WALSC®
AAC PANEL SYSTEMS

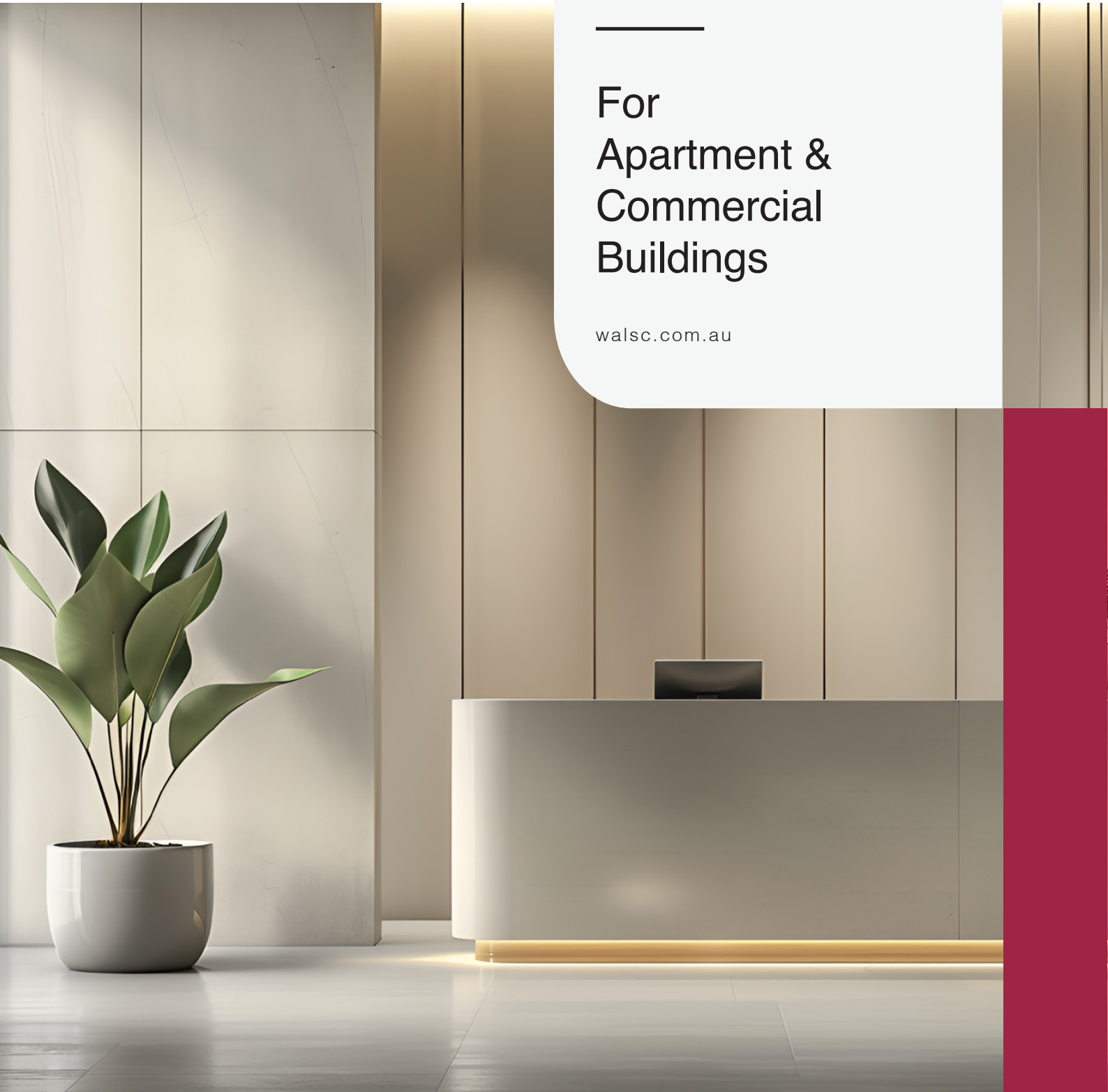
AUGUST 2025

DESIGN AND INSTALLATION GUIDE

Internal Wall Systems

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 15 Years warranty of 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**

The 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

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 been accredited CodeMark Certification via CertMark 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 guide is intended for use by qualified and experienced architects, engineers and builders for the design, specification and construction of internal walls for multi-storey and high-rise residential & commercial buildings. Multi-storey and high-rise residential & commercial buildings are assumed to be those within the scope of Class 2-9 buildings as defined in the National Construction Code - Building Code of Australia and include the following:

- Buildings with 2 or more solo-occupancy units each being a separated dwelling
- Boarding houses, guest houses, hostels, lodging houses, backpackers accommodation
- Hotels, motels, schools, health-care buildings, aged care buildings, detention centres
- Offices, retail buildings, laboratories & assembly buildings.

*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 AAC manufacturers. 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 I (commercial and large residential buildings) and Volume II (low rise residential buildings). As defined in the scope, this guide relates to the internal walls for high rise residential & commercial buildings classified as class 2-9 of the NCC 2022 Volume I. The performance requirements of NCC that related to internal walls for high rise residential & commercial buildings are as follows:

Table 1. *NCC Performance Requirement*

Performance Requirement	NCC 2022 Volume I
Structural	BP1.1 & BP1.2
Fire Resistance	CP1, CP2, CP3, CP4
Acoustic	FP5.2, FP5.5

*The system performance section of this guide outlines the performance of the Walsc Internal Wall Systems 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

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 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 wall systems have been accredited CodeMark Certification 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

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 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 with flat packed delivery remarkably contribute to the speed of construction. It enables laborers to install much more square footage of AAC than that of traditional masonry materials within the same period of time, promoting the efficiency during the entire lifetime of the project.

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

For internal wall system, panels are supplied in two thickness: **75mm** and **100mm**. 75mm panel has a single layer of reinforcement located centrally in the panel thickness, whereas the 100mm is double layered.

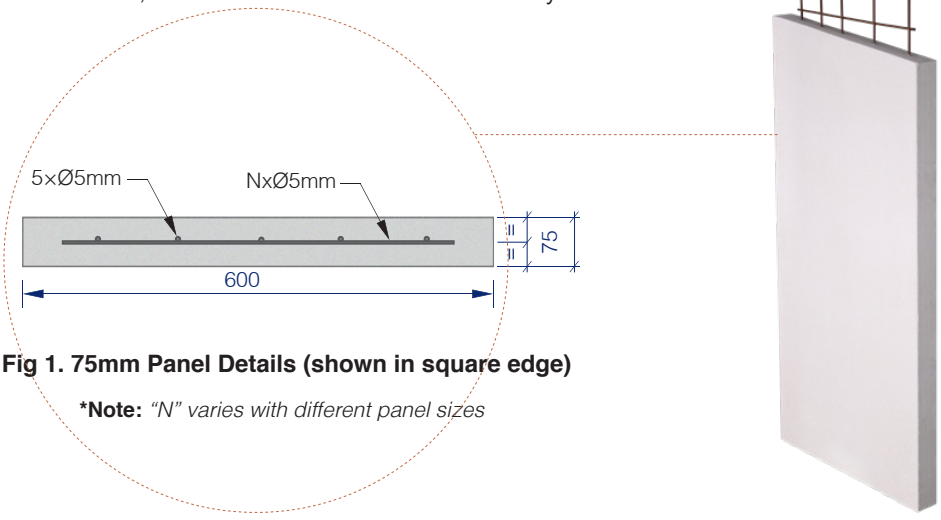


Fig 1. 75mm Panel Details (shown in square edge)

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

The table below outlines the material properties of 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/ Tongue & Groove
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.

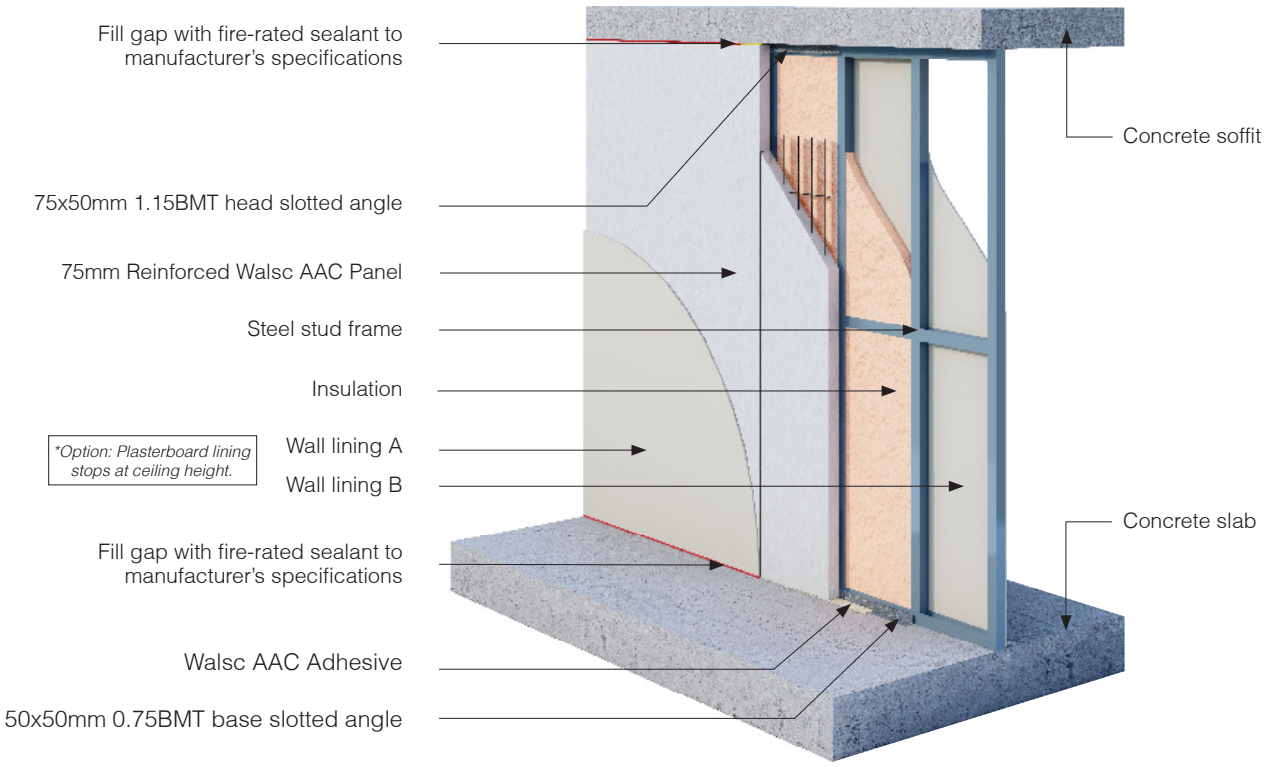
4 Internal Cavity Wall

Option 1: Reinforced Walsc AAC Panel + Separate Stud

STATUS	NCC (BCA)	DESCRIPTION
✓	Part F5.5 (a) (i)	Rw + Ctr ≥ 50 for walls separating Sole Occupancy Units (SOUs)
✓	Part F5.5 (a) (ii)	Rw ≥ 50 for walls separating SOU with another classification (corridor, stairway, lobby etc.)
✓	Part F5.3 (b) (i)	Discontinuous construction therefore can separate wet areas, lift shaft, plant rooms, etc.
✗	Part F5.6 (a) (i)	Services cannot be located in the cavity when wall is separating SOU habitable area.
✓	Part F5.6 (a) (ii)	Services can be located in either/both cavities when wall is separating SOU non-habitable area.

✓ Complying
✗ Not Complying

System Overview



Ref No.	Use	Wall Lining A	AAC Panel	Gap	Steel Studs	Insulation	Wall Lining B	Wall THK.	Rw/Rw+Ctr	FRL
WIW 10	Dry / Dry	13mm Standard Plasterboard	Reinforced Walsc AAC Panel 75mm Square Edge	20mm Cavity for Discontinuous Construction	64mm x 0.50BMT	75mm Glasswool	13mm Standard Plasterboard	185mm	58 / 51	- /90/90
WIW 11	Dry / Dry	13mm Standard Plasterboard	Reinforced Walsc AAC Panel 75mm Tongue and Groove			75mm Glasswool	13mm Standard Plasterboard	185mm	58 / 51	- /120/120
WIW 12	Dry / Wet	13mm Standard Plasterboard				75mm Glasswool	13mm Moisture Resistant Plasterboard	185mm	60 / 53	- /120/120

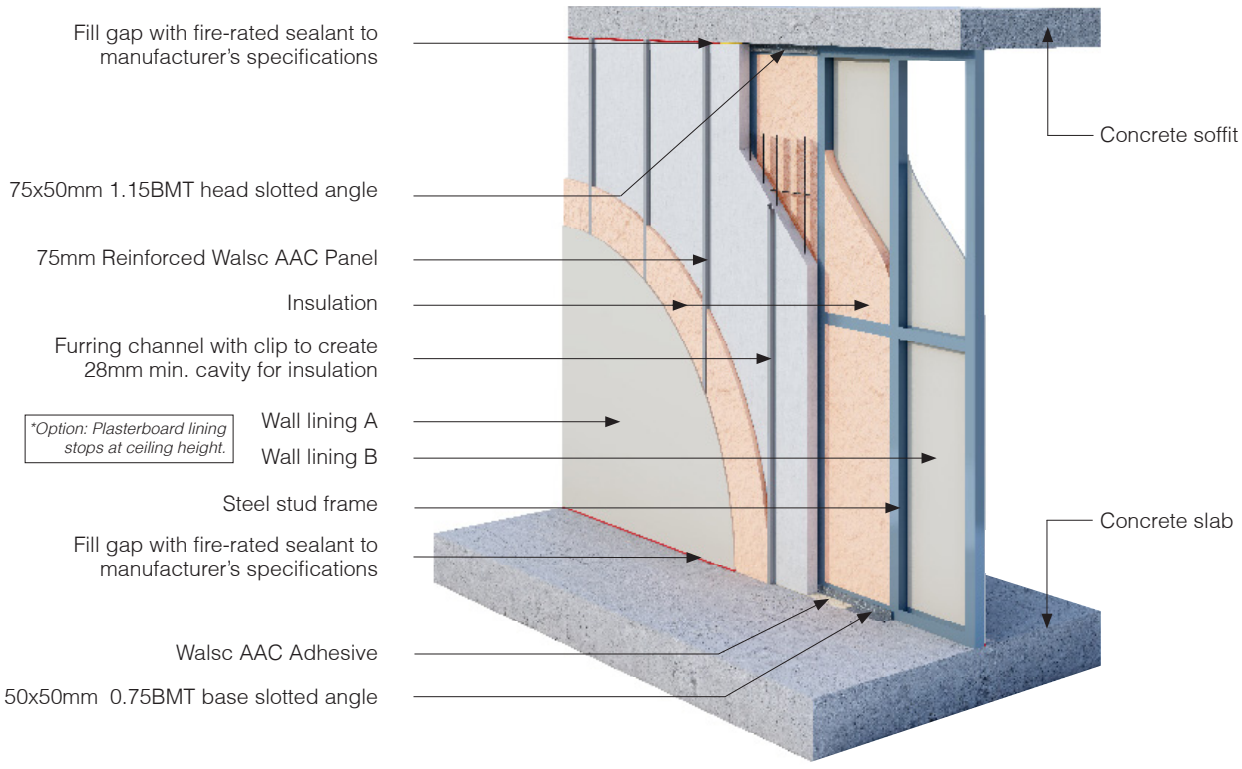
Note: (1) The maximum wall height is 3300mm to achieve the above FRLs. For wall height greater than 3300mm, please contact Walsc.
(2) Rw/Rw+Ctr values are based on acoustic test report AC-010-15/CT and assessment report PKA-A158 and have taken into account of curing time.
(3) 75mm polyester can replace glasswool while maintaining same Acoustics and FRL ratings.
(4) 9mm fibre cement sheet can replace 13mm moisture resistant plasterboard while maintaining same Acoustic and FRL ratings.

Option 2: Separate Stud + Reinforced Walsc AAC Panel + Furring Channel

STATUS	NCC (BCA)	DESCRIPTION
✓	Part F5.5 (a) (i)	Rw + Ctr ≥ 50 for walls separating Sole Occupancy Units (SOUs)
✓	Part F5.3 (b) (i)	Discontinuous construction therefore can separate wet areas, lift shaft, plant rooms, etc.
✓	Part F5.6 (a) (i)	Services can be located in the cavity when wall is separating SOU habitable area.
✓	Part F5.6 (a) (ii)	Services can be located in either/both cavities when wall is separating SOU non-habitable area.

