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An Introduction

Steel & Tube Holdings Limited is a publicly listed company specialising in steel merchandising, reinforcing, plate processing, roofing and fastenings, with outlets spread throughout New Zealand.

The roofing division manufactures and markets long run roofing materials, rainwater goods and accessories, and has seven manufacturing sites nation-wide.

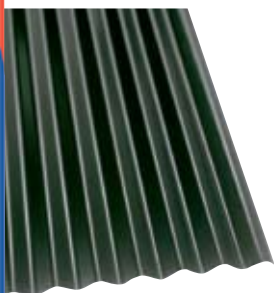
Quality

All Steel & Tube Roofing Products sites are certified to a minimum standard of ISO 9001:2000 for the manufacturing, marketing and delivery of metal roofing and rainwater products.

The Right Product

New Zealand has a wide range of environmental conditions, from harsh West Coast beaches to moderate inland locations to industrial and geothermal sites like no other on earth.

Prior to selecting a product from this guide discuss your particular site location with a Steel & Tube Roofing Products Consultant to ensure the profile and finish will perform to your expectations.



CUSTOM ORB

Custom Orb Corrugate

Custom Orb offers the timeless elegance and matchless adaptability of the traditional corrugate profile, together with unrivalled technical advice, quality control and after-sales service.



PLUMBDEK

Trapezoidal Profiles

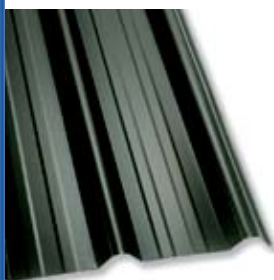
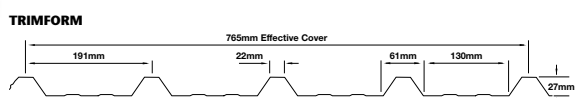
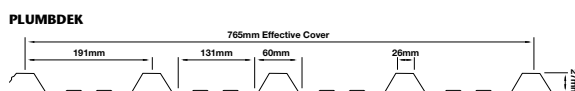
Trapezoidal, or rib, profiles have sloping-sided ribs and are fastened through the profile. They are available in a number of configurations to suit a vast range of performance and appearance criteria.

They can be categorised by common application into Residential/Commercial and Commercial/Industrial groups.

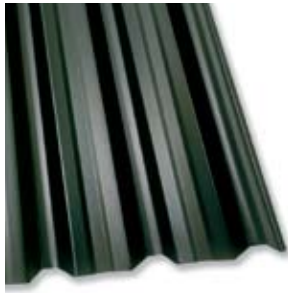
Residential and Commercial Profiles

Steel & Tube Roofing Products offer four trapezoidal rib products with rib heights varying between 20mm and 30mm. These are typically utilised in domestic roofing, or for commercial roofing and cladding applications where spanning ability is not a prime requirement.

Because both **Plumbdek** and **Trimform** profiles feature a strong rib design coupled with wide economical cover, they are equally at home in residential applications or at work in commercial situations.

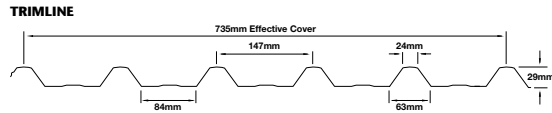


TRIMFORM

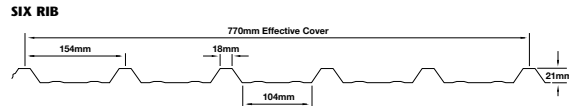


TRIMLINE

Trimline has six bold ribs making it an exceptionally attractive and high performing roofing and cladding profile.



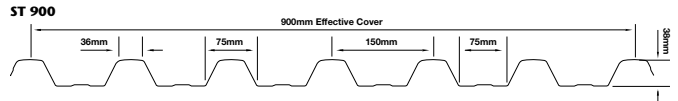
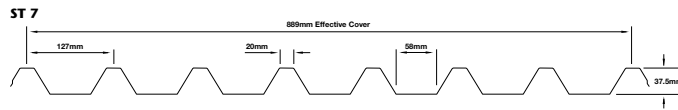
Six Rib has a more subtle rib and wider pan, for an attractive, economical solution to most domestic roofing applications.



