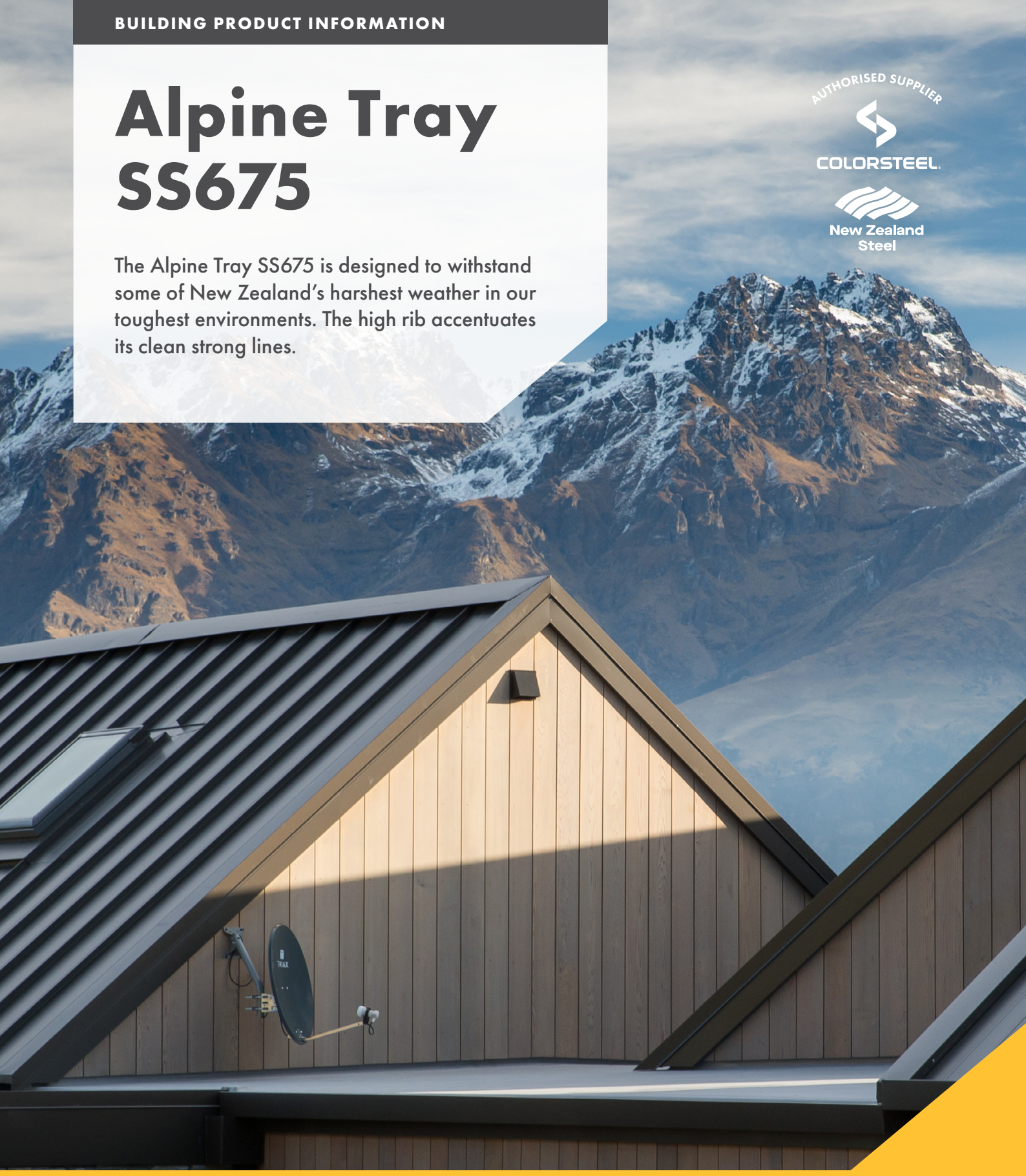
BUILDING PRODUCT INFORMATION

Alpine Tray SS675

The Alpine Tray SS675 is designed to withstand some of New Zealand's harshest weather in our toughest environments. The high rib accentuates its clean strong lines.