✓ Complying
✗ Not Complying

System Overview



Ref No.	Use	Wall Lining A	Steel Studs	Insulation	Gap	AAC Panel	Steel Studs	Insulation	Wall Lining B	Wall THK.	Rw/Rw+Ctr	FRL
WIW 20	Dry / Dry	13mm Standard Plasterboard	64mm x 0.50BMT	75mm Glasswool	20mm Cavity for Discontinuous Construction	Reinforced Walsc AAC Panel 75mm Tongue and Groove	Min. 28mm Furring Channel + Clip	50mm Glasswool	13mm Standard Plasterboard	213mm min.	64 / 50	- /120/120
WIW 21	Dry / Wet	13mm Standard Plasterboard		75mm Glasswool				50mm Glasswool	13mm Moisture Resistant Plasterboard	213mm min.	65 / 52	- /120/120
WIW 22	Wet / Wet	13mm Moisture Resistant Plasterboard		75mm Glasswool				50mm Glasswool	13mm Moisture Resistant Plasterboard	213mm min.	66 / 54	- /120/120

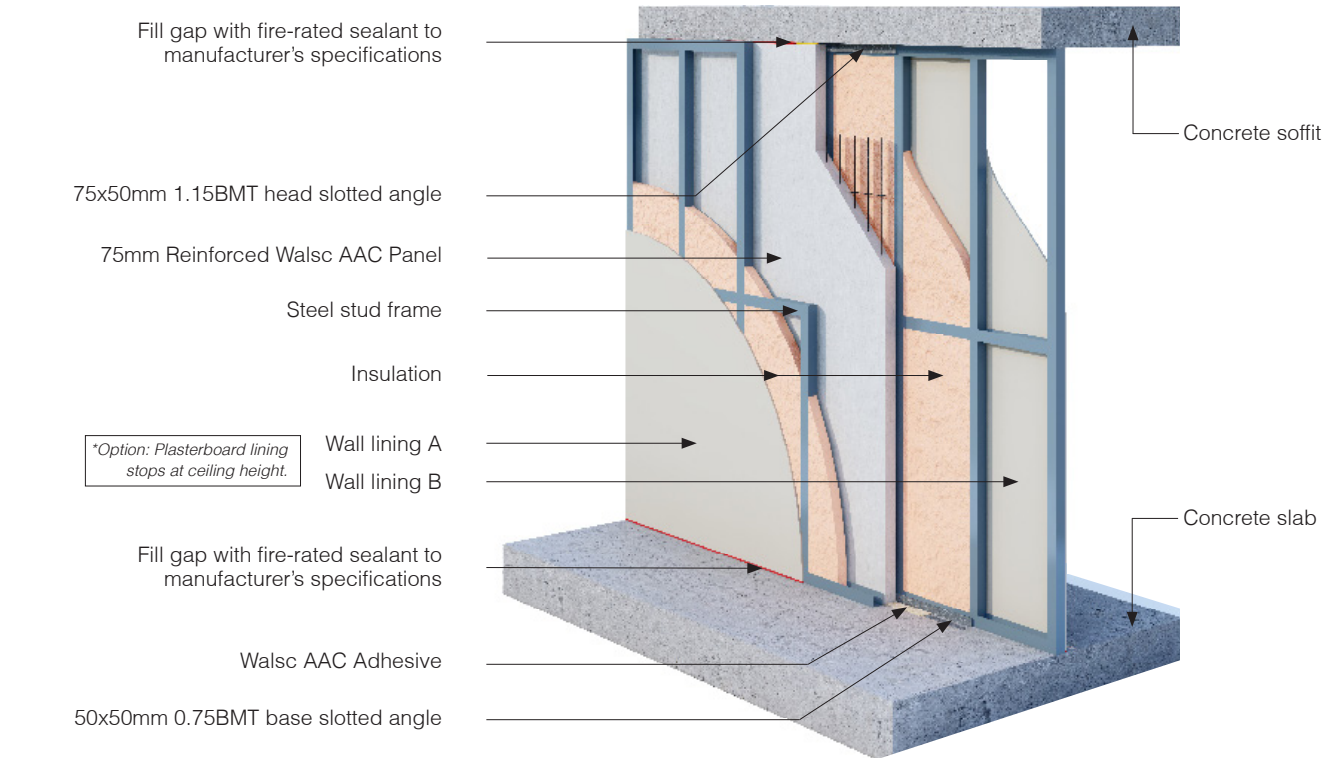
Note: (1) The maximum wall height is 3300mm to achieve the above FRLs. For wall height greater than 3300mm, please contact Walsc.
(2) Rw/Rw+Ctr values are based on acoustic test report AC-010-15/CT and assessment report PKA-A158 and have taken into account of curing time.
(3) 75mm polyester can replace glasswool while maintaining same Acoustics and FRL ratings.
(4) 9mm fibre cement sheet can replace 13mm moisture resistant plasterboard while maintaining same Acoustic and FRL ratings.

Option 3: Separate Stud + Reinforced Walsc AAC Panel + Separate Stud

STATUS	NCC (BCA)	DESCRIPTION
✓	Part F5.5 (a) (i)	Rw + Ctr ≥ 50 for walls separating Sole Occupancy Units (SOUs)
✓	Part F5.3 (b) (i)	Discontinuous construction therefore can separate wet areas, lift shaft, plant rooms, etc.
✓	Part F5.6 (a) (i)	Services can be located in the cavity when wall is separating SOU habitable area.
✓	Part F5.6 (a) (ii)	Services can be located in either/both cavities when wall is separating SOU non-habitable area.

✓ Complying
✗ Not Complying

System Overview



Ref No.	Use	Wall Lining A	Steel Studs	Insulation	Gap	AAC Panel	Gap	Steel Studs	Insulation	Wall Lining B	Wall THK.	Rw/Rw+Ctr	FRL
WIW 30	Dry / Dry	13mm Standard Plasterboard	64mm x 0.50BMT	50mm Glasswool	20mm Cavity for Discontinuous Construction	Reinforced Walsc AAC Panel 75mm Tongue and Groove	20mm Cavity for Discontinuous Construction	64mm x 0.50BMT	50mm Glasswool	13mm Standard Plasterboard	269mm	62 / 50	- /120/120
WIW 31	Dry / Wet	13mm Standard Plasterboard		75mm Glasswool					75mm Glasswool	13mm Moisture Resistant Plasterboard	269mm	65 / 53	- /120/120
WIW 32	Wet / Wet	13mm Moisture Resistant Plasterboard		75mm Glasswool					75mm Glasswool	13mm Moisture Resistant Plasterboard	269mm	66 / 54	- /120/120

Note: (1) The maximum wall height is 3300mm to achieve the above FRLs. For wall height greater than 3300mm, please contact Walsc.
(2) Rw/Rw+Ctr values are based on acoustic test report AC-010-15/CT and assessment report PKA-A158 and have taken into account of curing time.
(3) 75mm polyester can replace glasswool while maintaining same Acoustics and FRL ratings.
(4) 9mm fibre cement sheet can replace 13mm moisture resistant plasterboard while maintaining same Acoustic and FRL ratings.

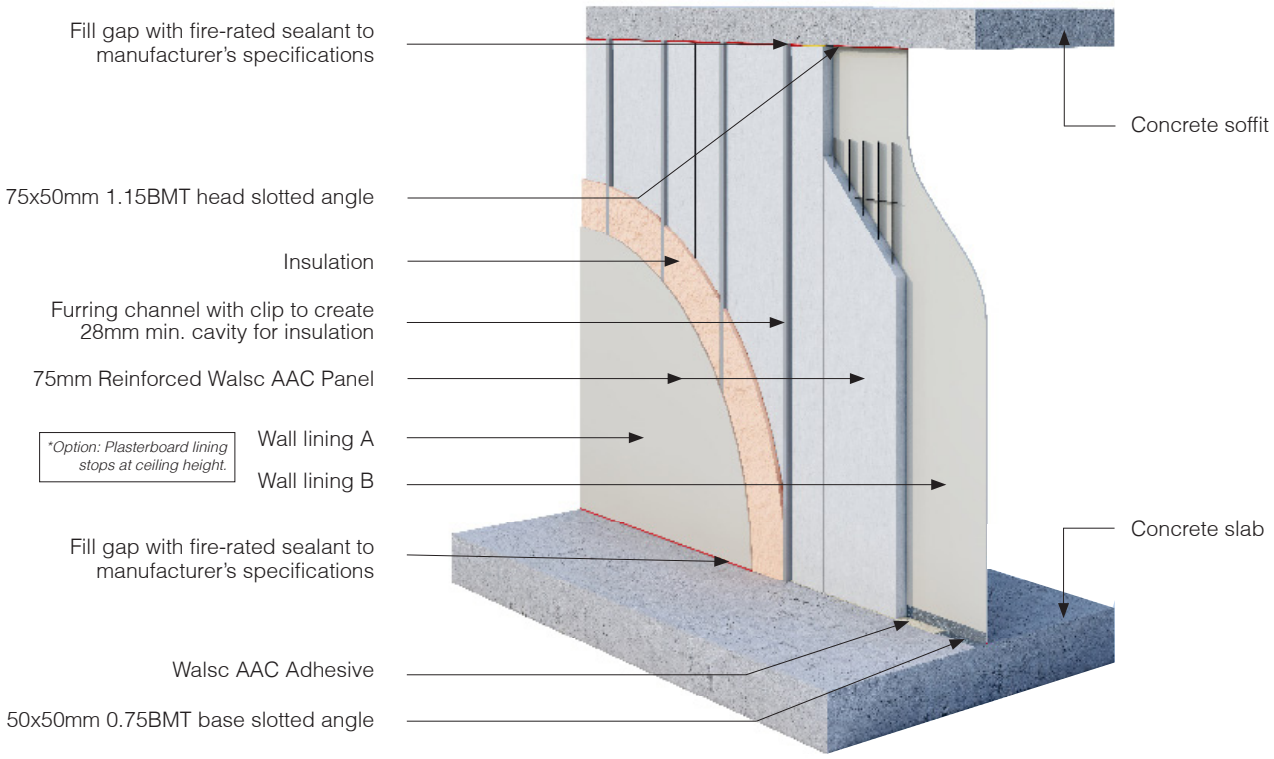
5 Common Wall

Reinforced Walsc AAC Panel + Furring Channel

STATUS	NCC (BCA)	DESCRIPTION
✓	Part F5.5 (a) (ii)	Rw ≥ 50 for walls separating SOU with another classification (corridor, stairway, lobby etc.)
✗	Part F5.3 (b) (i)	Not discontinuous construction therefore *cannot* be used to separate SOU with lift shaft / plant rooms.
✗	Part F5.6 (a) (i)	Services *cannot* be located in the cavity when wall is separating SOU habitable area.
✓	Part F5.6 (a) (ii)	Services can be located in cavities when wall is separating SOU non-habitable area.

✓ Complying
✗ Not Complying

System Overview



Ref No.	Use	Wall Lining A	AAC Panel	Steel Studs	Insulation	Wall Lining B	Wall THK.	Rw/Rw+Ctr	FRL
WCW 10	Dry / Dry	13mm Standard Plasterboard	Reinforced Walsc AAC Panel 75mm Square Edge	Min. 28mm Furring Channel + Clip	50mm Glasswool	13mm Standard Plasterboard	129mm min.	52 / 42	- /90/90
WCW 11	Dry / Dry	13mm Standard Plasterboard	Reinforced Walsc AAC Panel 75mm Tongue and Groove		50mm Glasswool	13mm Standard Plasterboard	129mm min.	52 / 42	- /120/120
WCW 12	Dry / Wet	13mm Standard Plasterboard			50mm Glasswool	13mm Moisture Resistant Plasterboard	129mm min.	53 / 43	- /120/120

Note: (1) The maximum wall height is 3300mm to achieve the above FRLs. For wall height greater than 3300mm, please contact Walsc.
(2) Rw/Rw+Ctr values are based on acoustic test report AC-010-15/CT and assessment report PKA-A158 and have taken into account of curing time.
(3) 75mm polyester can replace glasswool while maintaining same Acoustics and FRL ratings.
(4) 9mm fibre cement sheet can replace 13mm moisture resistant plasterboard while maintaining same Acoustic and FRL ratings.

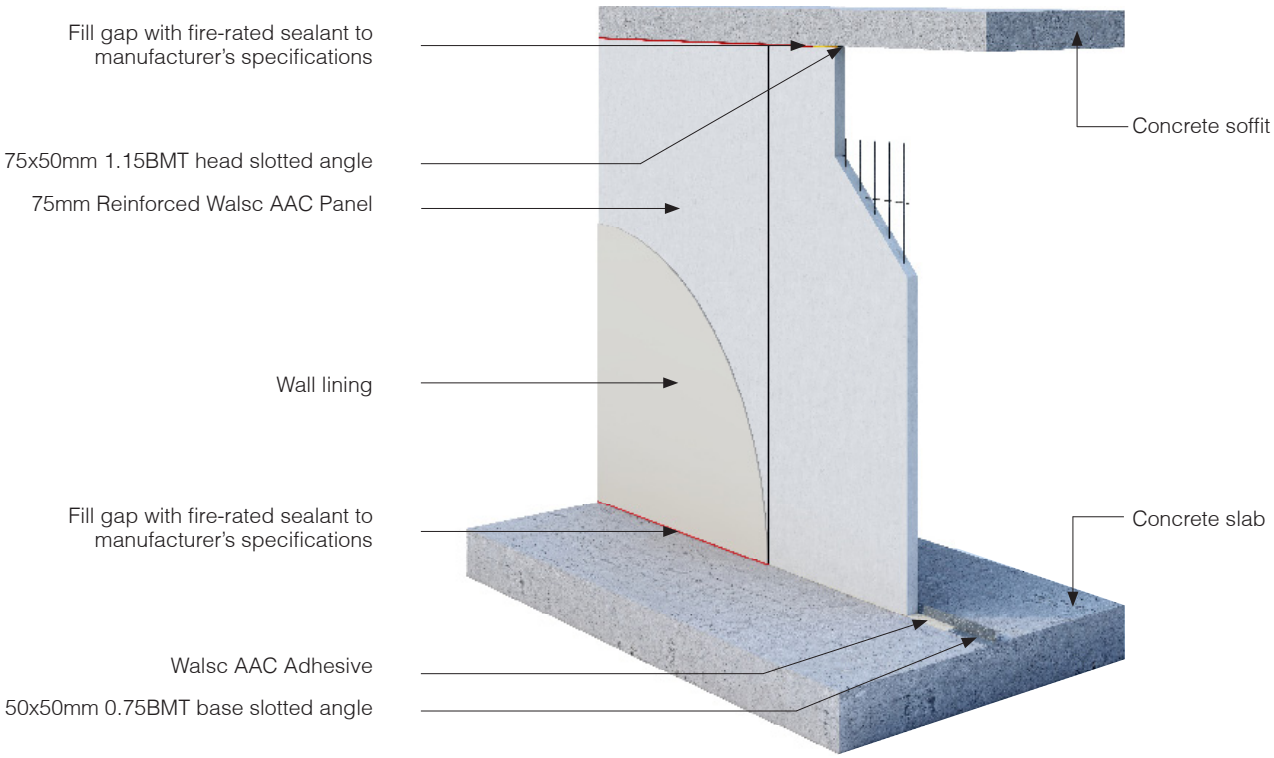
6 Service Shaft Wall

Option 1: Reinforced Walsc AAC Panel

STATUS	NCC (BCA)	DESCRIPTION
✗	Part F5.6 (a) (i)	Services *cannot* be located on any side if wall is separating SOU habitable area.
✓	Part F5.6 (a) (ii)	Services (such as exhaust ducts) can separate SOU wet as wall complies with Rw + Ctr ≥ 25

✓ Complying
✗ Not Complying

System Overview



Ref No.	Use	AAC Panel	Wall Lining	Wall THK.	Rw/Rw+Ctr	FRL
WSW 10	Shaft	Reinforced Walsc AAC Panel 75mm Square Edge	-	75mm	35 / 32	- /90/90
WSW 11	Shaft	Reinforced Walsc AAC Panel 75mm Tongue and Groove	-	75mm	35 / 32	- /120/120
WSW 12	Shaft / Dry		13mm Fire-rated Plasterboard	88mm	39 / 33	- /180/180
WSW 13	Shaft / Wet		13mm Moisture Resistant Plasterboard	88mm	39 / 33	- /120/120
WSW 20	Shaft	Reinforced Walsc AAC Panel 100mmSquare Edge	-	100mm	-	- /240/240

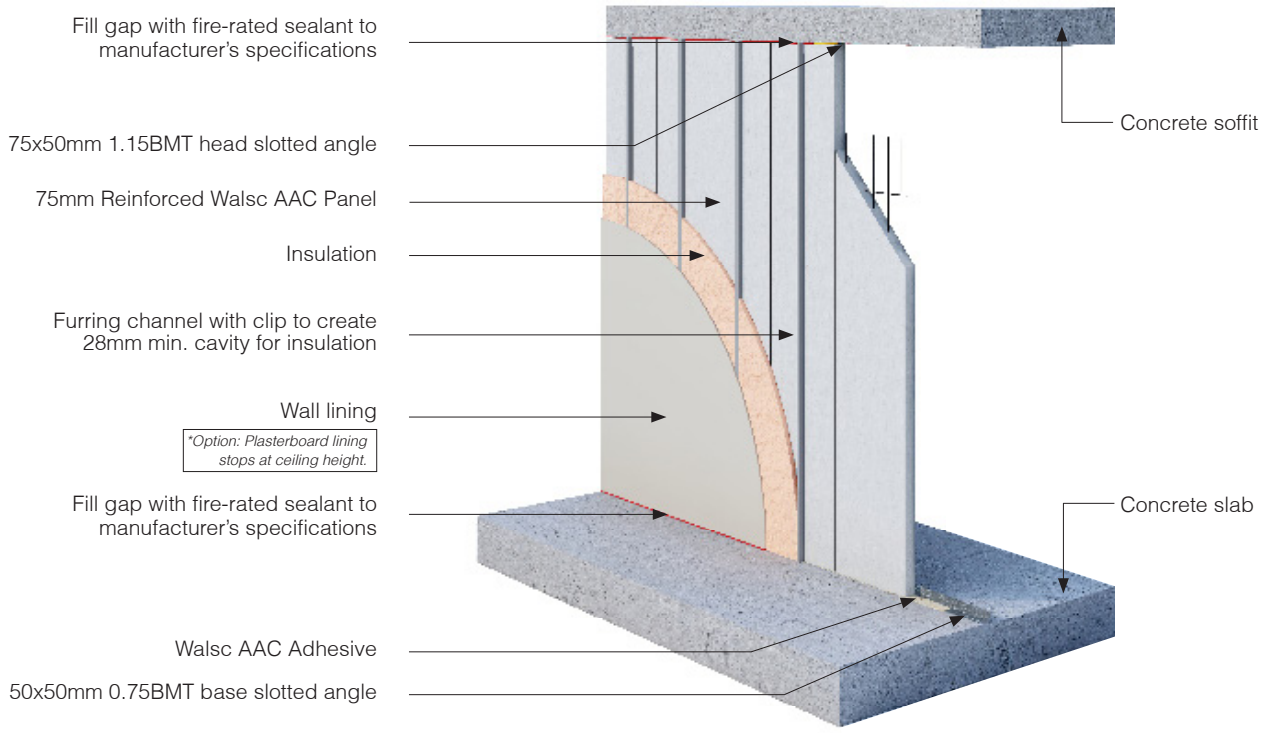
Note: (1) The option of plasterboard lining stops at ceiling height is only applied to WSW10, WSW11 and WSW20.
(2) The maximum wall height is 3300mm to achieve the above FRLs. For wall height greater than 3300mm, please contact Walsc.
(3) Rw/Rw+Ctr values are based on acoustic test report AC-010-15/CT and assessment report PKA-A158 and have taken into account of curing time.
(4) 9mm fibre cement sheet can replace 13mm moisture resistant plasterboard while maintaining same Acoustic and FRL ratings.
(5) 75x50mm 1.15BMT base slotted angle must be used instead for WSW20.

