

ICC-ES Evaluation Report

ESR-4108

Reissued December 2019

This report is subject to renewal December 2020.

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A Subsidiary of the International Code Council®

DIVISION: 08 00 00—OPENINGS
Section: 08 62 00—Unit Skylights

REPORT HOLDER:

VELUX AMERICA LLC

EVALUATION SUBJECT:

VELUX® DYNAMIC DOME SKYLIGHTS

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2018, 2015 and 2012 *International Building Code* (IBC)
- 2018, 2015 and 2012 *International Residential Code* (IRC)

Properties evaluated:

- Structural
- Air infiltration
- Water penetration resistance
- Durability

1.2 Evaluation to the following green standard:

- 2015 and 2012 ICC 700 *National Green Building Standard™* (ICC 700-2015 and ICC 700-2012)

Attributes verified:

See Section 2.0.

2.0 USES

The VELUX Dynamic Dome Skylights are non-operable plastic-glazed unit skylights complying with IBC Sections 2405 and 2610 and IRC Section R308.6.

The attributes of the skylights have been verified as conforming to the requirements of (i) ICC 700-2015 Section 701.4.3.3 and 11.701.4.3.4 and ICC 700-2012 Section 701.4.3.3 and 11.701.4.3.3 for fenestration air leakage. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.0 DESCRIPTION

3.1 Single Dynamic Domes:

The VELUX CDS Single Dynamic Domes consist of a single geometric-shaped plastic dome factory-attached to

an aluminum extruded frame with an aluminum extruded retainer cap.

The frame and retainer cap is manufactured from 0.06-inch-thick (1.52 mm) 6063-T5 or 6063-T6 aluminum. See Figure 1.

The plastic dome is manufactured from a translucent-white polycarbonate panel with a uniform thickness of 0.118 inch (3.00 mm). The panel is recognized as Plaskolite, LLC's Tuffak® SK1 under [ESR-2728](#).

3.2 Double Dynamic Domes:

The VELUX CD2 and CE2 Double Dynamic Domes consist of double geometric-shaped plastic domes factory-attached to an aluminum extruded frame with an aluminum dome clamp, spring clips, hold downs, and cap cover spacers.

The frame and dome clamp is manufactured from 0.06-inch-thick (1.52 mm) 6063-T6 aluminum. See Figure 2.

The spring clip is manufactured from 301 stainless steel.

The hold down and cap cover spacer is manufactured from rigid PVC.

The outer plastic dome is manufactured from a translucent-white or clear polycarbonate panel with a uniform thickness of 0.118 inch (3.00 mm).

The inner plastic dome is manufactured from a translucent-white or clear polycarbonate panel with one side prismatic with a thinnest thickness of 0.053 inch (overall thickness of 0.118-inch). The prismatic side faces the exterior.

The panels are recognized as Plaskolite, LLC's Tuffak® SK1 (outer) and SK (inner) under [ESR-2728](#).

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Performance Grade: The performance grade (PG) ratings are provided in Tables 1 and 2.

4.1.2 Air Infiltration: When tested at an air pressure differential of 1.57 psf (75 Pa), the skylights have an air leakage rate of less than 0.30 cfm/ft² (1.5 L/s*m²).

4.2 Installation:

The skylight must be attached with minimum No. 8 corrosion-resistant wood screws in each mounting hole provided in the skylight frame, with the screw length being sufficient to penetrate a wood curb a minimum of 1 inch

(25 mm). See Tables 1 and 2 for the required number of fasteners. Additional installation details are provided in Figures 1 through 3.

The skylights are curb-mounted and must be installed on a minimum 2-by lumber with a minimum specific gravity of 0.42, sized to the inside dimension noted in Table 1, and of a height sufficient so that the plastic glazing is a minimum of 4 inches (102 mm) above the plane of the roof. The wood curb and its attachment to the roof structure must be designed to resist wind uplift and gravity loads.

Flashing must comply with, and be installed in accordance with, IBC Section 1507 or IRC Section R905, as applicable.

5.0 CONDITIONS OF USE

The VELUX Dynamic Dome Skylights described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The skylights must be installed in accordance with this report, Sections 2405.4 and 2610 of the IBC or Section R308.6 of the IRC, as applicable, and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2 The design pressure (performance grades) for the skylights are as set forth in Table 1 and Table 2, and must be used with the load combinations of the applicable code.
- 5.3 The manufacturer's installation instructions must be available at the jobsite during installation.
- 5.4 The use of the skylights as components of fire-resistance-rated assemblies is outside the scope of this report.

