

VELUX SoCal Dynamic Dome Skylight

SECTION 08 62 00 – UNIT SKYLIGHTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Dynamic dome unit skylight with formed curb counterflashing for mounting on site-built or prefabricated roof curbs, for flat, low-slope and steep-slope roofing applications.

1.2 RELATED REQUIREMENTS

- A. Section 061053 "Miscellaneous Rough Carpentry" for site-built wood roof curbs and nailers for unit skylights.
- B. Division 07 roofing section for flashing and roofing terminations at unit skylight curbs.
- C. Section 077200 "Roof Accessories" for manufactured metal roof curbs for unit skylights.

1.3 REFERENCE STANDARDS

- A. General: Applicable edition of references cited in this Section is current edition published on date of issue of Project specifications, unless otherwise required by building code in force.
- B. American Architectural Manufacturers Association (www.aama.net), Window & Door Manufacturers Association (www.wdma.com), Canadian Standards Association (www.csagroup.org/us/en/services)
 - 1. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/ Specification for Windows, Doors, and Skylights (NAFS)
- C. ASTM International: www.astm.org:
 - 1. ASTM D1003 – Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics
 - 2. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings
 - 3. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 - 4. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
 - 5. ASTM E408 - Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques
- D. Illuminating Engineering Society of North America (IESNA): www.ies.org:
 - 1. IESNA – The Lighting Handbook.
- E. International Code Council Evaluation Service (ICC-ES):
 - 1. Acceptance Criteria 16 (AC-16) - Plastic Glazed Skylights

- F. National Fenestration Rating Council: www.nfrccommunity.org:
 - 1. NFRC 100 - Procedure for Determining Fenestration Product U-factors
 - 2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence
- G. National Fire Protection Association: www.nfpa.org:
 - 1. NFPA 70 - National Electrical Code

1.4 COORDINATION

- A. Coordinate dimensions, locations, and details of skylight curbs [specified in Section 061053 "Miscellaneous Carpentry"] [specified in Section 077200 "Roof Accessories"] with unit skylight curb flashings. Verify requirements for roofing system terminations.
- B. Coordinate unit skylight interior termination locations with structural layout, ceiling layouts, and other ceiling-mounted items.

1.5 ACTION SUBMITTALS

- A. Product Data: For unit skylights. Include standard construction details, product performance characteristics, and material descriptions, dimensions of individual components and profiles, and finishes.
 - 1. Include test reports of qualified independent testing agency or third party certificates verifying compliance with performance requirements.
- B. LEED Submittals:
 - 1. Credit MR 4 Recycled Content: Documentation indicating the following:
 - a. Percentages by weight of post-consumer and pre-consumer recycled content.
 - b. Total weight of products provided.
 - c. Include statement indicating costs for each product having recycled content.
- C. Shop Drawings: For unit skylight work. Include plans, elevations, sections, details, and connections to supporting structure and other adjoining work.
 - 1. Lighting photometric study indicating compliance with performance requirements in accordance with IESNA. Include layout, spacing criteria and foot-candle report.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer listed in this Section with minimum 30 years' experience in the US manufacturing similar products in successful use on similar projects and able to provide unit skylights meeting requirements.

1. Approval of Manufacturers and Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
 - a. Completed and signed Substitution Request form.
 - b. Product data, including photometric data and independent test data indicating compliance with requirements.
 - c. Sample product warranty.

1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of skylights that fail in materials or workmanship under normal use within specified warranty period.

Warranty Period:

- a. 15 years mill finished aluminum skylight frames.
- b. 10 Years: Yellowing of polycarbonate skylight domes.
- c. 5 Years: Skylight model CDS

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide products of **VELUX America LLC**, Greenwood, SC 29648; www.VELUXusa.com; (800) 878-3589.

