



Installation Guide



**BR-007, May 2019 – Party & Boundary Wall 50mm
Low-Rise Multi-Residential Buildings & Houses**



1. About Big River

Big River Group began in the early 1900s as a family owned timber business. Today, it has advanced and established itself as a major Australian building materials distributor, supplying an extensive range of high-quality timber, builder's hardware, building supplies and services for the residential, commercial, industrial, building and construction industries.

Big River distributes the MaxiWall and MaxiFloor AAC panels exclusively in Australia. Its distribution outlets are strategically located throughout the country, with Perth, Melbourne, Sydney, Illawarra, Brisbane, Sunshine Coast, Townsville and Adelaide offering customers national coverage with local delivery.

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This Installation Guide contains construction and installation information intended for use as a general guide by building professionals including licensed builders in the construction of party and boundary walls for low-rise multi-residential buildings and houses.

It does not substitute the essential evaluations, assessments and decisions of qualified design and building construction professionals. They should be consulted to ensure that the specific wall systems, its components and fixings are suitable for the projects and conform to the current National Construction Code of Australia (NCC).

Big River is not responsible for ensuring the correctness or suitability of the construction and installation information and the wall systems or its compliance with federal, state or local laws and regulations, including building, environmental and other codes.

3. MaxiWall Panel

MaxiWall panel is an autoclaved aerated concrete (AAC) steel reinforced, durable, lightweight building panel. It offers excellent benefits as a non-loading bearing party and boundary wall system for low-rise multi-residential buildings and houses including townhouses and retirement homes.

The MaxiWall party and boundary wall system has an advantage over other similar systems for intertenancy and zero lot boundary walls as it is quick and easy to install and requires minimum system accessories and components for speed of construction.

Made from natural raw materials - lime, sand, gypsum, water and a small amount of aerating agent plus cement, the MaxiWall panel is ecologically friendly and energy conserving. It is a very strong but lightweight construction material for outdoors and indoors alike.

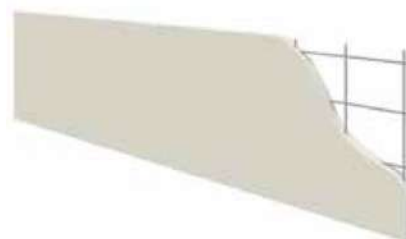
The MaxiWall panels are easy to handle and offers flexible solutions for party and boundary wall construction. They can also be used for internal and external walls and flooring.

AAC has been used in Europe for more than 70 years and is widely accepted in Australia since its introduction over 25 years ago as a lightweight material for cladding and flooring.

MaxiWall panels are available in the following dimensions and steel reinforcement.



Thickness:	50mm
Width:	600mm
Length:	1800 and 2200
Reinforcement:	Single steel mesh centrally located
Steel wire:	4 x Ø 5mm longitudinal and 6-8 transverse bars



4. Advantage & Benefits



Environmentally friendly and sustainable

Helps reduce about 30% of environmental waste compared to traditional concrete and 50% of greenhouse gas emissions.



Energy cost savings

Excellent insulation properties with improved thermal efficiency that reduces the heating and cooling load in buildings.



Excellent soundproofing

Effective sound barrier for privacy both from outside noises and other rooms when used as interior partition walls.



Superior fire protection

Non-combustible. Suited for fire-rated applications achieving a two hour rating when installed with approved systems.



Non-toxic substances

Pollutant free building material that does not emit toxic gases or other toxic substances.



Quick construction

Easy to work with, including cutting, shaving and shaping thus reducing construction time and labour costs.



Lightweight and durable

Durable and dimensionally stable, the lightweight cellular properties provide design and construction flexibility.

5. Design Consideration

For the MaxiWall party and boundary wall system to be effective and economical, the following design considerations to capitalise on the product benefits and construction efficiency is important.

- Determine site wind load and wind category, soil type and movement.
- Ensure the wall system complies with the current requirements of the NCC (National Construction Code).
 - ✓ Fire Resistance Level (FRL)
 - ✓ Bushfire Attack Level (BAL)
 - ✓ Sound Insulation Performance (Rw values)
 - ✓ Energy Efficiency (R-Value)
- Determine wall frame spacing, batten quantity, screw fixing and cantilever distance (refer to Fixing Specification for the relevant wall systems in the manual).
- Structural framing must comply with AS 1684 for timber frames and NASH standard for residential and low-rise steel frames – min. 0.75mm BMT.
- Fasteners must comply with AS 3566.
 - Class 3 coated screws are to be used in a benign or moderate environment.
 - Class 4 coated screws for marine exposure of more than 100m from breaking surf.
 - Grade 304 or 316 stainless steel screws for severe marine exposure less than 100m from breaking surf.
- Select insulation and/or building wrap material to meet energy efficiency and weatherproofing requirements.
- Flashings and damp-proof courses must comply with AS/NZS 2904 and AS 5146

Part 3 – 2.8.2 and installed in accordance with NCC requirements.


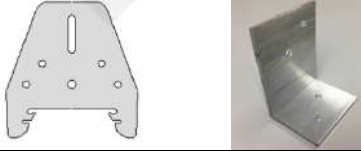

- Sealants are to be of approved polyurethane grade and fire and/or acoustic rated, prepared and installed in accordance with manufacturer's instruction for AAC substrate.
- Select an exterior surface coating system which meets the required coating specification and warranted by the manufacturer.
- For certain wall construction, permission must be sought from the owner of the adjoining building.

The MaxiWall party and boundary wall system for low-rise multi-residential buildings and houses in this guide is based on accepted design principles used in a typical Australian residential building to satisfy the nominated requirements of the Building Code of Australia, NCC Volume Two, Class 1 and Class 10 Buildings – Housing Provisions.

It is important that a Designer and/or Project Engineer assess the adequacy of the party and boundary wall system and approve construction design and compliance with NCC performance requirements.

The MaxiWall 50mm AAC wall panel system complies to the nominated Performance Requirements and Deemed-to-Satisfy Provisions of the National Construction Code 2019, AS 5146 Part 1:2015 (+A1), AS 5146 Part 2:2018 Clause 1.1 and when constructed in accordance with this guide and AS 5146 Part 3:2018. For information please refer to Big River Group.

6. System Component

AAC Adhesive	Factory prepared blend of carefully selected raw materials such as cement, graded aggregates and strengthening and performance additives. A dry mixed product used as a structural thin bed adhesive for adhering the panels in the construction of party and boundary walls.
Anti-corrosion Paint	Coating and protection of the exposed steel reinforcement mesh from corrosion after cutting.
Joint Sealant	Sealing joints and wall penetrations that are subjected to high humidity and movements. The joint sealant provides superior integrity for fire and acoustic sealing. Even when excessively stretched, sealants help maintain the joint's integrity.
Patch Compound	Pre-mixed, water based jointing and patching compound used for repairing minor chips, cracks and damages particularly to the corners and edges of panels. It can also be used as a filler compound.
Render Coating	High build acrylic modified cement-based renders designed to provide weather resistant, decorative and durable surface finishes over the panels.
Thin-Bed Mortar	Thin-bed mortar with high strength specifically manufactured for the placement of panels where levelling and bonding is required for party and boundary wall construction. The mortar helps in the integrity of an airtight construction for sound insulation and fire protection at the base of the panels.
16 mm x 36 mm furring channel 24 x 30 mm top hat 24 x 50 mm top hat	
Direct Fix Clip 311D Aluminium angle 76 x 43 x 50 mm long 1.6mm thick G5005 or 70 x 40 x 50 mm long 3.0 mm thick 6063-T	
No.12-11 x 35 mm Hex Head Type 17 Screw	
No.10-16 x 16 mm Hex Head Tek Screw	
No.14-10 x 80 mm Bugle Head Type 17 or Hex Head Tek	
No.14-10 x 100 mm Bugle Head Type 17	

Important note:

- System components must be approved and/or supplied by Big River and its supply partners. Refer to www.bigrivergroup.com.au

7. General Construction Notes

- All services must be run in the timber or steel wall frames.
- If services penetrate the panels, allow a gap of 5 mm around the services and fill with backing rod and sealant.

7.1 Framing and top hats set-out

- Framing and fixing shall be in accordance with the required criteria described in Section 5 and fixing specification in Section 8 for the relevant wall systems.
- Framed heads to openings shall be designed to support the mass of AAC panels and coating system.
- Set-out top hats as required on the frames within the limits of the design specifications and wind class and the following considerations:
 - a. Max. end spacing at the top and bottom of the wall shall be 100 mm min. and 200 mm max.
 - b. Panels shall be fixed to top hats in accordance with the Connection Specification and Fixing Specification for the relevant wall systems.
 - c. Fix screws 100 mm from each edge and evenly distributed across the panels where more than 2 screws are specified.
- Panels are to be joined using approved thin bed adhesive. Joints shall be 2-3 mm and thick and fully filled. Wipe off any excess and fill voids.
- Minimum panel width shall be 200 mm when trimmed.

7.2 Slabs and Footings

- Slabs and footings supporting MaxiWall panel should be designed, specified and constructed in accordance with AS 2870

for minimum construction category of “masonry veneer”.

- Bed first course of panels in nom. 10 mm mortar at the base of the wall when constructed on a slab edge set-down.
- Base of panel shall be min. 50 mm below slab floor level or min. 100 mm below finished floor level if suspended from frame. Refer to compliance requirements imposed by the States or local councils where the project is.

7.3 Corner Panels

- Due to the increase of wind load around corners of buildings, extra top hats and screws may be needed (N3 and greater) to fix MaxiWall panels. Refer to Fixing Specification for the relevant wall systems.
- Fixed panel corner joints are to be additionally fixed with No. 14-10x125 mm screws at max. 600 centres.
- The corner zone is defined in AS 4055 as pressure zones and applies to walls within 1,200 mm in each direction of the external party wall corners.

7.4 Damp-Proof Course

- DPC shall be installed to min. 150 mm above the finished slab level inside the wall. DPC shall be expressed to the outside face of the wall.
- Building wrap or sarking shall overlap DPC by min. 100 mm. Tape building wrap to DPC around the perimeter and at all laps.

7.5 Control Joints

To control cracking resulting from the expansion and contraction of the AAC, concrete slab, foundation movement and

thermal expansion or contraction, control joints need to be installed.

- Provide horizontal control joints at each floor level.
- When using timber joists that are not seasoned (>1.0% shrinkage of the floor joists) allow a min. gap of 20 mm leveled with the bottom of the joists.
- For steel frame, 10mm Ableflex or equivalent set back 10 mm from the external face of the panels. Upper level panels must be sealed with external grade polyurethane sealant, fire and/or acoustic rated if required.
- Provide vertical control joints, min. 10 mm wide in walls at the following locations:
 - a. Max. 6,000 mm centres;
 - b. External and internal corners;
 - c. Where wall height changes by greater than 20%;
 - d. A change in wall thickness;
 - e. Corresponding to structure (slab) control joints; and
 - f. At junctions of different wall systems.

- Top hats must be discontinuous behind control joints.
- Seal control joints with backing rod and external grade polyurethane sealant, fire and/or acoustic rated if required, min. 10 mm width and 5 mm deep.
- Sealant shall be approved for the application by the manufacturer and instructions followed. Surfaces to be bonded must be clean, free of dust and debris and prepared and primed as required.