- 5.5 The attachment of the curbs to the supporting structure is outside the scope of this report.
- 5.6 The use of skylights in wind-borne debris regions is outside the scope of this report.
- 5.7 The skylights are manufactured in Greenwood, South Carolina under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Plastic-Glazed Skylights (AC16), dated April 2017 (editorially revised December 2018).

7.0 IDENTIFICATION

- 7.1 The skylights are labeled with the VELUX name and address; the Single Dynamic Dome or Double Dynamic Dome series; the model number and the product designation (SKP-PG30); the evaluation report number (ESR-4108); and a safety label complying with Class I, ANSI Z 35.1-1972 (warning of risk of falling).

- 7.2 The report holder's contact information is the following:

VELUX AMERICA LLC
POST OFFICE BOX 5001
GREENWOOD, SOUTH CAROLINA 29648
(864) 941-5360
www.veluxusa.com
vcustomer.service@velux.com
commercialteam@velux.com

TABLE 1—SINGLE DYNAMIC DOME SKYLIGHTS

MODEL NO. 1,2,3	DOME RISE (inches)	NUMBER OF RETAINER FASTENERS ⁴	NUMBER OF MOUNTING FASTENERS ⁵	PERFORMANCE GRADE (PG) ⁶ (psf)	
				PG _{pos} (inward forces)	PG _{neg} (outward forces)
CDS 4896 3P200	15	24	24	30	30
CDS 4848 3P200		16	16		

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa

- 1. CDS = mill-finished frame
- 2. The numbers in the middle are the nominal inside curb dimensions in inches, width by length.
- 3. 3P200 = white polycarbonate dome
- 4. The retainer fasteners must be #10 by 5/8"-long pan head screws. The screws must not be spaced greater than 7 1/2" from the corners nor 12" o.c.
- 5. The mounting fasteners must be #8 by 1 3/4"-long pan head screws. The screws must not be spaced greater than 8 1/2" from the corners nor 12" o.c.
- 6. Production designation = SKP-PG30

