

MAXIWALL

50MM MAXIWALL HOUSE & LOW RISE MULTI-RESIDENTIAL BUILDINGS (VERTICAL) INSTALLATION GUIDE



BR-005, August 2023 - MaxiWall 50mm (Vertical)
House & Low-Rise Multi-Residential Buildings

BigRiver

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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 across Australia offering customers national coverage with local delivery.



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This Installation Guide contains design and installation details intended for use as a general guide by qualified design and building professionals including licensed builders in the construction of external 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 installations are suitable for the projects and conform to the National Construction Code of Australia (NCC).

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



3.0

MaxiWall Panel



MaxiWall panel is an autoclaved aerated concrete (AAC) steel reinforced, durable, lightweight building panel. The panel has excellent benefits for use in an external wall system for low-rise multi-residential buildings and houses.

The external wall system using the MaxiWall panel has an advantage over other wall systems when plaster, stucco or render finishes are used, as no additional preparation work is required.

Made from natural raw materials – cement, lime, sand, gypsum, water and a small amount of aerating agent, the MaxiWall panel is ecologically friendly and energy conserving.

The MaxiWall panels are easy to handle and offers flexible solutions for external wall construction.

They can also be used for intertenancy and boundary walls including 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:	2200, 2400mm
Reinforcement:	Single steel mesh, centrally located
Steel wire:	5 x Ø 4mm steel mesh and 6-8 transverse bars



4.0

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.



For the external wall system to be effective and economical the following design considerations are important.

- Determine site wind load and wind classification, soil type and movement.
- Make sure the wall system complies with the requirements of the current NCC (National Construction Code).
 - › Fire Resistance Level (FRL)
 - › Bushfire Attack Level (BAL)
 - › Sound Insulation Performance (Rw values)
 - › Energy Efficiency (R-Value)
- Refer to wall frame spacing, batten quantity, screw fixing and cantilever distance under Fixing Specification.
- Structural framing must comply with AS 1684 for timber frames and NASH standard for residential and low-rise steel frames – min. 0.75 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 in the NCC.






- Flashings and damp-proof courses must comply with AS 2904 and AS 5146 Part 3 – 2.8.2 and installed in accordance with NCC requirements.
- Sealants must be of external grade polyurethane and fire and or acoustic rated, prepared and installed in accordance with manufacturer’s instruction for AAC substrate and in conjunction with backing rod.
- Window reveal must be of the correct size to suit the MaxiWall panel.
- Exterior surface coating system must meet the requirement of AS 5146 Part 3 – 2.8.4 and warranted by the manufacturer.

The external wall system using MaxiWall panel 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 NCC, Volume One, Building Code of Australia (BCA) for Class 2 to Class 9 Buildings and Volume 2 – Class 1 and Class 10 Buildings – Housing Provisions.

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

The external wall system using MaxiWall 50 mm panel complies to the nominated Performance Requirements and Deemed to-Satisfy Provisions of the National Construction Code 20, AS 5146 Part 1:2015 (+A1), AS 5146 Part 2:2018 Clause 1 and when constructed in accordance with this guide and AS 5146 Part 3:2018. For information please refer to Big River Group.



AAC Adhesive	A dry mixed product made from a blend of selected raw materials such as cement, graded aggregates and performance additives. Used as a structural thin bed adhesive for adhering panels in the construction of walls.
Anti-corrosion Paint	For coating and protection of exposed steel reinforcement mesh from corrosion after cutting of the panel.
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 for repairing minor chips, cracks and damages 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 for weather resistant, decorative and durable surface finishes over the panels.
Thin-Bed Mortar	Thin-bed, high-strength mortar for the placement of panels where levelling and bonding is required in wall construction. The mortar helps in the integrity of an airtight construction for sound insulation and fire protection at the base of the panels.
TOP HAT 24 mm deep x 30 mm wide x 0.42 BMT	
No.12-11 x 35 mm Hex Head Type 17 Screw	or 5.5 x 40mm batten zips 
No.10-16 x 16 mm Hex Head Tek Screw	
No.14-10 x 65 mm Bugle Head Type 17 Screw	
No. 14-10 x 125 mm Bugle Head Type 17 Screw	

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

- 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, connection and fixing shall be in accordance with Section 5. – Design Consideration and Section 8. - Fixing Specification.
- Framed heads to openings shall be designed to support the mass of AAC panels and coating system.
- Set out top hats horizontally as required on the frames within the limits of the design specifications and wind classification. Observe the following:
 - a. Top hats shall be evenly spaced with the end ones being min.100 mm and max. 200 mm from the ends of the panel.
 - b. When panels are laid out in a stretcher bond arrangement, the max. cantilever of a panel in the wall area shall be the max. top hat spacing for the wind class divided by 4, or 200mm, whichever is greater.
 - c. Panels shall be fixed to top hats in accordance with Table 2. using No. 14-10 x 65 mm Type 17 bugle head screws.
 - d. Space screws 100 mm from each edge and distribute evenly across the panels where more than 2 screws are required.
 - e. When panels are suspended from frame, the maximum top hat spacing shall not exceed 900 mm. A minimum of 3 x No. 14-10 x 65 mm screws shall be installed per top hat panel width.
 - f. Provide additional top hats to window and door opening heads as required.
- Panels are to be joined using approved thin bed adhesive. Joints shall be 2-3 mm thick and fully filled. Wipe any excess and fill voids.
- For walls up to 3,000 mm height not supported on a slab edge and mortar course, provide a continuous 75 x 75 x 2.0 mm galvanized angle.

- DPC shall be installed over the angle and expressed to the outside face of the finished wall.
- The 75 mm leg of the angle shall be fixed to the frame as follows:
 - a. Timber frame – 2 x No. 12-11 x 35 mm screws at maximum 600 mm centres.
 - b. Steel frame – 2 x No. 14-10 x 20 mm screws at maximum 600 mm centres.
- Min. panel width when trimmed shall be 200 mm.

7.2 Slabs and Footings

- Slabs and footings supporting external walls using MaxiWall panels 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. 100mm below finished floor level if suspended from frame. Refer to compliance requirements imposed by the States or local councils.

7.3 Corner Panels

- Due to the increase of wind load around corners of buildings, extra top hats and screws may be required (N3 and greater) to fix MaxiWall panels in accordance with Table 2.
- Fixed panel corner joints are to be fixed additionally with No. 14-10 x 125 mm screws at 600 centres maximum vertically, although generally corner joints shall be detailed as per a control joint.
- 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 building corners.

7.4 Damp-Proof Courses

- DPC shall be installed to the first top hat or 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 must be installed.
- Provide horizontal control joints at each floor level.
- When using timber frames and 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, provide 10 mm Ableflex or equivalent set back 10 mm from the external face of the panels. Upper level panels can be laid on top and horizontal joints must be sealed with external grade polyurethane sealant, fire and or acoustic rated if required.
- Provide vertical control joints, minimum 10 mm wide in walls at the following locations:
 - a. Max. 6,000 mm centres;
 - b. External and internal corners;
 - c. Above and below all doors, including sliding and garage doors;
 - d. Where wall height changes by greater than 20%;
 - e. A change in wall thickness;
 - f. Corresponding to structure (slab) control joints; and
 - g. At junctions of different wall systems.
- Top hats must be discontinuous behind control joints. 20 mm nominal gap must be provided between the ends of the top hats.

