

     	 <p>STRUCTURAL ENGINEERS NSW VIC QLD WA TAS </p>
<p>DESIGNDEVISE DesignDevise Pty Ltd ABN 40 651 752 260</p>	<p>Level 3, 480 Collins St. MELBOURNE VIC 3000 vic@ddl.com.au</p>
<p>STRUCTURAL CERTIFICATE</p>	

Ref: DD-231264-CERT-C1

15 December 2023

Schletter Australia Pty Ltd
Unit 4, 27 Williamson Road
INGLEBURN NSW 2565

RE: SPAN TABLES FOR SCHLETTER'S RAPID²⁺ PRO SML FASTENERS

This is to certify that DesignDevise (**DD**) have calculated the span tables for Rapid²⁺ Pro SML fasteners (Product: 119026-102) for flush mount solar panels installation over hip and gable roofs of any size.

The span tables are documented in the following drawings (Refer **Appendix A**):

- DD-231264-ST-C1, Sheets S01 to S02, Rev. C1, dated 15.12.2023.

DD confirms that the spans have been calculated using accepted engineering principles and in accordance with the requirements of the following Australian Standards and Specifications:

- AS/NZS 1170.0: 2002 Structural Design Actions – Part 0: General Principles;
- AS/NZS 1170.1: 2002 Structural Design Actions – Part 1: Permanent, Imposed and other Actions;
- AS/NZS 1170.2: 2021 Structural Design Actions – Part 2: Wind Actions;
- AS/NZS 1664.1: 1997 Aluminium Structures - Limit State Design.

Proprietary products, parameters, limitations, and assumptions used to calculate spans are listed in the above-mentioned drawings.

Yours faithfully

RANA WASEEM

Principal Structural Engineer



CPEng MIEAust NER: 5737360 (Structural)
Professional Engineer (NSW) PRE0001775 (Civil/Structural)
Design Practitioner (NSW) DEP0003296 (Structural)
BLA (VIC): PE0002622 (Civil)
RPEQ (QLD): 24524 (Structural)

Enc:

- Appendix A – Span Table Drawings

						
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STRUCTURAL CERTIFICATE						

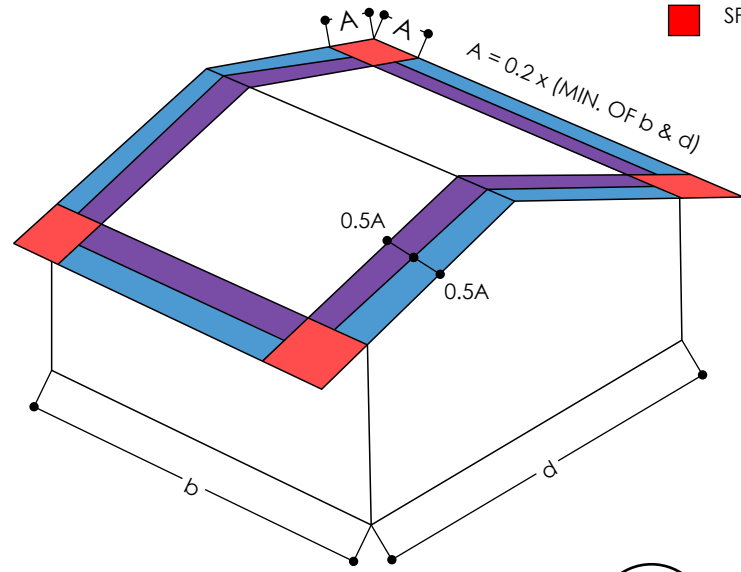
Appendix A

Span Table Drawings

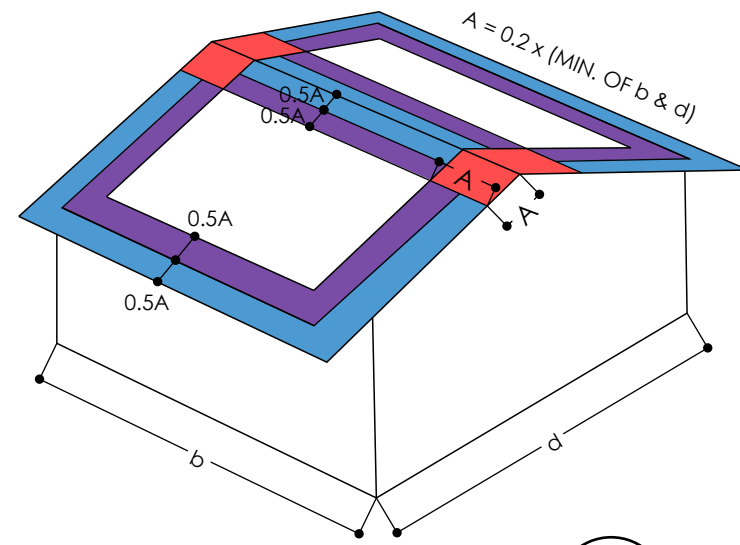
GABLE ROOF ZONES

LEGEND

- INTERIOR ZONE (UNHATCHED)
- INTERMEDIATE ZONES
SPACING = INTERIOR ZONE SPACING / 1.5
- EDGE ZONES
SPACING = INTERIOR ZONE SPACING / 2.0
- CORNER ZONES
SPACING = INTERIOR ZONE SPACING / 3.0



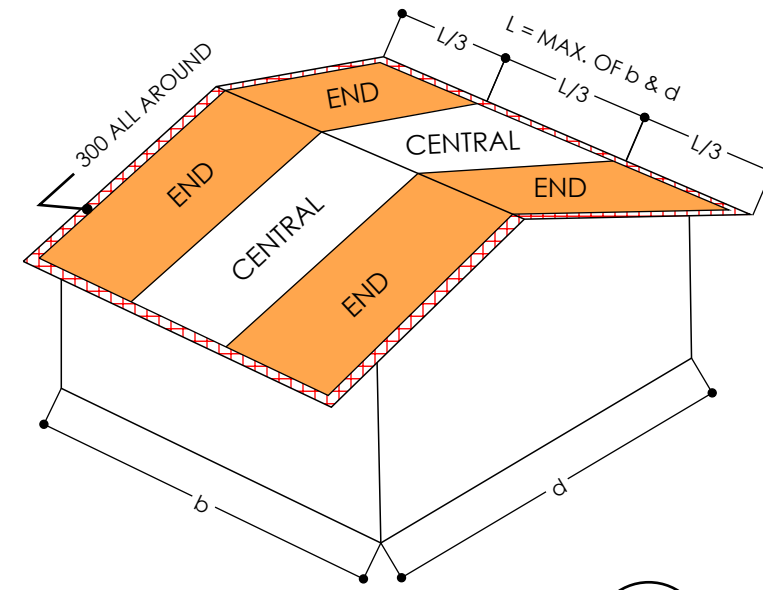
GABLE ROOF ZONES - PITCH < 10°
WHEN ANY OF h/b OR h/d > 0.50



GABLE ROOF ZONES - PITCH ≥ 10°
WHEN ANY OF h/b OR h/d > 0.50

LEGEND

- CENTRAL ZONE (UNHATCHED)
- END ZONES
- EXCLUSION ZONE (DO NOT INSTALL PANELS)



