanent deflection of any section when tested at a Positive Load of 150 psf (7.18 kPa) or Negative Load of 70 psf (3.35 kPa).
 - 4. Fire Testing:
 - a. When used with the Dome Edge Protection Band, all domes meet fire rating requirements as described in the International Building Code.
 - b. Self-Ignition Temperature - Greater than 650 degrees F per ASTM D-1929.
 - c. Smoke Density - Rating no greater than 450 per ASTM Standard E 84 in way intended for use. Classification C.
 - d. Rate of Burn and/or Extent - Maximum Burning Rate: 2.5 inches/min (62 mm/min) Classification CC-2 per ASTM D 635.
 - e. Rate of Burn and/or Extent - Maximum Burn Extent: 1 inch (25 mm) Classification CC-1 per ASTM D 635.
 - 5. Light Performance:
 - a. Photometric test of all optical components in the system in accordance with IESNA LM-81-10 for skylights and tubular daylighting devices.
 - b. Demonstration of an ASC11-IES file in accordance with IESNA LM-63-2002.
 - c. Optical reflector testing ASTM E1164/E308 and clarity ASTM E1164/E308 D65 CIE a and b.
 - d. Daylight point-by-point values on a 5' x 5' spacing for the work plane, and 5' x 5' spacing on the walls must be calculated, demonstrating that the daylight illuminance levels and uniformities meet or exceed the baseline daylighting calculations for the project. Calculations must be performed with software authored by an independent software company, and shall be calculated to demonstrate delivered daylight at 9am and 3pm on September 21.

1.03 SUBMITTALS

- A. Test Reports: Independent testing agency or evaluation service reports verifying compliance with specified performance requirements.
- B. Daylighting Calculations: All product submittals must be accompanied with point-by-point values on a 5'x5' spacing demonstrating that the daylight illuminance levels and uniformities meet or exceed the baseline daylighting calculations.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Engaged in manufacture of tubular daylighting devices for minimum 20 years.

1.05 WARRANTY

- A. Daylighting Device: Manufacturer's standard warranty for 10 years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Solatube International, Inc.
- B. Sun-Dome

2.02 TUBULAR DAYLIGHTING DEVICES

- A. Tubular Daylighting Devices General : Transparent roof-mounted skylight dome and self-flashing curb, reflective tube, and ceiling level diffuser assembly, transferring sunlight to interior spaces; complying with ICC AC-16.
- B. Tubular Daylighting System:
 - 1. Roof Dome Assembly: Transparent, UV and impact resistant dome/collector with flashing base supporting dome and top of tube.
 - a. Optical System: Variable prism optic to capture low angle sunlight and limit high angle sunlight and/or internal reflector required.
 - 2. Roof Flashing Base:
 - a. System shall be mounted on insulated curb system.
 - 3. Reflective Tubes: Aluminum sheet.
 - a. General:
 - 1) Interior Finish: High reflectance specular finish on exposed reflective surface. Specular reflectance for visible spectrum (400 nm to 760 nm) greater than 97 percent. Total solar spectrum reflectance (400 nm to 2500 nm) less than 80.2 percent.

END OF SECTION 08 62 00