7.6 Termite Management

- Although MaxiWall panels are resistant to termites, protection from termite attack is a mandatory requirement for internal building components. It is the builder's responsibility to ensure that all laws imposed by the States and local councils are fully adhered to in the protection of buildings from termite attack in accordance with AS 3660.1.

8. Fixing Specification

8.1 MaxiWall – Party Wall Double Panel System

The MaxiWall – party wall double panel system may be constructed using the residential external wall system back-to-back with a minimum 20mm cavity between the panels. The resulting minimum wall thickness for standard wall configurations are as follows:

Option 1- Horizontal top hats

- 70 mm frames and 13 mm plasterboard – 334 mm
- 90 mm frames and 13 mm plasterboard – 374 mm

Option 2 - Vertical furring channels

- 70 mm frames and 13 mm plasterboard – 318 mm
- 90 mm frames and 13 mm plasterboard – 358 mm

The MaxiWall panel is fixed to structural framing with minimum 24 mm deep x 50 mm wide x 0.42 BMT G550 cold-formed steel top hat batten Z275 or AZ150 in accordance with AS 1397 or 16 mm x 36 mm vertical furring channel.

Table 1. Connection Specification

Wall system	Option 1 – Horizontal Top Hats (24 mm x 50 mm)	
	Top hat to stud	Fasteners and fixings
Party Wall Double Panel	Timber frame	2 x No.12-11 x 35 mm Hex Head Type 17 Screw
	Steel frame	2 x No.10-16 x 16 mm Hex Head Tek Screw
	Panel to top hat	Fasteners and fixings
	Outside fixing	No. 14-10 x 65 mm Bugle Head Type 17 or Hex Head Tek Screw at max. 500 ctrs
	Inside fixing	No. 14 Coarse Thread Hex Head Type 17 Screw with 35 – 45 mm embedment in panel
	End distance	Min. 100 mm, max. 200 mm unless otherwise specified
	Edge distance	Nom. 100 mm
	Option 2 – Vertical Furring Channels (16 mm x 36 mm)	
	Furring channel to stud	Fasteners and fixings
	Timber	2 x No. 12-11 x 35 mm Hex Head Type 17 Screw at 900 mm ctrs
	Steel	2 x No.10-16 x 16 mm Hex Head Tek Screw at 900 mm ctrs
	Panel to furring channel	Fasteners and fixings
	Timber	No. 14-10 x 100 mm Bugle Head Type 17 Screw
	Steel	No. 14-10 x 80 mm Bugle Head or Hex Head Tek Screw
Edge distance	100 mm	
There shall be no mechanical connection between the AAC panels		

Notes:

- Horizontal panel joint fire seal – Minimum 110kg/m³ 50 mm wide x 13 mm thick fire-resisting mineral fibre, or fire rated polyurethane prepared and installed in accordance with the manufacturer’s instructions for AAC.
- Roof fire seal – Minimum 60kg/m³ fire-resisting mineral fibre between each AAC element and the underside of the roofing material.

Detail Section

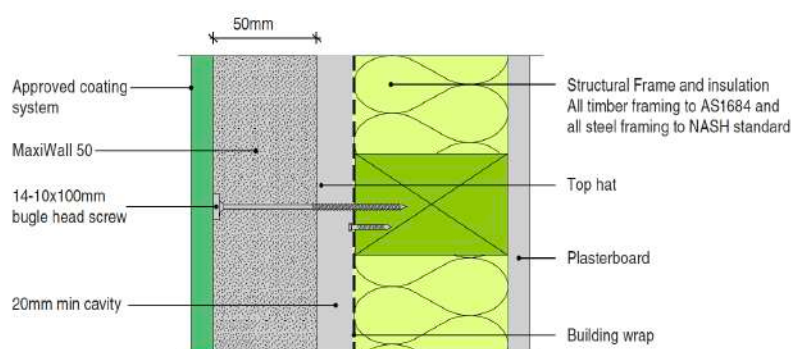


Table 2. Fixing Specification

Option 1 – Horizontal Top Hats				
Wind class	Maximum Frame Spacing (mm)	Maximum Spacing of Screws Along Tophats (Sf mm)		
		General Areas	Corner Zone	
N1	600	600	600	
N2	600	600	600	
N3	600	600	600	
N4	600	600	500	
N5	600	600	350	
N6	450	500	250	
C1	600	600	450	
C2	600	450	300	
C3	450	300	200	
C4	450	250	150	

Option 2 – Vertical Furring Channels				
Wind class	Maximum Frame Spacing (mm)		Minimum Number of Screws Per Frame (per 600 mm panel width)	
	General Areas	Corner Zone	General Areas	Corner Zone
N1	600	600	2	2
N2	600	600	2	2
N3	600	600	2	2
N4	600	600	2	3
N5	600	600	2	4
N6	600	450	3	4
C1	600	600	3	3
C2	600	600	3	4
C3	450	300	3	3
C4	450	300	4	4

Important note:

When the wall is a zero-lot boundary wall or in the event the wall could result in an external wall, refer to Option 1 and 2 in Table 2. for minimum fixing requirements and other requirements for external wall construction. If inside fixing with Option 1 is used for installation, the minimum number of screws required per top hat per panel must be doubled.

Installation Method

- a. Construct first stud wall similar to the external wall construction. Refer to manual BR-005VI Low-Rise Multi-Residential Buildings & Houses.
- b. Ensure all joints are filled, patch all screw holes and apply thin bed adhesive to fill completely.
- c. Fix temporary top hats, minimum 20 mm thick on the existing wall of the adjoining panels to create a cavity between the two walls.
- d. Erect the second wall of panels and temporarily fix them to the adjoining wall through the timber battens.
- e. Temporary stand up the panels and hold them in place.
- f. The second panel may be constructed in place with fixing of the panels by installing screws through the top hats (internal fixing).
- g. Ensure the thread in the panel is not stripped during the installation of each screw. If the thread is stripped, remove the screw, dip in thin bed mortar and reinstall.
- h. Fix top hats using 14g x 45 mm hex head screws directly at 500 mm centres to the panels.
- i. Construct structural frames flat on the slab and ensure it is strung to prevent the insulation from touching the inside face of the panel.
- j. Panels can be staggered in a stretcher bond arrangement for horizontal installation.
- k. Stand up structural frame against the top hats and fix 311D clip using 3 screws of 12-11 x 25 mm hex head screws into top plate, noggins and bottom plate with max. spacing of 600 mm centres. The third screw must be fixed into the end of 311D clip.
- l. Provide control joints where relevant in accordance with 7.5 in the General Construction Notes.
- m. Ensure temporary fixing holding panels to existing wall and temporary top hats are removed once structural frame is installed.
- n. Patch all screw holes on completion.

8.2 MaxiWall – Party Wall Single Panel System

The MaxiParty Wall - Single Panel is a non-load bearing intertenancy wall consisting a central core of horizontal MaxiWall 50 mm panel within a grid of cold formed steel sections and fixed by aluminium angle to structural timber or steel frames on both sides. It is suitable for duplex and terrace style construction separating sole-occupancies on either side only.

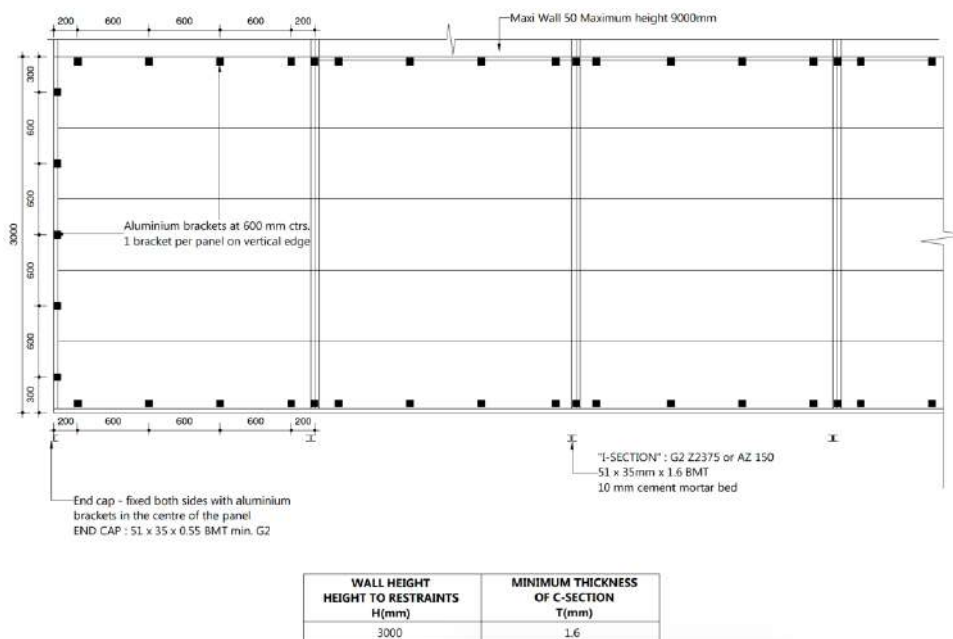
The cavity between the central core of the MaxiWall 50 mm panel and the frame on each side shall be 20 mm minimum. The resulting minimum wall thickness for standard wall configurations are as follows:

- 70 mm frames and 13 mm plasterboard – 256 mm
- 90 mm frames and 13 mm plasterboard – 296 mm

Table 3. Connection Specification

Wall system	Panel Base Support at Slab	
	Options	Fixing
Party Wall Single Panel	1. C-channel	51 x 35 x 0.55 mm BMT G2 Z275 or AZ 150 Back-to-back for optional horizontal restraint at floor and ceiling levels
	2. Cement Mortar	10 mm cement mortar
	Aluminium angle 76 x 43 x 50 mm long – 1.6 mm thick Grade 5005 or 70 x 40 x 50 mm long – 3.0 mm thick Grade 6063-T6	
	Angle to frame	Fasteners and fixings
	Timber	2 x Ø2.8. x 25 mm Galvanized Nails or 2 x No. 12-11x35 mm Hex Head Type 17 Screw
	Steel	2 x No. 10-16x16 mm Hex Head Tek Screws (Box out steel wall plates with a stud section to connect the angle)
	Angle to panel/stiffeners	Fasteners and fixings
	MaxiWall panel	2 x No. 14-10 x 45 mm Hex Head Type 17 Screw
	Steel stiffeners	2 x No. 10-16 x 16 mm Hex Head Tek Screw