Option 2: Reinforced Walsc AAC Panel + Furring Channel

STATUS	NCC (BCA)	DESCRIPTION
✓	Part F5.5 (a) (ii)	Rw ≥ 50 for walls separating SOU with another classification (corridor, stairway, lobby etc.)
✗	Part F5.3 (b) (i)	Not discontinuous construction therefore *cannot* be used to separate SOU with lift shaft / plant rooms.
✓	Part F5.6 (a) (i)	Services (such as exhaust ducts) can be located on the service shaft side as wall complies with Rw+Ctr ≥ 40
✗	Part F5.6 (a) (i)	Services *cannot* be located in the cavity when wall is separating SOU habitable area.
✓	Part F5.6 (a) (ii)	Services can be located in cavities when wall is separating SOU non-habitable area.

✓ Complying
✗ Not Complying

System Overview



Ref No.	Use	AAC Panel	Steel Studs	Insulation	Wall Lining	Wall THK.	Rw/Rw+Ctr	FRL
WSW 30	Shaft / Dry	Reinforced Walsc AAC Panel 75mm Square Edge	Min. 28mm Furring Channel + Clip	50mm Glasswool	13mm Standard Plasterboard	116mm min.	50 / 40	- /90/90
WSW 31	Shaft / Dry	Reinforced Walsc AAC Panel 75mm Tongue and Groove		50mm Glasswool	13mm Standard Plasterboard	116mm min	50 / 40	- /120/120
WSW 32	Shaft / Wet			50mm Glasswool	13mm Moisture Resistant Plasterboard	116mm min.	51 / 41	- /120/120

Note: (1) The maximum wall height is 3300mm to achieve the above FRLs. For wall height greater than 3300mm, please contact Walsc.
(2) Rw/Rw+Ctr values are based on acoustic test report AC-010-15/CT and assessment report PKA-A158 and have taken into account of curing time.
(3) 9mm fibre cement sheet can replace 13mm moisture resistant plasterboard while maintaining same Acoustic and FRL ratings.

7 System Performance

7.1 Structural

The Walsc Internal Wall Systems are non-loadbearing, and therefore do not support vertical loads apart from the self-weight (refer to material properties for panel density). Similarly, the panels and the structural frame should not be relied upon to support in-plane racking forces. However, the wall systems will be subject to out-of-plane loading due to internal pressures. The chart below outlines the maximum internal pressure reinforced Walsc AAC Panel can withstand.

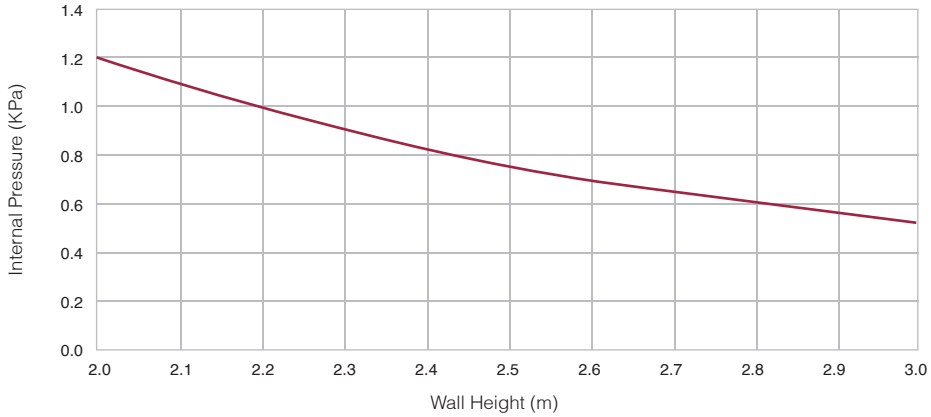


Fig 2. Internal Pressure Capacity

It is the responsibility of the building designer to confirm the following:

- The suitability of the Walsc Internal Wall Systems based on the design internal pressures of the building.
- The steel stud frame has been designed and installed in accordance with AS4600.
- The support structure (concrete slabs) are designed to withstand the load from the self-weight of the selected Walsc Internal Wall Systems.

The fixing of the reinforced Walsc AAC Panel to the support structure shall be at the top and bottom only as shown in the relevant Construction Details using the items listed in the System Components.

7.2 Fire Resistance

In the event of a fire, a fire wall is required to resist the fire from spreading from one side to the other for a specified period of time as stated in the NCC-BCA. The main fire resisting component of the Walsc Internal Wall Systems is the AAC panel along with the plasterboard as a secondary component. Reinforced Walsc AAC Panel and all Walsc Internal Wall Systems have been tested and assessed by CSIRO. FRL results as shown in the Wall System section. CSIRO fire test certificates and reports are available at request.

7.3 Fire Hazard

Our combustibility test for materials in accordance with AS1530.1 and heat and smoke release rates test for materials in accordance with AS/NZS3837 are conducted by CSIRO confirming that reinforced Walsc AAC Panel is non-combustible and has a slow heat migration due to its low thermal conductivity. It indicates that Walsc Internal Wall Systems are comply with the indices set out in Table 4 Specification C1.1 of NCC-BCA Volume I.

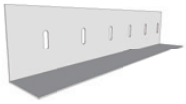
7.4 Acoustic Performance

For some classes of buildings, the NCC-BCA requires internal walls between sole-occupancy units to be insulated to a certain degree from airborne sound transmission. These requirements are found in Part F5.5 of the NCC-BCA Volume I. In general, a weighted sound reduction index with spectrum adaption term (Rw + Ctr) of 50 or more will satisfy these requirements. The NCC-BCA also requires in some instances for these separating walls to be a discontinuous construction.

Sound transmission testing has been undertaken on reinforced Walsc AAC Panel and the Internal Wall Systems by Kilargo Acoustic Laboratory, and testing results have been assessed by PKA Acoustic Consulting. For detailed acoustic results, please refer to the Wall System section in this guide. Acoustic test report and assessment report are available at request.

8 System Components

Table 3. *System Components*

Product	Description	
Reinforced Walsc AAC Panel	Lengths are various, please contact supplier for more details.	
Deflection Track Head Slotted Angle	76x50mm 0.75BMT deflection track 75x50mm 1.15BMT slotted angle.	
Base Slotted Angle	50x50mm 0.75BMT slotted angle.	
AAC Panel Fixing Screw	14-10 Type 17 hex head screw: • 65mm long for 75mm panels Class III corrosion resistance (minimum) as per AS3566.2-2002.	
Base Angle & Deflection Track Fixing Fastener	Hilt HUS3-H M8 screw anchor or equivalent	
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.	
Corrosion Protection Paint	When panels are cut, the exposed ends of the reinforcement must be treated with corrosion protection paint.	
Fire Rated Sealant	Fire rated sealant must be used in all control joints throughout the fire rated walls. It is recommended to use Bostik Fireban One / Firecaulk, H.B. Fuller Firesound or equivalent.	Contact Walsc for product specifications.

9 Detailing

9.1 Control Joints

Control joints must be installed through the Walsc Internal Wall Systems to minimise the risk of damage occurring to the panels due to expected movement of the structure. This ensures the FRL of the internal wall system remains valid for the life of the wall. Movement in residential structures can occur due to various causes including:

- Movement of the foundation material.
- Thermal shrinkage/expansion of the building materials.
- Long term deflection of suspended members (eg. concrete slabs).

Vertical control joints should be located:

a. At a maximum of 6.0m centres; and
b. At all corner intersections; and
c. At the junctions of walls constructed of different materials.

9.2 Fixing

The following fixing specifications should be used on all Walsc Internal Wall Systems unless noted otherwise by the design engineer or manufacturer's specifications.

Table 4. *Fixing Specifications*

Component A	Component B	Fixing Description
Plasterboard	Reinforced Walsc AAC Panel	10-8 x 50mm bugle head coarse thread screw at 600mm centres horizontally and 300mm centres vertically plus 50mm from joints
Reinforced Walsc AAC Panel	Top Angle	14-10 x 65mm Type 17 hex head screw @ 300mm centres
Deflection Track/ Top Angle & Base Angle	Concrete Slab	For seismic performance category C1 & C2, one of the following M8 concrete anchor screws fixed @ 600 centres in accordance with the anchor manufacturer's instructions: Ramset AnkaScrew Xtrem size 8, 65mm embedment Hilti HUS3-Hf size 8, 70mm embedment Hilti HUS4-HF size 8, 70mm embedment ICONS Toge TSM HEX size 8, 65mm embedment Holes drilled through steel track & angles to be 8mm. Refer to F.3 of AS 5216 for determination of C1 & C2 seismic category requirements of a specific building.
Reinforced Walsc AAC Panel	Base Angle	14-10 x 65mm Type 17 hex head screw @ 300mm centres
Steel Stud Frame	Concrete Slab	To engineer's details
Plasterboard	Steel Stud Frame	To plasterboard manufacturer's details

9.3 Edge Distances & Minimum Width

The minimum edge distance for fixing reinforced Walsc AAC Panel shall be 40mm.
The minimum panel width shall be 200mm and containing a minimum 2 longitudinal steel bars.

9.4 Height Limitations

The maximum height that Walsc Internal Wall Systems can achieve while still maintain the FRL of -/120/120 is 3.3m.
For height of internal non-fire rated walls outside this limit, please contact Walsc for further information.

10 Installation

10.1 Installation Guide

Prior to any construction

1. Ensure that the stud spacing will meet the requirements for the required FRL and acoustic rating of the internal wall systems in this guide.

Preparing for panel installation

2. Ensure the stud frame has been completed to the point of being ready for installation of the panels. This includes checking that the frame is plumb and straight, with special attention to corners of framing.
3. Plan the panel installation, starting from one end allowing for control joints as per the Construction Details section of this guide or as specified by the design engineer.
4. Install deflection track/top angle and base angle to the concrete slabs as per the Fixing section of this guide.

Installing the first panel

5. Starting from a location as chosen in the planning stage, cut the panel to the required height if necessary, allowing for a 15mm gap between the top of the panel and the soffit of the concrete slab. For any reinforcement that has been exposed, apply a suitable protective treatment as listed in the System Components.
6. Place the first reinforced Walsc AAC Panel into position by inserting the top into the deflection track then letting it rest down on the base angle with a thin layer of Walsc AAC Adhesive. Ensure that the panel is level and plumb, then screw fix through the top and base angle into the panel in accordance with the Fixing section of this guide, ensuring the panel remains level and plumb. Each screw should be screwed in until the hex head washer is flush with the angle surface. Care should be taken so as to not over tighten.

Installing subsequent panels

7. Cut the next panel to the height required. For any reinforcement that has been exposed, apply a suitable protective treatment as listed in the System Components.
8. Prepare the Walsc AAC Adhesive in accordance with the manufacturer's details. Do not use adhesive that has passed its use by date.
9. Apply Walsc AAC Adhesive, approximately 2mm 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 panel clean and create a 10mm nominal gap.
10. Lift the next panel into position as per point 6 above, and then slide it hard against the adhesive coated edge. The base angle should keep the panels aligned but still ensure the new panel is level and plumb. 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 through the top and base angle into the panel in accordance with the Fixing section of this guide, ensuring the panel remains level and plumb.
11. Repeat the above steps for all further panels.

Wall finishing

12. Install the remaining components of the wall system in accordance with the plasterboard/insulation manufacturer's details and AS4600 for the steel stud frame.

10.2 Plumbing & Electrical Services

Any penetration or chasing in the wall shall only be undertaken under the strict guidance of the relevant fire engineering consultant, as it is likely to reduce the fire resistance level.

11 Delivery, Storage & Handling

11.1 Delivery

Before delivery of 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 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.

11.2 Storage & Handling

Wherever possible, 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.

11.3 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).

12 Health & Safety

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!

13 Construction Details

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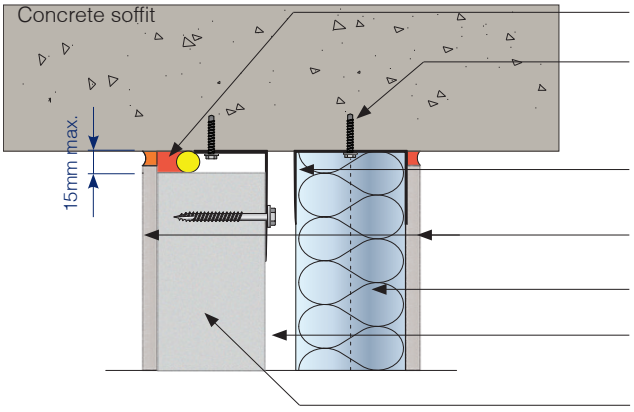
Construction Details



Fire rated sealant and backing rod

Hilt HUS3-H M8 screw anchor at max. 600mm centres or as per engineer's specification

75x50mm 1.15BMT head slotted angle, 14-10 x 65mm hex head Type 17 screw @ 300mm centres to AAC panel

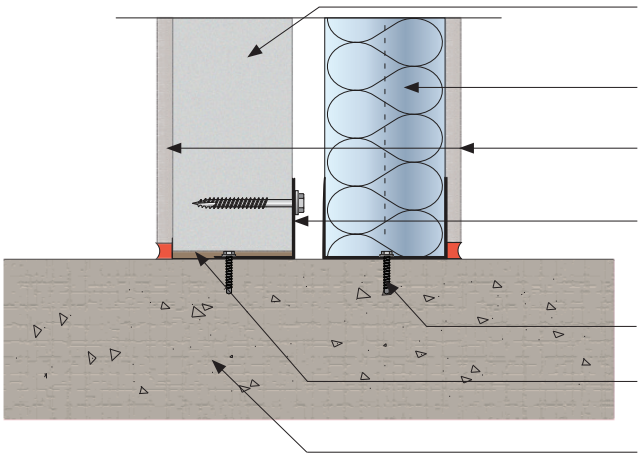
Plasterboard lining to system specifications (option: stops at ceiling height)

Steel stud frame and insulation to system specifications

Min. 20mm cavity

75mm Reinforced Walsc AAC Panel

Fig 3. Internal Cavity Wall System Top Fixing Detail (Head Slotted Angle)



75mm Reinforced Walsc AAC Panel

Steel stud frame and insulation to system specifications

Plasterboard lining to system specifications

50x50mm 0.75BMT base slotted angle, 14-10 x 65mm hex head Type 17 screw @ 300mm centres to AAC panel

Hilt HUS3-H M8 screw anchor at max. 600mm centres or as per engineer's specification

