STAACWall50®
by STODDART® GROUP

50mm Intertenancy and Dual Zero Boundary Walls for House & Low Rise Multi Residential Building

DESIGN AND INSTALLATION GUIDE

STODDART® GROUP

CONTENTS

CMI CERTIFICATION CodeMark Australia Certificate CM40285

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1. INTRODUCTION

STAAC WALL® is a cladding system of Autoclaved Aerated Concrete, designed as a dual zero boundary or intertenancy wall cladding system for residential, commercial or light industrial buildings.

STAAC WALL® is a cladding system of Autoclaved Aerated Concrete (AAC) that is designed a dual zero boundary or intertenancy wall cladding system for residential, commercial or light industrial buildings. STAAC WALL® system can deliver exceptional advantages in terms of performance, quality, speed of install and risk minimisation. STAAC WALL® is non-combustible and manufactured in Australia. AAC is well-known for it's exceptional thermal performance. It is also light weight when compared with traditional masonry materials and provides a flat surface for quality render finishes on the exterior building shell.

The 50mm STAAC WALL® panel is reinforced with steel mesh in both directions. It has a standard width of 600mm and is available in standard lengths of 2000, 2200, 2400, 2550, 2700, 2850 and 3000mm, making STAAC WALL® a robust and versatile system for residential construction. STAAC WALL® is commonly installed vertically for speedy construction.

The 50mm STAAC WALL® intertenancy wall system delivers a high level of fire resistance for townhouse, retirement and other low rise multi-residential projects where a fire barrier is required between 2 lots with zero boundary construction. 50mm STAAC WALL® panel has the acoustic performance to reduce the transfer of sound between dwellings. The 50mm STAAC WALL® party wall system does not require fire-rated plasterboard between floor levels or in the roof space. It may be installed without steel tracks and with reduced fixings in an intertenancy system, making STAAC WALL® a faster, simpler and cheaper way to construct a fully compliant intertenancy wall structure to the National Construction Codes of Australia (NCC). Section 2 provides a summary of performance conformances of 50mm STAAC WALL® for intertenancy wall application meeting NCC Volumes 1 and 2. It is aimed to ease the work load of Building Certifiers by clearly and transparently demonstrating how STAAC WALL® satisfies the performance requirements of the NCC through either Deemed-to-Satisfy provisions or Performance Solutions, or a combination of both. Test reports by NATA accredited laboratories, expert evaluation statements and technical data are referenced in Section 2 and may be provided upon request.

2. COMPLIANCE WITH THE NATIONAL CONSTRUCTION CODE OF AUSTRALIA (NCC)

All building solutions such as walls and floors etc. must comply with the regulations outlined in the NCC or other authority.

The NCC is a performance based document, and is available in two volumes which align with two groups of 'Class of Building':

- Volume 1 – Class 2 to Class 9 Buildings; and
- Volume 2 – Class 1 & Class 10 Buildings & Housing Provisions.

Each volume presents Regulatory Performance Requirements for different Building Solutions for various classes of buildings and performance provisions.

These Performance Provisions include: Structure, Fire Resistance, Damp & Weatherproofing; Sound Transmission & Insulation, and Energy Efficiency.

This guide presents tables, charts and information necessary to assist in the design of a system incorporating 50mm STAAC WALL® that complies with the Performance Requirements of the NCC. The designer must check the adequacy of the building solution for Performance Requirements outlined by the appropriate authority.

50mm STAAC WALL® has been CodeMark® certified for intertenancy and dual zero boundary wall applications. Table 2.1 to Table 2.4 summarises the relevant clauses which 50mm STAAC WALL® complies with. The documentation that provides evidence of suitability as defined by NCC may be provided upon request subject to commercial confidence.

2.1 SIDE-BY-SIDE RESIDENTIAL CONSTRUCTION ON A SINGLE ALLOTMENT

NCC requires an internal fire separating wall is to be constructed when single dwellings are constructed side-by-side on a single allotment. Such walls commonly start at the ground level on top of a slab or concrete foundation. The FRL required for such construction in load bearing application is 60/60/60 and -/60/60 for non-load bearing applications. The top of the wall must reach the underside of the non-combustible roof sheets or tile. Gaps must be fully sealed with fire-resisting material as per the requirement detailed in Figure 9.3.2 of the Housing Provisions of NCC 2022 Vol. 2. Horizontal projection within 1.8m of another building must be protected in accordance with Housing Provisions, 9.3.4.

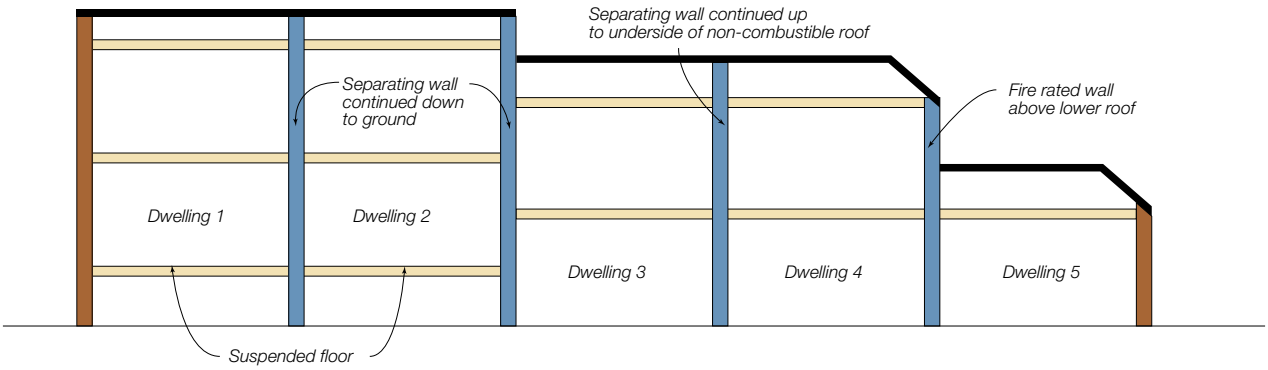
2.2 SIDE-BY-SIDE RESIDENTIAL CONSTRUCTION ON A SINGLE ALLOTMENT ON SEPARATE TITLES

Where it is proposed to construct single dwellings side-by-side on separate titles, or if subsequent subdivision is proposed, the wall might be considered an external wall. In this case, each dwelling may be required to have its own wall and each achieving a 60/60/60 FRL if load bearing, or –/60/60 FRL if non-load bearing. Contact your local authorities, as there may also be applicable legislation or discretionary powers available to vary these provisions.