- Seal control joints with backing rod and external grade polyurethane sealant, fire and or acoustic rated if required, min. 10mm width and 5 mm deep.
- Sealant shall be approved for the application by the manufacturer. 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 State and local councils are fully adhered to in the protection of buildings from termite attack in accordance with AS 3660.1

8.0

Fixing Specification

The external wall system shall consist of MaxiWall 50 mm AAC panels fixed to steel top hats which are then fixed to structural timber or steel framing. Top hat shall be minimum 24 mm deep x 30 mm wide x 0.42 BMT G550 cold-formed steel top hat batten Z275 or AZ150 in accordance with AS 1397.

Table 1. Connection Specification

Wall System	Top hat to stud	Fasteners and fixings
External wall – Low-rise multi- residential buildings and houses	Timber	2 x No.12-11x 35 m m Hex Head Type 17 Screw or 5.5 x 40mm batten zips
	Steel	2 x No.10-16x 16 m m Hex Head Tek Screw
	MaxiWall panel	Fasteners and fixings
	Panel to tophat	No.14-10x 65 mm Bugle Head Type 17 (Class 3 min.)
	End distance	Min. 100 mm, Max. 200 mm (unless otherwise specified)
	Edge distance	Nominal 100 mm

Fixing Detail

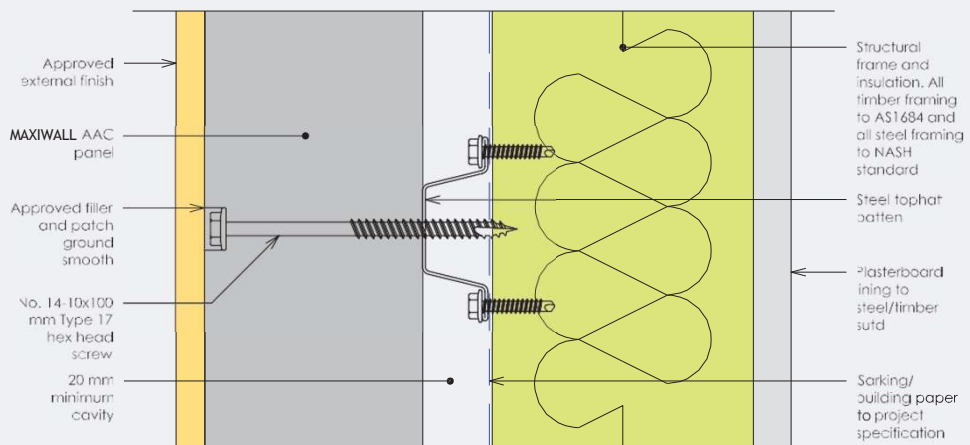
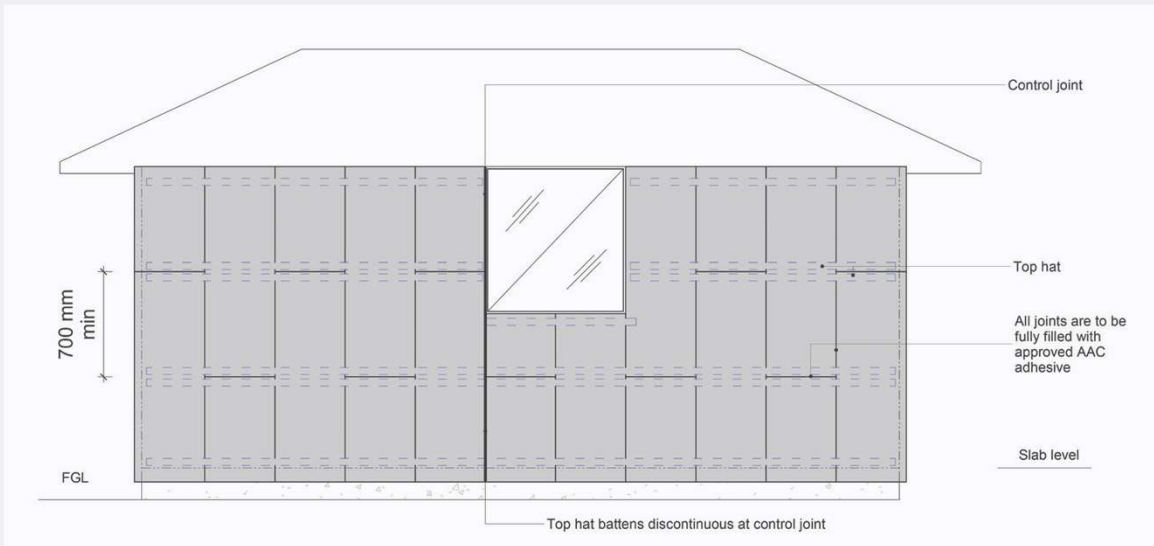


Table 2. Fixing Specification

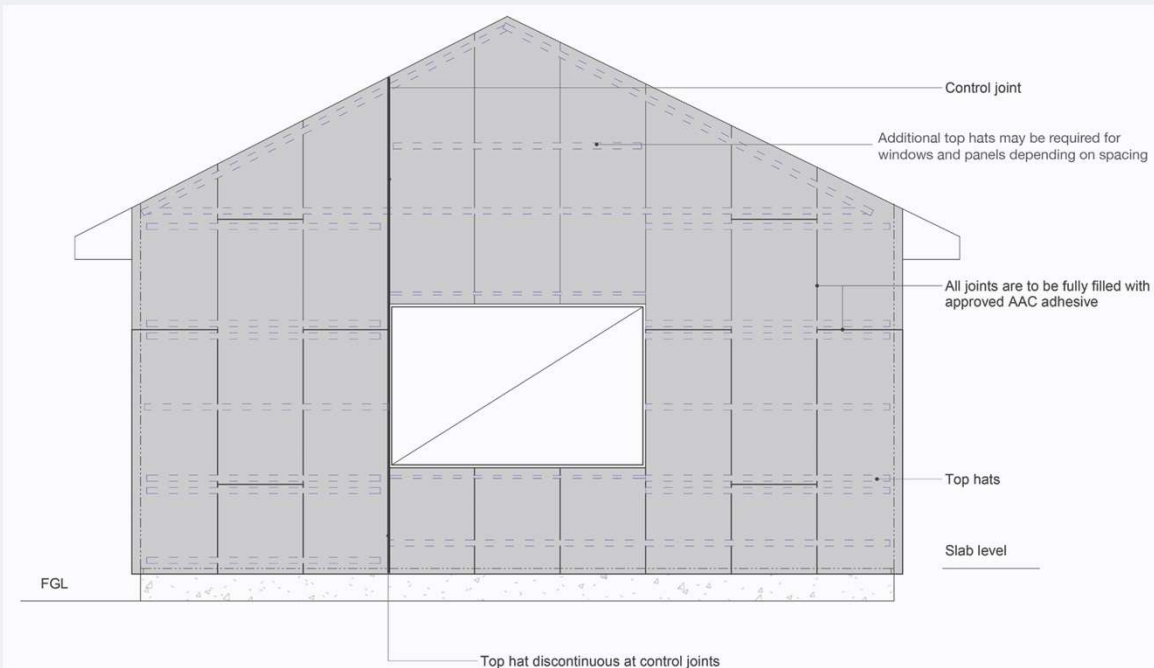
Wind class	Max. Stud Spacing (mm)	Max. Spacing of Top Hat s_{th} (mm)		Min. Number of Screws per Top Hat (per 600 mm panel width)
		General Areas	Corner Zone	
N1	600	833	833	4
N2	600	833	833	4
N3	600	833	733	4
N4	450	833	500	4
C1	450	833	833	4
C2	450	833	500	4



