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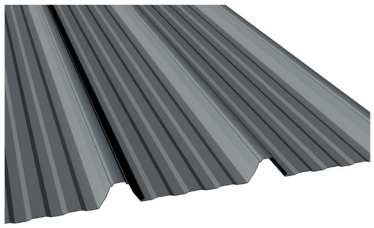
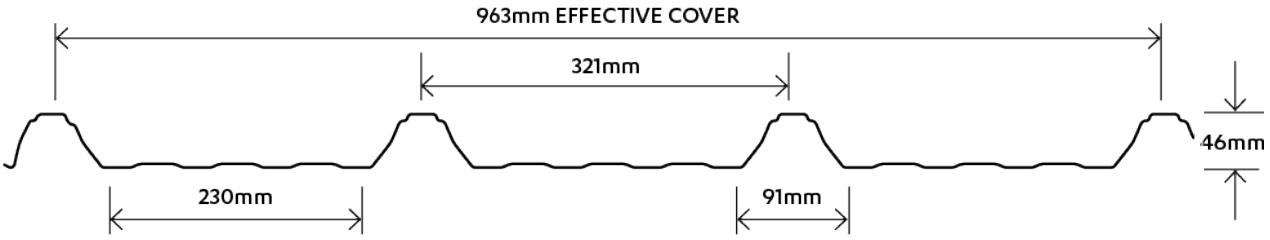
ST963

PRODUCT TECHNICAL STATEMENT





ST963 is a profiled metal roofing and cladding profile manufactured by Steel & Tube, having 4 trapezoidal ribs of 46mm in height. Unique design enhancements stiffen the rib shape to provide industry-leading resistance to both wind uplift and point load distortion.

DESIGN GUIDELINES

- **Minimum Pitch:** 3°. Roof runs in excess of 65 metres should be checked for water runoff capacity.
- **Effective Cover:** 963mm
- **Applications:** Residential, Industrial/Commercial Roofing & Wall Cladding.
- **Available nationwide:** Manufactured in Auckland and Christchurch.
- **Materials:** Specify coating and material based on environmental conditions in accordance with NZS E2/AS1. Available in metallic coated and pre-painted steel in 0.40mm and 0.55mm BMT (base metal thickness), and pre-painted aluminium in 0.90mm BMT. Matching translucent sheeting is available in G.R.P. (fibreglass).
- **Durability:** All material selections must be compatible with prevailing environmental conditions and adjacent materials. Areas not exposed to rain washing will require programmed maintenance.

NEW ZEALAND BUILDING CODE COMPLIANCE

The product will, if used in accordance with Steel & Tube's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- Clause B1 Structure: Performance B1.3.3(a), B1.3.3(b), B1.3.3(g), B1.3.3(h)
- Clause B2 Durability: Performance B2.3.1(b), B2.3.1(c)
- Clause C3 Fire affecting areas beyond the fire source: Performance C3.9
- Clause E2 External moisture: Performance E2.3.1, E2.3.2
- Clause G12 Water supplies: Performance G12.3.2
- Clause F2 Hazardous building materials

To comply with the performance clause of NZBC clause E2 roof cladding to be installed in accordance with:

- Acceptable Solution NZS E2/AS1
- NZ Metal Roofing Manufacturers Code of Practice
- Steel & Tube specifications
- Steel & Tube details are available on ***steelandtube.co.nz***

Steel & Tube ST963 is not subject to a warning or ban under section 26 of the New Zealand Building Act 2004.

0800 427 663 steelandtube.co.nz

Disclaimer: This data should be used as a guide only, for exact applications, engage the services of a qualified engineer.

PRODUCT TECHNICAL STATEMENT
NOV 2023

ENVIRONMENTAL PRODUCT DECLARATION

All Steel & Tube roofing and cladding profiles are accredited with Environmental Choice and New Zealand Made when manufactured from COLORSTEEL®.

Refer to **COLORSTEEL® Environmental Product Declaration Brochure**.

COLORSTEEL®

Pre-painted and Resin Coated Steel Products
Licence No. 5717145

NEW ZEALAND MADE

MAINTENANCE

Regular maintenance is required to maximise the lifetime of metal roofing and wall cladding products. Areas not exposed to rain washing such as soffits, wall cladding under eaves, undersides of gutters, fascias, sheltered areas such as garage doors will require programmed maintenance.

Refer to **New Zealand Steel Maintenance Recommendations Bulletin & Environmental Categories, Warranty & Product Maintenance Recommendations Brochure**.

When access to the roof is necessary after construction, it is best practice to place foot in the pan of the profile when walking up the roof and follow purlin lines when traversing roofs. If ribs are too close together, so workers cannot place their feet in the pan, their weight must be spread evenly over at least two ribs when walking up the roof.

PERFORMANCE DATA

METAL CLADDING TESTING

Metal Cladding Testing is carried out in accordance to the NZMRM Code of Practice section - Testing and MRM Standards.