2.3 SIDE-BY-SIDE RESIDENTIAL CONSTRUCTION ON A SINGLE ALLOTMENT WITH POSSIBLE FUTURE SUBDIVISION

Refer to Section 2.1.

Figure 2.1 Typical party wall applications



2.4 SUMMARY OF COMPLIANCE TO NCC FOR 50MM STAAC WALL® - INTERTENANCY WALL

Table 2.1 Summary of compliance to NCC Volume 1

NCC 2022 VOL. 1			
	CLAUSE	**APPLICATION**	**EVIDENCE OF SUITABILITY**
PERFORMANCE REQUIREMENT(S)	B1P1(1) & (2)(a), (b), (c), (d)	Structural reliability	Structural Assessment - A5G3(1)(e). Reports from accredited Professional Engineer.
DEEMED-TO-SATISFY PROVISION(S)	C2D2(2)	Fire Resistance and Stability – FRL varies, dependant of the configuration of the wall. (Maximum of up to 90/90/90 between each occupancy)	Fire Assessment - A5G3(1)(d). Reports from accredited test laboratories.
	C2D10	Non-combustible building elements (AAC Panel Only)	Fire Assessment - A5G3(1)(d). Reports from accredited test laboratories.

Table 2.2 Summary of compliance to NCC Volume 2

NCC 2022 VOL.2 & HOUSING PROVISIONS			
	CLAUSE	**APPLICATION**	**EVIDENCE OF SUITABILITY**
PERFORMANCE REQUIREMENT(S)	H1P1(1) & (2) (a), (b), (c), (d)	Structural reliability and resistance	Structural Assessment - A5G3(1)(e). Reports from accredited Professional Engineer.
DEEMED-TO-SATISFY PROVISION(S)	H3D4	Fire Resistance and Stability – FRL varies, dependant of the configuration of the wall. (Maximum of up to 90/90/90 between each occupancy)	Fire Assessment - A5G3(1)(d). Reports from accredited test laboratories.
	H3D2	Fire hazard properties and non-combustible building elements (AAC Panel Only)	Fire Assessment - A5G3(1)(d). Reports from accredited test laboratories

2.5 SUMMARY OF COMPLIANCE TO NCC FOR 50MM STAAC WALL® - DUAL ZERO BOUNDARY WALL

Table 2.3 Summary of compliance to NCC Volume 1

NCC 2022 VOL.1			
	CLAUSE	**APPLICATION**	**EVIDENCE OF SUITABILITY**
PERFORMANCE REQUIREMENT(S)	B1P1(1) & (2)(a), (b), (c), (d)	Structural reliability	Structural Assessment - A5G3(1)(e). Reports from accredited Professional Engineer.
	F2P1	Weatherproofing – up to N3	Weatherproofing Performance - A5G3(1)(e). Reports from Professional Engineers.
DEEMED-TO-SATISFY PROVISION(S)	C2D2(2)	Fire Resistance – (90/90/90 from panel side only)	Fire Assessment - A5G3(1)(d). Reports from accredited test laboratories.
	C2D10	Non-combustible building elements (AAC Panel Only)	Fire Assessment - A5G3(1)(d). Reports from accredited test laboratories.
	J4D6	Energy Efficiency – External Walls. (Can be used in conjunction with other building elements to achieve a Total R-Value)	Thermal Performance - A5G3(1)(e). Reports from Professional Engineers

Table 2.4 Summary of compliance to NCC Volume 2

NCC 2022 VOL.2 & HOUSING PROVISIONS			
	CLAUSE	**APPLICATION**	**EVIDENCE OF SUITABILITY**
PERFORMANCE REQUIREMENT(S)	H1P1(1) & (2) (a), (b), (c), (d)	Structural reliability	Structural assessment - A5G3(1)(e). Reports from accredited Professional Engineer.
	H2P2	Weatherproofing – Up to N3	Weatherproofing Performance - A5.2(1)(c). Reports from Professional Engineers
DEEMED-TO-SATISFY PROVISION(S)	H3D3	Construction of External Walls – (FRL 90/90/90 from panel side only)	Fire Assessment - A5G3(1)(d). Reports from accredited test laboratories.
	H3D2	Fire hazard properties and non-combustible building elements (AAC Panel Only)	Fire Assessment - A5G3(1)(d). Reports from accredited test laboratories
	H6D2(1)(b)(i)	Energy Efficiency - External Walls. (Can be used in conjunction with other building elements to achieve a Total R-Value)	Thermal Performance - A5G3(1)(e). Reports from Professional Engineers

2.6 OTHER RELEVANT TECHNICAL INFORMATION

Non-combustibility

STAAC WALL 50 – Autoclaved Aerated Concrete (AAC) panel had been tested for Combustibility for Materials in accordance with AS 1530.1:1994. The material is NOT deemed combustible - Limited to the panel only.

Source: CSIRO; NATA Accreditation No. 165; Report No. FNC12427B; issued 02/09/2019.

Acoustic performance

For system acoustic performance of STAAC WALL 50 AAC panel used in conjunction with other building materials for intertenancy walls refer to Table 8.1 and CodeMark Certificate of Conformity CM40284 for minimum system build-up requirements for dual zero boundary walls refer to Table 9.1 and CodeMark Certificate of Conformity CM40285.

3. MATERIAL PROPERTIES

Material Properties are determined in accordance with AS 5146 Parts 1, 2 & 3 - Reinforced Autoclaved Aerated Concrete.

3.1 PHYSICAL PROPERTIES

- **Thickness:** 50mm, tolerance: ±1.5mm
- **Standard Width:** 600mm, tolerance: ±1.5mm
- **Standard Length:** 2000, 2200, 2400, 2550, 2700, 2850, 3000mm, tolerance: ±5mm
- **Edge Straightness Deviation (max.):** 1.5mm
- **Reinforcement:** 5x 4mm diameter steel bars for 2000-2700mm long panels. 5x 5mm diameter bars for 2850 and 3000mm panels
- **Nominal dry density** = 510 kg/m^3
- **Average working density** = 689 kg/m^3 at 35% moisture content
- **Average service life density** = 561 kg/m^3 at 10% moisture content

3.2 STRENGTH PROPERTIES

- **Characteristic Compressive Strength of AAC**, f 'm= 2.8 MPa
- **Average Compressive Strength of AAC** = 3.2 MPa
- **Characteristic Modulus of Rupture**, f 'ut = 0.6 MPa

3.3 ACOUSTIC PROPERTIES

- **Panel only with no plasterboard or other lining:** Rw = 35dB, Rw+Ctr = 31dB.

