AUGUST 2026

DESIGN AND INSTALLATION GUIDE

WALSC
AAC PANEL SYSTEMS

Facade Wall System

For
Apartment & Commercial Buildings

walsc.com.au

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Warranty

Walsc guarantees its AAC products to be free of defect in material and manufacture. Walsc AAC Panel Systems are customised to gain the most satisfaction and guaranteed to offer excellent performance when installed and maintained in line with the latest Design and Installation Guide. Minimum of 20 Years warranty of 75mm Reinforced Walsc AAC Panel within Walsc AAC Panel Systems from date of purchase are provided to our clients. Further information please call us or visit **www.walsc.com.au**

Walsc is a registered trademark of Sipo Building Solutions Pty Ltd. ABN: 46 614 424 225

The 75mm Reinforced Walsc AAC Panel is the soul of all our Walsc AAC Panel Systems.

DESIGNED IN AUSTRALIA

TESTED IN AUSTRALIA

OUTSTANDING PERFORMANCE

NCC / BCA COMPLIANT

LOCAL TECHNICAL SUPPORT TEAM

LIGHTWEIGHT & STRONG

The design versatility and flexibility of the panel and systems provide a better wall and flooring solution for home owners, developers, architects and all building consultants. Building a high quality energy efficient dream home is no longer a dream of the minority.

WALSC
AAC PANEL SYSTEMS

CODEMARK Australia

CMI CERTIFICATION
Certificate CM40424

1 Introduction

1.1 About Walsc

Walsc provides world leading innovative, top quality Autoclaved Aerated Concrete, AAC products to the market. Our AAC panel systems provide high quality, superior performance and cost-effective solutions for wall applications for house and low-rise residential buildings, and also for high-rise commercial and residential buildings. Our AAC panel systems are tested and assessed for compliance with the requirements of the building codes of Australia and provide confidence and certainty to regulatory authorities and the market. The systems have an accredited CodeMark certification through CMI Certification Pty Ltd in Australia. Walsc was established in 2014 and has become one of the Australia's leading Autoclaved Aerated Concrete (AAC) suppliers. Over the past few years, Walsc has participated in hundreds of projects ranging from low-rise residences, aged care facilities, warehouses to high-rise apartments and commercial buildings. Now Walsc is widely recommended by architects, certifiers and builders because of its premium quality, comprehensive wall and flooring solutions, and strong technical support.

At Walsc, we provide better wall and flooring solutions for your project!

1.2 What is AAC?

Autoclaved Aerated Concrete is manufactured from water, cement, lime, silica sand and a small amount of aluminium powder as expanding agent. The produce techniques impart many unique properties to AAC, making it both economically and environmentally friendly better than other masonry building materials. It can be customised in blocks, wall, floor and roof panels with a range of sizes depending on specific applications, allowing for maximum efficiency and flexibility in construction.

1.3 How is AAC Made?

The raw materials are mixed into slurry state and poured into a mould (a very large cake tin). The expanding agent (aluminium powder) instantly initiates a chemical reaction to create numerous tiny and finely-dispersed hydrogen air bubbles. Meanwhile, it causes the mixture to expand to almost twice its original volume. Once the mixture turning is hard enough (semi-solid) to be wire cut into required panel sizes in a heated room, it will be transported into the cutting machine.
Then the sliced semi-solid material will be cured with high-pressure steam in autoclaves for up to 12 hours. During this curing process, the hydration of the concrete is accelerated by the high pressure steam. The combination of the expanding chemical reaction and autoclave curing process gives AAC its unique properties that are beneficial to buildings.

1.4 Scope

This design and installation guide is intended for use by qualified and experienced architects, engineers and builders for the design, specification and construction of facade wall of high-rise residential and commercial buildings. These buildings are assumed to be those within the scope of Class 2-6 buildings as defined in the National Construction Code-Building Code of Australia (NCC- BCA) and include residential apartment buildings, hotels, health-care buildings, office buildings, shops and restaurants etc.

Any variation of the system outlined in this guide is considered outside the scope and must be evaluated by the relevant professional consultant.

1.5 Limitation

This guide has been prepared by Walsc to provide design, installation and technical information for builders, building consultants, engineers and architects. The information related specifically to Walsc AAC products and must not be used in relation to other building product. The guide does not replace the need for qualified designers (e.g. engineers & architects) to specify project specific information and it is their responsibility to confirm the suitability of using Walsc AAC products for a particular project. Sipo Building Solutions Pty Ltd accepts no liability for errors or omissions in this guide and the user must check with Walsc to ensure the current edition of this guide is being used.

1.6 National Construction Code (NCC)

The National Construction Code sets out the requirements for building construction work in Australia. It consists of Volume 1 (commercial and large residential buildings) and Volume 2 (low rise residential buildings). As defined in the scope, this guide relates to the external walls for high rise residential & commercial buildings classified as class 2-6 of the NCC 2022 Volume 1. The performance requirements of NCC that related to external walls for high rise residential & commercial buildings are as follows:

Table 1. *NCC Performance Requirement*

Performance Requirement	NCC 2022 Volume 1
Structural	B1P1 & B1P2
Weatherproofing	F3P1
Damp-proofing	F3P2
Fire Resistance	C2P1 & C2P2
Bushfire	G5P1
Energy Efficiency	J1P1

*The system performance section of this guide outlines the performance of the Walsc High-rise Facade Wall System with respect to the above NCC requirements.

2 Benefits

Fire resistance

AAC material has earned a reputation for its outstanding fire-resistant properties. It is non-combustible and offers the best fire-resistant performance among any building material currently on the market. In case of fire, it does not release toxic gases and smokes or drip burning materials and prevents spreading of fire.

Acoustic insulation

75mm Reinforced Walsc AAC Panel is proven to be an extraordinary acoustic insulation material by building a defence against external noise pollution. Its sound insulation value is greater than other materials of the same weight.

Thermal insulation

The low thermal conductivity along with thermal mass gives the 75mm Reinforced Walsc AAC Panel high R-values. These thermal efficiencies reduce energy costs by eliminating the original reliance on cooling and heating appliances.

Compliance Assured

The systems have an accredited CodeMark certification through CMI Certification Pty Ltd and all systems are undergoing continuous testing by NATA accredited laboratory to ensure its compliance with various requirements especially in fire resistance and acoustic insulation.

Strong & Durable

75mm Reinforced Walsc AAC Panel enhances the strength and security by combining with the corrosion protected steel, the durability is quite similar to concrete.

Eco-friendly

All the ingredients contained in the 75mm Reinforced Walsc AAC Panel are natural and toxic-free which also means no pollutant and toxic gases will be generated during the manufacture and installation. Even the scrap material that is produced during the utilisation can be recycled.

Fast Construction

Panelised Walsc AAC products, supplied flat-packed, significantly accelerate construction. They enable installers to cover a much larger area than with traditional masonry materials within the same period, improving efficiency throughout the construction phase.

Technical Support

We offer sales services, technical advice and support to meet the satisfaction. We actively cooperate with our customers to ensure the project is completed smoothly.

3 Material Properties

75mm Reinforced Walsc AAC Panels (75mm in thickness) are supplied with a single layer of reinforced mesh located centrally in the panel thickness. 75mm Reinforced Walsc AAC Panels are tested in compliance with AS5146.3-2018.

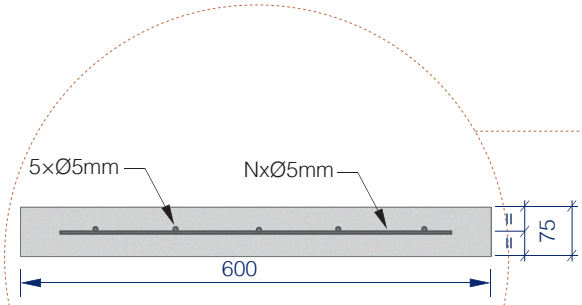


Fig 1. 75mm Panel Details (shown in square edge)

***Note:** *"N" varies with different panel sizes*

The table below outlines the material properties of 75mm Reinforced Walsc AAC Panel (75mm).

***Table 2**. Material Properties*

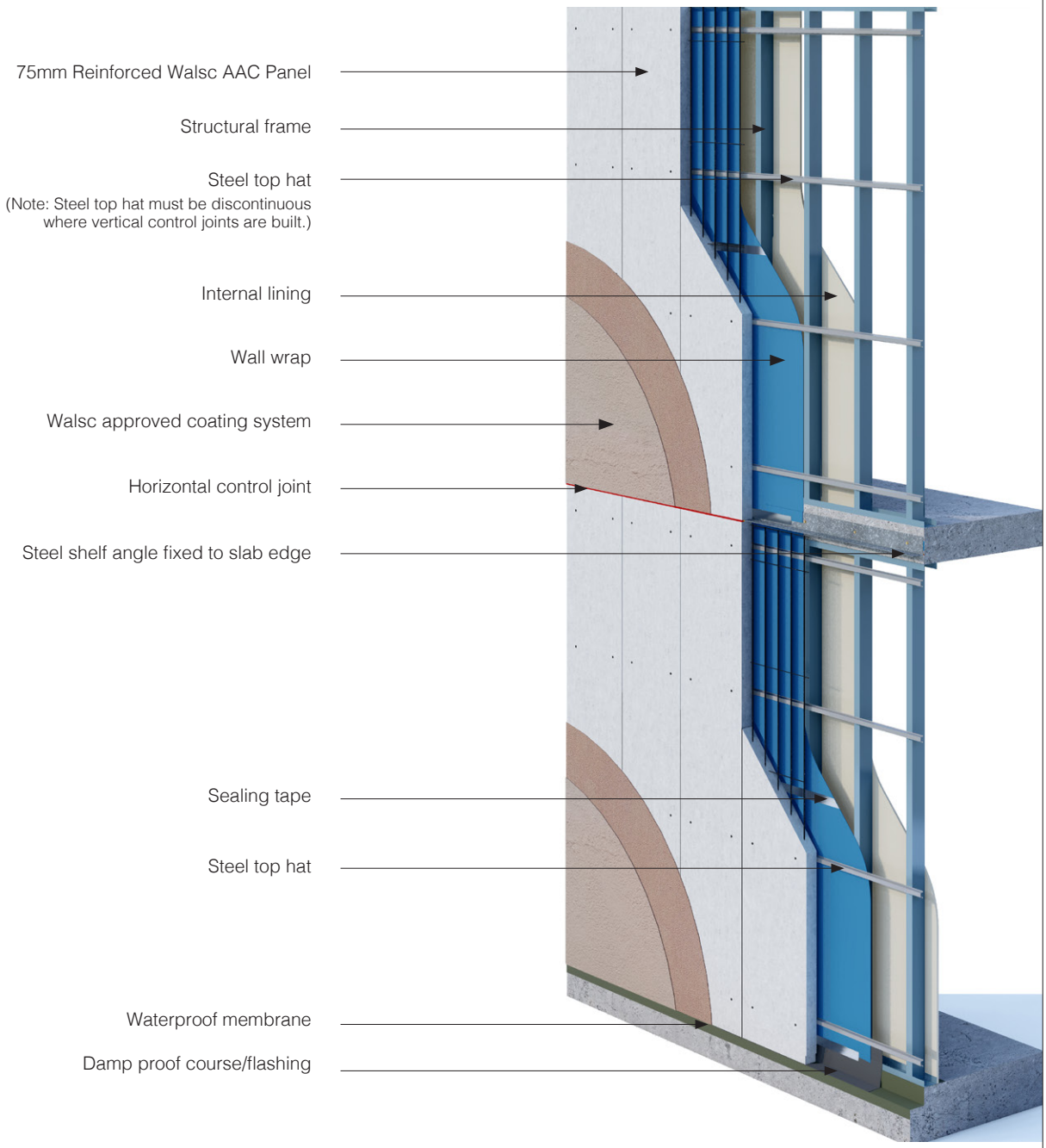
Property			Value
Panel Thickness	d	(mm)	75
Panel Width	w	(mm)	600
Panel Length [1]	L	(mm)	Please check with our distributors
Panel Edge Profile			Square edge
Dry Density [2]	ρ_{dry}	(kg/m^3)	525
Ambient Density	$\rho_{ambient}$	(kg/m^3)	600
Density for Design	ρ_{design}	(kg/m^3)	650
Panel Weight per SQM [3]	m	(kg/m^2)	50
Characteristic AAC Compressive Strength [4]	f_{ck}	(MPa)	2.9
Reinforcement Tensile Yield Stress [4]	f_{yk}	(MPa)	500
Reinforcement Characteristic Weld Strength [4]	V_{uk}	(kN)	3.1
Ultimate Strength Bending Capacity [4]	$ØM_k$	(kNm/m)	0.7
Thermal Resistance		(R-Value)	0.52
Coefficient of Thermal Expansion		(x10^{-6}/K)	7.0

