



OSHA FALL PROTECTION TEST REPORT

Rendered to:

VELUX America LLC

SERIES/MODEL: FS S06 2004

PRODUCT TYPE: Fixed Deck Mounted Skylight

Report No: 96238.02-109-44

Test Date: 01/06/10

Report Date: 01/09/18

Record Retention End Date: 01/06/14



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VELUX America LLC
P.O. Box 5001
Greenwood, South Carolina 29648-5001

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Project Summary: Architectural Testing, Inc. was contracted by VELUX America Inc. to perform testing on Series/Model FS S06 2004, fixed deck mounted skylight. The test specimen description and results are reported herein. The test sample was provided by the client.

Test Specification: The test specimen was tested to assess compliance with Occupational Safety and Health Administration/U.S. Department of Labor Regulations (Standards- 29 CFR)- 1910.23(e)(8). A 200 lbf weight, fabricated from a bag filled with sand, was placed on the center of the unit for a minimum of 60 seconds and then dropped from increasing heights above the skylight starting at 2' until permanent visible damage was noted. All impact load drops were noted, and the resulting damage was recorded.

Evaluation Scope:

Intertek Building & Construction (B&C) was contracted by VELUX America LLC, 1418 Evans Pond Road on December 4, 2017 to evaluate the OSHA fall protection testing to the most recent referenced document. Occupational Safety and Health Administration (OSHA)/U.S. Department of Labor Regulations Standard 29 CFR §1910.29 – Fall protection systems and falling object protection-criteria and practices. Section 1910.29(e)(1) requires a cover to be capable of supporting without failure at least twice the maximum intended load that may be imposed on the cover at any one time.

Intertek Building & Construction (B&C) was contracted by VELUX America LLC, 1418 Evans Pond Road on December 4, 2017 to evaluate the Cal/OSHA fall protection testing to the most recent referenced document. California Code of Regulations, Title 8, Section 3212 §(b), which states, "covers shall be capable of safely supporting the greater of 400 lbs or twice the weight of the employees, equipment and materials that may be imposed on any one square foot area of the cover at any time."

Test Specimen Description:**Series/Model:** FS S06 2004**Product Type:** Fixed Deck Mounted Skylight**Overall Size:** 44-3/4" wide by 46-1/4" long**Fixed Daylight Opening Size:** 41-1/4" by 42-3/4"**Overall Area:** 14.5 ft²**Finish:** All aluminum and wood was coated.

Frame Construction: The frame was constructed of wood members with mortised corners, secured with glue and one 1-3/4" long nail per corner. A steel mounting flange was utilized around the exterior perimeter of the frame. The corners of the flange were mitered and welded. The flange was secured to the frame with 1" long galvanized nails, located 2-1/2" from each corner and spaced approximately 9" on center.

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
1/8" dual-fin hollow bulb gasket	1 Row	Top and sides of the frame
Custom single leaf rubber gasket	1 Row	Bottom of the frame

Glazing Detail: The skylight was glazed with 17.2 mm (11/16") thick insulating glass, constructed from a sheet of 3 mm (1/8") thick clear tempered glass outboard, a sheet of 5.8 mm (7/32") thick laminated glass inboard, and a stainless steel box spacer system. The laminated glass was constructed from two sheets of 2.5 mm (3/32") thick clear heat-strengthened glass and a 0.76 mm (0.030") thick PVB interlayer. The glass was exterior glazed against the EPDM frame gaskets and secured with roll-formed aluminum glazing profiles with silicone sealant against the glass. The glazing profiles were secured to the frame with #8 x 1-1/4" long pan head screws.

Drainage: Condensation weepage channels were utilized in the sill gasket.**Hardware:** No hardware was utilized.**Reinforcement:** No reinforcement was utilized.

Installation: The skylights were mounted on 2x8 Spruce-Pine-Fir wood bucks with nominal 1/2" thick plywood decking. The rough openings utilized double header and double rafter construction per the installation manual. The skylight was secured to the buck through the steel mounting flange with manufacturer supplied 1-1/4" long 1/8" diameter shank, 3/8" diameter head ring shank nails, located by pre-drilled holes 3" from each end and spaced about 9" on center. All test units were installed in accordance with the manufacturer's installation instructions.