Elevation view



Installation Method

- Cap all free edges of the MaxiWall 50 mm panel, including over raked panels in roof spaces with 51 x 35 x 1.6 mm BMT G2 Z275 or AZ 150 channels.
 - Fix channels to panels with 1 x No. 14-10 x 65 screw at 300 mm centres, that is 2 screws per panel, 100 mm from panel joints.
 - Aluminium angles shall be fixed on both sides of the panels to each adjacent wall frame as follows:
 - Vertical: only at the periphery of walls – at the end of every panel at the panel centerline, \pm 50 mm, that is at max. 600 mm centres. The angle may be fixed to either the end cap channel or the panel.
 - Horizontal: at the top of the vertical stiffener to the wall top plate and at 600 mm centres along the panel to the wall top plate.
 - Roof space: at 600 mm centres along the raked panels to the roof trusses/rafters.
 - Aluminium angles shall be fixed only to the periphery of the frames to comply with the Deem-to-Satisfy Provision in the NCC for discontinuous construction.
- a. Complete one wall frame before installing the single panel party wall system.
 - b. Ensure it is plumb and strung to prevent insulation from touching the inside face of the panel.
 - c. Starting at one end, fix aluminium angle as follows:
 - One angle at wall studs per panel at periphery; and
 - At the bottom plate at the spacings as shown in 9. Installation Detail No. 3.
 - d. A minimum of 20 mm cavity must be provided between each frame and panel.
 - e. Apply a 10 mm cement mortar or use a C-channel 51 mm x 35 mm x 0.55 BMT fixed to the slab using appropriate anchors at 300 mm centres.
 - f. Lay base panel horizontally with the long edge on the slab and fix the panels to the aluminum angles.
 - g. Apply a 2-3 mm approved thin-bed AAC adhesive to the top of the panel edge to ensure that the joint fully covers the panel.
 - h. Install the next panel on top of the base panel in stacked-bond arrangement fixing it temporarily to the frame using aluminium angle. Panels must be joined closely to each other and be fully sealed with the thin-bed AAC adhesive.
 - i. If walls are over 2,200 mm in lengths, fix a H-section with a minimum dimension of 51 x 35 x 1.6 BMT to the unsupported panel ends as shown in 9. Installation Detail No. 3
 - j. Install the H-section to the frame by fixing the aluminium angle at the top and bottom plate of the wall.
 - k. Follow the steps from (f) to (i) until the length of the wall is completed.
 - l. The C-channel 51 x 35 x 0.55 BMT may be installed at the end of the wall for additional panel alignment.
 - m. Seal all gaps around the panel perimeter and supporting building structure with fire resistant mineral wool.
 - n. Install 16 mm fire-rated plasterboard in the floor joist zones and roof space as shown in 9. Installation Detail No. 5.

- o. Stand the next wall frame up to the party wall allowing a minimum of 20 mm cavity. The wall frame must be strung before installation.
- p. Fix aluminium angle to the periphery of the wall frame as per 9. Installation Detail No. 3 to support the wall in case of fire on the other side of the wall.
- q. All temporary angles and fixings must be removed except those from the periphery of the wall.
- r. Do not fix services or chase into panels. Pipes on only one sole occupancy unit should not be fixed to the wall panel on the side adjoining any other sole occupancy unit.
- s. Install insulation and internal wall lining as per manufacturer's instruction.

8.3 MaxiWall - Boundary Wall System

The MaxiBoundary Wall system is a practical, cost-effective single panel wall solution for staged construction of adjacent Class 1a buildings. It is suitable for duplex, town houses and detached houses as well as villa projects built on the boundary line where an adjoining wall exist with restricted access. The panels are fixed to structural timber or steel frames with the option to use top hats, furring channels and direct fix clips.

Permission must be sought for owner of adjoining building for this construction method.

Table 4. Connection Specification

Wall system	Rondo 303 Top Hats (min. 24 mm x 30 mm)		
	Top hat to stud	Fasteners and fixings	
Boundary Wall	Timber	2 x No.12-11 x 35 mm Hex Head Type 17 Screw	
	Steel	2 x No.10-16 x 16 mm Hex Head Tek Screw	
	MaxiWall panel to top hat	Fasteners and fixings	
	Outside fixing	No. 14-10 x 65 mm Bugle Head Type 17 or Hex Head Tek Screw at max. 500 ctrs	
	Inside fixing	No. 14 Coarse Thread Hex Head Type 17 Screw with 35 – 45 mm embedment in panel	
	End distance	Min. 100 mm, max. 200 mm unless otherwise specified	
	Edge distance	Nom. 100 mm	
		Rondo 311D Direct Fix Clip	
		311D clip to stud	Fasteners and fixings
	Timber		3 x No. 10 x 45 mm Wafer Head Type 17 Screws or Ø2.8 x 40 mm Annular Ring Shank Nail
	Steel		3 x No. 10-24 x 16 mm Wafer Head Tek Screws
	MaxiWall panel to top hat		Fasteners and fixings
	Panel to top hat		No. 14-10 x 39-45 mm Hex Head Type 17 (Class 3 min.)
	End distance		Min. 100 mm, max. 200 mm unless otherwise specified
	Edge distance		Nom. 100 mm

Table 5. Fixing Specification

Wind class	Max. Stud Spacing (mm)	Max. Spacing of Top Hat S_{th} (mm)		Min. Number of Screws per Top Hat (per 600 mm panel width)
		General Areas	Corner Zone	
N1	600	1,100	1,000	3
N2	600	1,100	750	3
N3	600	950	450	3
N4	450	800	400	3
N5	450	550	250	4
C1	450	950	600	4
C2	450	800	400	4
C3	450	550	250	4

Notes:

- Where the wall height is greater than the maximum panel length, the panels shall be set out in a stretcher bond arrangement where the top hat support to the end of the panels in the field of the wall is provided within $S_{th}/4$ of the end of the panel or 200 mm whichever is greater.
- The MaxiWall panel shall be fixed to the top hat using the No. 14-10 x 35-45 mm Hex Head screws installed from the top hats into the panel.
- One of the fixings must be at the far end of the slot, the shank bearing on the 311D clip.

Installation Method

External fixing

- a. Construct the structural frame and ensure it is plumb and strung to prevent insulation from touching the inside face of the panel.
- b. Secure vertical 24 x 30 mm top hats to allow for the bottom fixing to be 150 mm max. above the finished slab and 200 mm max. from the top of the panel.
- c. Screws must be 100 mm from each edge of the panel and at 500 mm centres.
- d. Bed joint to be 10 mm cement mortar when panels are constructed on a 50 mm slab set-down.
- e. Allow for control joints as per requirements stated in 7.5 in the general construction notes. Control joints must be fully filled with approved fire and/or acoustic rated polyurethane sealant if required.
- f. Fill all joints between panels 2-3 mm wide with approved thin bed AAC adhesive.
- g. Refer to Table 4 – Connection Specification and Table 5 – Fixing Specification for connection of frames and top hats and fixing of screws.

Internal Fixing

- a. Fix temporary battens, minimum 20 mm thick on the existing wall of the adjoining building to create a cavity between the two walls.
- b. Install DPC as per requirements stated in 7.4 in the general construction notes and lay a 10 mm cement mortar bed.
- c. Slab to have a min. of 50 mm rebate to support the panels.

- d. Erect panels and temporarily fix them to the adjoining building through the timber battens.
- e. Construct structural frames flat on the slab and ensure it is strung to prevent insulation from touching the inside face of the panel.
- f. Panels can be laid in a stretcher bond pattern for horizontal installation.

Option 1 – Using top hat

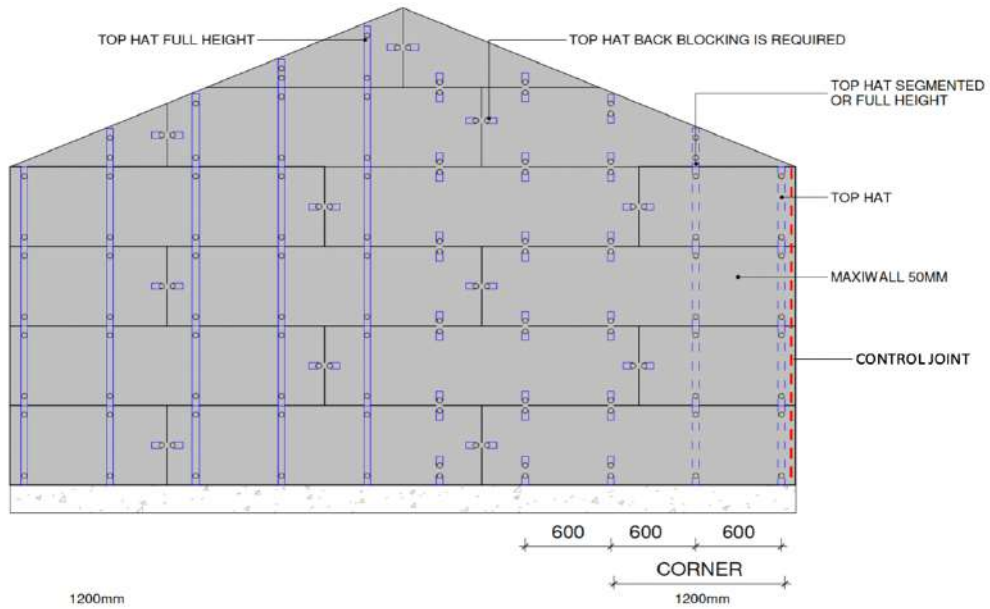
- a. Fix 24 x 30 mm top hats to the structural frame in accordance with Table 1 – Connection Specification and Table 2 – Fixing Specification.
- b. Screw one leg of the top hat to the studs and the other leg of the top hat to the top plate, noggins and bottom plate at maximum 500 centres.
- c. Stand up the structural frame against the panels. Fix top hats to the panels using 14g x 35-45 mm hex head screws at maximum 500 mm centres.

Option 2 – Using 311D direct fix clip

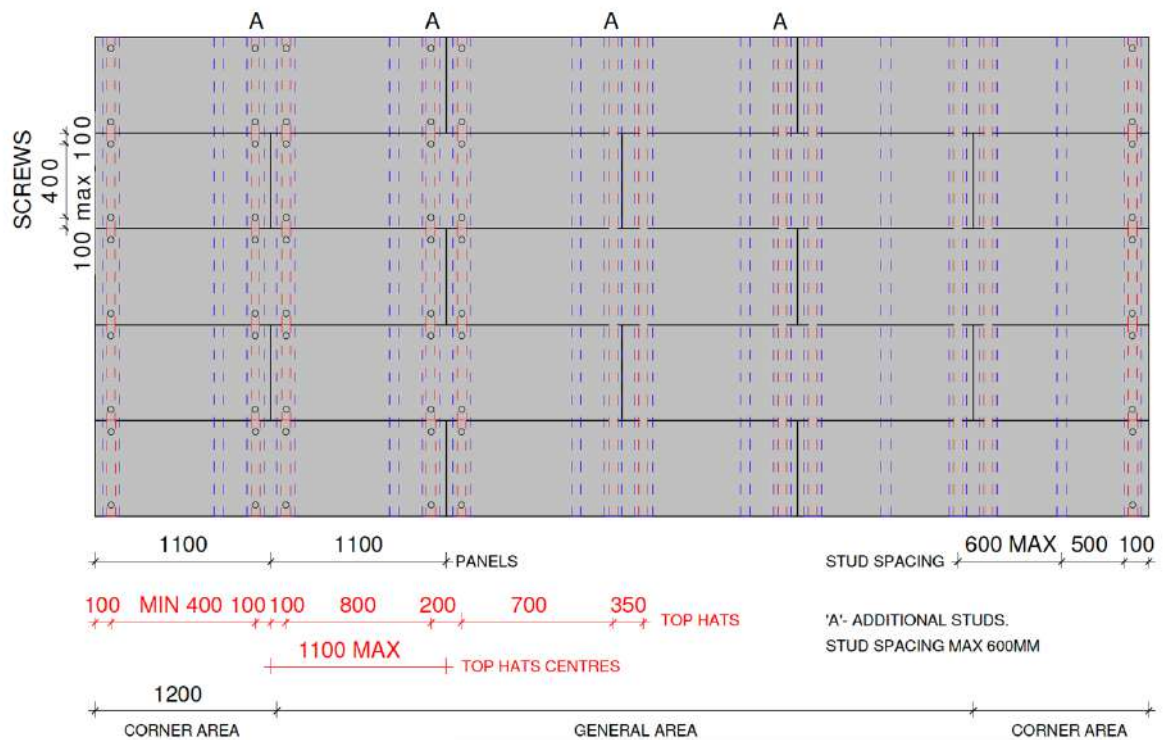
- a. Fix top hats horizontally using 14g x 45 mm hex head screws directly at 500 mm centres to the panels.
- b. Stand up the structural frame against the top hats and 311D clips using 3 screws 12-11 x 25 mm hex head screws into top plate, noggins and bottom plate with max. spacing of 600 mm centres.
- c. Allow for control joints as per requirements in 7.5.
- d. Ensure temporary fixing holding panels to existing wall and battens are removed once the structural frame is installed.
- e. Patch all screw holes on completion.