Note:

(1). Check with Walsc distributor for panel availability.
(2). Density calculated from the panel with one layer of reinforcement. Panel length > 3300mm will have 2 layers of steel reinforcement to ensure structural integrity.
(3). Panel weight is calculated from the ambient density.
(4). Refer to structural report prepared by Building Products Certification Pty Ltd reference 0185B-R6A dated 21/12/2017.

4 System Overview

The Walsc Facade Wall System consists of 75mm Reinforced Walsc AAC Panels installed vertically as shown and fixed into horizontally installed steel top hats that are secured to the structural frame. Walsc AAC Adhesive is applied to the vertical edges where there is an adjoining panel except where vertical control joints are required onto continuous horizontal steel top hats fixed to the structural frame. The Facade wall is finished using a Walsc approved coating system.



***Note:**
Walsc Facade Wall Systems have been assessed to comply with Part C1.9 of the 2019 NCC Volume 1. The assessment report is available upon request.

Fig 2. Walsc facade Wall System Overview

5 System Performance

5.1 Structural

The 75mm Reinforced Walsc AAC Panels are non-loadbearing, therefore do not support vertical loads except for the self-weight of the panel (refer to material properties for panel density). Similarly, the panels should not be relied upon to support in-plane racking forces. The light gauge steel stud frame and top hats, that support the AAC panels, must be deigned in accordance with the relevant standard (AS4600). The design of the stud frame for each application shall be undertaken by suitably qualified and experience engineer. The AAC panels will be subject to out-of-plane loading due to wind and earthquake. The table below outlines the maximum top hat spacing and fixing requirements with respect to various wind loads.

Table 3. *Top Hat Spacing & Fixing*

Ultimate Wind Pressure	Stud Spacing (mm)	Maximum Top Hat Spacing (mm)	Minimum No. of Fixings per panel per top hat
Up to ±1.0 kPa	600	1200	3
Up to ±2.0 kPa	450	1200	3
Up to ±3.0 kPa	300	1100	3
Up to ±4.0 kPa	225	1000	3
Up to ±5.0 kPa	150	850	3

The table above is for using the System Components outlined in this Design & Installation Guide in accordance with the fixing diagrams illustrated below.

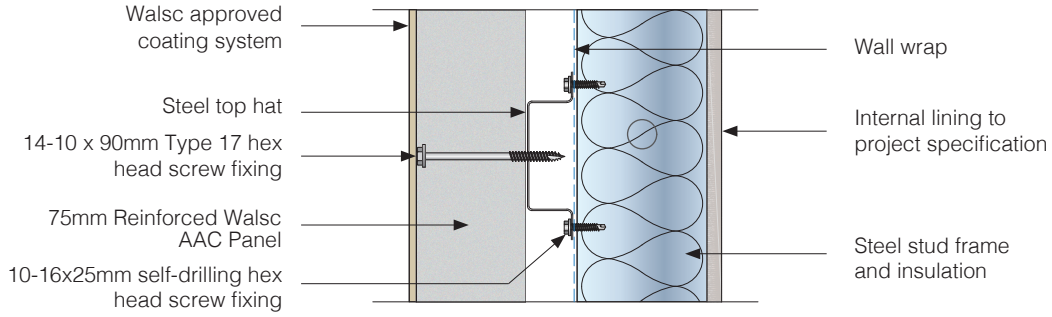


Fig 3. Typical Fixing Detail

The designer must ensure that the design weight of the 75mm Reinforced Walsc AAC Panels plus coating is allowed for when undertaking design of the support structure. (e.g. shelf angles and suspended slabs etc.). Refer to clauses 3.2.4 & 3.2.7 of AS5146.2.

5.2 Durability

AAC has a proven record as a durable material against the Australian environment since its introduction over 30 years ago. Like most concrete, the AAC material is porous and it's possible for corrosion of the reinforcing steel within the AAC to occur. To minimise the risk of this occurring, the reinforcement in all panels has a corrosion resistant coating applied during the manufacture stage. Where an AAC panel is cut, the exposed reinforcement must be treated with anti-corrosion paint.

The most important aspect effecting durability of 75mm Reinforced Walsc AAC Panel is the external coating system that is applied after installation of the panels. This coating shall be varied according to the exposure environment.

The corrosion protection of the screw fixings and top hats must also be suitable for the particular exposure environment.

Table 4. *Durability requirements*

Exposure Environment		Minimum Coating on AAC Panel	Screw Fixing Corrosion Class	Minimum Coating on Top Hat
Mild	More than 50km from the coast	Coating complying with Clause 2.8.4 of AS5146.3-2018	AS3566.2 Class 3	Z275 or AZ150 galvanising
Moderate	1 to 50km of non-surf coast and more than 10km from breaking surf			
Industrial	Within 1km of major industrial complex producing acidic pollution			
Industrial	100 m to 1km from a non-surf coast; or 1 to10km from breaking surf.	Wrap complying with Clause 2.8.5 of AS5146.3-2018		
Severe Marine	Up to 100m from a non-surf coast;or up to 1km from breaking surf			

Contact Walsc for further advice regarding the durability of the system components. It is the designer's responsibility to confirm the suitability of the Facade wall system for the environment of each specific site.

5.3 Weatherproofing & Dampness

The Walsc Facade Wall System is designed to prevent the ingress of moisture that can cause unhealthy conditions or deterioration of building materials. The key elements of the system for weatherproofing in high rise applications include air sealed wall wrap, pressure equalised drained cavity, external AAC coating, control joints and damp proof course/flashings.

The Walsc Facade Wall System has been successfully tested in accordance with the BCA weatherproofing verification method (FV1) by an Australian NATA accredited laboratory for a serviceability load of +2.50 or -2.50 kPa and an ultimate load of +5.5 or -7.0 kPa. For applications where design pressures exceed these limits, please contact Walsc.

5.4 Fire Resistance

External walls of apartment and commercial buildings are required in certain circumstances to achieve a certain level of fire resistance as per Section C of NCC Volume 1. The Walsc Facade Wall Systems have been tested and assessed with a FRL of -/120/120 on the rebated slab edge detail and -/120/120 on the unexposed slab edge detail.

5.5 Energy Efficiency

For energy efficiency purposes the external wall of a residence must achieve a certain thermal resistance as required by the NCC-BCA or relevant state based regulations. 75mm Reinforced Walsc AAC Panels provide excellent thermal resistance which reduces the need for heating/cooling systems within the residence. The table below outlines the thermal resistance of the 75mm Walsc Facade Wall System with for wall wrap and insulation variations.

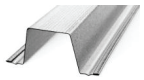
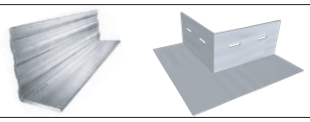
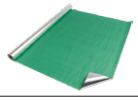
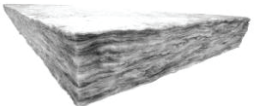
Table 5. *Energy Efficiency Performance*

Walsc Facade Wall System with 10mm plasterboard internal lining	**Total R Values, $m^2 \cdot K/W$ (All wall bridged)**	
	Winter	Summer
AAC Panel + 24mm top hat + 70mm reflective still air space + steel stud (76x35mmx0.55BMT) at 600mm centres	R1.80	R1.77
AAC Panel + 24mm top hat + 70mm R1.50 bulk insulation + steel stud (76x35mmx0.55BMT) at 600mm centres	R2.38	R2.29
AAC Panel + 24mm top hat + 70mm R2.00 bulk insulation + steel stud (76x35mmx0.55BMT) at 600mm centres	R2.66	R2.58
AAC Panel + 24mm top hat + 90mm R2.00 bulk insulation + steel stud (92x35mmx0.55BMT) at 600mm centres	R2.70	R2.59
AAC Panel + 24mm top hat + 90mm R2.20 bulk insulation + steel stud (92x35mmx0.55BMT) at 600mm centres	R2.81	R2.70
AAC Panel + 24mm top hat + 90mm R2.50 bulk insulation + steel stud (92x35mmx0.55BMT) at 600mm centres	R2.96	R2.86
AAC Panel + 24mm top hat + 90mm R2.70 bulk insulation + steel stud (92x35mmx0.55BMT) at 600mm centres	R3.06	R3.96
AAC Panel + 24mm top hat + 70mm reflective still air space + steel stud (76x35mmx0.55BMT) at 450mm centres	R1.76	R1.73
AAC Panel + 24mm top hat + 70mm R1.50 bulk insulation + steel stud (76x35mmx0.55BMT) at 450mm centres	R2.29	R1.73
AAC Panel + 24mm top hat + 70mm R2.00 bulk insulation + steel stud (76x35mmx0.55BMT) at 450mm centres	R2.54	R2.47
AAC Panel + 24mm top hat + 90mm R2.00 bulk insulation + steel stud (92x35mmx0.55BMT) at 450mm centres	R2.58	R2.48
AAC Panel + 24mm top hat + 90mm R2.20 bulk insulation + steel stud (92x35mmx0.55BMT) at 450mm centres	R2.67	R2.58
AAC Panel + 24mm top hat + 90mm R2.50 bulk insulation + steel stud (92x35mmx0.55BMT) at 450mm centres	R2.81	R2.72
AAC Panel + 24mm top hat + 90mm R2.70 bulk insulation + steel stud (92x35mmx0.55BMT) at 450mm centres	R2.89	R2.81

Note: *1. The above table gives Total R Values (Australia) for the thermally bridged whole wall surface (no glazing). For New Zealand (8% M.C.) total R values will be R0.063 less. The All Wall (bridged) results do not have any thermal break products present.*
2.75mm Walsc AAC Panel assumed to have 0.157 thermal conductivity at 4% M.C. based on assumed 0.133 conductivity at 560 kg/m3 dry density
3.Results are unchanged for 16mm or 24mm battens as that gap is not reflective.
4.Results are unchanged for 16mm or 24mm battens as that gap is not reflective.

