Fireproof Cladding Facades

UltraMgO™–External 20

Installation Guide

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Product overview

UltraMgO-External Wall is a BCA compliant wall system which is fire rated to FRL 60/60/60. It is mould-proof, rot resistant, and will not degrade when wet.

UltraMgO-External Wall can be fixed to either steel battens or, for zerolot applications, installed using the tilt-up fix method. It is an extremely durable product which easily survives on-site handling and storage.

Specifications

Sheet Size[1]	Thickness	Stud Size	Stud Centres	Total Wall Width	Fire Rating[2]
2700mm x 610mm (590mm) 3000mm x 610mm (590mm)	20mm	90mm	450mm	143mm	FRL 60/60/60

1 Includes shiplap joint. Effective exposed sheet width is 590mm.
2 Fire resistance FRL of 60/60/60 BRANZ FC110-001

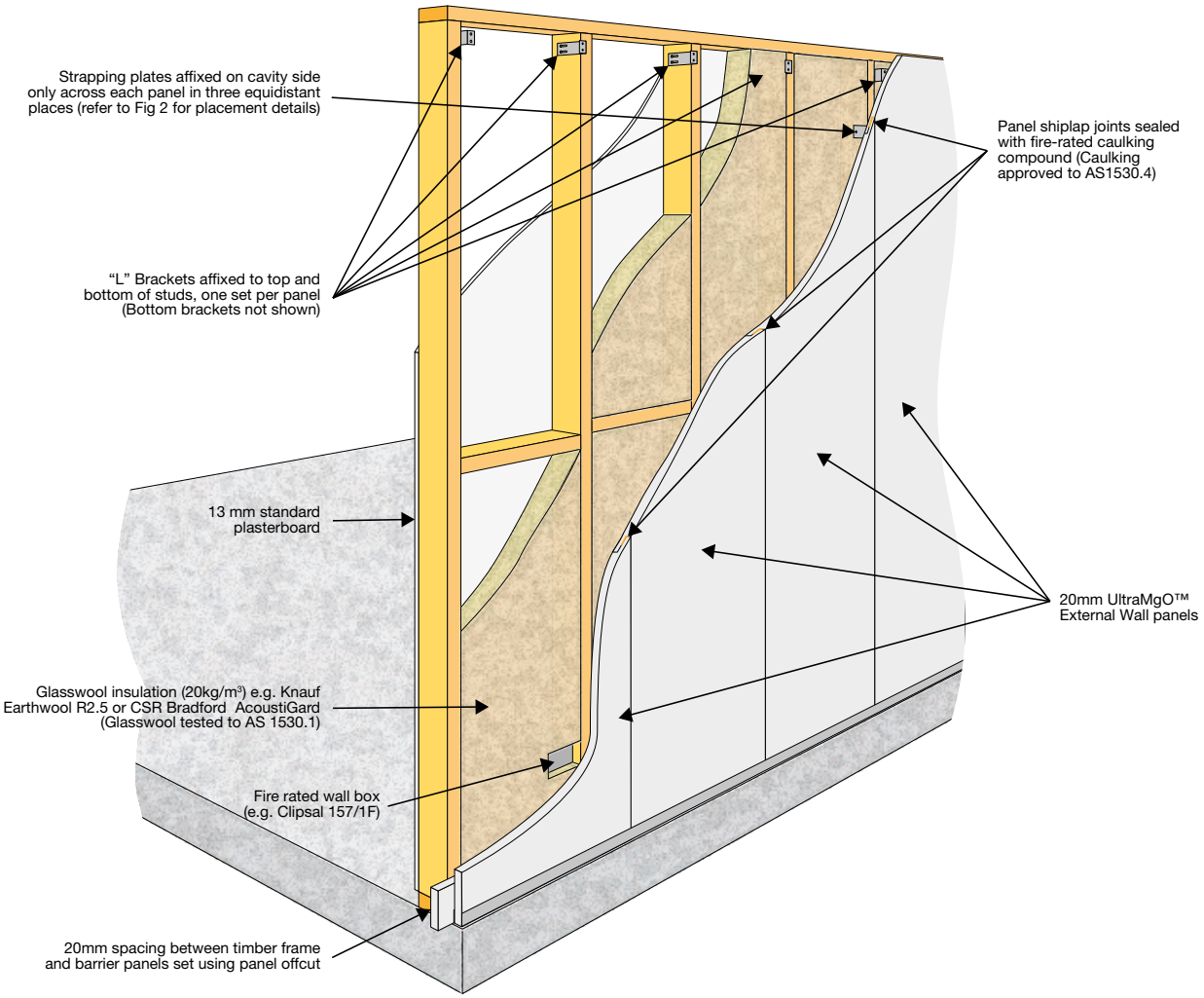
Parts list

Part	Specification	Detail
UltraMgO-Wall 20	2700/3000 x 610[1] x 20mm	Magnesium Oxide Wallboard
Timber Wall Frames	450mm stud spacings	90 x 45mm MGP 10
Gypsum Board	13mm non-fire rated	8.2kg /m2
Glasswool[2]	1200 x 410 x 90mm (20kg/m3 density)	Glasswool Batts
C Channel[3]	2700 x 50 x 26mm	Galvanised
L Bracket[3]	15 x 50 x 50mm	Galvanised
Strapping Plate[3]	100 x 50mm	Galvanised
Firemastic Caulking[4]	Tested to AS 1530.4	MgO and gypsum board joints

1. Includes shiplap joint. Effective coverage per sheet is 590mm.
2. Knauf Earthwool R2.5 20kg/m3 or Bradford AcoustiGard 20kg/m3 (Glasswool 20kg/m3 tested to AS1530.1).
3. Only required for Tilt-up construction method. Generally NOT required for Batten-fix construction method.
4. BOSS Firemastic 360 or HB Fuller FireSound.