  (State Acoustic Logic report 20130786.1/0209A/R0/GW)

3.4 THERMAL PROPERTIES

- **R-Value of 50mm STAAC WALL® panel with no plasterboard or other lining** = 0.313m^2.K/W

  (4% moisture content)

3.5 CUTTING

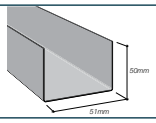
- The standard STAAC WALL® panel can be reduced in length by cutting 150mm maximum from each end when used in an intertenancy wall application, and to a minimum width of 270mm. In all cases, the requirements for 'cut' panel joins and supports must be in accordance with the requirements of this manual.

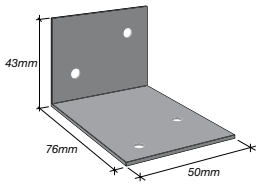
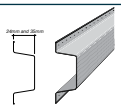
4. SYSTEM COMPONENTS

Typical intertenancy and dual zero boundary wall system components are shown below.

Table 4.1 STAAC WALL® components (1)

<table>
<tr><th>PRODUCT</th><th>DESCRIPTION</th><th>INTERTENANCY WALL</th><th>DUAL ZERO BOUNDARY WALL</th><th>DIAGRAM</th></tr>
<tr><td>50mm STAAC WALL®</td><td>
<table>
<tr><th>Length (mm)</th><th>Mass (kg)</th></tr>
<tr><td>2000</td><td>42</td></tr>
<tr><td>2200</td><td>46</td></tr>
<tr><td>2400</td><td>50</td></tr>
<tr><td>2550</td><td>53</td></tr>
<tr><td>2700</td><td>56</td></tr>
<tr><td>2850</td><td>59</td></tr>
<tr><td>3000</td><td>62</td></tr>
</table>
Standard width: 600mm

NOTE: Average panel mass calculated at 35% moisture content.</td><td>✓</td><td>✓</td><td>  </td></tr>
<tr><td>Deflection Head Track</td><td>For positioning and restraining the base connection of the panels to the concrete slab. The deflection head track is nominally 51 x 50 x 0.7mm BMT x 3000mm length.</td><td>✓</td><td></td><td>  </td></tr>
<tr><td>Wall bracket</td><td>The brackets are components which enable the AAC panel to be fixed to the wall frame. This provides a cavity space, which can result in increased acoustic insulation performance.

The bracket is nominally 76 x 43 x 1.6mm BMT x 50mm wide aluminium angle. Used in 50mm Intertenancy Wall Systems.</td><td>✓</td><td></td><td> 
</td></tr>
<tr><td>Steel battens</td><td>Perforated steel top hat battens in 24mm and 35mm depth to provide immediate support to STAAC WALL® panels.</td><td></td><td>✓</td><td>  </td></tr>
<tr><td>24mm & 35mm batten Direct fixing Clip</td><td>For supporting 24mm & 35mm battens in constrained space.</td><td></td><td>✓</td><td>  </td></tr>
<tr><td rowspan="3">Fasteners & Fixings</td><td>Fixing of top hat / angle bracket to timber stud frame: 12-11x35mm hex head type 17 screw.

Fixing angle bracket to AAC panel: 12-11x40mm hex head type 17 screw.

Fixing AAC panel to tophat from inside: 12-11x40mm hex head type 17 screw.</td><td>✓</td><td>✓</td><td>  </td></tr>
<tr><td>Fixing of top hat / angle bracket to steel framing; 10-16x16mm hex head self drilling screw.</td><td>✓</td><td>✓</td><td>  </td></tr>
<tr><td>Fixing of STAAC WALL® panels to top hat through external face: 14-10x65mm bugle head type 17 screw</td><td></td><td>✓</td><td>  </td></tr>
</table>

Table 4.2 STAAC WALL® components (2)

PRODUCT	DESCRIPTION
HEBEL® Mortar	Mortar (supplied in 20kg bags) when required Is used as a thick bed mortar base to provide a level base for STAAC WALL® installation as well as providing acoustic and fire protection at the base of the panels.
HEBEL® CSR Adhesive	CSR Adhesive (supplied in 20kg bags) is used for gluing the STAAC WALL® panels together at vertical and horizontal joints.
HEBEL® Patch	Minor chips or damage to STAAC WALL® panels are to be repaired using Patch (supplied in 10kg bags).
HEBEL® Anti-Corrosion Protection Paint	To coat exposed reinforcement during cutting.
Backing Rod	Backing rod is used to enable correct filling of joints with sealant. The backing rod must be of open cell type to enable sealant to cure from behind. The diameter of backing rod must be appropriate for the width of the gap being filled.

4.1 TOOLS & EQUIPMENT

The basic tools required to install STAAC WALL® System are:

- **Stirrer** – fitted to the electric drill, the stirrer is used to mix the Mortar/CSR Adhesive/base levelling coat render inside the mixing bucket.
- **Notched trowel** – the notched trowel is used to apply adhesive to the panel surfaces. The width of the trowel must match the panel thickness to ensure the adhesive is applied with full and even coverage.
- **Panel lifters** – used to carry the panels around the work site.
- **Sand float** – used to remove excess adhesive and smooth joints between panels.
- **Levelling plane** – used to even out inconsistencies in the panels.
- **Power drill (clutch driven)**
- **Power saw with metal or diamond tipped cutting blades**
- **Dust extraction system -** that complies with the M or H class requirements of AS/NZS 60335.2.69 - 2017.
- **Power screw gun**
- **Sockets for screws**
- **Personal Protective Equipment (PPE)** such as goggles, ear muffs/plugs and fit testes face mask must be used in strict accordance with manufacturer's instructions when cutting the STAAC WALL® panels.

5. INSTALLATION GUIDELINES

5.1 GENERAL

Before commencing any installation work, clean and tidy up the work area. Mark out the location of the walls.

