

# UNIQUE AND STYLISH, WE'LL BRING THE How To.

## FORM & FUNCTION

Hiland Tray™ is a modern 460mm wide tray roofing and walling system, roll formed onsite with a mobile roll forming facility in long single lengths and secret fixed or 'snap locked' to roof purlins and wall girts via a simple clip system. The profile is available with the option of swages within the tray pan, or no swages for a more traditional look.

The Hiland Tray profile has a high rib height of 44mm which enhances its smooth, bold lines and provides greater water carrying capacity and strength for snow loading applications in alpine regions.

Hiland Tray is available in 0.55mm BMT in a selected range of contemporary pre-painted colour options to suit any building design.



## MATERIAL SPECIFICATIONS

TABLE 1.0

| Material Properties                           | Finish           | 0.55mm BMT |
|---|------------------|------------|
| Minimum 'AZ' Coating Mass (g/m <sup>2</sup> ) | Zinc/Al & Colour | 150        |
| Mass (kg/linear metre)                        | Zinc/Al          | 2.74       |
|   | Colour           | 2.77       |
| Mass (kg/square metre)                        | Zinc/Al          | 5.95       |
|   | Colour           | 6.03       |
| Yield (square metre/tonne)                    | Zinc/Al          | 168        |
|   | Colour           | 166        |
| Tensile Strength (MPa)                        | Zinc/Al & Colour | 340        |
| Width Coverage (mm)                           | Zinc/Al & Colour | 460        |
| Sheet Tolerances (mm)                         | Length & Width   | ±5 ±2      |
| Minimum Roof Pitch                            | Zinc/Al & Colour | 3°         |

# STRATCO HILAND TRAY™

DESIGN GUIDE: ROOFING AND WALLING

### SPAN TABLES

TABLE 2.0 - MAXIMUM RECOMMENDED SPANS (mm)

| Span Type     | Roofing BMT<br>0.55mm | Walling BMT<br>0.55mm |
|---------------|-----------------------|-----------------------|
| End / Double  | 600                   | 1800                  |
| Internal Span | 900                   | 1800                  |

Roofing : Spans are limited based on foot traffic incidental to maintenance.  
 Walling: Spans are based Region A, Terrain Category 2.0 wind loading, refer to the 'Spans' table below.

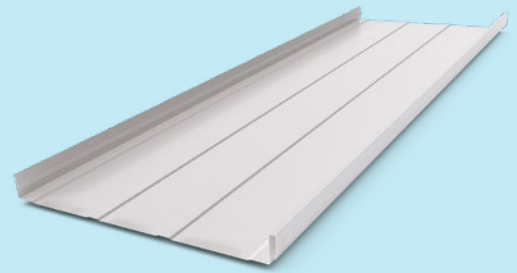


TABLE 3.0 - SPANS (mm)

| Terrain<br>Category | Local<br>Pressure KI | Roofing      |          |              |          | Walling      |          |              |          |
|---------------------|----------------------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|
|                     |                      | Region A     |          | Region W     |          | Region A     |          | Region W     |          |
|                     |                      | End / Double | Internal | End / Double | Internal | End / Double | Internal | End / Double | Internal |
| 1                   | 1                    | 600          | 900      | 600          | 900      | 1800         | 1800     | 1800         | 1800     |
|                     | 1.5                  | 600          | 900      | 600          | 900      | 1800         | 1800     | 1800         | 1800     |
|                     | 2                    | 600          | 900      | 600          | 900      | 1800         | 1800     | 1470         | 1600     |
|                     | 3                    | 600          | 900      | 560          | 620      | 1320         | 1450     | 950          | 1080     |
| 2                   | 1                    | 600          | 900      | 600          | 900      | 1800         | 1800     | 1800         | 1800     |
|                     | 1.5                  | 600          | 900      | 600          | 900      | 1800         | 1800     | 1800         | 1800     |
|                     | 2                    | 600          | 900      | 600          | 900      | 1800         | 1800     | 1790         | 1800     |
|                     | 3                    | 600          | 900      | 600          | 900      | 1640         | 1760     | 1280         | 1410     |
| 3                   | 1                    | 600          | 900      | 600          | 900      | 1800         | 1800     | 1800         | 1800     |
|                     | 1.5                  | 600          | 900      | 600          | 900      | 1800         | 1800     | 1800         | 1800     |
|                     | 2                    | 600          | 900      | 600          | 900      | 1800         | 1800     | 1800         | 1800     |
|                     | 3                    | 600          | 900      | 600          | 900      | 1800         | 1800     | 1800         | 1800     |

TABLE 4.0 - WIND CAPACITIES (kPa)

| BMT    | Span Type    | Limit State    | SPAN (mm) |      |      |      |      |      |
|--------|--------------|----------------|-----------|------|------|------|------|------|
|        |              |                | 450       | 600  | 900  | 1200 | 1500 | 1800 |
| 0.55mm | End / Double | Serviceability | 5.23      | 3.78 | 3.14 | 2.57 | 2.08 | 1.68 |
|        |              | Strength       | 6.54      | 4.73 | 3.92 | 3.21 | 2.60 | 2.10 |
|        | Internal     | Serviceability | 5.23      | 3.78 | 3.14 | 2.57 | 2.08 | 1.68 |
|        |              | Strength       | 7.15      | 5.17 | 4.29 | 3.51 | 2.85 | 2.30 |

Capacities determined based on a minimum of two screws per clip into timber supports.