Walsc AAC Adhesive

Concrete slab

Fig 4. Internal Cavity Wall System Bottom Fixing Detail

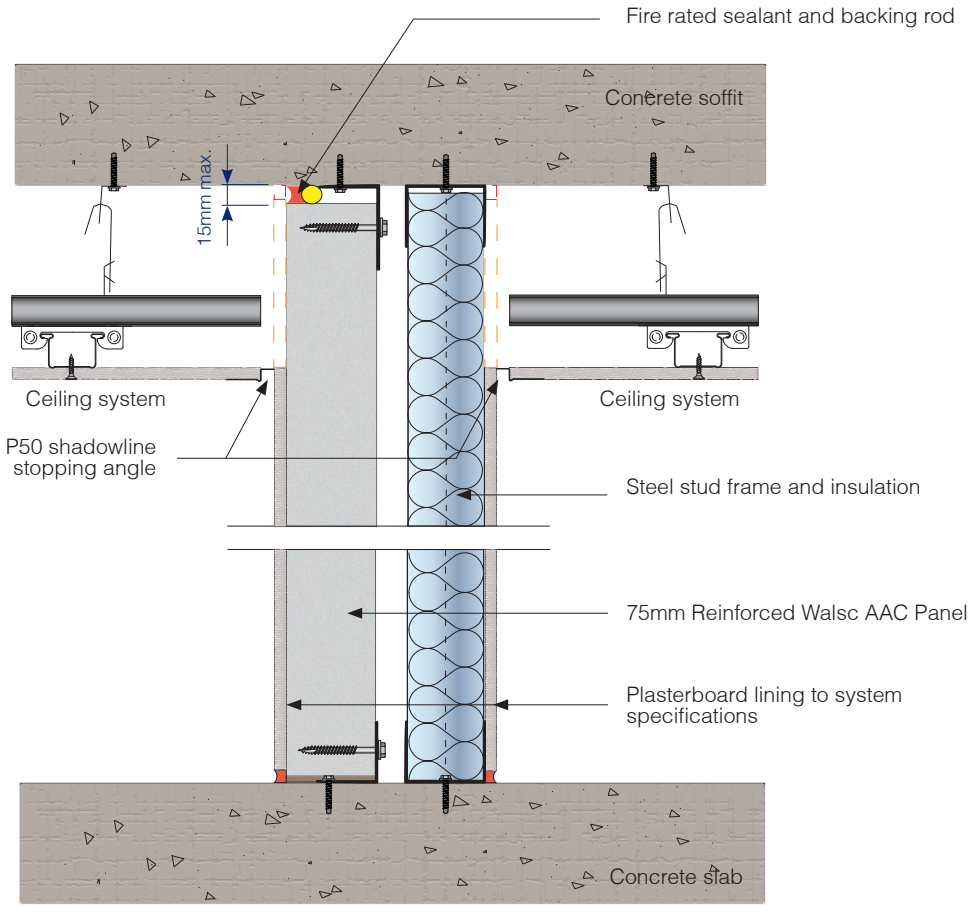


Fig 5. Option of Plasterboard Lining Stops at Ceiling Height Detail

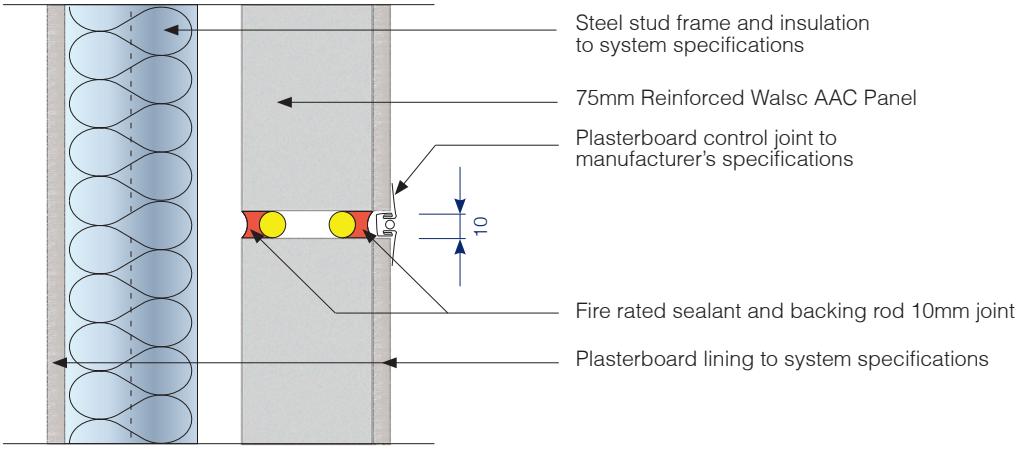


Fig 6. Internal Cavity Wall System Vertical Control Joint Detail

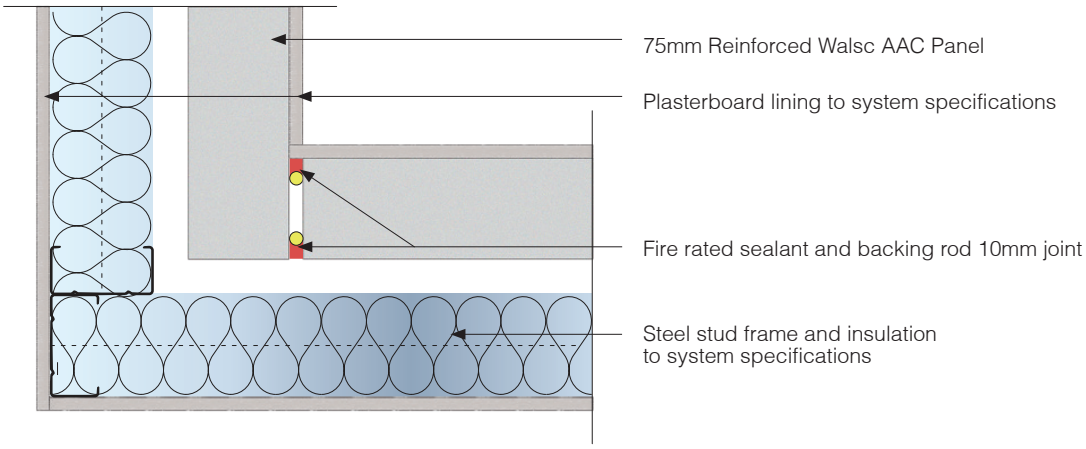


Fig 7. Internal Cavity Wall System Corner Control Joint Detail

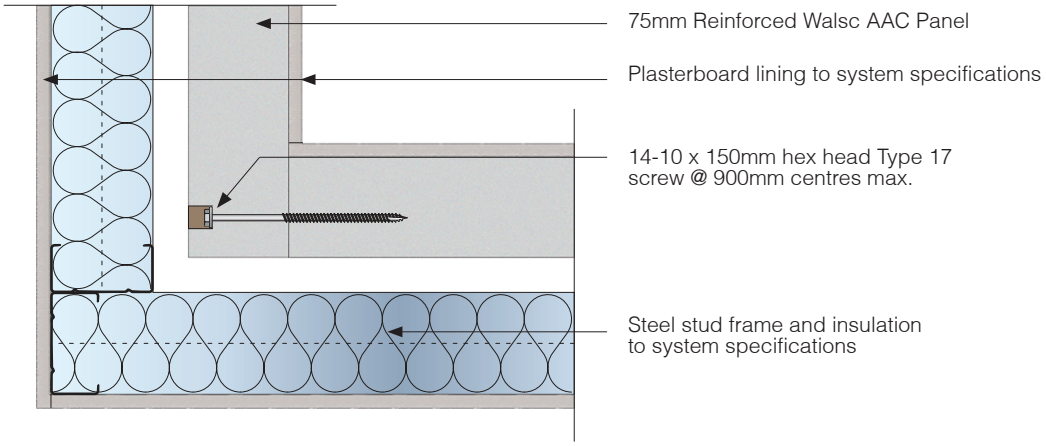


Fig 8. Internal Cavity Wall System Corner Fixed Joint Detail

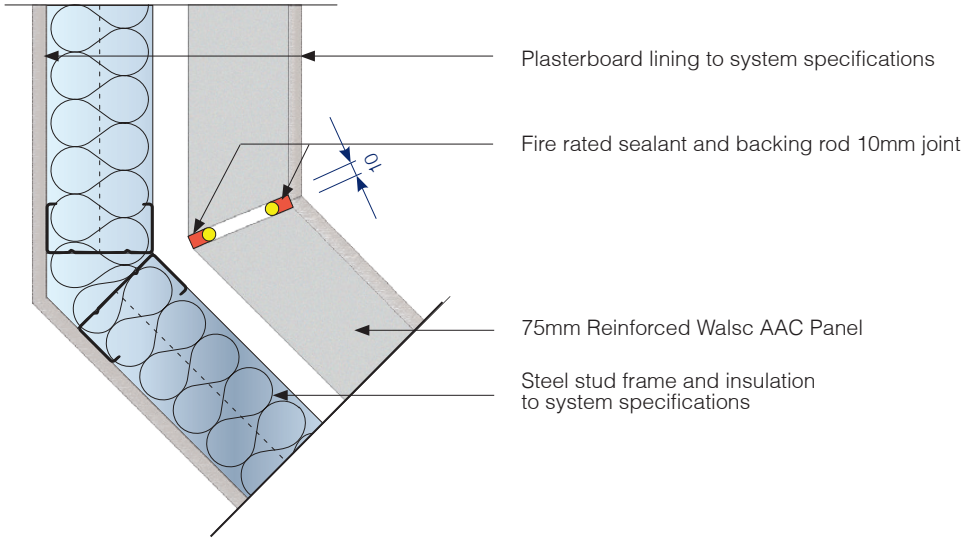


Fig 9. Internal Cavity Wall System Mitred Control Joint Detail

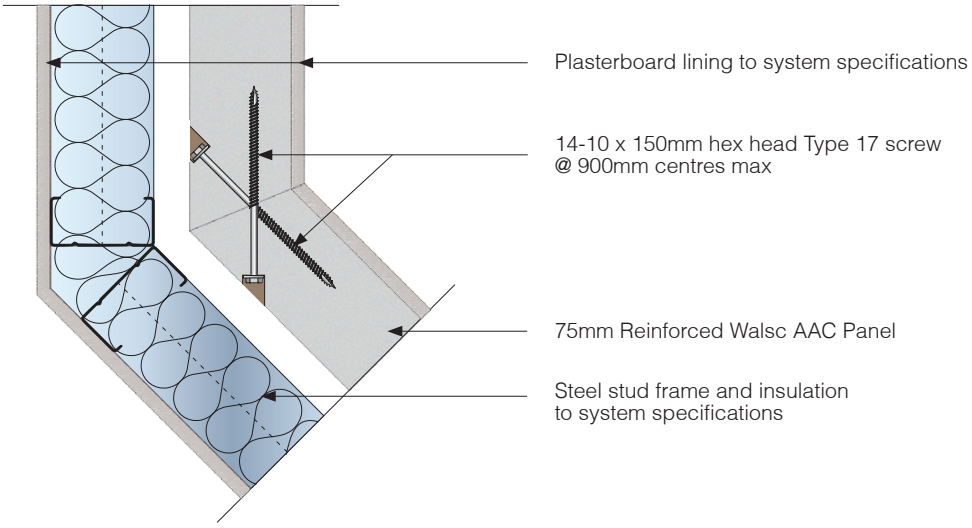


Fig 10. Internal Cavity Wall System Mitred Fixed Joint Detail

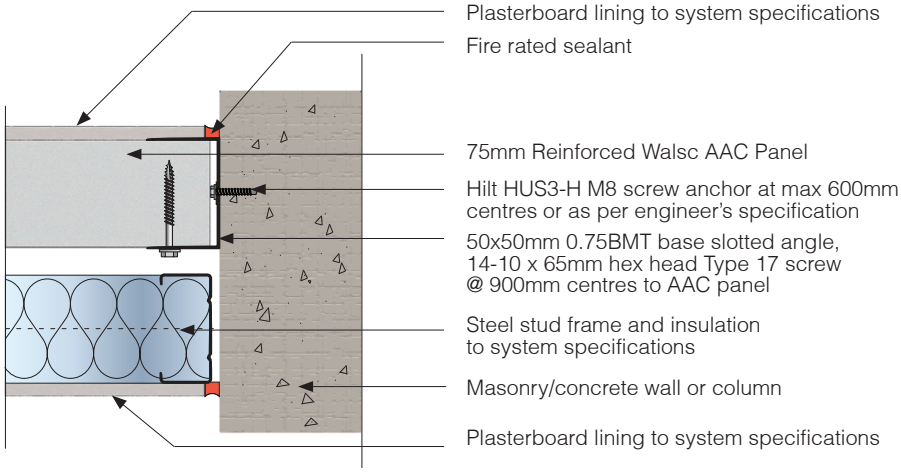


Fig 11. Internal Cavity Wall System Column Fixed Joint Detail

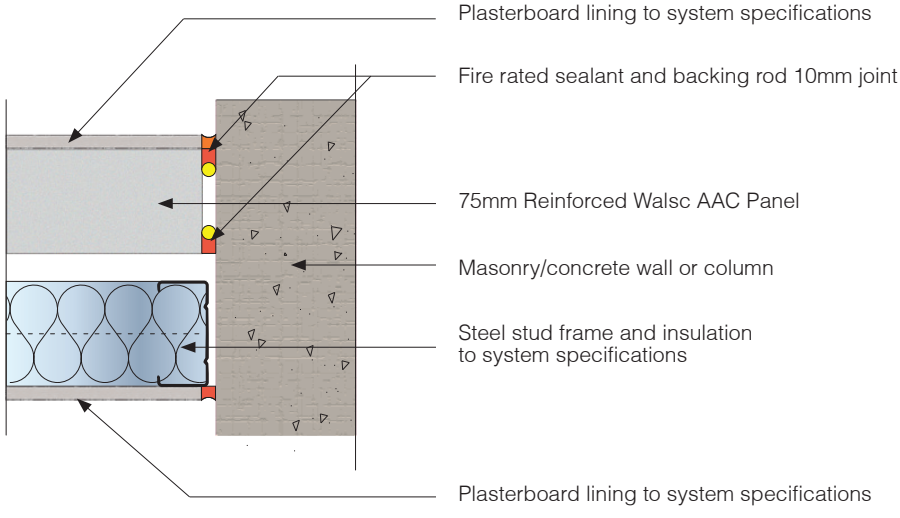


Fig 12. Internal Cavity Wall System Column Control Joint Detail

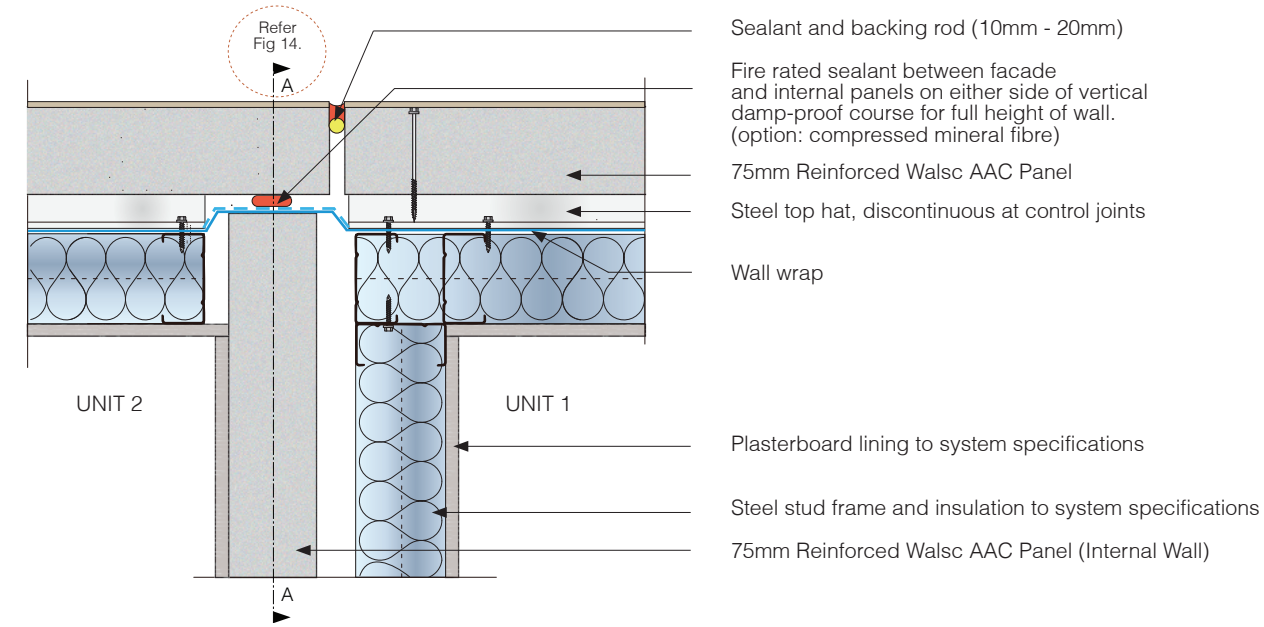


Fig 13. Inter-Tenancy Wall / Corridor Wall to External Wall Junction Detail 1

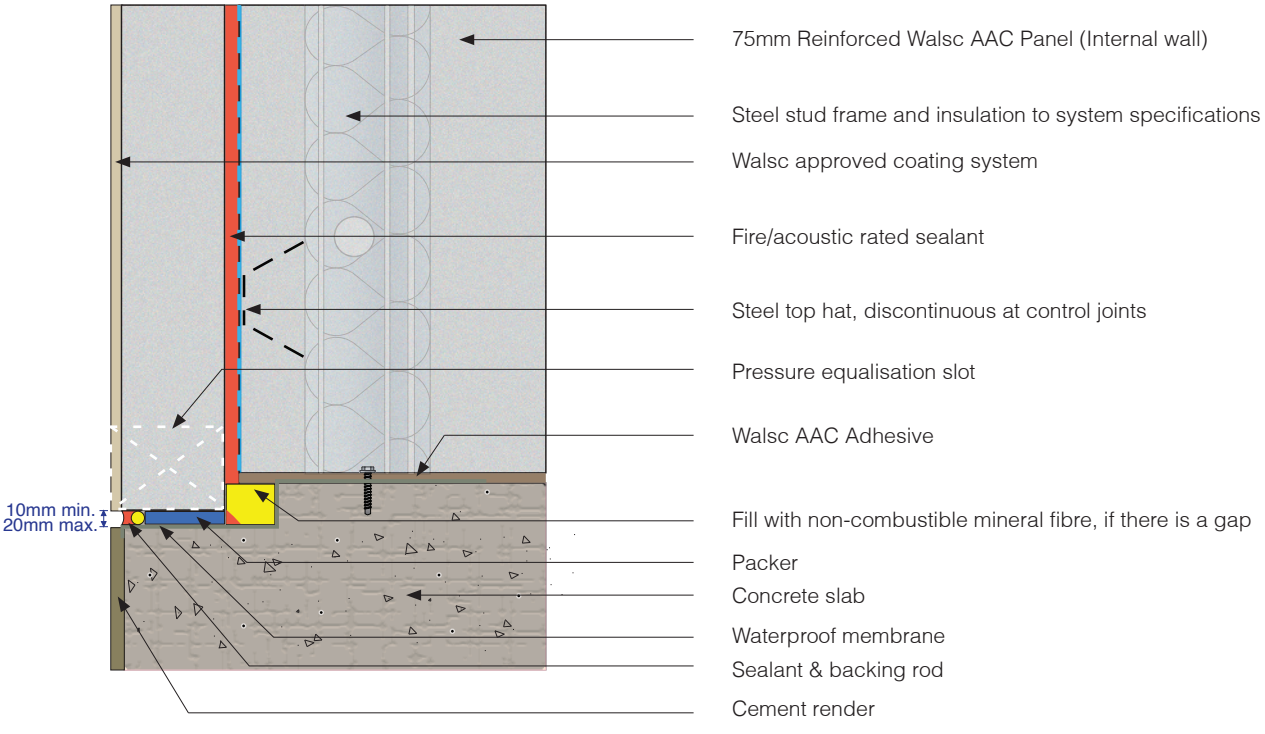


Fig 14. Inter-Tenancy / Corridor Wall to External Wall Junction Detail - Section AA