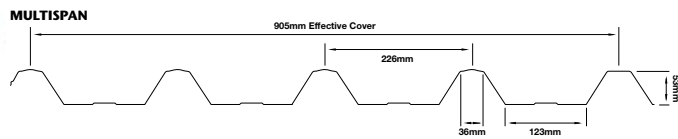
Commercial/Industrial Profiles

Where larger spans or greater robustness is required, the higher-ribbed trapezoidals make their mark.

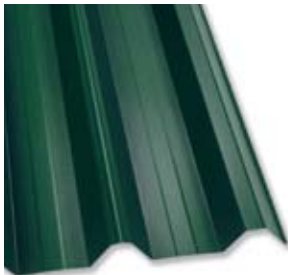
ST 7 and **ST 900** have medium height ribs of 38mm, giving a bolder look for residential applications and enhanced strength for commercial and industrial work.



Multispan has a 53mm high rib, giving it exceptional strength which in turn offers construction economies through purlin/roofing design optimisation. The underlap is fully supported making it a favourite with installers, and the patented crested rib ensures a snug fit around the fastener head.



ST 900

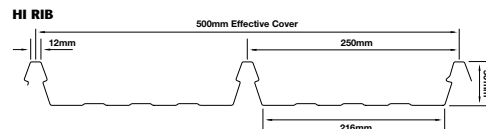
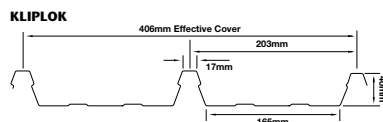
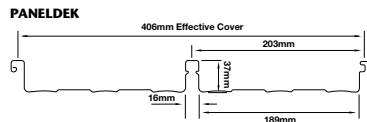


MULTISPAN

Trough Section Profiles

Steel & Tube Roofing Products trough section profiles are designed to meet a variety of needs from low pitch and long lengths to steep pitches where the clean lines are enhanced by the secret fixings.

Paneldek, with its unique hinge locking action, is a favourite with designers and installers while **Kliplok** and **Hi Rib** deliver exceptional performance capabilities because they are both manufactured from High Tensile Steel.



HI RIB

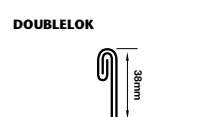
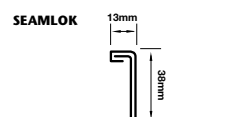
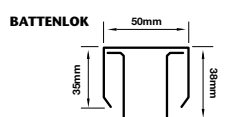
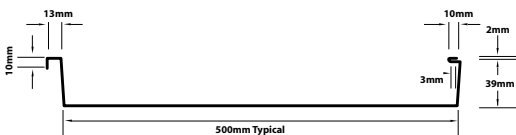


COPPER

EUROLINE Standing Seam Roofing

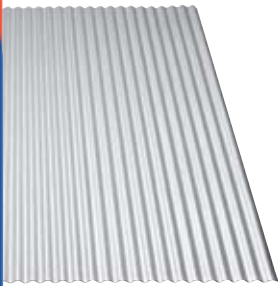
Euro-Line is an elegant descendant of eighteenth century standing seam roofing which, because of Steel & Tube's modern rollforming technology, is now available in continuous lengths.

Euro-Line is obtainable in three profiles: Battenlok, Seamlok and Doublelok. Each profile is available with or without a swaged pan and each has nominal widths of 300mm, 400mm and 500mm.



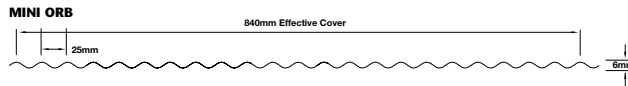
Wall Claddings

Steel & Tube Roofing Products cladding profiles are specifically designed for installations where wide, economical cover is a necessity. All can be laid horizontally or vertically.



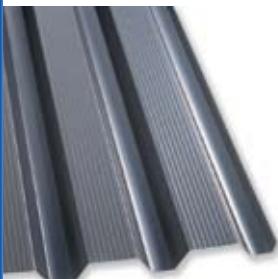
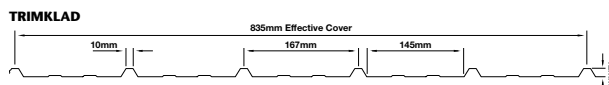
MINI ORB

- **Mini Orb** is defined by its close sinusoidal curves, which also stiffen the sheet. Originally developed for interior design applications, Mini Orb is finding increasing utility as exterior cladding and for external decorative features.