UltraMgO™-Wall - Tilt-up Fix

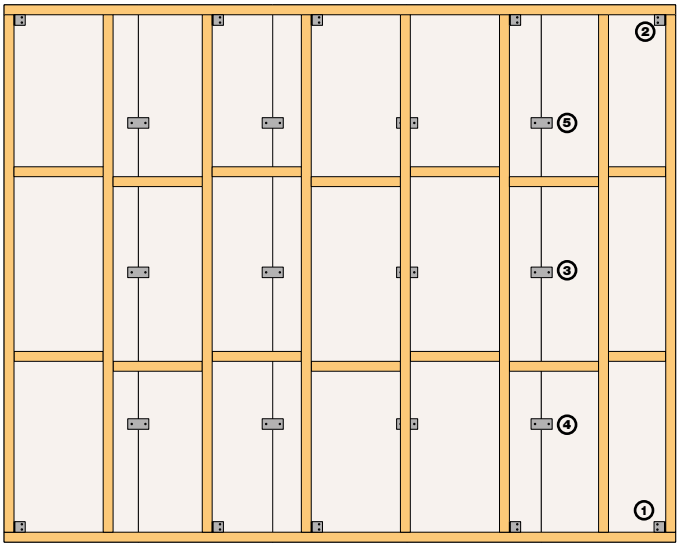
UltraMgO™-External Wall panels can be readily used for external wall applications using the tilt-up fix method. Moreover, the tilt-up fix method is identical to the standard installation method used for FCF's UltraMgO™-Partition internal partywall partitioning system. External wall tilt-up fix construction uses exactly the same "L" brackets, strapping plates and "C" channel as the partitioning system. UltraMgO™-External Wall panels installed with the tilt-up fix method are ideally suited to zerolot applications.



UltraMgO™-External Wall panel widths and installation may need to be planned so that a timber stud is available for each L bracket to panel connection. A typical staggered L bracket fitment is shown here:

Figure 1. General arrangement of UltraMgO™-External Wall tilt-up panels

Elevation view



Plan view

1. "L" bracket placed at bottom of panel against wall stud.
2. "L" bracket placed at top of panel against wall stud.
3. Strapping plate placed over joint between two panels at centre line.
4. Strapping plate placed over joint half way between centre plate and bottom of panel.
5. Strapping plate placed over panel joint half way between centre plate and top of panel.
   NOTE: Panel secured by one "L" bracket, top and bottom, per panel only.

Figure 2. Anatomy of panel attachment - tilt-up

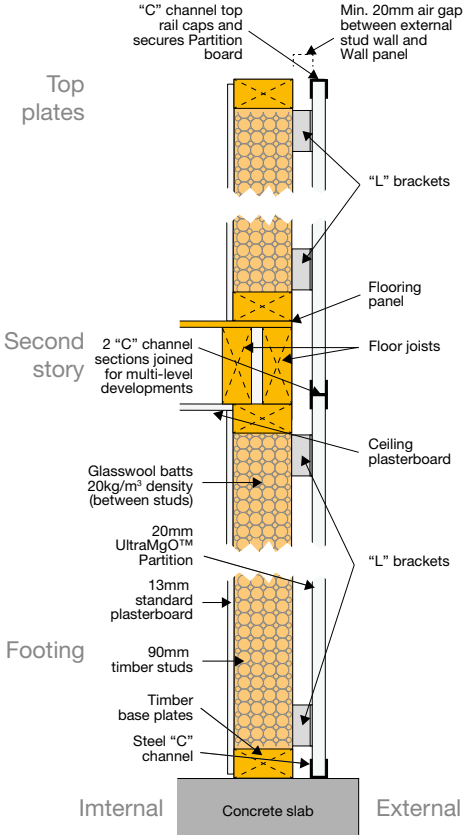
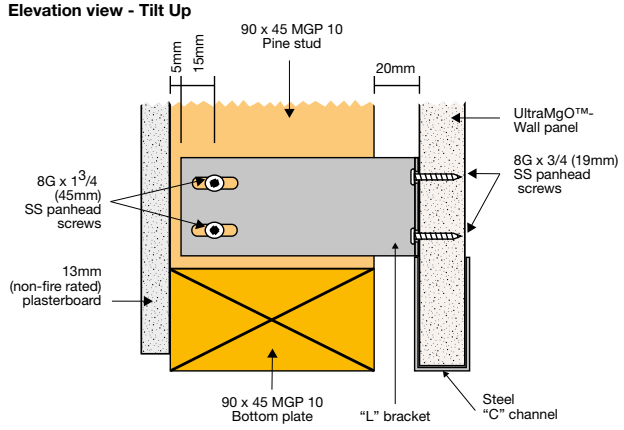


