ROOFLOGIC

Ultratherm MSR

SYSTEM DATASHEETS

- RL LinerDeck
- RL BaseDeck
- RL Perforated LinerDeck
- RL Vapour Control Layer
- RL Acoustic Board
- RL PIR Board (FF)
- RL Stonewool
- RL Underlay
- RL TopDeck T
- RL TopDeck T 925
- RL TopDeck S
- RL TopDeck C
- RL Vented Comb Filler

ROOFLOGIC

TECHNICAL DATASHEET

RL LINERDECK

For Ultratherm MSR Systems

RL LinerDeck has been designed and engineered to provide a steel liner for the subsequent installation of the Ultratherm MSR roof system

RL LinerDeck

DESCRIPTION

RL LinerDeck is a metal deck substrate with a trapezoidal profile.

When installed according to RoofLogic specifications, the RL LinerDeck supports the components of the RL Ultratherm MSR system and effectively withstands the point loads encountered during the installation process.

BENEFITS

- Programme benefits : Installation of the RL LinerDeck provides early close-in of the building to protect the interior from weather.
- Health and safety: RL LinerDeck offers a safe working platform for installers, reducing the risk of falls from height post-installation. A continuous LinerDeck also protects tradespeople working within the building from the risk of falling objects.
- Aesthetics: When the RL LinerDeck is left exposed to the interior, it can be provided in a range of colours.

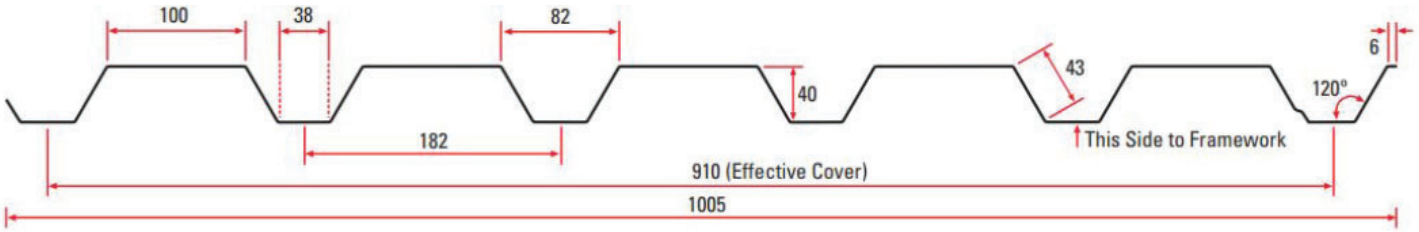
MATERIAL AND FINISH

RL LinerDeck is manufactured in minimum 0.50 mm BMT.

The standard finish for RL LinerDeck is a plain zinc aluminium. This ZINCALUME® coated steel conforms to AS1397:2011 and is Red List Free.

When exposed internally, the RL LinerDeck can be manufactured with a coloured finish. The standard colour for the exposed internal face is Titania, with additional colours from the ColorSteel and ColorCote ranges available upon request (subject to minimum order quantities).

Red List Free



INSTALLATION

The RL LinerDeck can be installed over timber or steel purlins. The deck is to be secured at every purlin in every pan. The following fixings are to be used when fixing RL LinerDeck to purlins:

Timber Purlins	12- 11x40 Class 4 Type 17 timbertites with neos
Steel Purlins up to 1.5 mm	12- 14x20 Class 4 Steeltites with Neos
Steel Purlins 1.5 mm - 4.5 mm	12- 14x20 Steeltites with Neos
Steel purlins 4.5 mm-12 mm	12- 24x32 Class 4 Steeltites, Series 500 with Neos

INSTALLATION LIMITATIONS

It is important to establish compatibility of the LinerDeck with the purlin material or other structural elements that the LinerDeck may be installed over. If CCA (Copper Chrome Arsenic) timber is used for the purlins, install a separation strip of RL Butyl Lap Tape between the timber and RL LinerDeck. Please contact RoofLogic if it is necessary to confirm material compatibility and/or refer to material compatibility matrix in NZ Metal Roofing code of practice.

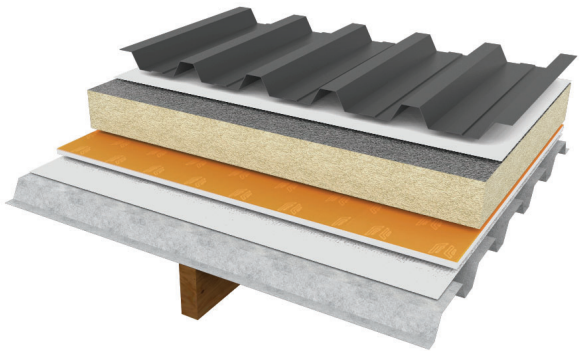
The maximum unsupported overhang of the LinerDeck is 200 mm.

RL LinerDeck exposed

RL BASEDECK

For Ultratherm MSR Systems

RL Structural Base Deck has been designed and engineered to provide a structural steel substrate.



RL BaseDeck running perpendicular to roof fall

DESCRIPTION

The RL Structural BaseDeck is purpose-built, designed to serve as a structural steel substrate for the installation of the RoofLogic Ultratherm MSR roof system.

BENEFITS

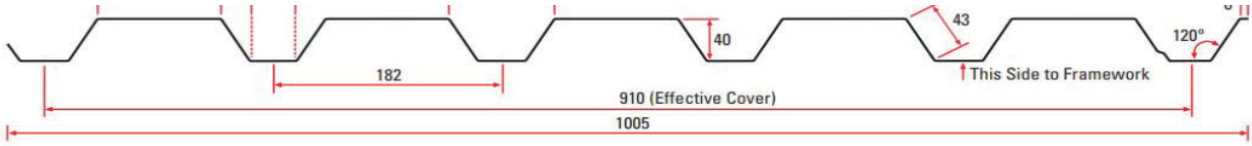
When properly installed according to RoofLogic specifications, the RL Structural Base Deck offers several important benefits:

- Wind Uplift Resistance: The RL Structural BaseDeck is engineered to resist wind uplift forces, ensuring it can withstand strong winds and adverse weather conditions.
- Deflection Limits Compliance: When used as a substrate for the RoofLogic system, the RL Structural BaseDeck meets the maximum deflection limits set for structural steel base decks.
- Fastener Withdrawal Resistance: The RL BaseDeck serves as the attachment point for mechanical fasteners in the RoofLogic MSR system, ensuring that the fasteners remain securely in place.

MATERIAL AND FINISH

The standard finish for RL BaseDeck is a ZINCALUME, zinc-aluminium coating applied to 0.75 BMT steel.

When the RL BaseDeck is left exposed inside the building, designers can choose a colour coating for the underside of the BaseDeck. The standard colour for RL BaseDeck is Colorsteel Titania, with other colors available upon request (minimum order quantity applies).



RL BaseDeck installed

INSTALLATION

The RL Structural BaseDeck can be installed over rafters or trusses. The deck is to be secured at every truss/rafter and through each pan of the base deck profile. Stitch laps at 300 mm centres.

The below table are the fixings to be used when fixing RL BaseDeck to purlins:-

Timber	12- 11x40 Type 17 Timbertites with neos
Steel up to 4.5 mm	12- 14x20 Steeltites with Neos
Steel 4.5 mm-12 mm	12- 24x32 Steeltites, Series 500 with Neos

INSTALLATION LIMITATIONS

It is important to establish compatibility of the BaseDeck with the structural elements that it may be installed over. Please contact RoofLogic if it is necessary to confirm material compatibility and / or refer to material compatibility matrix in NZ Metal Roofing code of practice.

RL BaseDeck exposed with Skylights

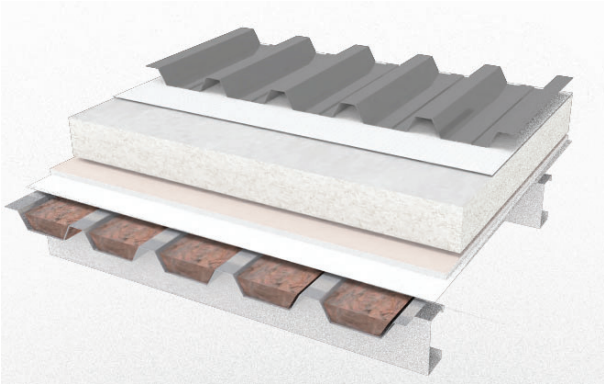
ROOFLOGIC

TECHNICAL DATASHEET

RL PERFORATED LINERDECK

For Ultratherm MSR Systems

RL Perforated LinerDeck has been designed and engineered to provide an acoustically absorbent steel liner for the subsequent installation of the RoofLogic Ultratherm MSR roof system.



DESCRIPTION

The RL Perforated LinerDeck is designed to be left exposed to the interior. When combined with acoustic infill in the perforated troughs, it greatly improves internal sound absorption and effectively controls Reverberation Time.

The Perforated LinerDeck serves as an aesthetically pleasing and robust ceiling lining offering sound absorption performance (NRC 0.7 with Glasswool). In addition to its acoustic benefits, it serves to support system components and helps distribute point loads encountered during installation.

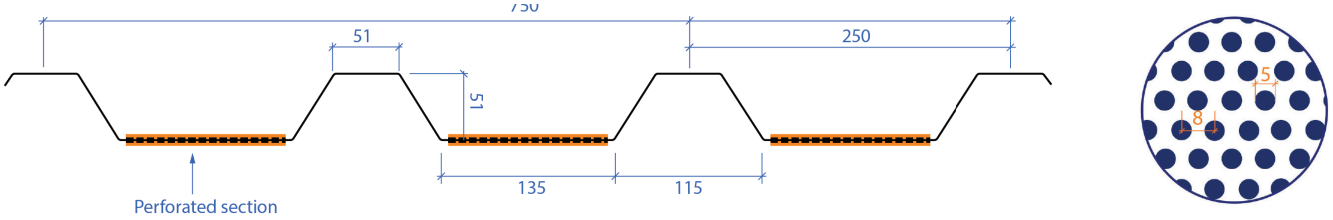
BENEFITS

- Programme benefits : Installation of the RL Perforated LinerDeck with Vapour Control Layer provides early close-in of the building to protect the interior from weather.
- Health and Safety: RL Perforated LinerDeck provides a secure working platform for installers, minimising the risk of falls from heights post-installation. A continuous LinerDeck also protects tradespeople working within the building from the risk of falling objects.
- Intergrated roof and ceiling assembly: RL Perforated LinerDeck provides structure to support FiberthermX roof components and provides a prefinished robust internal acoustic lining.
- Impact proof: The RL Perforated LinerDeck can withstand knocks and impacts from balls when used in a gymnasium or sports center.
- Aesthetics: RL LinerDeck is left exposed to the interior, and can be provided in a range of colours. It serves as a pre-finished acoustic ceiling removing the need for a suspended ceiling.

MATERIAL AND FINISH

RL Perforated LinerDeck is a zinc/aluminium/magnesium coated trapezoidal profiled liner manufactured in thickness 0.75 BMT.

The RL Perforated LinerDeck is manufactured in two standard colours “off white” (RAL9002) and black (RAL 9005).



RL Perforated LinerDeck

INSTALLATION

The RL Perforated LinerDeck can be installed over timber or steel purlins. The deck is to be secured at every purlin in every pan of the LinerDeck. The following fixings are to be used when fixing RL Perforated LinerDeck to purlins:

Timber Purlins	12- 11x40 Class 4 Type 17 Timbertites with neos
Steel Purlins up to 1.5 mm	12- 14x20 Class 4 Steeltites with neos
Steel Purlins 1.5 mm – 4.5 mm	12- 14x20 Steeltites with neos
Steel Purlins 4.5 mm-12 mm	12- 24x32 Class 4 Steeltites, Series 500 with neos

INSTALLATION LIMITATIONS

It is important to establish compatibility of the LinerDeck with the purlin material or other structural elements that the LinerDeck may be installed over. For example, if CCA treated timber is used, a separation strip (eg RL Vapour Control Strip) must be installed between the timber and the LinerDeck. Please contact RoofLogic if it is necessary to confirm material compatibility and / or refer to material compatibility matrix in NZ Metal Roofing code of practice.