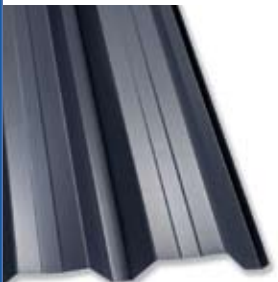
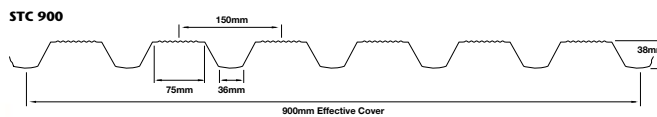
TRIMKLAD

- **Trimklad** has an unobtrusive rib and a very wide swaged pan for any installation where a neat appearance and lower labour costs are an essential design criteria.



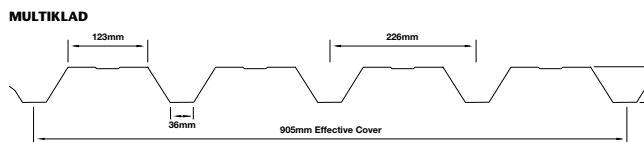
STC 900

- **STC 900** is specially designed for pan-out wall cladding or canopies where the normal underside of the profile is exposed to view. Fine flutes in the face highlight the surface and accentuate the negative detail, while modifications to the side lap detail means that weatherproofness and good looks are maintained on both sides of the profile.



MULTIKLAD

- **Multiklad** is specially designed for pan-out wall cladding, or canopies, where the normal underside of the profile is exposed to view. Special modifications to the side lap detail means that weatherproofness and good looks are maintained from both sides of the profile.



Curved Profiles

Steel & Tube Roofing Products is equipped to precurve corrugate and four trapezoidal profiles in residential or commercial designs where radii exceed the limits for drape or spring curving. Guidelines on Spring Curving are available from your nearest Steel & Tube Roofing branch.

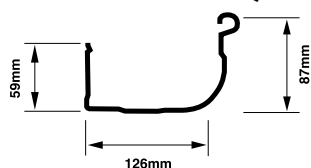
- **Custom Orb** may be roll curved to the fashionable barrel roll or to the tighter, more traditional bullnosing; both requiring a special grade of material which may need to be ordered in advance.
- Crimp curved **Trimline**, **Plumbdek**, **Six Rib**, **ST 900**, **ST 7** and **Multispan** will meet most modern industrial or residential design expectations.
- Convex curved (bullnosed) sheets are available in all six trapezoidal profiles with concave curving available in most profiles.



Rainwater Systems

Traditional Styles

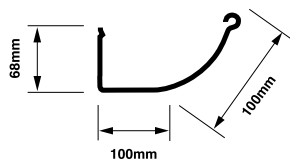
Multiline Quad



**Cross
Sectional
Area**
6850mm²

- Multiline Quad captures the colonial look with its gentle radiused front and strong swaging, blending traditional design with the styles of today.
- Multiline Quad has an optional slotted overflow system.
- Multiline Quad is fitted using fully concealed brackets.

Customline



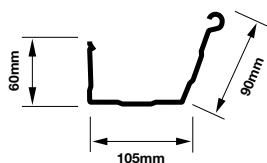
**Cross
Sectional
Area**
7500mm²

- Customline is a larger, longrun version of the classic quarter round, and is deeper than other designs, for greater water carrying capacity and enhanced aesthetic appeal.
- Customline can be fitted with fully concealed brackets to enhance the clean smooth lines or with external brackets, for a timeless classic look.



Contemporary Styles

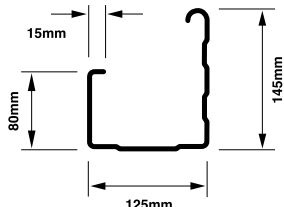
Highline



**Cross
Sectional
Area**
6600mm²

- Highline is one of the most attractive domestic spoutings available, and has a high, sloping face to better cover the end view of domestic roofing systems.
- Highline has an optional slotted overflow system.
- Highline is fixed using fully concealed brackets to maintain its clean line.

Plumbline



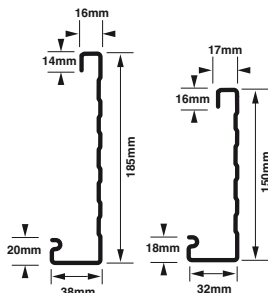
**Cross
Sectional
Area**
10000mm²

- Plumbline provides a large capacity domestic spouting which is also at home on smaller commercial work.
- Plumbline has a strong profile with a double swaged face and swaged base.
- Plumbline is fixed using concealed clips for emphasis of its bold lines.