Figure 3. "L" bracket attachment details

Elevation view - Tilt Up



Plan view - Tilt Up

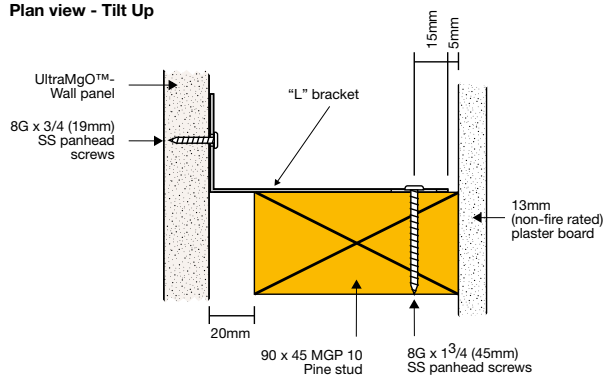


Figure 4. Panel joint and strapping plate detail

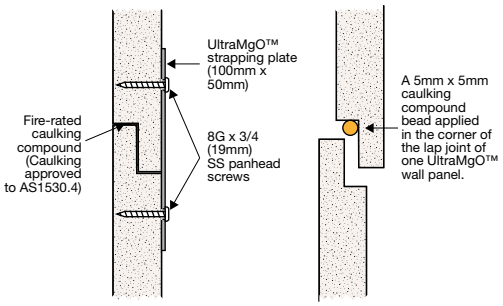
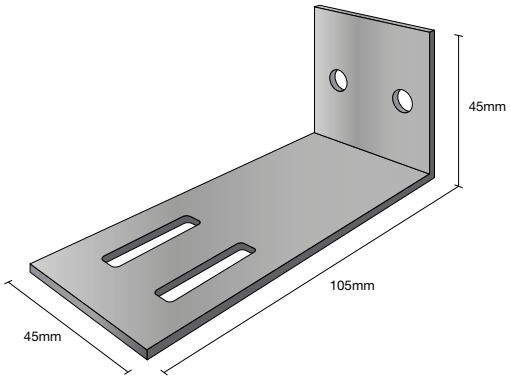


Figure 5. "L" bracket detail

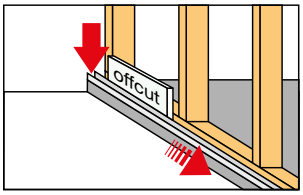


Installation Steps for UltraMgO™-External Wall - Tiltup Fix

Prior to installing UltraMgO™-External Wall panels, the framing of external walls must be completed. This is required so the UltraMgO™ panel can be bracketed for support. The sequence of construction should be planned to accommodate the progressive erection of UltraMgO™-External Wall panels. The recommended framing configuration is 90mm x 45mm MGP10 Pine studs and noggings, with studs to be set at 450mm centres.

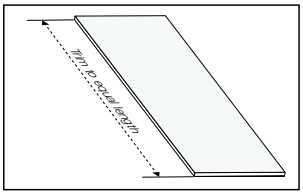
Consideration should also be given to whether the completed external walls are to be painted or rendered. If rendered, the sanded side of the panels must face outward. If painted, the smooth side of the panels must face outward. Refer to the section entitled “Surface Finishes” on page 12 of this document for more information.

Assembly Steps



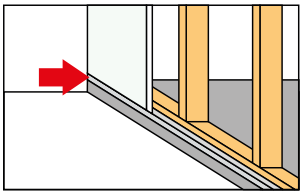
Step 1: Fixing bottom UltraMgO™ “C” channel

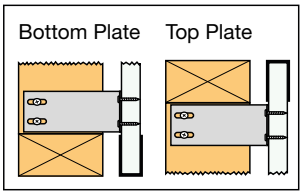
- Position the “C” channel at the edge of the foundation slab, and 20mm out from the bottom plate of the external wall frame. Use an offcut from an UltraMgO™ panel to set the distance accurately.
- Secure the “C” channel to the foundation with small masonry nails or 6x34mm anchor screws at both ends. If using anchor screws, they MUST be the flathead type.



Step 2: Cut UltraMgO™-External Wall panels to the desired length.

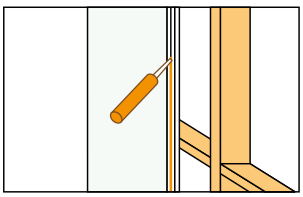
- **NOTE**: UltraMgO™-External Wall panels are supplied in either 2700mm or 3000mm lengths, and are 610mm wide (overall). Each panel has a shiplap edge on each long side, and the effective coverage of each panel is 590mm.

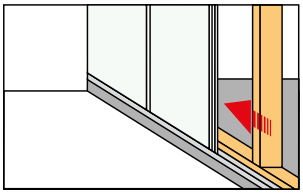


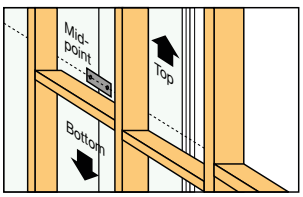


Step 3: First UltraMgO™-External Wall panel fitted into base “C” channel track

- A square edge abutment is required to start the UltraMgO™ external cladding wall. Therefore, trim the shiplap joint from one side of the “starter”, and position that side the end of the “C” channel.
- Secure the panel at the bottom and top rails using a pair of “L” brackets. Secure each bracket to the first stud, and immediately above the bottom plate/below the top plate, as per the illustration.

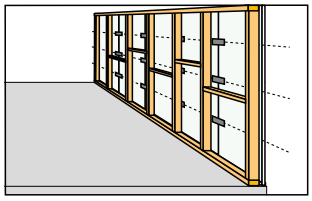






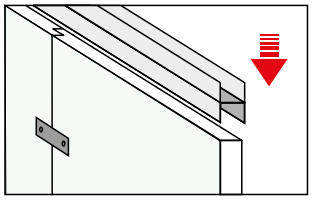
Step 4: Fitting the second UltraMgO™-External Wall panel

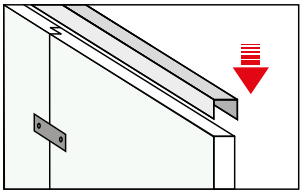
- Run a 5mm bead of fire-rated mastic to the inner corner of the shiplap joint on the first panel. In zerolot applications, run the mastic bead to the inner corner of the shiplap joint on the second panel.
- Fit a second panel into the “C” channel and push into place against the first panel, ensuring that the shiplap joint is engaged.
- Secure the two panels with a strapping plate over the joint, at the vertical centre of the panels, and on the same side as the framing. Strapping plates are only applied to the internal side of the panels.