Test Results: The results are tabulated as follows:

OSHA Safety Drop Test

<u>Test Method</u>	<u>Load Location</u>	<u>Results</u>
200 lbf at rest	Center of glass	No visible damage See Note #1
400 lbf-ft (2' drop height)	Center of glass	No visible damage
800 lbf-ft (4' drop height)	Center of glass	No visible damage
1200 lbf-ft (6' drop height)	Center of glass	No visible damage
1600 lbf-ft (8' drop height)	Center of glass	See Note #2

General Note: *The test specimen was supported at the head and tested at a 14° slope (Reference Photo #1).*

Note #1: *The 200 lbf weight was gently applied perpendicular to the center of the glass. After 60 seconds of rest time, there was no visible damage to the skylight.*

Note #2: *At the 8' drop height, the bag broke the exterior tempered glass and penetrated the interior laminated glass, deglazing the glass from frame at multiple locations.*

Conclusion:

The specimen was evaluated in accordance with Occupational Safety and Health Administration (OSHA)/U.S. Department of Labor Regulations Standard 29 CFR §1910.29(e)(1) to be capable of supporting twice the maximum intended load, up to (600) ft-lb.

The specimen was evaluated in accordance with California Code of Regulations, Title 8, Section 3212 §(b) to be capable of safely supporting loads exceeding 400 ft-lb.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC:

Eric M. Brennan
Project Manager

Timothy J. McGill
Manager – Product Testing

AMS:dem/vlm/abo

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Photograph (1)

Appendix-B: Drawings (2)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	01/09/18	N/A	Original report issue

This report produced from controlled document template ATI 00205, issued 03/05/09.