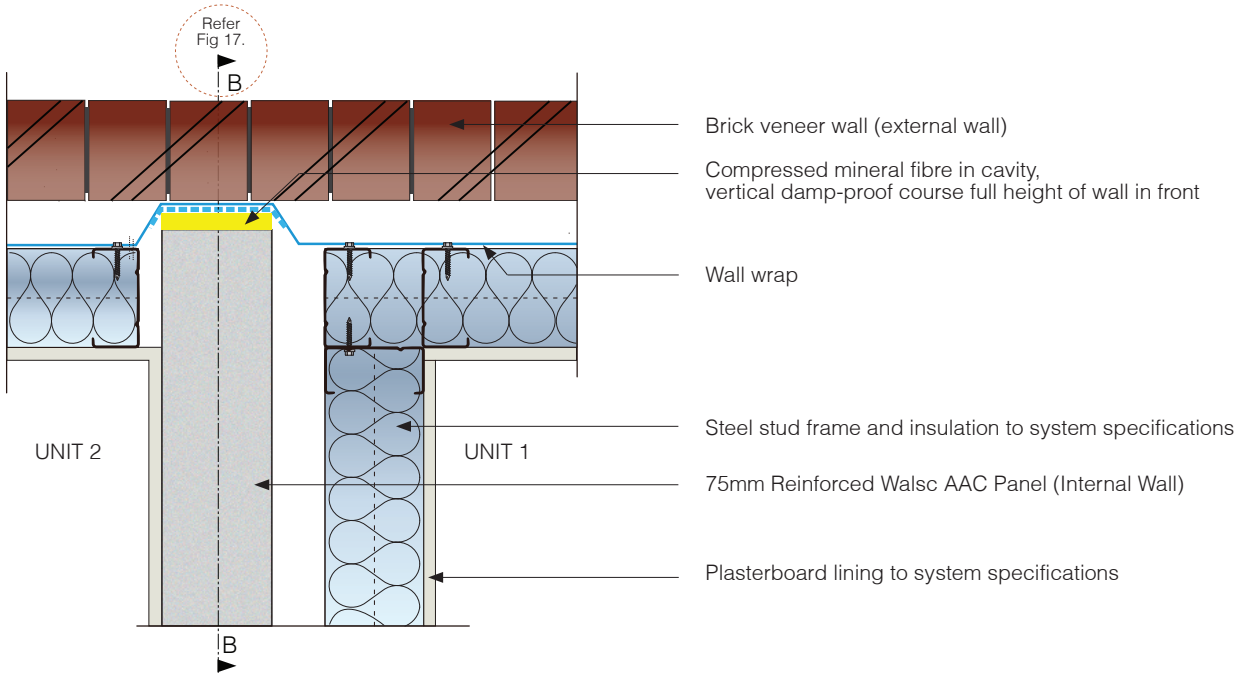


Fig 15. Inter-Tenancy / Corridor Wall to Brick Veneer Junction Detail

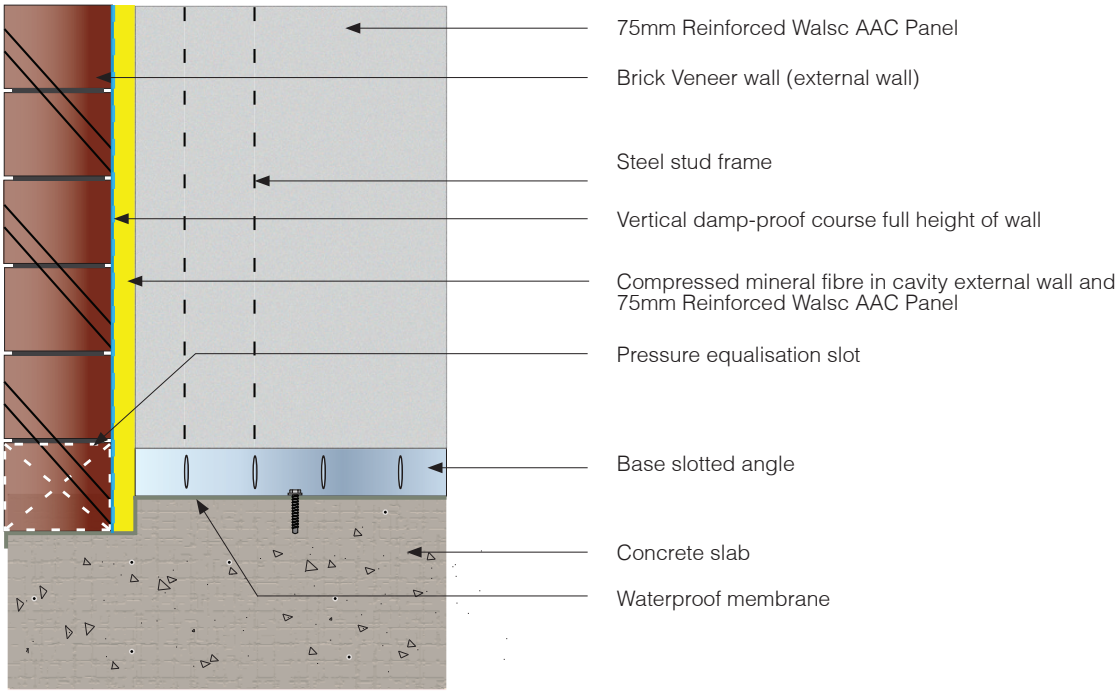


Fig 16. Inter-Tenancy / Corridor Wall to Brick Veneer Junction Detail - Section BB

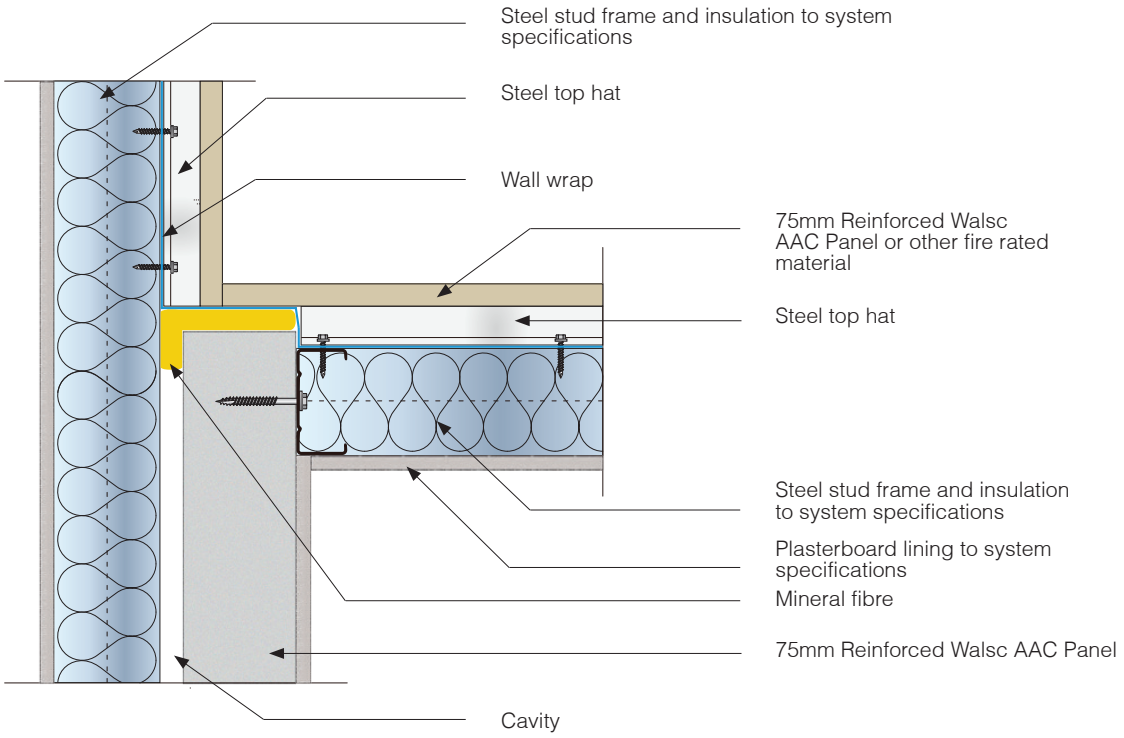
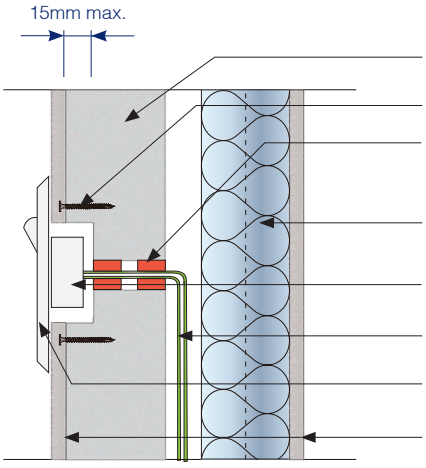


Fig 17. Inter-Tenancy Wall / Corridor Wall to External Wall Junction Detail 2



75mm Reinforced Walsc AAC Panel

Mounting plate with screw fixings

Fire rated sealant to perimeter of switch box

Steel stud frame and insulation to system specifications

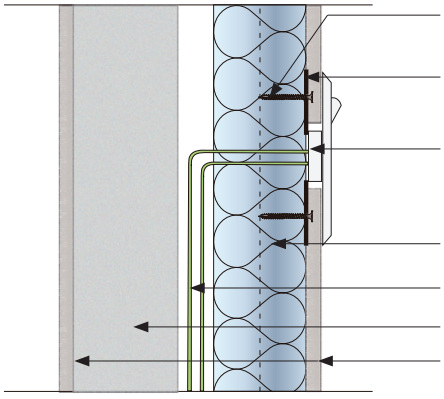
Switch box installed to manufacturer's specifications

Electrical cables to be run in cavity space

Power point or light switch

Plasterboard lining to system specifications

Fig 18. Power Switch / Outlet to Panel Side Detail



10-8 x 50mm bugle head coarse thread screw

Mounting plate with screw fixings

Switch box installed to manufacturer's specifications

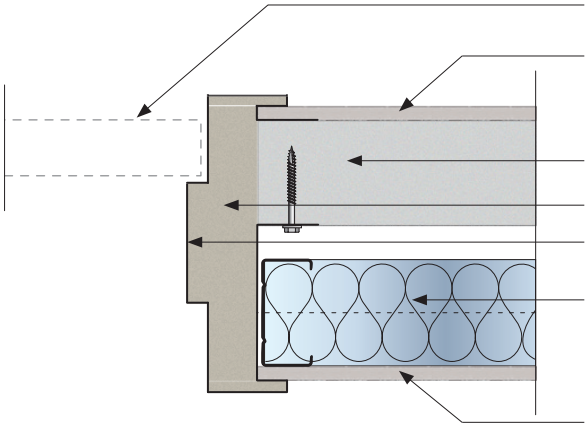
Steel stud frame and insulation to system specifications

