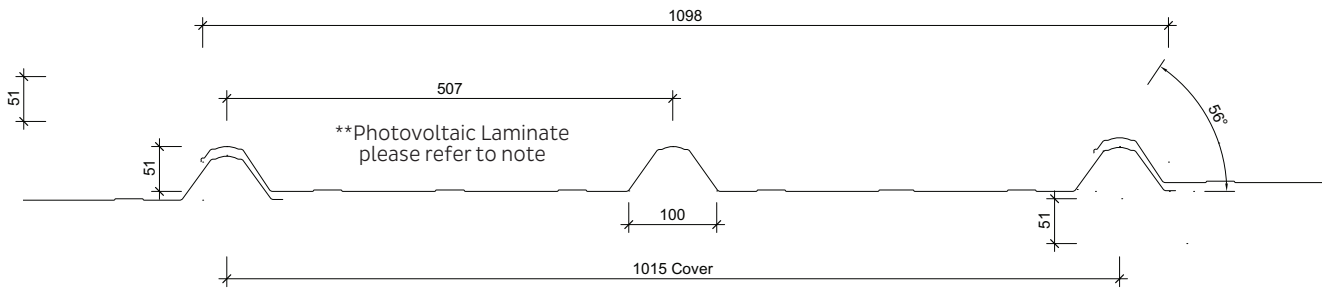


DIMOND SOLAR-RIB® PROFILE INFORMATION



Cover (mm)	1015
Sheet width (mm)	1098
Minimum Pitch	3° (approx. 1:20)

All dimensions given are nominal

Sheet Tolerances

Sheet width: ±5mm

Sheet width for aluminium +0, -15mm. If sheet cover widths are critical, advise Dimond® Roofing at time of order.

Sheet length: +10, -0mm. For horizontal wall cladding where notified at time of order of intended use, tighter tolerances can be achieved +3, -0.

Material Options	Steel	Aluminium
Thickness (BMT) mm	0.55	0.90
Nominal weight/lineal metre (kg/m)	5.55	2.96
Drape curved roof - min. radius (m)	90	90
Purlin spacing's for drape curved roof (m)(1)	1.500	1.500
Machine curved - roof min. radius (mm)	n/a	n/a
Unsupported overhang (2)(mm)	50	50

(1) Recommended maximum purlin spacing's at minimum radius.

(2) Based on 1.1kN point load support, but not intended for roof access.

n/a not available

Roll-forming facilities at: Auckland and Invercargill

Sheet lengths: Solar-Rib® is custom run to order. Where long sheets are used, consideration must be given to:

- Special transportation licences for sheet lengths over 25m
- Site access for special lifting equipment
- Fixing techniques to accommodate thermal expansion

This roofing system is to be installed by RoofingSmiths or a Dimond Recommended Installer.

**NOTE

Photovoltaic laminates (PVL's) can be installed on to this profile at an additional cost when the cladding is completed and other trade have finished or it can be installed at a later date.

Laminates are 348mm wide and available in 5.910mm and 2.585mm lengths. Lead time of 16 weeks

Laminates cannot be installed on raking sections of roofs

Consult with Dimond® Roofing 0800 Dimond (0800 346 663) for further information

OIL CANNING: Oil Canning is the visible waviness in the flat areas of metal roofing and walling. Oil canning produces an aesthetic effect inherent in standing seam tray profiles and profiles/flashings with wide flat elements. It does not cause detriment to product performance.

Oil canning can occur during the forming and installation processes and during thermal expansion of the roof sheeting during its life cycle. The effect can be more or less pronounced depending on **differing light and sun angle conditions and the coating gloss levels.**

For Solar-Rib, oil canning can be reduced by the use of vented roof underlay (e.g. Tyvek Metal) and/or the use of backer rods under the tray. There are several options to reduce the oil canning effect in tray type profiles and flashings, for example, a) increasing the thickness of the material, b) using stiffening swages in wide flat elements and c) limiting flat elements to less than 150mm width. For further information, please refer to the New Zealand Metal Roof and Wall Cladding Code of Practice, Section 12.3.