GABLE ROOF ZONES - ANY PITCH
WHEN BOTH h/b & h/d ≤ 0.5

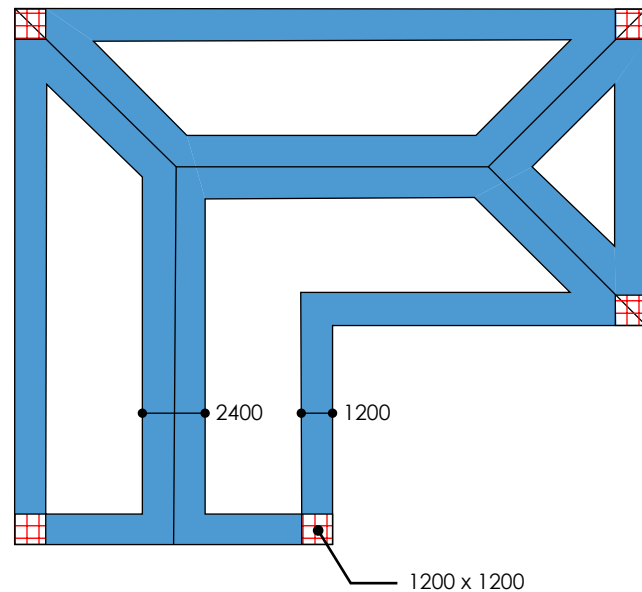
GENERAL NOTES

1. THESE DRAWINGS PROVIDE THE GENERAL SPAN TABLES FOR SCHLETTER'S RAPID2+ PRO FASTENERS (PRODUCT NO. 119026-102) FOR FLUSH MOUNT SOLAR PANELS INSTALLATION APPLICATION WITH BUILDINGS LOCATED ON FLAT TERRAINS, WITH OTHER LIMITATIONS LISTED BELOW
2. ALL SPANS ARE IN mm, HEIGHTS IN m, ROOF PITCH IN DEGREES
3. SCHLETTER'S RAILS AND FASTENERS CAPACITIES CALCULATED BASED ON THE SECTION PROPERTIES AND TEST REPORTS PROVIDED BY SCHLETTER
4. FIXINGS CAPACITY BASED ON FIXINGS MANUFACTURER DATA BROCHURES
5. DESIGNDEVISE (DD) HAVE NOT INDEPENDENTLY VERIFIED THE ACCURACY OF THE ABOVE-MENTIONED PROPERTIES AND CAPACITIES
6. BUILDING ROOF INCLUDING METAL SHEET, TOP-HATS/PURLINS, RAFTERS ETC. AND STRUCTURE TO BE CHECKED BY OTHERS FOR ADEQUACY AGAINST THE SOLAR PANEL AND ASSOCIATED WIND LOADS.
7. SOLAR PANELS STRUCTURAL CAPACITIES BY OTHERS
8. ALL COMPONENTS TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS
9. SITE SPECIFIC CERTIFICATIONS BY OTHERS
10. IT IS ASSUMED THE USERS OF THESE DRAWINGS HAVE SUFFICIENT ENGINEERING KNOWLEDGE TO INTERPRET AND APPLY THESE SPAN TABLES AND LIMITATIONS
11. ROOF ZONING REQUIREMENTS MUST BE FOLLOWED AS DETAILED ON THIS DRAWING
12. LINEAR INTERPOLATIONS FOR TABLE VALUES ARE ALLOWED
13. RAILS TO BE FIXED TO PURLINS ONLY, WITH VORTEXT™ CYCLONE UNIVERSAL SCREWS OR EQUIVALENT WITH A MIN. OF 3.5KN PULL OUT CAPACITY BASED ON A MIN. OF 1.5mm PURLIN THICKNESS

RESIDENTIAL HIP ROOF ZONES (TO AS4055 LIMITS)