Fascia Systems

Multiline Fascia – External



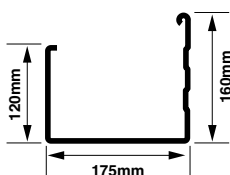
- An attractive and economical advance over timber fascias, Multiline Fascia can be fitted with a range of spoutings for contemporary or traditional appearances.
- Multiline Fascia uses a uniquely designed rafter bracket to prevent denting and damage in metal fascias due to differential movement of trusses and rafters.

Steel & Tube Roofing Products fascia systems are available exclusively through Approved Installers.



Commercial Gutters

175 Gutter



**Cross
Sectional
Area**
21000mm²

- The most commonly specified commercial gutters are 175mm and 300mm however as each are specifically folded the dimensions can be varied greatly to suit any application provided appropriate fixing brackets are sourced.
- Standard pressed internal brackets are available for the 175 gutter, however for extra strength specially

300 Gutter



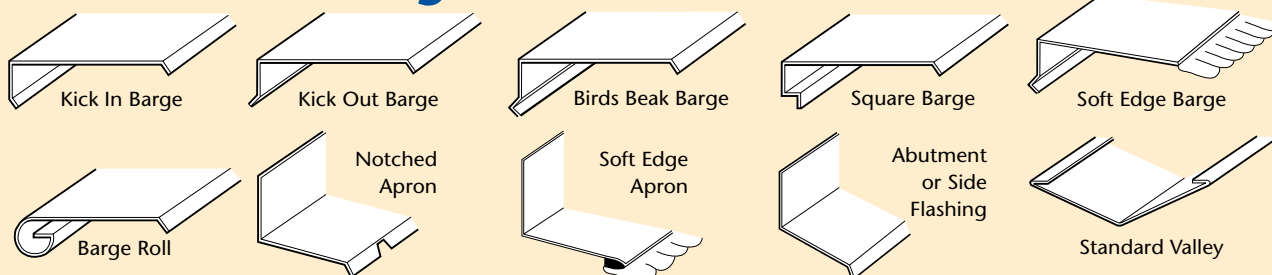
**Cross
Sectional
Area**
31350mm²

- fabricated steel external brackets are recommended (colour matched if required).
- Steel & Tube Roofing Products provide details regarding industrial gutter bracket design & placement, as part of the Steel & Tube Roofing & Cladding Solutions CD-ROM, available from your local branch.

Note that all profile dimensions are nominal



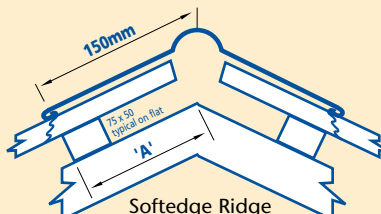
Common Flashings



Ridge

Standard Ridge or Hip Purlin Layout

PITCH ⁰	45	35	30	25	20	15	10
'A' mm	115	134	143	150	156	162	167



For corrugate barges your supplying branch will have dimensions standard for their area. For other profiles dimensions should be specified by the installer.

Internal angles on soft edge or notched barge or apron also need to be specified.

Materials

All our products are available in a wide range of materials and finishes. The following are some of the options.

Metallic Coated: Galvanised Steel, Zinc/Aluminium coated steel.

Pre-Painted Steel: COLORSTEEL® Endura™, COLORSTEEL® Maxx™, Colorcote ZR8 and Colorcote ZRX.

Pre-Painted Aluminium: Colorcote ARX, Colorcote AR8.

Other: Aluminium plain or mill finished, Stainless Steel grade 304 or 316, pure Copper or solid Zinc, all subject to profile choice and material availability.



Warranty Plus & Environments

Steel and Tube Roofing Products offer exclusively to their clients, the unparalleled peace of mind afforded by **Warranty Plus**.

Warranty Plus is the most comprehensive warranty available in the industry today. **Warranty Plus** covers an extended range of criteria, is supported back to back by our suppliers, includes site-specific maintenance requirements and is transferable to subsequent owners.

Warranty Plus for pre-painted products in residential roofing applications is available for up to 30 years against perforation as a result of corrosion, and up to 18 years against flaking, peeling and excessive fade of the coating, depending on the environment and coating system.

