

## Product Evaluation

SK46 | 1218

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

**Evaluation ID:** SK-46

**Effective Date:** December 1, 2018

**Re-evaluation Date:** December 2021

**Product Name:** VELUX® Sun Tunnel Commercial™ Skylights, Tubular Daylight Devices, Impact Resistant

**Manufacturer:** VELUX America, LLC  
450 Old Brickyard Road  
P.O. Box 5001  
Greenwood, SC 29648-5001  
(864) 941-4828

### General Description:

**Note:** Three types of diffuser arrangements can be used in each system shown, with three types of available interior glazing finishes for each diffuser type.

System	Description	Label Rating	Design Pressure Rating
1	Model TCC 014 1000; Low-profile dome; High-profile, curb-mount steel flashing; Rigid tunnel, 14" diameter; nine single- and double-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG145 Size Tested: 14" (DP = +300/-145 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf

**General Description (Continued):**

**Note:** Three types of diffuser arrangements can be used in each system shown, with three types of available interior glazing finishes for each diffuser type.

<b>System</b>	<b>Description</b>	<b>Label Rating</b>	<b>Design Pressure Rating</b>
2	Model TCC 014 1000 with Energy Kit; Low-profile dome; High-profile, curb-mount steel flashing; Rigid tunnel, 14" diameter; nine triple- and quadruple-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG145 Size Tested: 14" (DP = +300/-145 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf
3	Model TGC 014 1000; Low-profile dome; Low-profile, parallel steel flashing; Rigid tunnel, 14" diameter; nine single- and double-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG145 Size Tested: 14" (DP = +300/-145 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf
4	Model TGC 014 1000 with Energy Kit; Low-profile dome; Low-profile, parallel steel flashing; Rigid tunnel, 14" diameter; nine triple- and quadruple-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG145 Size Tested: 14" (DP = +300/-145 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf
5	Model TMC 014 1000; Low-profile dome; High-profile, pitched steel flashing; Rigid tunnel, 14" diameter; nine single- and double-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG145 Size Tested: 14" (DP = +300/-145 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf
6	Model TMC 014 1000 with Energy Kit; Low-profile dome; High-profile, pitched steel flashing; Rigid tunnel, 14" diameter; nine triple- and quadruple-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG145 Size Tested: 14" (DP = +300/-145 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf
7	Model TCC 022 3000; High-profile dome with SunCurve light directing device; High-profile, curb-mount steel flashing; Rigid tunnel, 22" diameter; nine single- and double-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG130 Size Tested: 22" (DP = +300/-130 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf

**General Description (Continued):**

**Note:** Three types of diffuser arrangements can be used in each system shown, with three types of available interior glazing finishes for each diffuser type.

System	Description	Label Rating	Design Pressure Rating
8	Model TCC 022 5000 with Energy Kit; High-profile dome with SunCurve light directing device; High-profile, curb-mount steel flashing; Rigid tunnel, 22" diameter; nine triple- and quadruple-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG130 Size Tested: 22" (DP = +300/-130 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf
9	Model TGC 022 5000; High-profile dome with SunCurve light directing device; Low-profile, parallel steel flashing; Rigid tunnel, 22" diameter; nine single- and double-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG130 Size Tested: 22" (DP = +300/-130 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf
10	Model TGC 022 5000 with Energy Kit; High-profile dome with SunCurve light directing device; Low-profile, parallel steel flashing; Rigid tunnel, 22" diameter; nine triple- and quadruple-glazed acrylic diffuser arrangements	TDDCC/TDDOC-PG130 Size Tested: 22" (DP = +300/-130 psf) Missile Level C Cyclic Pressure: +50/-50 psf	+50 / -50 psf

**Component Dimensions:**

System	Component	Component Dimensions
1-6	Dome Size (Maximum)	17-9/16"
	Flashing Neck Opening (Maximum)	13-7/16"
	Neck Height (Maximum)	4-5/8"
	Deck Rough Opening Size (Maximum)	20-7/8"
7-10	Dome Size (Maximum)	25-5/8"
	Flashing Neck Opening (Maximum)	24-3/8"
	Neck Height (Maximum)	4-5/8"
	Deck Rough Opening Size (Maximum)	23-1/2"

**Product Identification (Certification Label on Skylight):**

System		
1-6	Certification Agency	WDMA
	Manufacturer's Name or Code Name	VELUX® Sun Tunnel™
	Product Name	14" TCC, TGC, and TMC
	Test Standards	AAMA/WDMA/CSA 101/I.S.2/A440-11 ASTM E 1886-05; ASTM E 1996-05 Missile Level C
7-10	Certification Agency	WDMA
	Manufacturer's Name or Code Name	VELUX® Sun Tunnel™
	Product Name	22" TCC and TGC
	Test Standards	AAMA/WDMA/CSA 101/I.S.2/A440-11 ASTM E 1886-05; ASTM E 1996-05 Missile Level C

**Product Identification (Manufacturer):** A permanent identification label is affixed to the product. The permanent label includes the manufacturer's name and the product number.

