

SECTION 08625

TUBULAR SKYLIGHTS 21" SOLAMASTER SPECIFICATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Tubular skylights, consisting of skylight dome, reflective tube, and diffuser assembly; configuration as indicated on the drawings.
- B. Accessories.

1.2 RELATED SECTIONS

- A. Section 07311 - Asphalt Shingles: Flashing of skylight base.
- B. Section 07320 - Roof Tiles: Flashing of skylight base.
- C. Section 07510 - Built-Up Bituminous Roofing: Flashing of skylight base.
- D. Section 07530 - Electrometric Membrane Roofing: Flashing of skylight base.
- E. Section 07550 - Modified Bituminous Membrane Roofing: Flashing of skylight base.
- F. Section 08620 - Unit Skylights: Skylights without reflective tube.
- G. Section 08630 - Metal Framed Skylights.
- H. Section 16150 - Equipment Wiring: Electrical connections.
- I. Section 16500 – Lighting Equipment and Controls.

1.3 REFERENCES

- A. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2001.
- B. ASTM A 463/A 463M - Standard Specification for Steel Sheet, Aluminum Coated, by the Hot Dip Process; 2001a.
- C. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized), by the Hot Dip Process; 2001a.
- D. ASTM E 283 - Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- E. ASTM E 308-95 - Standard Practice for Computing the Colors of Objects by Using the CIE System

- F. ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls and Doors.
- G. ASTM E 331 - Test Method for Water Penetration of Exterior Windows, Curtain walls and Doors by Static Air Pressure Difference.
- H. ASTM D 635 - Test Method for Rate of Burning and/or Extent of Time of Burning of Self-Supporting Plastics in a Horizontal Position.
- I. ASTM D-1929 - Test Method for Ignition Properties of Plastics.
- J. UL 181 - Factory Made Air Ducts and Air Connectors; 1998
- K. UL 790 - Standard for Tests for Fire Resistance of Roof Covering Materials; 1997.
- L. ICBO/ICC AC-16 - Acceptance Criteria for Plastic Skylights; 2002.

1.4 PERFORMANCE REQUIREMENTS

- A. Completed skylight assemblies shall be capable of meeting the following performance requirements:
 1. Air Infiltration Test: Air Infiltration maximum 0.10 cfm per foot of crack length at 6.24 psf pressure differential when tested in accordance with ASTM E283.
 2. Water Resistance Test: No uncontrolled water leakage at 6.00 psf pressure differential with water rate of 5 gallons/hours/sf when tested in accordance with ASTM E331.
 3. Uniform Load Test: No breakage, permanent damage to fasteners, hardware parts, or damage to make tubular skylight inoperable, or cause permanent deflection of any section in excess of 1 percent of its span at either a maximum Positive or Negative Load of 100 psf (4.7881 kPa) for the 10 inch (254 mm) and 14 inch (356 mm) units and 35 psf (1.6758 kPa) for the 21 inch (533 mm) unit. All units shall be 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.
 4. Fire Testing:
 - a. Class 'B' Burning Brand – The burning brand shall self-extinguish without transferring the fire to the dome Per: U.B.C. Standard 15-2 Class 'B' Burning Brand Test. See ASTM E 108 and UL 790.
 - b. Self-Ignition Temperature - Greater than 650 degrees F Per: U.B.C. Standard 26-6. See ASTM D-1929-68 (1975).
 - c. Smoke Density - Rating no greater than 75 Per: U.B.C. Standard 26-5. (See ASTM D-2843-70) or no greater than 450 Per U.B.C. 8-1 (See ASTM Standard E 84-91A) in way intended for use.
 - d. Rate of Burn - Minimum Burning Rate: 2.5 inches/min (64 mm/min) Classification CC-2: U.B.C. Standard 26-7. See ASTM D-635-74.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Shop Drawings.

- D. Verification Samples: As requested by Architect.
- E. Test Reports: Independent testing agency or evaluation service reports verifying compliance with specified performance requirements.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Engaged in manufacture of tubular skylights for minimum 10 years.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Skylights: Manufacturer's standard warranty for 10 years.
- B. Electrical Parts: Manufacturer's standard warranty for 5 years, unless otherwise indicated.

PART 2 PRODUCTS

1.1 MANUFACTURERS

- A. Acceptable Manufacturer: Solatube International, Inc.; 2210 Oak Ridge Way, Vista, CA 92083. ASD. Tel: (760) 597-4425. Fax: (760) 597-4488. Email: info@solatube.com. www.solatube.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

1.2 TUBULAR SKYLIGHTS

- A. Tubular Skylights General : Transparent roof-mounted skylight dome and self-flashing curb, reflective tube, and ceiling level diffuser assembly, transferring sunlight to interior spaces; complying with ICBO/ICC AC-16. All components made and assembled by one manufacturer.
- B. Solatube SolaMaster Series 21-inch (533 mm) diameter tubes: Transparent, UV and impact resistant dome with flashing base supporting dome and top of tube.
 - 1. Roof Dome Assembly:

- Use Polycarbonate Domes only in hurricane zones.** Glazing: 0.143 inch (3.7 mm) minimum thickness injection molded acrylic classified as CC2 material and meeting characteristics of Duradome DR-101 blend.
- b. Glazing: 0.125 inch (3.2 mm) minimum thickness polycarbonate classified as CC1 material.
 2. Low-Angled Sun Reflector: LITD(r) light intercepting transfer device, made of same material as main tube, to capture low angle sunlight.
 3. Roof Flashing Base: One piece, seamless, leak-proof flashing functioning as base support for dome and top of tube.
 - a. Base Material: Sheet steel, corrosion resistant conforming to ASTM A 653/A 653M or ASTM A 463/A 463M, 0.028 inch (0.7 mm) thick.
 - b. Base Style: Self mounted, 4 inches (102 mm) high.
 - c. Base Style: Self mounted, 8 inches (203 mm) high.
 - d. Base Style: Self mounted, 11 inches (279 mm) high.
 - e. Base Style: Curb mounted, with flashing 27.3 inches (693 mm) by 27.3 inches (693 mm) to cover curb by others.
 4. Dome Ring: Attached to top of base section; 0.090 inch (2.3 mm) nominal thickness injection molded high impact ABS; to prevent thermal bridging between base flashing and tubing and channel condensed moisture out of tubing.
 5. Dome Seal: Polypropylene Fiber Pile weather – strip 0.27 inch (6.85mm) by 0.27 inch (6.85mm).
 6. Reflective Tube: Aluminum sheet, thickness 0.015 inch (0.4 mm).
 - a. Interior Finish: Spectralight Infinity high reflectance specular finish on exposed reflective surface; specular reflectance 99 percent for visible spectrum, less than 93 percent for total solar spectrum at 1.5 degree field angle.
 - b. Color: a* and b* (defined by CIE L*a*b* color model) shall not exceed plus 2 or be less than minus 2 as determined in accordance to ASTM E 308.
 - c. Tube Diameter: Approximately 21 inches (533 mm).
 7. Diffuser Assemblies for Tubes Penetrating Ceilings: Ceiling mounted box transitioning from round tube to square ceiling assembly, supporting light transmitting surface at bottom termination of tube, with compression seal to minimize condensation and bug or dirt infiltration; 23.8 by 23.8 inches (605 by 605 mm) square frame to fit standard suspended ceiling grids or hard ceilings.
 - a. Transition Box: Box made of opaque polymeric material, classified as CC2, 0.060 inch (1.5 mm) thick.
 - b. Lens: OptiView Fresnel lens design to maximize light output and diffusion with extruded aluminum frame. Visible Light Transmission shall be ≥ 90 percent at 0.125 inches (3 mm) thick.
 - c. Lens: Prismatic lens design to maximize light output and diffusion with extruded aluminum frame. Visible Light Transmission shall be ≥ 90 percent at 0.125 inches (3 mm) thick.
 - d. Lens: Frosted lens with extruded aluminum frame. Visible Light Transmission shall be ≥ 90 percent at 0.125 inches (3 mm) thick.
 - e. Seal: Closed cell foam, 3 pounds per cubic foot (48 kg per cubic meter).
 8. Diffuser Assemblies for Tubes Not Penetrating Ceilings (No Ceiling): 21 inch (533 mm) diameter diffuser attached directly to bottom of tube.
 - a. Lens: Curved prismatic lens of molded acrylic plastic classified as CC2, 0.028 inch (0.7 mm) minimum thickness, minimum light transmission of 90 percent at thickness of 0.125 inch (3.2 mm).
 - b. Seal: Closed cell polyethylene foam, 3 pounds per cubic foot (48 kg per cubic meter), and white polyvinyl chloride seal butt joint welded, EPDM rubber, or silicone foam.

**** TO SPECIFIER ** The following accessories are optional. Delete if not required.**

9. Accessories:

- a. Security Bars 0.375 inch (95 mm) stainless steel bar across flashing diameter opening.
- b. Daylight Dimmer: Electro-mechanically actuated daylight valve; for universal input voltages ranging between 90 and 277 V at 50 or 60 Hz; actuator rated at 0.1 amp per unit; controlled by low voltage, series circuited, 4 conductor, size 22 cable, and low voltage DC DP/DT switch; providing daylight output between 2 and 100 percent.

1.3 ACCESSORIES

- A. Fasteners: Same material as metals being fastened, non-magnetic steel, non-corrosive metal of type recommended by manufacturer, or injection molded nylon.
- B. Sealant: Polyurethane or copolymer based elastomeric sealant as provided or recommended by manufacturer.

PART 3 EXECUTION

1.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

1.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

1.3 INSTALLATION

- A. Install in accordance with manufacturer's printed instructions.
- B. After installation of first unit, field test to determine adequacy of installation. Conduct water test in presence of Owner, Architect, or Contractor, or their designated representative. Correct if needed before proceeding with installation of subsequent units.

1.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION