



Report Number: 0199  
Issued: 10/2010  
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Revised: 09/14/2011

**DIVISION: 08 - OPENINGS**  
**Section: 08 62 23 Tubular Skylight**  
**Section: 08 63 13 Domed Metal-Framed Skylight**

## REPORT HOLDER:

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## EVALUATION SUBJECTS:

**Deck and Curb Mount Glass-Glazed Unit Skylights**

**Tubular Daylighting Devices**

### 1.0 EVALUATION SCOPE

#### 1.1 Compliance with the following codes

Refer to Code Supplement

#### 1.2 Evaluated in accordance with

- AAMA/WDMA/CSA 101/I.S.2/A440-08
- NFRC 100-2010
- NFRC 200-2010
- NFRC 500-2010

#### 1.3 Properties Evaluated

- Structural Performance
- Air and Water Tightness
- Operating Forces
- Durability
- Thermal and Optical Performance

### 2.0 USES

#### 2.1 Deck Mount Glass-Glazed Unit Skylights

VELUX® FS, VS, and VSE No Leak Skylights™ are unit skylights that provide natural light and views for interior building spaces. They are intended for use on building roofs sloped from 14° (3:12 pitch) to 85° from horizontal. Each unit contains an integral supporting frame with

continuous mounting flange intended for direct attachment to roofing substrate.

VS and VSE skylights also provide natural ventilation via an operable top-hinged sash. FS units are fixed.

The glass is continuously supported on all four sides.

#### 2.2 Curb Mount Glass-Glazed Unit Skylights

VELUX® FCM, VCM, and VCE No Leak Skylights™ are unit skylights that provide natural light and views for interior building spaces. They are intended for use on building roofs sloped from 0° (0:12 pitch) to 60° from horizontal. Each unit is designed to attach to a site-built curb, built from nominal.2x4 pine wood (or stronger) members.

VCM and VCE skylights also provide natural ventilation via an operable top-hinged sash supported by an integral frame assembly. FCM units are fixed.

The glass is continuously supported on all four sides, using a roll-formed aluminum frame (assembled with ASA corner keys) to resist uplift wind loads.

These curb mount products are particularly well-suited for replacement of existing curb-mounted skylights.

#### 2.3 Tubular Daylighting Devices

VELUX SUN TUNNEL™ TGR, TGF, TMR, and TMF skylights are tubular units that conduct natural light into smaller building spaces. They are intended for use on building roofs sloped from 14° (3:12 pitch) to 60° from horizontal.

### 3.0 DESCRIPTION

Insulating glass units (IGU) for all unit skylights are 5/8" thick, constructed from a 1/8"(\*) thick clear Low-E<sup>3</sup>-coated tempered glass lite outboard, a sheet of 7/32" thick laminated lite inboard and a stainless steel spacer system. (\* 5/32" thick for largest FCM tested unit sizes)

The laminated lite is comprised of two sheets of 3/32" thick heat strengthened glass each bonded to a 0.030" thick PVB clear interlayer. This configuration is referred to as "Type 04" glazing. "Type 08" glazing is structurally identical, but with a translucent white interlayer.



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(Note: "Type 06" standard glazing, identical to "04" except it uses a 0.090" interlayer, is also available where better thermal performance is required. In addition, the best thermal performance currently available can be realized by specifying an additional Low-E coating on the interior surface of a "Type 04" product, called "Type 9994" special glazing.)

Condensation control gasketing for all skylight models directs accumulated water droplets from the inner glass surface to the exterior, without compromising required air tightness.

Covered skylight sizes, general dimensions and fastener requirements are described in the Tables and Figures.

### 3.1.1 Deck Mount Units

VELUX FS, VS and VSE skylights consist of several integrated components: one panel of flat IGU top-mounted onto an aluminum-clad wood sash (VS and VSE), or directly onto an aluminum-clad wood frame (FS). The top-hinged sash on the VS and VSE skylights is fastened to and supported on a similar aluminum-clad wood frame.

Sash and frames are manufactured from white-finished pine wood having a nominal specific gravity of 0.47 and are covered on the weather exposed sides with roll-formed Kynar and lacquer-coated aluminum cladding.

The frames have mortised corners, secured with glue and aligned and stabilized by a 1.3/4" long corner nail. A continuous galvanized steel mounting flange with mitered and welded corners is attached to the lower part of the frame, and rests upon a foam isolation pad to interface with the mounting surface. Galvanized nails secure the flange to the frame every 9 inches, or less.

Only the VS and VSE frames have a support ledge all around the interior face, to which a gasket is stapled for a tight seal with the sash frame. They also support the fixed half of the extruded aluminum sash hinge on the top of the frame head, fastened with 1" long #8 screws spaced at 10 inches.

The VELUX VS and VSE skylight sashes also use a mortise joint corner construction, with one 5/16" staple at each corner. The rotating half of the extruded aluminum

hinge is fastened with 1" long #8 screws spaced at 10 inches.

The IGU is secured with hot-applied primary sealant bonded to roll formed aluminum glazing retaining profiles that are secured to the sash or frame using #8 stainless steel screws of various lengths (1" and 2.1/2" for VS/VSE and 1.1/4" for FS), spaced every 9 inches.

Condensation control gasketing directs any accumulated water droplets from the inner glass surface to the exterior, without compromising required air tightness.

All VS and VSE skylights are equipped with insect screens.

VSE skylights employ a motor-driven sash operator with RF remote control, and have exterior sensors to automatically trigger the operator to close an open sash when rain droplets are present. VS skylights utilize a manually-driven rotary operator.

### 3.1.2 Curb Mount Units

VELUX FCM, VCM and VCE skylights consist of several integrated components: one panel of aluminum-framed flat IGU, bottom-mounted onto ASA-capped ABS sash (VCM and VCE), or directly onto the site-built curb (FCM). (Hot-applied primary sealant is bonded to the aluminum frame prior to IGU placement.) The top-hinged sash on the VCM and VCE Skylights is fastened to and supported on a similar capped ABS frame with extruded aluminum counter flashing. This frame is supported by the site-built curb.

The VELUX FCM skylight utilizes a dual-durometer TPE inner frame gasket, T-nailed to the glazing frame, which locks the IGU in place for sealant curing and handling stability.

The VCM and VCE counter flashing is a mitered and welded frame that will fasten the entire unit to the site-built curb.

All VELUX VCM and VCE skylights are equipped with insect screens.

VCE skylights employ a motor-driven sash operator with RF remote control, and have exterior sensors to automatically trigger the operator to close an open sash

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when rain droplets are present. VCM skylights utilize a manually-driven rotary operator.

### 3.2 Tubular Daylighting Devices

VELUX SUN TUNNEL™ TGF, TGR, TMF, and TMR Skylights are a series of tubular daylighting devices with an exterior roof flashing capped with a clear acrylic (Plexiglas® HFI-7) dome unit and an interior ceiling ring with two diffuser layers joined by a reflective rigid or flexible tunnel (tube).

The TGF/TGR series consist of a low profile flashing that mounts to the roof deck, projects 4" upward, and aligns the dome unit to be parallel to the roof deck.

The TMF/TMR series consist of a pitched flashing that mounts to the roof deck and projects 9" upward on the downward roof slope and allows the tunnel opening to be much less inclined than the adjacent roof.

An optional metal "turret" dome elevator is available for all sizes and flashings if it is necessary to raise the dome elevation by up to 9".

An optional galvanized steel "fire ring" is available to protect the dome edge where classified roof coverings are required.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design

Based on the positive and negative performance grade ratings listed in Table 1, identify the product size(s) that have performance grades in excess of the design pressures which are applicable to the unit's final location.

The uplift wind ratings recognized in this report are based on attachment to a Spruce-Pine-Fir Building substrate or other species Group 2 substrate with full nail engagement. Installation on wood substrate other than species Group 1 or 2 may result in a lower wind uplift rating.

Testing to verify ratings and performance grade were performed in accordance with all applicable requirements of AAMA/WDMA/CSA 101/I.S.2/A440-08.

Adequate glass capacity for all listed unit skylight sizes was verified in accordance with ASTM E1300-03.

### 4.2 Installation

Installation shall be in accordance with the manufacturer's installation instructions and this report.