AUTHORISED SUPPLIER
COLORSTEEL
New Zealand Steel

FREEMAN ROOFING

freemanroofing.co.nz

FREEMAN ROOFING ALPINE TRAY SS675

The Alpine Tray SS675 is a roofing and wall cladding system, specially designed for applications that generally do not necessitate a supportive substrate such as ply board.

It is securely fastened or 'snap-locked' onto roof purlins and wall girts through a concealed clip mechanism. The profile offers flexibility with the choice of having swages within the tray pan for a distinct appearance or opting for a more conventional look without swages. The Alpine Tray SS675 profile features a rib height of 44mm, providing increased water-carrying capacity and robustness to handle snow loads, particularly suitable for alpine regions but just as effective and visually appealing for coastal regions. This product is typically produced at a local manufacturing facility and then transported to the installation site. However, for larger, more complex projects this product can also be roll formed on site.

When specifying Freeman Roofing Alpine Tray SS675 into design plans, always cite this product as: *'Freeman Roofing Alpine Tray SS675'. This will ensure that the product used on the project is compliant and accurately manufactured using genuine NZ Made Colorsteel ®*

SUMMARY OF DESIGN CONSIDERATIONS

- Minimum roof pitch of 3°.
- Effective coverage width of approx 455mm.
- Rib height of 44mm.
- Specify the appropriate material and coating to suit the building's location and environmental conditions.
- Colorsteel ®, including Matte, standard range of colours are available; please check for availability and minimum order quantities.
- Ensure that purlin spacing does not exceed the maximum spans as specified in Alpine Tray SS675 span tables.
- For roof pitches below 10°, it is advisable to reduce the internal purlin spacing. Refer to the span tables for more details. Additionally, self-supporting underlay will require extra support when the pitch is under 10°.
- In roofing applications, it is recommended to use purlin tape or a similar material to create a barrier between Alpine Tray SS675 roofing sheets and timber supports to reduce noise.
- Account for thermal expansion and contraction of the product by following Freeman Roofing's Alpine Tray SS675 design detail drawings to meet NZ Building Code, E2/AS1, and NZ Metal Roofing Manufacturers Code of Practice. Design details for ridge, valley, eave, change of pitch, head barge, and top apron should be consistent within a single option version, such as all Option 1 or all Option 2. For reference, visit the design details page: https://www.freemanroofing.co.nz/roofing-styles/alpine-tray/
- Canning and Purlin Creasing
  Oil canning—also referred to as canning, panning, or quilting—is a visual phenomenon characterised by subtle waviness in the flat pan sections of metal tray roofing. It is a common and naturally occurring characteristic of tray profiles such as Alpine Tray SS675. While some degree of oil canning is inherent and to be expected, its visibility can be influenced by factors such as lighting conditions, angle of view, panel gloss level, surface cleanliness, and roof pitch. In particular, roofs installed at eye level or with acute viewing angles may present more noticeable waviness.
  Installers and designers should ensure that clients are aware that complete flatness is not achievable, and that oil canning is not considered a product defect. To minimise its visual impact in high-profile applications, consider selecting:
  - A tray profile with narrower pan widths
  - Pre-painted material with a low-gloss or textured finish
  - Substrates that are flat and true to plane (avoid convex surfaces)

