

**SECTION 08 62 70
TUBULAR DAYLIGHTING SYSTEM**

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies installation and finishing of Tubular Skylights and Accessories.

1.2 RELATED WORK

- A. Section 26 27 26 - Wiring Devices.
- B. Section 26 09 23 - Lighting Controls.
- C. Section 01 81 11 "Sustainable Design Requirements" for sustainability and LEED requirements.

1.2 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

- B..American Society for Testing And Materials (ASTM):
 - E108-10a.....Standard Test Methods for Fire Tests of Roof Coverings.
 - E283-04.....Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - E330-02(2010).....Structural Performance of Exterior Windows, Curtain Walls and Doors.
 - E331-00(2009).....Test Method for Water Penetration of Exterior Windows, Curtain walls and Doors by Static Air Pressure Difference.
 - E1996.....Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
 - D635-10.....Test Method for Rate of Burning and/or Extent of Time of Burning of Self-Supporting Plastics in a Horizontal Position.
 - D-1929-09.....Test Method for Ignition Properties of Plastics.

C. Underwriters Laboratories Inc. (UL):

790-04.....Standard for Tests for Fire Resistance of Roof
Covering Materials.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Provide 21 inch model Tubular Skylights that are certified in accordance to NFRC procedures and are rated for the following thermal properties:

- 1. U-Factor: 0.43
- 2. Solar Heat Gain Coefficient: 0.2
- 3. COG Visible Light: 60%

B. Fire Testing:

- 1. Class B Burning Brand - The burning brand shall self-extinguish without transferring the fire to the dome. See ASTM E 108 and UL 790.
- 2. Self-Ignition Temperature - Greater than 650 degrees F Per: U.B.C. Standard 26-6. See ASTM D 1929.
- 3. Smoke Density - Rating no greater than 450 Per U.B.C. 8-1 (See ASTM Standard E 84) in way intended for use.
- 4. 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.

1.5 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturers literature, data, and installation instructions for types of tubular daylight systems used.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer engaged in manufacture of tubular skylights for minimum 5 years.
- B. Installer Qualifications: Installer engaged in installation of tubular skylights for minimum 3 years.

1.7 WARRANTY

- A. Twenty-five (25) year transferable warranty from date of purchase against manufacturers defects in material and deterioration.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials in a dry, warm, ventilated weather tight location.

1.9 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.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Tubular Skylights General:

1. High-impact acrylic dome with unique condensation release system and bug and dust proof sealing system.
2. Seamless aircraft grade aluminum flashing.
3. 98 percent reflective light pipe.
4. Aluminum trim ring, ceiling ring and stress collar.
5. Dome security kit and security bar.

B. Model Size 21 inch (533 mm):

1. Dome: 100 percent impact modified, UV stabilized acrylic 21.75 inch (552 mm) diameter and 6 inches (152 mm) high. Dome set in a seamless aluminum collar 1 inch (25 mm) high.
2. Mount:
 - a. Roof jack flashing mount. Seamless aircraft grade aluminum .080 inch (2 mm) thick. Dome opening 21.375 inch (543 mm) diameter.
 - b. Flat roof mount. 8 inches (203 mm) high with a 4 inch (102 mm) flashing flange.
 - c. Curb mount aluminum flashing.
 - d. Provide security kit and security bar.
3. Light Pipe. 21 inch (533 mm) diameter by 24 inches (610 mm) long. Tube with 98 percent total reflectance.
4. Trim Ring:
 - a. With finished ceiling.
 - b. Provide transition boxes in suspended ceilings as required.
5. Diffuser:
 - a. Ceiling Mount: 100 percent impact modified, UV stabilized acrylic 21.25 inch (540 mm) diameter.
 - b. Suspended ceiling transition box with integral diffuser.
Diffuser: 100 percent impact modified, UV stabilized acrylic 21.25 inch (540 mm) diameter.