Non-residential warranties are for a maximum of 15 years duration.

Refer to your nearest Steel & Tube representative or New Zealand Steel's Specifiers & Builders Guide for information on warranty periods.

The following guide is an indication of product recommendations for residential roofing, rainwater systems and walling. Wall cladding and rainwater systems are often less effectively rain washed than roofing, so selecting a suitably durable material is important. Your nearest Steel & Tube representative will be happy to give you specialist advice for your area.

Marine environmental category is better expressed by way of defining characteristics rather than distance from water, typical zones are given for additional guidance only.

Category	Characterised by	Typical Zones	Suggested Material	
			Roofing and Rainwater Systems	Wall Cladding
Very Severe marine	- Heavy salt deposits. - Almost constant smell of salt spray in air.	Within 50 metres from breaking surf on East Coast, and 100 metres from breaking surf on West Coast.	Colorcote® ARX™	Colorcote® ARX™
		Within 50 –100 metres from breaking surf on East Coast, 100-200 metres from breaking surf on West Coast.	COLORSTEEL® Maxx™	Colorcote® ARX™
Severe marine	- Light salt deposits. - Frequent smell of salt in the air.	Commencing from Very Severe zone up to 500 metres or more inland from breaking surf; or in the immediate vicinity of calm salt water such as harbour foreshores.	COLORSTEEL® Maxx™ or COLORSTEEL® Endura™	COLORSTEEL® Maxx™
Moderate marine	- Little or no salt deposits. - Occasional smell of salt in the air.	500 metres to 1km from breaking surf; or in the immediate vicinity of calm salt water such as estuaries.	COLORSTEEL® Endura™ or Zinalume®	COLORSTEEL® Endura™
Moderate inland	No obvious marine influences.	More than 1000 metres from salt water.	COLORSTEEL® Endura™ or Zinalume®	COLORSTEEL® Endura™ or Zinalume®

Note: Industrial and Geothermal areas are subject to individual assessment. The above terms are subject to correct design, storage, installation and maintenance provisions.

Design for Durability

Steel & Tube [Roofing and Cladding Solutions](#) on CD-ROM or in printed form, provides design and installation details for residential and commercial applications. Contact your local branch or the Technical Helpline for your copy.

With correct product selection, installation and maintenance, your Steel & Tube Roofing Products roof will remain attractive and weatherproof for many years. Unfavourable design practices will detrimentally affect the performance of your roof and should be avoided. If any of the following situations are evident in your design you should contact your Steel & Tube Roofing Products representative for advice.

- Areas of roofing, cladding and rainwater systems unwashed by rainfall will accumulate atmospheric debris which can become corrosive when damp. These areas will require maintenance depending on the product used and the environment. Refer to the MAINTENANCE section of this publication.
- Do not discharge water runoff from inert materials such as Zinalume® steel, pre-painted roofing, tiles or clear sheeting onto unpainted galvanised roofing and gutters, as the corrosive salts formed in this situation are unstable and can lead to premature corrosion.
- Where two different metals are in contact one metal will tend to sacrifice itself to protect the other. A similar effect can occur with water flowing over dissimilar metals. In particular, avoid runoff from copper or brass onto Zinalume® steel roofing, and avoid contact with, or runoff from unpainted lead onto Zinalume® steel.
- Fasteners should be compatible with the roofing material chosen and have durability not less than the material being fastened. Stainless steel or aluminium fasteners should be used with pre-painted aluminium roofs.
- Wall cladding should terminate at least 50mm above ground level, and be kept free of vegetation.



Storage

Products are despatched from the factory in top condition, however the material can be ruined before installation by poor storage practices. Premature deterioration due to poor storage may be avoided if these simple guidelines are followed:

- On arrival, ensure sheets are dry. If wet, open the pack and separate the sheets to allow them to dry. Store packs of the product off the ground in a sheltered position providing some fall to allow water to run off. Protect packs with a loose fitting waterproof cover, allowing air to circulate.
- Contact with wet cement should be avoided at all times.



Installation

The installation of metal roofing products is a specialised field requiring knowledge and experience of numerous issues with regard to trade practice and material compatibility.