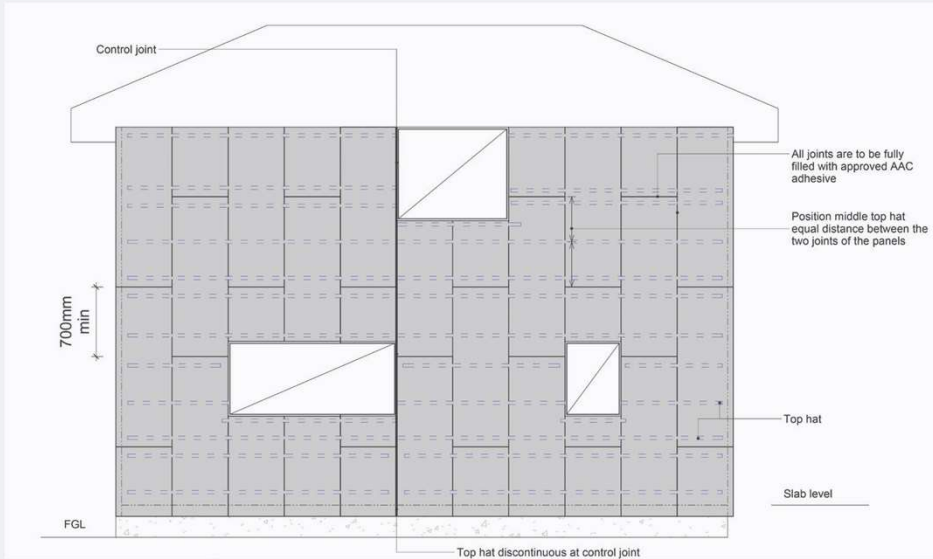
1. Panel layout



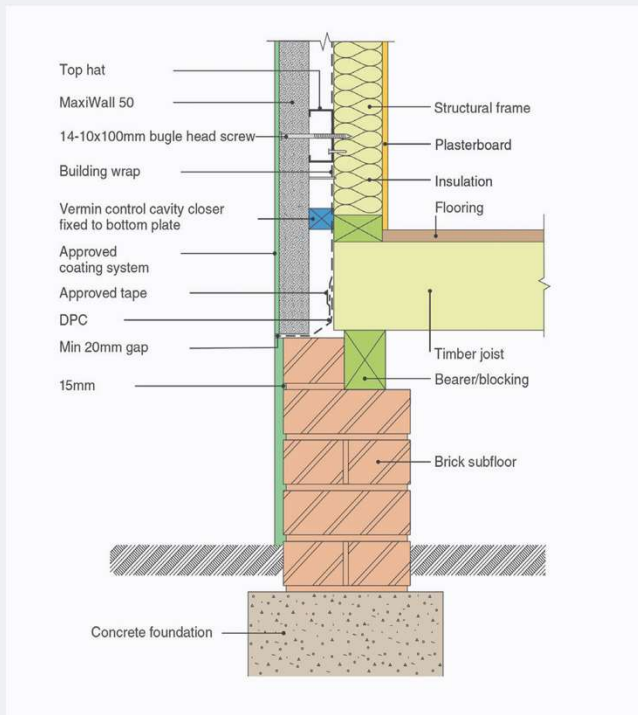
2. Tophat gable end layout



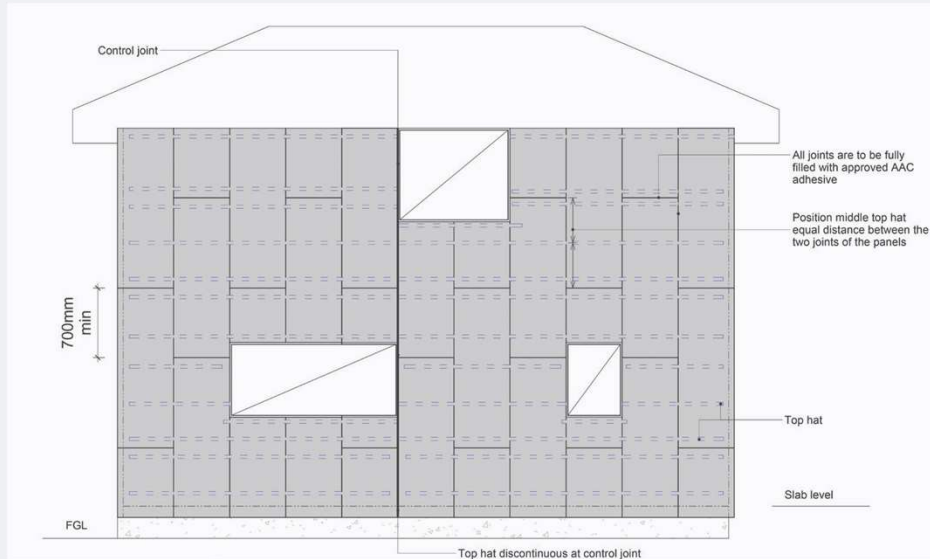
3. Top hat set out – double storey



4. Timber sub-floor

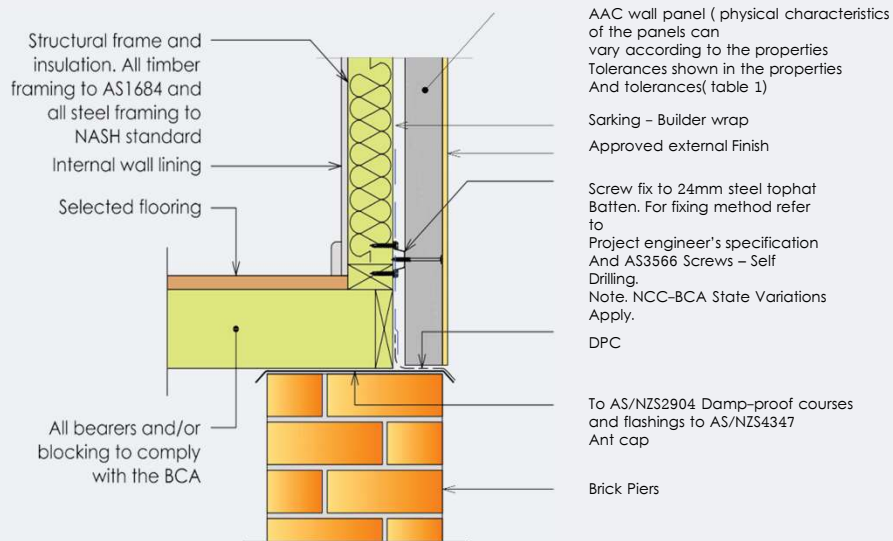


3. Top hat set out – double storey

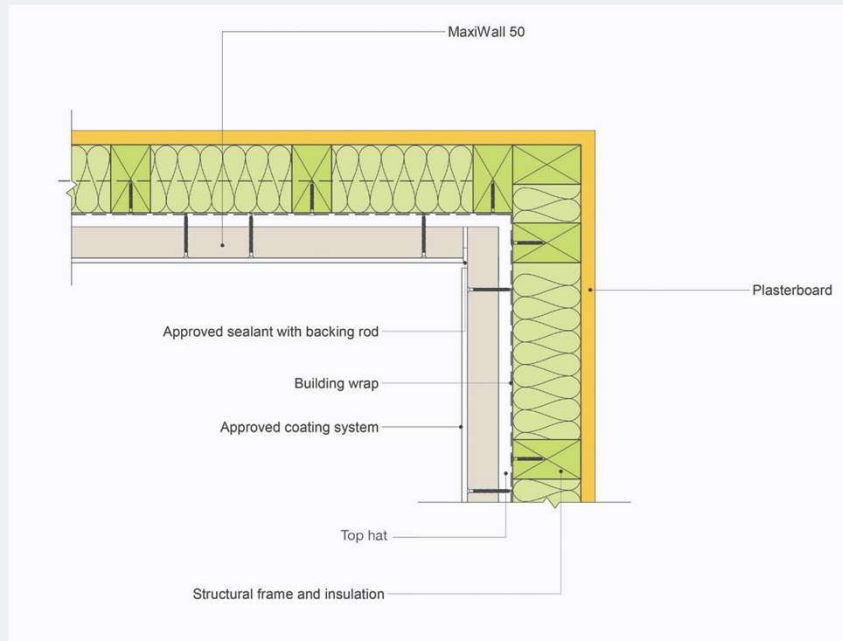


4. Timber sub-floor

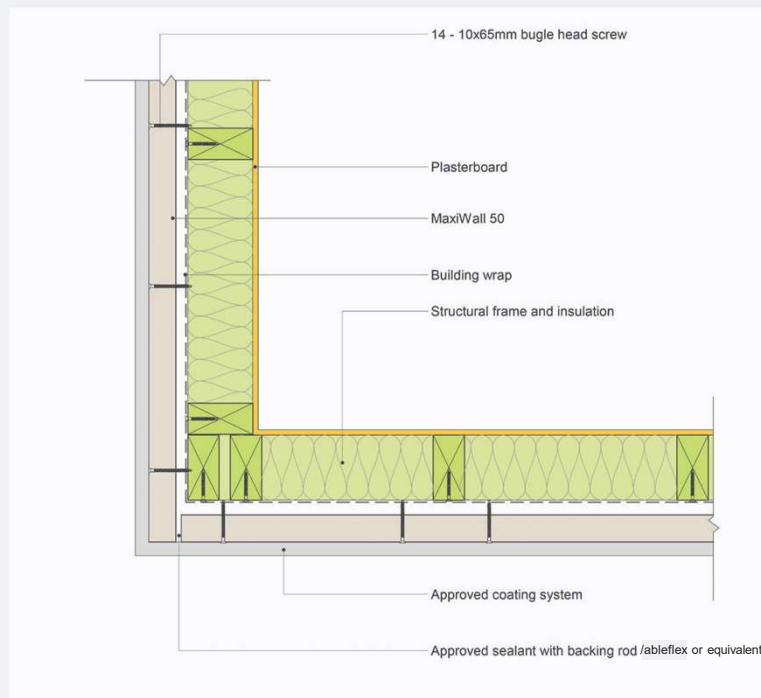
9a footing Junction detail
– Suspended Panel (brick pier – subfloors)