Appendix A

Photograph

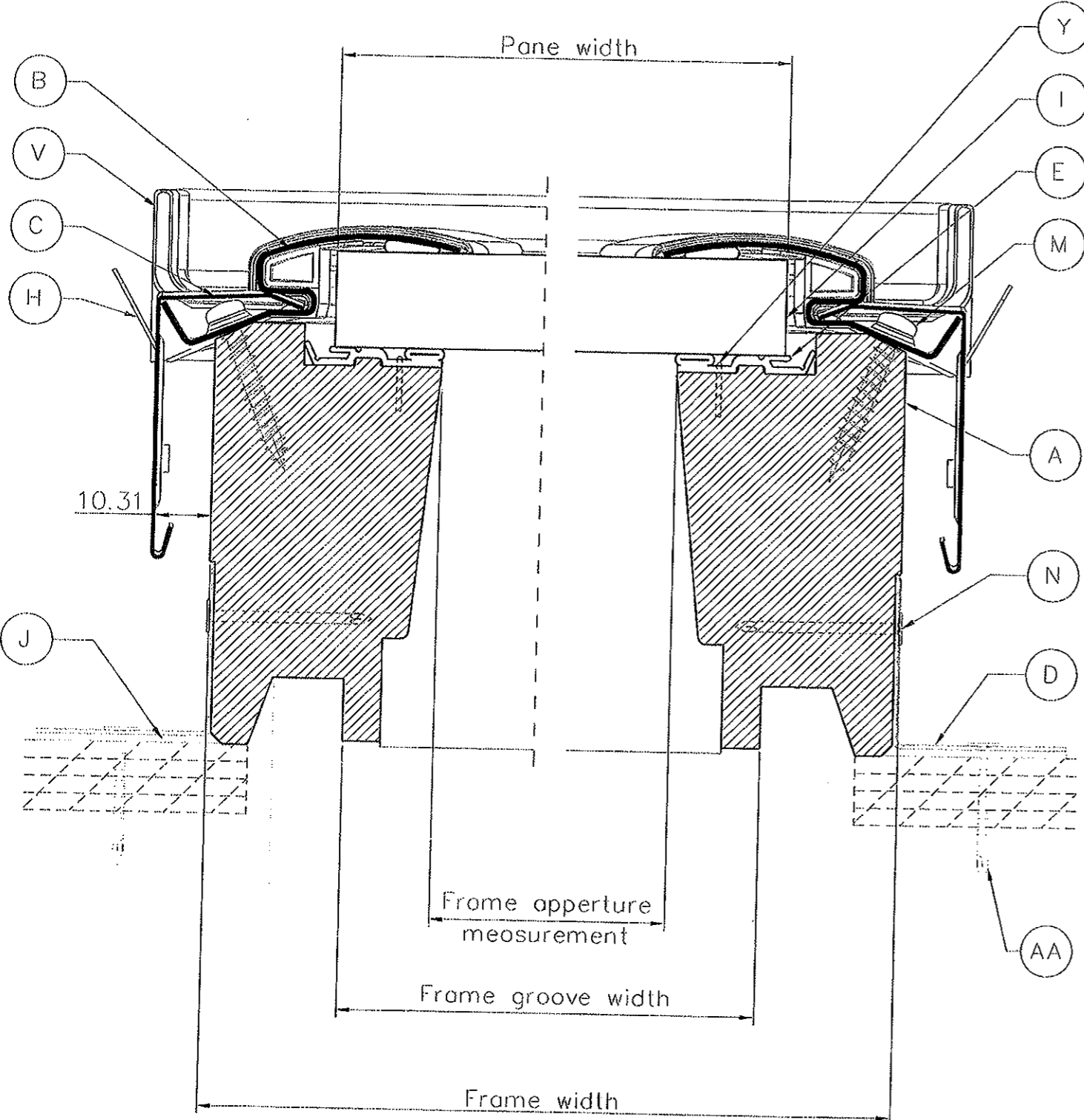


Photo No. 1
Test Set-up and 200 lbf Bag

Appendix B

Drawings

Size	Frame aperture measurement	Frame groove width	Frame width	Pane width
A	303	336.7	387	343
C	462	495.7	546	502
D	506	539.7	590	546
M	692	725.7	776	732
S	1052	1085.7	1136	1092



PART SCHEDULE

ITEM	QTY	PART/COMPONENT	COMPONENT NO.	DESCRIPTION	DRAWING NO.			COMMENTS
					Category	Connect to	Rev	
A	2	Side Frame	300132L	Side Frame, Left, Pine	21	3000137DA03901		Wood frame component, Painting and base treatment
					21			Frame, Nailing, squaring
					21			Frame and sash components, Lamination drawing
					21			Side frame, left, Mortising and moulding drawing
B	2	Side glazing profile	302197##	1.0 mm Thick 3105 H22 Aluminum	21	30021960000001		Wood frame, Drilling for accessory plug
					21			Side & Bottom, Profile drawing
C	2	Side frame cover	304510	0.65 mm Thick, Type IIB, 3105 H32	21	3022000A000002		Bottom & Side frame cover, Profile drawing
					21			Side frame cover, Punching and bending drawing
D	1	Deck Seal	302203	ASTM 1011 CS Type B 0.033" thk	21	30220300000008		Commodity drawing
E	1	FSS gasket	303376	EPDM 64 shore A	21	303376A0000002		FSS gasket, Profile
F	1	TGS gasket	303377	EPDM 64 shore A	21	303376A052002		Glazing gasket installation
G	1	UFA gasket	303381	Block EPDM IHRD' 65' +5'	21	30337700A00002		Profile
H	2	Frame cover with tab	304510	0.65 mm Thick, Type IIB, 3105-H32	21	3045100A052002		Frame cover Bending tab Tacking drawing
I	1	Pane	N/A	Panes and spacer bars	21	3061530A000001		Bending tab, Blank and bending drawing
J	1	Foam, Deck seal	303385	Closed cell PVC foam with PSA Color: black	21	3045410A051001		Typical arrangement of panes & spacer bars
					21	30338500000002		Commodity drawing

FASTENER SCHEDULE

ITEM	PART/COMPONENT	COMPONENT NO.	DESCRIPTION	DRAWING NO.			EXPOSED	COMMENTS
				Category	Connect to	Rev		
K*	Nail	421002	1 3/4x0.083 COIL SCREW					
L	Plug	306144	ASA-Luron S778 or equivalent	21	30614400000005			Side cover hole plug for bottom Commodity drawing
M	Screw	306149	#8--15 1-1/4" Type 17 PH w/pvc seal SS	21	30614900000001			Commodity drawing
N	Nail	306165	1" Bostick Galv Roofing Nail					.5" Length
Y	Staple	306011	ST 0.9x0.7x4.6x10MM, AIII, SS	21	30601150000004			Staple (drawing with dimension schedule)
Z*	Staple	422067	ST RD 1.6x25x24MM BII FE HDGLV					
AA*	Nail	308007	10 gouge 3/8"x1 1/4" ring shank nail	21	30800700000003			Commodity drawing
				21	3044170006308			Fastener bags, List of parts

GENERAL NOTES:
 * Note designates, this Item is Not Shown on this drawing (21.FS0000.HOR.61.XX) or the "Typical Vertical Arrangement with Product List of Parts" drawing (21.FS0000.VER.61.XX)
 1. Reference Drawings include 21.FS0000.VER.61.XX for "FS List of Parts". (PROPRIETARY), 21.FS0000.VER.61.XX for FS, Product Certification, Typical Vertical Arrangement with Product List of Parts
 2. A copy of these drawings plus any other supplemental documentation regarding these skylight models will be maintained at the Skylight Technical Database in the following category location - /Technical Data/Submital Data/
 3. Dimensions and Quantities shown on this drawing are for Standard Size FS model skylights.
 4. Quantities for Item Y (Staple) are shown on Staple drawing (21.306011.000.00.04)
 5. Quantities Item AA (Nail) are shown in a sub-category under Part Number 304102, on Fastener bags, List of Parts drawing (21.304417.000.63.08)
 V = Visible
 NV = Non-Visible