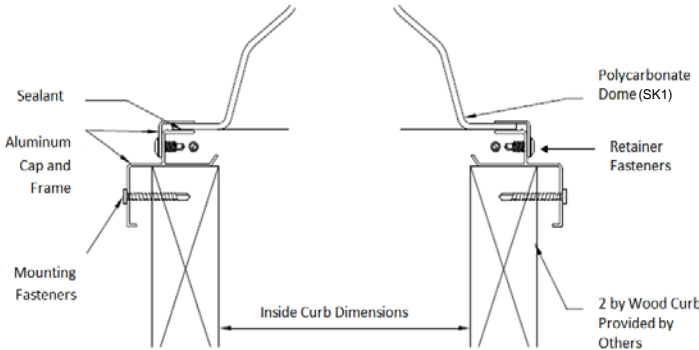


FIGURE 1A—SINGLE DYNAMIC DOME

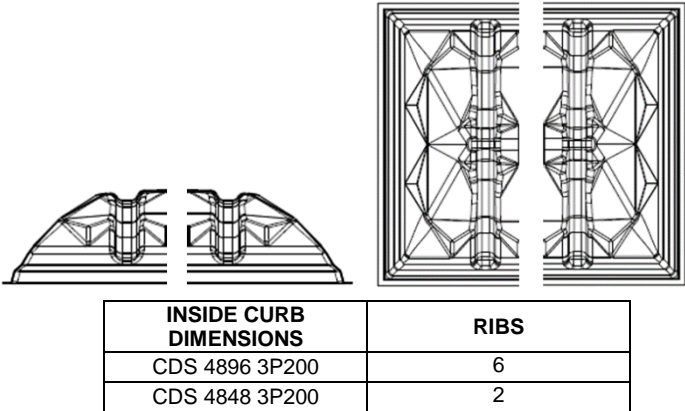


FIGURE 1B—SINGLE DYNAMIC DOME SIDE AND TOP VIEWS FOR 48-INCH-WIDE SKYLIGHTS

TABLE 2—DOUBLE DYNAMIC DOME SKYLIGHTS

MODEL NO. ^{1,2,3}			DOME RISE (inches)		NUMBER OF RETAINER FASTENERS ⁴	NUMBER OF MOUNTING FASTENERS ⁵	NUMBER OF SPRING CLIPS ⁶	NUMBER OF CAP COVER CLIPS ⁷	NUMBER OF HOLD DOWN CLIPS ⁷	PERFORMANCE GRADE (PG) ⁸ (psf)	
			INNER	OUTER						PG _{pos} (inward forces)	PG _{neg} (outward forces)
CD2 4896 3P1C1	or	CE2 4896 3P1C1	14	15	6	24	24	2	8	30	30
CD2 4872 3P1C1	or	CE2 4872 3P1C1			6	20	20	2	8		
CD2 4860 3P1C1	or	CE2 4860 3P1C1			4	18	18	0	8		
CD2 4848 3P1C1	or	CE2 4848 3P1C1			4	16	16	0	4		
CD2 3696 3P1C1	or	CE2 3696 3P1C1	10 ³ / ₈	11 ³ / ₈	6	22	22	2	8		
CD2 3672 3P1C1	or	CE2 3672 3P1C1			6	18	18	2	8		
CD2 3660 3P1C1	or	CE2 3660 3P1C1			4	16	16	2	8		
CD2 3636 3P1C1	or	CE2 3636 3P1C1			4	12	12	0	4		
CD2 2496 3P1C1	or	CE2 2496 3P1C1	6 ⁵ / ₈	7 ⁵ / ₈	6	20	20	2	8		
CD2 2448 3P1C1	or	CE2 2448 3P1C1			4	12	12	0	4		
CD2 4896 3P1C2	or	CE2 4896 3P1C2	14	15	6	24	24	2	8	30	30
CD2 4872 3P1C2	or	CE2 4872 3P1C2			6	20	20	2	8		
CD2 4860 3P1C2	or	CE2 4860 3P1C2			4	18	18	0	8		
CD2 4848 3P1C2	or	CE2 4848 3P1C2			4	16	16	0	4		
CD2 3696 3P1C2	or	CE2 3696 3P1C2	10 ³ / ₈	11 ³ / ₈	6	22	22	2	8		
CD2 3672 3P1C2	or	CE2 3672 3P1C2			6	18	18	2	8		
CD2 3660 3P1C2	or	CE2 3660 3P1C2			4	16	16	2	8		
CD2 3636 3P1C2	or	CE2 3636 3P1C2			4	12	12	0	4		
CD2 2496 3P1C2	or	CE2 2496 3P1C2	6 ⁵ / ₈	7 ⁵ / ₈	6	20	20	2	8		
CD2 2448 3P1C2	or	CE2 2448 3P1C2			4	12	12	0	4		
CD2 4896 3P2C1	or	CE2 4896 3P2C1	14	15	6	24	24	2	8	30	30
CD2 4872 3P2C1	or	CE2 4872 3P2C1			6	20	20	2	8		
CD2 4860 3P2C1	or	CE2 4860 3P2C1			4	18	18	0	8		
CD2 4848 3P2C1	or	CE2 4848 3P2C1			4	16	16	0	4		
CD2 3696 3P2C1	or	CE2 3696 3P2C1	10 ³ / ₈	11 ³ / ₈	6	22	22	2	8		
CD2 3672 3P2C1	or	CE2 3672 3P2C1			6	18	18	2	8		
CD2 3660 3P2C1	or	CE2 3660 3P2C1			4	16	16	2	8		
CD2 3636 3P2C1	or	CE2 3636 3P2C1			4	12	12	0	4		
CD2 2496 3P2C1	or	CE2 2496 3P2C1	6 ⁵ / ₈	7 ⁵ / ₈	6	20	20	2	8		
CD2 2448 3P2C1	or	CE2 2448 3P2C1			4	12	12	0	4		

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa

- CD2 = mill-finished frame;
CE2 = powder-coated frame
- The numbers in the middle are the inside curb dimensions in inches, width by length.
- 3P1C1 = clear outer dome / clear inner dome with a prismatic side;
3P1C2 = clear outer dome / white inner dome with a prismatic side;
3P2C1 = white outer dome / clear inner dome with a prismatic side
- The retainer fasteners must be #10 by 5/8"-long pan head screws. The screws must be used in all pre-drilled holes in the dome clamp.
- The mounting fasteners must be #8 by 1 3/4"-long pan head screws. The screws must not be spaced greater than 8 1/2" from the corners nor 12" o.c.
- Spring clips must not be spaced greater than 4 7/8" from the corners nor 12" o.c.
- See Figure 2E for spacing of hold downs and cap cover spacers.
- Production designation = SKP-PG30