5.2 WALL FRAMING

Ensure frames are installed plumb and mechanically fixed to the substrate. All timber framework is to be fabricated and installed to the manufacturer's specifications and AS 1684 or AS 1720.1. Steel stud framing should be designed and erected in accordance to NASH standards and handbook.

5.3 BASE CONNECTIONS

OPTION 1: Deflection Head Plate

When the wall locations have been set out for the 50mm STAAC WALL® Intertenancy Wall System, fix the deflection head tracks to the floor substrate. This is done using suitable fixings (see Table 10.5) at 600mm maximum centres and maximum 100mm from ends. At changes in wall directions, ensure deflection head track is mitred with no gaps at the corners. Seal all butt joints with fire and acoustic sealant.

Option 2: Mortar & Continuous Steel Battens & Option 3: Mortar with Aluminium Brackets

Steel Batten or Aluminium Bracket base connections for the 50mm STAAC WALL® Intertenancy Wall System require mortar to achieve acoustic and fire protection. Mortar is placed directly on the slab and should only be run out roughly 3 panels (1800mm) ahead of panel installation. The mortar bed fills any gap at the base. Generally, the mortar is 10mm thick and must extend the full width of the panel. Mixing of the mortar must be done in accordance with the instructions on the bag.

5.4 ALUMINIUM WALL BRACKETS

GROUND LEVEL: Screw fix wall bracket to top and bottom plates of wall frame and to the 50mm STAAC WALL® panel. Aluminium Wall Brackets are not required at the bottom plate for Base Connection Options 1 or 2, see details 15.2.1, 15.2.2. Aluminium Wall BRackets are required for Base Connection Option 3, see 15.2.3.

UPPER LEVEL: Screw fix wall bracket at top and bottom plates of wall frame and to the 50mm STAAC WALL® panel. Wall brackets are screw fixed to 50mm STAAC WALL® panel at 600mm centres, within 50mm either side of centreline of each panel. Use fixings specified in Table 10.5.

ROOF LEVEL: Screw fix wall bracket to trusses and STAAC WALL® panel.

5.5 DIRECT FIXING CLIP

Direct fixing clips are attached onto battens and then screw fixed directly to the frame. These are used when it is not practical to direct fix battens into the frame, often required for zero boundary walls.

5.6 PANEL INSTALLATION

The 50mm STAAC WALL® panel in Intertenancy and Dual Zero Boundary Wall Systems must be installed vertically. The panels can be cut on-site using a circular saw equipped with diamond tipped cutting blade (for panel cutting limitations refer to Section 14.6) and vacuum extraction system. All the loose AAC particles should be brushed off the panel with a rough broom. Steel reinforcement that is exposed during cutting must be coated with a liberal application of corrosion protection coating (See Table 4.2). Any minor damage and chips to the panels must be repaired using patch. For the 50mm STAAC WALL® Intertenancy Wall System, apply adhesive to the vertical edge and install the next panel. Repeat the installation process until the wall is complete. Aluminium brackets provide restraint of the wall to the frame. For the 50mm STAAC WALL® Dual Zero Boundary Wall System, the panels are fixed by screwing through top hats into the panel but must not penetrate through to the other face of the STAAC WALL® panel. The top hats are fixed directly to the frame or by using top hat clips. The panels are supported at the base on a slab edge. For applications adjacent to an existing brickwork wall (Fig. 15.8.4), STAAC panels may be temporarily fixed to the brickwork with flexible sealant adhesive in dabs onto the panel before propping. Allow to cure overnight before installation of the top hats, framing and clips. *(Editorial Note: This installation must be verified by the relevant fire/acoustic/structural/etc. testing/assessments by the design consultants described in Section 6).*

5.7 ADHESIVE

Adhesive is applied to the panel with a 50mm notched trowel. When the panels are pushed together the joints are to be 2-3mm thick. Sufficient pressure must be applied to the panels when gluing to ensure the adhesive is fully bedded across the joint. Scrape off any excess adhesive protruding from the joints and fill any gaps. Adhesive is to be mixed to the proportions and consistency as per the instructions on the bag.

5.8 CONTROL JOINTS

Control joints must be provided at a maximum of 6m spacing. Recommended control joint widths should be 10mm minimum between STAAC WALL® panels and another building component. Control joints must also be provided to coincide with any control joint in the main structure. Larger joint width may be required to accommodate building movements, and these values shall be nominated by the designer (refer to control joint section 15.3).

5.9 SEALANTS

All movement joints and other gaps should be sealed off and finished neatly with polyurethane fire and acoustic rated sealants. Installation of sealants must be carried out in accordance with the manufacturer's specifications. When using fire rated sealant for external applications, protect from rain until sealant has developed a thick skin. Once cured, if the sealant is exposed to external weather conditions for a longer period of time the sealant should be painted over with a compatible external grade acrylic coating.

5.10 SERVICES

Installation of electrical, plumbing and other services into walls should be carried out in an appropriate construction sequence. This will allow easy access to cavities and wall frames, where services can be easily installed and neatly hidden. It is recommended to commence the plumbing and cabling after the panels have been installed. The builder or project manager should confirm appropriate construction sequence for services on a project-by-project basis. Contact your consultant for detailing of penetration through STAAC WALL® panel to ensure the nominated acoustic and fire performance is achieved.

5.11 FASTENERS & FIXINGS

All fixings and fasteners should be installed in accordance with the manufacturer's specifications.

5.12 HOIST FOR ZERO BOUNDARY WALL CONSTRUCTION

Figure 5.1 Hoisting of dual zero boundary wall in operations

Building back-to-back compliant zero boundary walls on site has been largely unachievable using traditional techniques. Difficulties such as positioning walls correctly without overstepping their boundaries and that the installation techniques adopted do not in any way compromise fire performance of these walls.

Working with limited access, and meeting fire and acoustic performance (as a minimum) are easily overcome using a hoisting solution.

This hoist system attaches directly to the frame and features a rail and hoist which allows panels to be safely lifted, transported and placed precisely from above before being fixed from the inside of the building.

Suitable for steel or timber frames up to three storeys high, the hoist system allows builders to streamline their workflow by erecting all the frames first before installing the external panels. It also has the potential to allow builders to increase the footprint of their buildings by moving external walls right up to the boundary.

The hoist system is only available through trained and accredited STAAC WALL® installers.