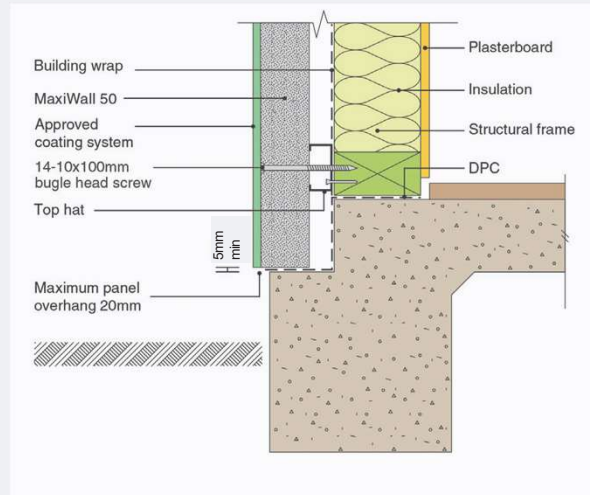
5. Internal corner



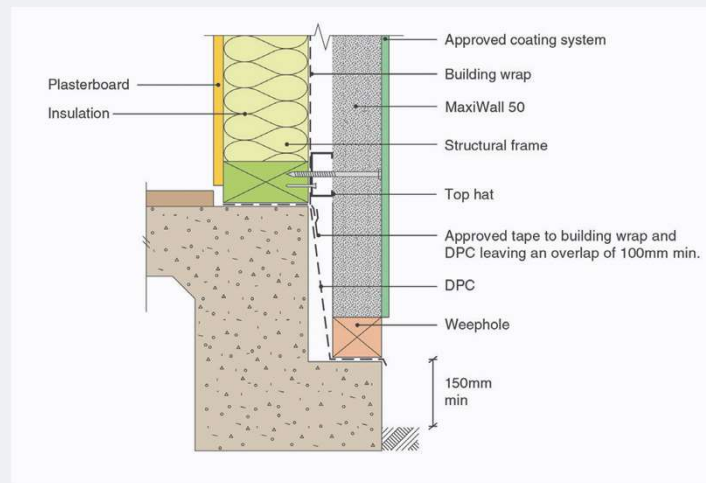
6. External corner



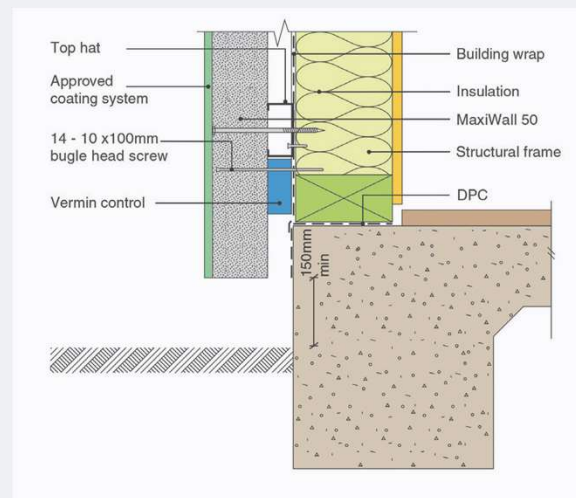
7. Rebated step-down



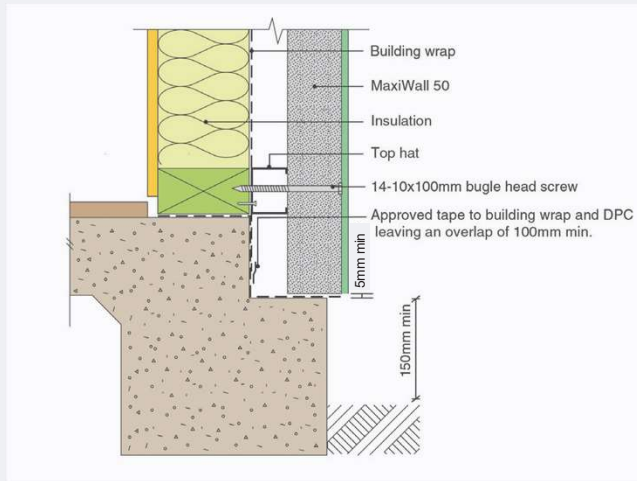
8. With brick course



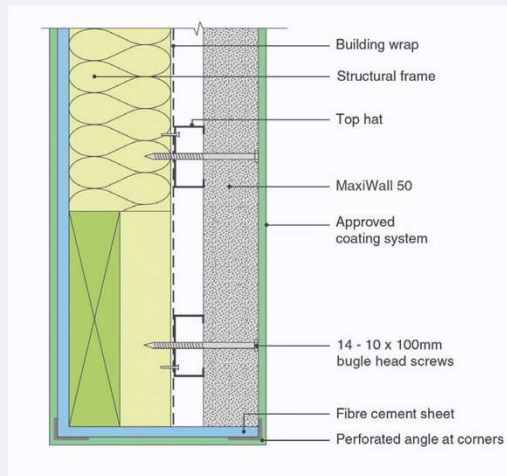
9. Over-hang



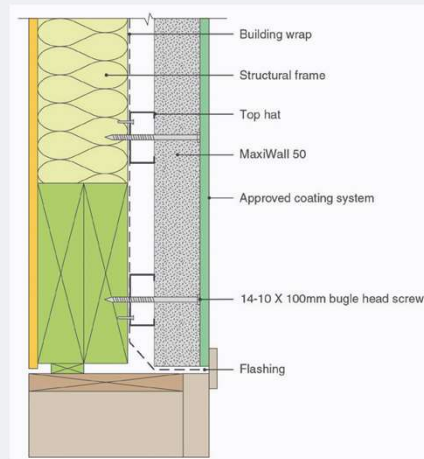
10. Rebated foundation



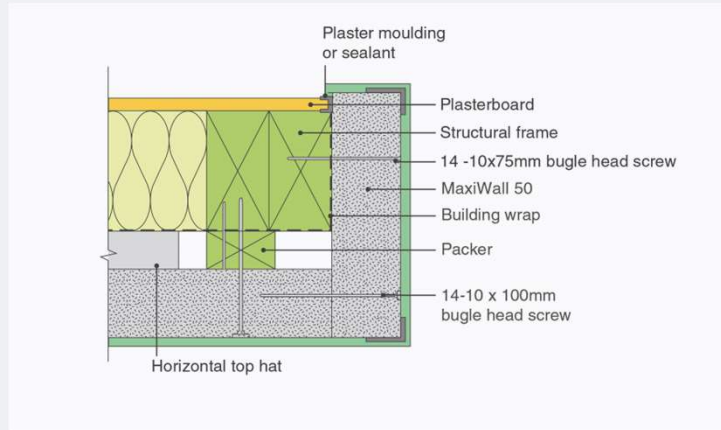
11. Door head detail - Option 1



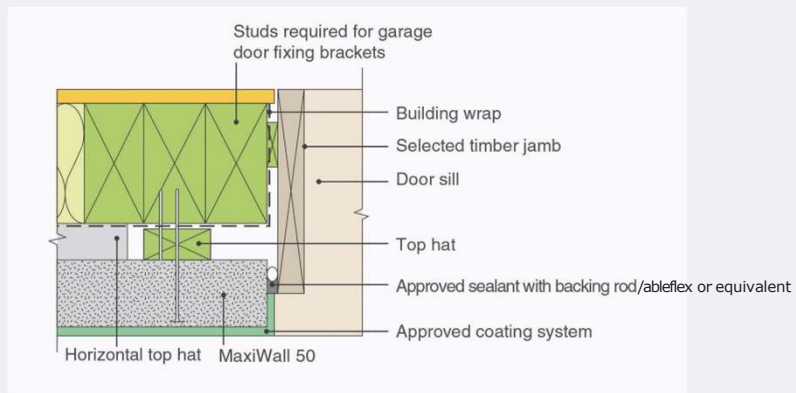
12. Door head detail - Option 2



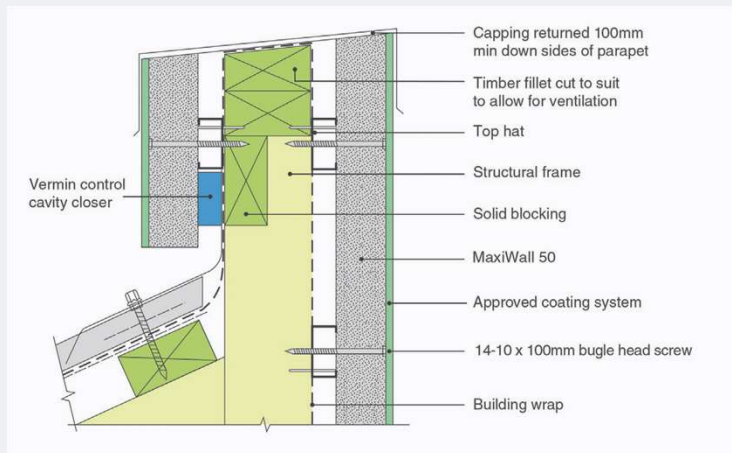
13. Door jamb detail - Option 1



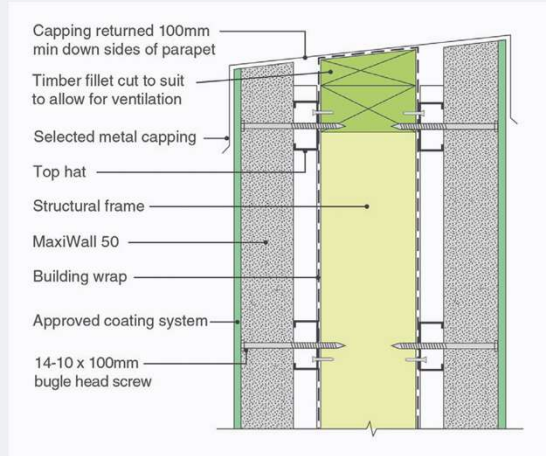
14. Door jamb – Option 2



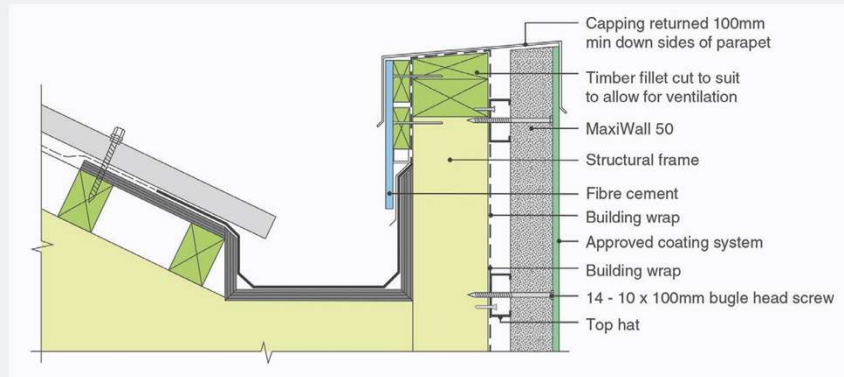
15. Parapet bottom



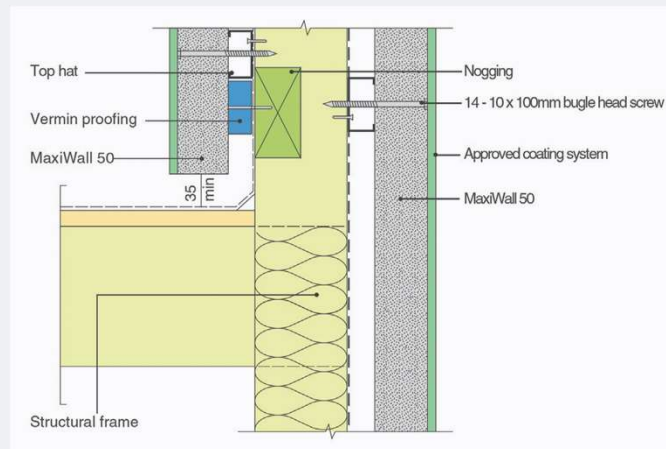
16. Parapet top



17. Box gutter



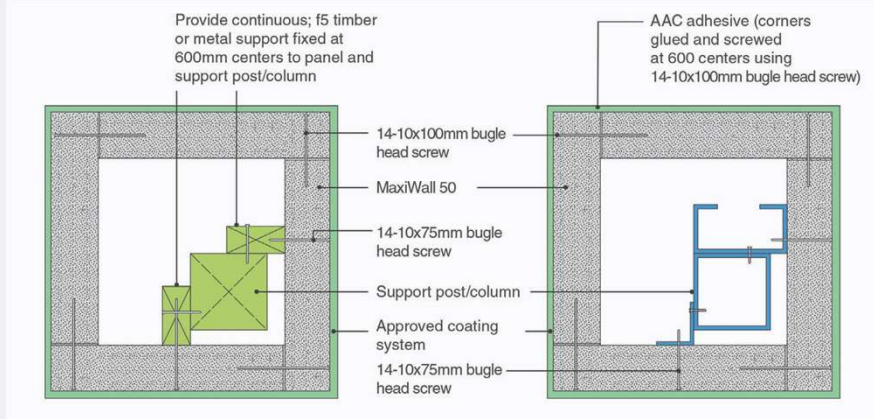
18. Flat roofing



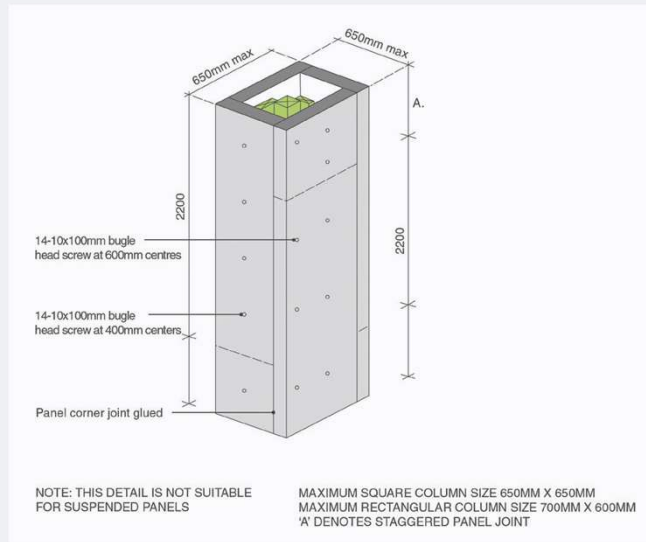
19. Column

Timber

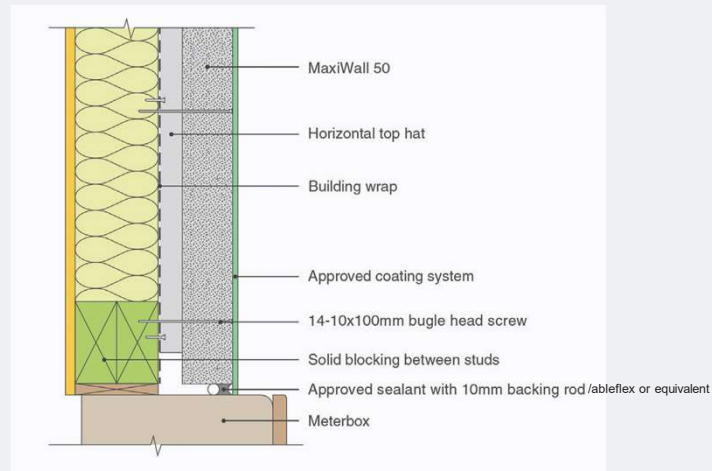
Steel



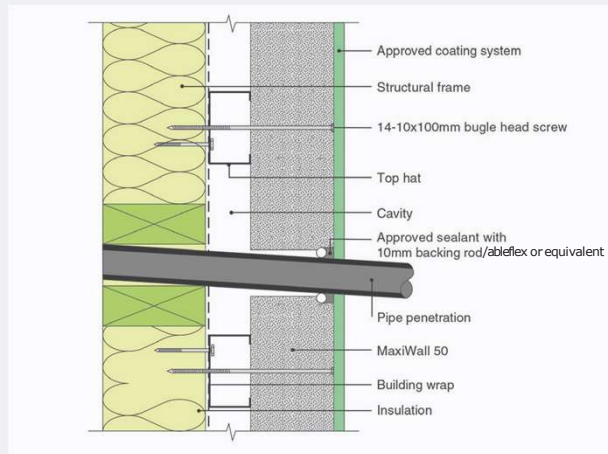
20. Shaft construction



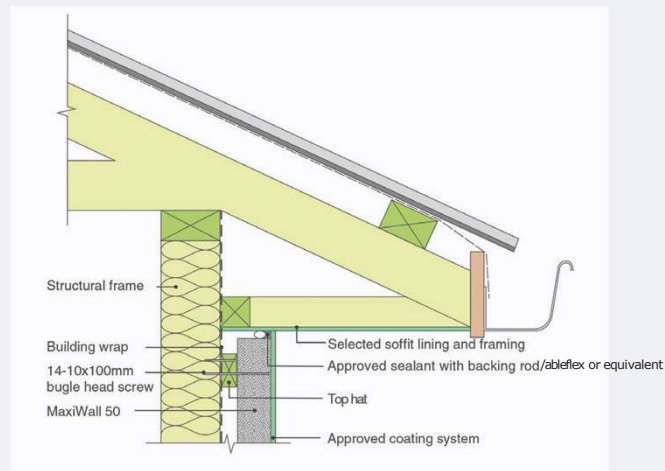
21. Meter box jamb



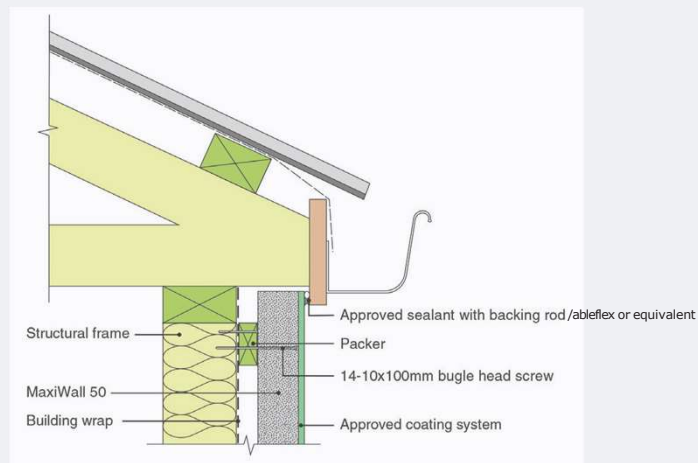
22. Pipe penetration



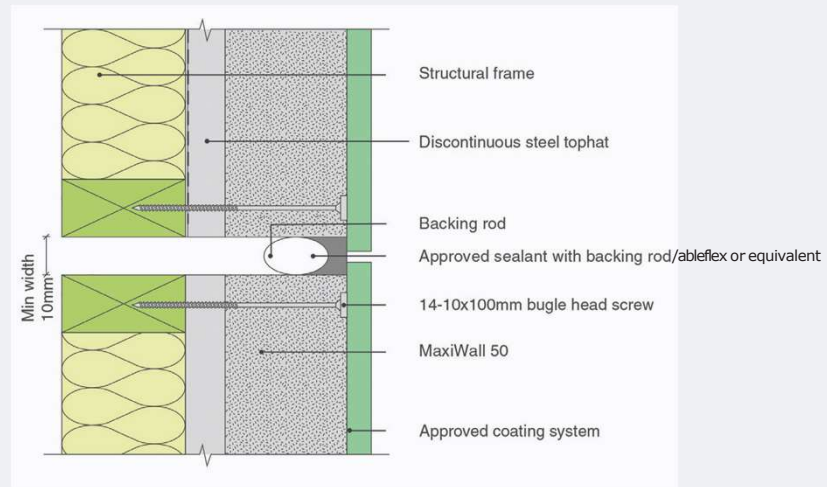
23. Soffit and wall junction - Option 1



24. Soffit and wall junction - Option 2



25. Vertical joint



10.1 Durability & Maintenance