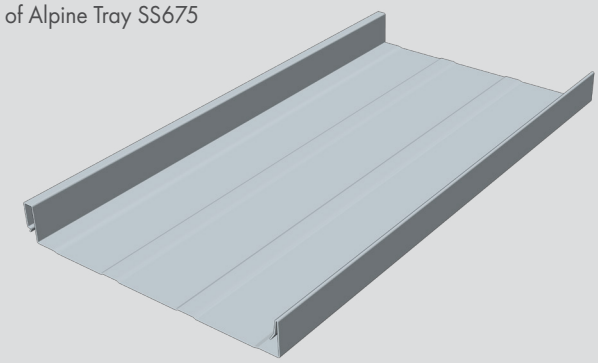
  Additionally, due to the softer grade of steel required for tray roofing (G300), excessive foot traffic during or after installation can contribute to both oil canning and purlin creasing, particularly with wider pans. Care should be taken to limit foot traffic and ensure appropriate support spacing to reduce the likelihood of visible purlin lines forming under pressure.
- Choose between swaged or non-swaged pan options, with swaging helping to reduce the canning effect.
- Alpine Tray SS675 wall cladding should be installed with a drainage cavity batten.
- Additional support may be necessary in Extra High and Specific Engineered Design Wind Zones. It's also required when using aluminium Alpine Tray SS675. Contact Freeman Roofing for further guidance.
- When using Alpine Tray SS675 roofing or wall cladding alongside other metal products, such as copper, ensure compatibility to prevent accelerated corrosion.

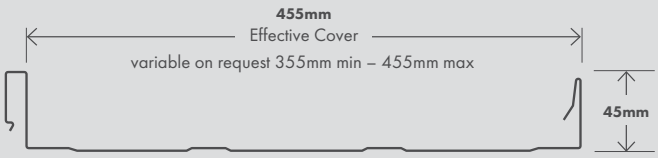
PROFILE TECHNICAL SUMMARY

ALPINE TRAY SS675

All profile dimensions are nominal and in mm

Dimensioned Drawing of Alpine Tray SS675





Noise caused by high winds can pose challenges, especially in areas where wind speeds exceed 20 m/s. To mitigate this issue, one can consider specifying a narrower pan width and reducing clip spacing. Additionally, further noise reduction can be achieved by introducing a convex shape into the pan, and this can be accomplished in two ways:

1. Placing longitudinal stringers, such as a 10 mm batten, beneath the centre of the tray.
2. Installing strips of compressive material along the purlins.

Notably, the use of geotextile mat layers has the most substantial impact on noise reduction. However, it's important to assess the additional cost of implementing these measures in relation to the expected benefits (refer MRM COP 15.4.8.1).

FINISHES

Our Alpine Tray profile is available in a range of materials to suit New Zealand's wide range of environmental conditions. Your local conditions will determine which roofing materials are suitable for your project.

Available finishes	Thickness (BMT)
Steel, Zincalume & pre-finished (Colorsteel ®)	0.55mm, 0.75mm
Copper	0.50mm, 0.70mm
Zinc	0.70mm
Aluminium	0.90mm

CLIPS

Clips are available and galvanised and supplied to meet the specifications. Clips are usually fixed at 600mm centres, but this may vary due to wind loadings and conditions.

COMPOSITION OF MATERIALS AND FINISHES

Defining the boundaries of distinct corrosion zones can be a challenging task due to the numerous factors influencing the corrosiveness of a particular area. Selecting the appropriate materials for the specific location is crucial to ensure they meet the minimum durability standards of the NZ Building Code and align with customer expectations. Zinc/aluminium-coated steel substrates adhere to AS 1397:2011 standards. Additionally, there are pre-painted metal options available to address various environmental conditions, encompassing different metals, metallic coatings, paint systems, and varying paint thickness. The paint coatings are crafted in compliance with AS/NZS 2728:2013.

For tailored product selections based on the project's environmental requirements, please contact your local Freeman Roofing branch for further information.

