To Whom It May Concern:

VELUX Australia Pty Ltd supplies the following information.

- AS 4285 - Standard for Roof lights (Table 1)

The following products supplied in Australia have been tested to, and meet, Australian Standard AS4285-2007 & AS4285-2019:
VELUX Skylights FCM/FS/VS/VSE/VSS/VCM/VCS
Roof Windows GGL/GPL
Sun tunnels TWR/TWF/TCR

- AS1288 – Overhead Glazing

VELUX Skylights and Roof Windows with High Performance laminated glazing are manufactured with Grade A safety laminated glass and meet Australian Standard AS1288-2006 for sloped overhead glazing. Report from Calderone and Associates available on request.
(Skylight FCM/FS/VS/VSE/VSS/VCM/VCS glazing variant 04)
(Roof Window GGL/GPL glazing variant 76)

- AS3959 – Bushfire (Table 2)

VELUX Skylights FCM/FS/VS/VSE/VSS/VCE/VCM/VCS with High Performance glazing have been tested to, and pass, bushfire attack level (BAL) 40 - per AS3959-2009 bushfire requirements.
Suntunnel TWR has tested to, and passed, BAL 29.

- NCC Thermal Performance - U-Value & SHGC (Table 3)

VELUX skylights comply with the NCC Vol 1 Section J & Vol 2 thermal requirements.

- AS 1191 & AS/NZS 1276 – Acoustics (Table 4)

VELUX Skylights with High Performance laminated glazing reduce sound by approx 31 decibels.
VELUX Roof Windows with laminated glazing reduce sound by approx 34 decibels. All
VELUX double glazed units have been tested to Australian standards for Rw and STC ratings.

- NCC Boundary Separation

VELUX Skylights and Roof Windows have been assessed as suitable for boundary installations where the BCA requires non-combustible materials. CSIRO letter of assessment available on request. *(opening models assessed in the closed position)*
(VELUX recommends consultation with relevant authority for possible Performance Solution requirements)

- Wind Pressure Classifications (tables 5)

- Cyclonic regions: FCM skylights with High Performance laminated glazing are certified for Northern Australia high wind regions – per AS1170.2 & NTDTCM requirements
(Northern Territory Deemed-to-Comply Manual)
- Non-cyclonic regions: All Skylights, Roof Windows and Sun Tunnels are rated for wind pressures per AS4055

- CODEMARK Certification

VELUX Skylights, Roof Windows and Sun Tunnels are Codemark Certified for Australia.
https://www.velux.com.au/professionals/test-reports

Table 1

AS4285 – Skylights: Watertightness, Concentrated Load, Non-cyclonic & Cyclonic wind pressures

Model	**IBA Test No:**	**Watertightness**	**Concentrated Load** (2.41kN)	**Non-Cyclonic kPa** (static pressure)	**Cyclonic & Northern Territory ULS (kPa) Per NCC guidelines** (fatigue test – 10,00 pulses)
FCM 4646 0004B *	2009-098-S5 2009-098-S6	**PASS**	**PASS**	+7.2 -7.3	-5.0
FS S06 2004A	2009-098-S1 2009-098-S12	**PASS**	**PASS**	+4.0 -4.0	-2.4
VS / VSE / VSS S06 2004A	2009-098-S10 2009-098-S16 2015-014-S5	**PASS**	**PASS**	+5.0 -6.5	-2.8
GGL M08 3076	4023S8-GGL 2009-098-S8	**PASS**	**PASS**	+5.0 -7.0	-4.0
GGL SK06 3076	2014-067-S1 2014-067-S3	**PASS**	**PASS**	+4.0 -6.0	-4.0
GPL SK06 3076	2014-067-S2 2014-067-S5	**PASS**	**PASS**	+4.0 -2.5	N/A
TWF/R 0K14 (V2.0)	2015-014-S1	**PASS**	**PASS** (1.1kN)	+5.0 -7.0	N/A
VCM 4646 2004AD✎	2017-016-S5 2017-016-S10	**PASS**	**PASS**	+4.5 -5.0	-2.16 -3.21(AS4040)
VCS 4646 2004AD✎	2017-016-S1 2017-016-S8	**PASS**	**PASS**	+4.5 -4.0	-2.16 -3.21(AS4040)
FCM 4672 0004AD *	2022-086-S1-R1	**PASS**	**PASS**	+4.09 -9.75	-5.07 (C3) General
TCR 014 0000US	2024-057-S1-R1	**PASS**	**PASS**	+4.09 -9.33	-5.02 (C3) General