9. Installation Detail

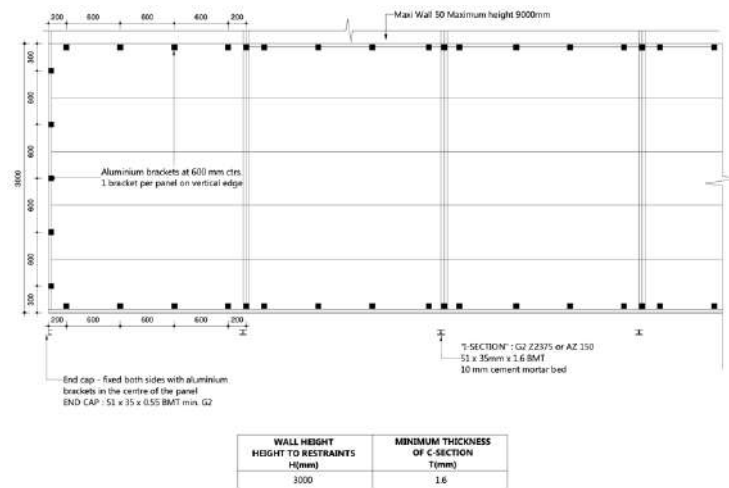
1. Top hat layout - gable end



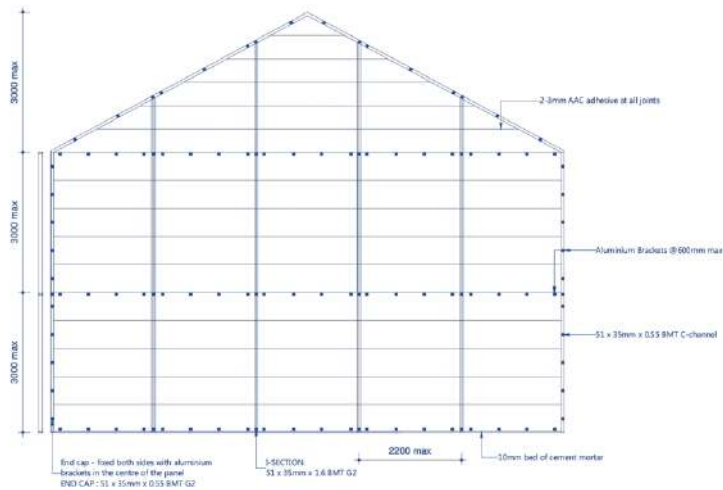
2. Top hat layout - wind zones



3. Aluminium angle layout

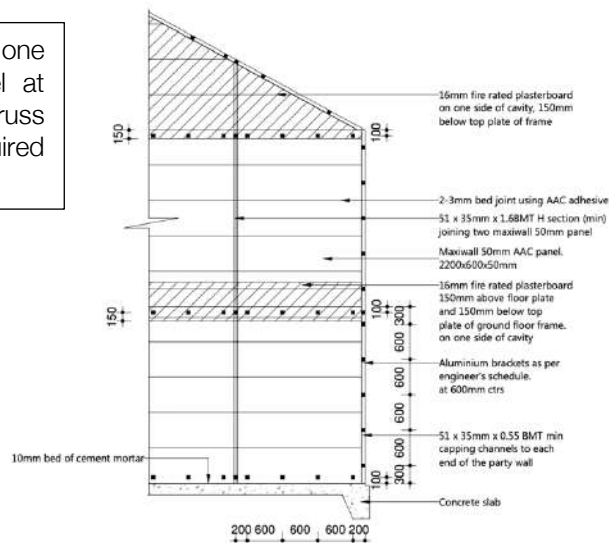


4. Stiffeners layout

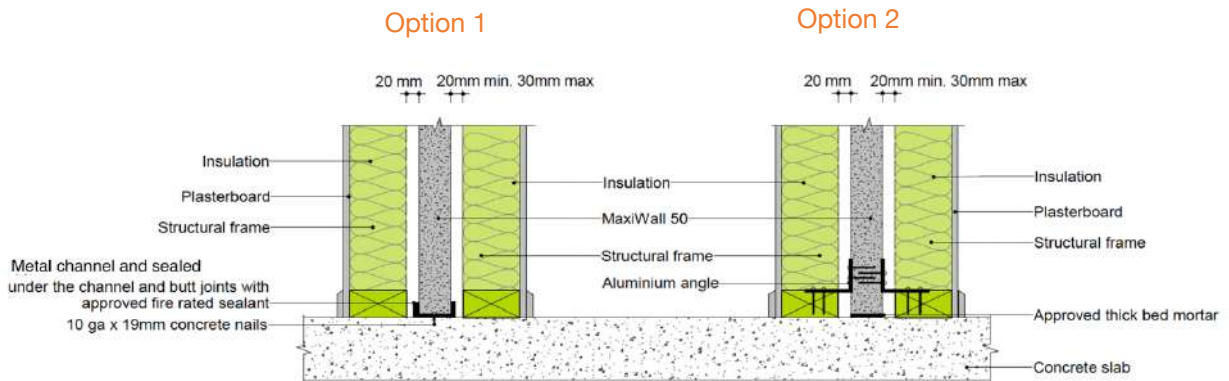


5. Gable end party wall single panel – FRL 90/90/90

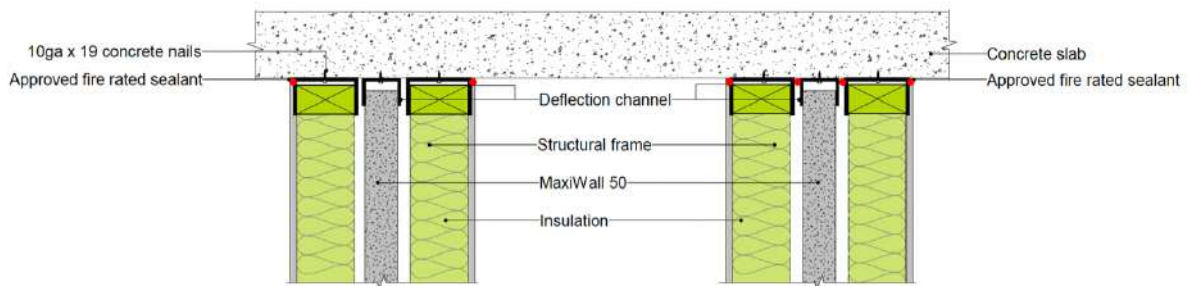
Plasterboard to one side of the panel at level change or truss zone is not required for FRL 60/60/60



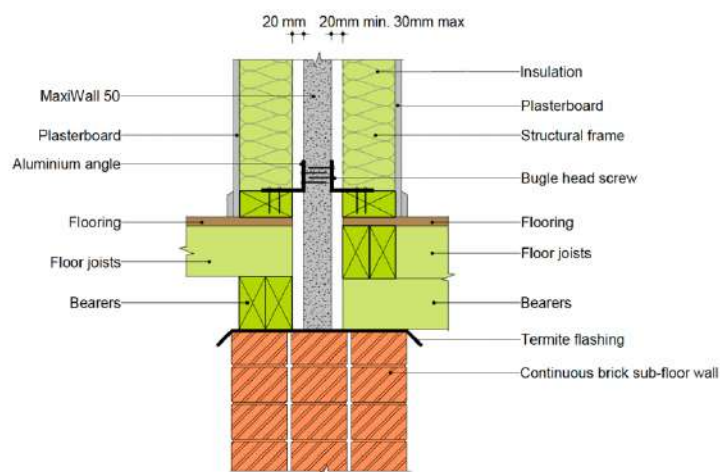
6. Base connection



7. Head connection



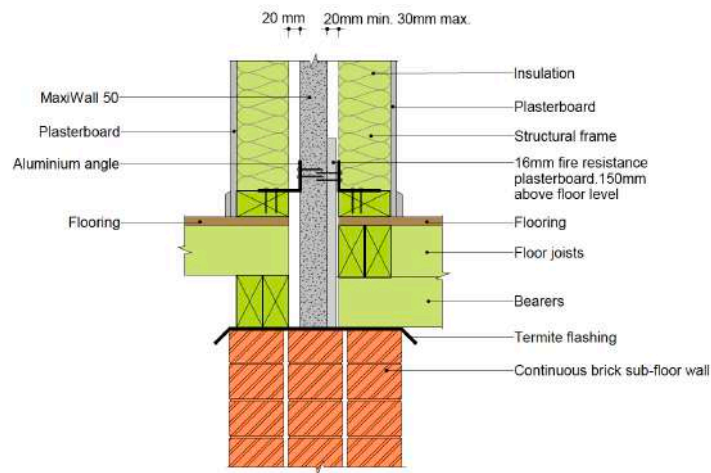
8. Masonry base connection



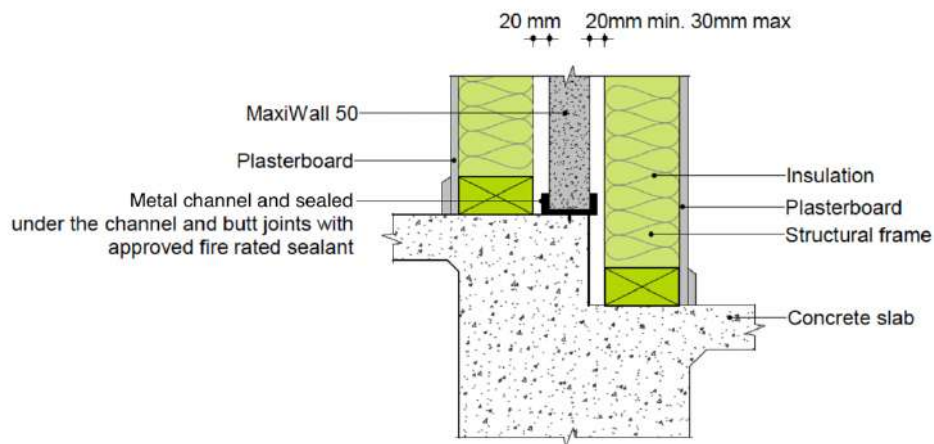
Important note:

1. Where applicable screws to fix aluminium angles must be of 14-10 x 39-45mm max. type 17
2. Two aluminium angles must be used to securely fix the panel at the bottom and top plates of the structural frame.
3. All structural frames should have a deflection channel connection to concrete slab.