## 5.0 CONDITIONS OF USE

### 5.1 Deck and Curb Mount Glass-Glazed Unit Skylights

The VELUX FS, VS, VSE, FCM, VCM and VCE skylights identified in this report are deemed to comply with the referenced building codes subject to the following conditions:

- Occupancy restrictions: None
- Glass retention screens are not required for these skylights in any allowed installation.
- Units shall not be used in Type I or II construction, over acid fume-containing spaces, in wind-borne debris regions, or where unusual loading is expected.
- Except for Group R-3 occupancies, the glazing of units set at an angle of less than 45 degrees from the horizontal shall be mounted at least 4 inches above the plane of the roof.

### 5.2 Tubular Daylighting Devices

The VELUX SUN TUNNEL™ TGF, TGR, TMF, and TMR skylights identified in this report are deemed to comply with the referenced building codes subject to the following conditions:

- Units shall not be used in Type I or II construction, over acid fume-containing spaces, in wind-borne debris regions, or where unusual loading is expected.
- The SUN TUNNEL aggregate area, separation, and location shall comply with IBC Section 2606.7, 2610.5 Class CC2 material, 2610.6, 2610.7, 2610.8, and 803.1.1 Class C material limitations.



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## 6.0 EVIDENCE SUBMITTED

- Manufacturer's drawings and installation instructions.
- Reports of testing and evaluation in accordance with ASTM E1300-03, AAMA/WDMA/CSA 101/I.S.2/A440-08, and NFRC 100, 200, and 500.
- Data of material testing and evaluation in accordance with Clauses 6 and 7 of AAMA/WDMA/CSA 101/I.S.2/A440-08.

## 7.0 IDENTIFICATION

**7.1 VELUX FS, VS, VSE, FCM, VCM and VCE skylights** covered by this report shall be identified with permanent labeling that includes the following information:

- The manufacturer's name, address, full model number and traceability code number

**7.2 VELUX FS, VS, VSE, FCM, VCM and VCE skylights** covered by this report shall be identified with temporary pane labeling that includes the following information:

- The manufacturer's name and address, the tested model size and designation, the glass type and thickness, NFRC-certified ratings, and the approved labeling agency.
- Primary and secondary designators as required by the AAMA/WDMA/CSA 101/I.S.2/A440 specification, including but not limited to the positive and negative performance grade ratings.
- IAPMO ES shield and evaluation report number (ER-0199)

**7.3 VELUX SUN TUNNEL™ TGF, TGR, TMF, and TMR skylights** covered by this report shall be identified with permanent labeling that includes the following information:

- A Risk of Fall and ID label with the manufacturer's name, address, and full model number. Includes a traceability code number placed at the bottom center of the flashing.

**7.4 VELUX SUN TUNNEL™ TGF, TGR, TMF, and TMR skylights** covered by this report shall be identified with temporary labeling that includes the following information:

- The manufacturer's name and address, the tested model size and designation, the dome type, NFRC-certified ratings, and the approved labeling agency.
- Primary and secondary designators as required by the AAMA/WDMA/CSA 101/I.S.2/A440 specification, including but not limited to the positive and negative performance grade ratings.
- IAPMO ES shield and evaluation report number (ER-0199)



**IAPMO #0199**

A handwritten signature in black ink, appearing to read 'Amir' followed by a stylized flourish.

Director of Evaluation Services

# EVALUATION REPORT



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**Table 1 – Tested Performance (Glass: Tempered over Laminated Heat Strengthened)**

VELUX FS Skylights – Glass Weight = 5 psf						
Skylight Description		Performance Grades (per NAFS)		Other NAFS Designators		
Size Code	Unit size <sup>(1)</sup> (inches)	Download	Uplift	Primary	Maximum Air Leakage <sup>(2)</sup>	Max. Pressure with No Water Penetration <sup>(2)</sup>
A06	14-½ x 45-¾	+13,645 Pa (+285 psf)	-3,740 Pa (-80 psf)	Class CW- PG80 776x1395* (31x55*) -SKG	0.4 L/s/m <sup>2</sup> (0.08 cfm/ft <sup>2</sup> )	720 Pa (15 psf)
C01	21 x 26-7/8					
C04	21 x 37-7/8					
C06	21 x 45-¾					
C08	21 x 54-7/16					
D26	22-½ x 22-15/16					
D06	22-½ x 45-¾					
M02	30-1/16 x 30					
M04	30-1/16 x 37-7/8					
M06	30-1/16 x 45-¾					
M08	30-1/16 x 54-7/16					
S01	44-¼ x 26-7/8	+4,800 Pa (+100 psf)	-2,760 Pa (-57 psf)	Class CW- PG55 1136x1175 (45x46) -SKG	0.2 L/s/m <sup>2</sup> (0.04 cfm/ft <sup>2</sup> )	720 Pa (15 psf)
S06	44-¼ x 45-¾					

VELUX VS and VSE Skylights – Glass Weight = 5 psf						
Skylight Description		Performance Grades (per NAFS)		Other NAFS Designators		
Size Code	Unit size <sup>(1)</sup> (inches)	Downward	Uplift	Primary	Maximum Air Leakage <sup>(2)</sup>	Max. Pressure with No Water Penetration <sup>(2)</sup>
C01	21 x 26-7/8	+12,928 Pa (+270 psf)	-3,362 Pa (-70 psf)	Class CW-PG70 802x1419* (32x56*) -SKG	0.7 L/s/m <sup>2</sup> (0.13 cfm/ft <sup>2</sup> )	720 Pa (15 psf)
C04	21 x 37-7/8					
C06	21 x 45-¾					
C08	21 x 54-7/16					
M04	30-1/16 x 37-7/8					
M06	30-1/16 x 45-¾					
M08	30-1/16 x 54-7/16					
S01	44-¼ x 26-7/8	+11,251 Pa (+235 psf)	-2,513 Pa (-52 psf)	Class CW-PG50 1136x1175 (45x46) -SKG	0.2 L/s/m <sup>2</sup> (0.04 cfm/ft <sup>2</sup> )	720 Pa (15 psf)
S06	44-¼ x 45-¾					

<sup>(1)</sup> Rough opening dimensions

<sup>(2)</sup> Based on tested size indicated in Primary Designator

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**Table 1 (Continued) – Tested Performance (Glass: Tempered over Laminated Heat Strengthened)**

VELUX FCM Skylights – Glass Weight = 5 psf						
Skylight Description		Performance Grades (per NAFS)		Other NAFS Designators		
Size Code	Unit size <sup>(3)</sup> (inches)	Download	Uplift	Primary	Maximum Air Leakage <sup>(2)</sup>	Max. Pressure with No Water Penetration <sup>(2)</sup>
1430	17-1/2 x 33-1/2	+8,160 Pa (+170 psf)	-8,400 Pa (-175 psf)	Class CW- PG170 1301 x 1295* (51x51*)-SKG	<0.1 L/s/m <sup>2</sup> (<0.01 cfm/ft <sup>2</sup> )	720 Pa (15 psf)
1446	17-1/2 x 49-1/2					
2222	25-1/2 x 25-1/2					
2230	25-1/2 x 33-1/2					
2234	25-1/2 x 37-1/2					
2246	25-1/2 x 49-1/2					
3030	33-1/2 x 33-1/2					
3046	33-1/2 x 49-1/2					
3434	37-1/2 x 37-1/2					
4646	49-1/2 x 49-1/2					
2270	25-1/2 x 73-1/2	+5,280 Pa (+110 psf)	-4,560 Pa (-95 psf)	Class CW- PG95 691 x 1911* (27 x 75*)- SKG	<0.1 L/s/m <sup>2</sup> (<0.01 cfm/ft <sup>2</sup> )	720 Pa (15 psf)