Step 5: Continue fitting UltraMgO™-External Wall panels

- Continue fitting, glueing, strapping and securing UltraMgO™-External Wall panels along the entire run.
- Only one pair of "L" brackets (top and bottom) per panel are required. Plan the placement of brackets on studs to ensure this.
- It may be necessary to trim the last panel to fit the space at the end of the panel run.
- Secure the last panel with "L" brackets at top and bottom of the last stud.
- Secure two more strapping plates over each panel joint half way between the centre strapping plate secured in Step 4, and the top/bottom of the panel.



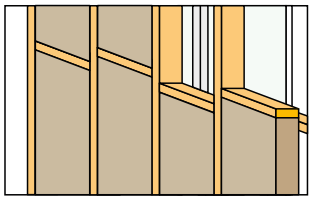


Step 6: Capping the barrier - single floor or top of multi-floor (to 9m max)

- Cap the UltraMgO™-External panels with "C" channel sections placed back-to-back along the full length of the panel run to provide a base track for second floor partition panels. Secure the channel runs with countersunk screws. We recommend running a bead of fire-rated mastic between the "C" channel sections to counter the possibility of the channel sections opening up in a fire event.
- In single level aplications, cap the partition panels with a single run of "C" channel. Secure the channel run with countersunk screws.

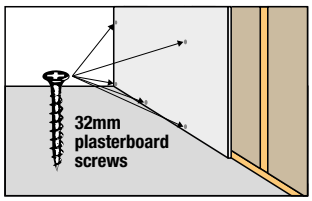
Step 7: Extending the barrier - multi-floor (to 9m max)

- Fit, glue and secure UltraMgO™-External Wall panels into the "H" channel track as per Steps 3, 4 and 5.
- Only one pair of "L" brackets (top and bottom) per panel are required. Plan the placement of brackets on studs to ensure this.
- Finish the UltraMgO™-External Wall barrier as per Step 5.
- Cap the barrier as per Step 6.



Step 8: Installation of batts

- Fit glasswool batts into timber framing walls behind the UltraMgO™-External Wall panels. The batts must NOT be loose within the frames.
- If the glasswool batts have to be trimmed to fit, ensure that the trimmed size is NO LESS THAN than 40mm OVERALL (both horizontally or vertically) larger than the space into which they must fit.



Step 9: Attach plasterboard

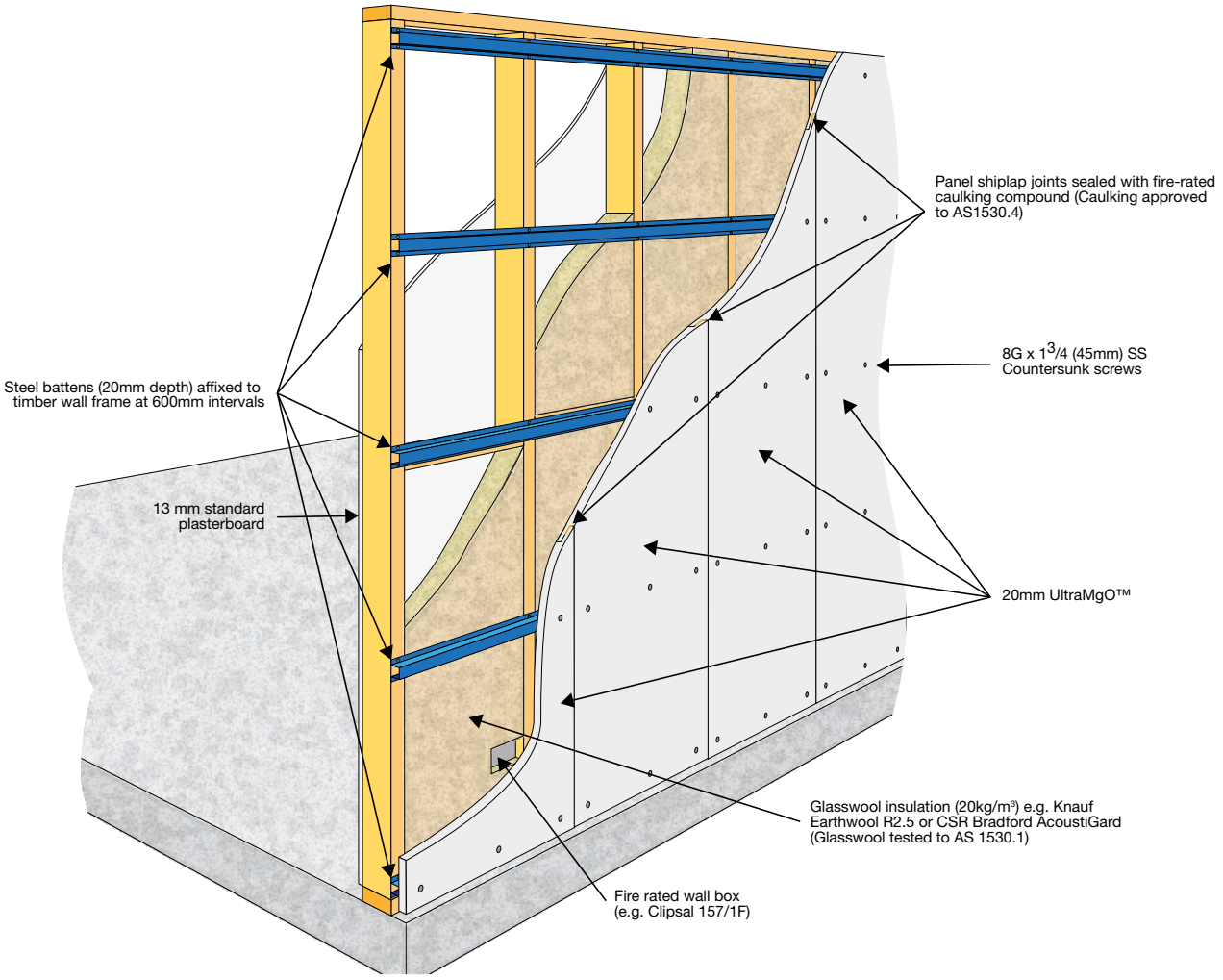
- Attach **13mm** plasterboard to the interior side of the timber wall frame using **32mm** plasterboard screws.