Autoclaved aerated concrete (AAC) as a cement-based material, resists water, rot, mould and mildew. It 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 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 50 mm panel has been tested in accordance with AS 1530.1-1994: Combustibility Test for Materials and AS 1530.4 : Methods for fire tests on building materials, components and structures of elements of construction.

The external wall system using MaxiWall 50 mm panel has been assessed by Ignis Lab to achieve a FRL of -/60/60 through to -/90/90 for Class 1 and 10 buildings. The MaxiWall 50 mm also satisfies the performance requirement for its use in bushfire affected areas of from BAL Low to BAL FZ.

It is recommended that an experienced and qualified fire engineer be engaged to provide project specification and professional advice for the 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 an external 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 3. 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 0.313m²K/W 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 external wall system complies with AS/NZS4859.1. or AS 2464.3 for loose fill insulation.

Table 4 below provides examples of system R-Value calculations for the MaxiWall 50 mm external wall system and their applicability to the range of climate zone requirements outlined in the NCC.

Table4.EnergyEfficiencyPerformance

50mm Maxiwall® 510kg/m ³ System					Insulation path		Overall		Overall	
Assumes 50mm Maxiwall® thermal resistance is R0.29 m ² .K/W for 4.0% moisture content							(Pine Framing 12.13% area)		(Steel Framing 5.8% area)	