- Suitable for pitched roofs down to 3°
- Wide Range of colours
- Long Run Available
- Pan swage. Standard swage optional
- Machine transportable to site
  **Dependant on project specific factors. Contact your local branch to discuss.*

WEIGHTS AND TOLERANCES

Weight		0.55 BMT	0.90 Aluminium
Kg/lineal metre	Painted	2.75	1.48
Kg/square metre	Painted	6.05	3.21

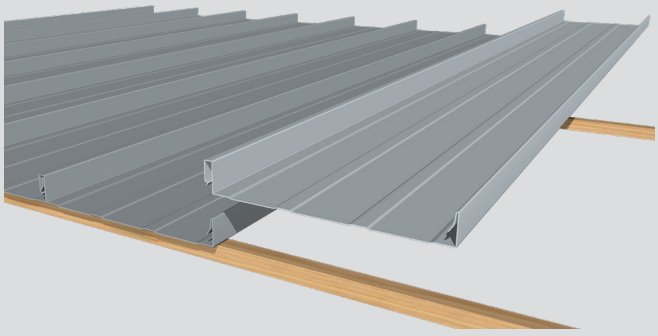
Tolerances: Sheet width +/- 2mm. Sheet length +/-5mm

FIXING

Fixings supplied in the specific finish, length and size is determined as per the approved building code and the Metal Roofing Association Code of Practice.

Lay sheets into the prevailing wind, with each sheet shifting nearly on the previous one and fixed within the recommended support spacings.

Avoid stretching the width of the sheet as this could allow wind and rain to enter.



PROFILE TECHNICAL SUMMARY CONT.

MAXIMUM SPANS FOR NZS3604 WIND ZONES

For strength and spanning capability the edges must be fixed. Use 10 gauge, self-drilling screws to fasten the standing seam to the clips on the sheet edges.

For maximum weather tightness, flashing turn-downs into the pan of Alpine Tray sheeting should be notched around the rib.

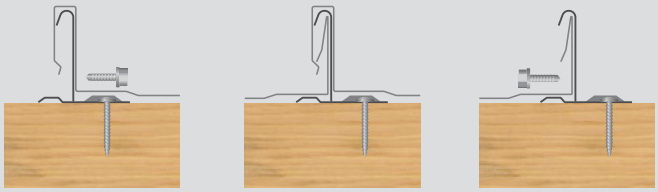
For roof pitches under 10°: Reduce purlin centres to 450mm. To support the underlay, use roofing string tape.

FIXING TO TIMBER

Fixing to timber: Use 10 x 40mm, square drive, wafer-head timber screw per clip. Clips are at every sheet overlap and edge at timber supports.

To avoid damage to the sheeting walk over purlins.

Wear rubber-soled shoes and walk in the pans. Do not walk directly on end spans purlins.



WARRANTY

All profiles are covered by warranty for:

- Coating performance
- Corrosion resistance
- Substrate integrity

Warranty is subject to use of the appropriate product for the environment. A written warranty is available on request.

Important note regarding 'oil canning' which is defined as a visible waviness in the flat areas of metal roofing and wall cladding. Oil canning is an architectural feature of any wide flat pan profile which will not impact the structural integrity of the product.

For additional information please contact your local branch or visit our website www.freemanroofing.co.nz

MANUFACTURING BRANCHES

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Tauranga
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Maximum recommended sheet lengths for aluminium is 10-12 metres for dark coloured and 12-15 metres for plain and light coloured. Refer to Roof Expansions Provisions of this summary.

Manufactured custom cut to length subject to transport and site limitations.

Sheet lengths in excess of 28 metres require specialised transportation.

As sheet lengths increase higher transportation costs may be applicable.

ADHERENCE TO BUILDING CODE STANDARDS

When employed in alignment with Freeman Roofing's installation and maintenance advice, Freeman Roofing Alpine Tray SS675 BPI will aid in fulfilling the subsequent stipulations of the New Zealand building code.

B1 STRUCTURE:

B1.3.1, B1.3.2, B1.3.3 (b, c, f, g, h, j), B1.3.4

The span tables align with AS/NZS 1170.2:2002 standards. They are established using a maximum building height of ten meters and a 500-year design return period for wind load assessment under the strength limit state.