ACOUSTIC PERFORMANCE

RL Perforated LinerDeck and RL Acoustic Infills	
Noise Reduction Coefficent (NRC)	0.75
Sound Absorption Average (SAA)	0.79
Weighted Sound Absorption Coefficient	0.70 α_w

RL Perforated LinerDeck

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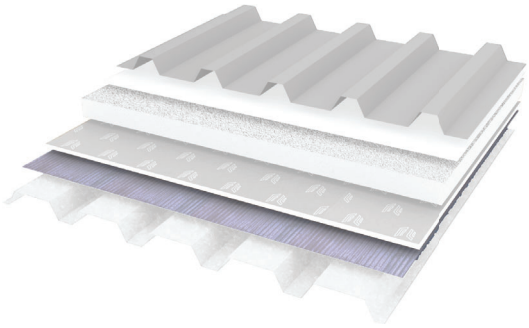
ROOFLOGIC

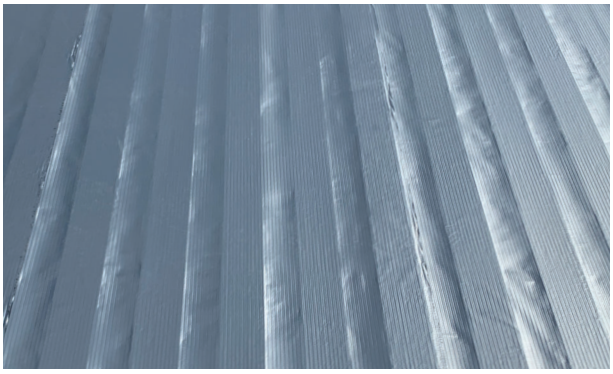
TECHNICAL DATASHEET

RL VAPOUR CONTROL LAYER (VCL)

For Ultratherm MSR Systems

RL Vapour Control Layer is a self-adhesive SBS modified vapour control layer for use in RoofLogic roofing systems.





Vapour Control Layer (VCL) over RL LinerDeck

DESCRIPTION

RL RL Vapour Control Layer (VCL) is a self-adhesive SBS (Styrene, Butadiene, Styrene) modified vapour control layer, 0.5 mm thick. It prevents moisture-laden air and water vapour from infiltrating the structural elements and insulation, where it can cause condensation and potential damage.

The RL Vapour Control Layer (VCL) is a critical component installed on the warm side of a building's insulation. By regulating vapour flow, the VCL maintains stable indoor conditions, mitigates condensation and prevents mould growth.

Additionally, the RL Vapour Control Layer offers temporary on-site protection for up to three months.

BENEFITS

- Efficient application due to cold self-adhesion.
- The robust connections at side and end laps ensure heightened weather resistance and superior vapour control.
- RL Vapour Control Layer can be used in both new and renovation projects.
- It can be applied to various substrates, including steel LinerDeck, steel base deck, plywood/timber, and concrete. Consult RoofLogic for guidance on other substrates.

MATERIAL AND FINISH

Comprised of a top layer of special foil with integrated web reinforcement, a coating of elastomeric bitumen, and a bottom layer of self-adhesive elastomeric bitumen and detachable foil.

RL Vapour Control Layer is manufactured to the highest quality according to DIN EN 13707 (*Flexible sheets for waterproofing*) with all technical values in exceedance of minimum standards.

TECHNICAL DATA

Characteristics	Test Method	Performance
Protection of the top side	-	Aluminium foil
Protection of the bottom side	-	Self-adhesive binder / anti-adhesion film
Length, m	EN 1848-1	≥ 50.0m
Width, m	EN 1848-1	≥ 1.08m
Straightness	EN 1848-1	≤ 10 mm / 5 m
Mass per unit area, kg/m²	EN 1849-1	0.5kg/m^2 ± 0.1
Thickness, mm	EN 1849-1	0.5 mm
Type of carrier	-	Glass net
Tensile properties: maximum tensile force L / T*, N/50 mm	EN 12311-1	600±120 / 600±120
Tensile properties: elongation L / T*, %	ASTM D5147	≥ 2.0 / ≥ 2.0
Determination of shear resistance of joints, kN/m	EN 12317-1	≥ 1.5kN/m
Peel resistance of joints: overlap to aluminium foil, N/50 mm	EN 12316-1	≥ 50
Water vapour transmission (Sd), m	EN 1931	≥ 1225
Dangerous substances	Does not contain dangerous Substances	

** L / T – Longitudinal / Transverse*

INSTALLATION

- Install RL Vapour Control Layer directly over RL LinerDeck or other approved substrate.
- Ensure substrate is dust and residue free. Do not install the RL Vapour Control Layer during rain or while the LinerDeck has any moisture present on the top flange or in the trough.
- The steel base (LinerDeck) does not require priming. Concrete substrates can be lightly primed with RL Bitumen Primer to improve adhesion. Plywood substrates can also be primed where required to seal the substrate and improve adhesion of the vapour control layer.
- The RL Vapour Control Layer should be installed in the same orientation as the LinerDeck, with laps falling on the flange to ensure a proper seal.
- Install RL Vapour Control Layer with 100 mm side laps and minimum 100 mm end laps.

Efficient application is feasible thanks to the cold self-adhesion property. It is possible to fully cover the substrate with the RL Vapour Control Layer without the need for a gas flame.

In cold conditions, RL Vapour Control Layer can be installed with assistance of an added heat source (hot air/light gas torch.). This can be used to heat the substrate and heat the overlap joint. Only use light heat and do not melt the bitumen adhesive.

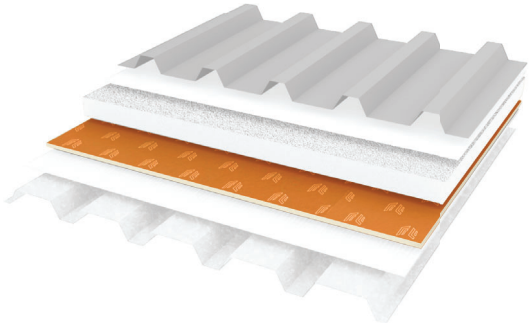
STORAGE

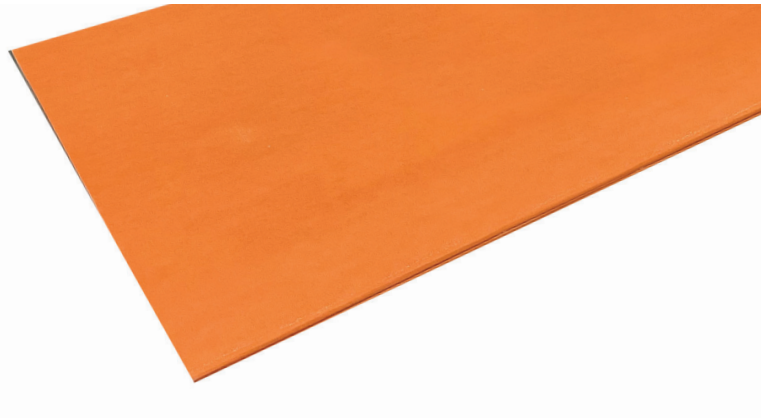
RL Vapour Control Layer should be stored vertically and protected from moisture, UV light and heat. In winter care should be taken not to expose the rolls to frost on site prior to application.

RL ACOUSTIC BOARD

For Ultratherm MSR Roof Systems

RL Acoustic Board high-density acoustic roof board.





RL Acoustic Board

DESCRIPTION

RL Acoustic Board is designed for exterior application and complies with the requirements of ASTM C1177 (*Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing*.).

Used as a component within the Ultratherm MSR range of RoofLogic Systems, RL Acoustic Board provides significant acoustic improvement in respect to STC rating and rain noise attenuation. Standard 12.5 mm RL Acoustic Board will achieve STC 38 when incorporated within a standard RoofLogic Ultratherm MSR system.

BENEFITS

- The RL Acoustic Board delivers superior acoustic performance, notably reducing rain noise and improving sound attenuation when integrated into the system.
- Engineered to provide superior strength, impact resistance and dimensional stability in Ultratherm MSR roof assemblies.
- Uniform water- resistant core ensures excellent moisture resistance. Maximum panel water absorption is 3%.
- The board has a non-combustible core when tested in accordance with AS/NZS1530.1 and AS/NZS1530.3.

MATERIAL AND FINISH

RL Acoustic Board is a high-density board with a treated gypsum core. It has a fiberglass facer to the face and the back offering exceptional water resistance.

RL Acoustic Board comes in a standard thickness of 12.5 mm. Other thicknesses available on request (MOQ applies).

Board Thickness	12.5 mm
Width, standard	1200 mm
Length, standard	2200 mm
Pieces per pallet for 1200 x 2200 sheets	35
Weight, nominal	11 kg/m^2
Average Hardness (Core)	307N
Average Nail Pull Resistance	507N
Average Flexural Strength; Bearing Edges Parallel, Face Up	418N
Permeance	0.59MNs-g
Water Absorption, %max, (per ASTM C473)	3%
Fire Performance (per AS/NZS1530.1 and AS/NZS1530.3)	Ignitability: 0, Spread of Flame: 0, Heat Evolved: 0, Smoke Developed: 3

INSTALLATION

- RL Acoustic board does not need to be mechanically attached to the purlin or LinerDeck independently of the metal TopDeck. However, if the site requirements necessitate mechanical attachment of the board, this can be done with RL 70 mm diameter washers and HD fixings.
- Wherever possible run Acoustic Board at right angles across the profile of the LinerDeck.
- Butt ends and edges tightly together.
- Quick score and snap, with no sawing or special tools required.

Keep RL Acoustic Board dry before, and during installation. RL Acoustic Board should not be installed during rain, heavy fog and any other conditions that deposit moisture on the surface of the board. Apply only as much RL Acoustic Board that can be covered by final roof system in the same day.

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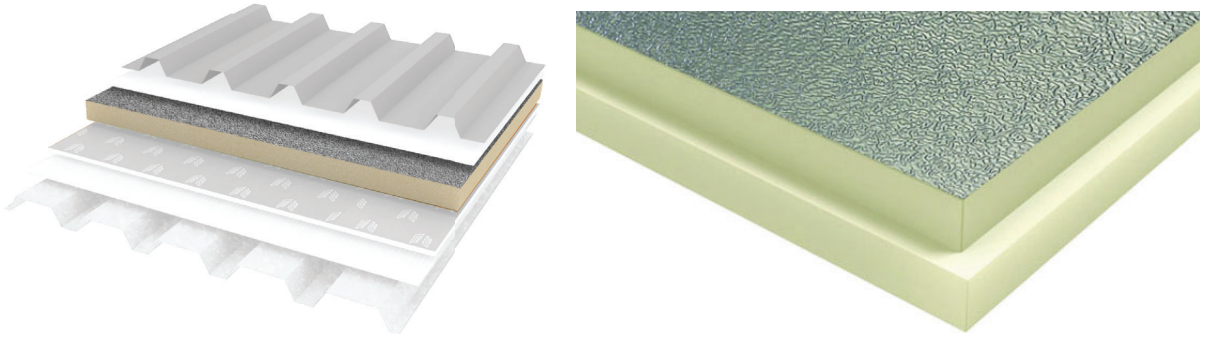
ROOFLOGIC

TECHNICAL DATASHEET

RL PIR BOARD (FF)

For Ultratherm MSR Roof and Cladding Systems

RL PIR Board is a Polyisocyanurate (PIR) rigid foam panel



PIR Board with Foil Facer (FF)

DESCRIPTION

RL PIR Board (FF) is a Polyisocyanurate (PIR) closed-cell foam panel with a multi-layered aluminium facer. It creates the rigid insulation layer providing high thermal performance in RoofLogic Ultratherm MSR systems.

