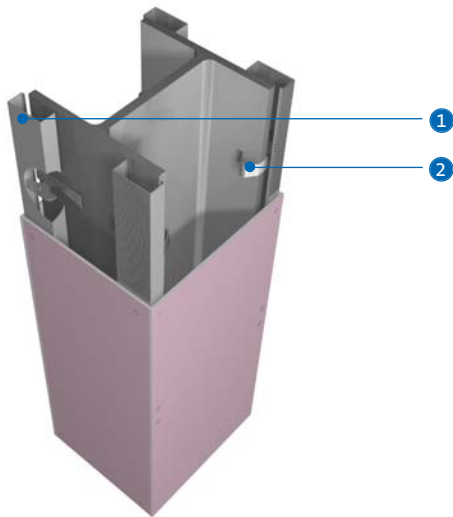


Gyplyner™ framed structural steel encasement system

Gyplyner™ ENCASE is a steel encasement system which provides a rapid method of cladding structural steel sections to provide high levels of fire resistance. The system will protect all universal column and beam sections, with flange thicknesses between 6mm and 28mm, described in *BS 4: Part 1: 1980*, and will also protect many joist sections, portal frames, and castellated beam sections. It can be used in any type of building where encasement is required to structural steel.





1 Gyframe GL1 Lining Channel

2 Gyframe GL10 GyPLYNER Steel Framing Clip

Key facts

- Quick and simple to install
- Lightweight support framework constructed from GyPLYNER™ components
- Easy to box-out
- High levels of fire protection to structural steel

Components

Gyproc and Glasroc board products



Gyproc FireLine¹

Thickness	12.5, 15mm
Width	1200mm



Gyproc Duraline¹

Thickness	13.5, 15mm
Width	1200mm



Glasroc FireCase S

Thickness	15, 20, 25, 30mm
Width	1200mm



Gyproc Multiboard

Thickness	6, 10, 12.5mm
Width	1200mm

¹ Moisture resistant boards should be specified in intermittent wet use areas, e.g. showers areas, bathrooms and kitchens.

Gypframe metal products



Gypframe GL1 Lining Channel



Gypframe GL3 Channel Connector



Gypframe GL10 Gyplyner Steel Framing Clip



Gypframe GA2 Steel Angle

Fixing and finishing products



Gyproc Drywall Screws
For fixing boards to framing.



Gyproc Wafer Head Drywall Screws
For fixing channel noggings to
Gypframe GL1 Lining Channel.



Gypframe GFS1 Fixing Strap



Gypframe GFT1 Fixing 'T'

Fixing and finishing products



Gyproc Jointing Materials
For a seamless jointing.



**Gyproc Skimcoat, Gyproc Carlite
Finish, Gyproc Board Finish**
Providing a plaster finish as an
alternative to jointing.

Construction tips


- Estimated construction time is 6m^2 / man hour (single layer encasement) or 3m^2 / man hour (multi-layer encasement) ready for finishing
 - Determine if encasement needs to be boxed-out e.g. to achieve a specific common dimension or to build out beyond fixing bolts
 - Partitions and wall linings can be fixed through to the metal framework
 - Where the steel section web or flange dimension exceeds 600mm, additional support will be required for the cladding (See Installation – Additional support)
 - Select the correct type and thickness of board. This depends on the section factor, A/V (H_p/A), and the degree of fire protection required. Refer to the specification
- NB** Maximum A/V (H_p/A) = 260m^{-1} , calculated on the basis of box protection to 3 or 4 sides as required

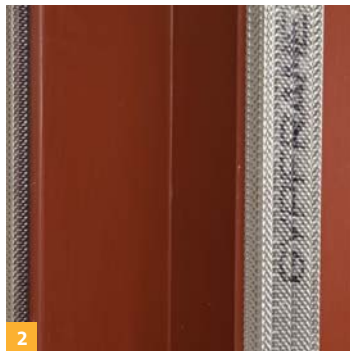
Installation



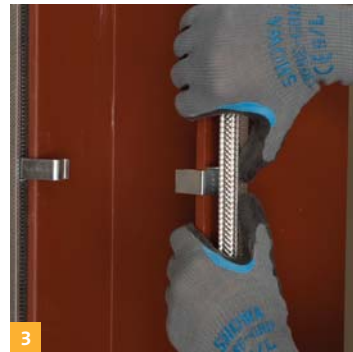
Four-sided protection to steel columns

- Friction-fit Gypframe GL10 Steel Framing Clips onto the column flanges.
- Position Gypframe GL10 clips within 100mm of the base and soffit, and at intervals in between (800mm maximum centres).