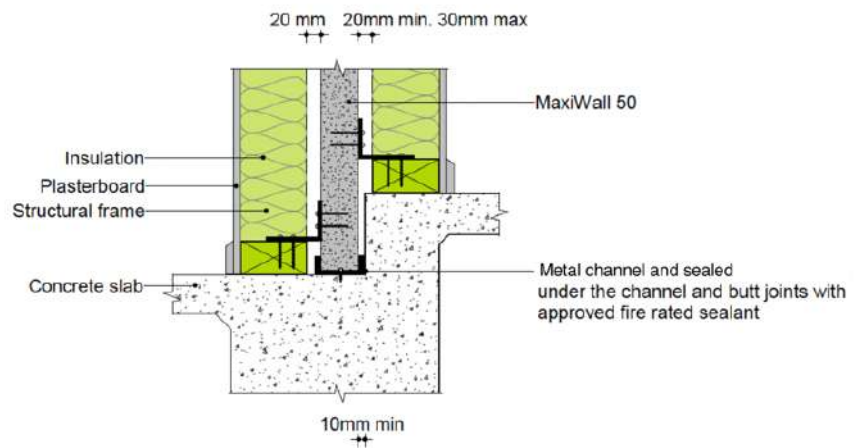
9. Masonry base connection – fire protected (90 min)



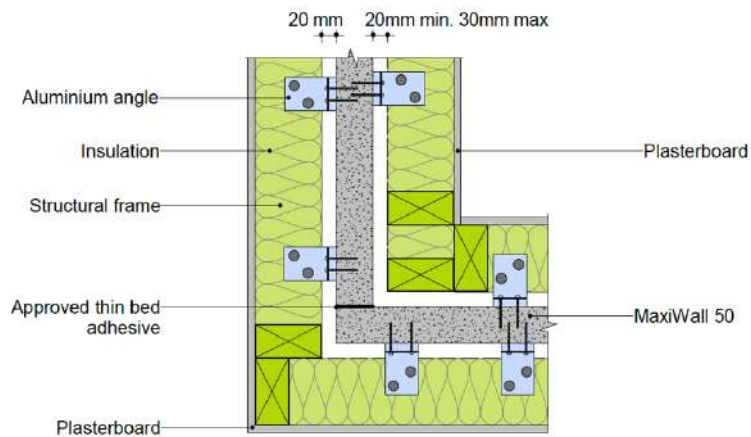
10. Step-down – metal channel



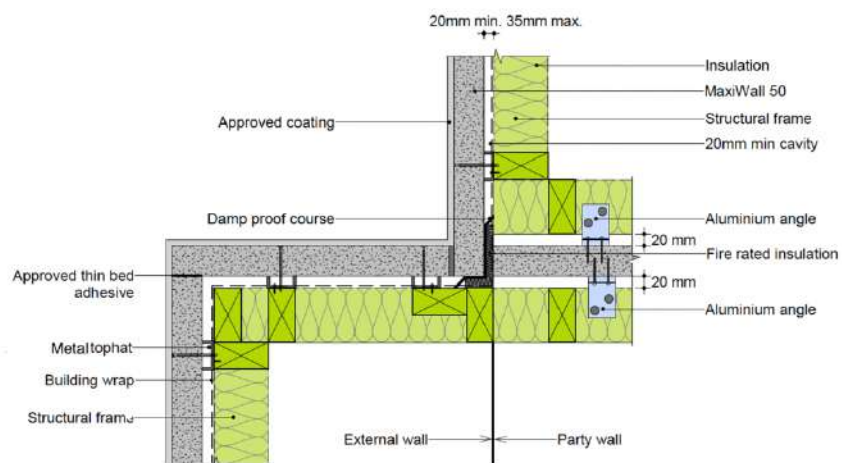
11. Step-down – aluminium angle



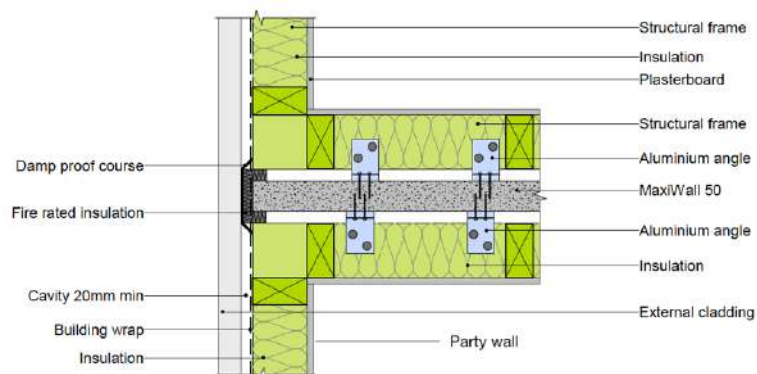
12. Internal and external corner – aluminium angle



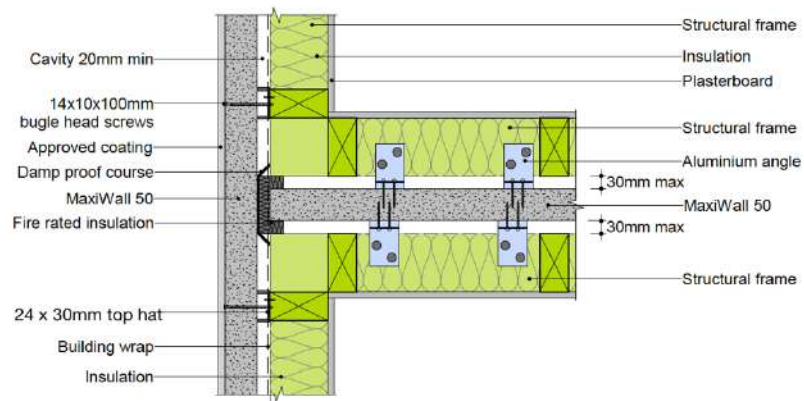
13. Party wall to external wall



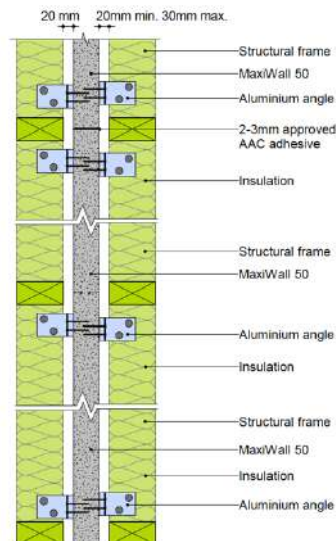
14. Party wall to external wall - vertical



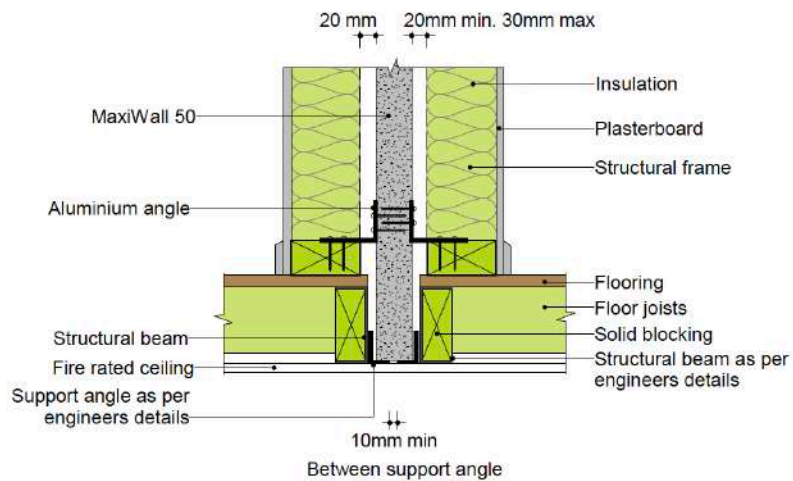
15. Party wall to external wall - horizontal



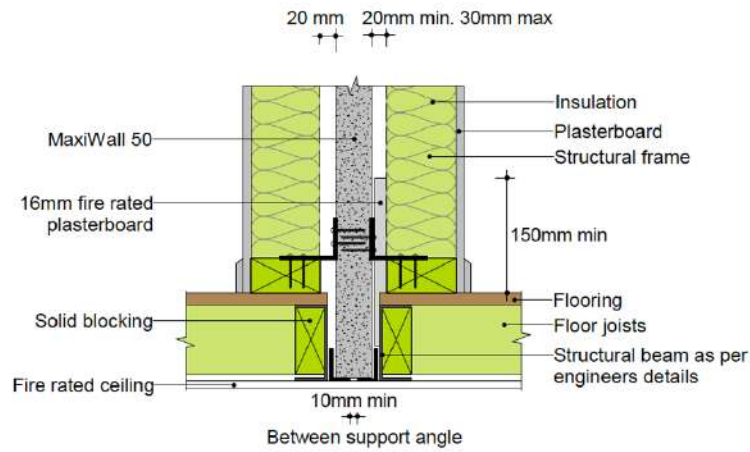
16. Aluminium angle layout



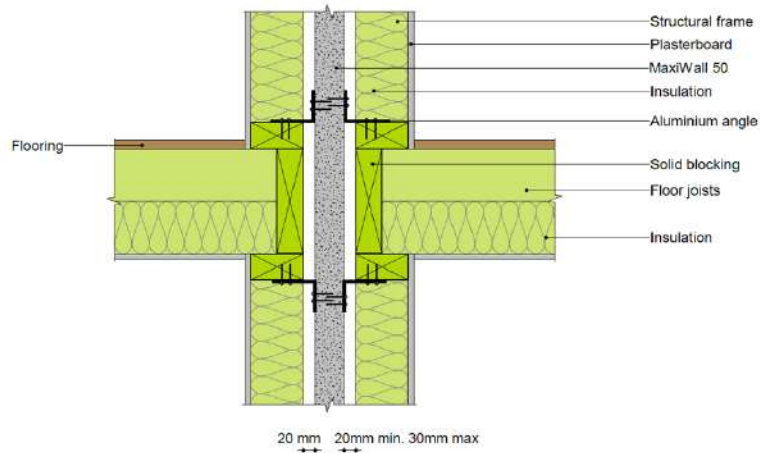
17. Structural support – first floor



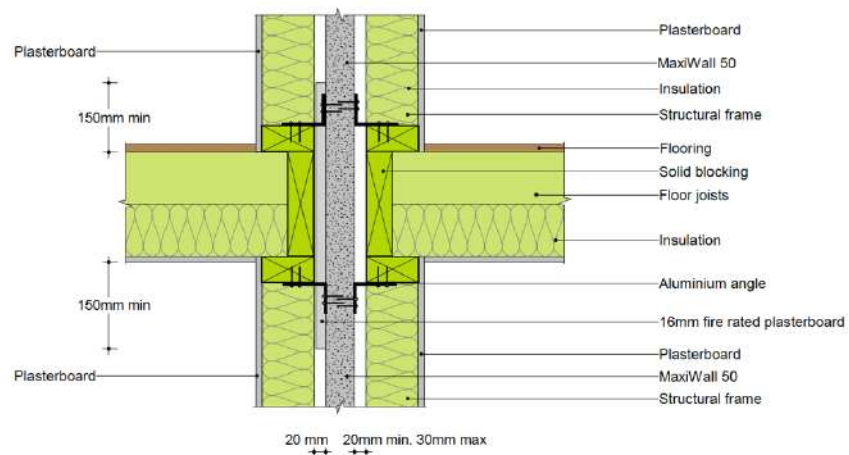
18. Structural support fire protected – first floor (90 min)