SOLAR-RIB® LIMIT STATE LOAD/SPAN CAPACITY CHART

(span in mm, distributed serviceability loads in kPa)

Serviceability Category

		Unrestricted-Access Roof	Restricted-Access Roof		Non-Access Roof or Wall	
G550 Steel 0.55mm	End Span (mm)	700	1000	1300	1500	1700
	Internal Span (mm)	1000	1500	1900 ^(x)	2300 ^(x)	2300 ^(y)
	Serviceability	2.5	1.7	1.7	1.2	1.2
5052, H34 Aluminium 0.90mm	End Span (mm)		700	800	1000	1300
	Internal Span (mm)		1000	1200	1500	1900 ^(x)
	Serviceability		2.3	1.7	1.5	1.0

Notes

- In any category, spans above the maximum shown should not be used. Category 2 maximum spans are based on static point load testing as a guide, and further limited by practical experience of roof performance under dynamic foot traffic loads. Category 3 maximum spans are limited as a guide to achieving satisfactory appearance for wall cladding.
- Loads given are based on 2 screw fasteners/sheet/purlin (x) = one stitching screw between mid-span purlins, (y) = two stitching screws per mid-span purlin.
- Loads given are limited to a maximum of 2.5kPa. If design requirements exceed this limit, Contact Dimond® Roofing for specific advice.
- N/R = not recommended
- End span capacities given in this table are based on the end span being 2/3 of the internal span.

7. Design Criteria for Limit State Capacities

a) Serviceability Limit State

No Deflection or permanent distortion that would cause unacceptable appearance, side lap leakage or water ponding, due to foot traffic point loads, inward or outward wind loads or snow loads.

b) Ultimate Limit State

No pull through of fixings or fasteners withdrawal resulting in sheet detachment due to wind up-lift (outward) loads.

7. System Design

The span capacity of Solar-Rib® is determined from the Solar-Rib® Limit State Load/Capacity Chart using the section of the chart appropriate to grade and type of material, and to the category of serviceability selected from the three categories below. Serviceability loads have been derived by test to the NZMRM testing procedures. To obtain an ultimate limit state load we recommend factoring the serviceability load up by 1.4 in-line with NZMRM guidelines. The capacities given do not apply for cyclone wind conditions.

Serviceability Requirements

While these categories are given for design guidance to meet the serviceability limit state criteria, foot traffic point load damage may still occur if there is careless placement of these point loads.

Service Category	Description
1. Unrestricted-access roof	Expected regular foot traffic to access the roof for maintenance work and able to walk anywhere on the roof. No congregation of foot traffic expected.
2. Restricted-access roof	Expect occasional foot traffic educated to walk only on the purlin lines, in the profile pan. Walkways installed where regular traffic is expected, and "Restricted Access" signs placed at access point.
3. Non-access roof or wall	Walls or roofs where no foot traffic access is possible or permitted. If necessary, "No Roof Access" signs used.

8. Wind Pressure Guide

As a guide for no-specific design the following S.L.S. design loads in accordance with the MRM Roofing Code of Practice can be used for buildings less than 10m high, otherwise AS/NZS 1170.2 should be used

Low wind zone = 0.68kPa, Medium wind zone = 0.93kPa, High wind zone = 1.32kPa, Very high wind zone = 1.72kPa and Extra high wind zone = 2.09kPa.

Solar-Rib® Design

Fasteners that are used to secure Solar-Rib® down as a roof cladding must penetrate into the purlin a minimum of 30mm for timber and 6mm for steel purlins. For wall cladding the fasteners must be long enough to pass through the substrate, cavity batten and into the solid framing by 30mm for timber and 6mm for steel.