 Ensure that clips are fully engaged so that each row is in alignment.

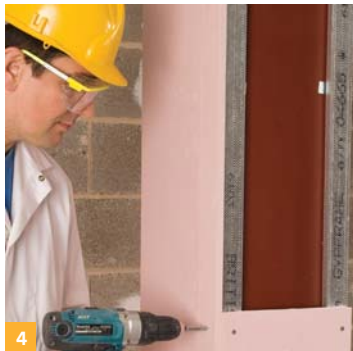


- The Gypframe GL1 Lining Channel stand off from the face of the structural steel frame is 25mm and 10mm from the edge of the flange.



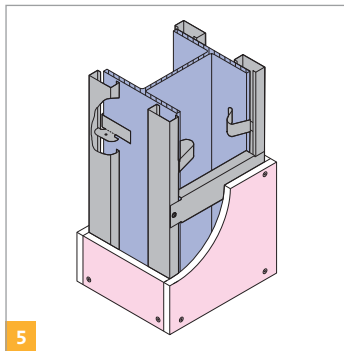
- Snap Gypframe GL1 Lining Channel section over the clips to form the steel framework.

NB Where lengths of Gypframe GL1 Lining Channel abut, position Gypframe GL10 clips to either side to provide a fixing support to each channel end (i.e. two Gypframe GL10 clips to each 'joint'). Alternatively, a GL3 channel connector can be used.



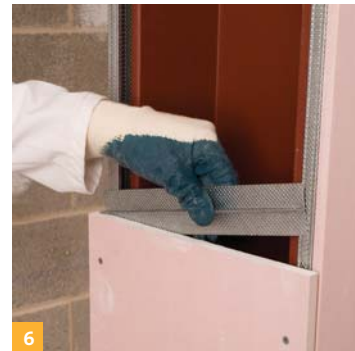
• Cut boards to width and fix to all framing members at 300mm centres using Gyproc Drywall Screws. Start with a half length board on opposite sides to stagger board joints around the column.

NB Select the length of Gyproc Drywall Screw to provide a nominal 10mm penetration into the steel framing.

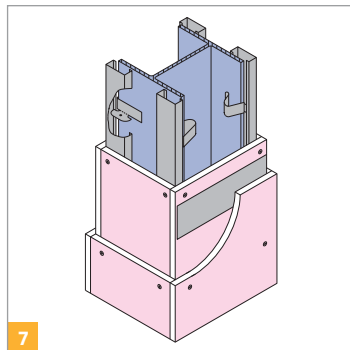


• Cut short lengths of Gypframe GL1 Lining Channel (Figure 5), GFS1 Fixing Strap or Gypframe GFT1 Fixing 'T' (Figure 6) so as to form horizontal noggings to back board end joints.

NB If the steel section web or flange dimension exceeds 600mm, a nogging should be formed from Gypframe GL1 Lining Channel installed at 600mm intervals (See Installation – Additional support).



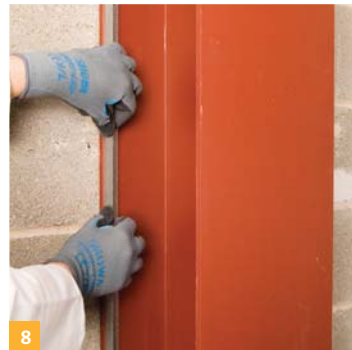
• Fix to vertical channels using Gyproc Wafer Head Drywall Screws, and when board fixing provide an intermediate screw fixing through each board end into the nogging.



- Continue cladding in the same manner progressively working up the column.
- To complete the encasement, cut boards to suit and screw-fix.

Multi-layer linings

- Locate a short length of Gypframe GFS1 Fixing Strap behind board joints at right angles to the Gypframe GL1 Lining Channels.
- Install board layers as per the first layer, staggering board joints between each layer. Cut boards to width making the additional allowance necessary to cover the thickness of the previous board layer.



Three-sided protection to steel columns and beams

- Locate Gypframe GA2 Steel Angle to both sides of the wall/soffit flange. Position such that the face of the angle section is level with the edge of the flange and secure using appropriate fixings (e.g. shot fired into steel) at 600mm maximum centres.