**Impact Resistance:**

System	Impact Resistant	Requirement
1-10	Yes	These products satisfy TDI's criteria for protection from windborne debris in the <b>Inland I</b> and <b>Seaward zone</b> . Install the assemblies at a height on the structure that does not exceed the design pressure rating for the assemblies.

**Limitations:**

**Note:** In this table, an \* indicates diffuser surface 0, 2, or 3

System	Model ID	Tunnel Diameter
1	TCC 014 1000 + THC 014 000*, TOC 014 000*, or TTC 014000*	14"
2	TCC 014 1000 + THC 014 000*, TOC 014 000*, or TCC 014 000* + 14" Energy Kit	14"
3	TGC 014 1000 + THC 014 000*, TOC 014 000*, or TTC 014 000*	14"
4	TGC 014 1000 + THC 014 000*, TOC 014 000*, or TTC 014 000*+14" Energy Kit	14"
5	TMC 014 1000 + THC 014 000*, TOC 014 000*, or TCC 014 000*	14"
6	TMC 014 1000 + THC 014 000*, TOC 014 000*, or TTC 014 000*+14" Energy Kit	14"
7	TCC 022 5000 + THC 022 000*, TOC 022 000*, or TCC 022 000*	22"

**Limitations:**

**Note:** In this table, an \* indicates diffuser surface 0, 2, or 3

System	Model ID	Tunnel Diameter
8	TCC 014 5000 + THC 022 000*, TOC 022 000*, or TTC 022 000*+22" Energy Kit	22"
9	TGC 022 5000 + THC 022 000*, TOC 022 000*, or TTC 022 000*	22"
10	TGC 022 5000 + THC 022 000*, TOC 022 000*, or TTC 022 000*+22" Energy Kit	22"

**Roof Slope:** Install the skylights on roofs with slopes between 0 degrees and 60 degrees.

**Installation:**

**General:** TDD components must be assembled and installed in accordance with the manufacturer's installation instructions and this evaluation report. Detailed installation instructions are shipped in the cartons, and additional drawings may be available from the manufacturer.

**The following installation requirements apply to all tubular daylighting devices:**

1. Manufacturer's installation instructions must be followed unless otherwise specified by this product evaluation report. The nails, clips, screws, tape, etc., required to assemble and secure the unit to the roof or curb are included in the Sun Tunnel cartons.
2. Roof rafters may be cut as necessary to facilitate skylight installation. In such cases, a TDI appointed engineer as a qualified inspector will be required to design and certify the roof framing modifications as well as the product installation. Additional jamb and header bracing must be installed as necessary to provide support directly beneath all pre-punched Sun Tunnel fastener locations in the flashing, or the curb for Systems 9 and 10.
3. The roof framing members must be minimum Spruce-Pine-Fir dimension lumber (SG  $\geq$  0.42).
4. Systems 1 through 8 must be secured to the roof decking with fasteners driven through the roof decking and into the roof framing wherever possible.

**Installation (Systems 1, 2, 7 and 8):** For installation on a wood roof structure, a wood curb must be constructed on site prior to installing the TCC flashing. The wood curb assembly is not included with the Sun Tunnel kits. The wood curb components and the roof framing fasteners must be acquired and installed separately. The wood curb must, at a minimum, consist of 2 x 4 SPF dimension lumber (SPG = 0.42). The curb must be toenailed to the roof framing (minimum 2 x SPF dimension lumber) with minimum 12d galvanized common nails (3-1/4" long, 0.162" nominal smooth shank diameter). The fasteners must be spaced approximately 3" from each corner and approximately 5" on center along the perimeter of the wood curb. The nails must be driven (toenailed) through the roof deck and into the roof framing members below (a minimum of 1 1/4" penetration).

The Sun Tunnel flashing is secured to the wood curb with minimum No. 8 x 1 1/2" pan head stainless steel screws, two per side, approximately 3" from each end, through pre-punched holes.

Use of different curb materials on non-wood roofs with equivalent anchorage capacities may be permitted. Design requirements and inspection will be made by a TDI appointed engineer as a qualified inspector.

**Installation (Systems 3, 4, 5, 6, 9 and 10):** The roof deck must be minimum nominal 1/2" plywood. The Sun Tunnel flashing is secured to the roof deck with 10 1-1/2" long pan head stainless steel screws. The fasteners must be installed through the pre-punched holes around the outer perimeter of the flashing.

**Note:** Keep the manufacturer's installation instructions available on the job site during installation. Use corrosion resistant fasteners as specified in the IRC, the IBC, and the Texas Revisions.