RL PIR Board provides excellent thermal and fire performance and has high compressive strength for a rigid thermoset insulation board.

BENEFITS

- Lightweight boards with excellent rigidity and dimensional stability
- Excellent fire performance: RL PIR Board satisfies the requirements of AS 1366.2-1992: Combustibility of foamed plastics. When incorporated within a properly designed RoofLogic system a Group 1S rating is achieved with the RL PIR insulation core (AS ISO 9705-2003; ISO 9705:1993)
- Practically no water absorption or uptake of water by capillary action due to its structure of closed-cell foam. High compressive strength.
- High thermal value relative to thickness.
- Boards over 60 mm can be supplied with L-Shape or tongue and groove edge to further reduce thermal bridging.
- Easy to manipulate and cut during installation.
- CFC/HCFC free with zero ozone depletion potential (ODP).
- Rot-proof.
- Contains zero Volatile Organic Compounds (VOCs).

MATERIAL AND FINISH

RL PIR Board is a Polyisocyanurate closed-cell foam panel faced on both sides with a multi-layered aluminium facer.

RL PIR board is supplied in thicknesses: 40 mm, 50 mm, 60 mm, 80 mm, 100 mm and 120 mm and a range of corresponding R-Values. Boards can be layered for further thickness options. They are produced as 1195 x 2285 mm boards.

THERMAL PROPERTIES

PIR Thickness	40 mm	50 mm	60 mm	80 mm	100 mm	120 mm	140 mm	150 mm	160 mm
Thermal (FF- Foil Facer)	R 1.8	R 2.3	R 2.7	R 3.6	R 4.5	R 5.5	R 6.4	R 6.8	R 7.3
Climate Zone				Zone 1	Zone 2	Zone 3 & 4	Zone 5	Zone 5	Zone 6

Contact RoofLogic for project specific thermal calculations in relation to specific assemblies. System R-values can differ from the R-value of the PIR insulation alone. When ceiling tiles or internal insulation are suspended below a warm roof system, the R-Value of this can be added to the R-Value of the roof system to achieve thermal performance.

INSTALLATION LIMITATIONS

When high R-Value ceiling assemblies or internal thermal/ acoustic insulation is incorporated in the design it is important to model the roof/ceiling system to ensure that condensation risk is managed.

TECHNICAL PROPERTIES

Properties	Class acc. EN 13165	Standard	Unit	Specified Values
Declared thermal conductivity coefficient	λD, 10°C	EN 12667	W/m·K	0.022 (aluminium facer)
Compressive strength mm 25-49	CS(10/Y)175	EN 826	kPa	≥175kPa
Compressive strength mm 50-160	CS(10/Y)200	EN 826	kPa	≥200kPa
Dimensional stability 48h, 70°C, 90 %hr	DS(70,90)3	EN 1604	%	Δ εl, Δεb ≤2 $\Delta\varepsilon_d \leq 6$
Water absorption	WL(T)1	EN 12087	%	≤1
Thickness	-	EN 823	mm	30-150
Reaction to fire of the product[1]	-	EN 13501-1	-	Euroclass F (FF) Euroclass F (CF)
		AS 1366.2-1992		PASS
Reaction to fire of the product in end use (RL PIR Board over RL LinerDeck-steel decking.)	-	AS ISO 9705-2003[1] ISO 9705 -1993[2]	-	Group 1-S Classificaton

[1] AS ISO 9705-2003. Group Number Classification and SMORGA
[2] ISO 9705 -1993. Group Number Classification and Smoke Production Rate

Documentation available:
EPD according to ISO 14025:2010

INSTALLATION

Keep RL PIR Board dry before, and during installation. RL PIR Board should not be installed during rain, heavy fog and any other conditions that deposit moisture on the surface of the board. Apply only as much RL PIR Board that can be covered by roof membrane system in the same day. Butt ends and edges tightly together.

INSTALLATION LIMITATIONS

RL PIR Boards are engineered to perform within a properly designed roof system.

STORAGE

RL PIR Boards are supplied in polythene packs which are designed for short term protection. For longer term protection on site, product should be stored indoors, or under cover off the ground.

The RL PIR Board must remain dry during both site storage and installation. Install only as much RL PIR Board that can be covered by final roof system in the same day.

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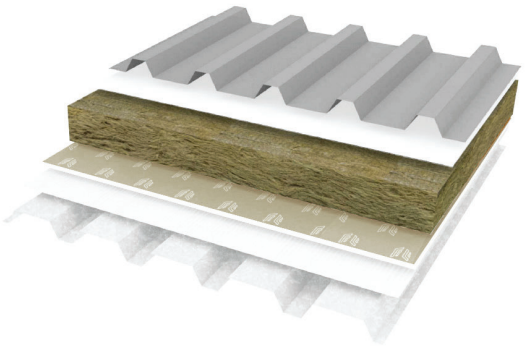
ROOFLOGIC

TECHNICAL DATASHEET

RL STONEWOOL

For Ultratherm MSR Roof Systems

RL Stonewool is a high density insulation that can be used in RoofLogic metal roof systems.



DESCRIPTION

RL Stonewool is manufactured from a volcanic rock, to which selected recycled materials are added. The material is melted and spun into wool, which is then bonded using a small amount of binder.

Because RL Stonewool's insulating qualities rely purely on entrapped air, not environmentally harmful blowing agents, It does not contain gases with harmful ozone depleting or global warming potential. Furthermore its thermal performance remains constant, without altering or subsiding over time. Being made from rock, RL Stonewool products are dimensionally stable under a wide range of temperatures, RL Stonewool is non-combustible with a melting point in excess of 1000°C.

BENEFITS

- In Ultratherm MSR roof systems, RL Stonewool enhances acoustic performance (100 mm Stonewool in Ultratherm MSR system has a STC/Rw of 32)
- Classified as Euroclass A1, RL Stonewool slabs are non-combustible.
- RL Stonewool slabs are odourless, rot-proof, and resistant to vermin, mould, and bacteria.
- RL Stonewool slabs are non-wicking when tested to BC 2972:1989 Section 12. When exposed to 90% relative humidity at 200°C, RL Stonewool will absorb less than 0.004% moisture.
- The vapour resistivity of RL Stonewool is negligible and usually considered to be the same as that of air (typically 5.9 MNs/gm). RL Stonewool products can therefore be used to reduce the risk of condensation and allow natural drying out of the construction due to their ability to 'breathe'.
- RL Stonewool presents no known threat to the environment
- RL Stonewool is compatible with most materials used in commercial and industrial building applications.

MATERIAL AND FINISH

RL Stonewool is available in a range of densities tailored to meet the required compressive strength for different applications. For 50kPa compressive strength, product density typically ranges from 110 to 180 kg/m³, depending on the thickness specified. For exact density and weight information, please contact RoofLogic.

Various panel sizes are available.

THERMAL PROPERTIES

Thickness (mm)	50	60	70	80	90	100	120	140	160	180	200
R-Value- 50 kPa	R 1.4	R 1.6	R 1.9	R 2.2	R 2.4	R 2.7	R 3.2	R 3.8	R 4.3	R 4.9	R 5.4
Climate Zone								Zone 1	Zone 2	Zone 2	Zone 4

For Thermal Performance to meet Climate Zones 5 & 6 requirements, please contact RoofLogic for options.

TECHNICAL PROPERTIES

Property	**50kPa**
Compression strength at 10% deformation, kPa, not less than	50 kPa
Point load, N,	800N
Flammability grade	Non-flammable
Reaction to fire	Euroclass A1 EN 13501-1
λ at 10°C,	0.037 W/mK
Vapour permeability, μ,	>1
Humidity by weight, %, no more than	0.5%
Water absorption by volume, %, no more than	1.5%
Content of organic substances, %, no more than	4.5%
Density	110-180 kg/m^3
	Density is correlated with compressive strength and is dependent on the thickness of the product
Length	1200 mm
Width	600 mm
Thickness (with increments of 10 mm),	50 – 200 mmm

INSTALLATION

RL Stonewool slabs are easy to handle, install and cut to size. RL Stonewool slabs are supplied in polythene packs which are designed for short term protection only. For longer term protection on site, product should be stored indoors, or under cover off the ground.

The RL Stonewool must remain dry during both site storage and installation. Install only as much RL Stonewool that can be covered by final roof system in the same day.

RL UNDERLAY

Serves as a protective layer between the roof covering and the insulation material.

- CodeMark™ Certified
- Self Supporting
- Fire Retardant
- Breathable & Absorbent
- UV exposure: 10 days

DESCRIPTION

RL Underlay is a fire retardant, self-supporting, synthetic roof underlay. It is a micro-porous, water-resistant film that is laminated to two layers of non-woven spun-bonded polyolefin. RL Underlay is a lighter grammage self-support roof underlay and can be used for both self-support and heavy weight applications. RL Underlay is designed to be used as an underlay beneath roof systems and on façades to assist with the weathertightness of buildings.

MATERIAL AND FINISH

RL Underlay is available in 75 m² rolls, 1.350 x 56 m and 100 m² 2.7 m x 37.04 m.

INSTALLATION

RL Underlay must be installed with all writing and imagery facing out and with as minimal a number of overlaps as possible. Where overlaps are unavoidable, a lap of 150 mm minimum must be used.

RL Underlay can be installed either vertically or horizontally on all RoofLogic Ultratherm Systems 3° or more. However, all Ministry of Education projects must be installed across the roof, that is, parallel with the gutter, at right angles to the metal top skin, progressing from the gutter line to the ridge.

The Underlay is fully sarked by the rigid insulation layer and therefore there is no risk of underlay deflection at low pitch.

Property	Standard	Value
Flammability index	AS1530.2-1993	1
Fire Retardant		Yes
Water Vapour Resistance	ASTM E96 Procedure B	Requirement ≤7 MN s/g; Pass
Absorbency	AS/NZS 4201: Part 6	Requirement ≥ 150 g/m²; Pass
Air Resistance	BS ISO 5636-5:2003	≥ 0.1MN s/m²²; Pass
Water Resistance	AS/NZS 4201.4:1994	≥ 0.100 mm H_2O; Pass
Durability (years)		50

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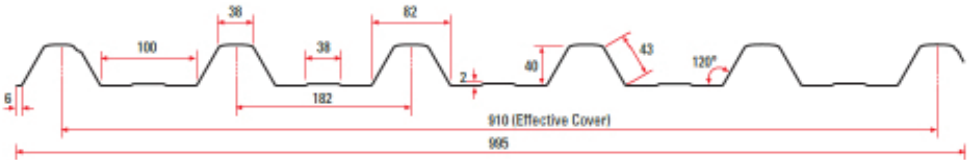
ROOFLOGIC

TECHNICAL DATASHEET

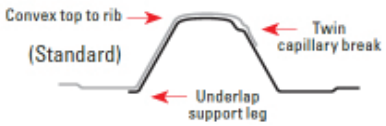
RL TOPDECK T

For RL Ultratherm MSR Roof Systems

TopDeck T Profile - Dimensions



TopDeck T Lap detail



Manufactured in: All of New Zealand

BUILDING DESIGN

During building design, the selection of roofing and cladding products requires careful consideration of various factors. While aesthetics and availability are important, the chosen profile must meet specific performance criteria. This includes the ability to effectively shed water from the roof and span purlin and girt spacings in accordance with design standards. (The minimum pitch for the profile is provided below).