NOTE: For roofing applications, purlin tape must be used to create a barrier between Hiland roof sheeting and timber supports for noise reduction.



## ENGINEERING

### TESTING SYSTEMS

Stratco have developed purpose built testing equipment for the testing of cladding systems sufficient to ensure the structural adequacy of the product it produces.

### COMPLIANCE

Wind Capacity Tables are based on testing for compliance with the New Zealand Metal Roof and Wall Cladding Code of Practice. Span tables have been developed by determining relevant wind pressures in accordance with AS/NZS 1170.2. Capacity tables are in limit state format.

### SPANS

Span tables are based on maximum overall building height of ten metres and a 500 year design return period for strength limit state wind load assessment. Roofing spans specified are suitable for snow loading up to 2kPa in accordance with the New Zealand Metal Roof and Wall Cladding Code of Practice.

Roofing calculations are based on  $C_{pe} = -0.9$  and  $C_{pi} = 0.2$ , walling is based on  $C_{pe} = -0.65$  and  $C_{pi} = 0.2$ . Local pressures are as specified and have been considered for both strength and serviceability limit states. Roof spans take into consideration loads incidental to maintenance noting end spans allow for foot traffic over supports only.

All pressures have been determined assuming wind loading in any direction without shielding but which is not affected by topography (i.e.  $M_t = 1.0$ ). Allocated spans do not allow for Lee Zones, for areas within these zones, utilise the wind capacity tables to calculate spans based on the relevant allowance for Lee Multipliers.

Additional engineering advice can be obtained from Stratco if any design parameters vary from those indicated above.

### DESIGN CONSIDERATIONS

Hiland Roofing and Walling has a 460mm cover with a 0.55mm BMT material thickness. The minimum allowable roof pitch is 3°.

## FIXING REQUIREMENTS

Hiland sheets should be laid into the prevailing wind and sit neatly on the preceding roof sheet. They should be fixed within the recommended support spacings. Avoid 'stretching' the width of the sheet when installing, as this could allow wind and rain to enter. Edge fixing is mandatory for strength/spanning capability.

This is done with 10 gauge self drilling screws to secure the standing seam to edge clips (i.e. to all clips along edges of sheet layouts).

Due to the seam height, flashing turn downs into the pan of Hiland sheeting should always be notched around the rib to provide maximum weather tightness.

For roof pitches less than 10°, it is recommended that safety mesh is used directly under the Hiland Tray and purlin centres are reduced to 450mm. Use either roofing string or tape to support the underlay.

*For roofing applications, purlin tape must be used to create a barrier between Hiland roof sheeting and timber supports for noise reduction.*



## WALKING ON HILAND TRAY

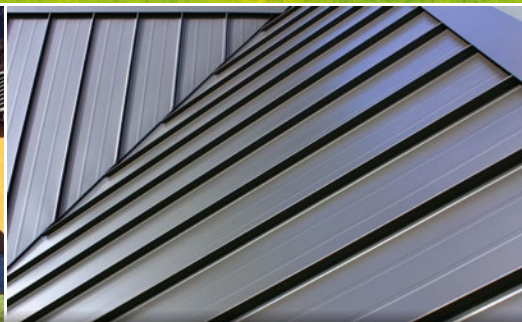
When walking on Hiland Roofing, walk over the purlins to avoid damage to the sheeting. Wear flat rubber soled shoes and walk flat footed in the pans only. Walking on end spans is restricted explicitly to over the end span purlins with no access allowed directly on end spans due to potential sheet damage.

## MAINTENANCE REQUIREMENTS

The performance of Hiland Roofing and Walling over time depends on its correct application and maintenance. Maintenance should be performed as often as is required to remove any dirt, salt and pollutants.

Where Hiland cladding is used in severely corrosive environments, cleaning should be performed more often. It is important that screws have the same life expectancy as the Hiland cladding you have specified. Packs of Hiland sheeting should always be kept dry and stored above ground level on site. If the sheets have become wet, they should be separated, wiped and placed in the open to dry.

Refer to the Stratco 'Selection, Use and Maintenance' brochure for more detailed information about the correct use and maintenance of this product.



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**How To.**



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