VELUX VCM and VCE Skylights – Glass Weight = 5 psf						
Skylight Description		Performance Grades (per NAFS)		Other NAFS Designators		
Size Code	Unit size <sup>(1)</sup> (inches)	Downward	Uplift	Primary	Maximum Air Leakage <sup>(2)</sup>	Max. Pressure with No Water Penetration <sup>(2)</sup>
2222	25-1/2 x 25-1/2	+7,900 Pa (+165 psf)	-2,040 Pa (-42 psf)	Class CW-PG40 1302 x 1302 (51x51*) -SKG	0.6 L/s/m <sup>2</sup> (0.11 cfm/ft <sup>2</sup> )	720 Pa (15 psf)
2234	25-1/2 x 37-1/2					
2246	25-1/2 x 49-1/2					
3030	33-1/2 x 33-1/2					
3046	33-1/2 x 49-1/2					
3434	37-1/2 x 37-1/2					
4646	49-1/2 x 49-1/2					

<sup>(1)</sup> Rough opening dimensions

<sup>(2)</sup> Based on tested size indicated in Primary Designator

<sup>(3)</sup> Outside Curb dimensions

**Table 2 – Tested Performance (Acrylic Dome)**

VELUX SUN TUNNEL™ Skylights						
Skylight Description		Performance Grades (per NAFS)		Other NAFS Designators		
Size Code	Unit size <sup>(4)</sup> (inches)	Download	Uplift	Primary	Maximum Air Leakage <sup>(2)</sup>	Max. Pressure with No Water Penetration <sup>(2)</sup>
TGF 014	14	+11,970 Pa (+250 psf)	-2,035 Pa (-42 psf)	Class CW-PG40 521 mm (21")-TDD	0.2 L/s/m <sup>2</sup> 0.03 cfm/ft <sup>2</sup>	580 Pa (12 psf)
TGF 021	21					
TMF 014	14	+12,000 Pa (+250 psf)	-3,840 Pa (-80 psf)	Class CW-PG80 362 mm (14")-TDD	<0.1 L/s/m <sup>2</sup> (<0.01 cfm/ft <sup>2</sup> )	580 Pa (12 psf)
TGR 010	10	+11,970 Pa (+250 psf)	-5,985 Pa (-125 psf)	Class CW-PG125 362 mm (14")-TDD	<0.1 L/s/m <sup>2</sup> (<0.01 cfm/ft <sup>2</sup> )	580 Pa (12 psf)
TGR 014	14					
TMR 010	10	+11,970 Pa (+250 psf)	-4,070 Pa (-85 psf)	Class CW-PG85 362 mm (14")-TDD	0.2 L/s/m <sup>2</sup> 0.03 cfm/ft <sup>2</sup>	580 Pa (12 psf)
TMR 014	14					

<sup>(2)</sup> Based on tested size indicated in Primary Designator

<sup>(4)</sup> Nominal tunnel size

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**Table 3: Energy, Light and Comfort**

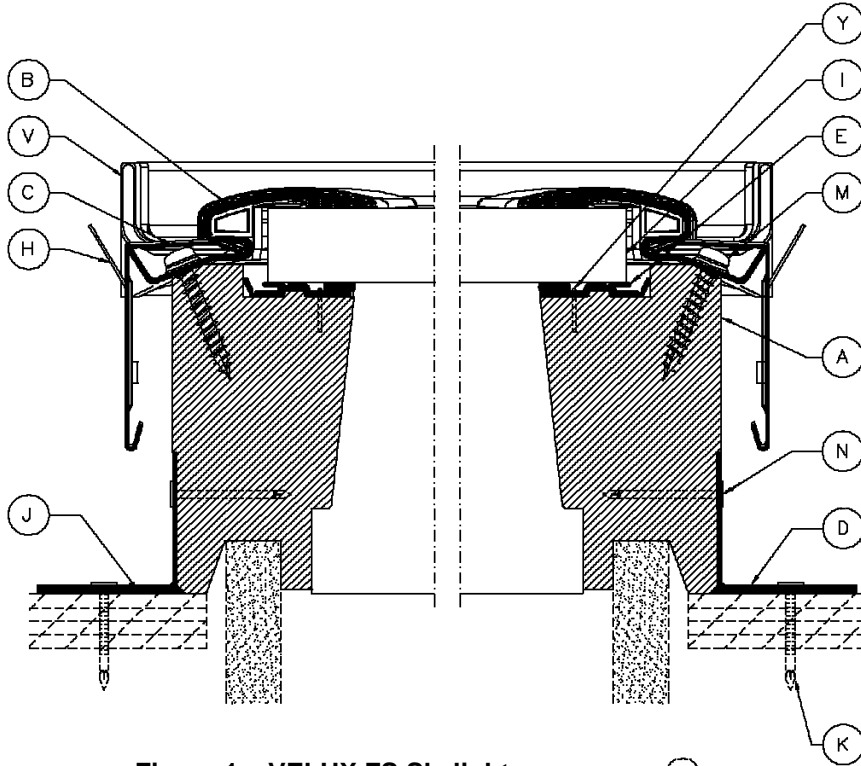
Model/Glazing	U-Factor (Btu/ft <sup>2</sup> /°F/hr)	Solar Heat Gain Coefficient (SHGC)	Visible Transmittance (VT)	Condensation Resistance (CR)
FS '04	0.44	0.26	0.60	50
FS '06	0.42	0.26	0.60	52
FS '08	0.44	0.25	0.44	50
FS '9994	0.38	0.24	0.54	42
VS/VSE '04	0.42	0.23	0.53	52
VS/VSE '06	0.40	0.23	0.52	55
VS/VSE '08	0.42	0.22	0.39	52
VS/VSE '9994	0.37	0.21	0.48	44
FCM '04	0.50	0.26	0.61	52
FCM '06	0.47	0.27	0.60	52
FCM '08	0.50	0.26	0.44	52
FCM '9994	0.44	0.24	0.55	45
VCM/VCE '04	0.53	0.24	0.55	58
VCM/VCE '06	0.51	0.24	0.54	58
VCM/VCE '08	0.53	0.23	0.40	58
VCM/VCE '9994	0.48	0.22	0.49	49
TGF/TMF	0.27	0.15	N/R	N/R
TGR/TMR	0.29	0.28	N/R	N/R



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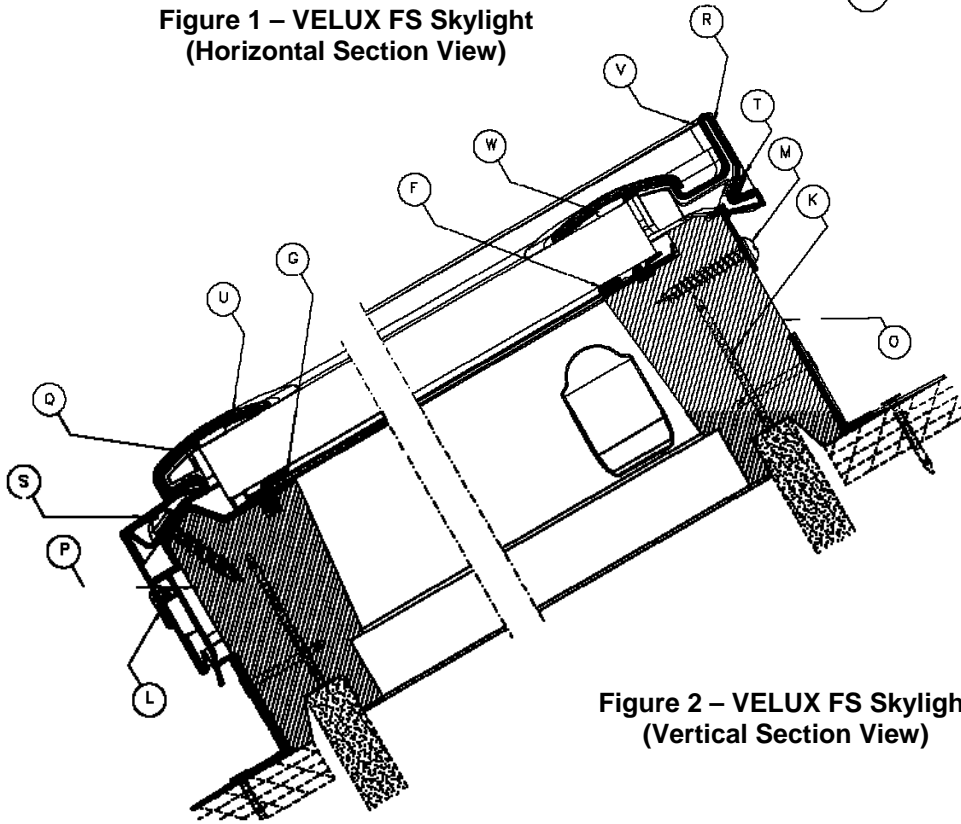
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**Figure 1 – VELUX FS Skylight  
 (Horizontal Section View)**