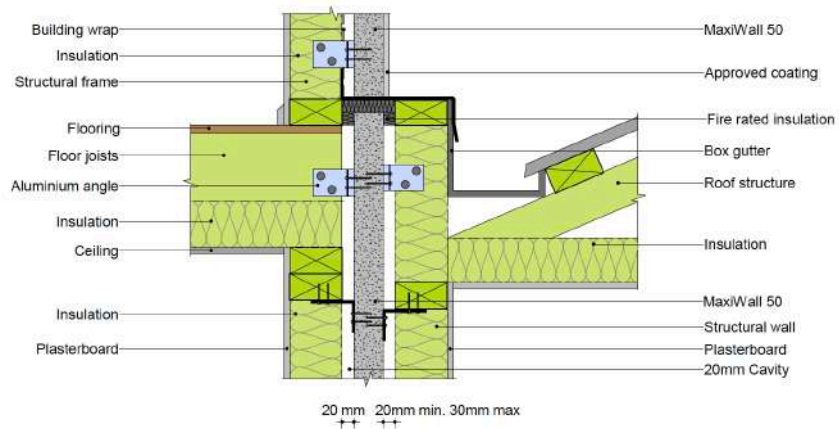
19. Wall junction – first floor



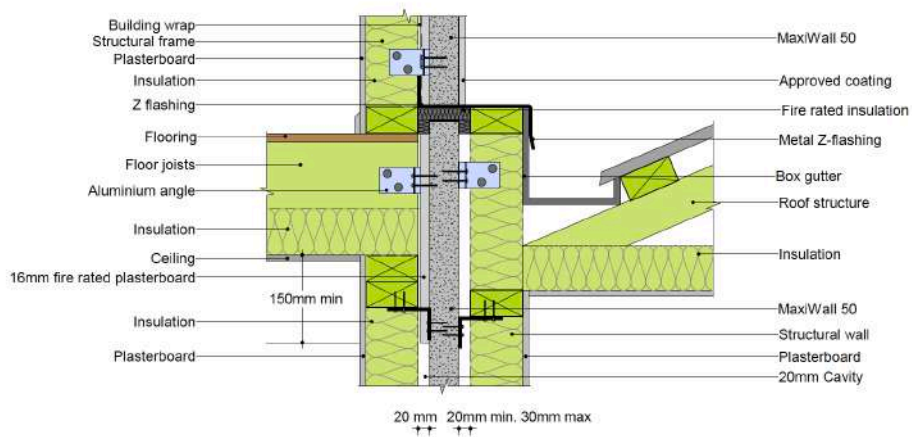
20. Fire protected wall junction – first floor (90 min)



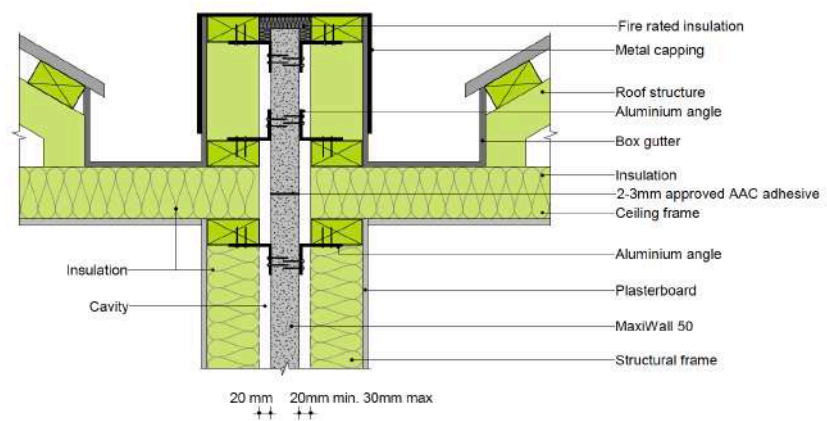
21. Single level to first floor



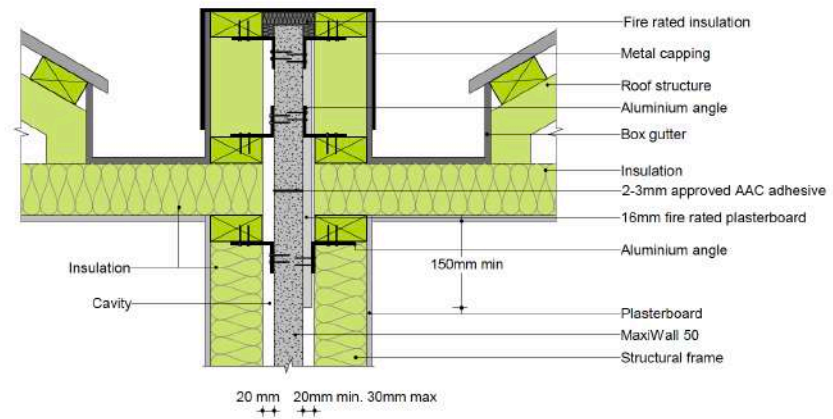
22. Single level to first floor – fire protected (90 min)



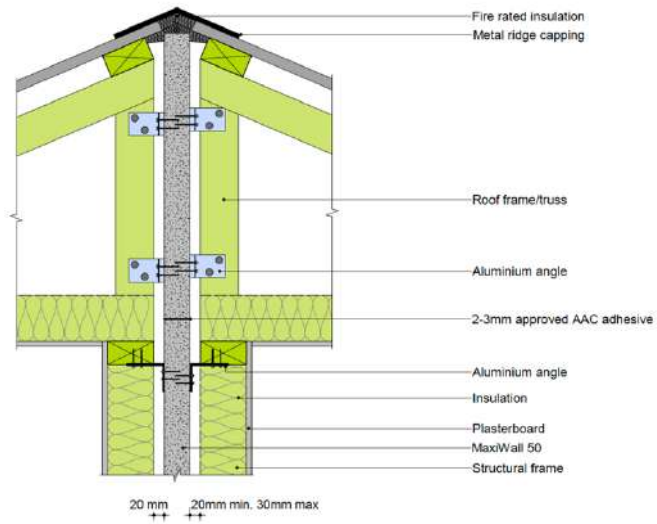
23. Box gutter



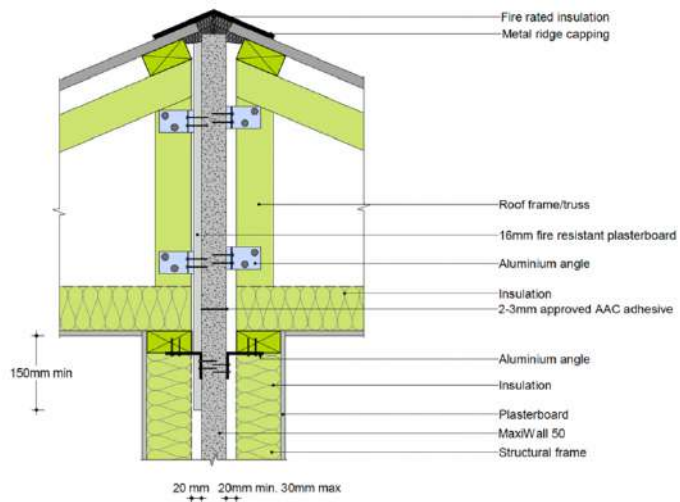
24. Box gutter – fire protected (90 min)



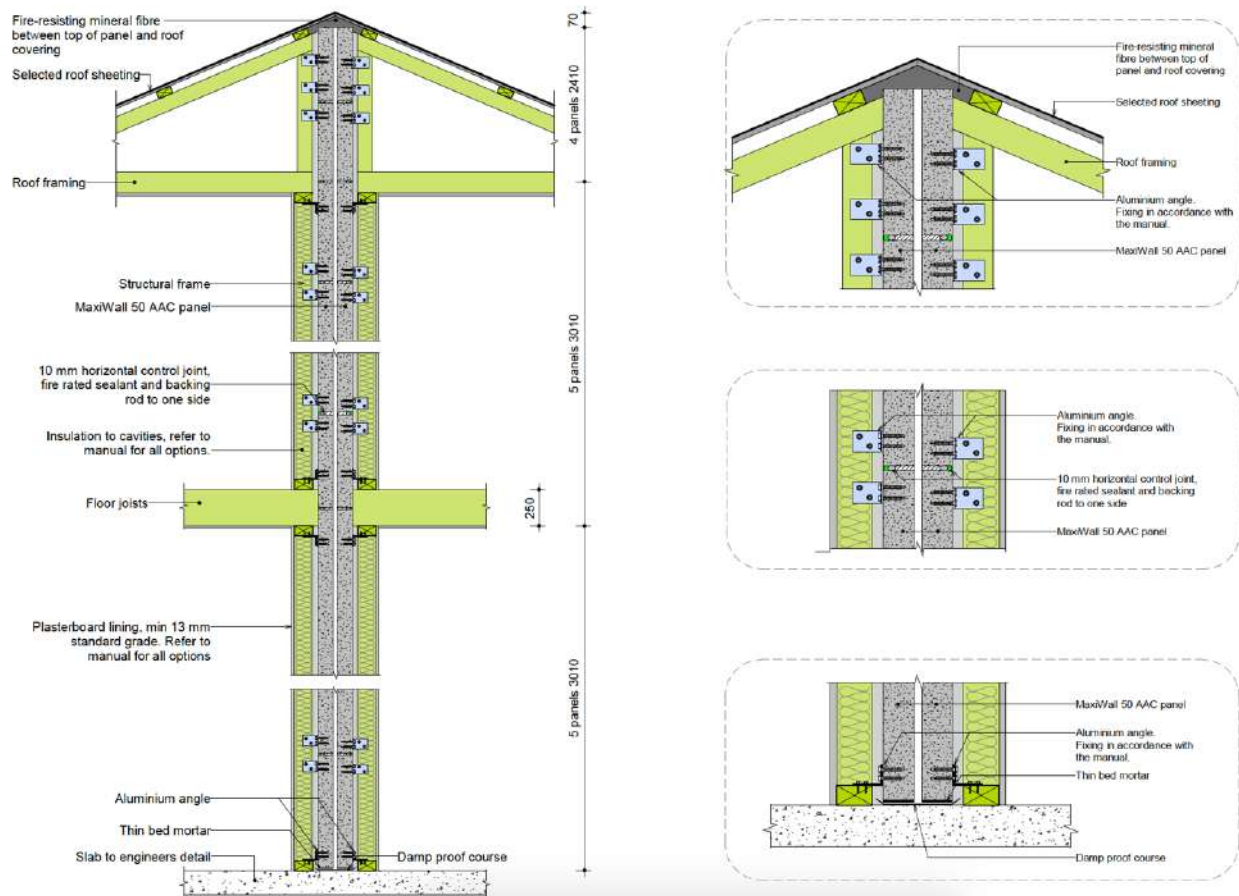
25. Roof space



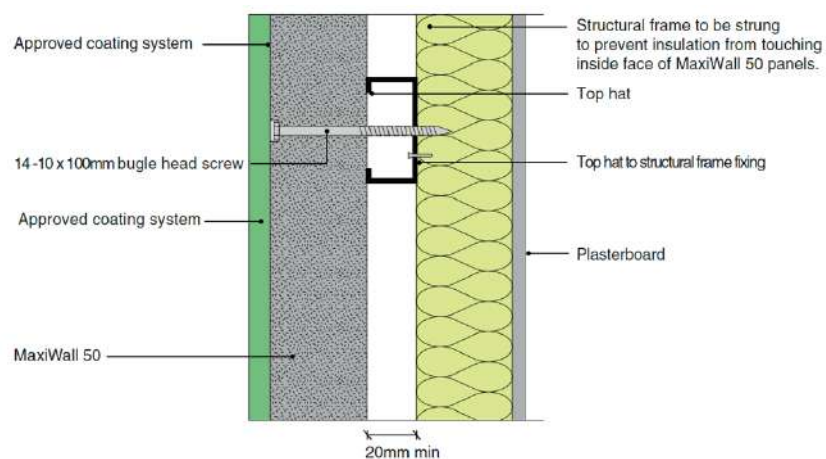
26. Roof space – fire protected (90 min)