6 System Components

Table 6. *System Components*

Product	Description	
75mm Reinforced Walsc AAC Panel	Lengths are various, please contact supplier for more details.	
Steel Top Hat	Rondo M535 or equivalent, minimum BMT 0.75mm, minimum yield strength 275MPa with coating class Z275 or to project specifications.	
Shelf Angle & Corner Shelf Angle (Hidden Slab Edge)	150mm x 100mm x 6mm shelf angle or as per project requirement. Shelf angle shall comply with AS/NZS2699.3, fixing as per engineer's specification.	
Wall Wrap	Pliable wall wrap in accordance with AS4200. It must meet the requirements of the NCC 2022 and suitable for using in non-combustible external walls.	
Sealing Tape	Tape for joining laps of wall wrap. It must meet the requirements of the NCC 2022 and suitable for using in non-combustible external walls.	
Waterproof Tape	For sealing of wall wrap to other substrates and penetrations. It must meet the requirements of the NCC 2022 and suitable for using in non-combustible external walls.	Check with product manufacturer for details.
AAC Panel to Steel Top Hat Fixing Screw	14-10 x 90mm Type 17 hex head screw with Class III corrosion resistance (minimum) as per AS3566.2-2002.	
Steel Top Hat to Stud Frame Screw	10-16x16mm tek screw for fixing into steel stud. Class III corrosion resistance (minimum) as per AS3566.2-2002.	
Plasterboard	As per project design.	
Stud Frame	Steel stud framing shall be designed in accordance with AS/NZS4600-2018.	
Insulation	Wall insulation shall be provided between each stud to achieve the required R-Value. Refer to Energy Efficiency Section of this guide. It must meet the requirements of the NCC 2022 and suitable for using in non-combustible external walls.	
Walsc AAC Adhesive	Cement based AAC adhesive is applied to all adjoining panel edges and can also be used to patch up minor damaged areas.	
Pressure Equalisation Slot	Recommend to use 70mm Weepa. 75mm(H) x 10mm(W) x 70mm(D)	
Approved Corrosion Protection Paint	When panels are cut, the exposed ends of the reinforcement must be treated with corrosion protection paint.	Contact Walsc for product specifications.
Flexible Sealant	External grade polyurethane sealant must be used in all control joints of Facade walls. It is recommended to use Bostik Seal 'N' Flex 1 or equivalent.	
Fire Rated Sealant	Fire rated sealant must be used in all control joints throughout the fire rated wall. It is recommended to use Bostik Fireban One, H.B. Fuller Firesound or equivalent.	

7 Detailing

7.1 Control Joints

Control joints must be installed through the Walsc Facade Wall System to minimise the risk of damage occurring to the panels or render coating due to expected movement of the high-rise structure. Movement in residential structures can occur due to various causes including:

- Movement of the foundation material (e.g. settlement).
- Thermal shrinkage/expansion of the building materials.
- Shrinkage and deflection of supporting elements (e.g. suspended slabs).

The location of control joints shall be specified by the design engineer with the general guidelines provided below. It is the design engineer's responsibility to provide project specific documentations of control joints.

Generally, **vertical control joints** should be located:

a. For openings' width equal or smaller than 2400mm, along one of the vertical edges for the full height of the wall; and
b. For openings' width greater than 2400mm, along both vertical edges for full height of the wall; and
c. At all corner intersections; and
d. At the locations of movement joints in the supporting structure (e.g. suspended slabs)
e. At 6.0m maximum spacing for sections of walls without openings
f. At all changes in wall height, thickness or material type.

Generally, **horizontal control joints** should be located at each floor level (e.g. at the soffit level of the suspended slab edge).

The width of control joint should be maintained 10-15mm with specified sealant and backing rod installed. The depth of sealant shall be 15mm minimum.

7.2 Edge Distances & Minimum Width

The minimum edge distance for fixing 75mm Reinforced Walsc AAC Panel shall be 40mm. Fixings shall not be installed in rebated or chamfered edges of 75mm Reinforced Walsc AAC Panel.

The minimum panel width shall be 200mm and containing a minimum 2 longitudinal steel bars.

7.3 Air Barrier

The sealed wall wrap act as an air barrier for the Facade wall system which is critical to maintain the weathetightness of the system. Sealing is achieved using specific tapes for the wall wrap laps joints and at the periphery of the wall. When installing the various components of the wall system, installers must be very careful to not damage the wall wrap. Any punctures in the wall wrap must be repaired using sealing tape.

7.4 Pressure Equalisation Slots

The wall system is designed to allow air pressure to enter the cavity zone so that it is pressure equalised which assists with the weather tightness. This is achieved through 75mm high x 10mm wide pressure equalisation slots (75mm x 10mm) being installed at the base of the AAC panels at a spacing of 3000mm. For situations where the slot may be covered (e.g. balconies with a tile bed) they shall be provided at the top of the AAC panels at the same spacing.

7.5 Spandrel Walls

In accordance with NCC 2022 Volume 1 Clause C3D7, buildings of Type A construction require any part of a window or other opening in an external wall which is located above another opening in the storey next below and its vertical projection falls no further than 450 mm outside. The lower opening, the openings must be separated by a spandrel. The installation of a spandrel is as the following figure where the spandrel:

(i) Is not less than 900 mm in height; and
(ii) Extends not less than 600 mm above the upper surface of the intervening floor; and
(iii) Is of non-combustible material having an FRL of not less than 60/60/60

The following figure outlines in graphic form the requirements for spandrel installations in buildings.

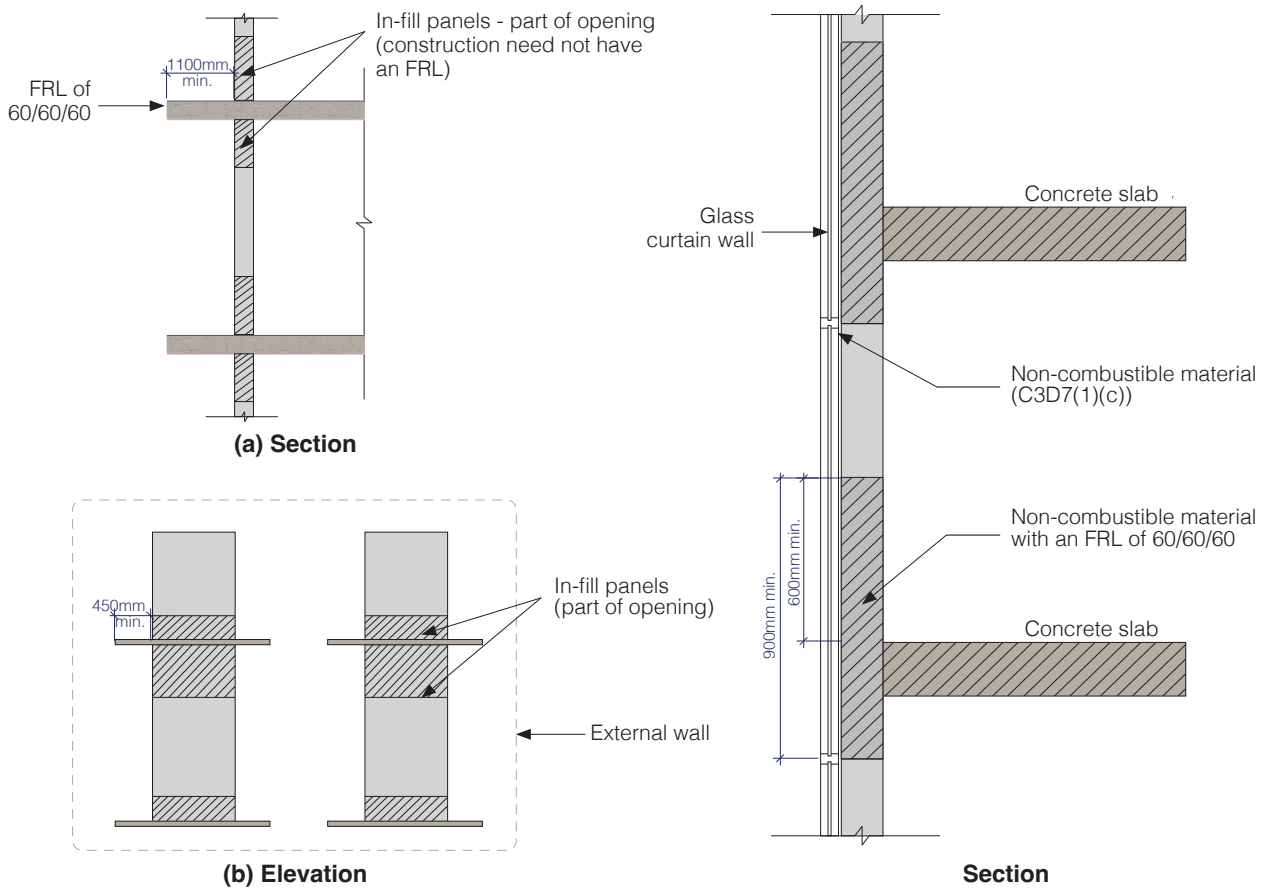


Fig 4. NCC 2022 Volume 1 Clause C3D7 – Vertical Spandrel Installation

The aim of NCC 2022 Volume 1 Clause C3D7 is to prevent vertical fire spread between storeys through unprotected openings in external walls, being predominantly windows. The spandrel section is to be at least 900 mm in total height, with an upstand of at least 600 mm and extending at least 450 mm on either side of the opening. The full spandrel is to achieve a fire rating of at least 60/60/60 in both directions. Given the spandrels are not loadbearing, the fire resistance level of -/60/60 is required.

The Walsc AAC panels have been tested and assessed to meet the requirements for spandrel installation and fire resistance level as specified in NCC 2022 Volume 1.

Within the specific design established by Walsc, the following figure details the proposed installation. In order to satisfy the requirements of the code, the fire-rated plasterboard lining is to be located on the occupied side of the wall, being at least 16 mm in thickness. In addition, the 16 mm fire grade plasterboard is to extend and cap the top and bottom connection so that a full spandrel system is provided. This is shown in fire-rated in the following figure. In addition, the total spandrel height is to be at least 900 mm with at least a 600 mm upturn.