Important points to remember:

- Studs on timber frame walls be set at 450mm centres.
- Determine whether finshed walls are to be painted or rendered BEFORE construction begins, and erect the panels with the correct side facing out. Refer to the section entitled "Surface Finishes" on page 12 of this document for more information.
- Strapping plates are attached to the same side of UltraMgO™-External Wall panel joins as the "L" brackets.
- Where the construction schedule requires erection of UltraMgO™-External Wall panels before construction of the tenancy stud walls, we strongly recommend that exposed UltraMgO™-External Wall panels be adequately braced as they may be subjected to high wind forces.

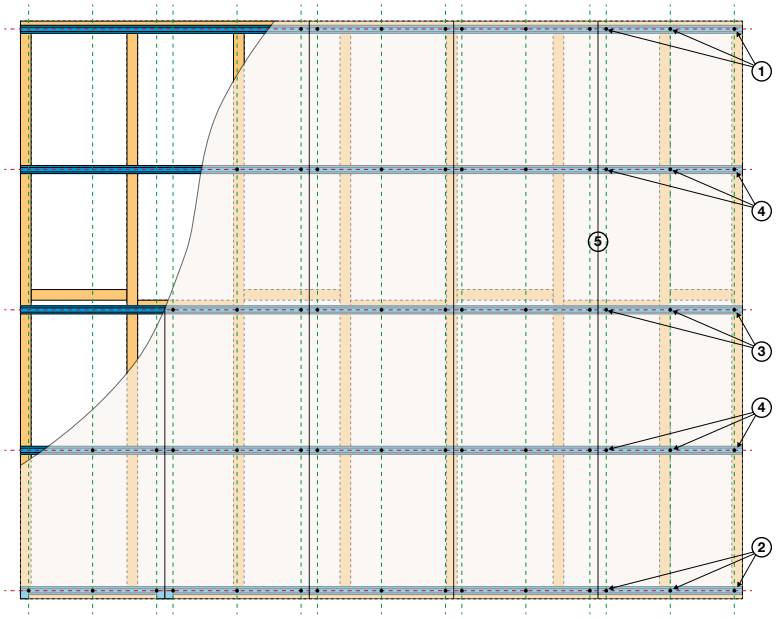
UltraMgO™-External Wall - Batten Fix

UltraMgO™-External Wall panels can be readily used for external wall applications using the batten fix method. Unless there is insufficient space to properly access the external wall, secure battens and position UltraMgO™-External Wall panels (as in zerolot applications), this is the preferred method of attachment for maximum strength and durability. External wall batten fix construction uses industry standard 20mm x 0.75BMT steel battens.



UltraMgO™-External Wall panels are attached to continuous batten runs that both position the panels at the correct distance from the wall frame, and provide ample secure fixing points for the individual panels. As such, there is no need for UltraMgO™ “L” brackets, strapping plates, or “C” channel to secure the panels to the external wall frame. However, it is still necessary to seal the join between panels using a suitable fire-rated caulking compound, and either cap the panels with “C” channel or, in the case of multistory structures, use “H” channel to vertically connect the panels, followed by capping the topmost panels with “C” channel.

Figure 1. General arrangement of UltraMgO™-External Wall panels



1. Top Rail
   Screws fixed at starting/end of board run 35mm in and down from board side (aligned with batten centre line) and top edges. A second screw is placed at the centre line of the panel, and a final screw 35mm in from the joint line at the other side edge of the panel. Repeat for each panel.
2. Bottom Rail
   Screws fixed at starting/end of board run 35mm in and up from board side (aligned with batten centre line) and bottom edges. A second screw is placed at the centre line of the panel, and a final screw 35mm in from the joint line at the other side edge of the panel. Repeat for each panel.
3. Centre batten
   Repeat the placement of screws across the panels, and aligned through the centre batten’s centre line.
4. Upper and lower middle battens
   Repeat the placement of screws across the panels, and aligned through each batten’s centre line.
5. Shiplap joints of panels to be sealed with fire-rated caulking compound (Caulking approved to AS1530.4)