Electrical cables to be run in cavity space

75mm Reinforced Walsc AAC Panel

Plasterboard lining to system specifications

Fig 19. Power Switch / Outlet to Steel Stud or Furring Channel Detail



Fire rated door to manufacturer's specifications

Plasterboard lining to system specifications

75mm Reinforced Walsc AAC Panel

Back fill door frame to manufacturer's specifications

Fire rated door frame

Steel stud frame and insulation to system specifications

Plasterboard lining to system specifications

Fig 20. Internal Cavity Wall System Fire Door Detail

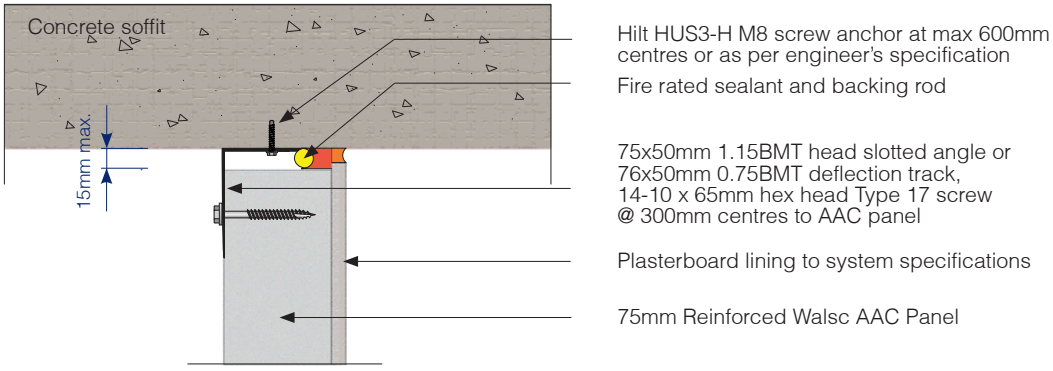


Fig 21. Service Shaft Wall Option 1 Top Fixing Detail

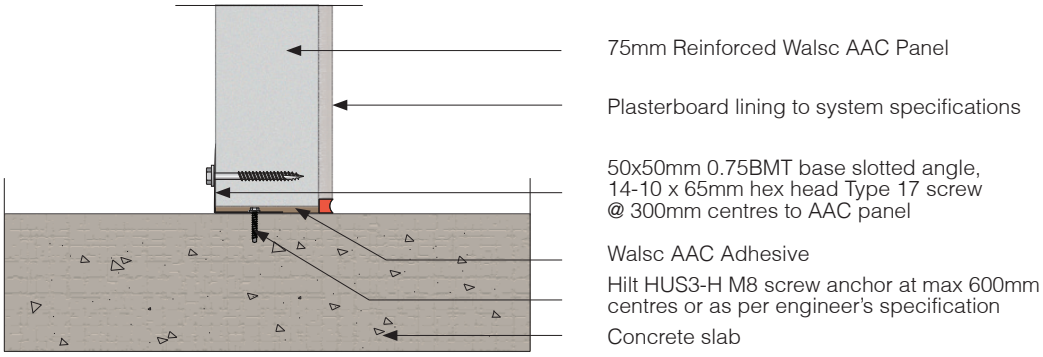


Fig 22. Service Shaft Wall Option 1 Bottom Fixing Detail

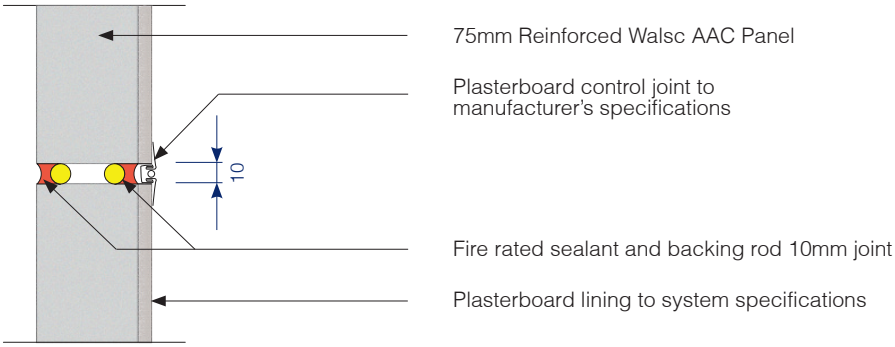


Fig 23. Service Shaft Wall Option 1 Vertical Control Joint Detail

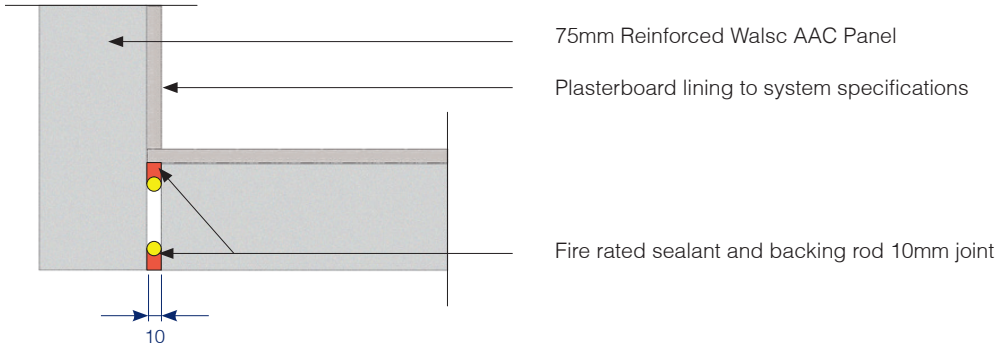


Fig 24. Service Shaft Wall Option 1 Corner Control Joint Detail

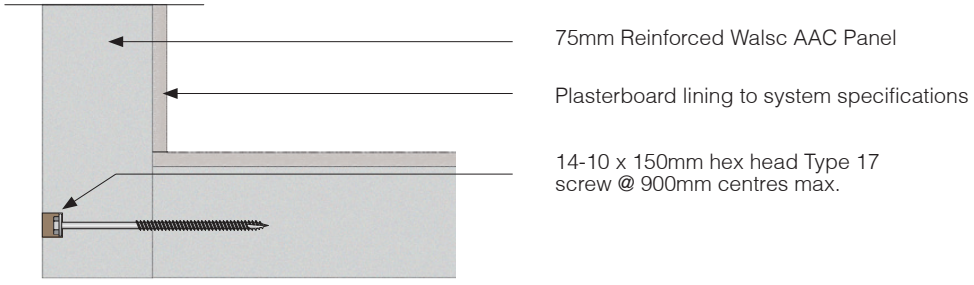


Fig 25. Service Shaft Wall Option 1 Corner Fixed Joint Detail

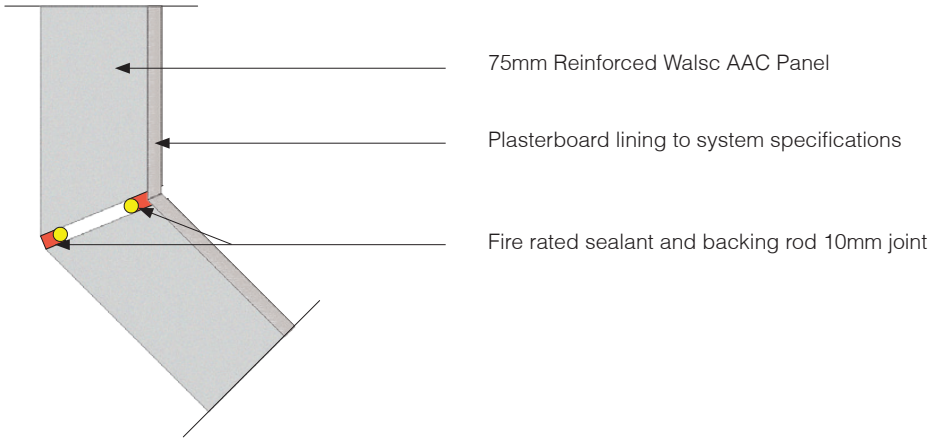


Fig 26. Service Shaft Wall Option 1 Mitred Control Joint Detail

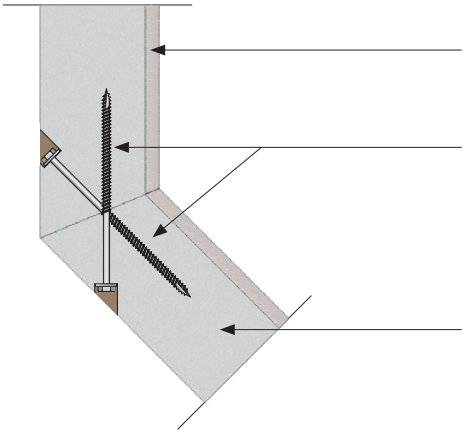