2.2 DYNAMIC DOME SoCal UNIT SKYLIGHT: (Model CDS)

- A. System Description: Dynamic dome, curb mounted fixed skylight utilizing extruded aluminum frame counter-flashing with welded corners and condensation gutter, structural sealant, and accessories, as required to meet installation and performance requirements indicated. Dynamic dome skylights shall be suitable for installation on roof curbs ranging from 0 degrees up to 60 degrees from horizontal.

1. Basis of Design: **VELUX America LLC, Model CDS SoCal Dynamic Dome Skylight.**

- B. Dynamic Dome: Height 30% of skylight width, vacuum formed with precise repeating geometric patterns, and overall shape to maximize strength and daylight at solar elevation angles 10 to 40 degrees. Dome shall be formed from smooth sheet and not prismatic in order to transmit all incident daylight through outer dome. Initial rise of the dome shall be at an angle of at least 60 degrees to horizontal in order to harvest daylight at low solar elevation angles 10 through 40 degrees. Provide polycarbonate domes with integral UV blocking cap layer that prevents long-term yellowing, and insures material strength and performance stability. Light diffusion 100%.

1. Single dome: Formed from white polycarbonate sheet with UV blocking cap layer.

- C. Aluminum Frame Counter-flashing: Maintenance-free, extruded aluminum, grade 6063-T5, 0.07 inch (1.8 mm) thick with mill finish. Counter-flashing frames with exterior completely welded in corners and counter flashes curb a minimum of 2 inches (50 mm).

1. Unit Sizes: [4848] [4896]

D. Structural Sealant: Factory applied silicone sealant, gray color, bonding the dome to the aluminum frame.

2.3 PERFORMANCE REQUIREMENTS

A. Unit Skylight Standard, Dynamic Dome model CDS evaluation report in accordance to the requirements of ICC-ES AC-16: ESR-4108

1. Performance Grade:

- a. Positive = 30 psf
- b. Negative = 30 psf

2. Air Infiltration: Leakage less than 0.30 cfm/ft² (1.5 L/s/m²) when tested at an air pressure differential of 1.57 psf (75 Pa).

B. Daylighting: Provide daylighting photometric performance comparable to basis of design product at layout indicated, based upon daylighting profile of March 21, 9:00 am local time, at Project location by simulation in accordance with IESNA guidelines.

C. Fire Testing for Roof Assemblies with Fire Classifications: Unit skylight tested in accordance with and listed as passing Class B Burning Brand test as described in ASTM E 108.

D. Dome Burn Rate: Tested in accordance with ASTM D 635 with a documented rating of [CC2 for 100% impact modified acrylic] [[CC1 for [LuxGuard] [LuxGuard Plus] (polycarbonate)]]

E. Dome Smoke Density Rating: Testing in accordance with ASTM D 2843 with a documented performance value less than or equal to 75.

F. Dome Self-Ignition Temperature: Tested in accordance with ASTM D 1929 with a documented performance value greater than or equal to 650 degrees Fahrenheit.

2.4 FINISHES

A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with unit skylight installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install unit skylights in accordance with manufacturer's written instructions and approved shop drawings. Coordinate installation of units with installation of substrates, air and vapor retarders,

roof insulation, roofing membrane, and flashing as required to ensure that each element of the Work performs properly and that finished installation is weather tight.

1. Anchor unit skylights securely to supporting substrates.
 2. Install unit skylights on curbs specified in another section with tops of curbs parallel to finished roof slope.
- B. Where metal surfaces of unit skylights will contact incompatible metal or corrosive substrates, including preservative-treated wood, apply bituminous coating on concealed metal surfaces.
- C. For custom flashings, install unit skylight curb counter-flashing to produce weatherproof seal with curb and overlap with roofing system termination at top of curb.

3.3 CLEANING AND PROTECTION

- A. Clean exposed unit skylight surfaces according to manufacturer's written instructions. Touch up damaged metal coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- B. Protect unit skylight surfaces from contact with contaminating substances resulting from construction operations.

END OF SECTION