When following the guidelines of E2/AS1 and selecting roofing and cladding products covered by that document, it is necessary to adhere to the recommended design spans and fixing methodology. However, E2/AS1 acknowledges that manufacturers' information may offer more optimal fixing spacing and RoofLogic reco mmends considering this option.

For buildings outside the scope of E2/AS1 or with specific design requirements, the roofing and cladding must be suitable for the design, and vice versa.

The loadings indicated in RoofLogic graphs reflect testing to a conservative serviceability limit state, surpassing the ultimate limit state quoted by some manufacturers. Our Design Graphs assist designers in selecting appropriate products and purlin spacings. In most roof installations, purlin spacings are limited by the trafficable limitations of the RL LinerDeck used as a trafficable deck for roof system installation. Design wind loads for roofing and cladding should be calculated in accordance with AS/NZS 1170.2:2011 and/or NZS 3604:2011, as applicable.

Purlin spacings should be restricted to the low R-Value between trafficable limitations and design wind load, with the structure's capacity exceeding the design load for the application. However, for non-walkable roofs, exceeding trafficable limitations may be permissible if the design wind loading criteria are met. This should be done cautiously and may require additional secondary fasteners within the laps.

For roofs subjected to heavy foot traffic, snow loads, or mechanical plant support, purlin spacing should be reduced accordingly. Additionally, limitations on purlin spacings for translucent sheeting should be taken into account.

The minimum roof pitch for RL Topdeck T is 3 degrees (approximately 1:20). Any deviations from this requirement should be referred to RoofLogic for further consultation.

When a series of sheets extends beyond 40 meters but does not exceed 60 meters, the roof pitch should be increased by 1 degree. For longer lengths, a specific design is necessary. In cases where rainfall intensity exceeds 100 mm/hour, the minimum pitches must be increased by an additional 1 degree for every 10 meters of run beyond 40 meters.

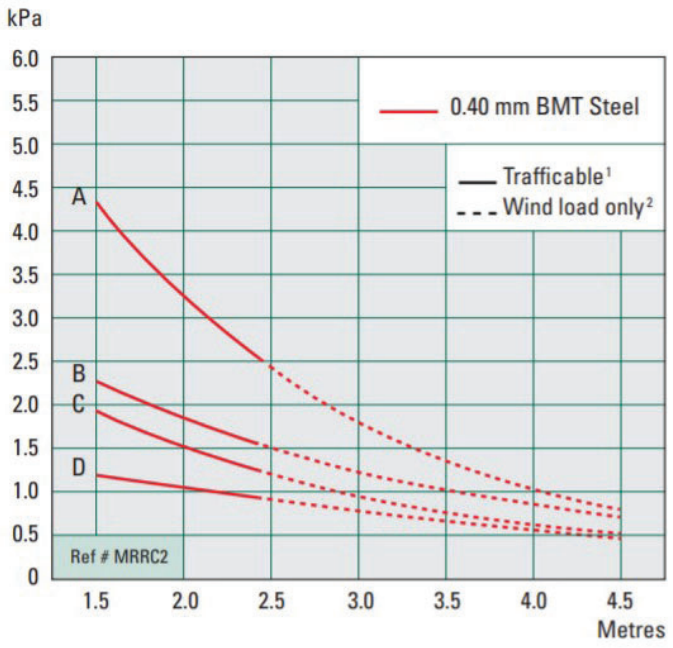
The building design pitch may need to be higher to acco mmodate cumulative deflections of the frame, purlin, roof sheeting, or penetrations.

For curved roofing, the roof cladding must not terminate at a pitch lower than the permissible limit mentioned above. Side laps of curved sheets must be sealed to areas below the minimum pitches specified above.

WIND & CONCENTRATED LOAD SPAN DESIGN GRAPH

Steel Based Material

0.40 STEEL G550 - HIGH STRENGTH



- Intermediate span in metres.
- End spans to be a maximum of 2/3 of this span.
- A, B, C and D represent alternative primary fixing methods. (Refer page 5)

1. The solid line represents where walking is permitted within 300 mm of the purlin line or in the pan of the profile. Therefore for a normal roof, providing wind load requirements are met, purlin spans are limited to:

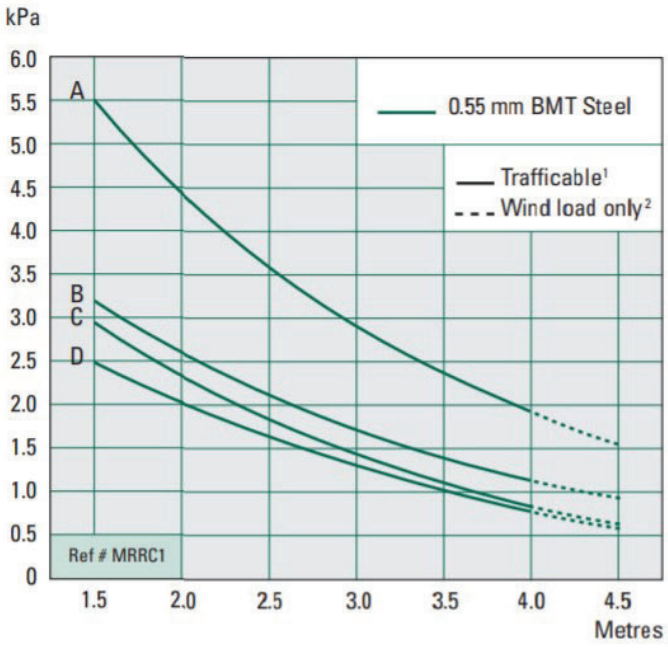
Maximum Spans	0.40 BMT
Intermediate	2.4 m
End	1.6 m
Type 2B “Restricted Access” Classification	

2. The broken line represents un-trafficable roof areas and is wind loading only and has a Type 3 Classification. In areas of heavy roof traffic, snow loadings or containing items such as air conditioning units purlin spacing should be reduced accordingly.

3. Use of RL LinerDeck Standard (0.55BMT) allows purlin spacing to a maximum of 2.60 m.

4. Use of RL LinerDeck Standard HD (0.75BMT) allows purlin spacing to a maximum of 3.20 m.

0.55 STEEL G550 - HIGH STRENGTH



- Intermediate span in metres.
- End spans to be a maximum of 2/3 of this span.
- A, B, C and D represent alternative primary fixing methods. (Refer page 5)

1. The solid line represents where walking is permitted within 300 mm of the purlin line or in the pan of the profile. Therefore for a normal roof, providing wind load requirements are met, purlin spans are limited to:

Maximum Spans	0.55 BMT
Intermediate	4.0 m
End	2.7 m
Type 2B “Restricted Access” Classification	

2. The broken line represents un-trafficable roof areas and is wind loading only and has a Type 3 Classification.

3. Use of RL LinerDeck Standard (0.55BMT) allows purlin spacing to a maximum of 2.60 m.

4. Use of RL LinerDeck Standard HD (0.75BMT) allows purlin spacing to a maximum of 3.20 m.

WIND & CONCENTRATED LOAD SPAN DESIGN SUMMARY CHART FOR ROOFING SPANS IN STEEL

Incorporating Wind and Concentrated Load Span Design, Primary Fixing Methods and Foot Traffic.

See Primary Fixing methods on the next page for an explanation of fixing methods types described in the tables below.

0.55 BMT Steel-Wind Design Loadings - kPa														
Purlin Spacing (m)		Fixing Method A			Fixing Method B			Fixing Method C			Fixing Method D			Foot Traffic
Intermediate	End	Int.	End	Int (P)	Int.	End	Int (P)	Int.	End	Int (P)	Int.	End	Int (P)	
1.2	0.8	6.0	6.0	6.0	3.5	3.5	6.0	3.3	3.3	5.5	2.7	2.7	5.0	Unrestricted
1.5	1.0	5.5	6.0	5.5	3.2	3.2	5.5	2.9	3.3	5.0	2.5	2.7	4.6	
1.75	1.17	4.9	5.9	4.9	2.8	2.8	4.9	2.65	3.2	4.4	2.25	2.6	4.0	
2.00	1.33	4.4	5.7	4.4	2.6	2.6	4.4	2.3	3.1	3.7	2.0	2.5	3.4	
2.25	1.5	4.0	5.5	4.0	2.3	2.3	4.0	2.1	2.9	3.3	1.8	2.5	3.0	
2.4	1.6	3.6	5.3	3.6	2.15	2.15	3.6	1.9	2.8	2.9	1.65	2.4	2.7	
2.5	1.67	3.5	5.1	3.5	2.1	2.1	3.5	1.8	2.7	2.8	1.6	2.3	2.6	Restricted access walk within 300 mm of purlin or in pan of roof
2.75	1.83	3.3	4.7	3.3	1.8	1.8	3.3	1.6	2.5	2.4	1.45	2.2	2.2	
2.9	1.9	3.0	4.6	3.0	1.75	1.75	3.0	1.5	2.4	2.2	1.4	2.1	2.0	
3.0	2.0	2.9	4.4	2.9	1.70	1.70	2.9	1.4	2.3	2.1	1.3	2.0	1.9	
3.25	2.16	2.6	4.3	2.6	1.50	1.50	2.6	1.2	2.2	1.8	1.25	1.9	1.65	
3.5	2.33	2.3	3.8	2.3	1.35	1.35	2.3	1.1	2.0	1.5	1.0	1.75	1.4	
3.75	2.5	2.2	3.5	2.2	1.25	1.25	2.2	0.95	1.8	0.9	0.8	1.6	0.8	
4.0	2.70	1.90	3.2	1.9	1.1	1.8	1.9	0.8	1.7	0.8	0.75	1.4	0.75	
4.1	2.70	1.8	3.2	1.8	1.1	1.8	1.8	0.8	1.7	0.75	0.7	1.4	0.7	Non accessible

Int (P) = Intermediate Periphery Loadings other than end spans (eg gable ends)

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PRIMARY FIXING METHODS

A - Fixed every purlin, every rib with approved screws, load spreading profiled metal washers and EPDM washers.

B- Fixed every purlin with the same pattern, (hit-miss-hit-hit-miss-hit) with approved screws and neos, load spreading profiled metal washers and EPDM washers. End purlins and periphery of roof to be fixed every rib.

C- Fixed every purlin with the same pattern, (hit-miss-hit-hit-miss-hit) with approved screws and neos and 25 mm Aluminium embossed washers. End purlins and periphery of roof to be fixed every rib.

D - Fixed every purlin with the same pattern, (hit-miss-hit-hit-miss-hit) with approved screws and neos without washers. End purlins and periphery of roof to be fixed every rib.

