



Hi Five Roofing – Technical Information

Calder Stewart's Hi-Five roof and wall cladding combines the modern appearance of a moderate height ribbed profile with economy and practical application suitable for a wide variety of applications:

- Economical - The blend of profile and high strength steel gives low in-place cost with long spans.
- Simple installation for houses, commercial or industrial projects.
- 760mm of cover per sheet.
- Wide rib spacing gives good water carrying capacity.
- Anti-capillary side laps give improved weather resistance

MATERIALS

Calder Stewart Hi-five is available in:

STEEL 0.40mm and 0.55mm BMT : Grade 550/250
Contact Calder Stewart Roofing for range of available colours.

ALUMINIUM 0.70mm and 0.90mm thickness :
alloy 3103 :
T14 Plain or embossed

DESIGN

- The specifier shall ensure that the as-built roof and wall cladding using Hi-Five shall comply with the NZBC Handbook Approved Document E2 : External Moisture. The Hi-five sheeting forms only part of the completed building envelope.
- Refer also to the "Profiled Metal Roofing Design and Installation Handbook", Colorsteel and ColorCote product brochures for additional requirements.
- The flatter the roof pitch the more care required to consider all factors including wind uplift, snow build-up, reduced rain run-off capacity and buckling of roof by foot traffic
- Roof pitches below 5° are not recommended by Calder Stewart unless guidance is obtained at the designer/detailing stage. This includes curved roofs. No guarantee for roofs under 5°, unless by prior arrangement with Calder Stewart Roofing in writing.
- Thermal expansion (or contraction) of Hi-Five shall be allowed for at 0.115mm/m for steel and 0.23mm/m for aluminium for every 10°C change in temperature. Roof temperatures can exceed 80°C for dark colours.
- For snow melt water ingress resistance to comply with NZBC : Clause E2 the minimum pitch shall be 3° and for roofs under 5° pitch the design snow load shall be doubled to achieve the maximum roofing span. Also install snowboards over internal gutters for maximum resistance.

- For roof slopes below 10° form a 20mm turn down of the pan at gutters. All roofs shall have full depth turn up at apex.
- For design and installation of roof lights and profiled strip roofing refer to the manufacture's literature for all water ingress resistance and durability requirements.

DURABILITY

When designed, detailed, fixed and maintained in full accordance with this brochure and other literature referenced the Calder Stewart Hi-Five cladding will exceed the NZBC Clause B2 : Durability requirements of 15 years life. To achieve the above life, and could extend it further, regular maintenance is essential especially to:

- Keep surfaces clean and free from contact with debris.
- Areas not washed by rainfall to be cleaned with water and soft brush.
- Replace any damaged or deteriorated fasteners.
- At first sign of surface corrosion clean then apply protective coating to manufacturers instructions.

If it is intended to use Hi-Five sheeting within 1km of the sea or in an industrial or unusually corrosive environment please contact Calder Stewart.

| LOAD SPAN LIMITS 1kN POINT LOAD | | | | |
|---|-------------------|-------------------|------------|------------|
| roof span limit (mm) to NZS 4203:1984 | | | | |
| Case | Steel | | Aluminium | |
| | 0.40m m BMT | 0.55m m BMT | 0.70m m | 0.90m m |
| Single Span | 1000 | 1200 | Note 2 | 1500 |
| End Span | 1200 | 1400 | Note 2 | 1700 |
| Internal Span | 1600 | 1800 | Note 2 | 2100 |
| Self Weight (kg/m ²) | 4.45 | 5.95 | 1.85 | 2.30 |
| G(Pa) | 43.6 | 58.4 | 18.2 | 22.6 |
| Notes | | | | |
| 1. For roofs with foot traffic use 80% (or less) of above spans or install board walks. | | | | |
| 2. Refer to Calder Stewart for advice on recommended spans. | | | | |

FLASHINGS AND GUTTERS

Flashings, gutters and lighting panels shall be compatible with the Hi-Five cladding selected.

Do not use Galvsteel roofing, flashings or gutters in situations where runoff from inert materials occurs.

Flashings shall be designed and detailed to provide weather resistance and be fixed to primary structure.

End laps of flashings below 20° pitch shall be sealed with neutral cure silicon and secured by rivets or screws.

Ridge, barge and edge flashings are subjected to higher wind suction pressures and hence shall be adequately fixed on both faces. Do not use lead or lead edged flashings with Zinalume, Colorsteel or ColorCote sheeting. Use soft aluminium (Al Edge) plain or primed material available in 50mm and 65mm width.

STORAGE ON SITE

Roofing and cladding should be covered and protected from damage while stored on the site, and should be stacked in sheltered positions preferably near areas of the building where they are to be fixed, and should be stacked in the order in which they will be used. Sheets should be stacked horizontally on firm and level ground, with untreated timber or other packing beneath them inclined slightly for rainwater run off and covered with a loose tarpaulin allowing air to circulate.

The height of such stacks should not exceed 1 metre and should be clear of the ground. If it is necessary to stack sheets in an exposed position, secure them against possible movement by the wind. Cross stacked timber fillets shall be untreated and non-staining.

It cannot be assumed that painted or coated metal is protected from staining while closely stacked. The same precautions are necessary for all nestable profiles and for all metals and coatings.