C. Quantity and location:

1. Provide number of devices in locations as shown in the following schedule:

Tubular Daylight Device Schedule

| RM NO. | ROOM NAME | # OF TUBULAR DAYLIGHT DEVICES |
|---------------------------------------|------------------------|-------------------------------|
| 1H111 | WELLNESS CENTER | 2 |
| 1H122 | CLASSROOM | 4 |
| 1H123 | CLASSROOM | 4 |
| 1H124 | CLASSROOM | 4 |
| 1H125 | CLASSROOM | 4 |
| 1H138 | TRAINING ROOM | 2 |
| 1H141 | COMPUTER TRAINING ROOM | 4 |
| 3H310 | OPEN OFFICE | 4 |
| 3H310B | RECEPTION | 1 |
| 3H310D | OFFICE | 1 |
| 3H310E | OFFICE | 1 |
| 3H310F | OFFICE | 1 |
| 3H310G | OFFICE | 1 |
| 3H310J | OFFICE | 1 |
| 3H310K | OFFICE | 1 |
| 3H312 | CONFERENCE ROOM | 1 |
| 3H313 | UNASSIGNED OFFICE | 3 |
| 3H314 | OPEN OFFICE | 5 |
| 3H314N | OFFICE | 1 |
| 3H314R | OFFICE | 1 |
| 3H314S | OFFICE | 1 |
| 3H314T | OFFICE | 1 |
| 3H315 | OPEN OFFICE | 1 |
| 3H316 | OPEN OFFICE | 2 |
| 3H317 | CONFERENCE ROOM | 1 |
| 3H318 | CONFERENCE ROOM | 1 |
| 3H319 | UNASSIGNED OFFICE | 3 |
| 3H320 | OPEN OFFICE | 2 |
| 3H320K | RECEPTION | 1 |
| 3H320E | OFFICE | 1 |
| 3H320F | OFFICE | 1 |
| 3H320H | OFFICE | 1 |
| TOTAL TUBULAR DAYLIGHT DEVICES | | 62 |

2.2 ACCESSORIES

- A. Fluorescent Light Kit: Fluorescent light fixture is mounted inside and is wired to the wall switch. Provided with fluorescent Bulb. Requires switched 120 VAC supply wiring into the 4 inch by 4 inch (102 mm by 102 mm) electrical box with ballast.
- B. Light Pipe Elbows (angle adapters): Constructed of Alanod MIRO-SILVER with 98 percent total reflectance and is fully adjustable from 0 to 45 degrees. For use in steep pitch situations or applications where straight pipe runs are not possible.
- C. Additional Light Pipes: Each additional section is 24 inch (610 mm) in length. Provide extra sections of light pipe for tall installations with maximum lengths as follows:
 - 1. 21 inches (533 mm) model - maximum light pipe length = 40 feet (12.19 m).
- D. Fasteners: Same material as metals being fastened, non-magnetic steel, non-corrosive metal of type recommended by manufacturer, or injection molded nylon.
- E. Suspension Wires: Steel, annealed, galvanized finish, size and type for application and ceiling system requirement.
- F. Sealant: Polyurethane or copolymer based elastomeric sealant as provided or recommended by manufacturer.
- G. Security: Provide dome security kits and security bars.
- H. Dome Protection Bands: Provide as required for roof fire rating.

PART 3 - EXECUTION

3.1 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.

3.2 PREPARATION

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

3.3 INSTALLATION

- A. Install in accordance with manufacturer's printed instructions.
- B. Ceiling:
 - 1. Cut opening for ceiling ring.

2. Attach ceiling ring.

C. Roof/Attic:

1. Cut opening for penetration.
 - a. Install flashing.
 - b. Measure tube length needed.
 - c. Assemble tube components.
 - d. Install pipe.
 - e. Attach dome.

D. Ceiling:

1. Snap on diffuser and transition box as required.
2. 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.

3.4 PROTECTION

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

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