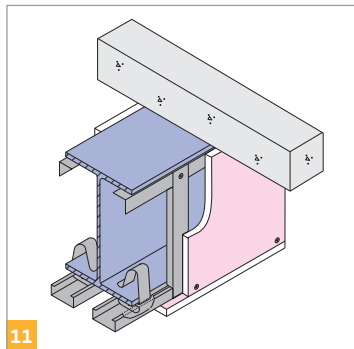


- Friction fit Gypframe GL10 clips to both edges of the room facing flange. Position at 800mm maximum centres, ensuring that adjacent clips are in alignment.
- Snap Gypframe GL1 Lining Channel over the clips to form the steel framework.

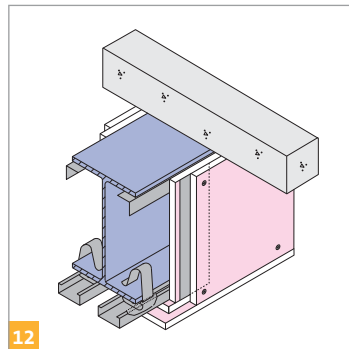
NB Where lengths of Gypframe GL1 Lining Channel abut, position Gypframe GL10 Clips to either side to provide a fixing support to each channel end (i.e. two Gypframe GL10 clips to each 'joint'). Alternatively, a GL3 channel connector can be used.



- Cut boards to width and fix to all framing members at 300mm centres using Gyproc Drywall Screws. Start with a half length board on opposite sides to stagger board joints.
- NB** Select the length of drywall screw to provide a nominal 10mm penetration into the steel framing.



- Install Gypframe GL1 Lining Channel or Gypframe GFT1 Fixing 'T' noggings to support board end joints as for four sided encasements.
- Continue boarding in the same manner progressively working up the column or along the beam.
- To complete the encasement, cut boards to suit and screw-fix.

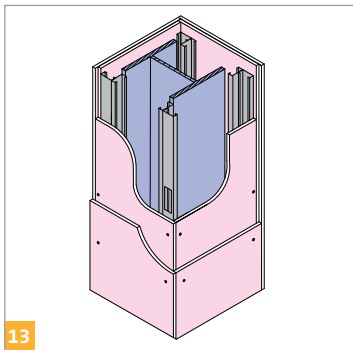


Multi-layer linings

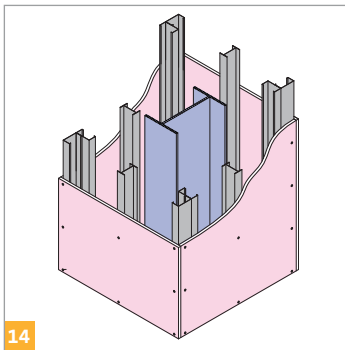
- A short length of Gypframe GFS1 Fixing Strap is located behind board joints at right angles to the Gypframe GL1 Lining Channels.
- Install outer layer boards as per the first layer, staggering board joints between each layer by a minimum of 600mm. Cut boards to width making the additional allowance necessary to cover the thickness of the previous board layer.

Additional support

- Where the steel section web or flange dimensions exceed 600mm, additional support will be required for the cladding.
- Fix noggings of Gypframe GL1 Lining Channel at 600mm centres between adjacent Gypframe GL1 Lining Channels, to supplement the framing. Position noggings to coincide with board end joints.

**Boxing out**

- Extend encasements by installing a Gyframe metal stud and channel framework independent of the steel lining height.



- Use intermediate Gyframe 'I' stud to maintain board support at maximum 600mm centres.
- See Gyplyner™ IWL for guidance.

**Additional fire protection**

- Where 180 minutes fire protection is required (to columns only), Glasroc FireCase s is specified as the cladding. Fix Glasroc FireCase s boards through to the metal framing as for Gyproc FireLine or Gyproc Multiboard, using appropriate length Gyproc Drywall Screws.

- Select the appropriate length of fixings to provide a nominal 10mm penetration.

Jointing

- When using Gyproc FireLine, Gyproc Duraline or Gyproc Multiboard, for the full period of fire protection to be achieved, the board joints must be taped with Gyproc Paper Tape and filled using Gyproc Jointing Materials in full accordance with Gypsum Industries current recommendations. For further information please refer to Section 10, Jointing.

- Glasroc FireCase S boards do not require joint reinforcement to achieve the full period of fire protection. However, to achieve a superior finished appearance we recommend that joints are treated in accordance with our recommendations.