COMPONENT SCHEDULE	
ITEM	COMPONENT
A	Side Frame
B	Side glazing profile
C	Side frame cover
D	Deck Seal
E	FSS gasket
F	TGS gasket
G	UFA gasket
H	Frame cover with tab
I	Pane
J	Foam, Deck seal

FASTENER SCHEDULE	
ITEM	FASTENER
K	Nail
L	Plug
M	Screw
N	Nail
Y	Staple



**Figure 2 – VELUX FS Skylight  
 (Vertical Section View)**

COMPONENT SCHEDULE	
ITEM	COMPONENT
O	Top Frame
P	Bottom Frame
Q	Bottom glazing profile
R	Top glazing profile
S	Bottom frame cover
T	Top glazing profile retainer
U	Bottom corner key
V	Top left corner key
W	Sealant

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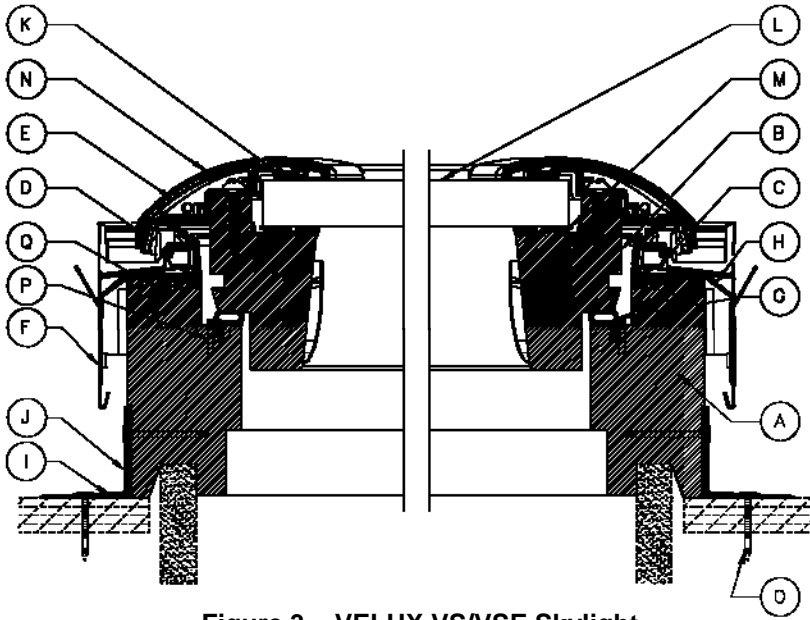


Figure 3 – VELUX VS/VSE Skylight  
 (Horizontal Section View)

COMPONENT SCHEDULE	
ITEM	PART/COMPONENT
A	Side frame
B	Side sash
C	GSP rail
D	Glazing profile
E	Covering
F	Side & Bottom Frame covering
G	Frame gasket
H	FTSA gasket
I	Foam, Deck seal
J	Deck seal
K	Sealant
L	Pane
M	FSS gasket
N	Sash corner key

COMPONENT SCHEDULE	
ITEM	COMPONENT
Y	Top frame
Z	Top sash
AA	Bottom frame
BB	Bottom sash
CC	Hinge corner key
DD	Hinge corner key
EE	GSP rail
FF	Operator cover
GG	BSSGA gasket
HH	TGS gasket
II	Frame Hinge
JJ	Sash Hinge
KK	Glazing profile
LL	Frame cover
MM	Covering
NN	TSFA Frame gasket
OO	FTSA gasket
PP	Bottom frame gasket
QQ	Foam, Sash hinge
RR	Operator

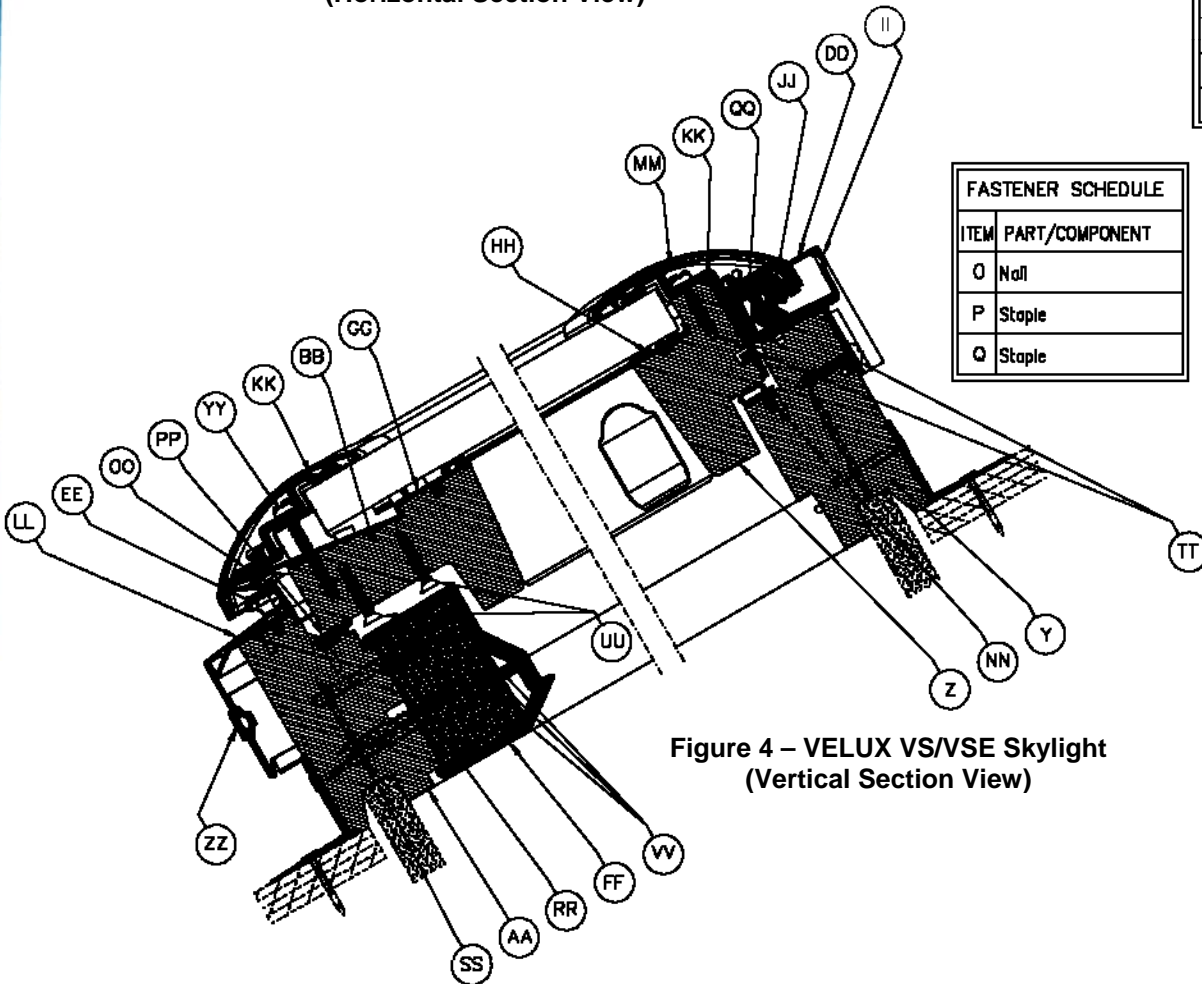


Figure 4 – VELUX VS/VSE Skylight  
 (Vertical Section View)

FASTENER SCHEDULE	
ITEM	PART/COMPONENT
O	Nail
P	Staple
Q	Staple

FASTENER SCHEDULE	
ITEM	COMPONENT
SS	Nail
TT	Screw
UU	Screw
VV	Wood screw
YY	Screw
ZZ	Plug