5.13 'SKIP ONE' INSTALLATION METHOD FOR ZERO BOUNDARY WALL CONSTRUCTION

'Skip one' is an installation method for projects requiring the construction of side-by-side zero boundary walls. This method allows the installation of STAAC WALL panels without mechanical lifting devices. This method requires coordination with the builder to ensure the support frames are installed in the required sequence as detailed in the steps below. Prior to using this method to install zero boundary walls, confirm with the builder to ensure this installation method is practicable and acceptable for the project.

Installation Example: 4 zero-boundary 2 story dwellings

Step 1

Party responsible: Builder

Unit: 1 & 3 Lower boundary walls

Process: Stand, straighten and brace frames to U1 and U3.

Build one skip one framing process.

Build one skip one framing process

Step 2

Party responsible: STAAC WALL® trained installer

Process: Install a single leaf of panel to lower party wall of U1 and a single leaf of panel to party walls on both sides of U3.

- Carry out a pre-installation check to ensure that the frame is compliant to install STAAC WALL®.
- Start at an end of the wall
- Begin by installing battens horizontally. Top hat layout to suit design (refer to Section 10).
- Roll out DPC onto slab and apply mortar.
- Stand base panel vertically into the mortar and fix the panel to the installed batten using the specified fastener (refer to Section 10) from the inside face.
- Check that the panel is plumb and the minimum cavity between the panel and the wall frame is maintained.
- Apply the mortar to the base panel edge.
- Install the next panel on top of the base panel, ensuring the panels are joined as close as possible and are fully sealed with the glue. The top panel must finish in between floor cavity.
- Fix the panel to the battens as above.
- Repeat the above process to continue to install the base panels along the length of the wall. Glue the panels together using STAAC WALL Hebel® adhesive, as per product specifications.
- Vertical articulation / control joints will be placed at a maximum of every 6m and filled with 10mm backing rod and fire-rated polyurethane sealant.


Lower level / First wall - STAAC WALL® panels fixed to battens from behind through batten to panel


First panel leaf screwed to the battens and finishing at floor cavity


Create Articulation/Control Joint at every 6m


Apply adequate sealant within Control Joint

Step 3

Party responsible: STAAC WALL® trained installer

Process: Place temporary batten packers onto completed single leaf panel party walls. Use 2x 50mm screws to hold packers in place.

Batten being used as a temporary packer with the 50mm screws.

Step 4

Party responsible: STAAC WALL® trained installer

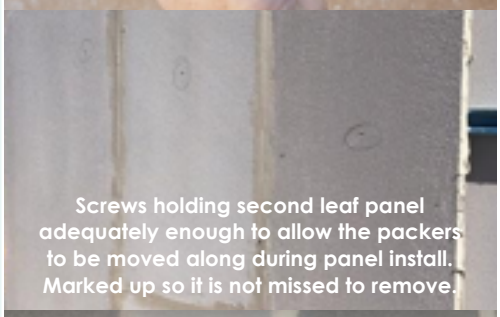
Process: Position and install second leaf of AAC to lower party walls onto U1 and U3.

- Place second leaf of base panel up against the packer, and ensure panel sits onto the mortar.
- Screw the face panel with 2x 100/120 mm temporary screws through from second leaf panel to the first leaf panel. This will ensure the second leaf panel is secured.
- Check that the panel is plumb and the minimum cavity between the panel and the wall frame is maintained.
- Apply the mortar to the base panel edge.
- Install the next panel on top of the base panel, ensuring the panels are joined as close as possible and are fully sealed with the glue. The top panel must finish in between floor cavity.
- Continue to use the temporary screws for each panel.
- Repeat the above process to continue to install the panels along the length of the top hat packer. Glue the panels together using CSR adhesive.
- Towards the end of the top hat packer length remove the 50mm Bugle screw and slide the Batten out.
- Batten packer should not be left inside the cavity. If the batten packer is not easily removed, loosen some of the 120mm temporary screws to release pressure off the batten packer. The batten packer can then be removed.
- Secure the Batten Packer to the rest of the wall length and repeat the above process.

Ensure articulation joints are correctly placed and correctly installed using CSR adhesive, 10mm backing rod and polyurethane sealant.

Second panel leaf install with packers

120mm temporary screw



Screws holding second leaf panel adequately enough to allow the packers to be moved along during panel install. Marked up so it is not missed to remove.

A loading strap used to maintain better / safer grip for batten movement

Step 5

Party responsible: STAAC WALL® trained installer

Process: Temporarily brace the second leaf by fixing a batten into the top edge of the panels and attach back to first leaf. Once the top part of the wall has been braced remove all temporary screws from second leaf and apply Patch to all holes/penetration. This process must be done before the next timber/steel frame is stood.

Batten bracing installed to assist stabilising whilst the next frame is positioned.

Face panel with temporary screw to be removed and screw hole to be back filled with fire rated joint sealant.

Step 6

Party responsible: Builder

Unit: 2 & 4 Lower walls

Process: Stand, straighten and brace frames to U2 and U4

Step 7

Party responsible: STAAC WALL® trained installer

Process: Fix second leaf to U2 and U4 frames using L-brackets.

- Screw off, by fixing L-bracket to back of AAC panel, and another fixing into the frames of U2 and U4. This will ensure nothing will penetrate the external face of the intertenancy walls.

Second leaf party wall with L-Brackets after wall frame installed

Step 8

Party responsible: STAAC WALL® trained installer

Process: Remove temporary bracing at the top, holding the second leaf to the first leaf.

Double lead party wall with clear disconnected cavity - all temporary screws removed as adhesive cures and sealant completed

Step 9

Party responsible: Builder

Unit: 1 & 3 Upper walls

Process: Erect edge/fall protection

Step 10

Party responsible: Builder

Unit: 1 & 3 upper walls

Process: Frame floors and uppers to U1 and U3

Step 11

Party responsible: STAAC WALL® trained installer

Unit: 1 & 3 Upper walls

Process: Load panels onto first floor. Pack must be split, and load must be evenly distributed over temporary floor support supplied by builder.

- Confirm the Floor load rating with Builder prior to loading.
- The panels must be craned to the upper floor.

Step 12

Party responsible: STAAC WALL® trained installer

Unit: 1 & 3 Upper walls

Process: Install double leaf panels to upper party walls of U1 and U3 by repeating steps 2 to 6. The top of the panels to be cut to the top of truss height.

Step 13

Party responsible: Builder

Unit: 2 & 4 Upper walls

Process: Frame upper walls to U2 and U4.