Fixing Requirements				
Purlin or frame material	Roof		Wall (over vented cavity batten, 18 - 25mm thick) Pan fixed	
	Base material		Base material	
	Steel ^(1,2,3,4)	Aluminium ^(1,2,3,4)	Steel	Aluminium
Timber	14g x 100mm Type 17 Timbertite with 36mm EPDM washer and load spreading washer	Type 17 304 Grade stainless steel 14g x 90mm Timbertite with 36mm EPDM and load spreading washer	14g x 50mm Type 17 Timbertite complete with neo	14g x 55mm Alutite with a clearance hole and complete with bonded washer
Steel	14g x 90mm Steeltite with 36mm EPDM washer and load spreading washer	14g x 90mm Steeltite with 36mm EPDM washer and load spreading washer	14g x 50mm Steeltite complete with neo	Stainless steel grade 304 - 12g x 50mm Steeltite with hole and complete with bonded washer

1. A 30mm bonded (BRA) washer may be used in low and medium wind zones and when the sheet length is less than 7m. Periphery and valley lines must still have a load spreading washers used.
2. When using bonded washers remove the neo from the fastener prior to installing.
3. Were photo-voltaic laminates are to be used an extra row of purlins is required 600mm down from the ridge line and up from the bottom purlin.
4. When using Load Spreading Washers a 12mm (clearance) hole is to be drilled for the 36mm diameter EPDM seal.

For screw size range and fastener/washer assembly refer to Section 2.2.3.1

The Limited State Load/Span Capacity Chart is on 2 screw fasteners/sheet/purlin with the use of load spreading

Long spans may require specification and use of side lap stitching screws – Section 2.3.2 C Installation

Information: Layout and Fastenings.

Design Examples

Restricted access roof, 0.55mm G550 steel Solar-Rib® has a maximum end span of 1300mm and a maximum internal span of 1900mm. The following distributed load capacities apply.

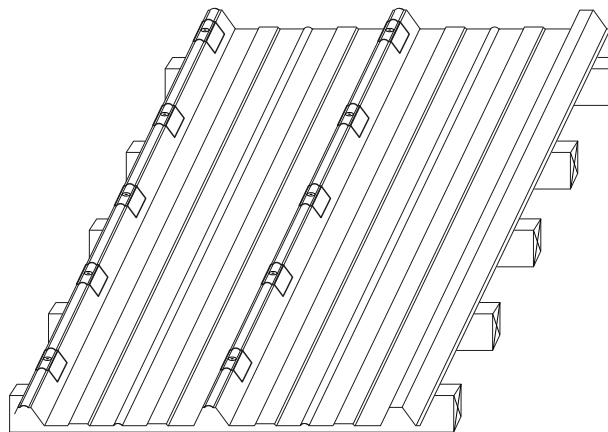
	2 fasteners/sheet
End Span	1300mm
Internal Span	1900mm
Serviceability	1.7kPa

Solar-Rib® Fastener Layout Options

2 fasteners per sheet with 36mm EPDMs and load spreading washers.

Drill 12mm holes to accommodate the EPDM.

High wind zones and above, and all wind zones for sheets longer than 7m.



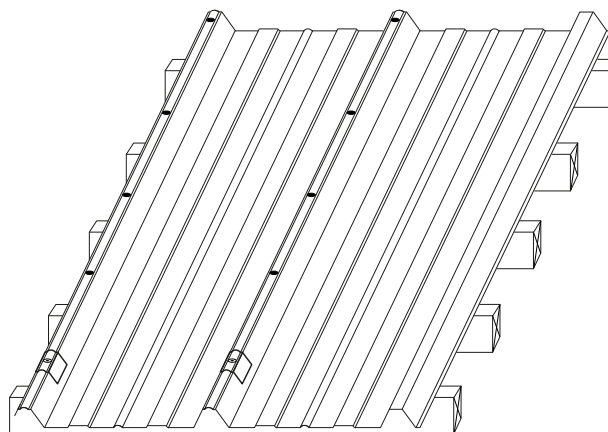
Sheet end

Solar-Rib® Fastener Layout Options

2 fasteners per sheet with 36mm EPDMs and load spreading washers at the sheet end and 30mm bonded (BRA) washer on the remaining.

Drill 12mm holes to accommodate the EPDM.

Low and medium wind zones and when sheet length is less than 7m.



Sheet end