Fig 27. Service Shaft Wall Option 1 Mitred Fixed Joint Detail

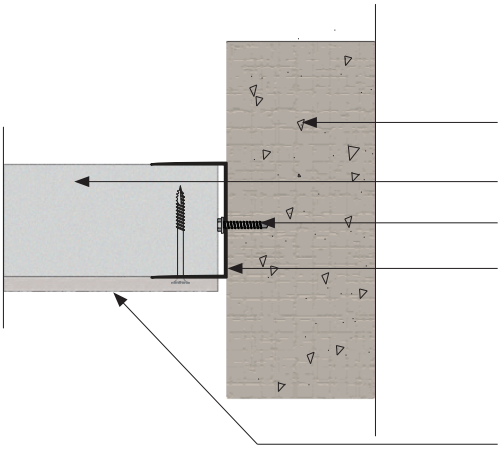


Fig 28. Service Shaft Wall Option 1 Column Fixed Joint Detail

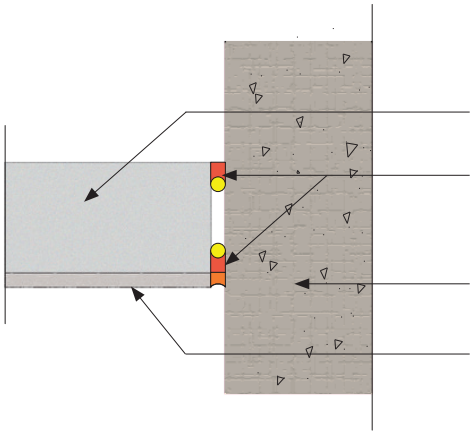


Fig 29. Service Shaft Wall Option 1 Column Control Joint Detail

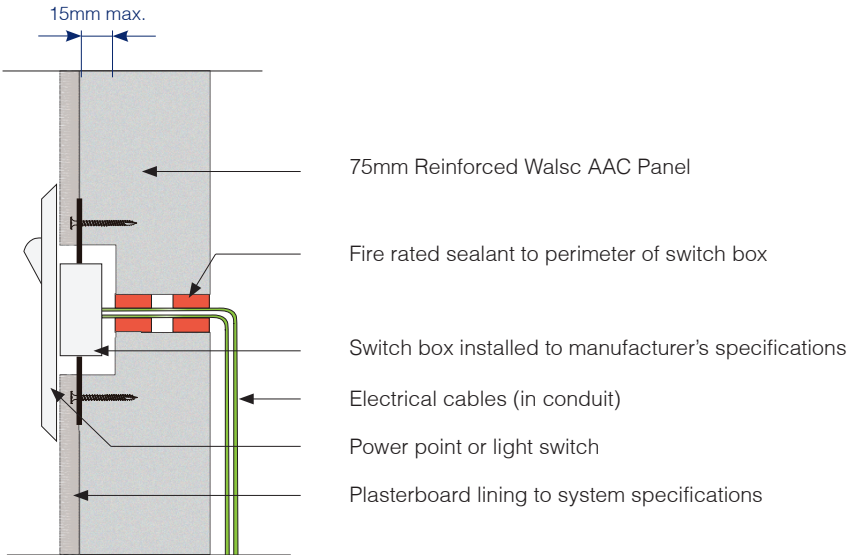


Fig 30. Service Shaft Wall Option 1 Power Switch / Outlet Detail

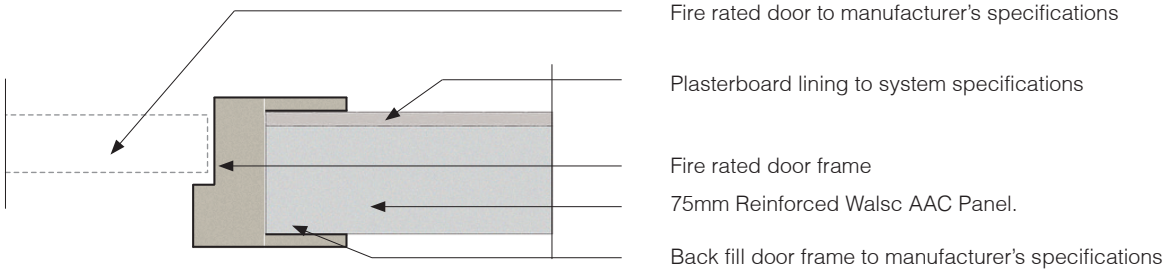


Fig 31. Service Shaft Wall Option 1 Fire Door Detail

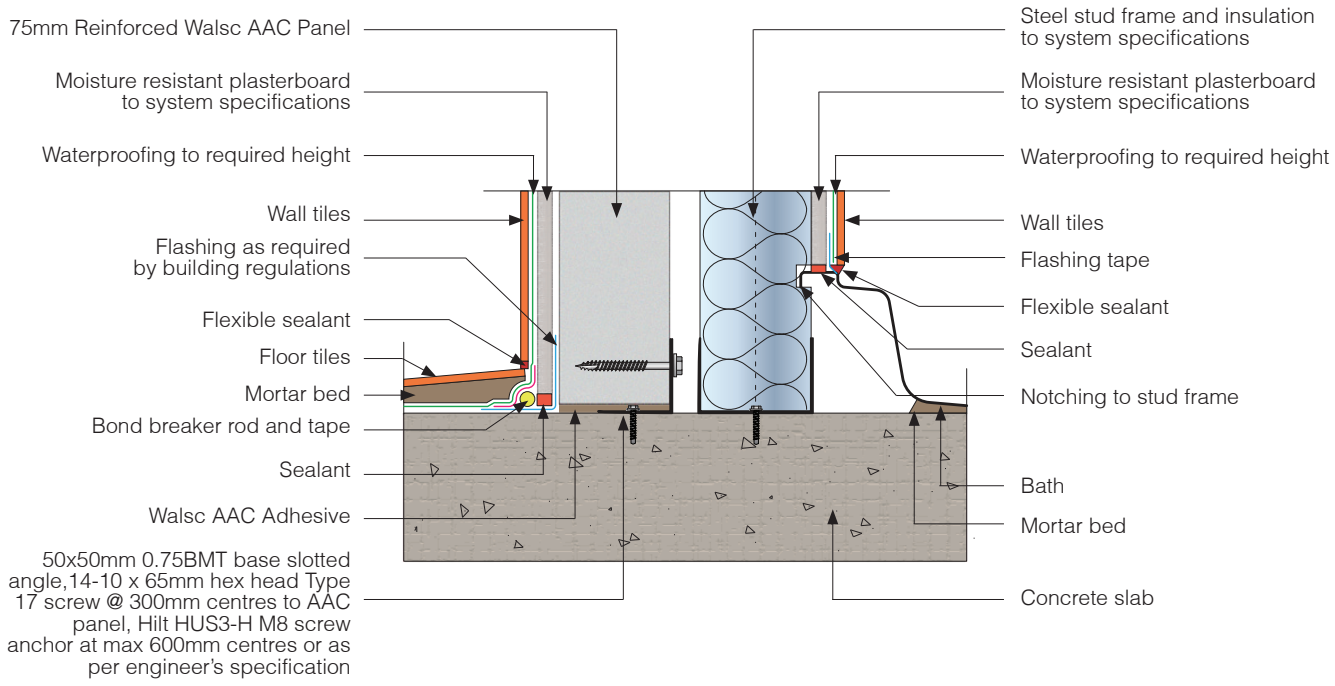


Fig 32. Wet Areas Detail 1

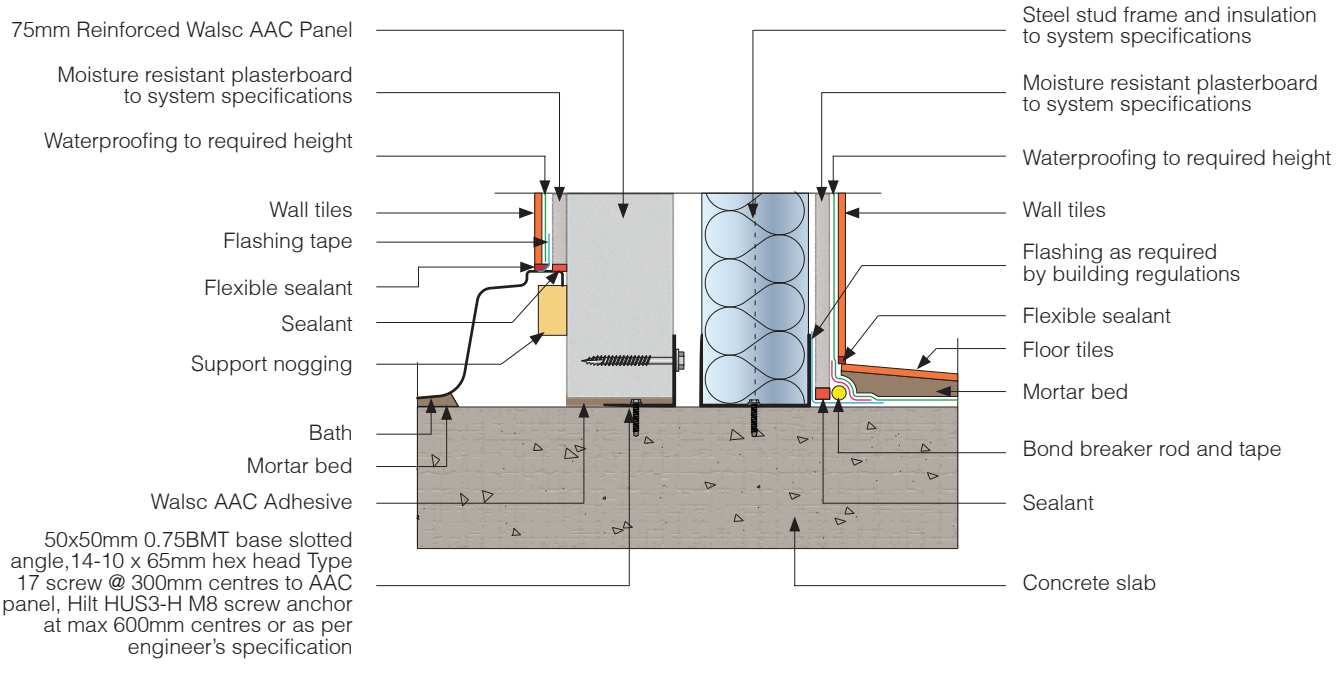


Fig 33. Wet Areas Detail 2

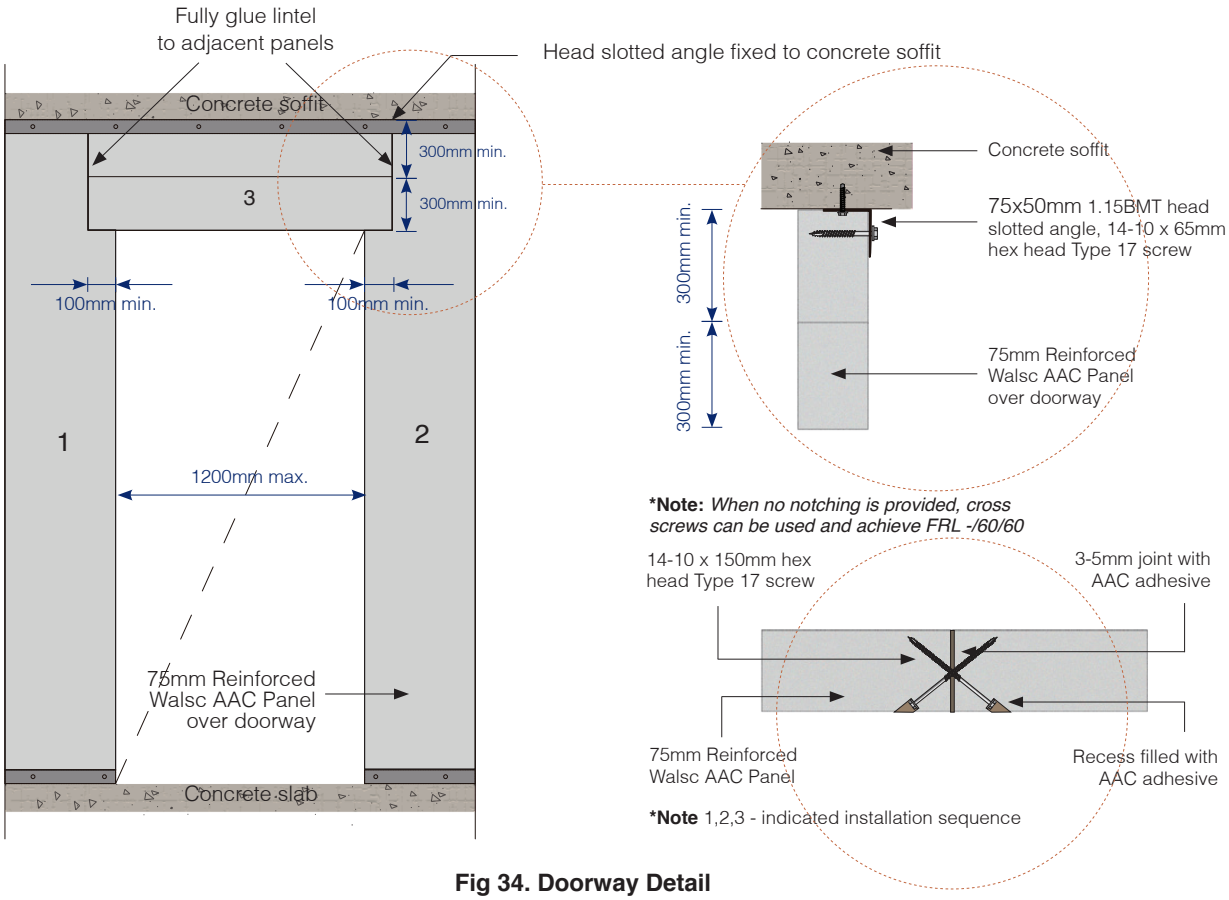


Fig 34. Doorway Detail

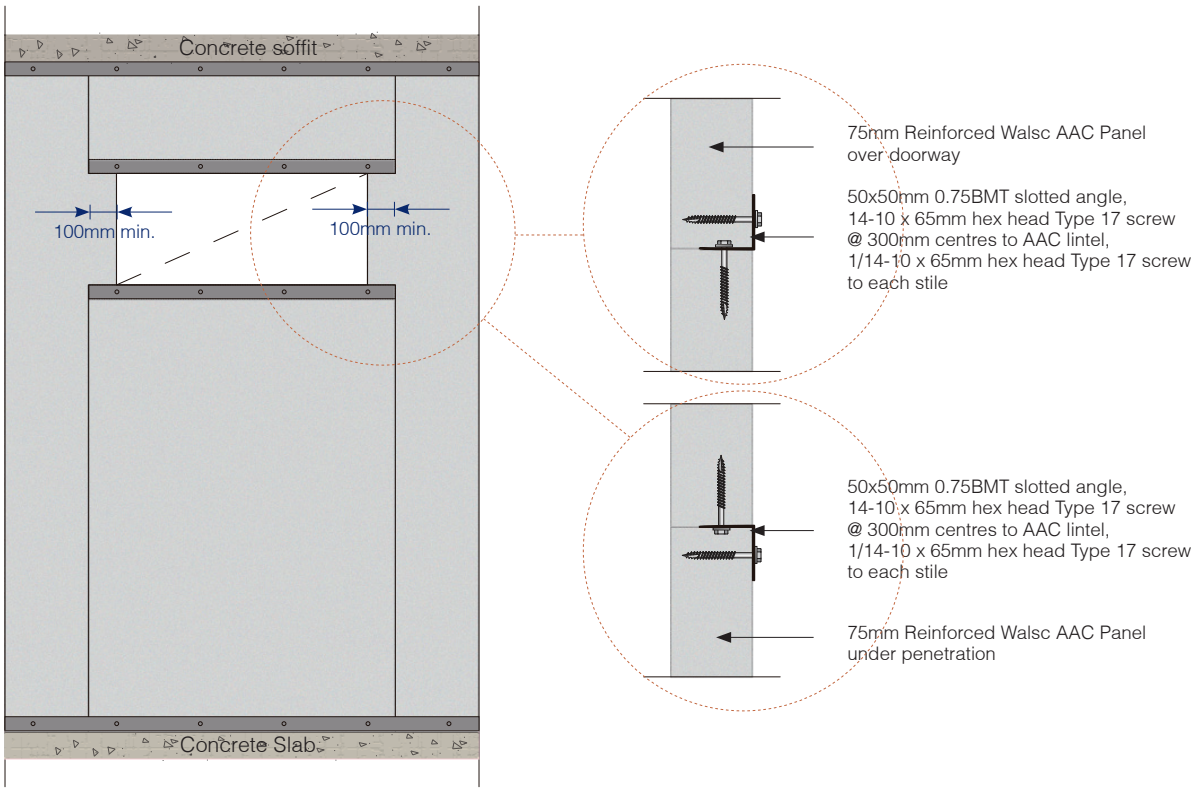


Fig 35. Large Penetration Detail

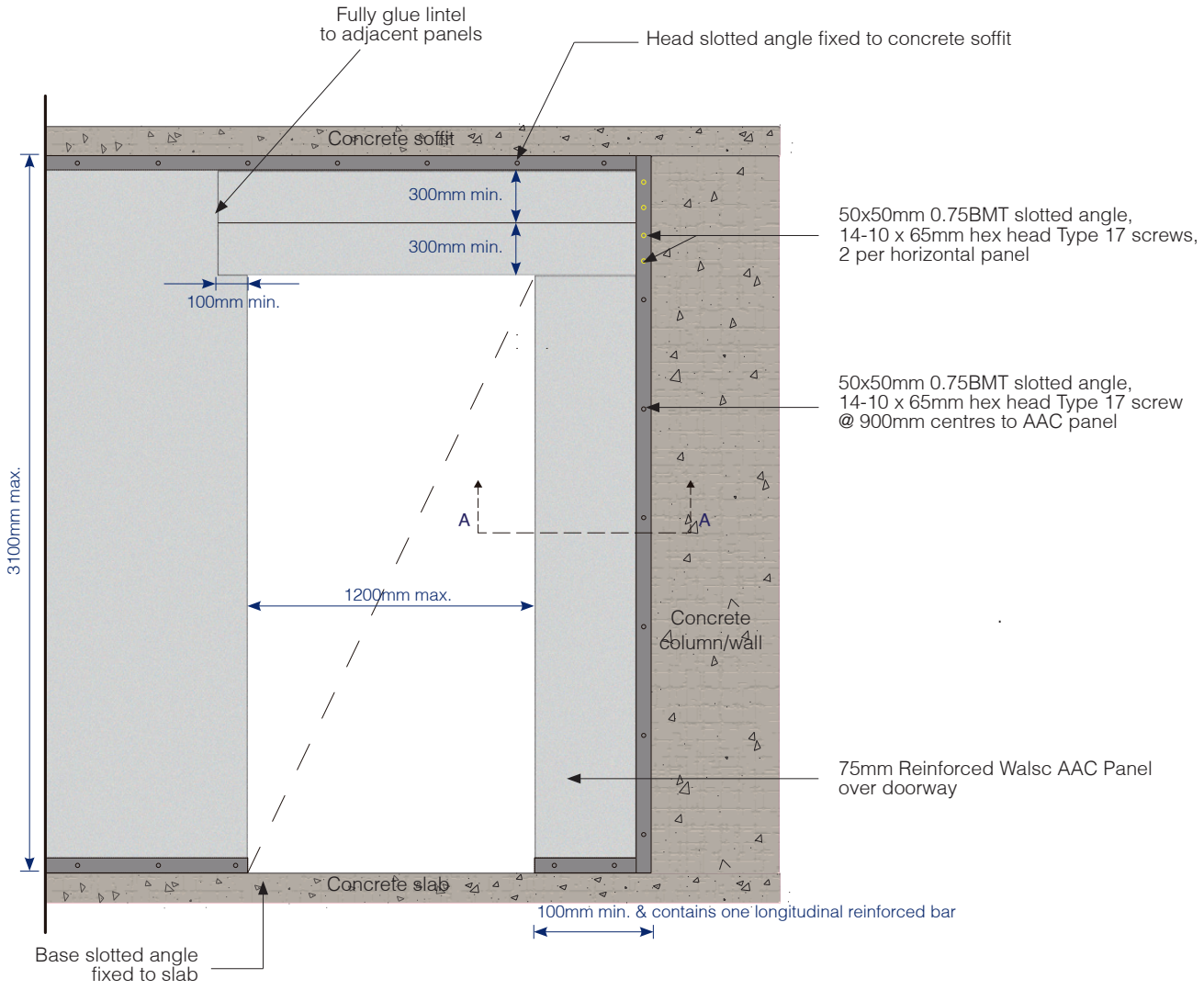


Fig 36. Door NIB Detail

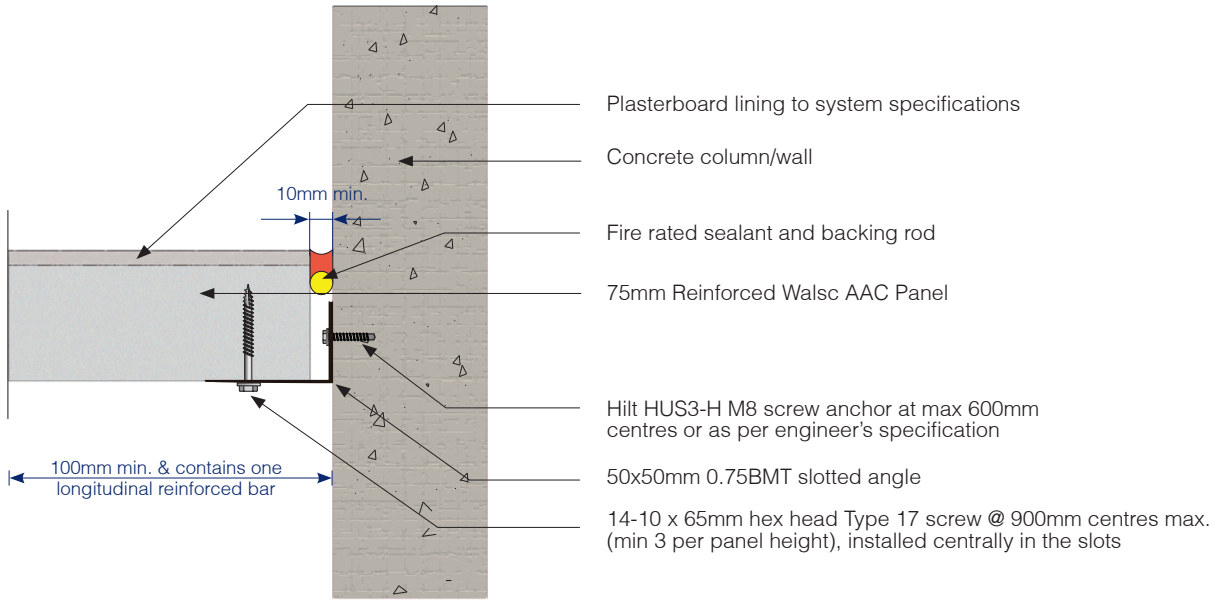


Fig 37. Door NIB Detail - Section AA

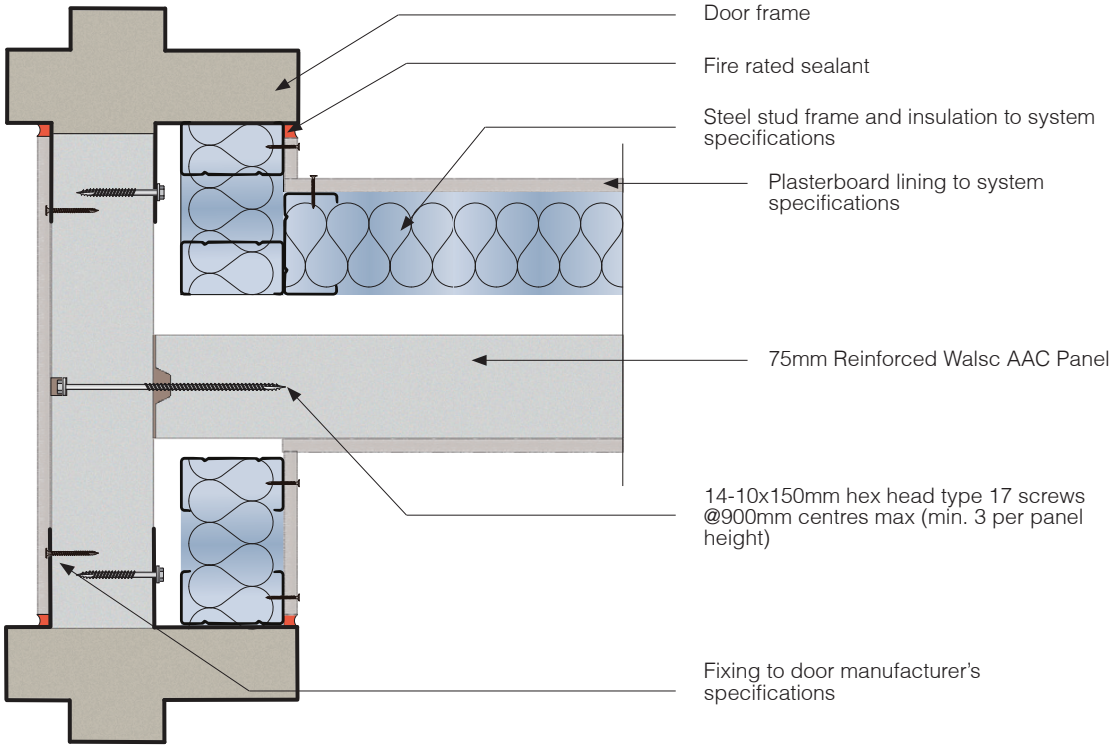


Fig 38. Intertenancy Wall to Corridor at Door Frame T Junction

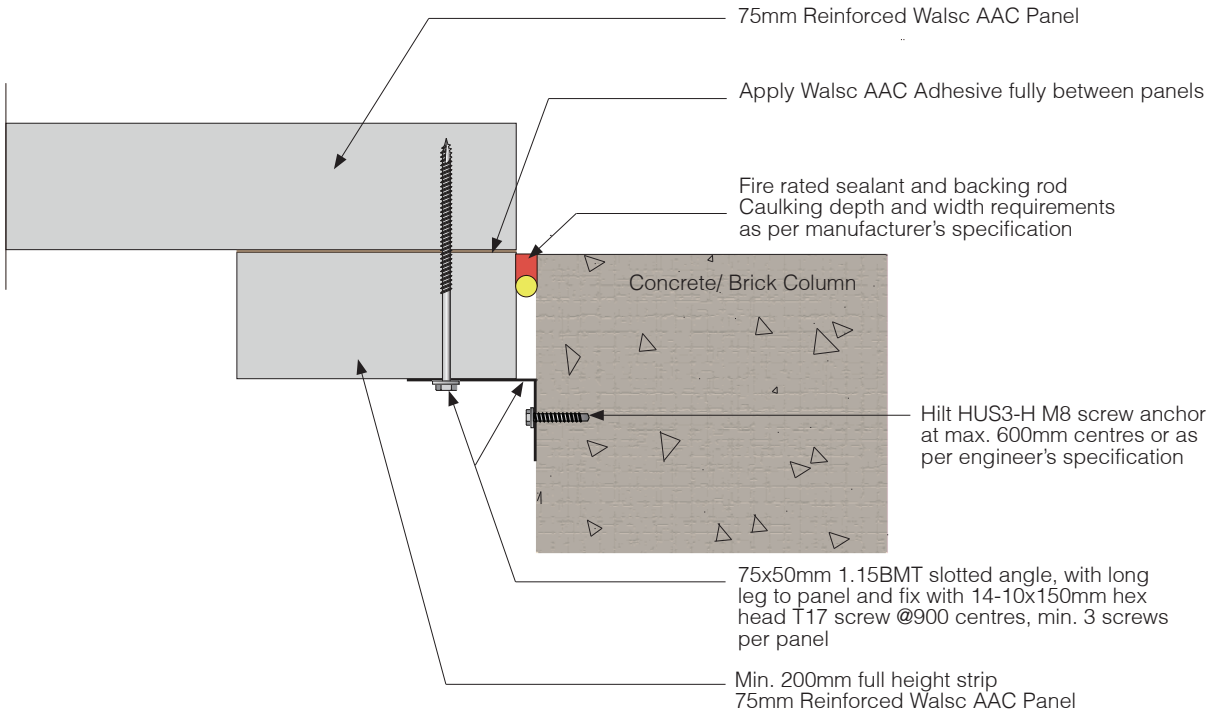


Fig 39. Offset Panel to Concrete/ Brick Column Detail

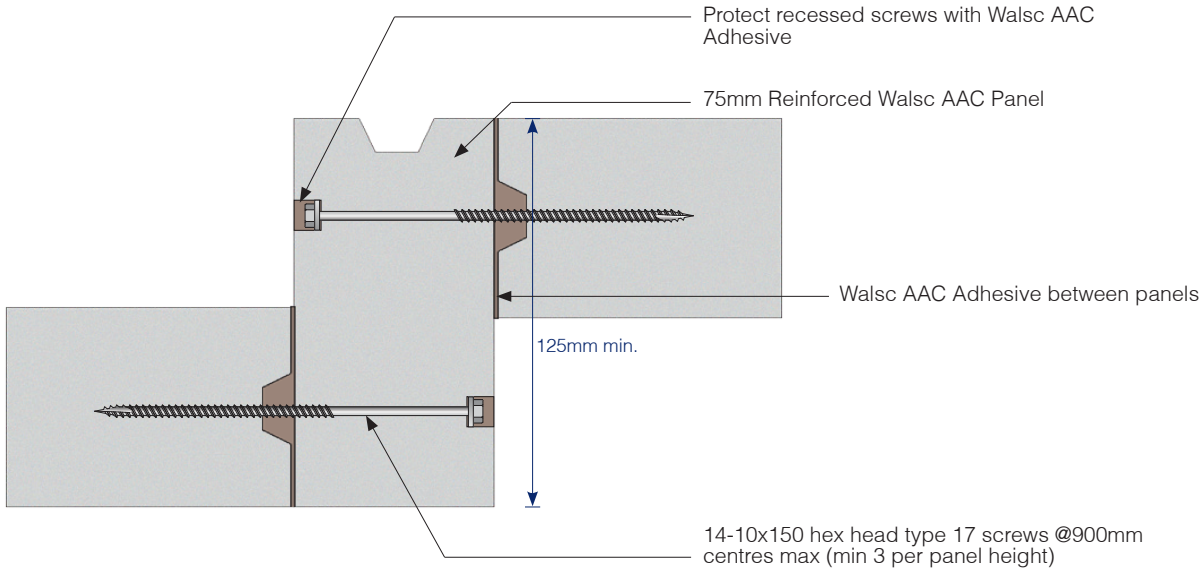
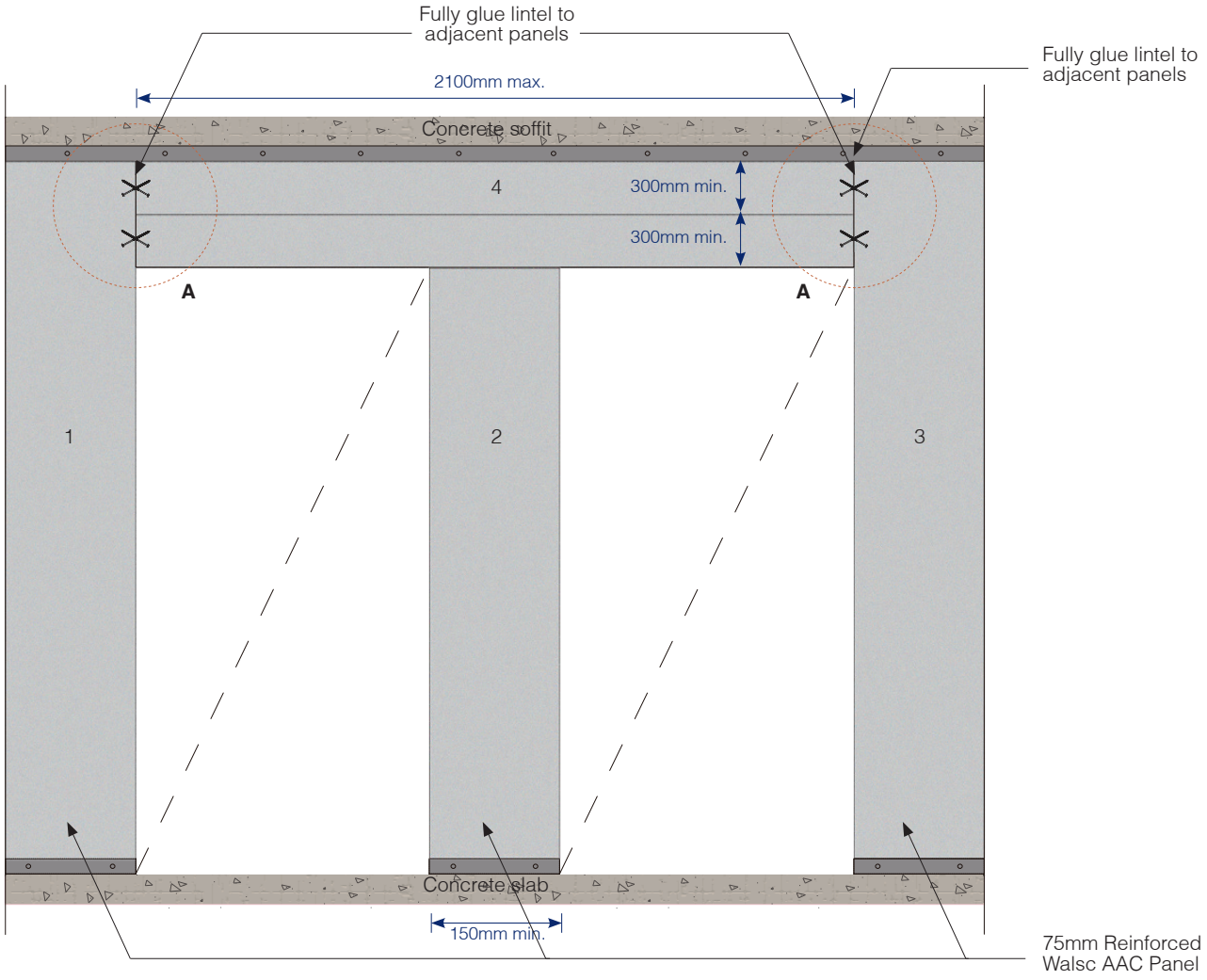
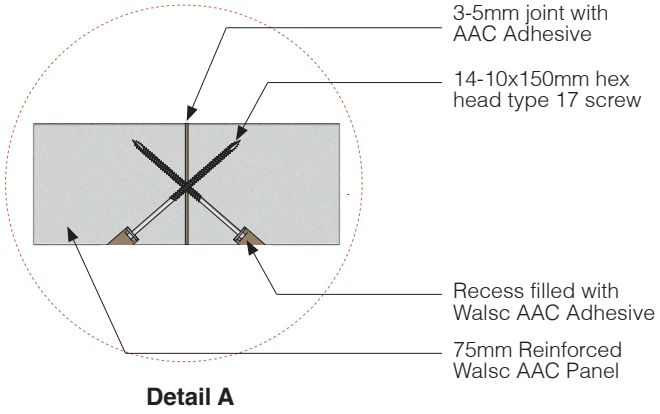