MATERIAL	MASS kg/lm
G550 0.40 BMT Steel	4.1
G550 0.55 BMT Steel	5.55
H36 0.90 BMT Aluminium	2.96

RECOMMENDED POINT LOAD LIMIT

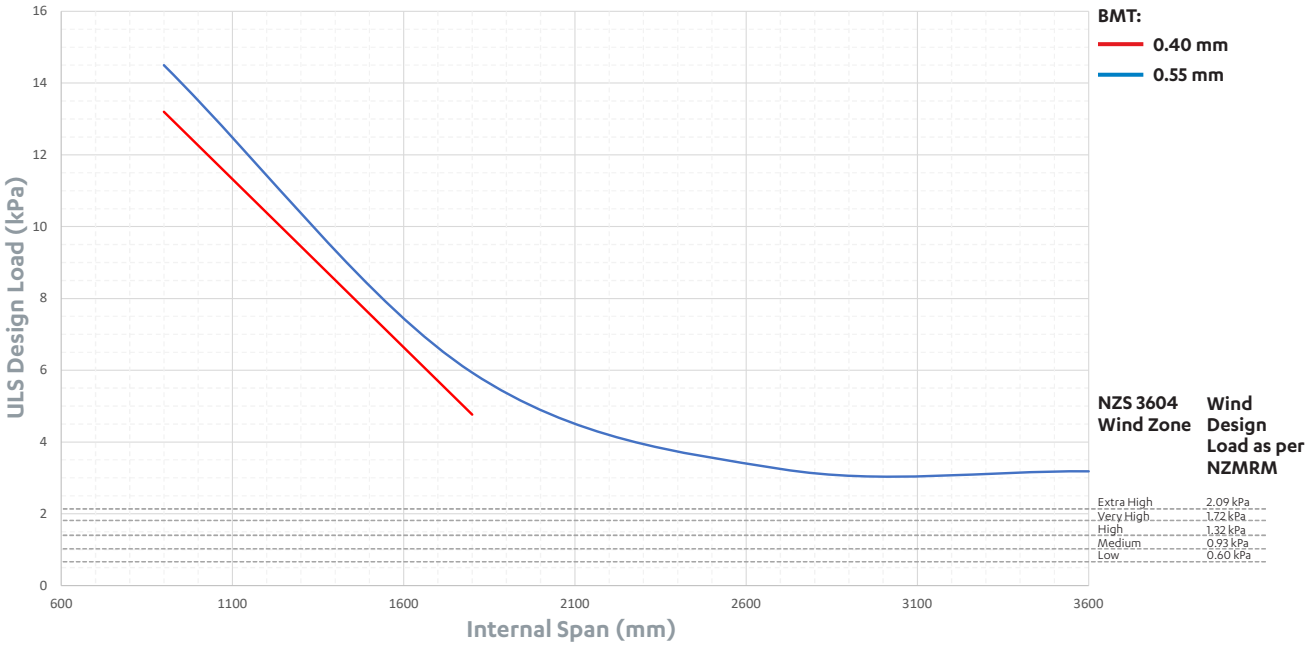
G550 0.40 BMT STEEL POINT LOAD LIMIT		SPAN mm
Type A	Unrestricted Access	900
Type B	Restricted Access	1800

G550 0.55 BMT STEEL POINT LOAD LIMIT		SPAN mm
Type A	Unrestricted Access	3000
Type B	Restricted Access	3450

H36 0.90 BMT ALUMINIUM POINT LOAD LIMIT		SPAN mm
Type A	Unrestricted Access	2500
Type B	Restricted Access	3000

Refer to section Roof Traffic - NZ Metal Roofing Manufacturers Code of Practice.

G550 STEEL ST963 FIXED AT EVERY RIB WITH LOAD SPREADING WASHER ULTIMATE LIMIT STATE (ULS) WIND LOAD GRAPH



Notes:

- ST963 shall be installed in accordance to NZMRM CoP load span data above for the appropriate Wind Zone.
- The graph is for intermediate spans only. As per NZMRM Code of Practice, end spans follows a 2:3 end to internal span ratio for these design loads to be applicable.

STEEL ROOFING PERFORMANCE DATA (FIXED AT EVERY RIB WITH LSW UNLESS NOTED)

Ultimate Limit State (ULS) kPa

MATERIAL	SPAN mm				
	900 (NO LSW)	900	1800	2700	3600
G550 0.40 BMT Steel	3.75	>13.2	4.76	-	-
G550 0.55 BMT Steel	6.15	>14.5	5.93	3.25	3.18

ALUMINIUM ROOFING PERFORMANCE DATA (LSW)

Ultimate Limit State (ULS) kPa

MATERIAL	SPAN mm		
	2500	2800	3000
H36 0.90 BMT Aluminium	3.23	2.7	2.39

WALL CLADDING PERFORMANCE DATA (TWO FIXINGS PER PAN)

Ultimate Limit State (ULS) kPa

MATERIAL	SPAN mm	
	1800	2700
G550 0.40 BMT Steel	5.01	2.66

FASTENERS

For roof and wall cladding, minimum 30mm embedment is required for screws into timber or three threads engagement for screws into steel. When fastening through a non-structural building element such as cavity battens, sarking or thermal breaks, increase the screw length to ensure a minimum of 30 mm penetration into timber structure or three full screw threads engagement through a steel support.