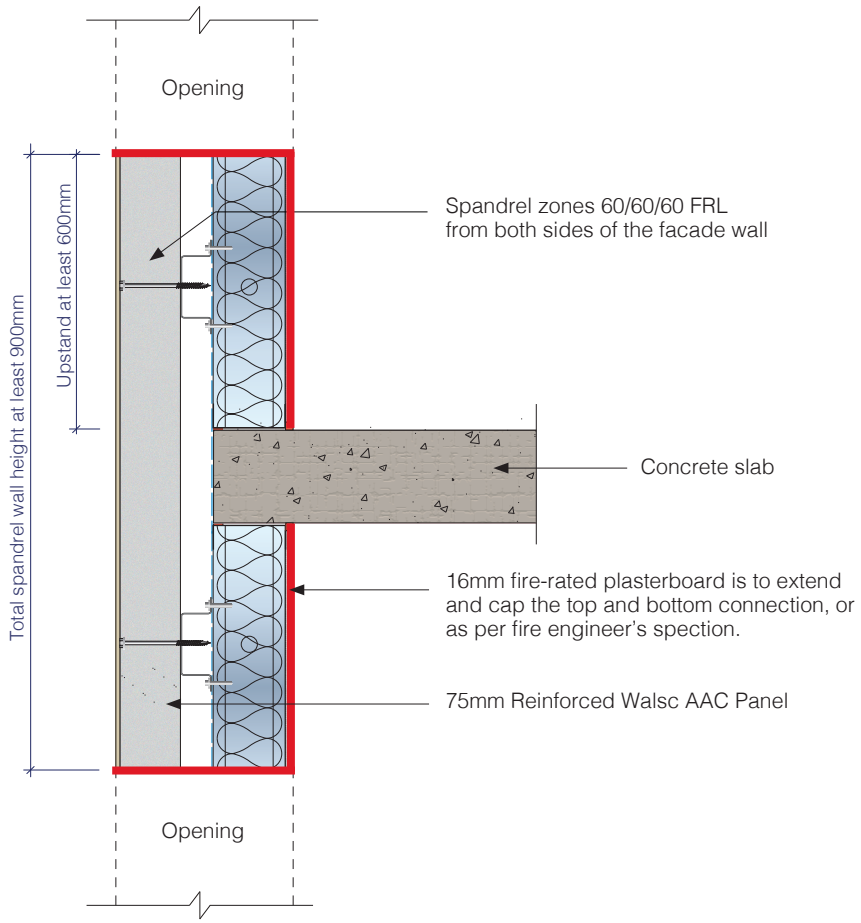


Fig 5. Walsc Vertical Spandrel Detail with Dimension

7.6 Approved Coating System

All coating & wrap systems applied to Walsc Facade Wall System for high-rise building shall be in accordance withAS5146.3:

(i) For coating systems, refer to clause 2.8.4 of AS5146.3-2018.

(ii) For wrap systems, refer to clause 2.8.5 of AS5146.3-2018.

8 Installation

8.1 Installation Guide

Prior to any construction

1. Ensure that the stud spacing will meet the requirements for fixing of the 75mm Reinforced Walsc AAC Panels in accordance with Table 3 - Top Hat Spacing & Fixing.
2. Use the top hat size as defined in Table 6 - System Components.

Preparing for panel installation

3. Ensure the stud frame has been completed and is ready for installation of the panels. This includes checking that the frame is plumb and straight, with special attention to corners of framing. An out of plumb stud frame wall can easily result in cracking of an AAC panel during and after the screw fixings are installed. Packing between the stud frame and the top hats (10mm maximum) is recommended to ensure the top hats are straight.
4. Plan the panel installation, starting from corners, openings or any other critical features. Reduce cutting and maximise panel sizes where possible.
   Allow for control joints as specified by the design engineer.
5. Install the damp proof course, pest control and wall wrap as appropriate and in accordance with the manufacturer's instructions.
6. Measure from the bottom of the rebate or as appropriate to determine the top hat locations, and mark these around all framing where 75mm Reinforced Walsc AAC Panels are to be installed. Extra top hats may be installed beyond the requirements of Table 3 - Top Hat Spacing & Fixing if required for irregularities in framing or similar.
7. Fix the top hats to each stud with fasteners listed in the System Components, ensuring the top hat follows the locations marked previously.

Installing the first panel

8. Starting from a location as chosen in the planning stage, place the fire panel hard against the top hats. Ensure that the panel is level and plumb, then screw fix to the top hat. The screw fixing of each panel is to be in accordance with Table 3 - Top Hat Spacing & Fixing. Each screw should be screwed in until the head is flush with the panel exterior.

Installing subsequent panels

9. Cut the next panel to size as required for openings/corners. For any reinforcement that has been exposed, apply a suitable protective treatment as listed in the Table 6 - System Components.
10. Prepare the panel adhesive in accordance with the manufacturer's details. Do not use adhesive that has passed its use by date.
11. Apply panel adhesive, approximately 2 to 3mm thick, along the full edge to be joined. Ensure coverage to both the top and bottom edges of the panel. Where the panel joint is a control joint, instead leave the edges of the AAC panel clean and create a 10mm nominal gap.
12. Lift the next panel into position against the top hats, and then slide it hard against the adhesive coated edge. Ensure adhesive is fully coating the joining edges of the panels, then remove excess adhesive that has been squeezed out of the joint. Screw fix the panel to the top hats in accordance with Table 5 - Top Hat Spacing & Fixing.
13. Repeat the above steps for all further panels.
14. Apply external grade sealant in accordance with the manufacturer's specifications to all openings and control joints.

Panel finishing

15. Where panels are being coated with an approved finish, external angle beads are required at all corners and openings.
16. The Walsc approved coating system is to be installed to the manufacturer's specifications, taking care to allow for movement at control joints.

8.2 Plumbing & Electrical Services

It is preferred that any services installed is attached to the frame where possible. Penetrations should be neatly cut/drilled, and any clearance gap should be sealed with an approved sealant. Electrical cables should be installed in a conduit to prevent any possible contact with the top hats.

Channels may not be cut in the panels for services, however full openings may be done as needed (e.g. recessed power boxes) if planned for and appropriately sealed.

9 Delivery, Storage & Handling

9.1 Delivery

Before delivery of 75mm Reinforced Walsc AAC Panels on site, an appropriate unloading area should be designated. The unloading area should be:

- Capable of supporting the weight of the reinforced Walsc AAC Panel packs. Consult the project's structural engineer if required.
- On level support, and elevated off any surface that may have water run across it (e.g. outside ground, interiors without roofing).
- Kept dry either by storing inside, or protected from the rain (e.g. by use of plastic wrapping).
- Large enough to contain all panels for the construction stage without stacking packs on top of each other.
- As close as possible to the installation area, to minimise the additional lifting required. This may mean designating additional unloading areas depending on the project size.

9.2 Storage & Handling

Wherever possible, 75mm Reinforced Walsc AAC Panels should have the faces, corners and edges protected from damage. Whenever moving panels, the following precautions should be taken:

- Before lifting packs, ensure that the panels are securely strapped.
- Personnel operating lifting machinery (e.g. forklifts, cranes, trolleys) must use the appropriate techniques and equipment.
- When opening packs, appropriate measures should be taken to prevent panels from falling.
- Any opened packs are protected from the weather and secured while not in use.
- All workers have appropriate personal protection equipment (PPE) for the worksite conditions. Recommended PPE includes but is not limited to:
  - Hearing & eye protection
  - Safety clothing (e.g. safety boots, well-fitting clothing)
  - Respiratory protective equipment
  - Sun protection (e.g. hats, long sleeves, trousers, sun screen).
- All workers are trained in an appropriate manner for the tasks undertaken. For example, proper equipment maintenance and usage, material safety and good lifting techniques would fall into this category.
- The sequence of installation should be planned to minimise panel movements and ensure installers will have appropriate room to lift the panels.
- Whenever manually lifting single panels, a minimum of two people should carry each panel and the panel should be carried on its side (not flat). Good lifting techniques (detailed below) and a clean worksite should be maintained to minimise injuries.

9.3 Good Lifting Techniques

There is no proven 'best' way of lifting, as it will vary with the weight and shape of the object being lifted. The better options available are a 'deep squat' and 'semi squat' lift. The deep squat is done by bending the knees and hip to their maximums, while keeping the upper body approximately vertical. The semi squat is done by leaning the upper body forwards as a whole (while keeping the spine straight) and bending the legs to a lesser degree than the deep squat. The basic principles of good lifting are to:

- Minimise the distance between the load and the body
- Bend the knees, allowing for use of the leg muscles
- Keep the back as Straight as possible

For more details refer to the relevant state based safety regulation documentation (e.g. Safe Work Australia).

10 Health & Safety

75mm Reinforced Walsc AAC Panels, like all concrete members, contain crystalline silica (also known as silica dust). Prolonged exposure via inhalation can cause silicosis in the long term, among other possible conditions. As such, proper PPE usage during construction is necessary to create a safe work environment.

While AAC panels are left undamaged and intact, there is no potential health risk. As such, touching the material with bare skin is not an immediate problem. Protection may be suitable however, to prevent abrasion from skin contact. However, when the material has been broken down by any process such as cutting, drilling, chasing or sanding silica dust is generated. As such, this generates an increased risk of health problems. Long term exposure increases this risk, so it is advised that precautionary measures are taken.

Either protective masks or dust extraction are recommended for usage as a preventative measure during any process that breaks down the panels. Wet cutting of the panels is not recommended. Protective respirators should be of Class P1 or P2 (to AS/NZS1715 and AS/NZS1716) and recommended for dust, at a minimum. Dust extraction systems should be appropriately filtered as required by local council regulations. The site should also be cleaned at regular intervals (e.g. daily) to prevent dust accumulation.

Other preventative measures not related to the inhalation of silica dust may include:

- Eye protection in accordance with AS1336
- Protective footwear in accordance with AS2210
- Ear plugs/earmuffs to an appropriate rating for the tools being used, in accordance with AS1270
- Protective clothing such as long sleeve shirts and trousers, or overalls to prevent possible skin irritation. This will also have the added benefit of protecting outside workers from the sun.

For further details, see the MSDS at www.walsc.com.au.

SAFETY ALWAYS COMES FIRST, WEAR PPE!