	Wood Purlins	Steel Purlins or girts up to 1.5 mm	Steel Purlins or girts 1.5-4.5 mm	Steel Purlins or girts 4.5-12 mm	Washers (When required)
Steel Based Material	14-10 Class 5 Type 17 Timbertites with neos size will vary	12-14 Class 5 Steeltites with neos	12-14x175 Class 5 Steeltites with neos	12-24x 175 Class 5 Series 500 Steeltites with neos	RL Topdeck load spreading profile Steel and 36 mm EPDM
Aluminium Based Material	14-11 Alutite with bonded washer with Topdeck T load spreading profile 1.2 mm Ali washers and 36 mm EPDM, or Stainless steel grade 316, 14-10x100 Type 17 with neos through a 10 mm dia. clearance hole with RL Topdeck load spreading profile 1.2 mm Ali washer & 36 mm EPDM	Stainless steel grade 304, 14-14 Steeltites and bonded washer through a 10 mm dia. Clearance hole with RL Topdeck T load spreading profile 1.2 mm Ali washer & 36 mm EPDM	Stainless steel grade 304, 14-14 Steeltites and bonded washer through a 10 mm dia. clearance hole with TopDeck T load spreading profile 1.2 mm Ali washer & 36 mm EPDM	Fabco stainless steel grade 304, 14-14 Type B screw and bonded washer through a 10 mm dia. clearance hole with Topdeck T load spreading profile 1.2 mm Ali washer & 36 mm EPDM	Topdeck T load spreading profile 1.20 mm Ali and 36 mm EPDM

Please note that the length mentioned above may vary depending on the assembly depth. For all primary fasteners, ensure they are embedded a minimum of 35 mm into the structural timber and 20 mm into structural steel. Adjust the length of fasteners accordingly for both timber and steel fixings when required for battens and similar components.

When using load spreading profile washers or 25 mm Aluminium embossed washers for roofing: fix ridging, roof flashings, etc., use a 25 mm Aluminium embossed washer along with the appropriate screw.

For secondary fasteners, please follow the guidelines outlined in the NZ Metal Roof and Wall Cladding Code of Practice. The recommended options include:

- Aluminium Blind Rivets AS 6-3 with a minimum size of 4.8 mm (Commercial)
- Aluminium Bulb-tite Rivets
- 12-11x35 Alutites
- 12-11x25 Class 5 Type 17 Timbertites (to be used only for steel-based materials)

INFORMATION TABLE

Substrate Material	Steel		Aluminium	
Thickness	.40 BMT	0.55 BMT	0.70 BMT	0.90 BMT
Approx weight per Lineal for Zinc aluminium base material (kg/lm)	4.05	5.48	2.39	3.07
Unsupported Overhang (mm)	250	350	200	300
Drape Curved Roof -Minimum Radius (m)	Not recommended	85	Not recommended	85
Purlin Spacings for Curved Roofs -Intermediate (mm) -End (mm)		2400 1600		2400 1600

SNOW LOADS

When snowfall is a possibility, it is important to consider the additional snow loads by strengthening the structure or minimising snow accumulation. This can typically be achieved by increasing the roof pitch to facilitate easier snow shedding, as determined by the designer.

The objective is to simplify loading patterns while maintaining an appropriate level of caution. Design loads should consider drifting snow caused by wind, but it is not necessary to combine wind loads with snow loads. (As snow loads are uniformly distributed loads they are similar to wind loads.)

In the North Island of New Zealand, specifically north of a line drawn from Opotiki to Turangi and New Plymouth, snow loads do not need to be accounted for. However, in other areas, the consideration of snow loads may be necessary, depending on the location and altitude of the project. For more detailed information, including a map and chart, please refer to Section 3.5 of the NZ Metal Roofing Roof and Wall Cladding Code of Practice.

ROOF EXPANSION PROVISIONS

Fix with recommended fasteners and systems from the Primary Fixing Chart and additionally allow for the following where applicable.

Steel Base Material				
NZ Metal Roof and Wall Cladding Code of Practice Compliance				
Sheet Lengths	Up to 15 m	>15-18 m	>18-25 m	>25-30 m
Zinc Aluminium and light colours	No special provision.		Solid fix from the ridge down 12 metres and oversize holes should be used for the remainder of the sheet with approved load spreading profile washers, and a 36 mm EPDM	Solid fix the middle third of the roof and over-size holes should be used for the remainder of the sheet.
Dark Colours	No special provision.	Solid fix from the ridge down 12 metres and oversize holes should be used for the remainder of the sheet with approved load spreading profile washers, and a 36 mm EPDM washer.		Not recommended

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<table>
<tr><th colspan="5">Aluminium</th></tr>
<tr><td>Sheet Lengths</td><td>Up to 1 0 m</td><td>10-12 m</td><td>12-15 m</td><td>>15 m</td></tr>
<tr><td>Plain Aluminium & lighter colours in favourable Installations (Refer NZMRM C.O.P. Section 4.1.6)</td><td colspan="3">Fix using oversize holes with screws and approved load spreading profile Ali washers, and 36 mm EPDM washers</td><td>Not recommended</td></tr>
<tr><td>Dark Coloured Aluminium in Favourable Installations (Refer NZMRM C.O.P. Section 4.1.6)</td><td colspan="2">Fix using oversize holes with screws and approved load spreading profile Ali washers, and 36 mm EPDM washers</td><td colspan="2">Not recommended</td></tr>
<tr><td>Plain Aluminium & lighter colours in Unfavourable Installations (Refer NZMRM C.O.P. Section 4.1.6)</td><td colspan="2">Fix using oversize holes with screws and approved load spreading profile Ali washers, and 30 mm EPDM washers</td><td colspan="2">Not recommended</td></tr>
<tr><td>Dark Coloured Aluminium in Unfavourable Installations (Refer NZMRM C.O.P. Section 4.1.6)</td><td>Fix using oversize holes with screws and approved load spreading profile Ali washers, and 30 mm EPDM washers.</td><td colspan="3">Not recommended</td></tr>
</table>

For sheet lengths exceeding the mentioned limits, a step joint or other special provision for expansion is necessary. Please consult RoofLogic for more information on this matter.

When using load spreading profile washers or 25 mm Aluminium embossed washers for roofing; fix ridging, roof flashings, etc., with a 25 mm Aluminium embossed washer along with the appropriate screw.

For oversized holes, the diameter should be 3 mm larger than the screw size or as specified in the Primary Fixing Chart for stainless steel screws.

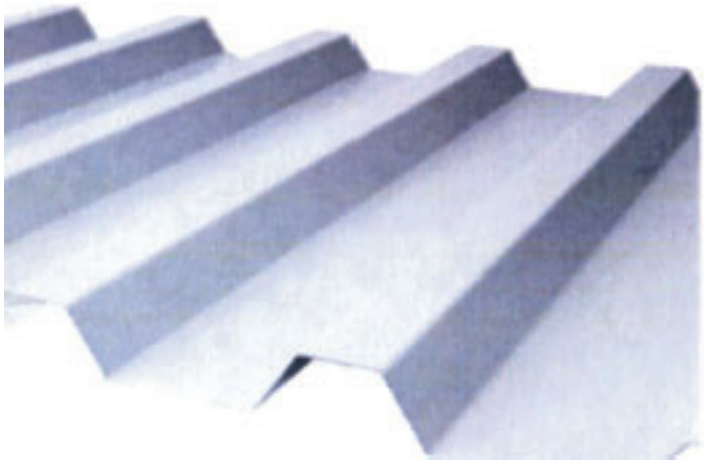
For detailed information on the fixing of Topdeck T, refer to E2/AS1 of the NZ Building Code and the NZ Metal Roof and Wall Cladding Code of Practice, available at www.metalroofing.org.nz. These publications, along with the provided technical data, should serve as the foundation for the design and installation of metal roofing and cladding.

Additionally, please refer to our collection of detail drawings, as well as the literature from NZ Steel Ltd and Pacific Coilcoaters for further guidance.

Also refer to our suite of detail drawings, and to NZ Steel Ltd and Pacific Coilcoaters literature.

RL TOPDECK T 925

For RoofLogic MSR Roof Systems



Manufactured in: Bay of Plenty

MINIMUM PITCH

The minimum roof pitch for TopDeck T is 3 degrees (approx 1:20). When a combination of sheets provide a run of in excess of 40 m and up to 60 m the roof pitch should be increased by 1 degree. Longer lengths require specific design. When rainfall intensity exceeds 100 mm/hour the minimum pitches need to be increased by a further 1 degree for every 10 m of run over 40 m.

The building design pitch may need to be higher to take into account any cumulative deflections of the frame, purlin and roof sheeting or penetrations. With curved roofing the roof cladding must not terminate at a pitch lower than permitted above. Side laps of curved sheets must be sealed to any areas below the minimum pitches permitted above.

DESCRIPTION

A large part of the surface of a building is constituted by roof profile sheets which form a part of the aesthetics of the building and protects the structure from dampness. Whilst aesthetics do play a part, the chosen profile must meet certain performance criteria. These are centred around the profile's ability to shed water from the roof and the ability of the product to span purlin and girt spacings and meet design criteria.

The designer should take into account the following factors when specifying a LinerDeck:

- Material type, finish and colour
- Roof pitch
- Sheet lengths
- Wind Loadings (Refer to Wind Loadings Section)
- Snow design
- Reference to our standard details
- Purlin spacing

In terms of purlin spans and girt spacing it is necessary to follow due process. If a building is being designed and constructed in full accordance with E2/AS1 and roofing and cladding products as covered by that document are chosen, then it is necessary for the design spans and fixing methodology to comply with those of E2/AS1. However E2/AS1 states that the use of the manufacturers information may provide a more optimum spacing of fixings, and this is recommended by RoofLogic.

Where a building is outside of the scope of E2/AS1 and the building or parts there of are of specific design, then it is necessary for the roofing and cladding to be suitable for the design and vice versa.

Substrate Material	Steel	
Thickness	.40 mm BMT	0.55 mm BMT
Approx weight per lineal metre for Zincalume based material (kg/lm)	4.05	5.48
Purlin Spacings -General	Refer to separate section.	
Unsupported Overhang (mm)'	250	350
Drape Curved Roof -min Radius (m)	N/R[2]	90
Purl in Spacings for Curved Roofs -Intermediate (mm) -End (mm)	 N/R[2] N/R[2]	 2400 1600
Pre-curved Roof -min Radius (mm) -Recommended Minimum Radius (mm)	 N/A[3] N/A[3]	 N/A[3] N/A[3]

[1]Not suitable for roof access without additional support) [2]N/R - Not recommended [3]N/A - Not available

This technical data sheet is for steel-based substrates. TopDeck T 925 can also be manufactured in other metals such as Copper or Titanium Zinc.

BUILDING DESIGN/ PERFORMANCE CRITERIA/ PRODUCT SELECTION

During the design of buildings, it is necessary for the designer to take into account a number of issues to ensure that the most appropriate roofing and cladding product is chosen.

Whilst aesthetics and product availability do play a part, the chosen profile must meet certain performance criteria. These are centred around the profile's ability to shed water from the roof and the ability of the product to span purl in and girt spacings and meet design criteria. The minimum pitch for this profile is outlined elsewhere within this literature.

In terms of purlin spans and girt spacing it is necessary to follow due process.

If a building is being designed and constructed in full accordance with E2/AS1 and roofing and cladding products as covered by that document are chosen, then it is necessary for the design spans and fixing methodology to comply with those of E2/ ASl. However E2/ ASl states that the use of the manufacturers information may provide a more optimum spacing of fixings, and this is recommended by Roofing Industries.

Further where a building is outside of the scope of E2/ ASl and the building or parts thereof are of specific design then it is necessary for the roofing and cladding to be suitable for the design and vice versa.

Loadings referred to in Roofing Industries graphs are the result of testing to a serviceability limit state which is more conservative than an ultimate limit state as quoted by some manufacturers.

Our Design Graphs are presented in a form to allow the designer to select suitable products and purlin spacings.
For most roof installations the purl in spacings will be limited by the trafficable limitations of the profile or the structural design. It is then necessary for the designer to calculate the design wind load for the roofing and cladding in accordance with generally acceptable practice, by reference to AS/NZS 1170.2: 2011, and/or NZS 3604: 2011 as appropriate. For a fuller explanation of this refer to the NZ Metal Roof and Wall Cladding Code of Practice. This result should be referenced to the Wind Load Span Design Graphs.