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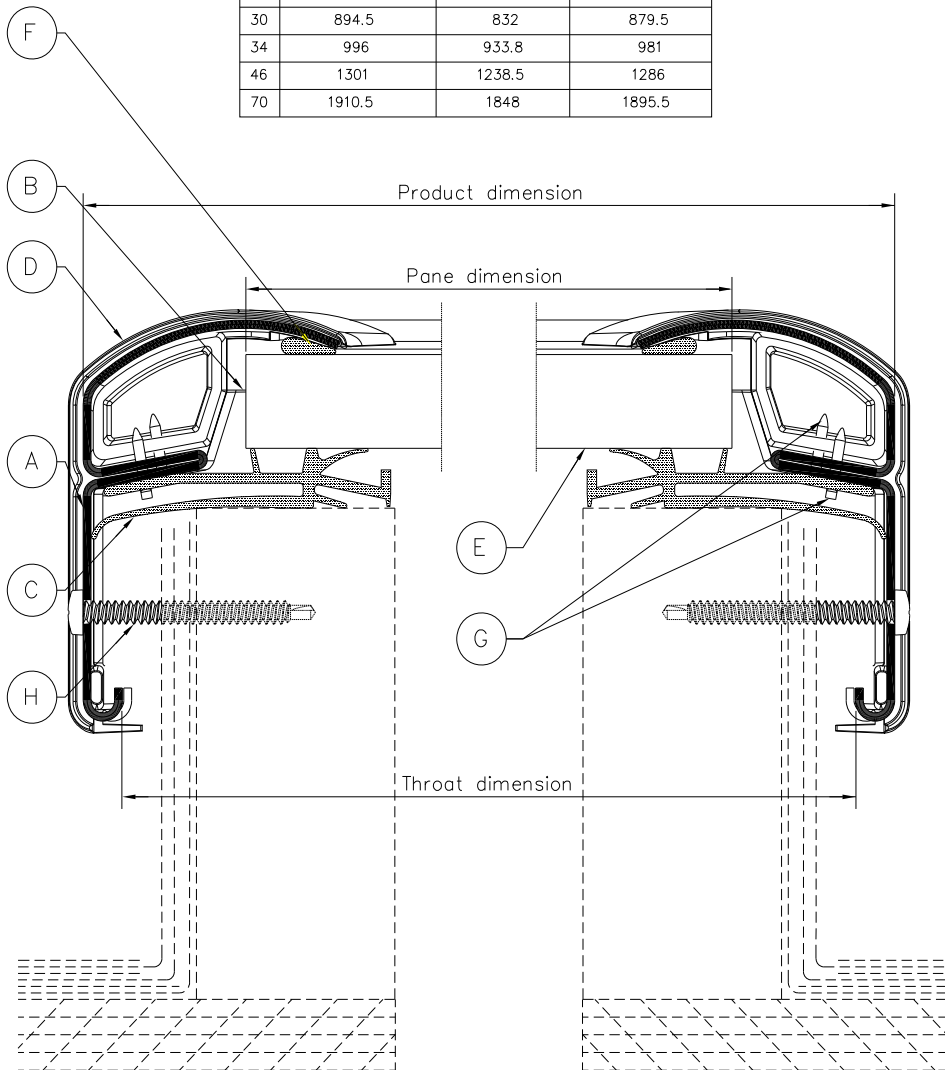
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Code	Product dimensions	Pane dimensions	Throat dimensions
14	488	426	473
22	691	629	676
30	894.5	832	879.5
34	996	933.8	981
46	1301	1238.5	1286
70	1910.5	1848	1895.5



COMPONENT SCHEDULE	
ITEM	PART/COMPONENT
A	Outer Frame
B	Pane Spacer
C	Inner frame gasket
D	Corner Key
E	Pane
F	Sealant

FASTENER SCHEDULE	
ITEM	PART/COMPONENT
G	T-nail
H	Wood Screw

**Figure 5 – VELUX FCM Skylight  
Horizontal Section View  
(Typical for Vertical Section View)**

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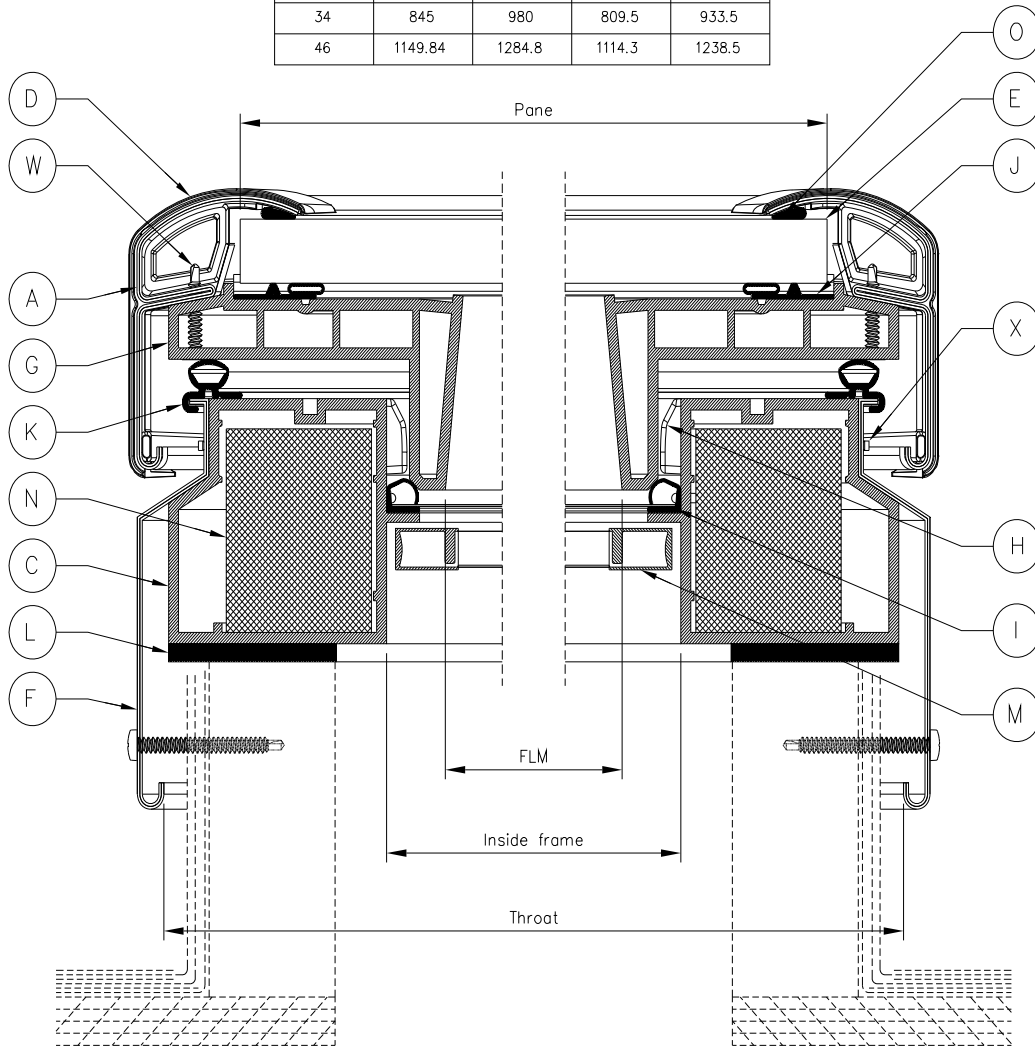
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Size	Inside frame	Throat	FLM	Pane
22	540.3	675.3	504.7	629
30	743.4	878.4	707.9	832
34	845	980	809.5	933.5
46	1149.84	1284.8	1114.3	1238.5



PART SCHEDULE	
ITEM	PART/COMPONENT
A	Outer Frame
B	Pane Spacer (Not shown)
C	Inner frame
D	Corner Key
E	Pane
F	Counter flashing
G	Sash Frame
H	Sash steering block
I	STF gasket
J	PR gasket
K	OFG gasket
L	Foam
M	Screen
N	Insulation (sides)
O	Sealant