The durability of fasteners should equal or exceed that of the material being fastened, and the fastener metal or coating must be compatible with the cladding material if in contact. Refer to NZS E2/AS1 Table 20.

STEEL AND ALUMINIUM ROOFING COMMON FIXINGS[1] (RIB-FIXED)

ROOF CLADDING MATERIAL	TIMBER PURLINS	STEEL PURLINS OR GIRTS UP TO 2.5mm	STEEL PURLINS OR GIRTS 2.5mm TO 4.5mm	WASHERS (IF REQUIRED)
Steel	14g x 100mm TI7 with neoprene seals	14g x 65mm dual point or 12g x 65mm steel fix with neoprene seals	12g x 65mm steel fix with neoprene seals	Load spreading profiled washer and 30mm EPDM sealing washer
Aluminium	14g x 90mm 316 stainless steel T17 (requires washers)	14g x 70mm 304 stainless steel SDS (requires washers)	14g x 70mm 304 stainless steel SDS (requires washers)	Aluminium load spreading profiled washer and 30mm EPDM sealing washer

STEEL AND ALUMINIUM WALL CLADDING COMMON FIXINGS[1] (PAN-FIXED)

ROOF CLADDING MATERIAL	TIMBER PURLINS	STEEL PURLINS OR GIRTS UP TO 2.5mm	STEEL PURLINS OR GIRTS 2.5mm TO 4.5mm	WASHERS (IF REQUIRED)
Steel Direct Fix	12g x 40mm TI7 with neoprene seals	12g x 20mm steel SDS with neoprene seals	12g x 20mm steel SDS with neoprene seals	Load spreading profiled washer and 30mm EPDM sealing washer
Steel On 20mm Cavity Batten	14g x 55mm dual point or 12g x 55mm T17 with neoprene seals	14g x 35mm dual point or 12g x 45mm steel SDS with neoprene seals	12g x 45mm steel SDS with neoprene seals	Load spreading profiled washer and 30mm EPDM sealing washer
Aluminium Direct Fix	12g x 35mm 304 stainless steel T17 (requires washers)	12g x 25mm 304 stainless steel SDS (requires washers)	12g x 25mm 304 stainless steel SDS (requires washers)	Aluminium load spreading profiled washer and 30mm EPDM sealing washer
Aluminium On 20mm Cavity Batten	12g x 55mm 304 stainless steel T17 (requires washers)	12g x 45mm 304 stainless steel SDS (requires washers)	12g x 45mm 304 stainless steel SDS (requires washers)	Aluminium load spreading profiled washer and 30mm EPDM sealing washer

1 In a Category 5 environment, a Class 5 fixing is recommended.

SPECIFICATIONS

Recommended specifications, including matching Steel & Tube Profiled Natural Lighting are available in the branded sections of Masterspec, SMARTSPEC or from your local Steel & Tube branch or visit ***steelandtube.co.nz***

DESIGN DETAILS

Design details covering many applications are available on ***steelandtube.co.nz*** in .DWG, .PDF and .RVT under each product section.

THERMAL NOISE

All profiled metal roofs and wall cladding will exhibit thermal roof noise at times. Thermal roof noise is caused by the roof expanding or contracting due to temperature fluctuation and darker colours may increase thermal noise, this is covered in the NZMRM Code of Practice.

As stated in the **MBIE document - Guide to tolerances, materials and workmanship in new residential construction 2015**, "Noise from the thermal expansion of the metal roofing is normal and should be expected."

OIL CANNING

Oil canning or undulations in the pan is an architectural feature that may occur in flat areas of metal claddings. However, this feature does not affect the strength or performance of the cladding. Oil canning may occur during its roll-forming process and/or installation stage and during the product's thermal expansion.

IMPORTANT PUBLICATIONS

For your installation to perform to its potential, it is essential that it is designed, installed and maintained in accordance with good trade practice. For further information, please refer to:

- NZS E2/AS1
- BRANZ: Good Profiled Metal Roofing Practice
- MBIE - Guide to tolerances, materials and workmanship in new residential construction 2015
- NZMRM: New Zealand Metal Roofing and Wall Cladding Code of Practice
- NZMRM: Installation Guide – Metal Long Run Roofing and Cladding
- RANZ: How To Guides
- Steel & Tube Roofing Solutions Product Guide
- New Zealand Steel: Installers Guide
- New Zealand Steel: Maintenance Recommendations Bulletin
- New Zealand Steel: Environmental Categories, Warranty & Product Maintenance Recommendations Brochure

INSTALLERS

A list of local installers for your area and contract type is available from your local Steel & Tube branch or visit ***steelandtube.co.nz/installer***

TRADEMARK NOTE

Trademarks apply to the following products presented in this publication: COLORSTEEL, Masterspec and SMARTSPEC.

CALL US TODAY

To purchase our products: **0800 427 663**

Sales email: **sales@steelandtube.co.nz**

Technical helpline: **0800 333 247**

Technical email: **roofing@steelandtube.co.nz**

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steelandtube.co.nz

Disclaimer: This data should be used as a guide only, for exact applications, engage the services of a qualified engineer.