WIND LOAD PERFORMANCE TESTING

The SS675 Alpine Tray has been thoroughly tested by Shelby Wright Test Labs (SWTL), an independent IANZ-accredited facility. Testing was conducted according to Metal Roofing Manufacturers (MRM) Code of Practice v23.09 Section 17, with an enhanced focus on real-world installation conditions.

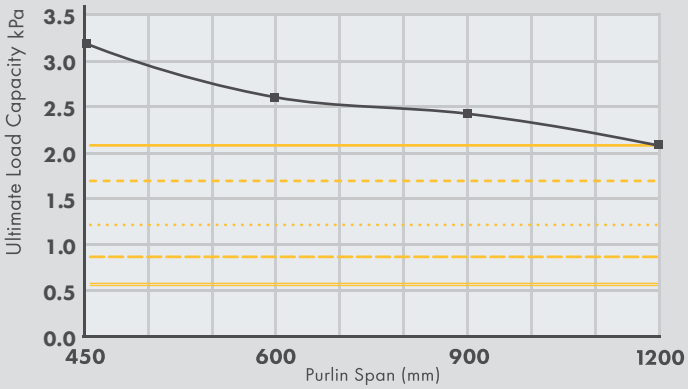
Our test data represents typical long-run roofing installations, providing performance metrics that accurately reflect real-world applications. The SWTL testing methodology specifically evaluates:

- Full-length panel performance
- Multiple span configurations
- Standard fixing methods
- Actual installation conditions

This approach ensures our published data gives designers and installers confidence in specifying SS675 Alpine Tray for typical roofing applications. For specific design requirements or specialised applications, please consult our technical team at erf@freemanroofing.co.nz

SS675 ALPINE TRAY – WIND LOAD PERFORMANCE

Independent laboratory performance (SWTL Test Report R0069)



Key	Wind Zone	Load
	Extra High	2.09kPa
	Very High	1.72kPa
	High	1.32kPa
	Medium	0.93kPa
	Low	0.6kPa

Testing Methodology

Results represent real-world performance based on SWTL's comprehensive testing approach that evaluates full length installations typical of standard roofing applications. Testing conducted in accordance with MRM Code of Practice v23.09 Section 17.

FASTENER REQUIREMENTS

Purlin or frame material	Clip Material	Roof	Wall (18 – 25mm cavity batten)	Secondary Fasteners	
		Colorsteel ®	Colorsteel ®	Aluminium Rivets	Screws
				Colorsteel ®	Colorsteel ®
Timber	Galvanised	Class 4 Type 17 10g x 30mm #2 SQ drive Wafer Head		Residential – Blind AS5-3 x 4mm minimum Bulb-tite	Class 4 Type 17 12-11x40 Roofing Screw with neoprene washer
Steel	Galvanised	Class 4 10g x 16mm #2 SQ drive Wafer Head			Class 4 12-14x20 Tek Roofing Screw with neoprene washer
Plywood Substrate	Galvanised	Class 4 Type 17 10g x 30mm #2 SQ drive Wafer Head			
Timber	Stainless Steel	Aluminium		Aluminium	Aluminium
		SS304 Self Tapping 8g x 45mm #2 SQ drive Wafer Head		Residential – Blind AS5-3 x 4mm Minimum Bulb-tite	Alutite Type A 11 x 35 Roofing Screw SS304 Steel Tek 14 x 25 Roofing Screw
Plywood Substrate	Stainless Steel	SS304 Self Tapping 8g x 25mm #2 SQ drive Wafer			

ADHERENCE TO BUILDING CODE STANDARDS CONT.

B2 DURABILITY:

B2.3.1 (b)

Durability in accordance with Table 20 E2/AS1		
Product	**Rain Washed Roofs**	**Walls and Unwashed Areas**
Colorsteel Maxam / Colorcote Magnaflow	B, C, D, E	B, C, D
Colorsteel Altimate / Colorcote Alumiguard	B, C, D, E	B, C, D, E

Key	E2/AS1 references atmospheric zones B,C,D,E. Determined, by wind-driven sea-spray. B: Low / C: Medium / D: High / E: Severe marine, such as breaking surf beaches.