**Figure 6 – VELUX VCM/VCE Skylight  
Horizontal Section View**

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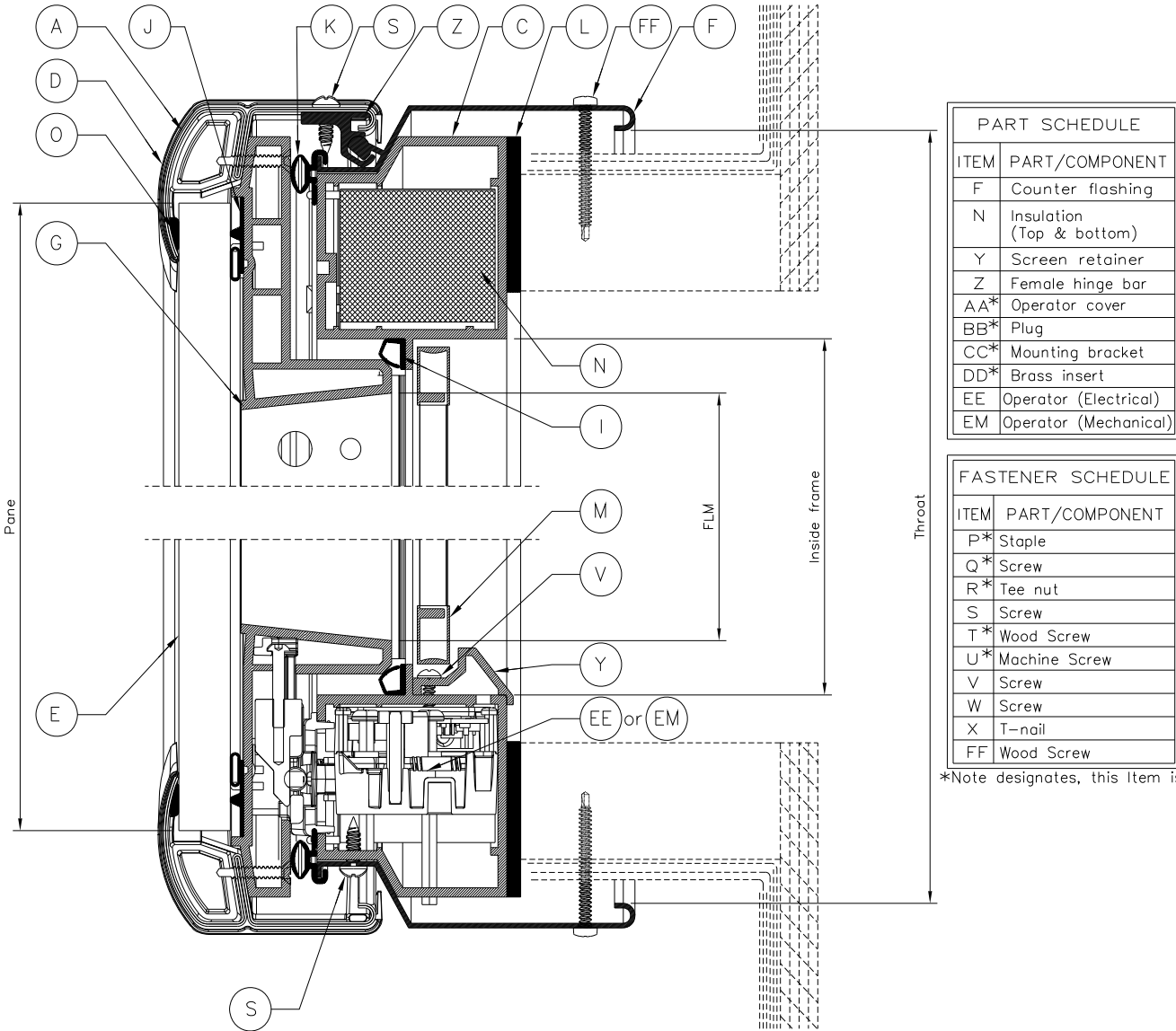


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PART SCHEDULE	
ITEM	PART/COMPONENT
F	Counter flashing
N	Insulation (Top & bottom)
Y	Screen retainer
Z	Female hinge bar
AA*	Operator cover
BB*	Plug
CC*	Mounting bracket
DD*	Brass insert
EE	Operator (Electrical)
EM	Operator (Mechanical)

FASTENER SCHEDULE	
ITEM	PART/COMPONENT
P*	Staple
Q*	Screw
R*	Tee nut
S	Screw
T*	Wood Screw
U*	Machine Screw
V	Screw
W	Screw
X	T-nail
FF	Wood Screw

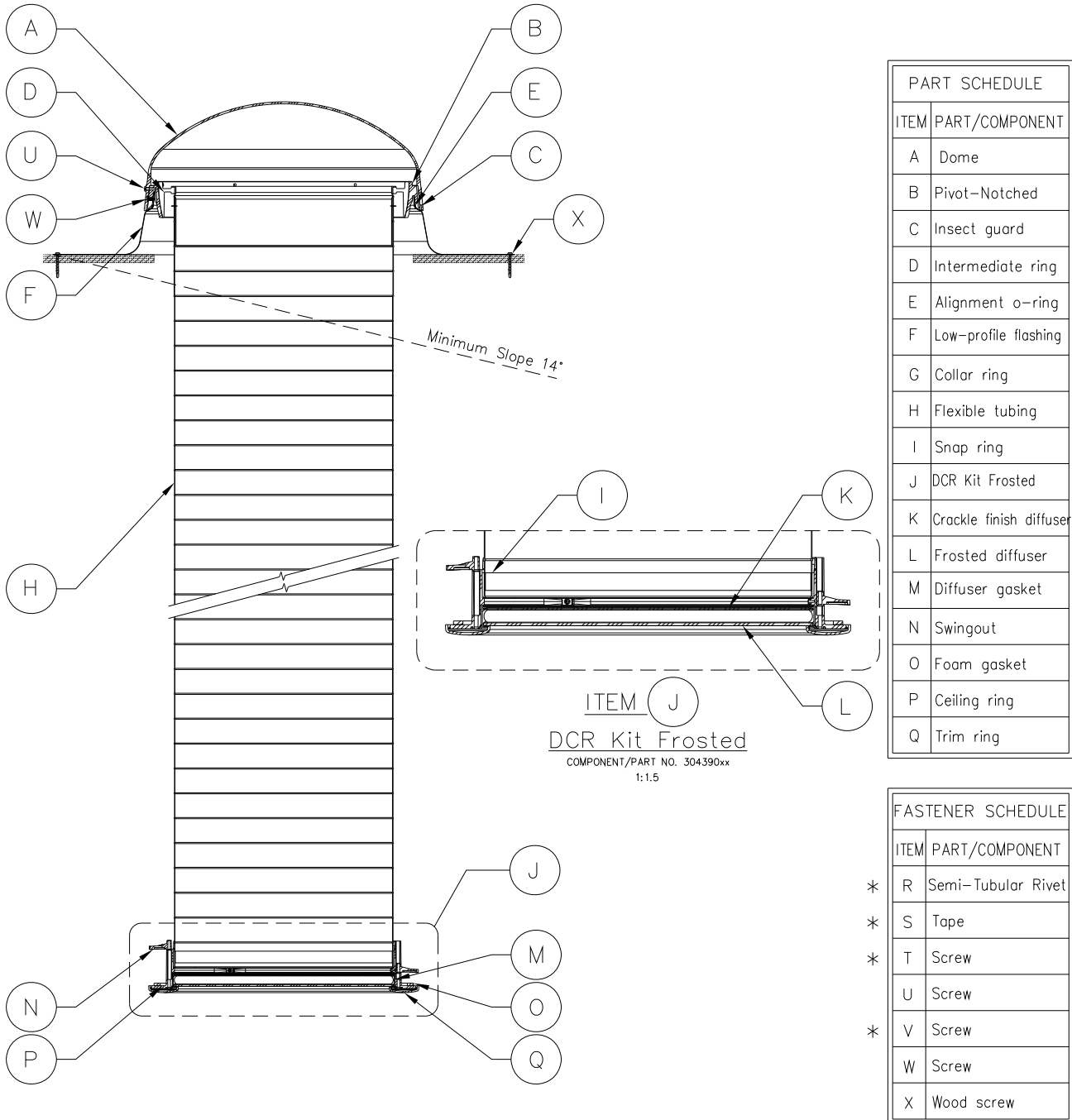
\*Note designates, this Item is Not Shown.