Item K Quantities Nail			Item L Quantities Plug			Item M Quantities Screw		
Size	Code	Fasteners	Size	Code	Fasteners	Size	Code	Fasteners
A06		4	A06		2	A06		16
C01		4	C01		2	C01		14
C04		4	C04		2	C04		16
C06		4	C06		2	C06		18
C08		4	C08		2	C08		20
C12		4	C12		2	C12		24
D26		4	D26		2	D26		12
D06		4	D06		2	D06		18
M02		4	M02		2	M02		16
M04		4	M04		2	M04		18
M06		4	M06		2	M06		20
M08		4	M08		2	M08		22
S01		4	S01		2	S01		20
S06		4	S06		2	S06		24

Architectural Testing
 Test sample complies with these details.
 Deviations are noted.
 Report# 96238
 Date 11/11/09 Tech CAR

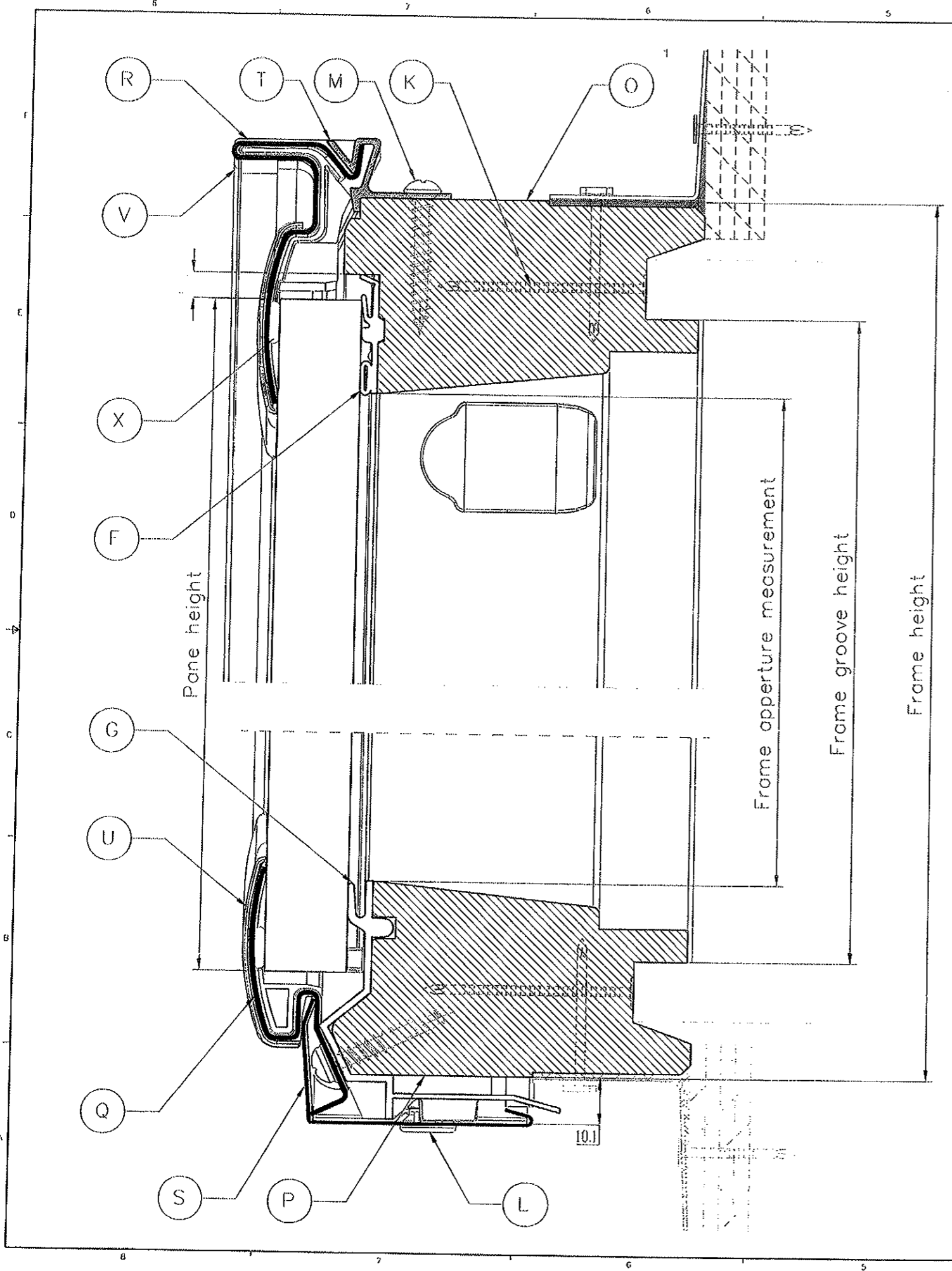
Size	Code	Fasteners
A06		16
C01		14
C04		16
C06		18
C08		20
C12		20
D26		12
D06		18
M02		16
M04		18
M06		20
M08		22
S01		18
S06		22