LEGEND

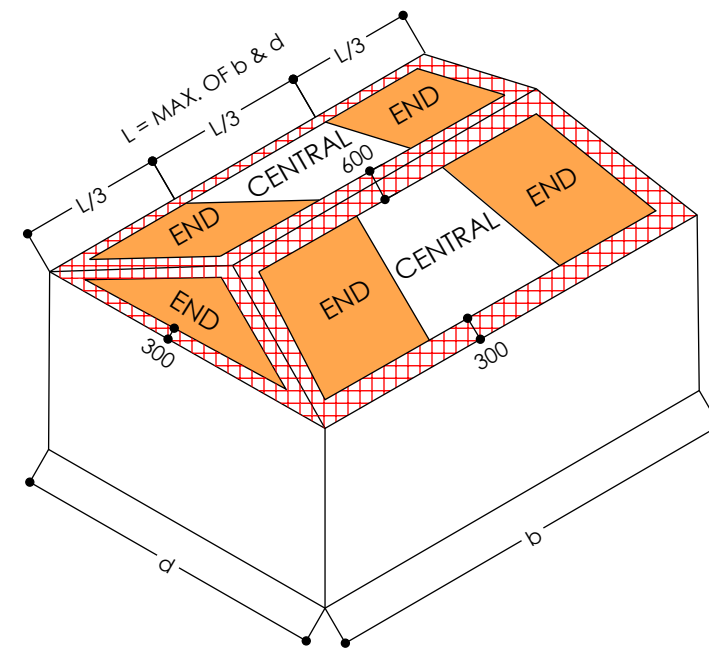
- CENTRAL ZONE (UNHATCHED)
- END ZONES
- EXCLUSION ZONE (DO NOT INSTALL PANELS)



HIP ROOF ZONES
WHEN ANY OF h/b OR h/d > 0.50

LEGEND

- INTERIOR ZONE (UNHATCHED)
- EDGE ZONES
SPACING = INTERIOR ZONE SPACING / 2.0
- EXCLUSION ZONE (DO NOT INSTALL PANELS)



HIP ROOF ZONES
WHEN BOTH h/b & h/d ≤ 0.5



DESIGN CRITERIA

1. WIND PARAMETERS IN ACCORDANCE WITH AS1170.2-2021:
 - o FLUSH MOUNTED SOLAR PANELS (PARALLEL TO PITCH)
 - o GAP BETWEEN TOP OF ROOF AND UNDER-SIDE OF PANELS TO BE 50mm TO 150mm
 - o IMPORTANCE LEVEL 2
 - o TERRAIN CATEGORIES 2, 2.5 AND 3 ONLY
 - o Ms, Mt, Md, Mc FACTORS TAKEN AS 1.0
 - o DESIGN LIFE 25-YEARS
 - o ANNUAL PROBABILITY OF EXCEEDANCE FOR ULTIMATE WIND LOADS 200-YEARS
 - o MEAN ROOF HEIGHT FROM ROAD LEVEL UP TO 30m
 - o ANY BUILDING WIDTH (b) AND BUILDING DEPTH (d)
 - o HIP AND GABLE ROOFS WITH PITCHES UP TO 30°
2. A MINIMUM OF 12kg/m² IS CONSIDERED FOR THE SOLAR PANELS, RAILS AND FIXINGS SELF-WEIGHT AGAINST THE UPLIFT. NO OTHER DEAD LOADS CONSIDERED
3. ULTIMATE LOAD COMBINATION OF 0.90 DEAD LOADS + 1.0 ULTIMATE WIND LOADS IS CONSIDERED FOR UPLIFT
4. WATER PONDING, SEISMIC, SNOW, HAIL LOADING AND CORROSION EXCLUDED. PERMANENT WORKS STRUCTURAL ENGINEER TO CONFIRM

COLOUR NAMES

- WHITE
- BLUE
- VIOLET
- RED

CLIENT	SCHLETTER GROUP	THIS DESIGN AND DRAWING, IN ANY FORM, ARE THE EXCLUSIVE PROPERTY OF SCHLETTER AUSTRALIA AND SHALL NOT BE REPRODUCED IN WHOLE OR IN PART BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF SCHLETTER AUSTRALIA. THIS DESIGN MAY NOT BE USED BY OR DISCLOSED TO ANY OTHER PERSON OR ORGANISATION FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF SCHLETTER AUSTRALIA.	DESIGNER - AA			STATUS - ISSUED FOR CONSTRUCTION
PROJECT	RAPID2+ PRO SML		APPROVED - RW			DRAWING NUMBER & TITLE -
231264	SPAN TABLES		SCALE - NTS - A3			S01 - NOTES & ROOF ZONES
REV	DESCRIPTION	APP'D	DATE			REV
						C1

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