Figure 2. Anatomy of panel attachment - batten fix

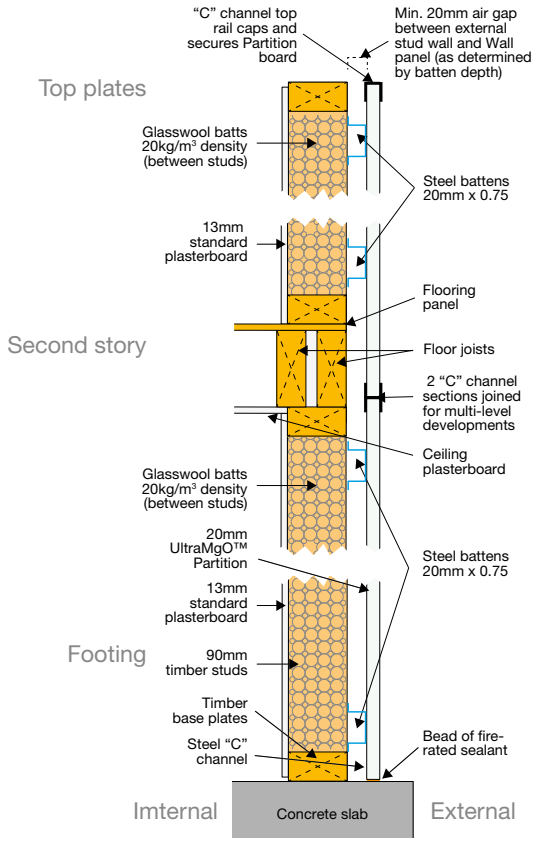


Figure 3. Panel attachment details

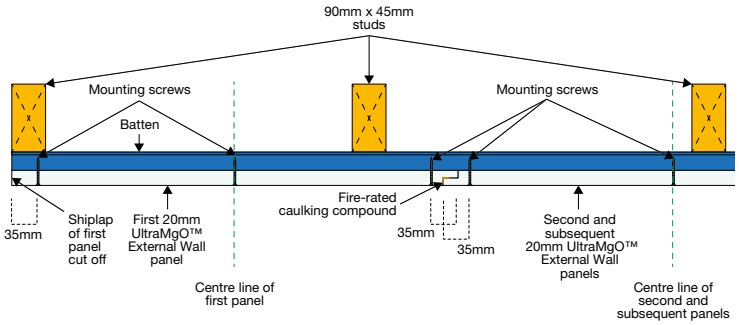
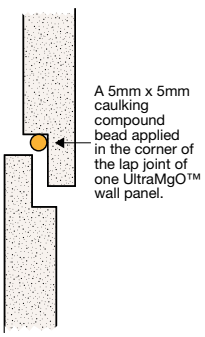


Figure 4. Caulking the shiplap joint

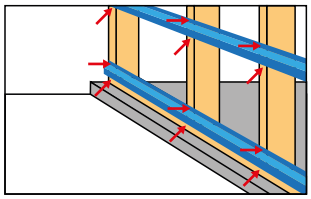


Installation Steps for UltraMgO™-External Wall - Batten Fix

Prior to installing UltraMgO™-External Wall panels, the framing of external walls must be completed. This is required so the UltraMgO™ panel can be battened for support. The sequence of construction should be planned to accommodate the progressive erection of UltraMgO™-External Wall panels. The recommended framing configuration is 90mm x 45mm MGP10 Pine studs and noggings, with studs to be set at 450mm centres.

Consideration should also be given to whether the completed external walls are to be painted or rendered. If rendered, the sanded side of the panels must face outward. If painted, the smooth side of the panels must face outward. Refer to the section entitled “Surface Finishes” on page 12 of this document for more information.

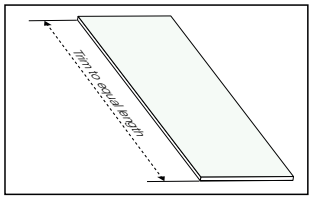
Assembly Steps



Step 1: Secure battens to external wall frame

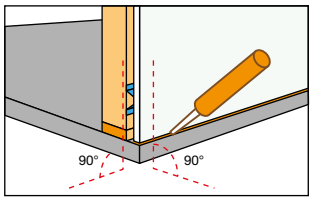
- Position battens immediately below the wall frame top plate, and immediately above the wall frame bottom plate. Secure the battens according to the manufacturer’s recommendations.
- Find the horizontal centre line of the wall frame. Position and secure a batten along that centre line according to the manufacturer’s recommendations.
- Establish centre lines between the upper batten and centre batten, and lower batten and centre batten. Position and secure a batten along those centre lines according to the manufacturer’s recommendations.

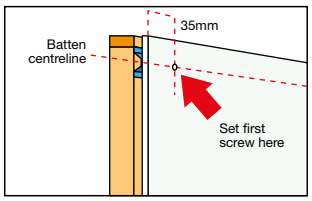
  A run of five battens down the wall frame, equidistantly spaced top to bottom should be the result.



Step 2: Cut UltraMgO™-External Wall panels to the desired length.

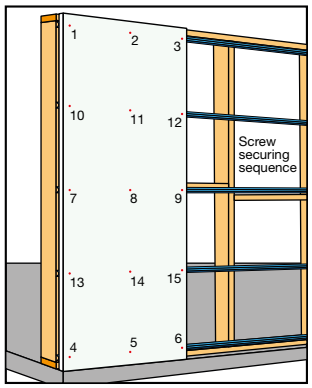
- **NOTE**: UltraMgO™-External Wall panels are supplied in either 2700mm or 3000mm lengths, and are 610mm wide (overall). Each panel has a shiplap edge on each long side, and the effective coverage of each panel is 590mm.