Stud Frame	Top Hat Cavity	Wall thickness mm	Batts	Wall Wrap	Summer	Winter	Summer	Winter	Summer	Winter
64mm Stud Frame	24mm	173	None	None	0.7	0.7	0.7	0.7	0.7	0.7
		173	None	Thermoseal Wall Wrap XP Plus	1.6	1.7	1.6	1.7	1.6	1.7
		173	None	Polyair Performa 4.0 XHD	1.9	1.9	1.9	1.9	1.9	1.9
		173	70mm Bradford Soundscreen Batts R2.0	Thermoseal Wall Wrap XP	2.8	3.0	2.8	3.0	2.8	3.0
		173	70mm Bradford Soundscreen Batts R2.0	Enviroseal ProctorWrap RW	2.5	2.6	2.5	2.6	2.5	2.6
	35mm	184	None	None	0.7	0.7	0.7	0.7	0.7	0.7
		184	None	Thermoseal Wall Wrap XP Plus	1.6	1.7	1.6	1.7	1.6	1.7
		184	None	Polyair Performa 4.0 XHD	1.9	1.9	1.9	1.9	1.9	1.9
		184	70mm Bradford Soundscreen Batts R2.0	Thermoseal Wall Wrap XP	2.8	3.0	2.8	3.0	2.8	3.0
		184	70mm Bradford Soundscreen Batts R2.0	Enviroseal ProctorWrap RW	2.7	2.9	2.7	2.9	2.7	2.9
70mm Stud Frame	24mm	179	None	None	0.7	0.7	0.7	0.7	0.7	0.7
		179	None	Thermoseal Wall Wrap XP Plus	1.7	1.7	1.7	1.7	1.7	1.7
		179	None	Polyair Performa 4.0 XHD	1.9	1.9	1.9	1.9	1.9	1.9
		179	70mm Bradford Soundscreen Batts R2.0	Thermoseal Wall Wrap XP	3.0	3.1	3.0	3.1	3.0	3.1
		179	70mm Bradford Soundscreen Batts R2.0	Enviroseal ProctorWrap RW	2.6	2.8	2.6	2.8	2.6	2.8
	35mm	190	None	None	0.7	0.7	0.7	0.7	0.7	0.7
		190	None	Thermoseal Wall Wrap XP Plus	1.6	1.7	1.6	1.7	1.6	1.7
		190	None	Polyair Performa 4.0 XHD	1.9	1.9	1.9	1.9	1.9	1.9
		190	70mm Bradford Soundscreen Batts R2.0	Thermoseal Wall Wrap XP	3.0	3.1	3.0	3.1	3.0	3.1