11 Construction Details

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Construction Details

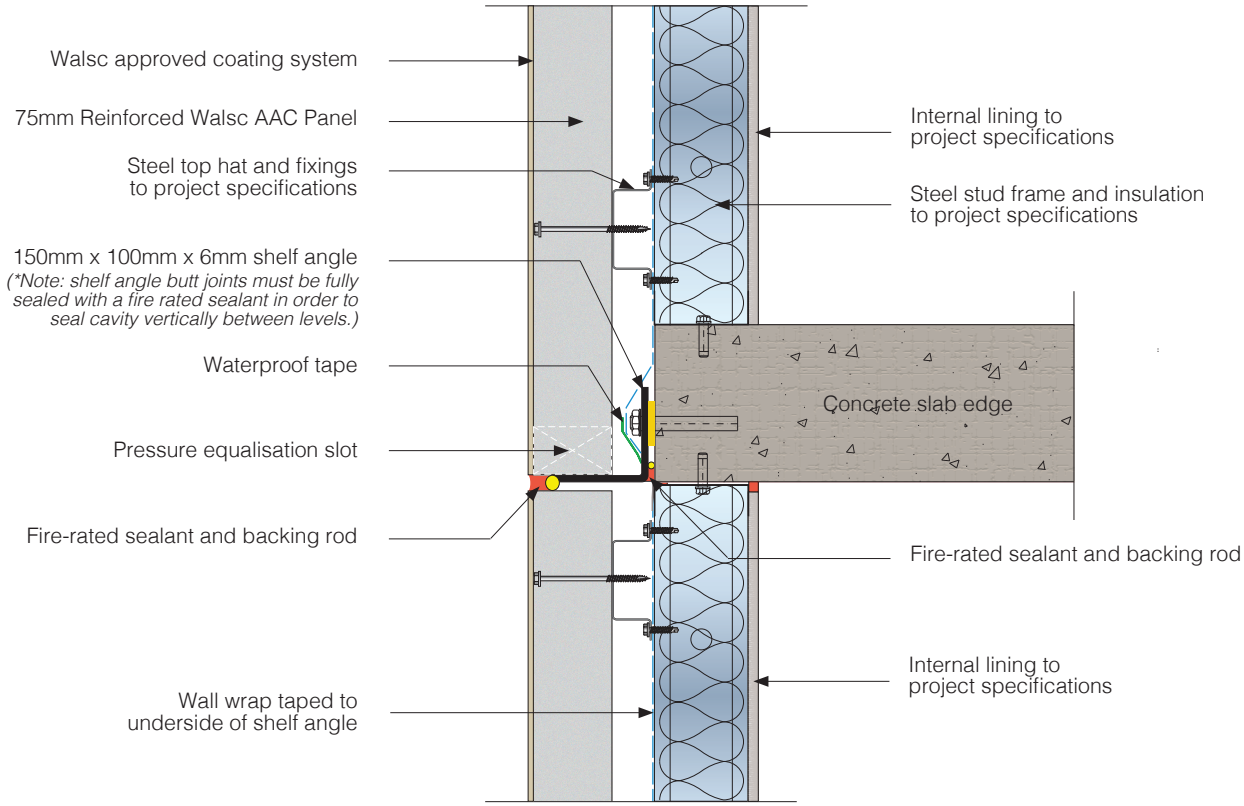


Fig 6. Unexposed Slab Edge Detail

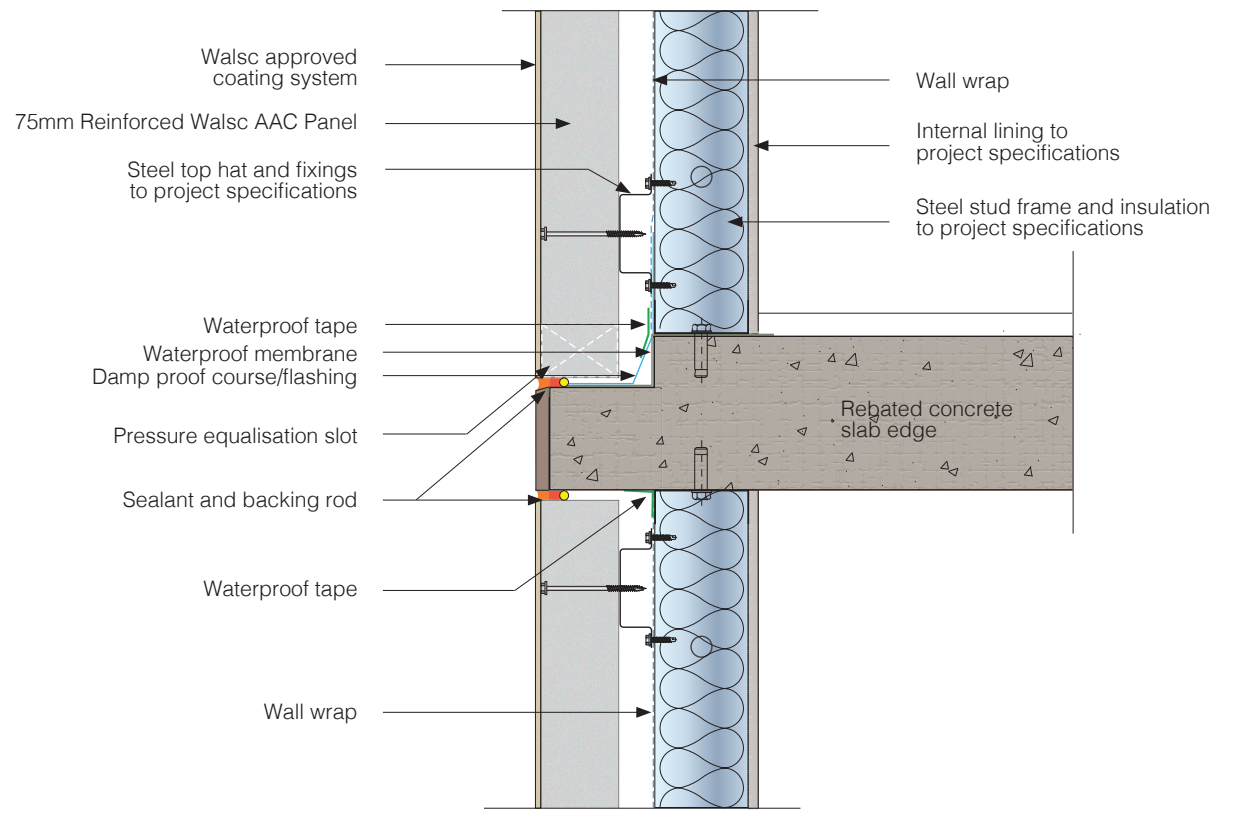
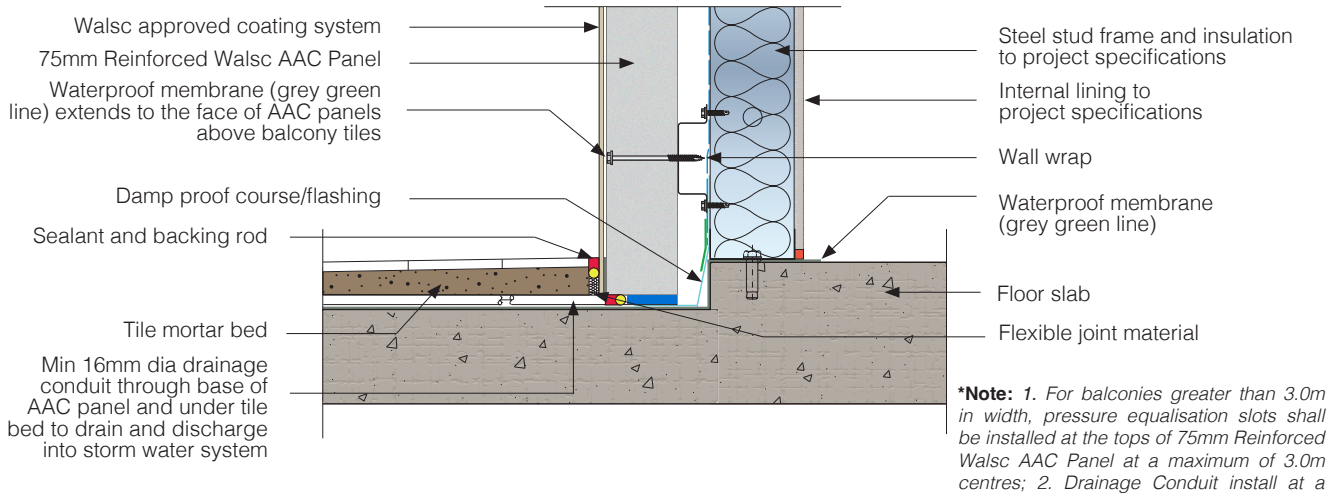


Fig 7. Rebated Slab Edge Detail



***Note:** *1. For balconies greater than 3.0m in width, pressure equalisation slots shall be installed at the tops of 75mm Reinforced Walsc AAC Panel at a maximum of 3.0m centres; 2. Drainage Conduit install at a maximum of 3m.*

