ACCEL™

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TECHNICAL SUPPLEMENT

Fixing James Hardie™ external cladding products to steel framed cavity construction

The information in this supplement and James Hardie's technical literature is only intended for use in relation to the relevant James Hardie products.

CERTIFIED ACCEL CONTENT

INTRODUCTION

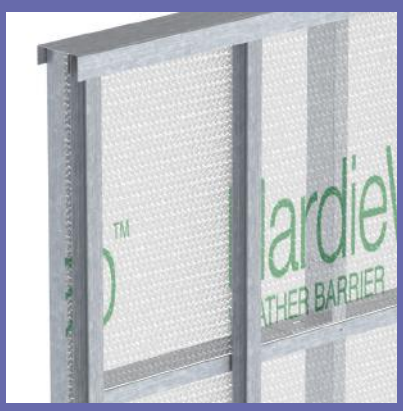
This technical supplement has been designed to assist with the installation of James Hardie™ external cladding products on steel framed cavity construction.

James Hardie strongly recommends that you first consult with the stud frame manufacturer for stud frame design requirements when specifying James Hardie external cladding products. This supplement must be read in conjunction with the respective current James Hardie™ installation manual.

This Supplement provides two options. They include:

Option 1: **Fixing vertical top hats direct to steel frame.**

1a: Vertical top hats fixed directly to studs



1b: Vertical top hats fixed directly to reinforced noggings

Option 2: **Fixing vertical top hats over horizontal top hats.**

Framing

Use of steel framing must be in accordance with NASH standard for Residential and Low-Rise Steel Framing Part 1:Design Criteria and the framing manufactures specifications. Framing members must have a base metal thickness (BMT) between 0.55 to 1.6mm. The steel framing must have the appropriate level of durability required to prevent corrosion.

The most common practice adopted by leading manufacturers of metal stud framing is for the more economical horizontal top hats option (Option 2) prior to the installation of vertical top hat framing. Top hats should not be fixed to noggings unless they are designed and approved by the stud frame manufacturer to do so.

It is important to determine the composition of the wall during the design phase to ensure allowance is made for the wall thickness and related requirements as outlined in this Technical Supplement at tender stage to prevent costly delays, redesign issues and variation orders during the construction phase.

Framing must be designed to accommodate for loading imposed by the top hat systems and the required James Hardie Cladding.

Moisture Management

GENERAL

It is the responsibility of designer or specifier to identify moisture related risks associated with any particular building design. Wall construction design must effectively manage moisture, accounting for both the interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled.

In addition all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashing and waterproofing.

Materials, components and their installation that are used to manage moisture in framed wall construction must, at a minimum, comply with the requirements of relevant standards and the BCA.

Top Hat Considerations

When fixing top hats direct to steel frame regardless of the two options below the following factors must be taken into consideration:

- Limitation of workable cavity depth and or manufacturers requirements will determine which framing option to use.
- Flashing at junctions including windows must designed to accommodate top hat depth. Refer to window manufacture before commencement of wall construction to determine best window design to work with finished wall thickness.
- When fixing top hats, the following but not limited to factors must be taken into consideration:
  - Top hat sizes
  - Top hat gauge
  - Top hat span
  - Fastener recommendations for fixing top hats to steel frame substrate and/or additional top hats.
  - Top hat spacing
  - Top hat surface coatings (e.g Zincalume, galvanised etc)
  - Maximum support from ends
  - Wind loadings that will be applied to the frame.

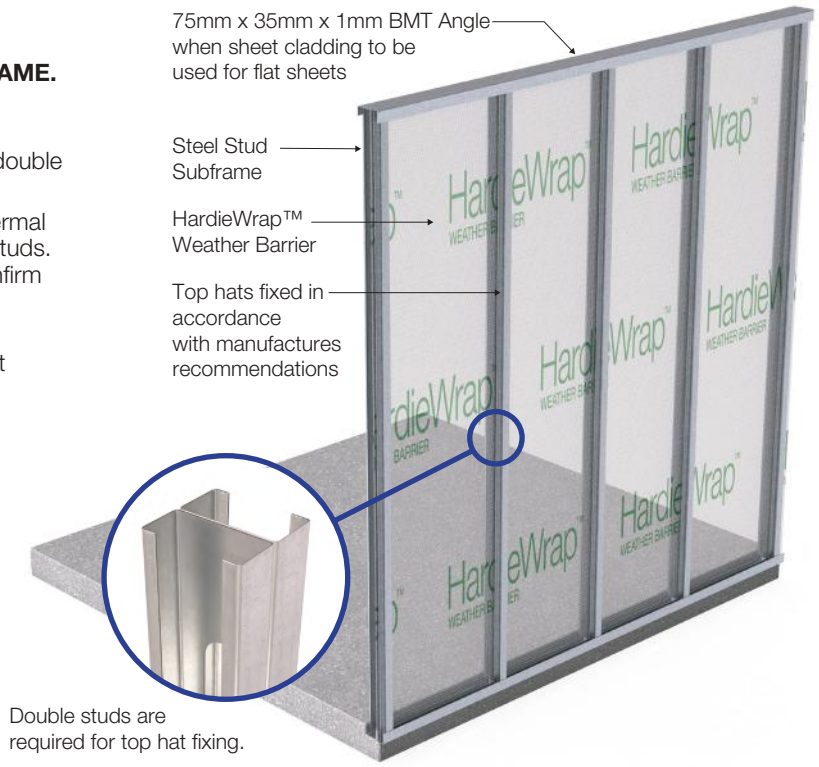
Refer back to the framing manufacturer for all relevant technical information and warranted top hat system eg. Rondo, Knauf and Studco.

Cavity Framing Options

OPTION 1A FIXING TOP HATS DIRECT TO STUD FRAME.

Note:

- When vertical top hats are fixed directly over a stud, double studs or cleats may be required.
- Consideration must given for the requirement of a thermal break for vertical top hats fixed directly over vertical studs. Consult with the building certifier and designer to confirm thermal break requirements.
- When installing James Hardie™ Scyon™ Axon™ or EasyLap™ flat sheets, a 1mm BMT structural support angle is recommended to support all horizontal sheet edges.

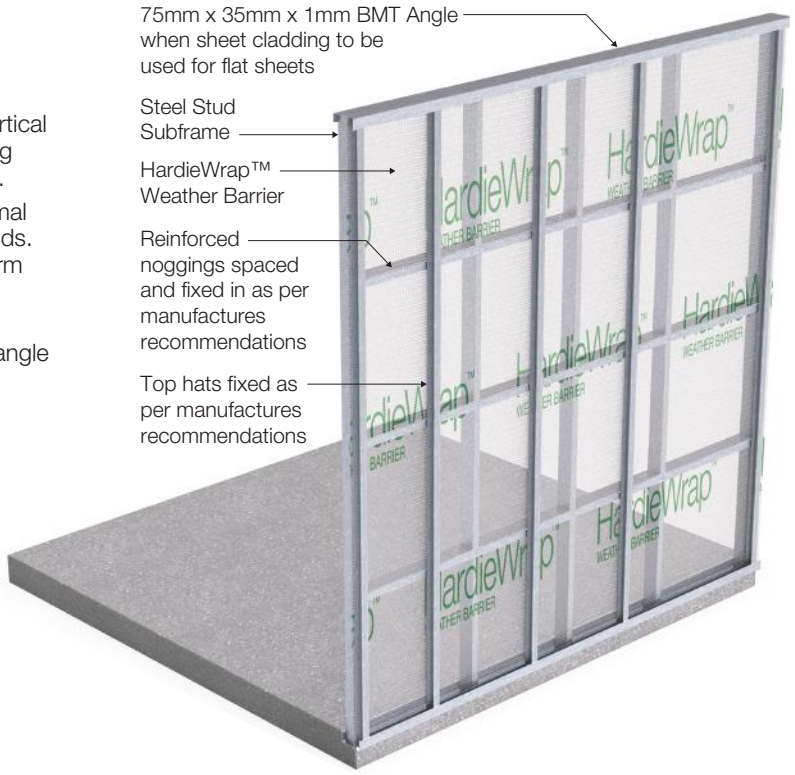


Double studs are required for top hat fixing.

OPTION 1B FIXING VERTICAL TOP HATS TO REINFORCED NOGGINGS.

Note:

- Additional noggings may be required when installing vertical top hats. Nogging spacing, BMT thickness and nogging fixing method as per manufacturer's recommendations.
- Consideration must given for the requirement of a thermal break for vertical top hats fixed directly over vertical studs. Consult with the building certifier and designer to confirm thermal break requirements.
- When installing James Hardie™ Scyon™ Axon™ or EasyLap™ flat sheets, a 1mm BMT structural support angle is recommended to support all sheet edges.
- There are strict requirements for fixing top hats onto steel stud sub-frames. Refer back to the top hat manufacturer for all relevant technical information and warranted top hat systems eg. Rondo, Knauf and Studco.



OPTIONS 2 FIXING VERTICAL TOP HATS OVER HORIZONTAL TOP HATS.

Step 1: Installation of horizontal top hats.

- Horizontal top hats to be fixed based on span tables and fixing details as provided by manufacturer. Horizontal top hats to be placed over the James Hardie™ HardieWrap™ and required flashings.
- Additional horizontal top hats may be required above window and door openings.

Step 2: Installation of vertical top hats over horizontal top hats.

- Vertical top hats to be installed over horizontal top hats.
- Vertical top hats to coincide with James Hardie cladding requirement. Refer to the wind classification table in the installation manual for the chosen James Hardie external cladding.

- Note that the horizontal top hats can add between 15mm to 35mm to the overall wall thickness. This additional thickness should be considered in the design process; e.g. the size of balconies, circulation areas, window reveals, flashings and alignment with distance from a boundary, to name a few.
- When installing James Hardie™ Scyon™ Axon™ or EasyLap™ flat sheets, a 1mm BMT structural support angle is recommended to support all sheet edges.

Note:

A thermal break may not be required when fixing vertical top hats over horizontal top hats. Consult with the building certifier and designer to confirm thermal break requirements.

JUNCTION DETAILS

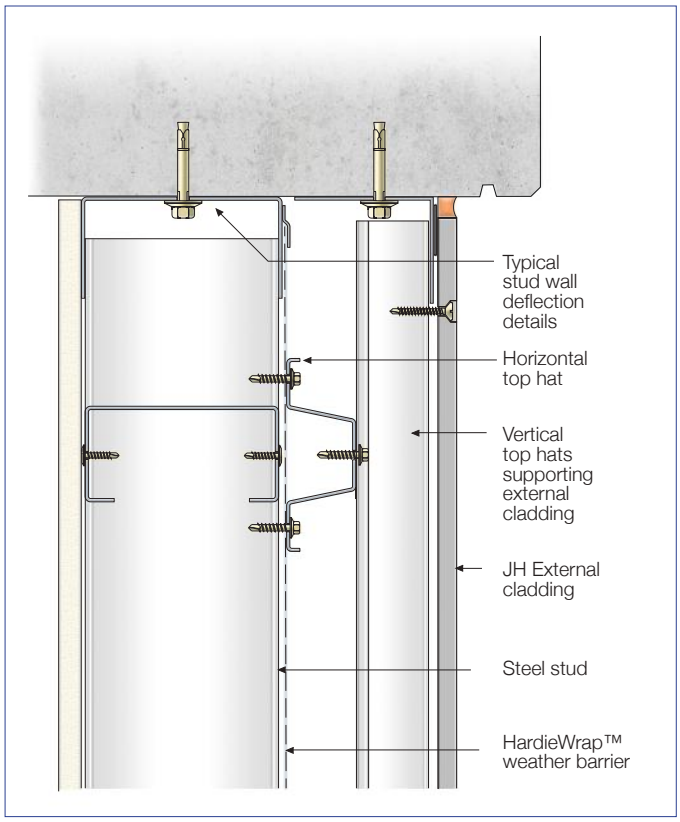


FIGURE 1 EXTERNAL STEEL STUD WALL HEAD
Stud with cladding over horizontal + vertical Top Hats Section

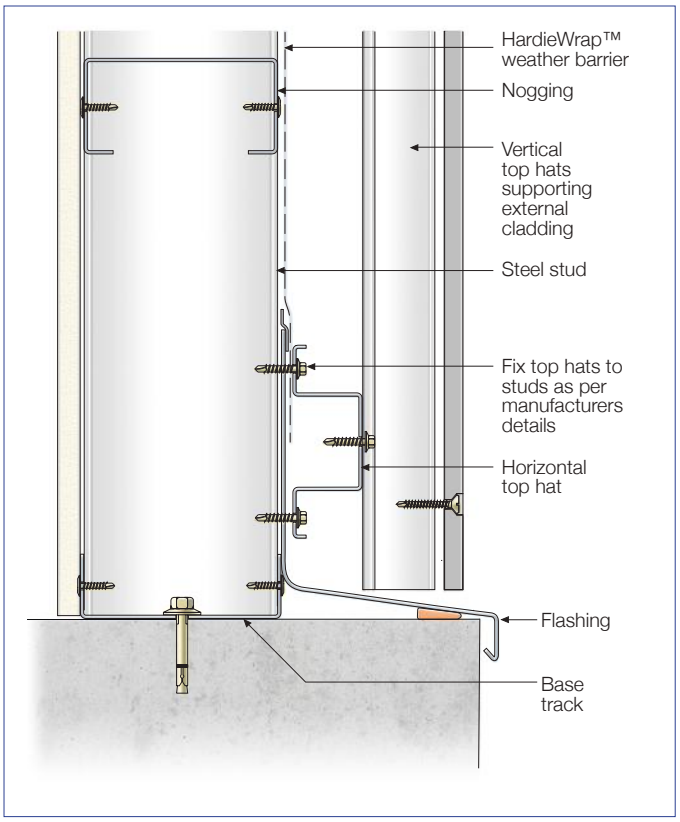


FIGURE 2 EXTERNAL STEEL STUD WALL BASE
Stud with cladding over horizontal + vertical Top Hats Section

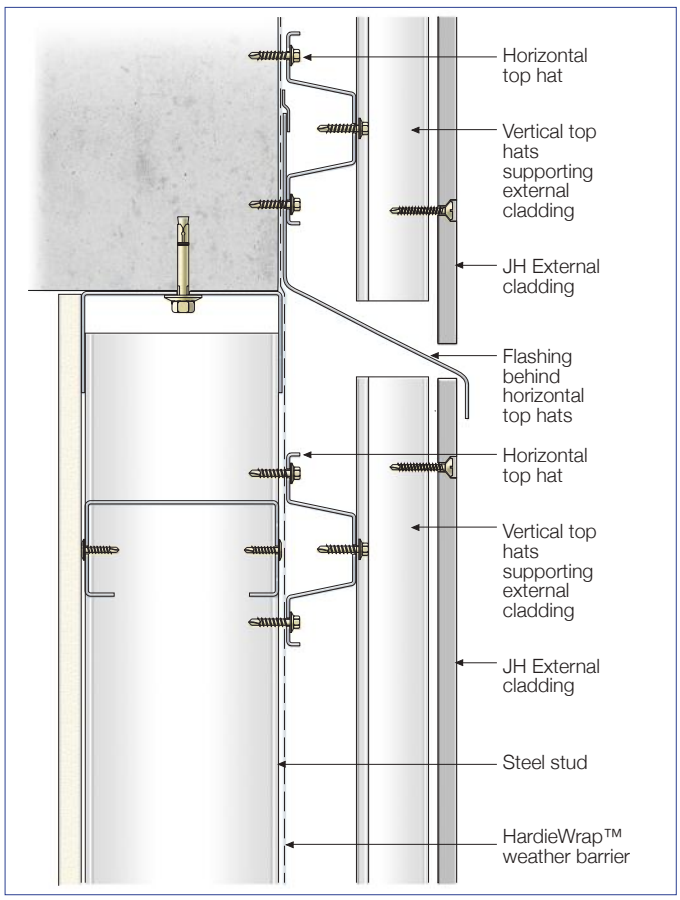


FIGURE 3 EXTERNAL STEEL STUD WALL HEAD
Stud with cladding over horizontal + vertical Top Hats Section

JUNCTION DETAILS

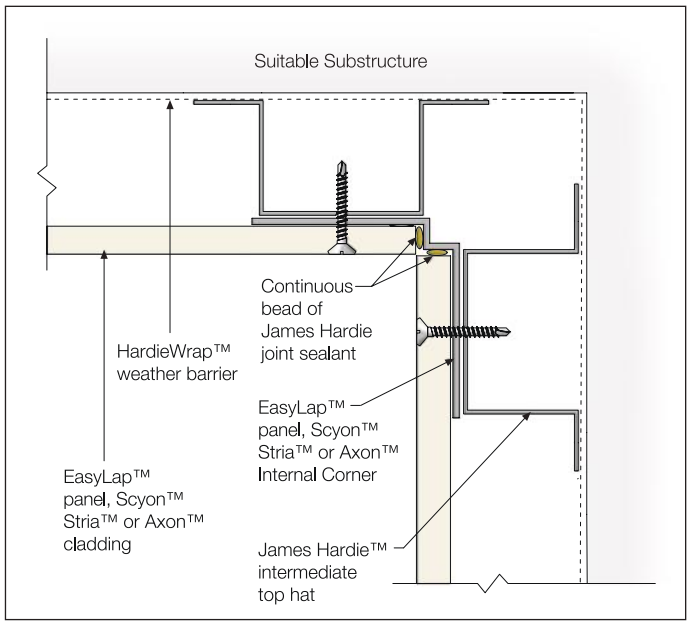


FIGURE 4 INTERNAL CORNER OVER TOP HATS

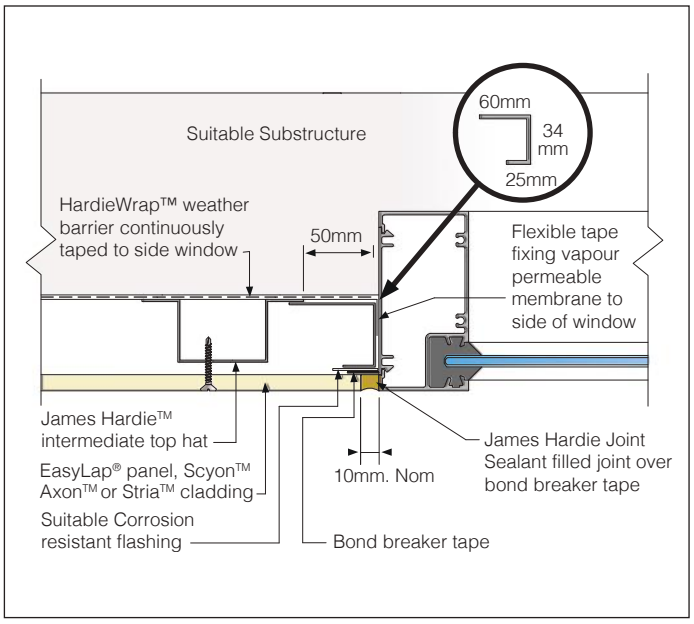


FIGURE 5 WINDOW JAMB OVER TOP HATS

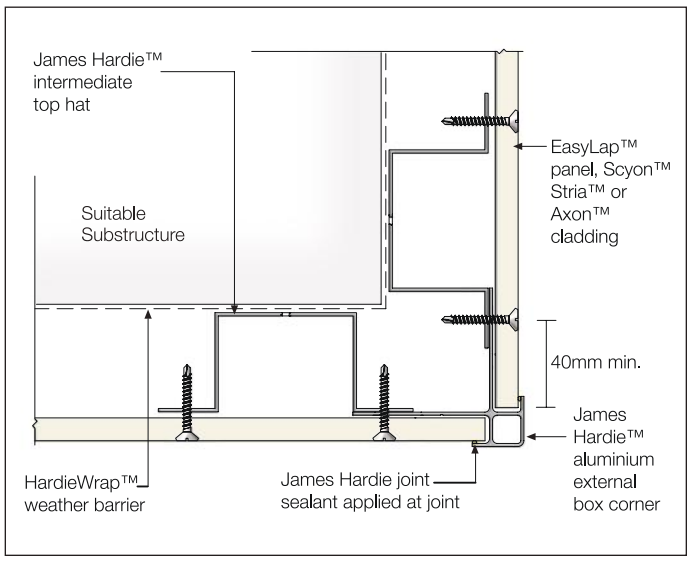


FIGURE 6 EXTERNAL CORNER OVER TOP HATS

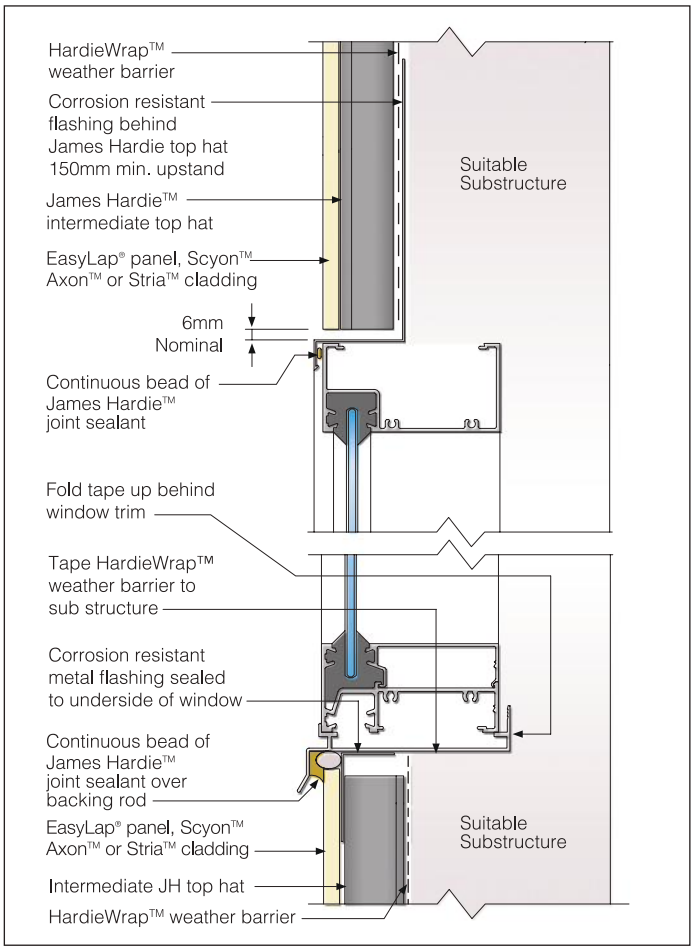


FIGURE 7 WINDOW HEAD AND SILL OVER TOP HATS

For further junction details please call James Hardie Technical support on 13 11 03.