The purlin spacings should be limited to the lower of the trafficable limitations and design wind load with the capacity of the structure being greater than the design load for the application. However for roofs that are not able to be walked on and for wall cladding applications, the trafficable limitations may be exceeded providing the design wind loading criteria is met. However this should be done with caution as it may require considerable extra secondary fasteners within the laps.

The designer should always take into account in areas of heavy roof traffic, snow loadings, or where the roofing supports such items as air conditioning units, purlin spacing should be reduced accordingly. Consideration also needs to be given to limitations of purlin spacings for any translucent sheeting.

Reference should be made to the notes in the graphs.

It is our reco mmendation that for commercial and industrial roofing applications that .55 mm BMT steel is used as it has more resilience to damage particularly by other trades.

Underlay as per the project specifications should be used.

RI925 SLS Load / Span Capacity Chart (kPa)				
G550 Steel 0.40 mm - 6 screws per sheet per purlin				
Internal Span (M*) note: restricted access only)	1.2	1.8	2.4	
Screws only	3533	2108	1802	
With profiled load spreading washers	4435	3128	2349	
GG550 Steel 0.55 mm - 6 screws per sheet per purlin				
Internal Span (M)*		1.8	2.4	3.0
Screws only		3835	2644	2064
With profiled load spreading washers		5143	3626	3065

* Note end spans to be a maximum of 2/3 of intermediate

Maximum Spans	0.40 mm BMT
Intermediate	2.4 metres
End	1.6 metres

Maximum Spans	0.55 mm BMT
Intermediate	3.0 metres
End	2.0 metres

For Type A “Unrestricted Access“ Clarification, refer to Purlin Spacing Limitations and Recommendations.
Classification types are from the NZ Metal Roof and Wall Cladding Code of Practice.

PRIMARY FIXING METHODS

Roofing Application
A - Fixed every purlin, every rib with approved screws, load spreading profiled metal washers and EPDM washers.

Wall Cladding
Steel Based Material - Combined Graph, .40 and .55 Steel High Strength

All roofing and cladding has been tested in accordance with the NZMRM test procedure.

Classification Types are from the NZ Metal Roof and Wall Cladding Code of Practice and is adjusted for practical application.

Primary Fixing Methods
Fixed in the pan adjacent to every rib every girt, with approved screws & neos. At the laps the fixing is to be adjacent to the lap rib.

All roofing and cladding has been tested in accordance with the NZMRM test procedure.

Classification Types are from the NZ Metal Roof and Wall Cladding Code of Practice and is adjusted for practical application.

(Dimensions in metres)
E2/AS1 states that a specific design may produce a more optimum spacing for fixing than as presented in this document. For profiles such as TopDeck T925 that is particularly applicable and as such the manufacturers information should be used.

Manufacturers recommendations for maximum spacings in accordance with NZ Metal Roof and Wall Cladding Code of Practice.

		Steel Based Material			
		.40 mm BMT		.55 mm BMT	
Restricted Access Roof (Type 2B)	Intermediate	2.400	For wind design loads for steel based materials refer to graphs or Summary Chart.	3.000	*
(Where walking is permitted within 300 mm of the purlin line or in the pan of the profile)	End	1.600		2.000	*
Unrestricted Access Roof (Type 2A)	Intermediate	N/R		3.000	*
(Where walking is permitted anywhere on the roof cladding)	End			2.000	*
Non Accessible Roof and Wall Cladding (Type 3)	Intermediate	2.400		3.000	*
	End	1.600		2.000	*

Classification Types are from the NZ Metal Roof and Wall Cladding Code of Practice and do not allow for any congregation of foot traffic. Purlin spacing limitations to be read in conjunction with Wind Load Span Design Graphs and Charts. In areas of heavy traffic purlin spacing should be reduced accordingly. For curved roofing refer to Information Table. When roof pitch is 8 Degrees or higher and self-supporting paper is preferred to be used (without any support) purlin spacings must be limited to a maximum of 1.200 mtr centres for vertically run underlay and 1.150 mtr centres for horizontally run underlay.

SNOW LOADS

When the possibility of snow exists, it is necessary to allow for the extra imposed snow loads by increasing the strength of the
structure, and/or minimising the buildup of snow, and this is generallyachievedbyincreasingtheroofpitchbyallowingeasier shedding of the snow or otherwise as the designer determines.

The objective is to simplify rather complex loading patterns while remaining adequately cautious. The design loads should take account of drifting snow due to wind, but wind loads are not required to be combined with snow loads.

As snow loads are uniformly distributed loads they are similar to wind loads.

Snow loadings are not required to be taken into account for the North Island of New Zealand north of a line drawn from Opotiki to Turangi and New Plymouth.

However for other areas snow loadings may need to be taken into account dependent on the area and altitude of the proposed project. A fuller reference including a map and chart is available from the NZ Metal Roofing Roof and Wall Cladding Code of Practice Section 3.S.

PRIMARY FIXING CHART

Roofing - Crest fixed (to be read in conjunction with Roof Expansion Provisions and Load Span Design Graph)

	Wood Purlins	Steel Purlins or grits up to 1.5 mm	Steel Purlins or grits 1.5-4.5 mm	Steel Purlins or grits 4.5-12 mm	Washers (When required)
Steel Based Material	14-10x75 Class 4/5 Type 17 Woodteks with neos or 14-lOxl00 Class 4 Type 17 Woodteks with neos	12-14x65 Class 4/5 Steelteks with neos	12-14x65 Class 4/5 Steelteks with neos	12-24x 65 Class 4/5 Series 500 Steelteks with neos	TopDeck T load spreading profile Steel and 36 mm EPDMor 25 mm Aluminium embossed washer

Wall Cladding - Pan fixed

	Wood Purlins	Steel Purlins or grits up to 1.5 mm	Steel Purlins or grits 1.5-4.5 mm	Steel Purlins or grits 4.5-12 mm	Washers (When required)
Steel Based Material Direct fixed	14-10x75 Class 4/5 Type 17 Woodteks with neos or 14-lOxl00 Class 4 Type 17 Woodteks with neos	12-14x65 Class 4/5 Steelteks with neos	12-14x65 Class 4/5 Steelteks with neos	12-24x 65 Class 4/5 Series 500 Steelteks with neos	TopDeck T load spreading profile Steel and 36 mm EPDMor 25 mm Aluminium embossed washer
Steel Based Material 20 mm Cavity	12-11x50 Class 4/5 Type 17 Woodteks or Roofzips with neos	12-14x45 Class 4/5 Steelteks with neos or 12x50 Roofzips with neos	12-14x45 Class 4/5 Steelteks with neos	12-24x50 Class 4/5 5teelteks Series 500 with neos	

Note: All primary fasteners to have a minimum embedment into structural timber of 30 mm. Adjust fastener length for both timber and steel fixings when necessary for battens etc. When using load spreading profile washers for roofing fix ridging, roof flashings etc.

Secondary Fasteners (To be used in accordance with the NZ Metal Roof and Wall Cladding Code of Practice.) These should be:

Steel Base Material				
E2/AS1 Compliance				
Sheet Lengths	Up to 8 m	>8-12 m	>12-18 m	>18 m
	No special provision.	Lower 50% of the roof should be fixed using oversize holes at fastening points with approved load spreading profile washer, and 36 mm EPDM washers		Not Applicable
NZ Metal Roof and Wall Cladding Code of Practice Compliance				
Sheet Lengths	Up to 15 m	>15-18 m	>18-25 m	>25-30 m
Zincalume and light colours	No special provision.	No special provision.	Solid fix from the ridge down 12 metres and oversize holes should be used for the remainder of the sheet with approved load spreading profile washers, and a 36 mm EPDM or approved 25 mm Aluminium embossed washer.	Solid fix from the ridge down 12 metres & oversize holes should be used for the remainder of the sheet with approved load spreading profile washers, and a 36 mm EPDM or approved 25 mm Aluminium embossed washer used for the entire sheet
Dark Colours	No special provision.	Solid fix from the ridge down 12 metres and oversize holes should be used for the remainder of the sheet with approved load spreading profile washers, and a 36 mm EPDM washer or approved 25 mm Aluminium embossed washers		Not recommended

For sheet lengths in excess of the above a step joint or other special provision for expansion Is required. Refer to Roofing Industries. When using load spreading profile washers for roofing fix ridging, roof flashings etc. Oversize holes should be 3 mm greater diameter than the screw or as per the Primary Fixing Chart for stainless steel screws.

For further Information on the fixing of Rl925 refer to E2/ ASl of the NZ Building Code and NZ Metal Roof and Wall Cladding Code of Practice, www.metalroofing.org.nz, These publications along with the foregoing technical data should form the basis of the design and installation of metal roofing and cladding. Also refer to our sulte of detail drawings, and to NZ Steel Ltd and Pacific Coilcoaters llterature.

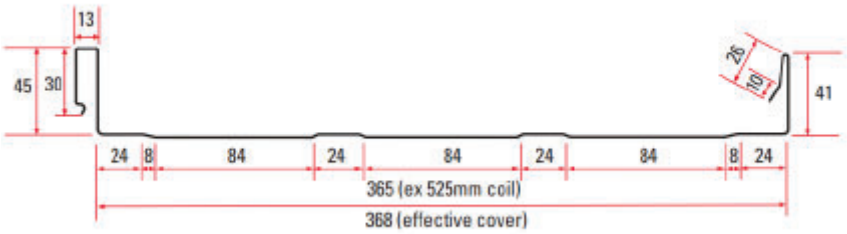
ROOFLOGIC

TECHNICAL DATASHEET

RL TOPDECK S (SPANLOK)

For Ultratherm MSR Roof and Cladding Systems

RL TopDeck S is a wide tray standing seam architectural profile



RL TopDeck S (Spanlok) 365

Manufactured in: Waikato

DESCRIPTION

RL TopDeck S (Spanlok) is an innovative wide tray standing seam architectural profile that brings advanced technology to roofing and cladding profiles. With its concealed clip and secret fixed design, RL TopDeck S offers a seamless and visually appealing solution.

When combined with the RoofLogic Ultratherm MSR roof system, it creates a high-performance solution. The inclusion of RL LinerDeck and RL PIR Board ensures continuous insulation and a fully sarked substrate, making it an ideal choice for wide tray architectural roofing profiles.

The minimum pitch for RL TopDeck S is 3 degrees. Any transverse seams should be sealed at pitches less than 20 degrees. The building design pitch may need to be higher to take into account any cumulative deflections of the frame, purlin and roof sheeting or penetrations.

When specifying TopDeck S, the designer should consider various factors to ensure optimal results. These factors include the preferred pan width, material type and finish, roof pitch, sheet lengths, wind loadings, snow design, reference to standard details, swage options (swaged or non-swaged), and purlin spacing.

It's important to note that wide tray roofing profiles without structural ribs may exhibit undulations in the flat pan, which are considered architectural feature. With the Ultratherm MSR system providing a fully supported substrate, are aesthetic only. Normally, structural integrity is not affected. However, structural integrity must be reviewed if the distortion results from an extreme external influence. Since many uncontrollable factors are involved, RoofLogic can not realistically assure the total elimination of undulation in the pan.

RL TopDeck S can offer the use of a double swage in each pan as an architectural feature which assists in eliminating this if required.

Inclusion or exclusion of swages must be specified at the time of order. Different swage options, including single swage, are also available on request. A clip relief swage at the pan edges is supplied standard. Low gloss paint coatings are also available which assist in minimising the effect of any undulations but must be specified at time of coil ordering.

Penetration flashings for Spanlok must be installed by the Spanlok installation contractor only and other trades must not cut any holes unless under the supervision of the roofing contractor. The placement of penetrations should ensure that they do not interfere with the panel joints.