**Figure 7 – VELUX VCM/VCE Skylight Vertical Section View**

# EVALUATION REPORT



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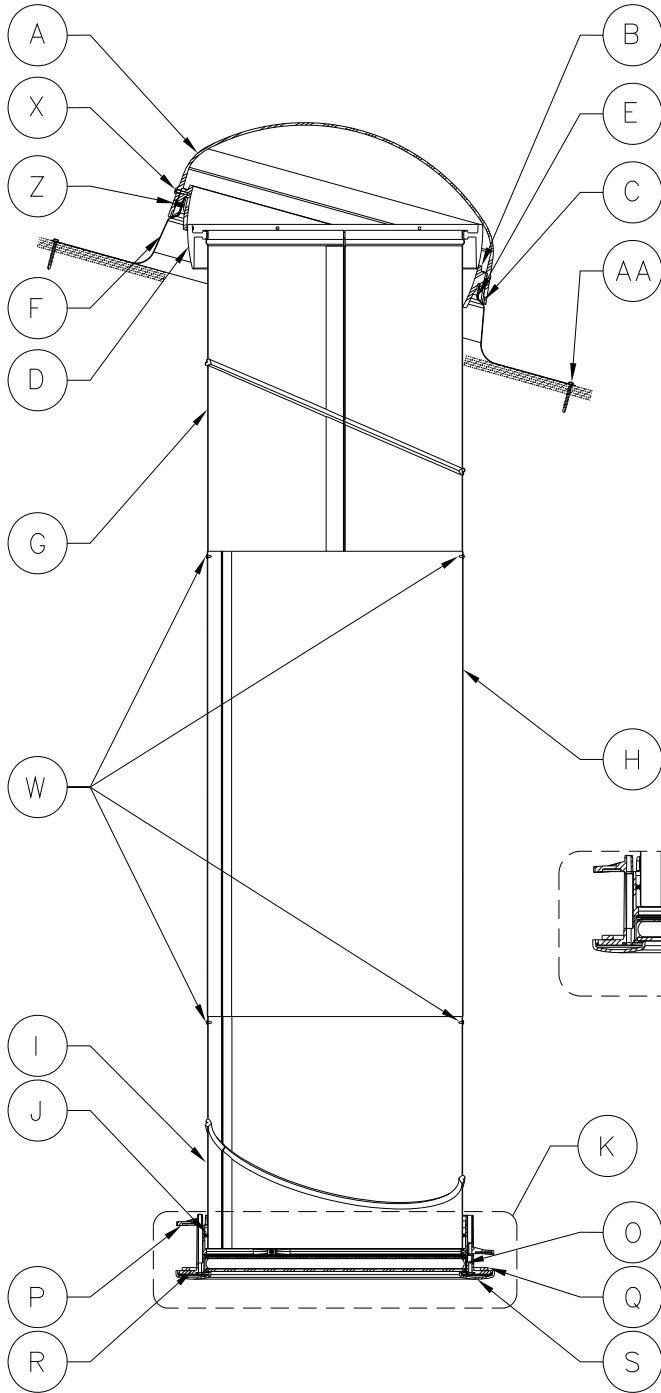
**Figure 8 – VELUX SUN TUNNEL (TGF) Skylight**

\* Designates a PART/COMPONENT not shown on this cross-section.

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PART SCHEDULE	
ITEM	PART/COMPONENT
A	Dome
B	Pivot-Notched
C	Insect guard
D	Intermediate ring
E	Alignment o-ring
F	Low-profile flashing
G	Top elbow
H	Extension tube
I	Bottom elbow
J	Rigid tube gasket
K	DCR Kit Frosted
	SE DCR Kit-Dual Diffuser
L	Crackle finish diffuser
M	Frosted diffuser
O	Diffuser gasket
P	Swingout
Q	Foam gasket
R	Ceiling ring
S	Trim ring

FASTENER SCHEDULE	
ITEM	PART/COMPONENT
T	Semi-Tubular Rivet
U	Tape
V	Tape
W	Screw
X	Screw
Y	Screw
Z	Screw
AA	Wood screw

ITEM (K)  
DCR Kit Frosted  
 COMPONENT/PART NO. 304390xx  
 1:1.5

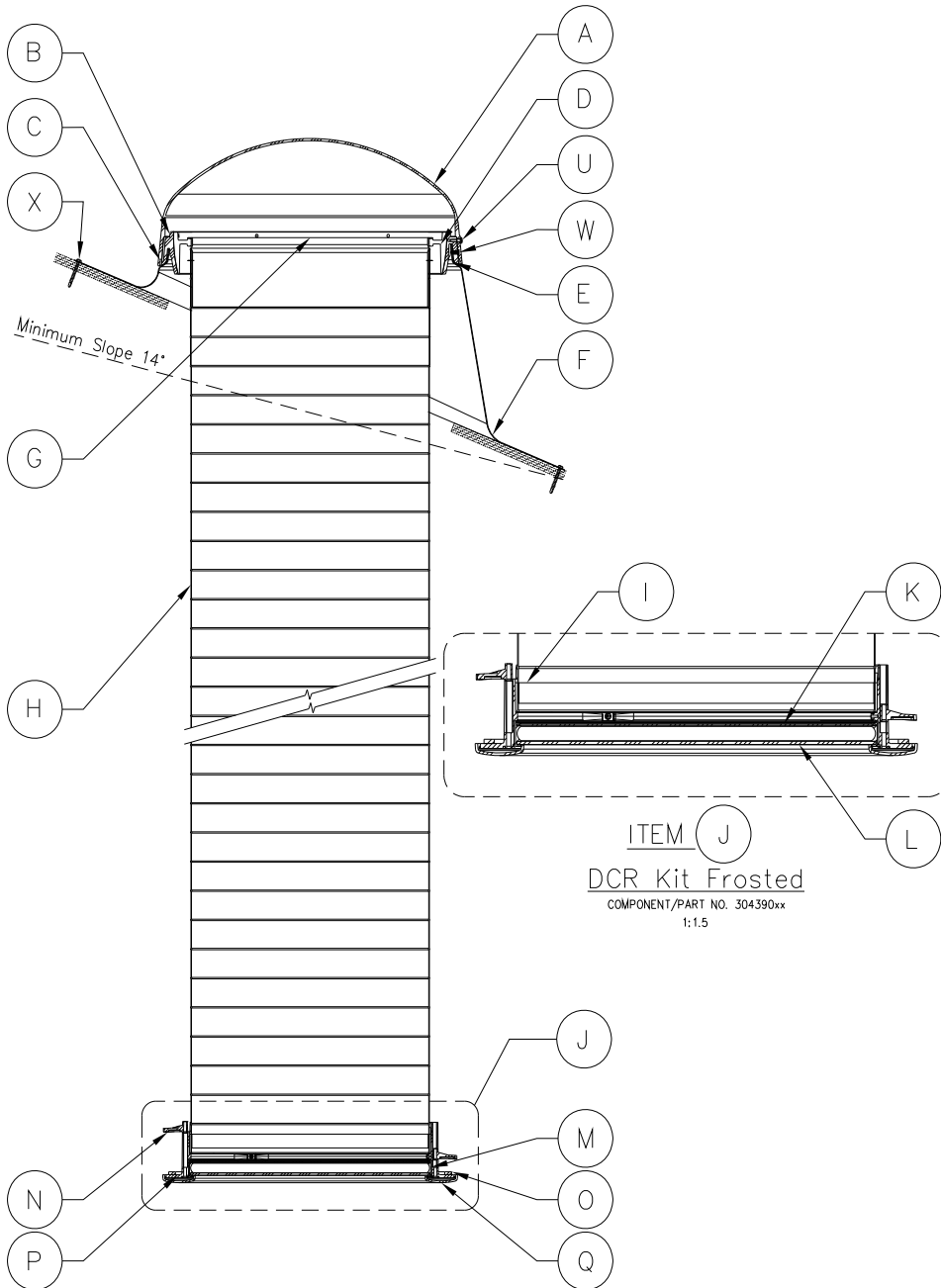
\* Designates a PART/COMPONENT not shown on this cross-section.