Fig 8. Balcony Step Down Detail 1

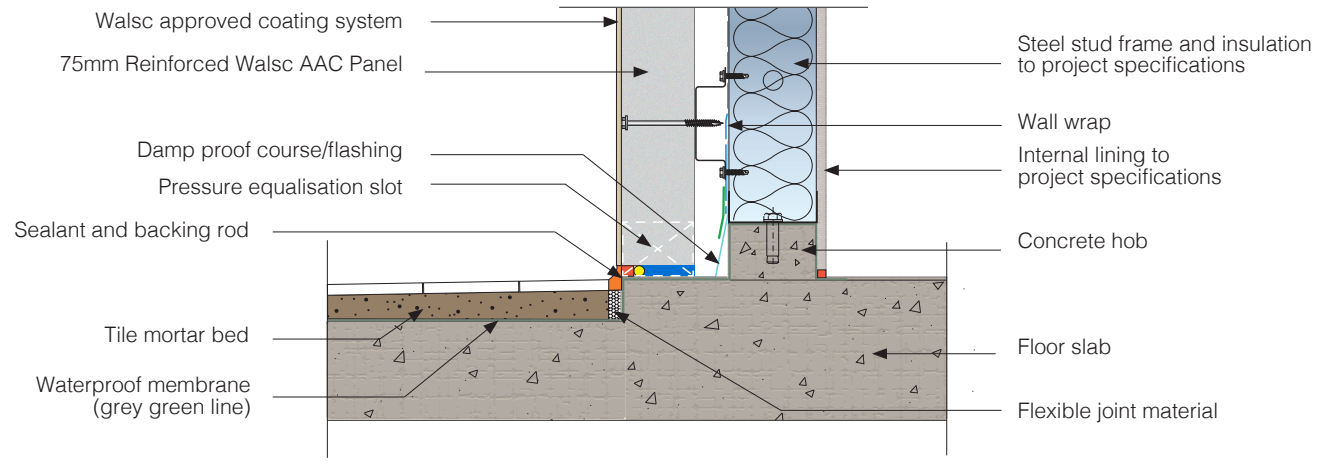


Fig 9. Balcony Step Down Detail 2

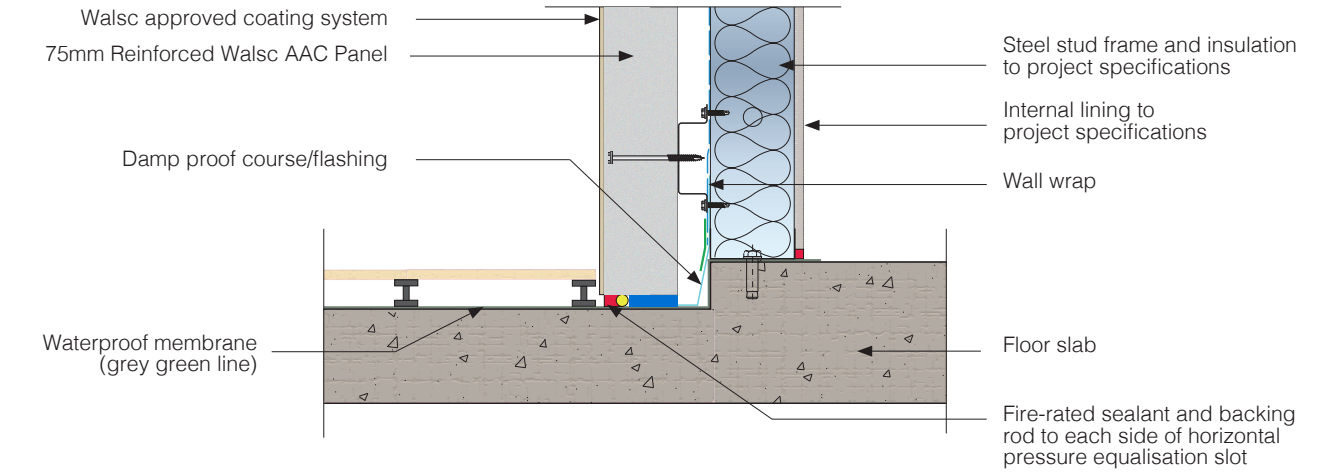


Fig 10. Balcony Step Down Detail 3

Construction Details

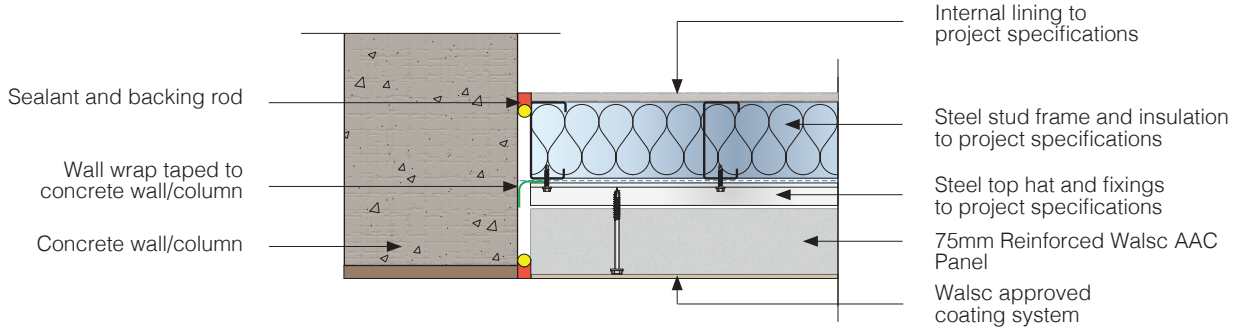


Fig 11. External Wall to Column Intersection Detail

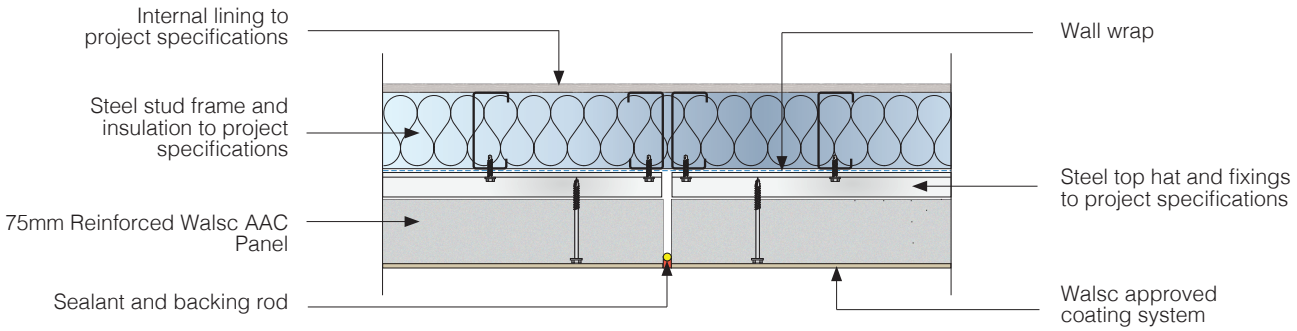


Fig 12. Vertical Control Joint Detail

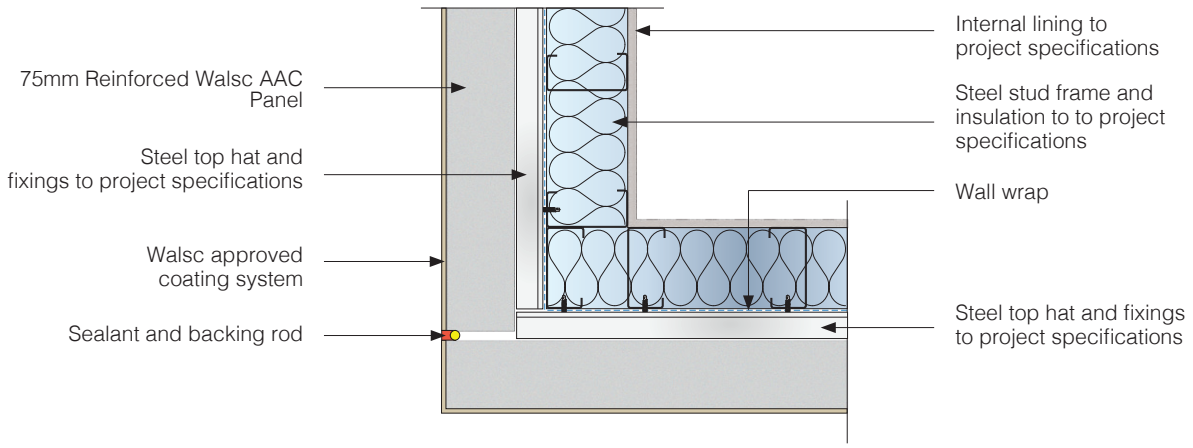


Fig 13. External Corner Control Joint Detail