Step 14

Party responsible: STAAC WALL® trained installer

Unit: 1 & 3 Upper walls

Process: Screw off second leaf and remove temporary bracing by repeating steps 8 and 9. The 'Skip one' zero boundary wall construction process is now complete.

6. DESIGN RESPONSIBILITIES

The STAAC WALL® dual zero boundary wall system has been developed based upon numerous testing and assessments by design consultants.

Tests were conducted at NATA accredited testing laboratories. Reports were issued to document the performance of the wall in accordance with the relevant Australian Standards. Consultants were engaged to provide their professional opinions based on the information in these reports (estimates of laboratory performance). The performance levels of walls documented in this guide are either what is reported in a test or the documented opinion of consultants.

Performance in projects is typically the responsibility of design consultants, builders and certifiers. Any party using the information contained in this guide or supplied by STAAC WALL® in the course of a project must satisfy themselves that it is true, current and appropriate for the intended application, consequently accepting responsibility for its use. It is the responsibility of the architectural designer and engineering parties to ensure that the details in this design guide are appropriate for the intended application. The recommendations in this guide are formulated along the lines of good building practice, but are not intended to be an exhaustive statement of all relevant data. The confirmation of wind category for the appropriate use of the design tables in Section 10 must be given by a qualified design engineer.

7. DESIGN STEPS

Follow the simple steps below to efficiently design 50mm STAAC WALL® for intertenancy or zero lot boundary wall applications.

1	Establish building wind class, support framing layout and what panel height is most suitable for the building.
2	Confirm Fire Resistance Level (Commonly minimum 60mins FRL is required for external walls of a residential dwelling).
3	Refer to Table 8.1 and Table 9.1 and to select insulation and lining specification to suit sound insulation requirements.
4	For zero lot boundary wall, confirm support batten spacing and fastener specification using Table 10.1 ~ Table 10.3 for structural performance.
5	Document and confirm design selection for building approval / certification.