Fig 40. Rigid Corner Panel Overlap Detail



***Note** 1,2,3,4 - indicated installation sequence



Detail A

Fig 41. Continuous Horizontal Panels over Doorsets Detail

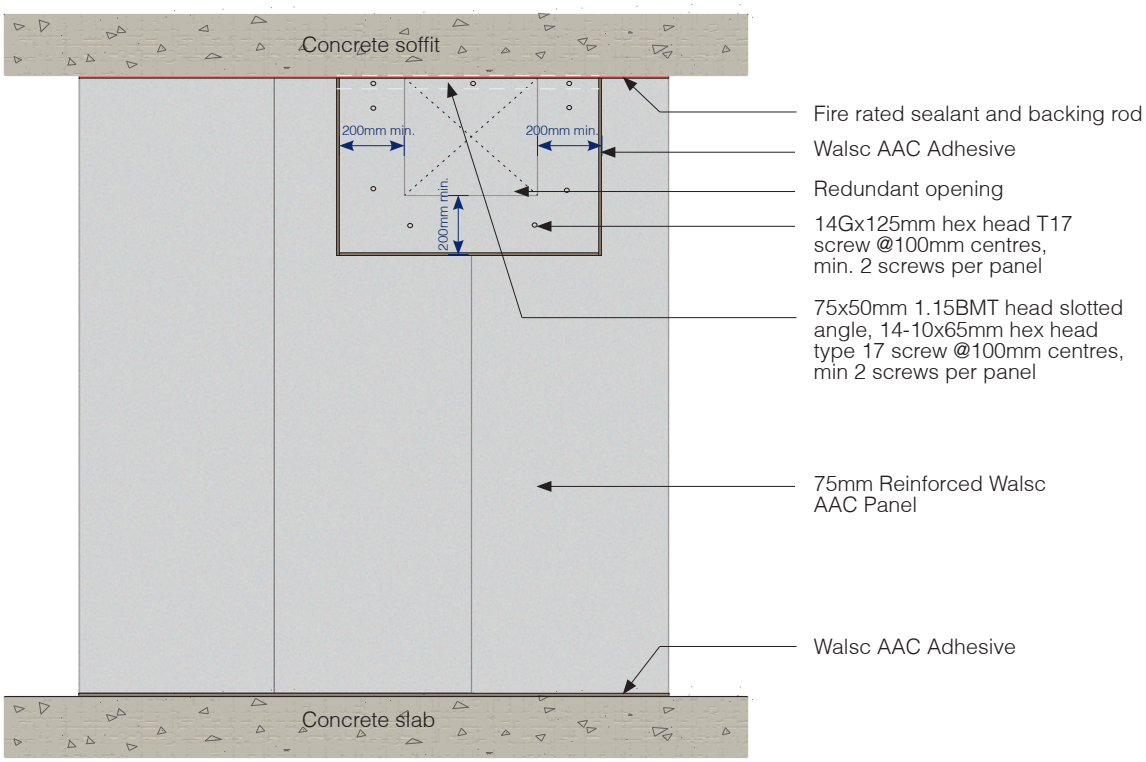


Fig 42. Redundant Opening Patching Detail - Elevation

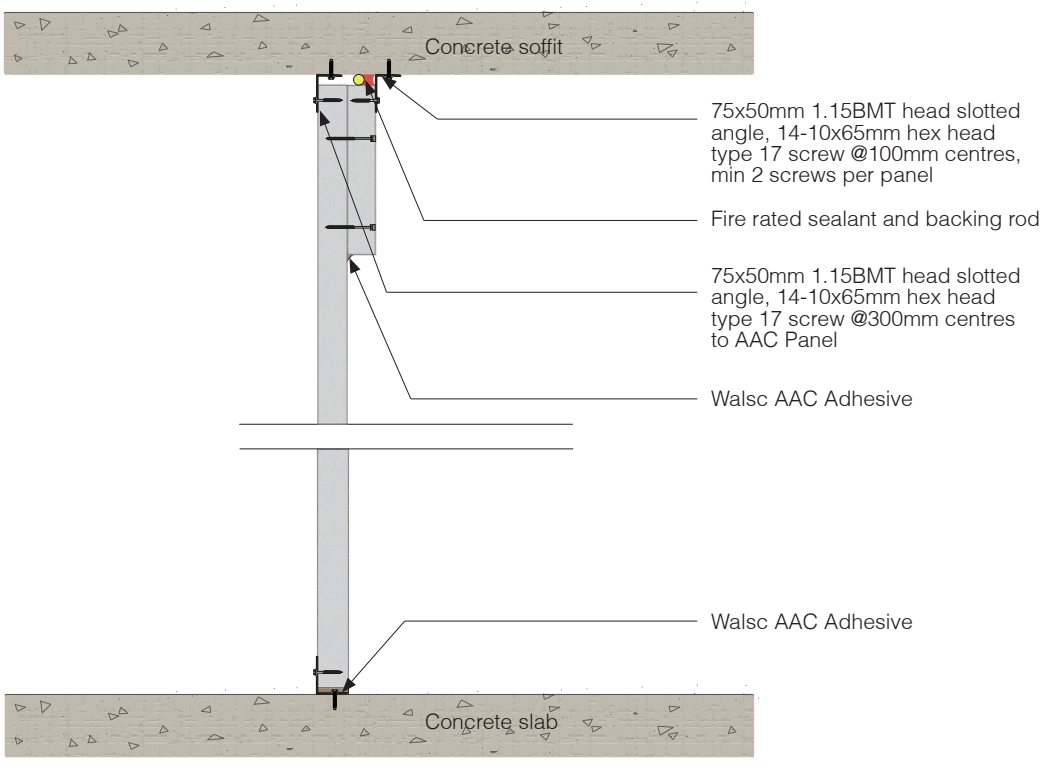


Fig 43. Redundant Opening Patching Detail - Cross Section

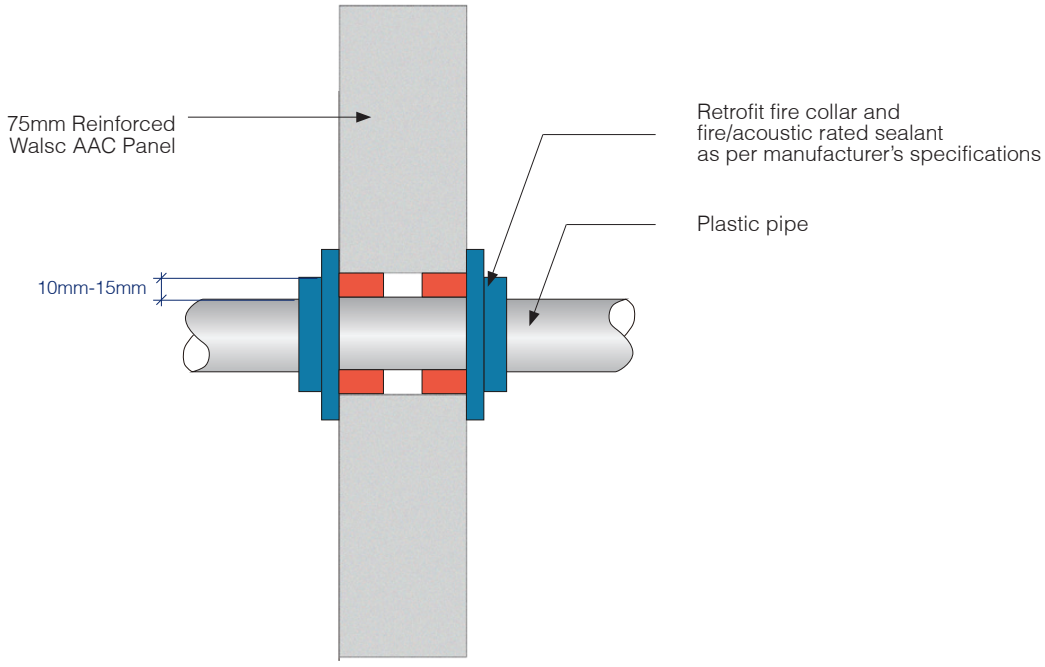


Fig 44. Plastic Pipe Penetration with Retrofit Fire Collar Detail

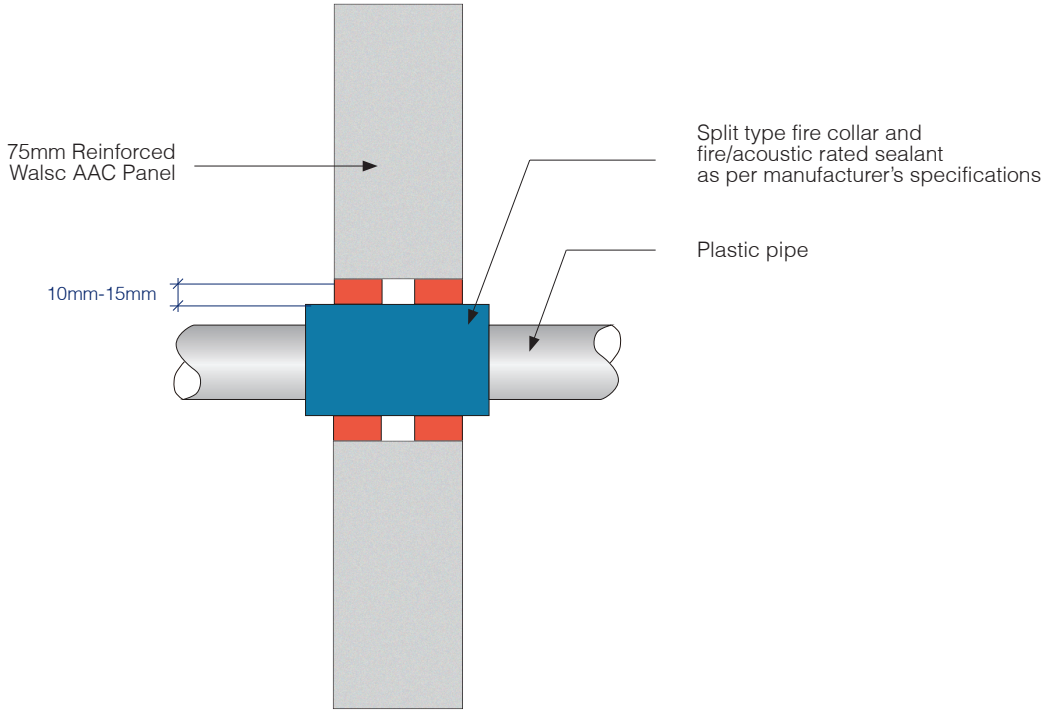


Fig 45. Plastic Pipe Penetration with Split Type Fire Collar Detail

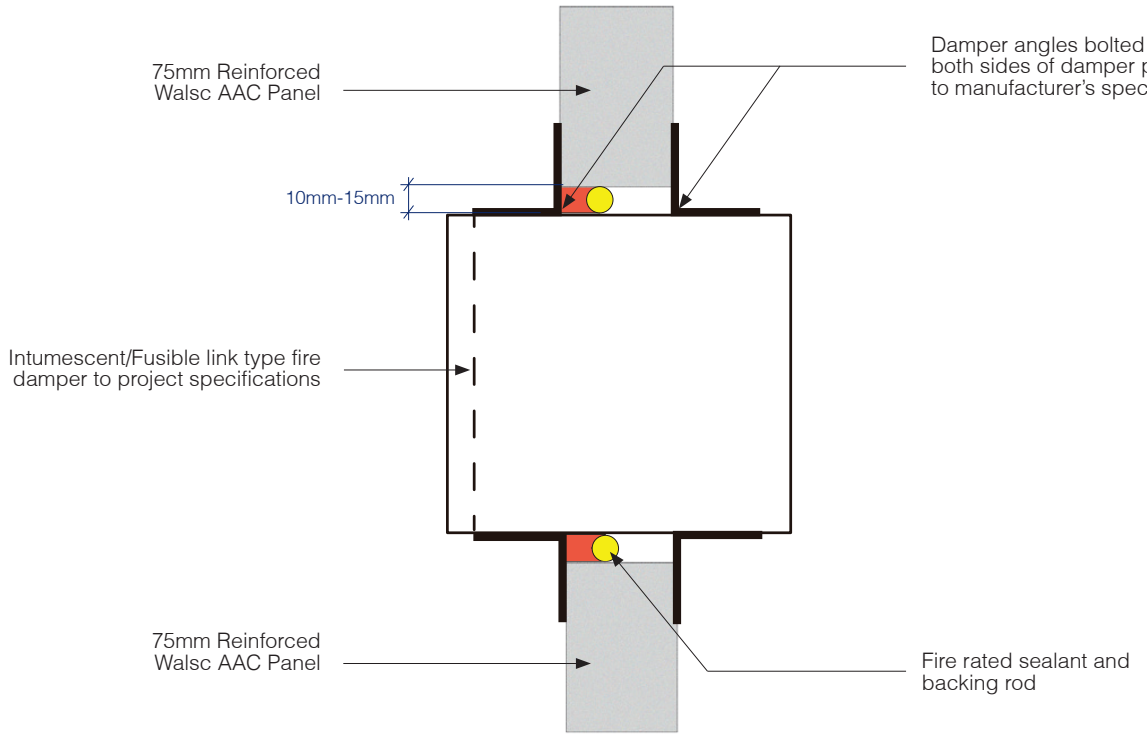


Fig 46. Fire Damper Penetration Detail 1

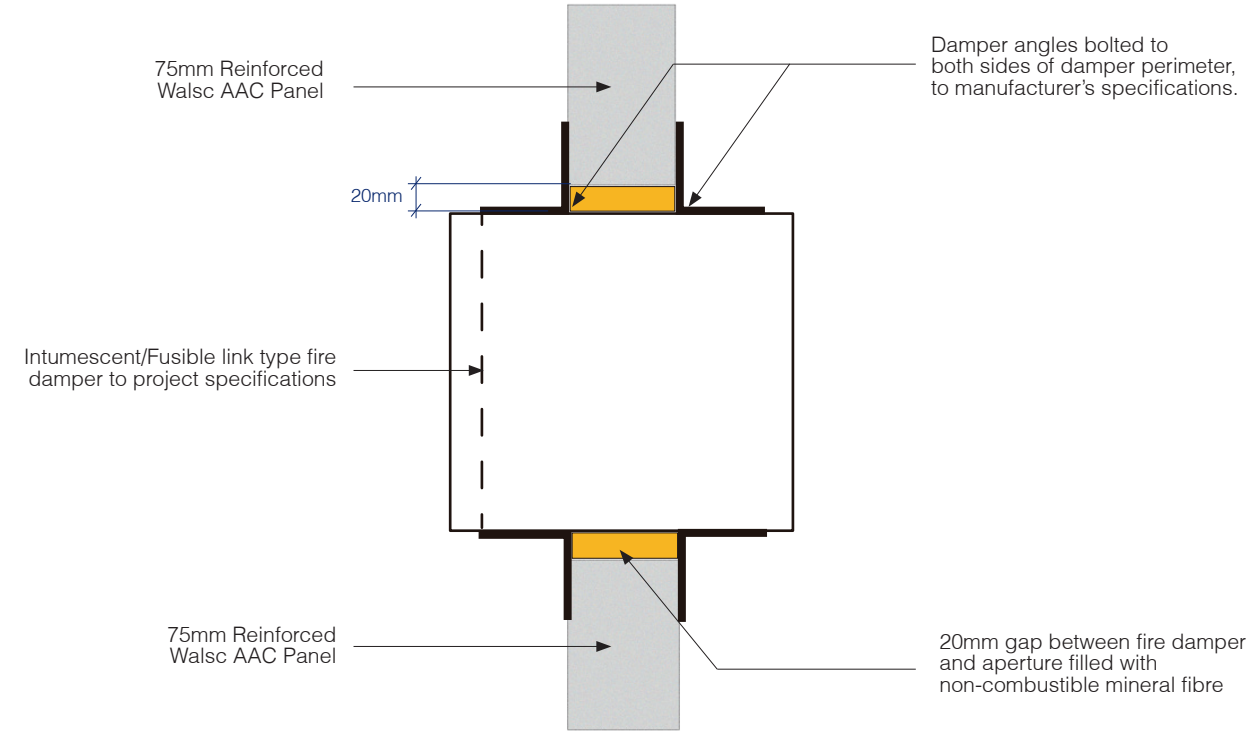
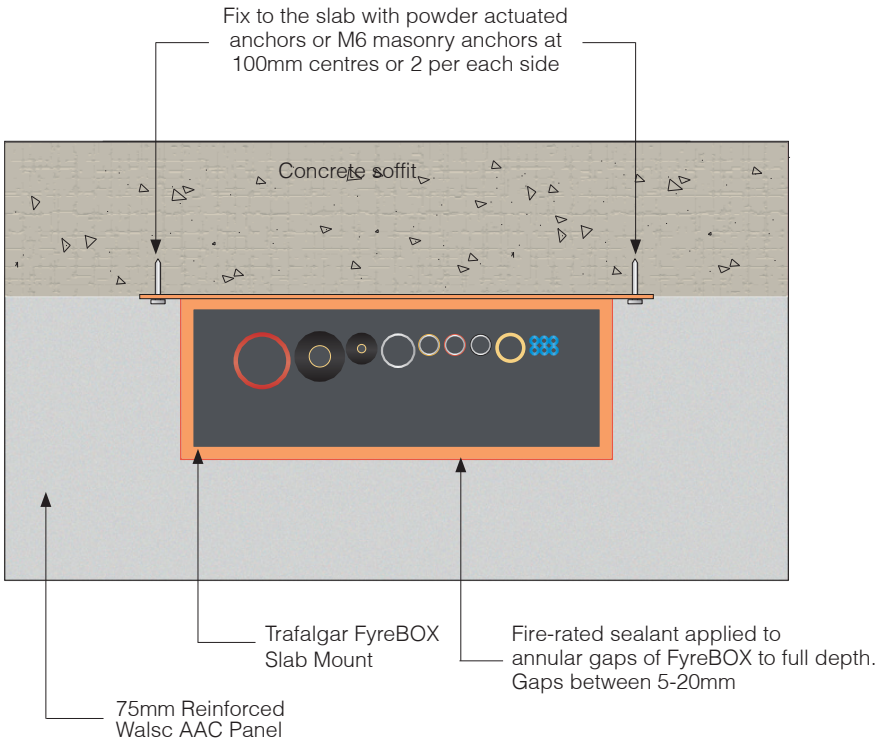


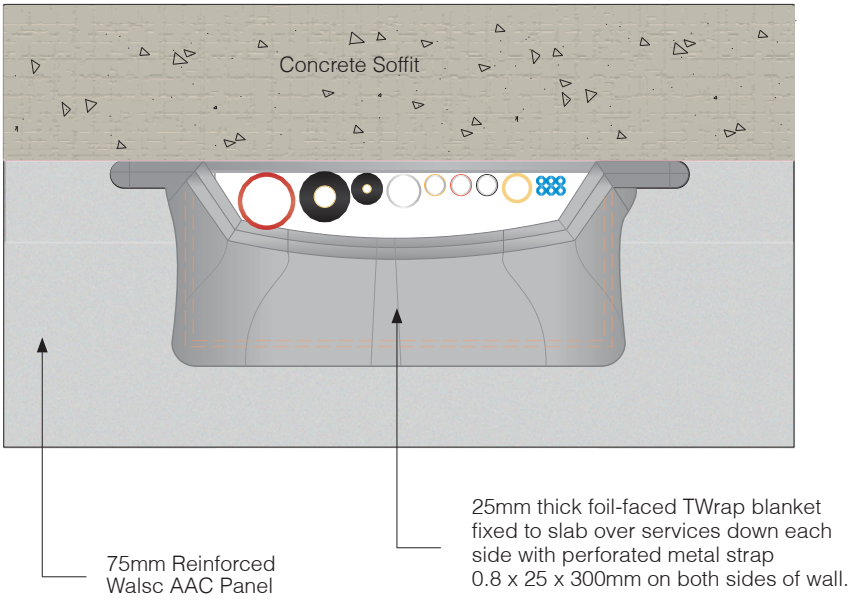
Fig 47. Fire Damper Penetration Detail 2

FyreBOX SLAB-MOUNT

The approved services:
Steel Pipe
PEX Pipe
PEX-AL-PEX Pipe
Insulated Copper Pipe
uPVC Conduit
TPS Bundle
Comms Bundle
Power Cable (s)
Comms Cable (s)
Bare Coper Pipes
CPVC Sprinkler Pipes

* In any combination/quantity





***Note:**
Please refer to Trafalgar's website for a full list of approved services and installation details.

Fig 48. Fyrebox Detail

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