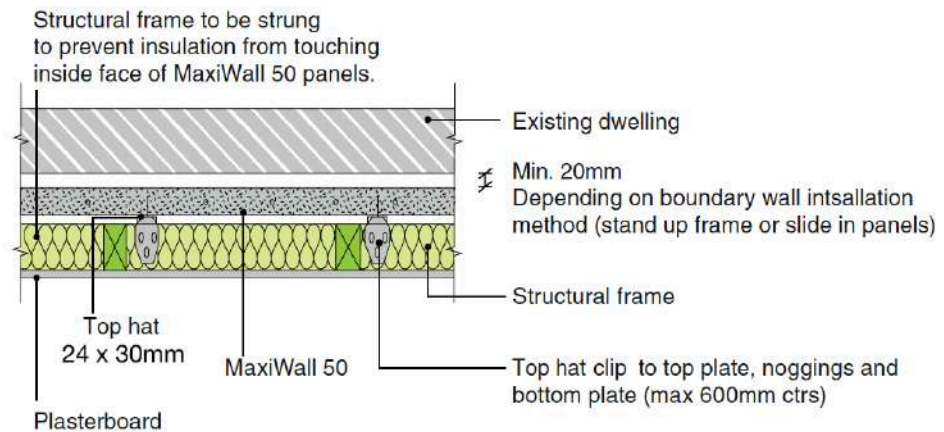
27. Party wall – double panel



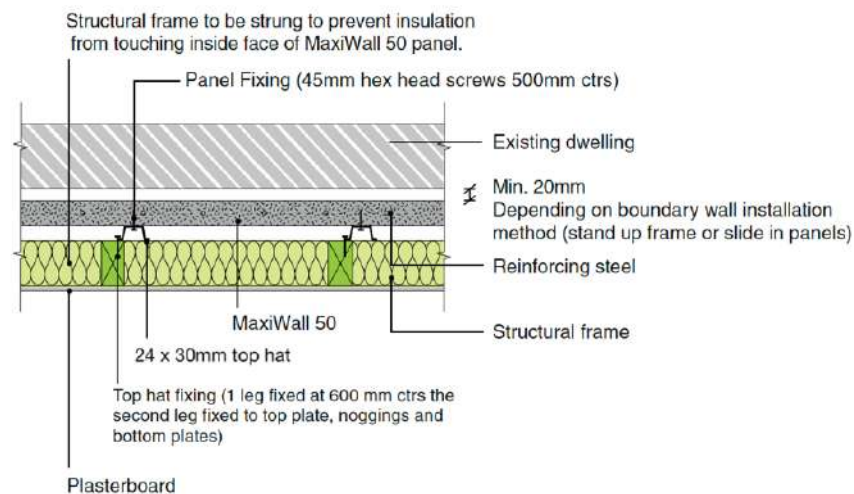
28. Boundary wall – top hat



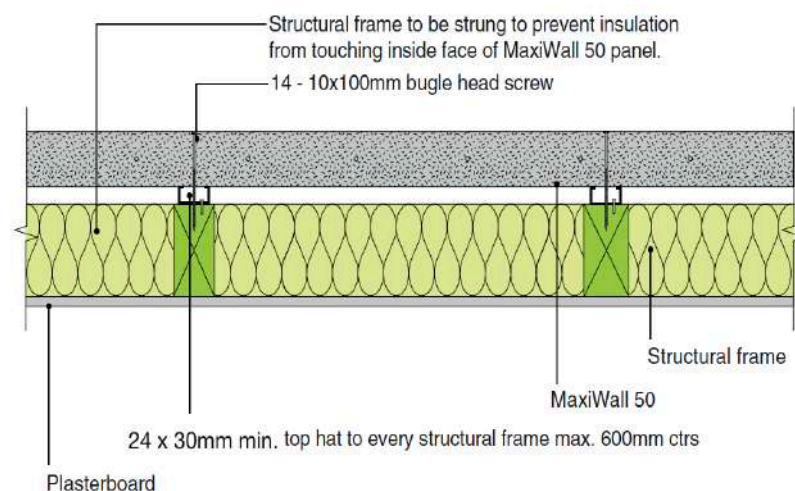
29. Boundary wall – 311D Direct fix clip



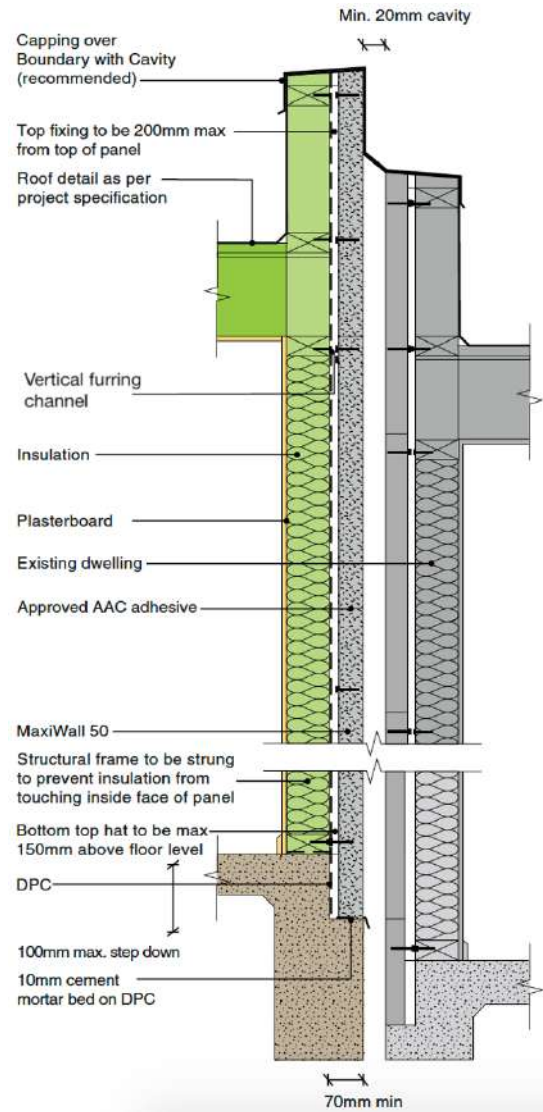
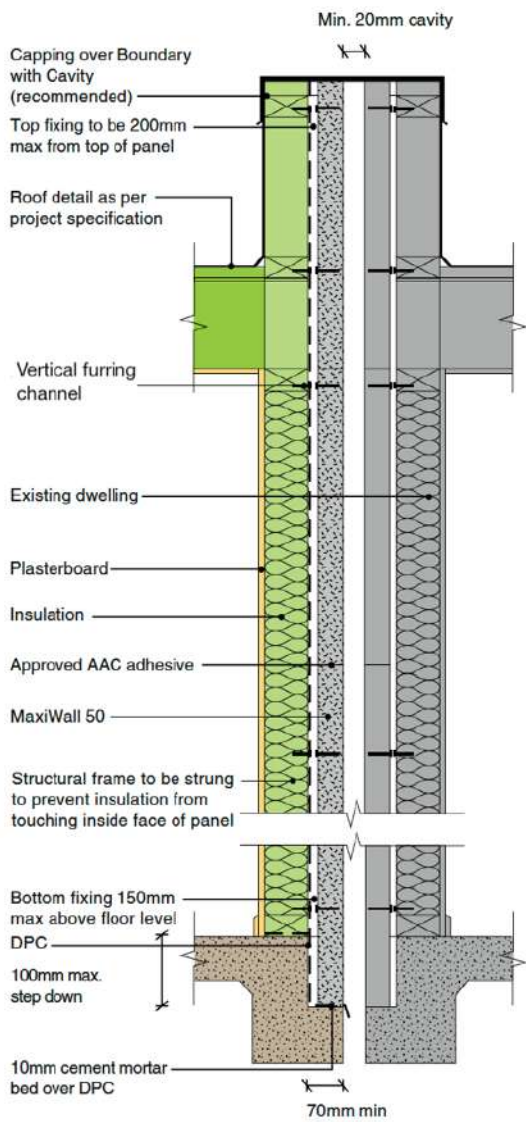
30. Boundary wall – panel fixing



31. Boundary wall – external access



32. Boundary wall – even and uneven slab



10. System Property

10.1 Durability & Maintenance

Autoclaved aerated concrete (AAC) as a cement-based material, resists water, rot, mould and mildew and can be precisely shaped and cut to tight tolerances when used in building construction.

MaxiWall panels are reinforced with steel mesh that is coated with corrosion resistant paint. If panels are cut, apply anti-corrosion paint on the exposed steel. In typical applications, the completed party wall system is protected from moisture ingress by moisture proof sealed joints.

Where there is significant and prolonged exposure to moisture, a waterproof tanking membrane must be applied to the panel surface. For durability in buildings refer to ABCB Handbook 2015.

10.2 Fire Resistance

The MaxiWall panel has been tested in accordance with AS 1530.1-1994: Combustibility Test for Materials and has been deemed non-combustible.

For separating walls between buildings, the performance requirements in NCC Volume Two in Part 2.3.1 states that a building must be protected from the spread of fire from another building. To comply with this condition, the NCC in Part 3.7.1.8 requires that the wall must have an FRL of 60/60/60 and a fire resistance level of 60 minutes for structural adequacy, integrity and insulation. Refer to this section in the NCC-BCA Volume Two for additional specific requirements for separating wall.

The panels can be used as a non-loadbearing infill panel wall or fixed to a primary building element where when shielding the primary element from the effects of fire satisfy structural adequacy requirements up to a Fire Resistance Level (FRL) of at least (90)/90/90 in a wall arrangement.

It is recommended that an experienced and qualified fire engineer be engaged to provide project specification and professional advice for the party wall system specific to each individual project and where FRL in excess of the above is required.

10.3 Energy Efficiency

The NCC Volume 2, Class 1 and 10 Buildings – Housing Provisions provides minimum total R-Values that a party wall can comply with to be “Deemed-to-Satisfy”. The following table outlines the energy efficiency levels that comply with climatic zone requirement in the NCC.