C FIRE:

C3.5, C3.6, C3.7

Freeman Roofing products made from Colorsteel ® are rated as group 1-S materials when tested in accordance with ISO 5660:2002 part 2. For more information, please refer to: Colorsteel ® product technical statements v2022.1 **https://www.colorsteel.co.nz/resources/downloads-and-brochures/**

E1 – SURFACE WATER:

E1.3.2

Freeman Roofing Alpine Tray SS675 has exceptional water carrying capacity compared to other profiles such as Corrugate or Trapezoidal.

Minimum Pitch 3º, rainfall intensity 150 mm/hr		
Maximum Run	109 m	
Catchment area of spreader	181 m^2	10m run, 2 holes in spreader
Catchment behind penetration	81 m^2	10m run, discharging each side of penetration

E2 EXTERNAL MOISTURE:

E2.3.1, E2.3.2, E2.3.7

Freeman Roofing Alpine Tray SS675 will match a wide range of details for most applications. Standard design details for Freeman Roofing Alpine Tray SS675 can be found on our website.

https://www.freemanroofing.co.nz/roofing-styles/alpine-tray/

Other options can conform to the trough section roofing solutions outlined in E2/AS1.

E3 INTERNAL MOISTURE:

E3.3.1

When utilised alongside a porous and permeable underlay that meets the standards of NZS 2295:2006, the utilisation of Freeman Roofing Alpine Tray SS675 BPI aids in satisfying the requirements of NZBC E3.3.1. Adequate ventilation provisions are necessary for ceiling spaces in sarked roofs, skillion roofs, barrel curved roofs, flat roofs, and roofs in moisture-prone environments.

F2 HAZARDOUS BUILDING MATERIALS:

F2.3.1

Freeman Roofing Alpine Tray SS675 BPI manufactured from Zincalume ® Colorsteel ® or pre-painted Aluminium such as Altimate ® will meet the performance requirement of F 2.3.1.

G12 WATER SUPPLIES:

G12.3.2

Rainwater collected from roofs clad with steel and pre-painted steel products [including Colorsteel ®], will comply with the provisions of NZBC G 1 2.3.1, provided the water is not contaminated from other sources (MRM Code of Practice 12.7).

TESTING & SUPPORTIVE EVIDENCE

Supporting evidence provided where requested will apply to the product supplied for the specific project.

Technical documentation and testing evidence pertaining to Colorsteel ® and Altimate ® can be found here: https://www.colorsteel.co.nz/resources/downloads-and-brochures/

Freeman Roofing Alpine Tray SS675 wind capacity and span tables reflect testing undertaken by a compliant 3rd party using methods outlined by the New Zealand Metal Roofing Manufacturers Association. Documentation can be obtained by contacting Freeman Roofing.