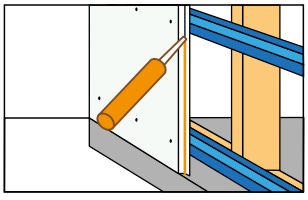
Step 3: Position first UltraMgO™-External Wall panel

- A square edge abutment is required to start the UltraMgO™ external wall. Therefore, trim the shiplap joint from one side of the “starter”, and position that side against the external wall framing or cladding material, and in line with the end of the batten.
- Ensure that the panel is square to the wall frame and vertical - misalignment now will affect the entire panel run. Ensure that the shiplap joint on the other long edge of the panel is facing out. Clamping the panel lightly in place will greatly assist correct positioning.
- Run a generous bead of an approved fire-rated sealant, such as BOSS Firemastic 300 or HB Fuller FireSound where the panel sits on the foundation to provide a weatherproof seal.
- Secure the panel to the top batten through the centre line of the batten with a screw set 35mm inboard of the panel edge.



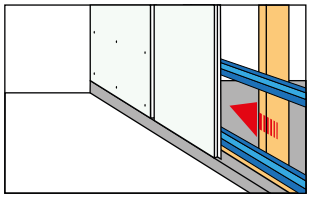
Step 4: Secure the panel

- Working across the top of the panel, set a second screw at the midline and a third screw 35mm inboard of the opposite edge (including the width of the shiplap joint).
- Next, secure the bottom of the panel by setting the fourth, fifth and sixth screws as per the illustration.
- Secure the centre section of the panel with another three screws.
- Set the tenth, eleventh and twelth screws in the upper half of the panel.
- Finally, set the final three screws across the lower half of the panel.



Step 5: Caulk the joint line

- Run a 5mm bead of a fire-rated caulking compound down the full length of the inner corner of the outward-facing shiplap joint

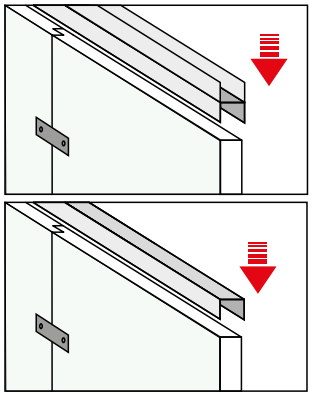


Step 6: Fitting the second UltraMgO™-External Wall panel

- Position a second panel so that the shiplap joint overlaps. Secure the top of the panel by lightly clamping it to the wall frame top plate.
- Secure the panel to the top batten through the centre line of the batten with a screw set 35mm inboard of the panel edge.
- Repeat the securing sequence as per Step 4.
- Run a 5mm bead of a fire-rated caulking compound down the full length of the inner corner of the outward-facing shiplap joint, as per Step 5.

Step 7: Continue fitting UltraMgO™-Wall panels

- Continue fitting, clamping, securing and caulking UltraMgO™-External Wall panels along the entire run as per Step 6.
- It may be necessary to trim the last panel to fit the space at the end of the panel run. Ensure that, even trimmed, at least two screws secure the panel at each batten.

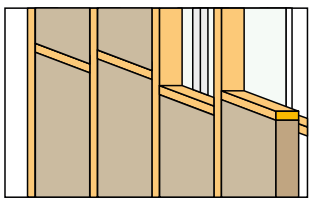


Step 8: Capping the barrier - single floor or top of multi-floor (to 9m max)

- Cap the UltraMgO™-External Wall panels with “C” channel sections placed back-to-back along the full length of the panel run to provide a base track for second floor partition panels. Secure the channel runs with countersunk screws. We recommend running a bead of fire-rated mastic between the “C” channel sections to counter the possibility of the channel sections opening up in a fire event.
- In single level aplications, cap the partition panels with a single run of “C” channel. Secure the channel run with countersunk screws.

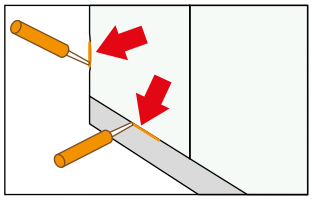
Step 9: Extending the barrier - multi-floor (to 9m max)

- Fit, glue and secure UltraMgO™-External Wall panels into the “H” channel track as per Steps 6 and 7.
- Finish the UltraMgO™-External Wall panel run as per Step 7.
- Cap the barrier as per Step 8.



Step 10: Installation of batts

- Fit glasswool batts into the external wall frame. The batts must NOT be loose within the frames.
- If the glasswool batts have to be trimmed to fit, ensure that the trimmed size is NO LESS THAN than 40mm OVERALL (both horizontally or vertically) larger than the space into which they must fit.



Step 11: Seal all gaps for weatherproofing

- Seal any gaps between the foundation and UltraMgO™-External Wall, and where panels abut other external wall structures, with an approved fire-rated sealant, such as BOSS Firemastic 300 or HB Fuller FireSound.

Important points to remember:

- Studs on timber frame walls be set at 450mm centres.
- The base of each UltraMgO™-External Wall panel must be sealed against the foundation with an approved fire-rated sealant to ensure proper weatherproofing.
- Determine whether finshed walls are to be painted or rendered BEFORE construction begins, and erect the panels with the correct side facing out. Refer to the section entitled “Surface Finishes” on page 12 of this document for more information.

Corner Details - Batten fix

Where external wall panel sections meet at a corner, either internal or external, they can be joined to create an effective seal. In order to ensure that the panels do seal properly, it is important that the battens butt up against each other, as shown in the following illustration (Figure 5.). This ensures that the panel edges are fully supported and kept square to each other.