RAINFALL RUN-OFF

Hi-Five roofing shall be designed to cater for the five minute duration rainfall intensity with a 10% probability of occurring (approximates to the one in ten year storm).

As a minimum guide double the values shown in NZBC Handbook E1/AS1 : Appendix A for ten minute duration.

Maximum roof slope length shall not exceed manufacturers recommendations. Please contact Calder Stewart Roofing for advice.

Total roof slope shall include the length of secondary roofs up to the highest point of the roof.

Increase design rainfall intensity where flow is diverted such as roof lights, vents and where damming, splashing or standing waves form.

The minimum requirements for gutters and down pipes are set out in NZBC Handbook : Acceptable Solution E1/AS1. Refer also to the manufacturer's literature.

| UNIFORM LOAD for steel roofs and walling (kPa) : to NZS 4203:1988 : Loading Eqn 1.3.3.3(14) | | | | | | | | | |
|---|-----------|-----------------|------|------|------|------|------|------|------|
| Gauge (mm) | Span Type | Span (mm) (kPa) | | | | | | | |
| | | 900 | 1200 | 1500 | 1800 | 2100 | 2400 | 2700 | 3000 |
| 0.40 | Single | 3.1 | 1.3 | 0.65 | 0.38 | N/R | N/R | N/R | N/R |
| | Double | 3.0 | 2.2 | 1.6 | 0.90 | 0.58 | N/R | N/R | N/R |
| | End | 3.2 | 2.4 | 1.2 | 0.70 | 0.45 | N/R | N/R | N/R |
| | Internal | 3.7 | 2.8 | 2.2 | 1.8 | 1.1 | N/R | N/R | N/R |
| 0.55 | Single | 5.2 | 2.2 | 1.1 | 0.65 | N/R | N/R | N/R | N/R |
| | Double | 4.1 | 3.1 | 2.4 | 1.5 | 1.0 | 0.65 | N/R | N/R |
| | End | 4.5 | 3.3 | 2.1 | 1.2 | 0.75 | 0.50 | N/R | N/R |
| | Internal | 5.1 | 3.8 | 3.1 | 2.5 | 1.9 | 2.7 | 0.93 | 0.50 |

Notes

1. N/R = not recommended for use as roof or wall cladding.
2. Fix side laps at mid-span for spans greater than 1.5m for 0.40BMT and 1.8m for 0.55BMT.
3. For roofs below 5° pitch multiply design snow load by two for use in the above table.
4. These are maximum spans only. Aesthetical requirements in residential roofing necessitate smaller spans.

DELIVERY

The maximum length of Hi-Five deliverable is 20m but this can be exceeded for some localities. Specifiers should check with Calder Stewart Roofing when designing.

Use load spreading booms to lift long lengths.

INSTALLATION

- Hi-Five roofing shall be laid over underlay in compliance with NZBC : E2 to minimise risk of condensation. Reflective insulating foil will provide greater protection especially when hail or snow occurs.
- Fix every roofing crest with a 12ga x 65mm Type 17 Tek screw or 75mm spiral shanked nail into timber or 12ga x 45mm self drilling screw into steel. For sliding connection follow written instruction. Fix every crest at the end of sheets, and every second crest (alternating crests every second purlin) at intermediate purlins. When wind loads are over half the maximum permitted for the span fix every crest at intermediate purlins.
- Pan fix Hi-Five on walls using Tek 12ga x 20mm to steel and Tek Type 17 x 25mm to timber and/or nails.
- All fixing shall be compatible with the roofing/flashing material, comply with AS 3566 : Clause 3 and shall have neoprene washers which do not contain carbon black.
- Refer to Colorsteel and ColorCote brochures for all other essential requirements.
- At completion of roof and wall cladding wash and soft brush clean all surfaces and gutters to remove all swarf and debris and remove all stripable protective film.

■
WARRANTIES

RESIDENTIAL WARRANTIES for contracts where the Consumer Guarantees Act 1993 is applicable Calder Stewart Industries Ltd offer a 15 year guarantee against failure of the roof cladding to resist rainwater. This warranty does not cover water ingress where workmanship and materials do not comply with this brochure including references and where regular maintenance has not prevented damage during its life.

COMMERCIAL WARRANTIES for contracts where the Consumer Guarantees Act 1993 does not apply are project specific and are issued by Calder Stewart Industries Ltd on application. The period and conditions of the warranty will be assessed on an individual basis and may require a site inspection.



Sales
0800 737 663



free fax order line
0800 273 766



Branch Address

Auckland
9 Neil Park Drive
East Tamaki
Phone (09) 271 0681
Fax (09) 271 0684

Milton
332 Union Street
Phone (03) 417 7245
Fax (03) 417 7283

Invercargill
120 Bond Street
Phone (03) 214 5544
Fax (03) 214 5577

Christchurch
127 Wrights Road
Phone (03) 338 0013
Fax (03) 338 0791

Dunedin
26 Fox Street
Phone (03) 479 0658
Fax (03) 455 4196

Cromwell
1 McNulty Road
Phone (03) 445 3303
Fax (03) 445 3304

Queenstown
PO Box 437
Phone (03) 442 2202
Fax (03) 442 2204