NATA Approved Test Facility: Ian Bennie & Associates, Dandenong. Victoria

* ***Cyclonic testing: FCM tested on a timber base, secured with VELUX screws.***
✎ ***Cyclonic testing: VCM/VCS tested on a timber base, secured with #8 roofing screws (not supplied by VELUX). Results achieved per AS4040 guidelines.***

Table 2

AS3959 – Construction of Buildings in Bushfire-prone Areas

Model	Exova Test Report	BAL 29 + *18-75 degree pitch*	BAL 40 * *0-18 degree pitch*	BAL 40 * *18-75 degree pitch*
FCM 4646 0004B	EWFA 2548902.1	-	**PASS**	-
FCM 4646 0004B	EWFA 2391800.2	-	-	**PASS**
FS S06 2004A	EWFA 2398200.2	-	-	**PASS**
VS S06 2004A	EWFA 2398100.3	-	-	**PASS**
VSE S06 2004A	EWFA 2548900.1	-	-	**PASS**
VSS S06 2004AD ^	EWFA 31154800.1	-	-	**PASS** *(with EDW flashing)*
VCE 4646 0004AC	EWFA 2686100.2	-	**PASS**	-
VCM/VCS 4646 2004AD**	EWFA 46234000.1 Assessment Report	-	**PASS**	**PASS**
TWR 0K14 2010	EWFA 34505800.1	**PASS**	-	-
FCM 4646 0004B	EWFA 2548902.1	-	**PASS**	-
FCM 4646 0004B	EWFA 2391800.2	-	-	**PASS**
FCM 4672 0004AD	FRT220044 R1.0	-	**PASS**	-
FCM 4672 0004AD	FRT220205 R1.0	-	-	**PASS**

NATA Approved Test Facility: Exova Warringtonfire, Dandenong. Victoria (Now known as Jensen Hughes)

**** PASS applies only to High Performance laminated glazing (04)***
+ PASS applies only to TWR rigid shaft
^ VSS S06 tested with VELUX EDW flashing. All other models tested with custom built flashing (not supplied by VELUX). VELUX EDW flashings suit Skylights FS/VS/VSE/VSS
*****Product assessed by Exova – based on VCE test results***

NB: VELUX recommends FCM/VCE/VCM/VCS/VSS installed at a maximum 60 degrees.
VELUX recommends TWR installed at a maximum 60 degrees.

NB: All opening Skylights tested in the closed position. Consult with local council as fire resistant mesh may be required. (additional purchase)

Table 3

BCA Thermal Requirements

Model: Skylight *All figures are for complete skylight*	**Glazing (IGU)**	**U=Value (W/m2*K)**	**SHGC Solar Heat Gain Co-efficient**	**VT Visible Light Transmittance**	**Luminous Efficacy (Ke)** **Ke = VT/SHGC**
VS / VSE / VSS	Type 04	2.5	0.21	0.48	2.29
FS	Type 04	2.6	0.24	0.55	2.29
FCM	Type 04 ♦	2.9	0.28	0.64	2.29
VCE / VCM / VCS	Type 04 ♦	2.9	0.24	0.55	2.29
TWR / TWF 014	Type 10	2.4	0.5	-	-

Thermal figures generated by AFRC accredited laboratory:
Ian Bennie & Associates, Dandenong. Victoria.

Ke is the relationship of light vs heat.