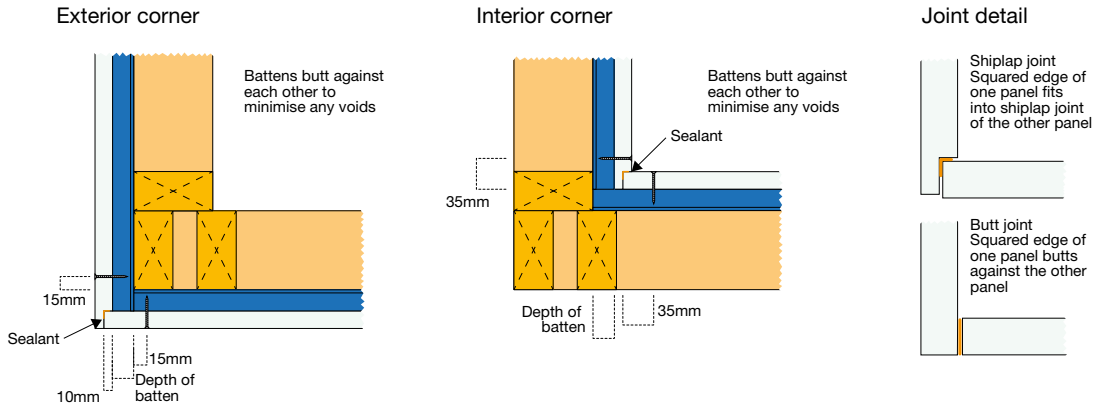
Note that, with an external corner, the battens on one wall extend beyond the end of the wall framing by the depth of the batten section (20mm, unless otherwiae specified).

Also note that the UltraMgO™ panels also extend beyond the end of the framing. Where the battens extend beyond the end of the wall framing by the depth of the batten section, the panel on that wall must be extended a further 20mm beyond the battens (with or without a shiplap edge) in order to ensure a flush joint with the panel on the adjacent wall.

In the case of an internal corner, battens are secured short of the end of one wall framing by the depth of the battens on the adjacent wall, so that they butt against the battens on the adjacent wall. The end panel is secured to the shortened batten so that it is flush against the battens on the adjacent wall.

In all cases, the actual panel joint is sealed with fire-rated mastic along the full length of either the shiplap or butt joint.

Figure 5. Corner treatments for batten fix walls

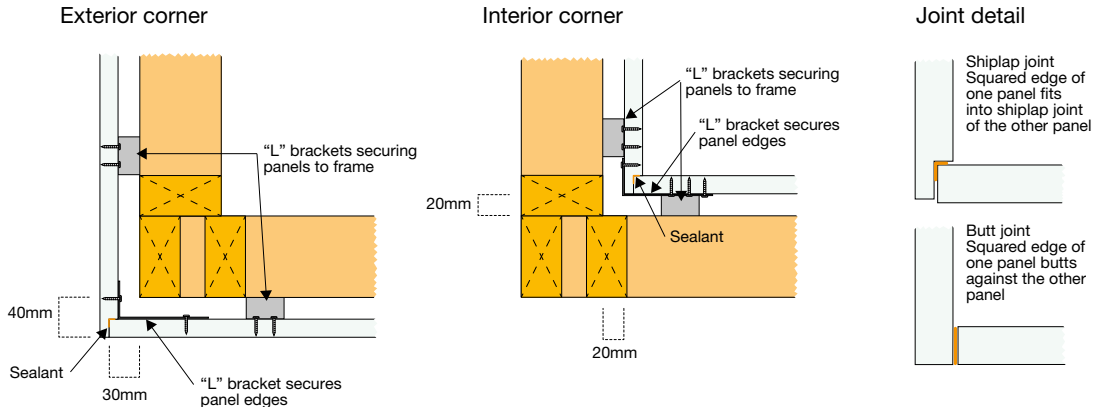


Corner Details - Tilt-up fix

Securing exterior and interior corners on external walls where the tilt-up fix method of construction has been used is broadly similar to that used for the batten fix method. However, as the exterior corner is not supported by battens all the way to its inner edges, it will be necessary to secure the corners with one or more “L” brackets, as shown in Figure 6.

In all cases, the actual panel joint is sealed with fire-rated mastic along the full length of either the shiplap or butt joint.

Figure 6. Corner treatments for tilt-up fix walls



Surface Finishes

In order to provide the greatest range of finishing options for UltraMgO™-External Wall panels, the sides of each panel are finished differently. The smooth side provides a better substrate surface for painted finishes, whereas the coarser sanded side provides a better key for rendered finishes. Therefore, it is important to establish which kind of finish will be used BEFORE construction of the wall commences. If a painted finish is to be applied, the smooth side of the panel must face outward. If a rendered finish is to be applied, the sanded surface of the panel must face outward.

Figure 7. Smooth side

Figure 8. Sanded (coarse) side

Preparations for a painted finish

When a painted finish is to be applied, the UltraMgO™-External Wall panel must be primed with ROCKCOTE MgO Board Primer. This is an acrylic primer specifically designed to adhere properly to MgO boards. Other acrylic primers will not provide a proper substrate for a painted finish. ROCKCOTE MgO Board Primer is the only acrylic primer recommended for MgO boards.

Preparations for a rendered finish

There are no special requirements for preparing UltraMgO™-External Wall panels for rendering. However, an acrylic-based rendering product provides the best adhesion to MgO and is recommended. Acrylic-based renders are readily available from suppliers such as Rockcote, Dunlop, Dulux, Ardex and Unitex.

Technical Enquiries 1300 38 38 84

FCF provides technical advice to builders, architects, contractors, engineers, and regulators throughout Australia. Our team can offer both practical and design input for all UltraMgO™ applications. Start your UltraMgO™ project off on the right track by contacting FCF between 8.30am - 4.30pm AEST weekdays on 1300 38 38 84.

Safety instructions - UltraMgO™-External Wall

Download product SDS documents from our website for correct handling, usage and disposal advice.