Figure 9 – VELUX SUN TUNNEL (TGR) Skylight

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**Figure 10 – VELUX SUN TUNNEL (TMF) Skylight**

PART SCHEDULE	
ITEM	PART/COMPONENT
A	Dome
B	Pivot-Notched
C	Insect guard
D	Intermediate ring
E	Alignment o-ring
F	Pitched flashing
G	Collar ring
H	Flexible tubing
I	Snap ring
J	DCR Kit Frosted
K	Crackle finish diffuser
L	Frosted diffuser
M	Diffuser gasket
N	Swingout
O	Foam gasket
P	Ceiling ring
Q	Trim ring

FASTENER SCHEDULE	
ITEM	PART/COMPONENT
* R	Semi-Tubular Rivet
* S	Tape
* T	Screw
U	Screw
* V	Screw
W	Screw
X	Wood screw

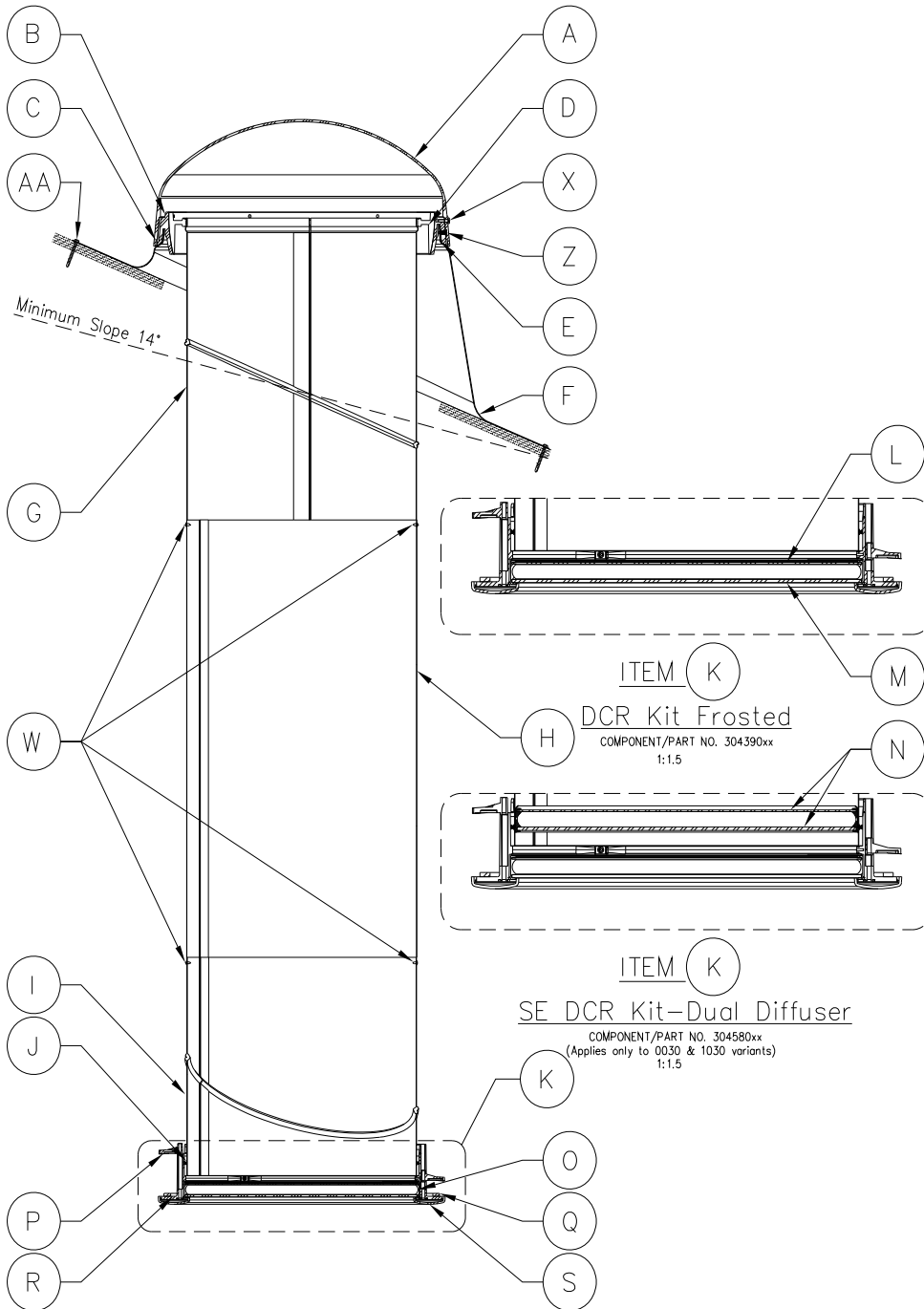
\* Designates a PART/COMPONENT not shown on this cross-section.



# EVALUATION REPORT



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**Figure 11 – VELUX SUN TUNNEL (TMR) Skylight**

PART SCHEDULE	
ITEM	PART/COMPONENT
A	Dome
B	Pivot-Notched
C	Insect guard
D	Intermediate ring
E	Alignment o-ring
F	Pitched flashing
G	Top elbow
H	Extension tube
I	Bottom elbow
J	Rigid tube gasket
K	DCR Kit Frosted SE DCR Kit-Dual Diffuser
L	Crackle finish diffuser
M	Frosted diffuser
N	Clear diffuser
O	Diffuser gasket
P	Swingout
Q	Foam gasket
R	Ceiling ring
S	Trim ring

FASTENER SCHEDULE	
ITEM	PART/COMPONENT
* T	Semi-Tubular Rivet
* U	Tape
* v	Tape
w	Screw
X	Screw
* Y	Screw
Z	Screw
AA	Wood screw

\* Designates a PART/COMPONENT not shown on this cross-section.



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## SUPPLEMENT

**DIVISION: 08 - OPENINGS**  
**Section: 08 62 23 Tubular Skylight**  
**Section: 08 63 13 Domed Metal-Framed Skylight**

**REPORT HOLDER:**  
**VELUX America, Inc.**  
**P.O. Box 5001**  
**Greenwood, South Carolina 29648-5001**  
**(864) 941-4828**  
[www.veluxusa.com](http://www.veluxusa.com)

**EVALUATION SUBJECT:**

**VELUX FS, VS, VSE, FCM, VCE, and VCM Deck and Curb Mount Glass-Glazed Unit Skylights**  
**VELUX SUN TUNNEL™ skylights (TGF, TGR, TMF, TMR) Tubular Daylighting Devices**

**1.0 Compliance with the following codes**

- 2010 California Building Code

**2.0 Additional Requirements:**

**1.1 Compliance for Materials Used**

Reports of material testing and evaluation in accordance with Clauses 6 and 7 of AAMA/WDMA/CSA 101/I.S.2/A440-08 cover the applicable requirements of Chapter 7A and 1505.1 for fire resistance and Chapter 26 for light transmitting plastic component. Acrylic Domes are in compliance with CBC 2606 and 2610.

**2.2 Glazing Requirements**

Where compliance with CBC 2403.2.1 is required, refer to Table 2 for glass area, nominal frame lap and glass edge clearance data.

**Table 2 – Data for CBC “Table 2403.2.1, Minimum Glazing Requirements”**

Skylight Model	Largest Size Glass Area (ft <sup>2</sup> )	Nominal Design Values - mm (in.)					
		Frame Lap			Glass Edge Clearance		
		Sides	Bottom	Top	Sides	Bottom	Top
<b>FS</b>	13.29	23 (7/8)	23 (7/8)	22 (7/8)	3 (1/8)	4 (1/8)	6 (1/4)
<b>VS / VSE</b>	12.02	12 (1/2)	14 (1/2)	14 (1/2)	4.5 (3/16)	3 (1/8)	3 (1/8)
<b>FCM</b>	16.51	18 (3/4)	18 (3/4)	18 (3/4)	31 (1 1/4)	31 (1 1/4)	31 (1 1/4)
<b>VCE / VCM</b>	16.51	18 (3/4)	18 (3/4)	18 (3/4)	31 (1 1/4)	31 (1 1/4)	31 (1 1/4)