A standard vertical single glazed window has a Ke of 0.7.
ie: a single glazed vertical window lets in 0.7 units of light for every unit of heat. (less light, more heat)

A thermally efficient double glazed VELUX skylight lets in 2.29 units of light for every unit of heat.
ie: More light, less heat

All Skylight values based on AFRC calculations. All values audited by AWA (Australian Window Association)
Link: https://werslink.com.au/wers/search.html#skylights

♦ ***FCM/VCE/VCM/VCS figures generated with timber base and internal lining (gyprock) – not supplied by VELUX.***
(See picture below)

♦ FCM/VCM/VCS - timber base installation

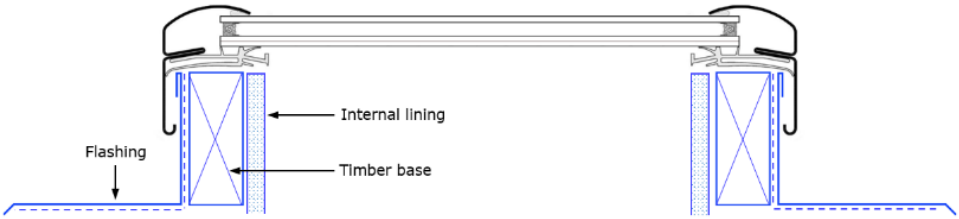

Table 3a

Model: Roof Window *All figures are for complete window*	**Glazing (IGU)**	**U=Value (W/m2*K)**	**SHGC Solar Heat Gain Co-efficient**	**VT Visible Light Transmittance**	**Luminous Efficacy (Ke)** **Ke = VT/SHGC**
GGL / GPL	Type 76	1.3	0.30	0.62	2.06

Roof Window values based on EU calculations. (EN 14351-1:2006+A2:2016)

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(PO Box 93, St Peters NSW 2044)
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Fax: (02) 9550-3289

A.C.N 001 841 541 Sales and Technical Service 1300 859-856

Table 4

AS/NZS 1276 – Acoustics

	FCM 4646 2004	VCM 4646 2004	FS S06 2004	VSS S06 2004	GGL SK06 2076
Rw	29 dB	30 dB	32 dB	32 dB	34 dB
STC	29	31	32	32	34

Acoustic values calculated by CSIRO Laboratories, Clayton, Victoria.

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Tables 5

VELUX NTDTCM calculated pressure ratings

VELUX FCM SKYLIGHT MODEL /SIZE CODE	MAXIMUM ALLOWABLE ULTIMATE DESIGN WIND PRESSURE FOR SKYLIGHT SUPPORT FRAMING (kPa)
FCM 1430	10.00
FCM 1446	10.00
FCM 2222	9.70
FCM 2230	9.70
FCM 2234	9.41
FCM 2246	9.70
FCM 2270	8.60
FCM 3030	7.27
FCM 3046	7.27
FCM 3055	7.27
FCM 3072	7.27
FCM 3434	6.53
FCM 3446	6.67
FCM 4646	5.00

Values calculated by GHD Engineering – Adelaide, South Australia

Wind region categories

WIND REGION	TERRAIN CATEGORY	ROOF GENERAL AREAS ULTIMATE DESIGN WIND PRESSURE (kPa)
C	1	5.02
	2	3.92
	2.5	3.35
	3	2.85
	4	2.33
D	1	8.10
	2	6.34
	2.5	5.42
	3	4.61
	4	3.76

AS 4055 – Wind pressure classifications

Model:	**Sizes**	**Ultimate Strength Wind Classification - Non cyclonic Roofs(r), General areas of the roof(G)**
GGL	All	N5r(G)
GPL	All	N3r(G)
VS / VSS / VSE	All	N6r(G)
FS	All	N4r(G)
FCM	All	N6r(G)
VCS	All	N4r(G)
VCM	All	N5r(G)
TWF / TWR / TCR	All	N6r(G)

Values calculated by Acronem Consulting – Hampton, Victoria
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