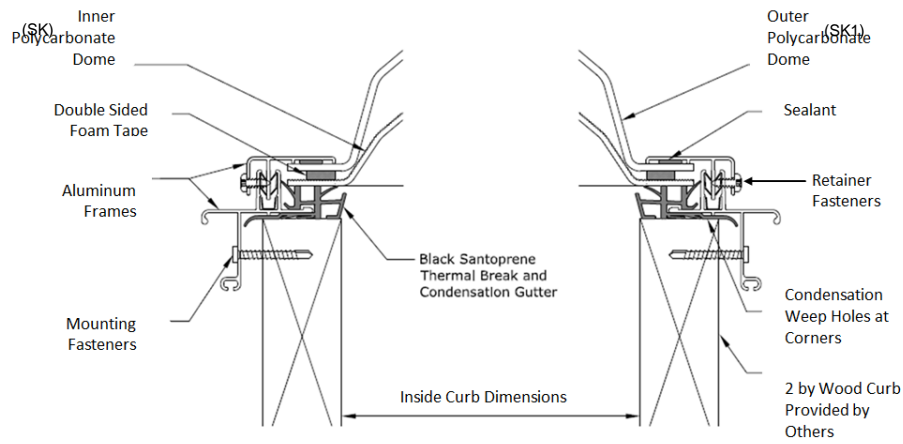


FIGURE 2A—DOUBLE DYNAMIC DOME
(Hold Downs and Cap Cover Spacers not shown)

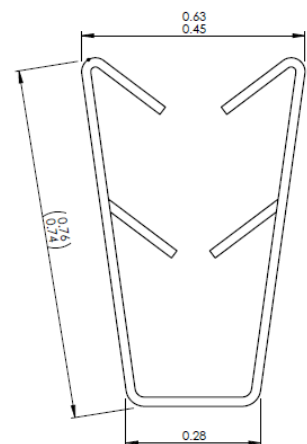


FIGURE 2B—RETAINER SPRING CLIP
(Dimensions in inch)

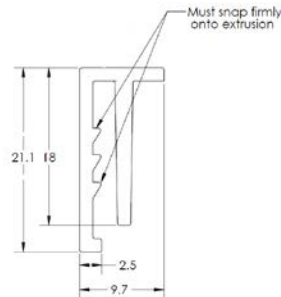


FIGURE 2C—HOLD DOWNS
(Dimensions in mm)

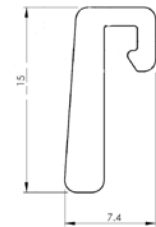


FIGURE 2D—CAP COVER
(Dimensions in mm)

Length (in.)	Number of Hold Downs per Side	Location of Hold Downs	Number of Cap Cover Spacers per Side	Location of Cap Cover Spacers
24	1	Middle	-	-
36	1	Middle	-	-
48	1	Middle	-	-
60	3	Middle plus each corner	-	-
72	3	Middle plus each corner	1	Middle
84	3	Middle plus each corner	1	Middle
96	3	Middle plus each corner	1	Middle