Spanlok is manufactured custom cut to length subject to transport and site limitations.

Maintenance should be performed as necessary to remove dirt, salt and pollutants in accordance with warranty conditions. In severe environments more regular maintenance may be necessary.

Installation should be undertaken by experienced RoofLogic installers. Soft rubber soled shoes should be worn and foot traffic should be in the pan of the profile. Other trades should be also made aware of this by the main contractor.

Flashings should be notched over the ribs and all sheeting should be edge fixed. Packs on site should be kept dry and stored above ground level. If sheets become wet they should be fillet stacked to allow drying.

RoofLogic will provide project specifications detailing the installation of system assembly.

WIND LOADING

It is first necessary for the designer to calculate the design wind load for the roofing and cladding in accordance with generally acceptable practice, by reference to AS/NZS 1170, and /or NZS 3604 as appropriate. For a fuller explanation of this refer to the NZ Metal Roof and Wall Cladding Code of Practice.

The uplift forces on Spanlok roof and cladding are transferred through the building via the clips and fasteners to the structure. The performance criteria is based on the number of clips or fasteners per m2, which can be varied by the spacing of the purlins and clips, or the width of the panels.
To improve the uplift resistance of Spanlok roof and cladding the design options are:

- To reduce the width of the end bays
- To place the clips and fasteners closer together with the latter.

In these areas consideration should also be given to reducing the maximum gable or verge panel width. Purlin spacing and ultimately the number of secret fix clips and fasteners per lineal metre and ultimately per m^2 for Spanlok roofing and cladding must be derived from the graph on the following page compiled as a result of testing as per the NZMRM Metal Roof and Wall Cladding Code of Practice.

INFORMATION TABLE

Substrate Material	Steel	Aluminium	Copper
Thickness	.55 BMT	0.90 BMT	0.90 BMT
Approx weight per Lineal Metre for 365 mm pan	2.40	N/A	3.10
Effective Cover for Standard Pan (mm) (Nominal)			
Spanlok-365 mm pan	368 mm	N/A	338 mm
N/A= Not Readily Available			

MATERIAL RECOMMENDATIONS & STANDARD PAN WIDTHS TO SUIT STANDARD COILS

The use of the following sizes minimises waste and cost and generally shortens lead times. However other sizes are available and if other than standard sizes are required contact RoofLogic for specific advice.

0.55 Plain and Prepainted Steel	0.90 Plain and Prepainted Aluminium	0.70 Copper Aluminium
365 mm	N/A	335 mm

The above pan widths are based on standard coil widths and are a nominal sizes only.

Material availability is subject to available stock and some material such as copper may have lead times of 3-4 months.

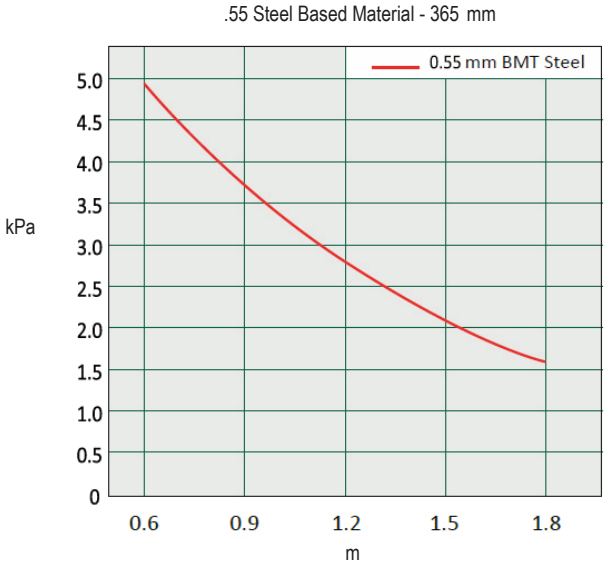
For all other materials such as Titanium Zinc refer to RoofLogic. All measurements are nominal. N/A - Not Readily Available.

THERMAL

Thermal movement across the pan is taken up by the provision of a small gap at the base of the profile.

Linear expansion is acco mmodated by the profile sliding on the clips. Refer to RoofLogic.

WIND DESIGN LOAD GRAPH



Intermediate span in meters. End spans to be 2/3 of intermediate span. Intermediate span of 600 mm can also use end span of 600 mm.

TopDeck S should be fixed in accordance with the following chart into the primary structure at purlin and girt spacing derived from the Wind load Design Graph.

Material	Clip Material	Screw Type Approved Timber Type	Screws per clip
Steel based	Galvanised or ZAM	RL Purlin Fastener, length from 100 mm-200 mm dependent on insulation thickness	2
Copper			

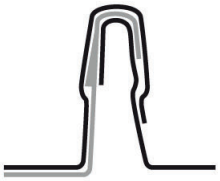
Note: Refer to project specifications or RoofLogic if further information in respect to fastener selection is required.

www.rooflogic.co.nz
technical@rooflogic.co.nz

RL TOPDECK C

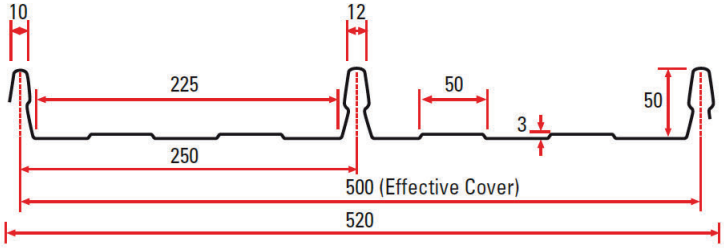
For Ultratherm MSR Roof and Cladding Systems

RL TopDeck C is an architectural profile with a concealed clip



RL Topdeck C lap

(All dimensions are nominal and in mm)



RL Topdeck C Dimensioned Drawing

Manufactured in: Auckland

The minimum roof pitch for RL Topdeck C is 3 degrees (approx 1:20). Any variation from the above should be referred to RoofLogic.

It is recommended when a combination of sheets provide a run of in excess of 40 m and up to 60 m the roof pitch should be increased by 1 degree or when rainfall intensity exceeds 100 mm/hour the minimum pitches need to be increased by a further 1 degree for every 10 m of run over 40 m.

The building design pitch may need to be higher to take into account any cumulative deflections of the frame, purlin and roof sheeting or penetrations. With curved roofing the roof cladding must not terminate at a pitch lower than permitted above.

Side laps of curved sheets must be sealed to any areas below the minimum pitches permitted above.

Manufactured in Auckland only.

BUILDING DESIGN

During the design of buildings, it is necessary for the designer to take into account a number of issues to ensure that the most appropriate roofing and cladding product is chosen.

Whilst aesthetics and product availability do play a part, the chosen profile must meet certain performance criteria. These are centered around the profile's ability to shed water from the roof and the ability of the product to span purlin and girt spacings and meet design criteria. The minimum pitch for this profile is outlined elsewhere within this literature.

In terms of purlin spans and girt spacing it is necessary to follow due process.

If a building is being designed in accordance with E2/AS1 and roofing and cladding products as covered by that document are chosen, then it is necessary for the design spans and fixing methodology to comply with those of E2/AS1. For RL Topdeck C or similar profile E2/AS1 states that the manufacturers reco mmendation can be used for fixing patterns and spans, as the acceptable solution is based on a different pan width.

Further where a building or products are outside of the scope of E2/AS1 and the building or parts thereof are of specific design then it is necessary for the roofing and cladding to be suitable for the design and vice versa.

Loadings referred to in RoofLogic tables are the result of testing to a serviceability limit state which is more conservative than an ultimate limit state as quoted by some manufacturers.

Our Design Tables are presented in a form to allow the designer to select suitable products and purlin spacings.

For most roof installations the purlin spacings will be limited by the trafficable limitations of the profile or the structural design. It is then necessary for the designer to calculate the design wind load for the roofing and cladding in accordance with generally acceptable practice, by reference to AS/NZS 1170.2 2011, and/or NZS 3604: 2011 as appropriate.

The purlin spacings should be limited to the lower of the trafficable limitations and design wind load with the capacity of the structure being greater than the design load for the application. When a roof is subject to extensive foot traffic, exposed to snow loads or used to support mechanical plant, purlin spacing should be reduced accordingly. Consideration also needs to be given to limitations of purlin spacings for any translucent sheeting.

SNOW LOADS

When the possibility of snow exists it is necessary to allow for the extra imposed snow loads by increasing the strength of the structure, and/or minimising the build up of snow, and this is generally achieved by increasing the roof pitch by allowing easier shedding of the snow or otherwise as the designer determines.

The objective is to simplify rather complex loading patterns while remaining adequately cautious. The design loads should take account of drifting snow due to wind,but wind loads are not required to be combined with snow loads.

As snow loads are uniformly distributed loads they are similar to wind loads.

Snow loadings are not required to be taken into account for the North Island of New Zealand north of a line drawn from Opotiki to Turangi and New Plymouth.

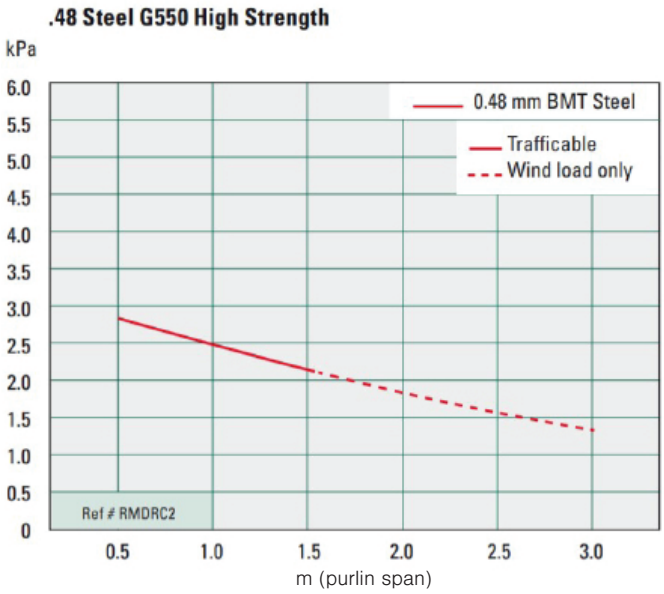
However for other areas snow loadings may need to be taken into account dependent on the area and altitude of the proposed project.

A fuller reference including a map and chart is available from the NZ Metal Roofing Roof and Wall Cladding Code of Practice Section 3.5.

WIND & CONCENTRATED LOAD SPAN DESIGN GRAPH

Steel Based Material

0.48 STEEL G550 HIGH STRENGTH



•Intermediate span in metres.
•End spans to be a maximum of 2/3 of this span.

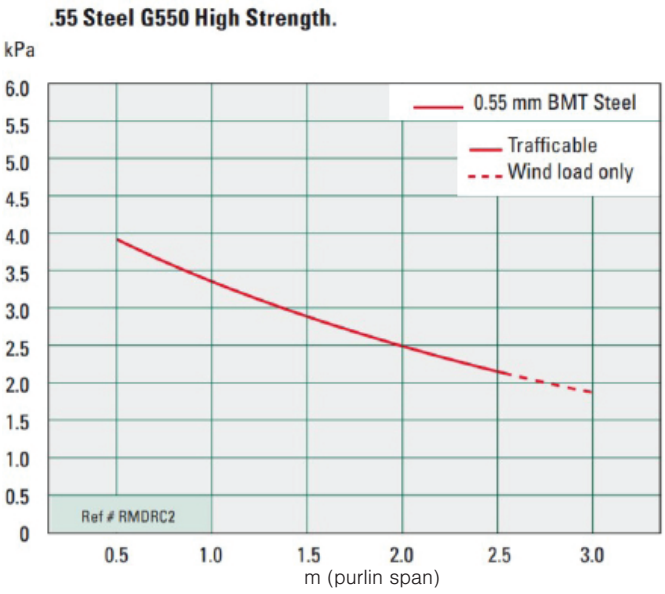
[1])The solid line represents where walking is permitted within 300 mm of the purlin line or in the pan of the profile. Therefore for a normal roof, providing wind load requirements are met, purlin spans are limited to:

Maximum Spans	0.48 BMT
Intermediate	1.6 m
End	1.1 m
Type 2B “Restricted Access” Classification	

[2]) The broken line represents untrafficable roof areas and is wind loading only and has a Type 3 Classification.