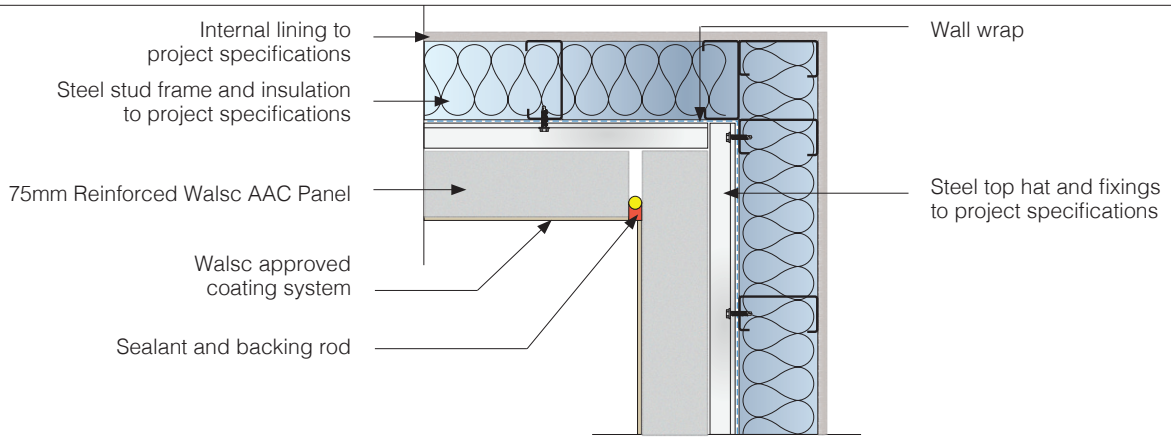


Fig 14. Internal Corner Control Joint Detail

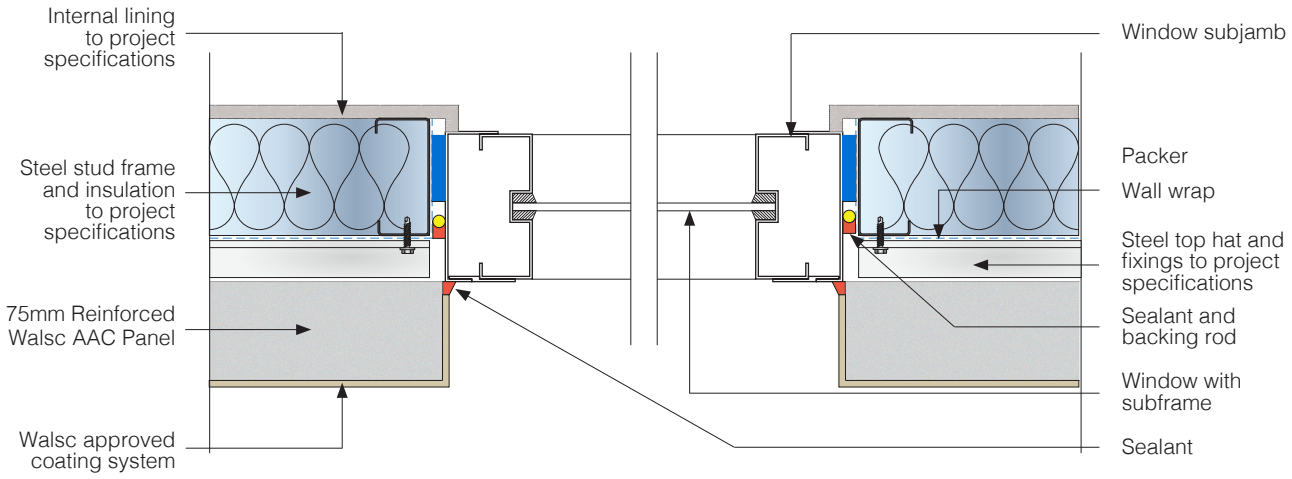


Fig 15. Window Jamb Detail

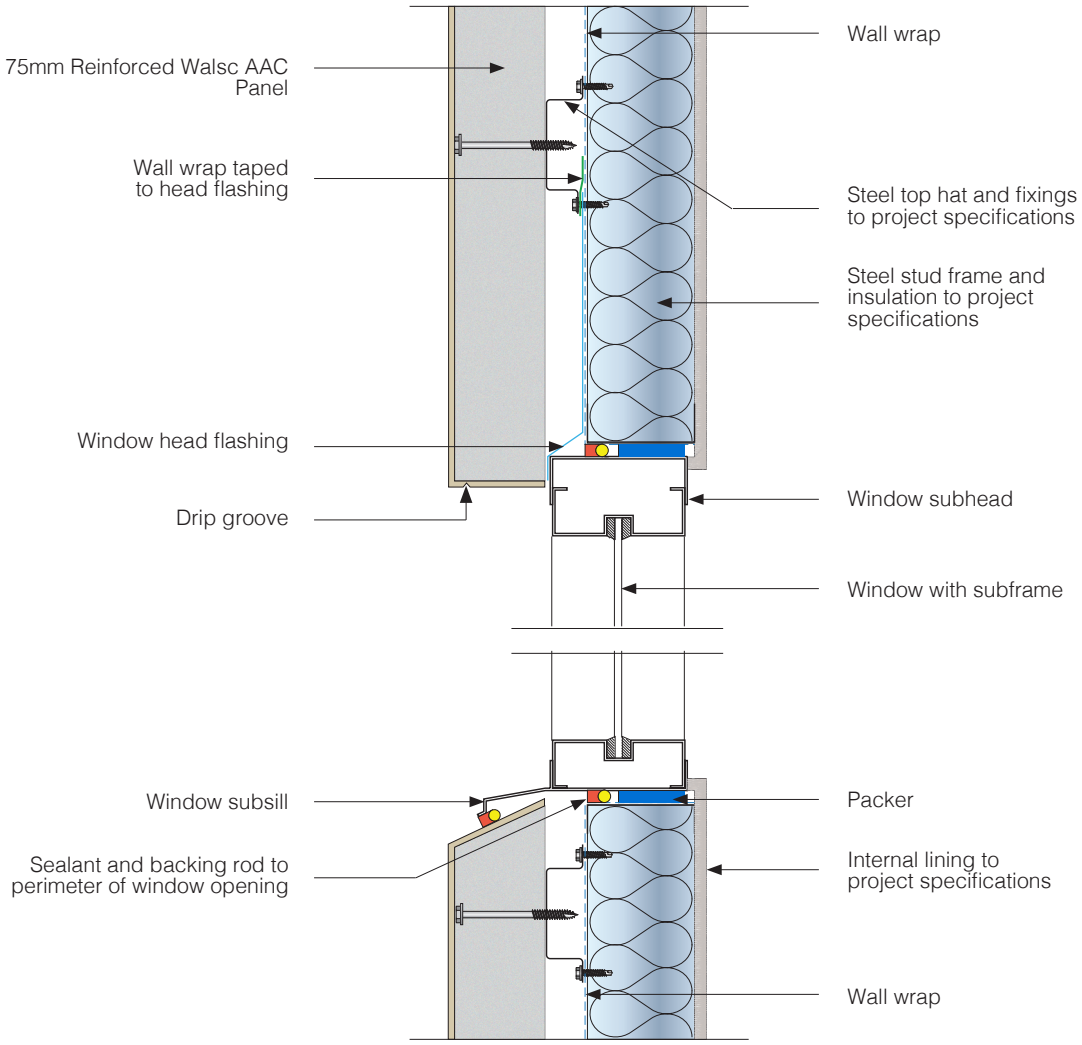
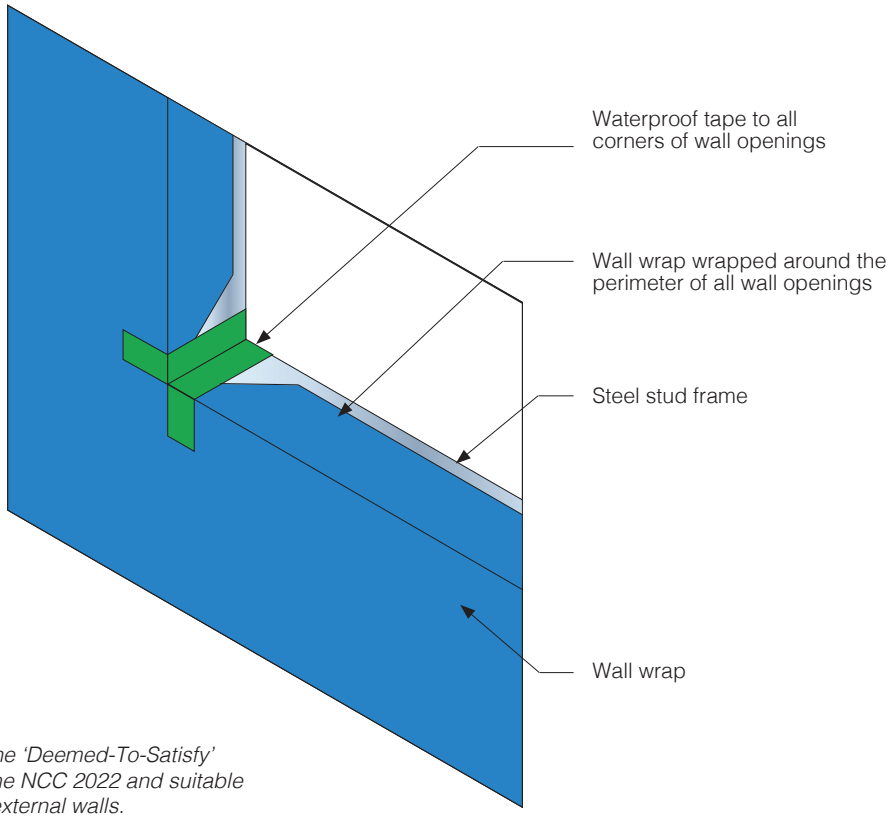


Fig 16. Window Head and Sill Detail



***Note:** *Wall wrap must meet the 'Deemed-To-Satisfy' compliance requirements of the NCC 2022 and suitable for using in non-combustible external walls.*