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 ANGLES ±1
 ONE PLACE DECIMAL ±0.5
 OTHERS ±0.125

DATE: 11/11/09
 SCALE: 1:1
 SHEET 1 OF 2

VEEDER-RODGE
 1418 Evans Pond Road PO Box 5001
 Greenwood, South Carolina 29648-5001

FS
 Product Certification
 Typical Horizontal Arrangement with
 Product List of Parts



PART SCHEDULE									
ITEM	QTY	PART/COMPONENT	COMPONENT NO.	DESCRIPTION	DRAWING NO.			COMMENTS	
					Category	Quantity	Per		
O	1	Top Frame	300136	Pine	21300136	00A1506		Top frame, Mortising and moulding drawing	
					21300137	00A03901		Wood frame component, Painting and base treatment	
					21300137	00A04702		Frame, Nailing, squaring	
P	1	Bottom Frame	300137	Pine	21300137	00A1901		Frame and sash components, Lamination drawing	
					21300137	00A1505		Bottom frame, Mortising and moulding drawing	
					21300138	00A1702		Wood frame, Drilling for accessory plug	
Q	1	Bottom glazing profile	302196	1.0 mm Thick 3105 H22 Aluminum	21302196	0000001		Side & Bottom, Profile drawing	
					21302196	00002001		Instal glaze placement	
					21302196	00A3206		Bottom, Cutting & Punching	
R	1	Top glazing profile	302196	1.0 mm Thick 3105 H22 Aluminum	21302196	0000001		Top Profile drawing	
					21302196	00A3203		Top Profile Cutting drawing	
S	1	Bottom frame cover	302199	0.65 mm Thick, Type II, 3105 H32	21302199	00A3405		Bottom frame cover, Punching and Bending drawing	
					21302200	00A00002		Bottom & Side frame cover, Profile drawing	
T	1	Top glazing profile retainer	302203	6063 T05 Aluminum	21302202	0000007		Profile	
					21302202	00A1105		Punching and cutting drawing	
					21302202	00A5202		Retainer placement drawing	
U	2	Bottom corner key	303383	ASA-Luran S 778 T or equivalent	21303383	0000004		Commodity drawing	
					21303383	00A05202		Butyl placement drawing	
V	1	Top left corner key	303384L	ASA-Luran S 778 T or equivalent	21303384	0000003		Commodity drawing	
					21303384	00A05202		Butyl placement drawing	
W*	4	Hot melt butyl	303127	Hot melt butyl (HI-FIX)				15 grams on each corner (60 grams total)	
X	1	Sealant	305621	Hot applied silicone					

GENERAL NOTES:

* Note designates, this Item is Not Shown on this drawing (21.FS0000.VER.61.XX) or the "Typical Horizontal Arrangement with Product List of Parts" drawing (21.FS0000.HOR.61.XX)

1. Reference Drawings include 21.FSB.0A0.63.01 for "FS List of Parts". (PROPRIETARY), 21.FS0000.HOR.61.XX for FS, Product Certification, Typical Horizontal Arrangement with Product List of Parts"

2. A copy of these drawings plus any other supplemental documentation regarding these skylight models will be maintained at the Skylight Technical Database in the following category location - /Technical Data/Submittal Data/

3. Dimensions and Quantities shown on this drawing are for Standard Size FS model skylights

Size	Frame aperture measurement	Frame groove height	Frame height	Pane height
01	611.3	644.7	695	651
02	691.3	724.7	775	731
04	891.3	924.7	975	931
06	1091.3	1124.7	1175	1131
08	1311.3	1344.7	1395	1351
12	1713.3	1746.7	1797	1753
25	463.3	496.7	547	503
26	511.3	544.7	595	551

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 9623B
Date 11/11/09 Tech CCR

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ONE PLACE DECIMAL ±0.5

DATE: 11/11/09

SCALE: 1:1

REV: XX

DATE: 11/11/09

SHEET 2 OF 2

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FS
Product Certification
Typical Vertical Arrangement with
Product List of Parts