FIGURE 2E—HOLD DOWN AND CAP COVER SPACING AND LOCATIONS

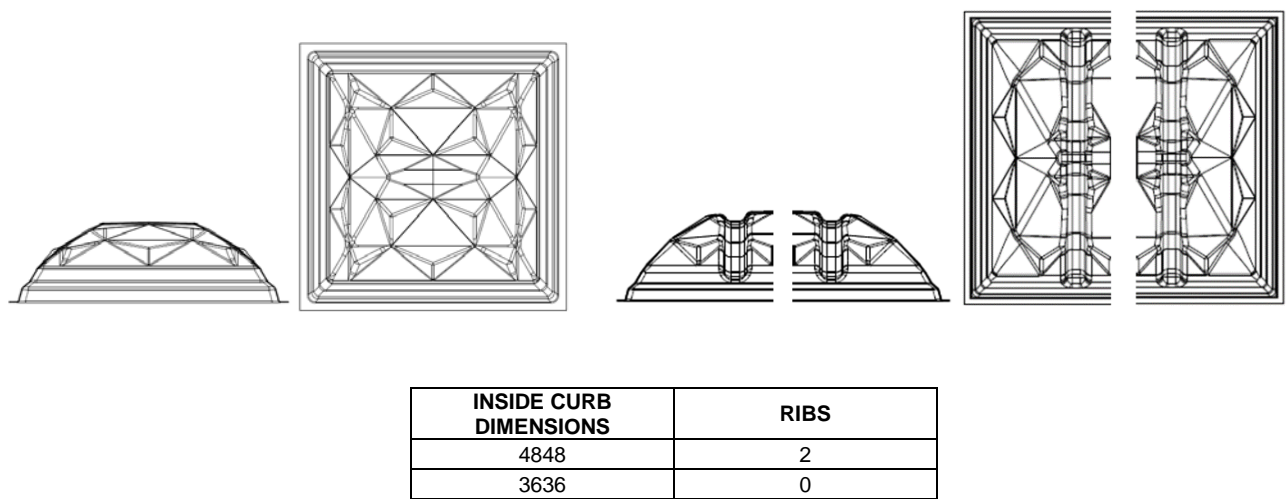


FIGURE 2F—DOUBLE DYNAMIC DOMES SIDE AND TOP VIEWS FOR SQUARE SKYLIGHTS

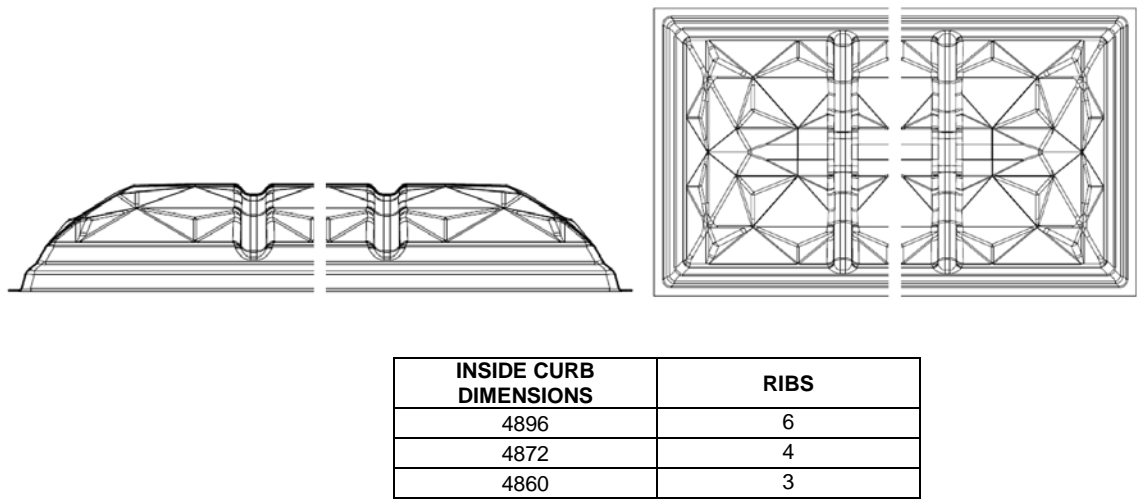


FIGURE 2G—DOUBLE DYNAMIC DOMES SIDE AND TOP VIEWS FOR 48-INCH-WIDE RECTANGULAR SKYLIGHTS

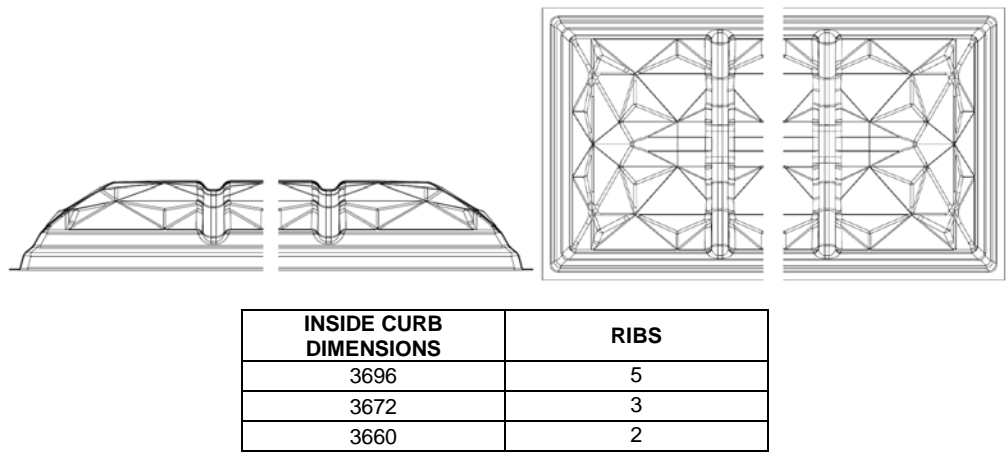


FIGURE 2H—DOUBLE DYNAMIC DOMES SIDE AND TOP VIEWS FOR 36-INCH-WIDE RECTANGULAR SKYLIGHTS

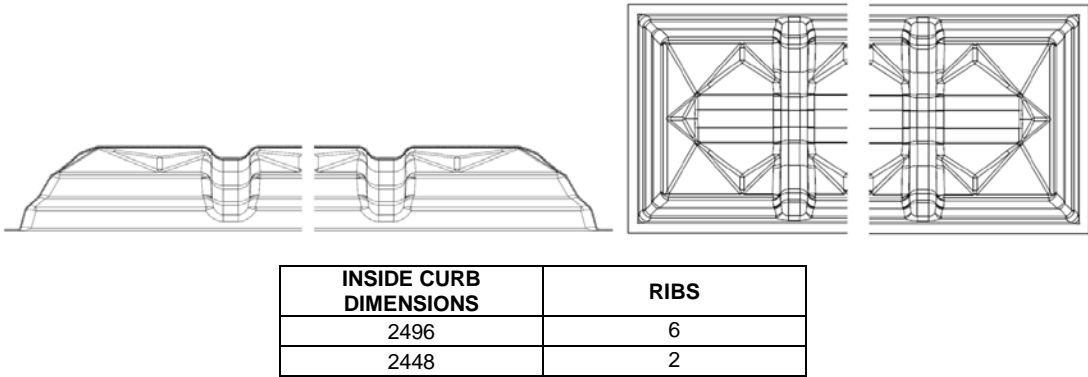


FIGURE 2I—DOUBLE DYNAMIC DOMES SIDE AND TOP VIEW FOR 24-INCH-WIDE RECTANGULAR SKYLIGHTS

ICC-ES Evaluation Report

ESR-4108 CBC and CRC Supplement

Reissued December 2019

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A Subsidiary of the International Code Council®

DIVISION: 08 00 00—OPENINGS
Section: 08 62 00—Unit Skylights

REPORT HOLDER:

VELUX AMERICA LLC

EVALUATION SUBJECT:

VELUX® DYNAMIC DOME SKYLIGHTS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that VELUX® Dynamic Dome Skylights, recognized in ICC-ES master evaluation report ESR-4108, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2016 *California Building Code*® (CBC)
- 2016 *California Residential Code*® (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The VELUX® Dynamic Dome Skylights described in Sections 2.0 through 7.0 of the master evaluation report ESR-4108, comply with CBC Sections 2405 and 2610, provided the design and installation are in accordance with the 2015 *International Building Code*® (IBC) provisions noted in the master report and the additional requirements of CBC Chapters 24 and 26, as applicable.

The VELUX® Dynamic Dome Skylights have not been evaluated under CBC Chapter 7A for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within a State Responsibility Areas or any Wildland–Urban Interface Fire Area.

2.2 CRC:

The VELUX® Dynamic Dome Skylights, described in Sections 2.0 through 7.0 of the master evaluation report ESR-4108, comply with CRC Section R308.6, provided the design and installation are in accordance with the 2015 *International Residential Code*® (IRC) provisions noted in the master report.

The VELUX® Dynamic Dome Skylights have not been evaluated under CRC Section R337 for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within a State Responsibility Areas or any Wildland–Urban Interface Fire Area.

The products recognized in this supplement have not been evaluated for compliance with the *International Wildland–Urban Interface Code*®.

This supplement expires concurrently with the evaluation report, reissued December 2019.

ICC-ES Evaluation Report

ESR-4108 FBC and FRC Supplement

Reissued December 2019

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Purpose:

The purpose of this evaluation report supplement is to indicate that VELUX Dynamic Dome Skylights, recognized in ICC-ES master evaluation report ESR-4108, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2017 *Florida Building Code—Building*
- 2017 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The VELUX Dynamic Dome Skylights, described in Sections 2.0 through 7.0 of the master evaluation report ESR-4108, comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*, provided the design and installation are in accordance with the 2015 *International Building Code*® provisions noted in the master report subject to the following condition:

Use of VELUX Dynamic Dome Skylights in wind-borne debris regions is outside the scope of this supplement.

Use of the VELUX Dynamic Dome Skylights for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and *Florida Building Code—Residential* has not been evaluated and is outside the scope of this supplemental report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued December 2019.