- Poor handling prior to or during installation can cause damage which may affect the appearance and ultimate performance of the product. Don't handle sheets roughly or carelessly or drag or slide sheets over each other or rough surfaces, as damage to the coating may occur. Equipment used to handle the sheets should be clean and free of dirt and grit.
- Soft soled shoes should be worn whenever walking on the product to prevent damage to the coating; traffic up the roof should be in the pans of the profile and across the roof should be on the purlin line.
- Prior to installation ensure that the tops of the purlins or girts are all in the same plane; if packing or easing is necessary ensure this is not to the detriment of the connection between the fastener and the structure.
- Sheets should be lapped away from the line of sight wherever possible to enhance aesthetic appeal and all sheets should be stop ended at the top, and lipped at the bottom on pitches below 8°.
- Ensure that the anti-capillary edge is fitted as the external overlap and is visible from the top side.
- The use of touch-up paints is not recommended; if a pre-painted sheet is excessively damaged by scratching it should be replaced. Accessories should be colour matched prior to installation.
- Regularly clean up the area by sweeping swarf, offcuts, rivet shanks and loose fasteners with a soft-bristled broom. Collect and remove all debris daily as unsightly staining from swarf and other unprotected steel items can occur overnight.
- The strippable film applied to some pre-painted products must be removed within two weeks of installation, or earlier if storage is in direct sunlight.
- Recommended references are the New Zealand Steel [Installer's Guide](#) and the Steel & Tube [Roofing and Cladding Solutions](#).



Maintenance

Few products are absolutely maintenance-free and all Steel & Tube Roofing Products profiles are subject to the cumulative effects of weather, dust and other airborne deposits, some of which are extremely aggressive. ENVIRONMENTS & WARRANTIES on Page 6 will assist in identifying the category into which the site fits. In order to ensure the maximum service life from the chosen coating system, the property owner should note the following maintenance advice:

- Soft soled shoes should be worn whenever walking on roofing to prevent damage to the coating; walk only in the pans of the profile, and on the purlin line whenever possible.
- Normal rainwashing will remove most accumulated atmospheric debris, but manual washing is required for areas which do not receive adequate rainwashing. These areas, such as wall cladding under eaves, or sheltered areas where overlapping of roof areas occurs due to the design, are known as *unwashed areas*.
- Other *high risk areas* that require manual washing include around flues and extractor vents, under television aerials and trees and sites prone to mould, lichen, bird droppings or debris.
- Spoutings and gutters must be regularly inspected to remove debris, which may cause ponding.
- Surfaces may be washed with water and a soft-bristled brush, or for larger areas waterblasting at pressures up to 20 MPa may be more appropriate.
- The following table shows maintenance requirements for roofing products relative to the environment in which the building is located.



These recommendations are dependant on selection of the appropriate roofing material for the prevailing environment.

Material	Environment	Maintenance Requirement			
		Roof	Walls	Rainwater Systems	Unwashed and High Risk Areas
Pre-Painted steel	Very severe	Rainwashing Only	Wash every 3 months	Wash monthly	Wash monthly
	Severe	Rainwashing Only	Wash every 6 months	Wash every 3 months	Wash every 3 months
	Moderate	Rainwashing Only	Wash every 12 months	Wash every 6 months	Wash every 3 months
Zincalume®	Moderate	Rainwashing Only	Wash every 6 months	Wash every 3 months	Wash every 3 months

Overpainting

- Galvanised or Zincalume® products can be overpainted immediately or after weathering. Use primer and top coat from a reputable paint manufacturer suitable for galvanised steel. Do not use calcium plumbate primers if rain water is to be collected for drinking purposes.
- Pre-painted roofing is best left weathered for at least twelve months prior to overpainting, unless special steps are taken to improve adhesion.
- As with all paint systems preparation is the key. For more information on overpainting Steel & Tube Roofing Products pre-painted materials, refer to the New Zealand Steel Overpainting Guide.

Preferred Supplier



Drinking Water

- Pre-painted and metallic coated products are suitable for the collection of drinking water. On new installations the first 25mm of rainfall should be discarded to avoid contamination from any manufacturing or installation residue. Some post-painted systems are unsuitable for the collection of drinking water, check with the paint supplier for compatibility.

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North Shore City 0745
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Fax: 09 415 9192

AUCKLAND
30 Business Parade North
Highbrook
PO Box 204216
Highbrook
Manukau 2161
Tel: 09 274 4056
Fax: 09 274 8972

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40 Northway Street
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ROOFING PRODUCTS**