8. 50MM STAAC WALL® INTERTENANCY WALL SYSTEM

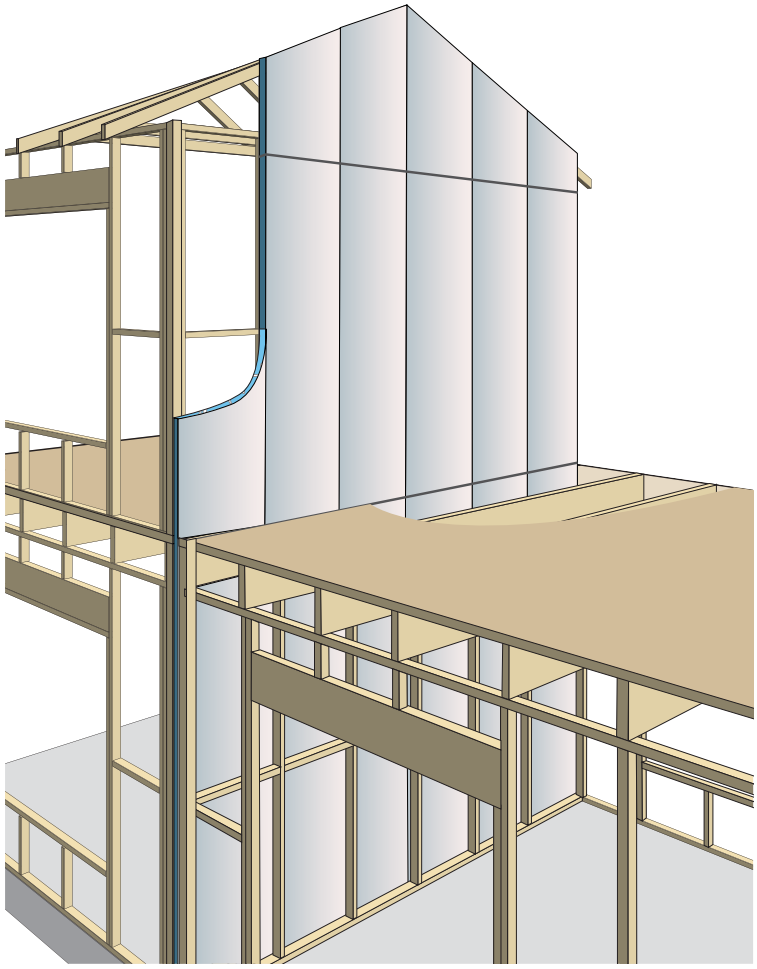


Figure 8.1 STAAC WALL® Intertenancy Systems

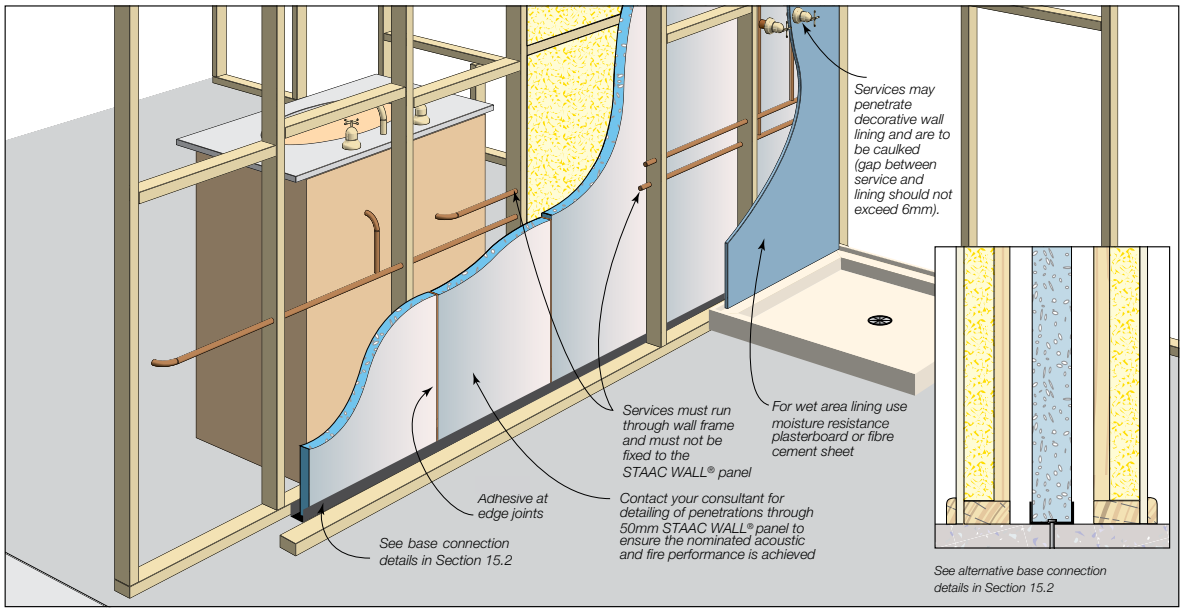


Table 8.1 STAAC WALL® Intertenancy Systems

Nominal wall thickness		FRL	Rw / Rw+Ctr		Cavity insulation	Wall lining both sides
Stud depth			Stud depth			
70mm	90mm		70mm	90mm		
236	276	Max. 90/90/90 (Refer to note 4 for total wall height)	38/29	40/31	Nil - both sides	13mm Plasterboard
			61/47	64/50	90mm Bradford Gold Batt R2.0 - both sides	
230	270		38/28	39/29	Nil - both sides	10mm Plasterboard
			58/45	60/47	90mm Bradford Gold Batt R2.0 - both sides	
228	268		39/30	40/31	NIL - both sides	9mm fibre cement sheet
			64/50	67/52	90mm Bradford Gold Batt R2.0 - both sides	

NOTE:

1. Timber framing to be in accordance to AS 1684 or AS 1720.1. For steel framing, frames to be designed in accordance with NASH standards or AS/NZS 4600.
2. 50mm STAAC WALL® Intertenancy Wall Systems have been assessed to comply with the NCC requirements for 'Discontinuous Construction' - NCC Vol.2 & Housing Provisions, Clause 10.7.1.
3. This table must be read in conjunction with all the information provided in this guide, acoustic opinion 20140366.35/0202A/R6/GW provided by Acoustic Logic and fire assessment report FCO-3255 provided by CSIRO.
4. A Fire Resistence Level (FRL) of 90/90/90mins is only achieved for total height of 7.2m. The wall lining may be omitted within the ceiling space only for ceiling heights up to 1.5m.
5. The FRL of the wall system is reduced to 60/60/60 mins for a total wall height of up to 10m.
6. Selection of the most suitable 50mm STAAC WALL® Intertenancy Wall System should be undertaken with specialist consultant's advice.
7. 20mm separation between the frame and STAAC WALL® panel with aluminium bracket connection.
8. The performance values in the table above were evaluated base on the properties of the specified components. Products with similar or equivalent properties may achieve the same performance. Consult product manufacturer for substitution recommendation and evidence of conformity.

9. 50MM STAAC WALL® DUAL ZERO BOUNDARY WALL SYSTEM

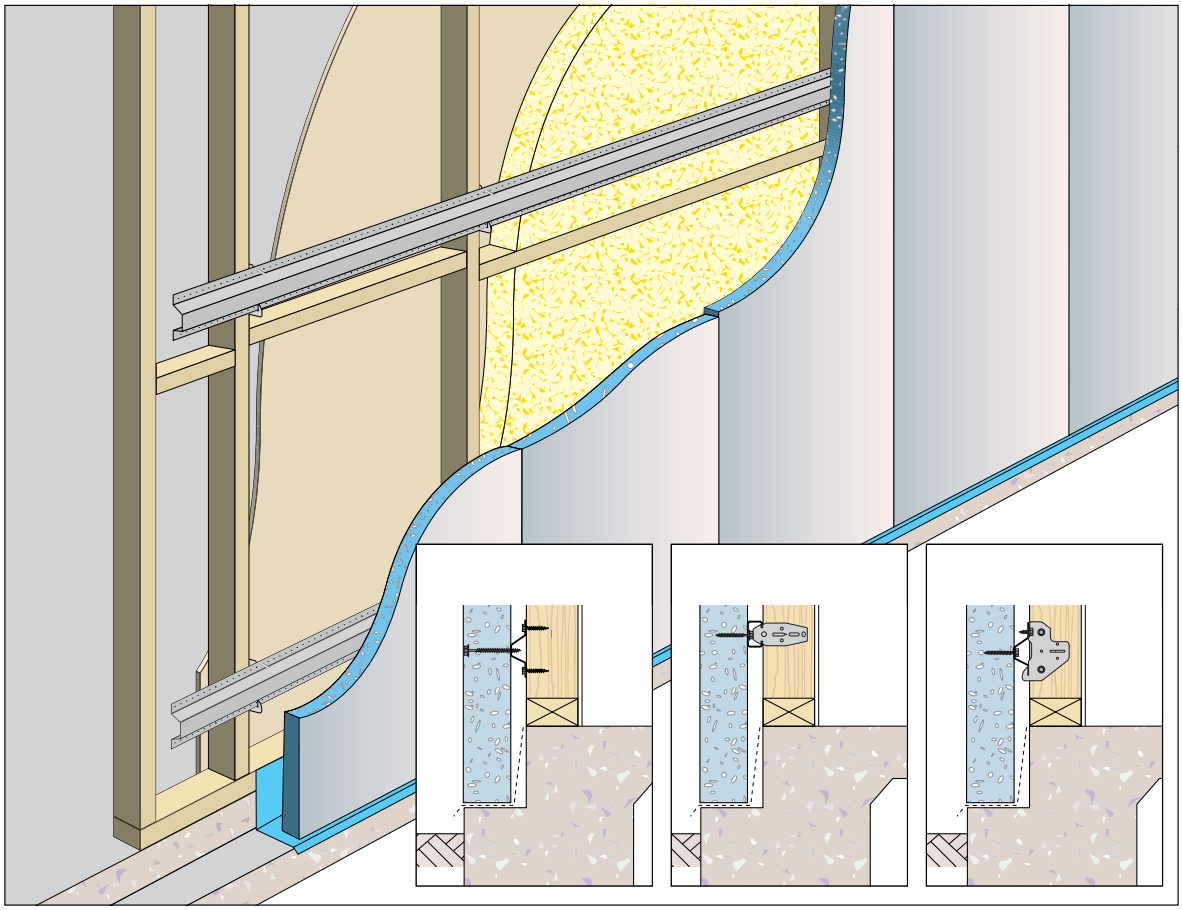


Table 9.1 STAAC WALL® Dual Zero Boundary wall systems

Nominal wall thickness		FRL	Cavity	System Installation
Stud depth				
70mm	90mm			
154	174	90/90/90	24mm Top Hat	24mm top hat direct fixed to frame
				24mm top hat fixed to frame with stud clip
165	185		35mm Top Hat	35mm top hat direct fixed to frame
				35mm top hat fixed to frame with stud clip

NOTE:

1. The Fire Resistance Level (FRL) is only achieved from panel side.
2. Fixing top hat/battens directly to the frame, or, connecting top hat/battens to the direct fix clip are both acceptable methods of installations.
3. The nominal wall thicknesses of the systems noted in Table 9.1 have considered minimum 10mm plasterboard internal wall lining.
4. The maximum height of the STAAC WALL® Dual Zero Bouindary wall system is not to exceed 15 m and is to be constructed in accordance with the construction methods detailed in this manual.