		190	70mm Bradford Soundscreen Batts R2.0	Enviroseal ProctorWrap RW	2.6	2.8	2.6	2.8	2.6	2.8
90mm or 92mm Stud Frame	24mm	199	None	None	0.7	0.7	0.7	0.7	0.7	0.7
		199	None	Thermoseal Wall Wrap XP Plus	1.6	1.7	1.6	1.7	1.6	1.7
		199	None	Polyair Performa 4.0 XHD	1.9	1.9	1.9	1.9	1.9	1.9
		199	90mm Bradford Gold Wall Batts R2.0	Thermoseal Wall Wrap XP	2.9	3.1	2.9	3.1	2.9	3.1
		199	90mm Bradford Gold Wall Batts R2.5	Enviroseal ProctorWrap RW	3.1	3.3	3.1	3.3	3.1	3.3
		199	90mm Bradford Polymax Walls Batts R2.5	Enviroseal ProctorWrap RW	3.1	3.3	3.1	3.3	3.1	3.3
		199	90mm Bradford Gold Wall Batts R2.7	Enviroseal ProctorWrap RW	3.3	3.5	3.3	3.5	3.3	3.5
	35mm	210	None	None	0.7	0.7	0.7	0.7	0.7	0.7
		210	None	Thermoseal Wall Wrap XP Plus	1.6	1.7	1.6	1.7	1.6	1.7
		210	None	Polyair Performa 4.0 XHD	1.9	1.9	1.9	1.9	1.9	1.9
		210	90mm Bradford Gold Wall Batts R2.0	Thermoseal Wall Wrap XP	2.9	3.1	2.9	3.1	2.9	3.1
		210	90mm Bradford Gold Wall Batts R2.5	Enviroseal ProctorWrap RW	3.1	3.3	3.1	3.3	3.1	3.3
		3	90mm Bradford Polymax Walls Batts R2.5	Enviroseal ProctorWrap RW	3.1	3.3	3.1	3.3	3.1	3.3
210	90mm Bradford Gold Wall Batts R2.7	Enviroseal ProctorWrap RW	3.3	3.5	3.3	3.5	3.3	3.5		
Notes:	<ul style="list-style-type: none"> Above all for 10mm Plasterboard Plus lining. The above results are for 50mm Maxiwall (dry density 510kg/m³) external wall system with assumed thermal resistance of R0.29 m².K/W for 4.0% moisture content. For 6mm skim render, Total R-values are R0.04 more than those above. 									

