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The fix on profiled metal wall cladding

CALLERS TO THE BRANZ HELPLINE HAVE BEEN ASKING ABOUT FIXING CENTRES AND DENSITY FOR PROFILED METAL WALL CLADDING. WE TAKE A LOOK AT THE REQUIREMENTS.

THERE IS LIMITED INFORMATION available on the spacing and number of fixings for profiled metal wall cladding. This is because E2/AS1 is not specific on the fixing centres required for structures within the scope of NZS 3604:2011 *Timber-framed buildings* and profiles covered by E2/AS1.

Fixing rows when installed horizontally

Horizontally installed profiled metal has a line of fixings at each stud with a maximum spacing of 600 mm (see Figure 1), except where there is a double stud, only one row of fixings is required. Where row centres of more than 600 mm are proposed, the ability of the framing to carry the additional wind (suction) loads will need to be verified by a chartered professional structural engineer.

Fixing rows when installed vertically

Fixing requirements differ for vertically installed profiled metal:

- Have a row of fixings along the line of the top and the bottom of the cladding panel. Depending on the eaves construction, a row of dwangs may be required at the eaves soffit line to fix into.
- For panel lengths:
 - up to 2.4 m, one intermediate row of fixings
 - over 2.4 m, intermediate rows of fixings at 1200 mm maximum centres (see Figure 2).
- Dwangs at 480 mm maximum centres for corrugate and symmetrical trapezoid profiles (from E2/AS1 clause 9.1.8.5).

The detailing and installation of profiles not covered by E2/AS1 will need to be submitted for consent as an alternative method with support-

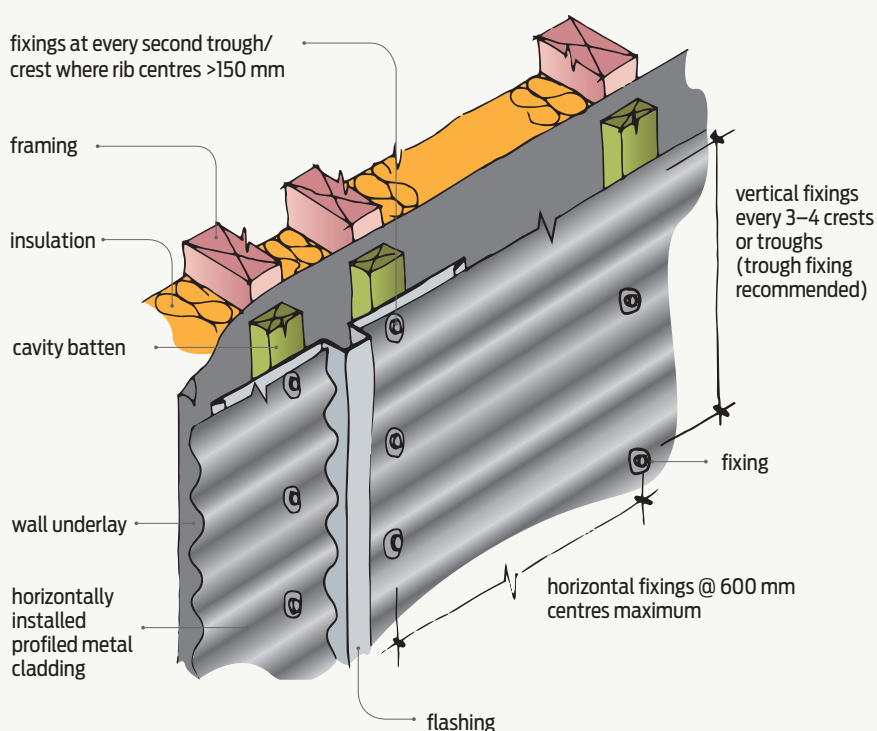


Figure 1 Fixings for horizontally installed profiled metal cladding.

ing information from the supplier regarding the span and fixings.

Fixing density

At the ends of both horizontal and vertical sheets, E2/AS1 requires a fixing at side laps and every second crest or trough of corrugate and at every side lap and rib or trough of trapezoid profiles where the rib centres are greater than 150 mm.

The fastener pattern within the body of the sheet required for any application depends on the

wind load, cladding profile, material thickness and stud or nog spacings.

For buildings within the scope of E2/AS1, it is common for the body of sheets to be fixed every third or fourth crest or trough along each line of fixings.

Typically, four trough fasteners per sheet for 0.40 mm corrugate and three for 0.40 mm rib profiles are considered adequate for up to and including extra high wind zone at normal residential stud or nog centres of 600 mm. ➤

Trough versus crest fixing

E2/AS1 permits trough or crest fixing for both horizontal and vertical installations while:

- the *New Zealand Metal Roofing and Wall Cladding Code of Practice* recommends trough or pan fastening for all wall cladding fastenings
- BRANZ considers trough fixing preferable for horizontal installations and crest fixing for vertical installations to lower weathertightness risk at fixings.

The choice is then with the designer. Factors to consider include:

- the industry standard is trough fixing
- trough fixing reduces the visual impact of the fixings
- trough fasteners will generally withstand twice the serviceability load of a crest fastener as the cladding does not buckle around the fastener head to the same degree
- crest fixing can flatten or distort the profile if the fixing is overdriven
- correctly compressing the sealing washer during fixing is easier with trough fixing as the metal is hard against the framing/batten and less likely to flex
- locating a fixing on the crest for a vertical installation positions the fixing out of the primary water drainage path
- trough fixing will likely be required where the panel is subject to specific structural design and being used to provide lateral stability to the wall.

Installation must-dos

When installing sheets, ensure:

- the framing is straight and true
- the sheet is firmly against the framing

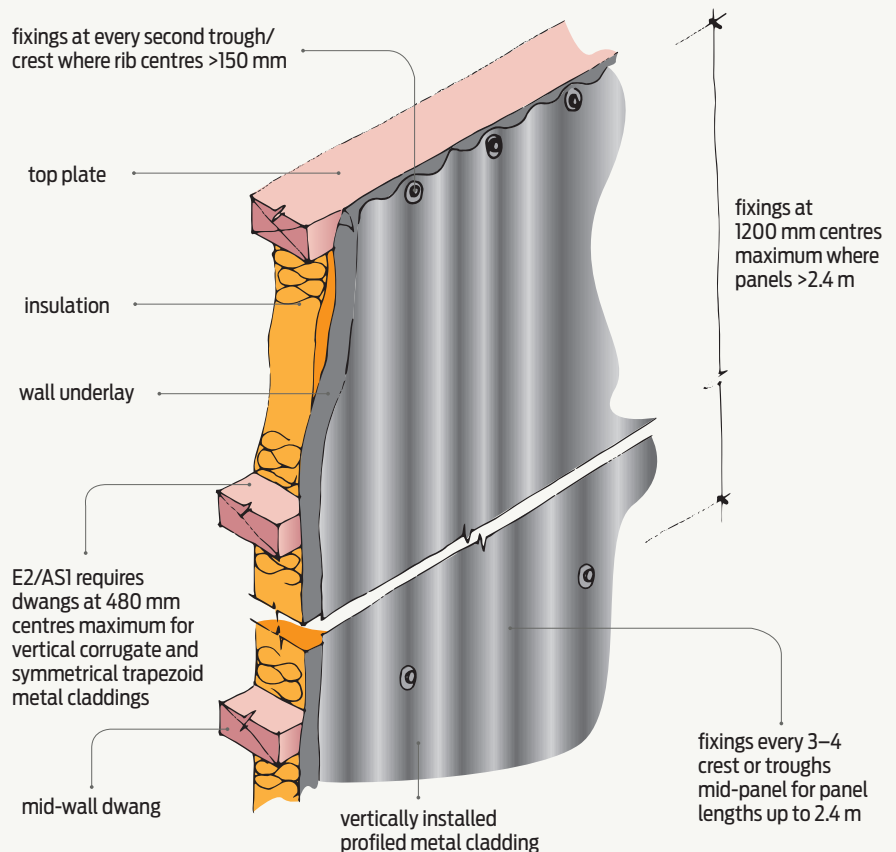


Figure 2 Fixings for vertically installed profiled metal cladding.

- fixing lines are straight, particularly for the more visible crest fixings
- profiles are vertical/horizontal
- ground clearances are maintained
- an allowance for thermal movement is incorporated into the detailing – a minimum of 5 mm is required by E2/AS1 for horizontal installations of profiled metal
- sheets are not cut with an abrasion disc
- flexible wall underlay is restrained as shown in E2/AS1
- fixings are driven straight into the framing
- fixings have a minimum timber framing penetration of 30 mm
- fasteners have a durability matching that of the cladding
- sheets are not marked with a carbon lead pencil. 