INSTALLATION ADVICE

- Alpine Tray SS675 should always be stored in a dry place and kept above ground level on the construction site. If the sheets become wet, they should be separated, wiped down, and left in an open area to dry.
- Avoid using black lead pencils for marking aluminium/zinc, unpainted, or pre-painted steel products. The carbon in the pencil can trigger corrosion that etches the material's surface, leaving a permanent mark. Instead, use pencils of any colour other than black, marker pens, or crayons. When cutting pre-painted steel material, use shears exclusively, such as nibblers or hand shears. Avoid using friction blades and high-speed saw blades on metal cladding, as they generate excessive heat and produce hot swarf that can embed into the coating surface, damaging both the metallic coating and the pre-painted steel surface.
- Ensure that the job site is kept clean, with all debris swept away at the end of each working day. It's much easier to prevent swarf damage than to remedy it.
- Alpine Tray SS675 should be laid with overlaps to fit neatly on the preceding roof sheet. For roofing applications, it's advisable to use purlin tape or a similar material to create a noise-reduction barrier between Alpine Tray SS675 and timber supports. Avoid stretching the sheet width during installation, as this can allow wind and rain to penetrate.
- Edge fixing is essential for structural integrity and spanning capability. Use self-drilling screws as specified in the fastener table to secure the standing seam to edge clips. Clips should be positioned at every sheet overlap and sheet edges at timber supports.
- When walking on Alpine Tray SS675 roofing, walk over the purlins to prevent damage to the sheets. Wear flat rubber-soled shoes and walk flat-footed in the pans only. Direct access on end spans is not permitted due to potential sheet damage.
- Plastic film should be removed as soon as possible.
- Account for thermal expansion and contraction using Alpine Tray SS675 design detail drawings to minimise oil canning. Specific design details, such as Ridge, Valley, Eave, Head Barge, Change of Pitch, and Top Apron, should match the chosen option.
- Eaves flashings should be installed when the roof pitch is ≤ 10°, soffit width is ≤ 100mm, or wind zones are Very High, Extra High, or Specific Engineer Design.
- For roofing applications, the pans at the end of the sheets should be turned up at the roof's crest and down at the gutter end using a turn-up/down tool. On vertical wall cladding, wall cladding should be turned up on the top of the sheet.
- Cavity battens are necessary for Alpine Tray SS675 wall cladding. If cavity batten is used over the roof purlins, the screw length should be increased by at least the thickness of the cavity batten.
- When using 0.90mm aluminium instead of 0.55mm steel roofing for Alpine Tray SS675, a plywood substrate is required. This substrate must be a minimum CpD Grade plywood treated H3.2 with a minimum thickness of 17mm and 18% moisture content. Additionally, a drainage mat underlay is necessary, and fixing clips should be stainless steel fixed at 400mm intervals. For further installation information, please contact us.
- Flashings should be installed using multi-piece under and top flashings with minimal visible fixings, following Freeman Roofing's design details to comply with the NZ Building Code, E2/AS1, and/or NZMRM Code of Practice. All flashing turndowns into the pan of Alpine Tray SS675 should be notched around the rib to ensure maximum weather tightness. Alternative flashing details may be used if they comply with the NZ Building Code, E2/AS1, where applicable, and/or NZMRM Code of Practice. For more information, please visit: https://www.freemanroofing.co.nz/roofing-styles/alpine-tray/.

MAINTENANCE

All roofing and cladding materials are affected by the combined influences of weather, dust, and various deposits. Therefore, the long-term performance and resilience of Freeman Roofing Alpine Tray SS675 BPI roofing and wall cladding rely on proper upkeep. In the case of roofing, the natural action of rain will generally cleanse most gathered environmental particles from the upper surface.

On the other hand, wall cladding necessitates manual cleaning every 3 to 12 months (depending on the local surroundings and paint system) to prevent the accumulation of dirt, debris, or other substances that rain alone can't remove. Regions that lack sufficient rain cleaning (unwashed areas) demand more thorough manual cleaning. These areas encompass soffits, wall cladding beneath eaves, undersides of gutters, fascia's, protected sections of garage doors, unwashed roof segments, and other zones at greater risk, such as around flues, beneath television aerials and solar panels, or in locales prone to mould, lichen, bird droppings, or debris.

Maintenance of roofing and cladding materials should be cleaned manually using either water and a sponge or a gentle nylon-bristled brush. Water blasting can be employed, but the pressure must not exceed 20MPa. Avoid using harsh or solvent-based cleaners like turps, petrol, or kerosene.

Additional information pertaining to New Zealand Steel's maintenance advice for its products can be found here: https://www.colorsteel.co.nz/assets/Brochures/Maintenance_Recommendations_Brochure_v4.pdf.

STATEMENT IN REGARD TO SECTION 26 OF THE BUILDING ACT

Freeman Roofing Alpine Tray SS675 roofing and wall cladding products are not subject to any warnings or bans under Section 26 of the Building Act.

FREEMAN ROOFING

freemanroofing.co.nz

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