Note: The Total R-Value calculations in Table 3. includes outdoor air film, coating system, 25mm unreflective space, 10mm plasterboard and indoor air film.

10.4 Acoustic Performance

The MaxiWall external wall system is typically used for low-rise multi-residential buildings and houses. Under the NCC, these buildings are generally classified as Class 1 or 10 buildings. The acoustic performance required for external walls in these buildings and or their building elements are currently not detailed in the NCC. Acoustic performance assessment is available upon request.

Where the external 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.

10.5 Weatherproofing

The NCC Volume One Part F3P1 and Volume Two H2P2 is satisfied when the external wall system is detailed and installed in accordance with this installation guide, AS 5146 Part 3 and Ian Bennie's Test Report No. 2016-054-S1 – Assessment Method NCC Volume One A2.G2(2)(b) and Volume Two A2G2.2(2)(b) using Verification Methods F3V1 and H2V1 respectively.

a. Sealants

Suitable external grade 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 external 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. Weepholes

AAC cladding above the floor level should have no vents or weepholes. Vents and weepholes may be incorporated below the floor level if required. Vents and weepholes in external walls shall be screened with a mesh of maximum 2 mm aperture made of corrosion-resistant steel or bronze. Weepholes may be provided at 1200 mm² at centres not exceeding 2,400 mm.

d. 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 External Coating

a. Coating Application

A range of options for external surface coating system is available for MaxiWall panels from approved supply partners. Generally, the coating system involves high build acrylic cement-based renders designed to provide weather resistant, decorative and durable finishes. It is the responsibility of the applicator and or installer to ensure that a fit-for-purpose coating system is selected that meets as a minimum with the performance requirements below.

Table 5. Coating Performance Specification

Test Type	Performance Requirement
Resistance to Water Transmission	<10g/m ² /24hr/1kPa
Water Vapour Permeability	w. sd ≤0.2 kg/(m ² .h ^{0.5})
Co-efficient of Water Absorption	w ≤0.2 kg/(m ² .h ^{0.5})
Equivalent Air Layer Thickness of Water Vapour Diffusion	Sd ≤2m
Durability (Warranty provided by manufacturer)	Min. 20 years
Elasticity	Ability to bridge a min. 1mm crack width

Note: If other manufacturer's coating systems are used on MaxiWall panels, please ensure that the coating system meets the above performance specification and is warranted by the manufacturer.

b. Surface Preparation

Prior to the application of the coating system to the external walls, the applicator and or installer must ensure that all required penetrations and fire collars have been installed correctly and fully sealed. Ensure that the MaxiWall panels are dry and free of debris and oil.

Patching compounds specifically designed to be compatible with the panels are available to repair damaged areas prior to coating application. Exposed steel reinforcement bars must be coated with approved anti-rust corrosion protection paint. It is recommended that for rendered coatings, a 5 mm grid fibreglass mesh be applied to the panels prior to rendering to prevent cracking of the render due to thermal movement.

MaxiWall panels are natural white to grey-white in colour. Slight variations may occur due to storage, raw materials and climate. Pores of different size at the surface are an inherent characteristic of autoclaved aerated concrete. The compounds and coatings must bond with the autoclaved aerated concrete to prevent moisture penetration yet allow breathability for moisture vapour.

1. Panel Unloading

MaxiWall panels are shipped in packs strapped to strengthened timber bearers 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.

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. 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 "shakeout" 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.

3. Health & Safety

Safety Data Sheets (SDS) are provided with 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.

- a. Cut panels outdoor as the ventilation is better.
- b. Use power tools dust extraction and vacuum that has HEPA M Class filter.
- c. Vacuum the dust after cutting instead of sweeping. Ensure vacuum has the HEPA M Class filter
- d. Use a half-face approved dusk mask (P1 or P2 respirator) that provides respiratory protection against particulate hazards and airborne particles such as dust and powders.

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.

Table 6. Physical Property and Structural Design Capacity

Property	Value	Unit
Declared Mean Dry Density $P_{m,g}$	510	kg/m ³
Average Compressive Strength f_{ck}	3.2	MPa
Characteristic Flexural Strength f_{cflk}	0.6	MPa

Table 7. Wall System Comparison

Wall System	Wall Element Width (mm)			Total Width
	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



No.	Compliance Standard	Compliance Description
1	NCC 2022 Vol. One: B1P1, B1P2	Nominated fixing method and spacing for wind actions
2	NCC 2022 Vol. Two: H1P1	Structural stability and resistance to actions
3	NCC 2022 Vol. One: A5G3(1)(e)	Ultimate static wind load
4	NCC 2022 Vol. One: A5G3(1)(e)	Ultimate static wind load
5	NCC 2022 Vol. One: C1P1, C1P2, G5P1	Fire resistance level for external wall system
6	NCC 2022 Vol. Two: H3P1, H7P5	Fire resistance level for external wall system
7	NCC 2022 Vol. One: Part F3P1	Weatherproofing for external wall system
8	NCC 2022 Vol. Two: H2P2	Weatherproofing for external wall system
9	NCC 2022 Vol. One: J1P1	Energy efficiency performance requirements
10	NCC 2022 Vol. Two: H6P1	Energy efficiency performance requirements
11	NCC Vol. 1 A5G3(1)(e)	Thermal conductivity and resistance
12	NCC Vol. 1 A5G3(1)(e)	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	External waterproofing membrane systems
24	AS/NZS 2904	Damp-proof courses and flashing

1. Responsibility

The final specification and certification of the external 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.

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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