Fig 17. Wall Wrap Detail at Openings

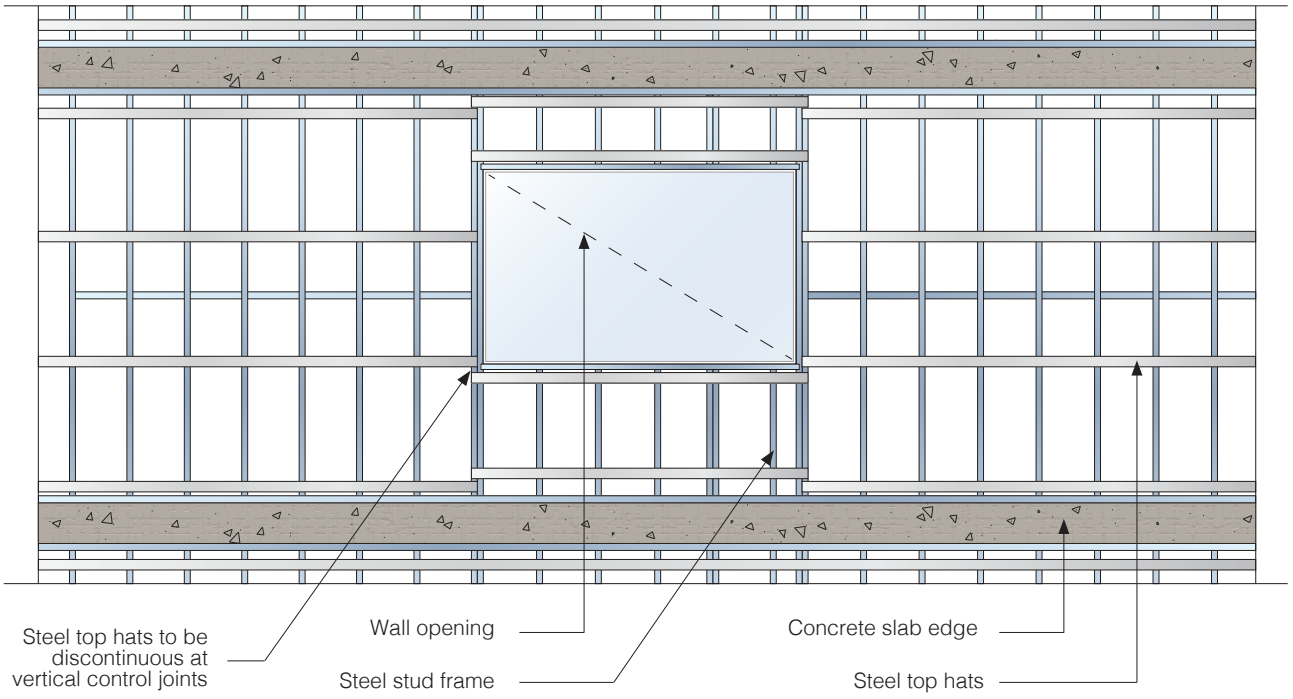


Fig 18. Typical Framing Arrangement Elevation

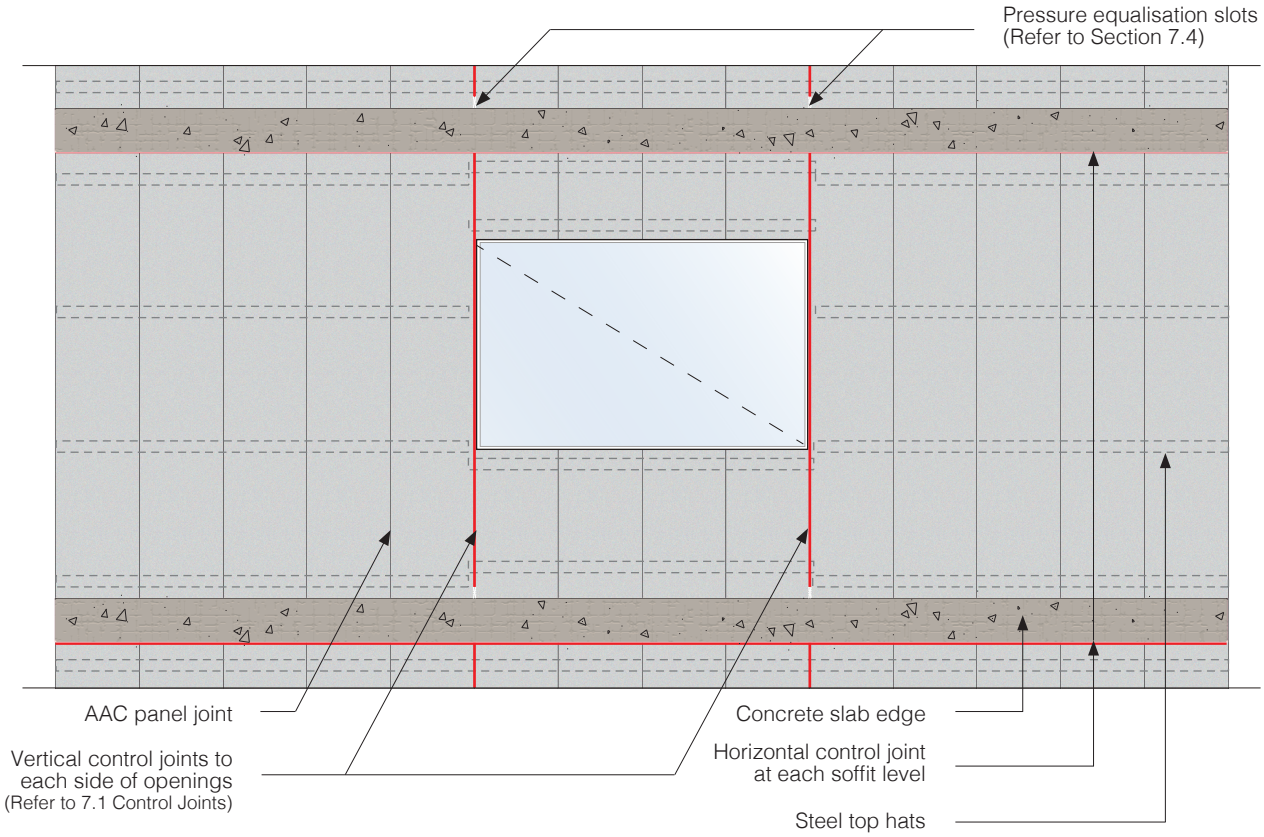


Fig 19. Typical Panel Arrangement Elevation

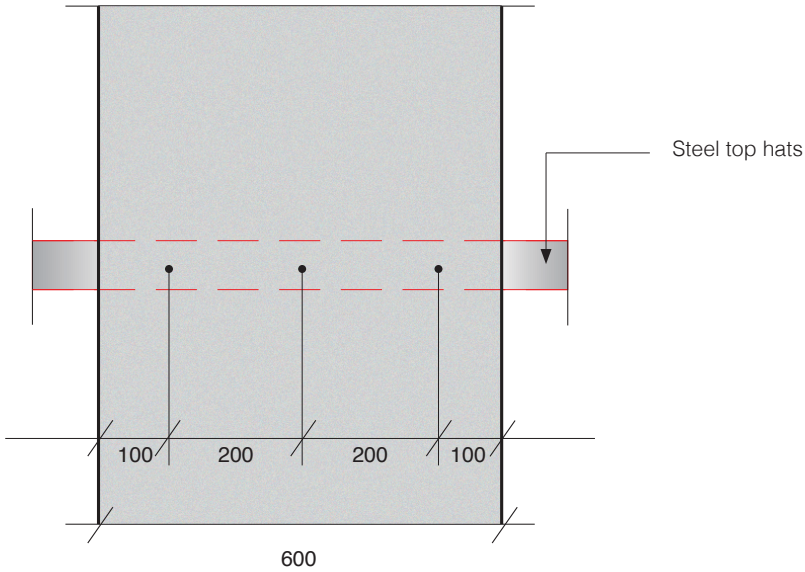


Fig 20. AAC Panel Fixing Detail

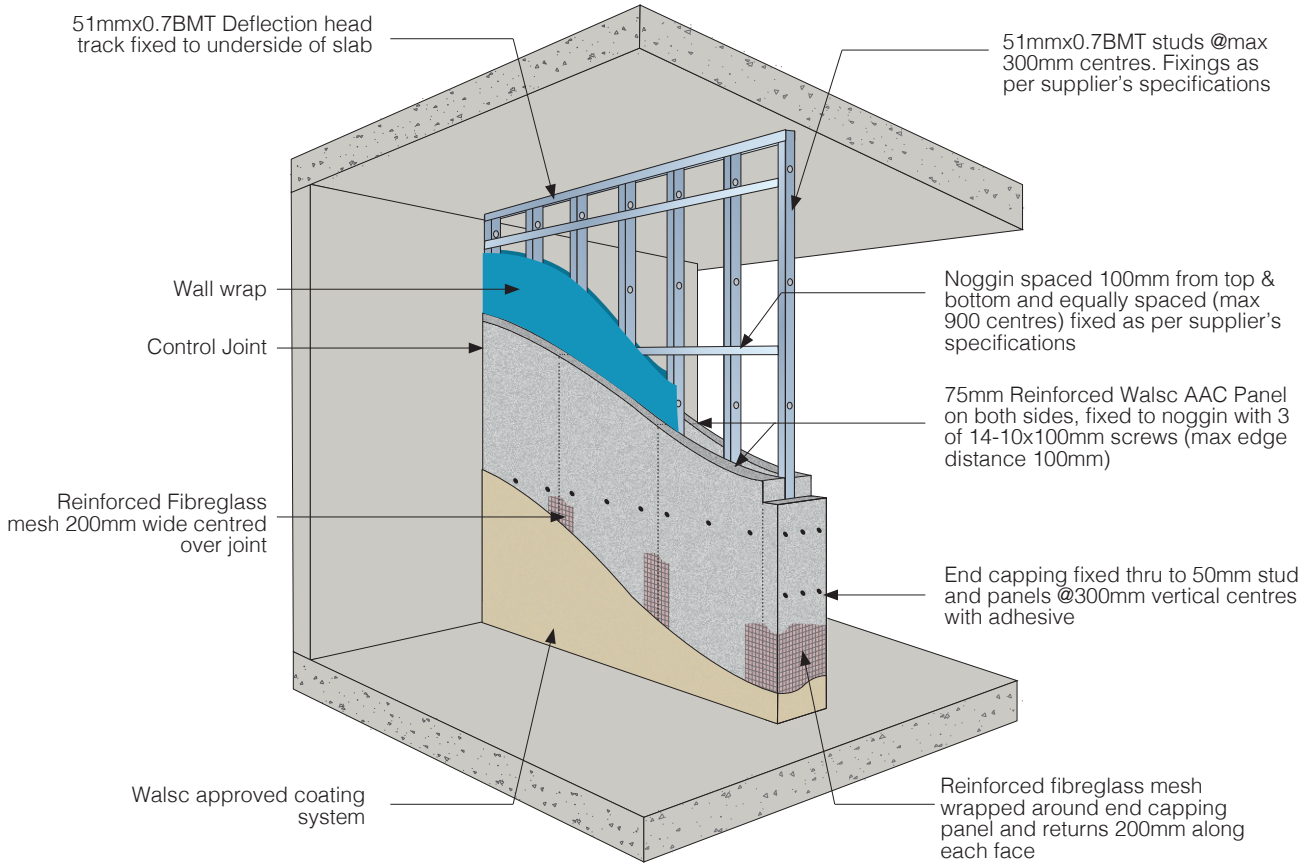


Fig 21. Balcony Dividing Walls System Overview

Table 7. *Fixing Details*

Fixing Tables	
Deflection head track to underside of slab	Fixing to supplier's specifications
Base track to slab	Fixing to supplier's specifications
Stud to track	As per supplier's specifications
Noggin to stud	As per supplier's specifications
Panel to Noggin	#14-10x100mm screws, 3 per noggin per panel max edge distance 100mm
End capping to panels & stud	#14-10x150mm hex head screws, 3 fixings @300mm vertical centres

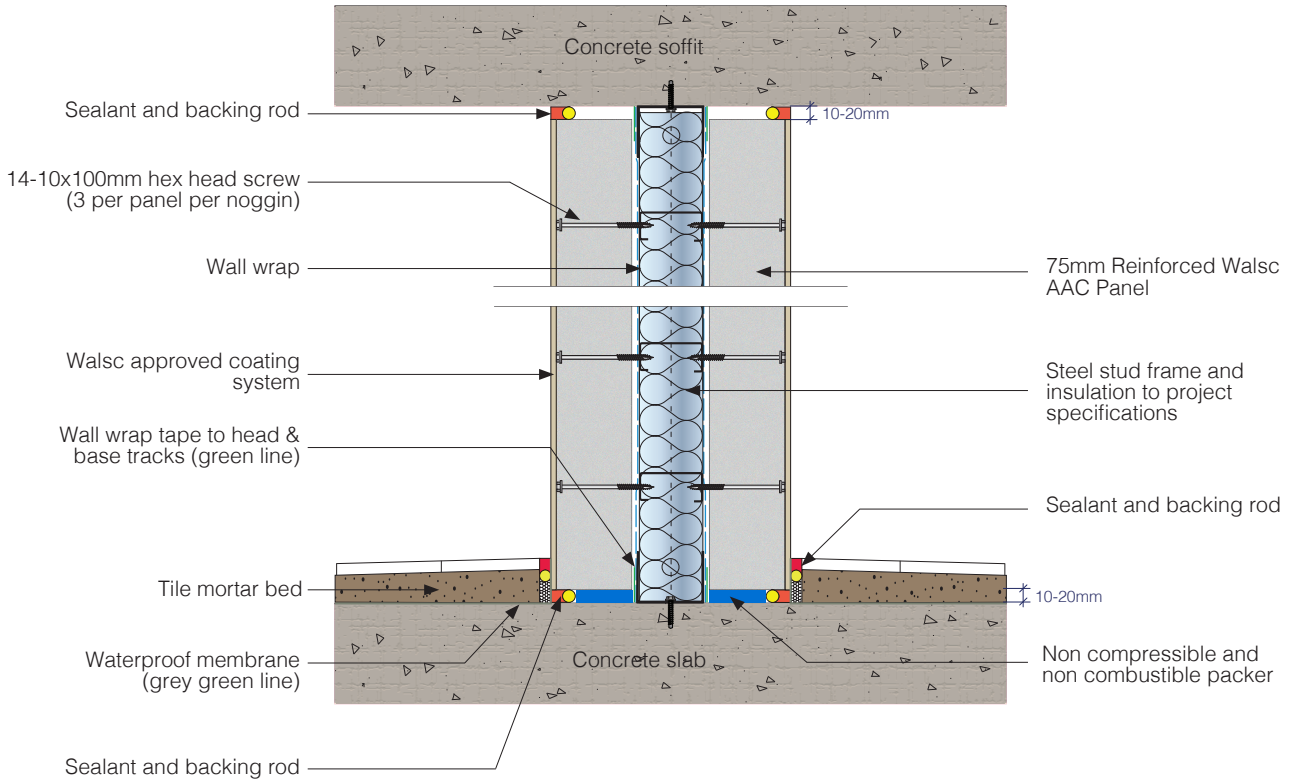


Fig 22. Head and Base Junctions Detail

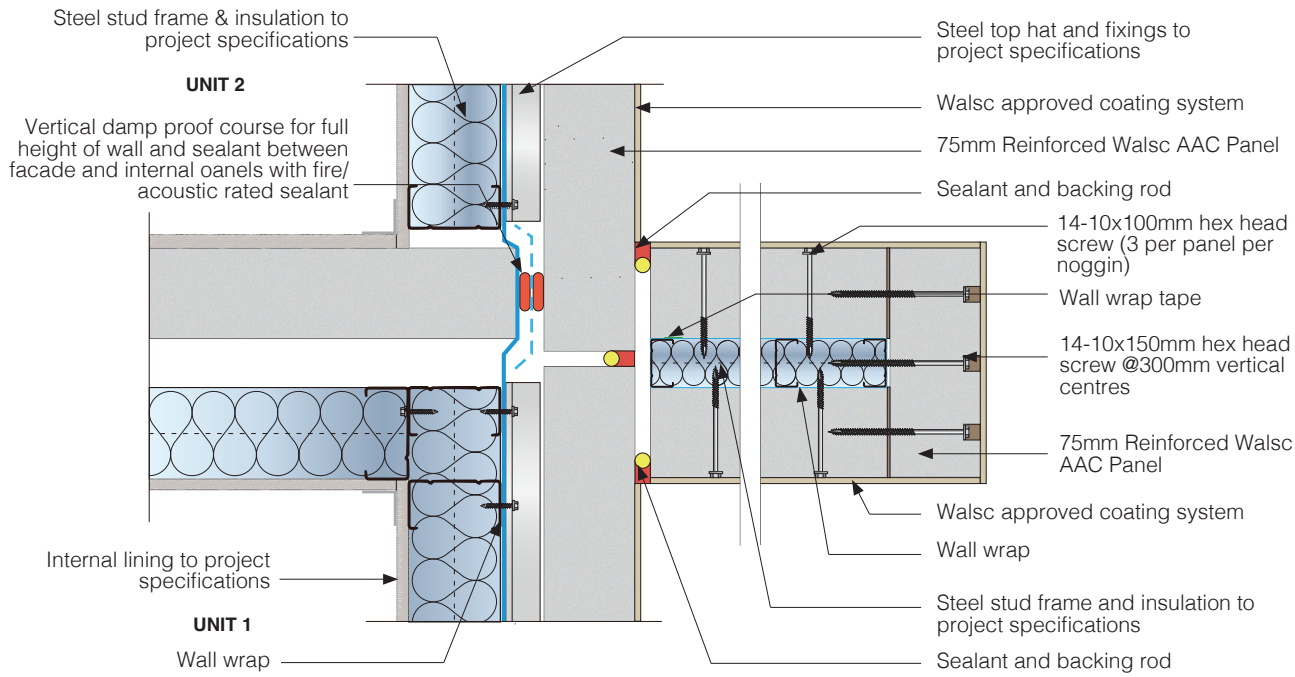


Fig 23. Dividing Wall to Facade Junction Detail

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