Table 6. Climatic Zone Requirement

Climate Zone	Minimum Total R-Value (m ² K/W)
1, 2, 3, 4, 5, 6 and 7	2.8
8	3.8

The MaxiWall 50 mm AAC panel has an energy efficiency of R-Value 0.209 and can be used in conjunction with other building elements to achieve a total R-Value that is required for the project. It is the responsibility of the design and building construction professionals to ensure that the insulation material selected and installed for the MaxiWall party wall system complies with AS/NZS4859.1. 2018 or AS 2464.3 for loose fill insulation.

10.4 Acoustic Performance

The following MaxiWall systems for low-rise multi-residential buildings and houses has been appraised by a qualified acoustic consultant.

Acoustic performance may be impacted if the installation configurations shown below are changed, such as increasing cavity widths or use of interior wall linings of a higher density and installation of thicker insulation products or plasterboard.

Where the party wall system requires specific acoustic performance such as local council regulations or for a particular wall purpose, engaging a specialist acoustic consultant for such projects for design advice and installation detail is recommended.

Table 7. Acoustic Performance Assessment

Frame Type	Material Description	Wall Thickness	$R_w + C_{tr}$	Construction
70mm Timber	13mm MR or FR plasterboard 70mm structural frame 90mm glass wool (min. 11kgs/m ³) 20mm min. top hat or aluminium angle MaxiWall AAC 50mm panel 20mm min. top hat or aluminium angle 90mm glass wool (min. 11kgs/m ³) 70mm structural frame 13mm MR or FR plasterboard	256 mm	50	Discontinuous
90mm Timber	13mm MR or FR plasterboard 90mm structural frame 90mm glass wool (min. 11kgs/m ³) 20mm min. top hat or aluminium angle MaxiWall AAC 50mm panel 20mm min. top hat or aluminium angle 90mm glass wool (min. 11kgs/m ³) 90mm structural frame 13mm MR or FR plasterboard	296 mm	51	Discontinuous
75mm Steel	13mm MR or FR plasterboard 75mm structural frame 90mm glass wool (min. 11kgs/m ³) 20mm min. top hat or aluminium angle MaxiWall AAC 50mm panel 20mm min. top hat or aluminium angle 90mm glass wool (min. 11kgs/m ³) 75mm structural frame 13mm MR or FR plasterboard	266 mm	50	Discontinuous
90mm Steel	13mm MR or FR plasterboard 90mm structural frame 90mm glass wool (min. 11kgs/m ³) 20mm min. top hat or aluminium angle MaxiWall AAC 50mm panel 20mm min. top hat or aluminium angle 90mm glass wool (min. 11kgs/m ³) 90mm structural frame 13mm MR or FR plasterboard	296 mm	51	Discontinuous

Frame Type	Material Description	Wall Thickness	R _w + C _{tr}	Construction
70mm Timber	16mm MR or FR plasterboard 70mm structural frame 90mm glass wool (min. 11kgs/m ³) 20mm min. top hat or aluminium angle MaxiWall AAC 50mm panel 20mm min. top hat or aluminium angle 90mm glass wool (min. 11kgs/m ³) 70mm structural frame 16mm MR or FR plasterboard	262 mm	50	Continuous
90mm Timber	16mm MR or FR plasterboard 90mm structural frame 90mm glass wool (min. 11kgs/m ³) 20mm min. top hat or aluminium angle MaxiWall AAC 50mm panel 20mm min. top hat or aluminium angle 90mm glass wool (min. 11kgs/m ³) 90mm structural frame 16mm MR or FR plasterboard	302 mm	51	Continuous
75mm Steel	16mm MR or FR plasterboard 75mm structural frame 90mm glass wool (min. 11kgs/m ³) 20mm min. top hat or aluminium angle MaxiWall AAC 50mm panel 20mm min. top hat or aluminium angle 90mm glass wool (min. 11kgs/m ³) 75mm structural frame 16mm MR or FR plasterboard	272 mm	50	Continuous
90mm Steel	16mm MR or FR plasterboard 90mm structural frame 90mm glass wool (min. 11kgs/m ³) 20mm min. top hat or aluminium angle MaxiWall AAC 50mm panel 20mm min. top hat or aluminium angle 90mm glass wool (min. 11kgs/m ³) 90mm structural frame 16mm MR or FR plasterboard	302 mm	51	Continuous

Note:

- MR: Moisture Resistant, FR: Fire Resistant. Top hat or aluminium angle for structural stability.
- Replacing the 16mm plasterboard with 9mm fibre cement sheet will achieve similar acoustic performance.

10.5 Weatherproofing

a. Sealants

Suitable acoustic and/or fire rated paintable sealant should be used to fully seal all control joints. An appropriate external grade sealant should be used to seal all gaps between panels and framing around windows. Sealant shall be approved for the application by the manufacturer.

b. Wall Flashings

The use of flashing is an important part of the Maxi Party Wall system. In general, flashing must be designed to provide weather-resistance for the wall cladding, independent of the use of sealants or other materials for weatherproofing. Qualified tradesmen or other suitable expertise should be sought when designing, cutting and fastening flashing to a building.

c. Building Wrap

The use of building wrap or sarking helps to control condensation and act as an air-barrier to reduce energy loss through the walls in the building. The design and building construction professionals must approve the sarking configuration. The material selected and installed must comply with AS/NZS4200 Part 1 - Materials and Part 2 - Installation.

10.6 Penetrations

To ensure fire safety of buildings and the lives of those within, service penetrations must be properly fire stopped to protect against smoke, flames and gases and comply with NCC requirements. They must also be vermin proofed. Commonly, these penetrations are made for plumbing services, electrical and communication cabling. Penetrations or chasing proposed for the project must be fully assessed by a fire engineer.

10.7 Coating Application

Panels for boundary wall applications may be installed without coating provided that a ventilated cavity is present and structural frames are strung to prevent insulation from touching the inside face of the panels.

11. Material Handling

11.1 Panel Unloading

MaxiWall panels are shipped in packs of 20 and stacked flat. The packs are strapped to strengthened timber pallets and wrapped in resilient plastic sheeting. Crane slings and forklifts may be used in accordance with standard industry practice. The Project Engineer is cautioned regarding the initial delivery of the panel packs as it should be unloaded as close as possible to the installation site. Secondary handling of the panels increases the risk of damage, and installation of damaged panels may void the warranty.

11.2 Storage & Protection

MaxiWall panel packs, when on construction sites must be stored on a flat-grade level that is not prone to standing water, erosion or settling. It must be left on its edge to avoid sagging. The packs may be stacked up to 3 packs high on flat load-bearing stable platforms so far as is reasonably practical and safe for workers and others. The packs should not be stacked if stored on un-level and natural ground.

MaxiWall panels should ideally be kept dry with attention paid to protecting panel ends, edges and surfaces. In adverse weather conditions the panels must be kept covered. Do not “shake-out” stored panels until they are ready to be installed.

MaxiWall panels with a central single layer of reinforcement and length over 1800mm are at risk of cracking under their self-weight when carried or lifted from the horizontal or tilted from the vertical position. Adequate support must be provided when lifting. Panels must always be carried edge up. Lifting equipment must be used when necessary.

Most chipped corners and edges can be repaired with MaxiWall's approved patching compounds. If reinforcing steel mesh is visible it must be protected using the approved anti-

corrosion paint. Panels that have surface or minor cracks are usable but if not sure contact an authorized Big River Group's representative.

11.3 Health & Safety

Safety Data Sheets (SDS) are provided with all MaxiWall panels including major components associated with the system such as coatings, patching compound, thin-bed adhesive and reinforcement touch-up paint.

AAC building products contain Crystalline Silica (Quartz) that as dust is produced during cutting, grinding or drilling. It is categorized as a health hazard when inhaled. Approved dust masks and protective safety glasses or goggles must be worn for dust generating operations.

All AAC products are to be handled and worked on-site with the appropriate protective clothing. Protective gloves must be used for all construction operations. It is the responsibility of the builder/site supervisor to ensure that installation contractors adhere to safe work practices and suitable clothing.

12. Material Property

Table 8. Physical Property and Structural Design Capacity

Property	Value	Unit
Declared Mean Dry Density $P_{m,g}$	525	kg/m ³
Characteristic Compressive Strength f_{ck}	3.0	MPa
Characteristic Flexural Strength f_{ctk}	0.54	MPa

Table 9. Wall System Comparison

Wall System	Wall Element Width (mm)			Total Width (mm)
	Timber Frame	Cavity	Masonry Leaf	
Brick Veneer	70	40	110	220
MaxiWall	70	24-35	50	144-155
Brick Veneer	90	40	110	240
MaxiWall	90	24-35	50	164-175

13. Standard and Compliance

No.	Compliance Standard	Compliance Description
1.	NCC Vol. One: BP1.1, BP1.2	Nominated fixing method and spacing for wind actions
2.	NCC Vol. Two: P2.1.1	Structural stability and resistance to actions
3.	NCC Vol. One: A2.2(a), (v)	Ultimate static wind load
4.	NCC Vol. Two: 1.2.2(a), (iii)	Ultimate static wind load
5.	NCC Vol. One: CP1, CP2, GP5.1	Fire resistance level for party wall system – In progress
6.	NCC Vol. Two: P2.3.1, P2.3.4	Fire resistance level for party wall system – In progress
7.	NCC Vol. One: Part FP1	Weatherproofing for party wall system
8.	NCC Vol. Two: BP2.2.2	Weatherproofing for party wall system
9.	NCC Vol. One: JP1	Energy efficiency performance requirements
10.	NCC Vol. Two: P2.6.1	Energy efficiency performance requirements
11.	NCC Vol. One: A2.2(a), (v)	Thermal conductivity and resistance
12.	NCC Vol. Two: 1.2.2(a), (iii)	Thermal conductivity and resistance
13.	AS/NZS 1170.2	Wind actions
14.	AS 4055	Wind loads for housing
15.	AS 4040.2	Resistance to wind pressures for non-cyclone regions
16.	AS 1530.4	Fire resistance test of elements of construction

17.	AS 3959	Construction of buildings in bushfire-prone areas
18.	AS 1684	Residential timber – framed construction
19.	AS 1720	Timber structures
19.	AS/NZS 4200 Part 1, Part 2 & Part 3	Installation of pliable building membranes
20.	AS 5146 Part 1	Reinforced aerated concrete
21.	NASH Standard	Residential and low-rise steel framing
22.	AS/NZS 4600	Cold-formed steel structures
23.	AS 4654.1	Party waterproofing membrane systems
24.	AS/NZS 2904	Damp-proof courses and flashing

14. Responsibility and Warranty

14.1 Responsibility

The final specification and certification of the party and boundary wall system using MaxiWall 50 mm AAC panels lie solely with the qualified design and building construction professionals responsible for the project. These professionals would generally comprise of structural engineers, fire engineers and acoustic engineers. The design consideration, fixing specifications and installation details in this manual represent common types of construction and detailing practice used in Australia. A competent professional must approve any variations or alternatives to the design and installation details described in this manual.

14.2 Warranty

MaxiWall panels are manufactured to international quality standards. Warranty statement for the panels is available on Big River Group’s website: www.bigrivergroup.com.au. Big River Group warrants that its panels are free from defects in materials and manufacture subject to the conditions and exclusions set out in the Product Warranty.

Disclaimer

The information contained in this Installation Guide is only advisory and general in nature. It is not intended to substitute advice or consultation from registered building construction professionals to ensure designs, systems and installation for projects conform to the National Construction Code and Building Codes of Australia including any other laws imposed by the States or local councils.

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