In areas of heavy roof traffic, snow loadings or containing items such as air conditioning units purlin spacing should be reduced accordingly.

0.55 STEEL G550 HIGH STRENGTH



•Intermediate span in metres.
•End spans to be a maximum of 2/3 of this span.

[1])The solid line represents where walking is permitted within 300 mm of the purlin line or in the pan of the profile. Therefore for a normal roof, providing wind load requirements are met, purlin spans are limited to:

Maximum Spans	0.55 BMT
Intermediate	2.5 m
End	1.6 m
Type 2B “Restricted Access” Classification	

[2]) The broken line represents un-trafficable roof areas and is wind loading only and has a Type 3 Classification.

In areas of heavy roof traffic, snow loadings or containing items such as air conditioning units purlin spacing should be reduced accordingly.

INFORMATION TABLE

Substrate Material	Steel		Aluminium
Thickness	.48BMT	0.55BMT	0.90BMT
Approx weight per Lineal Metre for Zinc aluminium base material (kg/lm)	2.94	3.35	1.85
Purlin Spacings-General	Refer to separate section		
Unsupported Overhang (mm)	150	250	200
Drape Curved Roof -Minimum Radius (m)	70	70	70
Purlin Spacings for Curved Roofs -Intermediate (mm) -End (mm)	 1200 950	 1450 1100	 0.900 0.600

* This technical data sheet is for steel and aluminium based substrates. RL Topdeck C can also be manufactured in other metals such as Copper or Titanium Zinc. Refer to RoofLogic.

PRIMARY FIXING CHART

Normally one RL Topdeck C Clip per purlin per sheet.

	Wood Purlins	Steel Purlins or girts up to 1.5 mm	Steel Purlins or girts 1.5-4.5 mm	Steel Purlins or girts 4.5-12 mm
Steel Based Material	#trufast purlin fastener, length frin 100 mm-200 mm dependant on insultation thickness (2 per clip)		#trufast purlin fastener, length from 100 mm-200 mm dependant on insultation thickness (2 per clip) NOTE PRE DRILLING REQUIRED	
Aluminium Based Material				
For fibertherm msr systems				
Fibertherm Post and Rail	2 x 10-16x16 Class 3 wafer head Steelteks per clip			

Note: All primary fasteners to have a minimum embedment into structural timber of 30 mm. When sheet lengths exceed 12 m form Zinc aluminium and light coloured and 8 m for dark coloured steel based material and 8 m for Aluminium based material, fix ridging, roof flashings etc. using a 25 mm Aluminium embossed washer and appropriate screw.

Notes: Screw lengths specified based on use of 80 mm PIR Board. Other board fastener lengths available.

Secondary Fasteners:

(To be used in accordance with the NZ Metal Roof and Wall Cladding Code of Practice.)

These should be:

• Aluminium Blind Rivets AS5-3 x 4 mm minimum (Residential)

• Aluminium Blind Rivets AS 6-3 x 4.8 mm minimum (Commercial)

• Aluminium Bulb-tite Rivets

• 12-11x35 Alutites

• 12-11x25 Class 4 Type 17 Woodteks (Steel based material only)

WIND & CONCENTRATED LOAD SPAN DESIGN SUMMARY CHART FOR ROOFING SPANS IN STEEL

Incorporating Wind and Concentrated Load Span Design, Primary Fixing Methods and Foot Traffic

0.48 mm BMT Steel					
Wind Design Loadings- kPas					
Purlin Spacing (m)		Fixing Method A			Foot Traffic
Intermediate	End5	Int.	End	End Periphery	
0.5	0.35	2.8	3.0	2.8	Unrestricted
0.75	0.5	2.6	2.8	2.6	
1.0	0.67	2.5	2.7	2.5	
1.2	0.8	2.35	2.55	2.35	
1.25	0.84	2.3	2.5	2.3	Restricted access walk within 300 mm of purlins or in pan of roof
1.5	1.0	2.1	2.45	2.1	
1.6	1.1	2.05	2.4	2.05	
1.75	1.17	1.95	2.35	1.95	non accessible
2.0	1.33	1.8	2.25	1.8	
2.25	1.5	1.7	2.1	1.7	
2.5	1.67	1.55	2.0	1.55	
2.75	1.83	1.4	1.9	1.4	
3.0	2.0	1.3	1.8	1.3	

0.55 mm BMT Steel					
Wind Design Loadings- kPas					
Purlin Spacing (m)		Fixing Method A			Foot Traffic
Intermediate	End	Int.	End	Int(P)	
0.5	0.35	3.85	4.0	3.85	Unrestricted
0.75	0.5	3.6	3.9	3.6	
1.0	0.67	3.3	3.7	3.3	
1.25	0.84	3.1	3.5	3.1	
1.5	1.0	2.85	3.3	2.85	
1.75	1.17	2.7	3.2	2.7	
1.8	1.2	2.65	3.15	2.65	
2.0	1.33	2.5	3.1	2.5	Restricted access walk within 300 mm of purlins or in pan of roof
2.25	1.5	2.3	2.8	2.3	
2.5	1.67	2.1	2.7	2.1	
2.75	1.83	2.05	2.6	2.05	non accessible
3.0	2.0	1.85	2.5	1.85	

ROOF EXPANSION PROVISIONS

Steel Based Material:

Zinc aluminium and lighter colours are subject to less expansion than dark colours so the former are recommended when sheeting lengths exceed 24 m. TopDeck C can be manufactured to lengths within the availability of transport limitation, generally up to 30 m, but can be manufactured longer subject to the availability of specialised transport. For steel based sheets in excess of 30 m sheet lengths contact RoofLogic.

Aluminium: Plain aluminium and light colours are subject to less expansion than dark colours so the former are recommended when sheeting lengths exceed 18 m. Maximum recommended sheet lengths for plain and light coloured aluminium is 24 m.

Ridging and Flashings: When sheet lengths exceed 12 metres for zinc aluminium and light coloured steel and 8 m for dark coloured steel based material and 8 m for aluminium based material, fix ridges, roof flashings, etc, using a 25 mm aluminium embossed washer.

For further information on the fixing of TopDeck C refer to E2/AS1 of the NZ Building Code and NZ Metal Roof and Wall Cladding Code of Practice, www.metalroofing.co.nz. These publications, along with the foregoing technical data should form the basis if the design and installation of metal roofing and cladding. Also refer to our suite of detail drawings and to NZ Steel Ltd and Pacific Coilcoaters literature.

Fix with recommended fasteners and systems from the Primary Fixing Chart and additionally allow for the following where applicable.

<table>
<tr><th colspan="5">Aluminium</th></tr>
<tr><td>Sheet Lengths</td><td>Up to 10 metres</td><td>10-12 metres</td><td>12-15 metres</td><td>>15 metres</td></tr>
<tr><td>Plain Aluminium & lighter colours in Favourable Installations
(Refer NZMRM C.O.P. Section 4.1.6)</td><td colspan="3">Fix using oversize holes with screws and approved load spreading profile Ali washers, and 36 mm EPDM washers</td><td>Not recommended</td></tr>
<tr><td>Dark Coloured Aluminium in Favourable Installations
(Refer NZMRM C.O.P. Section 4.1.6)</td><td colspan="2">Fix using oversize holes with screws and approved load spreading profile Ali washers, and 36 mm EPDM washers</td><td colspan="2">Not recommended</td></tr>
<tr><td>Plain Aluminium & lighter colours in Unfavourable Installations
(Refer NZMRM C.O.P. Section 4.1.6)</td><td colspan="2">Fix using oversize holes with screws and approved load spreading profile Ali washers, and 30 mm EPDM washers</td><td colspan="2">Not recommended</td></tr>
<tr><td>Dark Coloured Aluminium in Unfavourable Installations
(Refer NZMRM C.O.P. Section 4.1.6)</td><td>Fix using oversize holes with screws and approved load spreading profile Ali washers, and 30 mm EPDM washers.</td><td colspan="3">Not recommended</td></tr>
</table>

For sheet lengths in excess of the above a step joint or other special provision for expansion is required. Refer to RoofLogic. When using load spreading profile washers or 25 mm Aluminium embossed washers for roofing fix ridging, roof flashings etc. using a 25 mm Aluminium embossed washer and appropriate screw.

Oversize holes should be 3 mm greater diameter than the screw or as per the Primary Fixing Chart for stainless steel screws.For further information on the fixing of TopDeck T refer to E2/AS1 of the NZ Building Code and NZ Metal Roof and Wall Cladding Code of Practice, www.metalroofing.org.nz. These publications along with the foregoing technical data should form the basis of the design and installation of metal roofing and cladding.

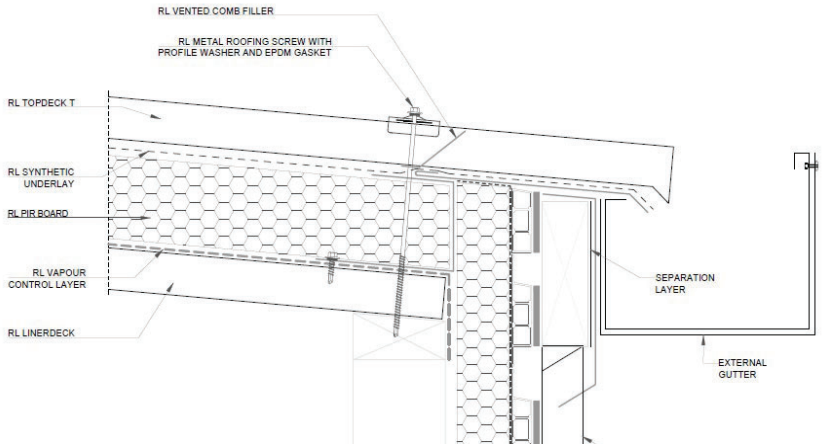
Also refer to our suite of detail drawings, and to NZ Steel Ltd and Pacific Coilcoaters literature.

RL VENTED COMB FILLER

For Ultratherm MSR Roofing Systems

Prevents entry of birds and nesting insects

RL Vented Comb Filler



RL Vented Comb Filler indicative detail on RL Ultratherm MSR

DESCRIPTION

Crafted with flexible fingers, the RL Vented Comb Filler is designed to adapt and fill the gaps commonly encountered when using steel roof cladding. It serves as an effective barrier to prevent the entry of birds and larger insects beneath the metal. By closing off these gaps, the RL Vented Comb Filler gives enhanced protection.

BENEFITS

- The RL Vented Comb Filler delivers reliable protection against birds and nesting insects. It presents a cost-effective alternative to purpose-made profiled fillers.
- Conveniently designed in 1-meter lengths, the RL Vented Comb Filler ensures easy installation.
- Its straightforward installation process enables quick and efficient securing, creating a seamless barrier.

MATERIAL AND FINISH

Manufactured through injection molding using Polypropylene material, the RL Vented Comb Filler is available in black. The comb features a 4 mm grille for ventilation.

It is supplied in lengths of 1000 mm.

Colour	Black
Length	1000 mm
Vent Size	4 mm grille
Packing	Sold per Lm