10. STRUCTURAL DESIGN

10.1 LOADING

The 50mm STAAC WALL® intertenancy wall and zero lot boundary wall systems are designed to be non-load bearing.

10.2 CONSTRUCTION LOADINGS

During construction of intertenancy walls, the STAAC WALL® panel may be subject to wind loading. Adequate temporary bracing must be provided to the panel until both structural frames and external veneer / claddings are installed so as to prevent the panels from exposure to external wind pressures. The normal fixing used to install the STAAC WALL® panels are not designed to take bracing load and shall not be considered as adequate bracing.

10.3 WALL FRAME

The steel stud frame shall be designed and constructed in accordance with NASH standards & handbooks and AS/NZS 4600. The timber stud frame shall be designed and constructed in accordance with AS 1684. The support framing system shall have adequate structural integrity to support the AAC panels. Furthermore, the nominated stud size in Section 8 and Section 9 are for acoustic and thermal designs. The structural adequacy of the support frame shall be confirmed by the design structural engineer.

10.4 SUPPORT BATTENS

CSR 24mm and 35mm perforated top hat type wall battens are used to provide immediate support for STAAC WALL® panels. The spacing requirements of the top hat batten are in Table 10.1 - Table 10.4. The structural performance of the hat batten complies with NASH standards and AS/NZS 4600.

The cavity width shall not be less than 20mm except where sheet bracing is located within the cavity where the batten depth may be reduced to a minimum of 16mm. Battens can be installed vertically onto studs with panels to span horizontally. Refer to table 3.3(G), 3.3(H) & 3.3(I) of AS 5146.3:2018.

Table 10.1 Top Hat Batten Specifications

Top Hat Batten Specification	24mm	35mm
		
Overall depth	24mm	35mm
Base material thickness BMT:	0.42mm	0.55mm
Steel grade:	G550	Galvabond fy = 270MPa
Coating class:	AM150	Z275

10.5 WALL HEIGHT

The overall wall height limits for STAAC Wall intertenancy wall system is 10.0m to achieve an FRL of 60/60/60 , and is 7.2m to achieve an FRL of 90/90/90. The overall wall height limits for STAAC Wall dual zero boundary wall system is 15.0m to achieve an FRL of 90/90/90.

10.6 EARTHQUAKE LOADS

Earthquake loading has not been considered in this design and installation guide. It is the designer's responsibility to ensure the connection system has adequate capacity to resist any imposed earthquake loading.

10.7 BATTEN & FIXING SELECTIONS FOR DUAL ZERO BOUNDARY WALLS

Wall mount steel battens are provided in nominal widths of 24mm and 35mm have been designed and constructed in accordance with NASH standards and AS/NZS 4600. The following tables provide designs based on 24mm, and 35mm hat type wall battens.

Table 10.1 Number of top hats (24mm and 35mm) - panel supported at base on slab edge

WIND CLASSIFICATION	ULTIMATE WIND PRESSURE (kPa)		STUD SPACING (mm)	NUMBER OF TOP HATS PER PANEL					
				PANEL LENGTH (mm)					
				≤ 2400		≤ 2700		≤ 3000	
	AWAY FROM CORNERS	WITHIN 1200mm OF CORNERS		PANEL LOCATION		PANEL LOCATION		PANEL LOCATION	
				TYPICAL	CORNER	TYPICAL	CORNER	TYPICAL	CORNER
N2	0.67/-0.62	-1.25	600	4	4	4	4	4	4
N3	1.05/-0.98	-1.95	600	4	4	4	4	4	5
N3	1.05/-0.98	-1.95	450	4	4	4	4	4	4

Table 10.2 Number of screws per panel at each batten location (24 and 35mm)

WIND CLASSIFICATION	ULTIMATE WIND PRESSURE (kPa)		STUD SPACING (mm)	NUMBER OF SCREWS PER PANEL PER BATTEN			
				PANEL LOCATION			
				TYPICAL		CORNER	
	AWAY FROM CORNERS	WITHIN 1200mm OF CORNERS		END	INTERNAL	END	INTERNAL
N2	0.67/-0.62	-1.25	600	2	2	3	4
N3	1.05/-0.98	-1.95	600	2	3	3	4
N3	1.05/-0.98	-1.95	450	2	3	4	4

NOTES:

1. Negative wind pressure (-); Positive wind pressure (+). Negative pressure is acting away from the panel and positive pressure is acting towards the panel.
2. All battens to be spaced equally, with top and bottom battens positioned at maximum 250mm from the end of the panel.
3. Corner panel location applies to panels within 1200mm of corners.
4. For the design of intermediate panel lengths use the same design as the longer panels.
5. The building designer must allow for internal pressures resulting from dominant openings when the building is designed to AS/NZS 1170.2 for regions C and D.
6. "End" refers to the top and bottom rows of battens. "Internal" refers to rows of battens excluding the top and bottom row. Refer to Figure 15.7.3.

10.8 FASTENER SPECIFICATION

Most screw fixings are type 17 self drilling fastener for timber application. Connections that have thicker metal thicknesses may require a metal type screw and will need to be specified by the fastener manufacturer or the frame designer.

Fixings – Deflection head track to substrate

The fixing to secure the angles and tracks to the concrete slab shall be capable of withstanding a shear load of 0.75kN / m. For high wind pressures during construction, the designer shall determine if mechanical fasteners are required:

- Drive pins and concrete nails (check size and suitability for fire rated scenarios with the manufacturer);
- 8mm diameter mechanical fasteners.

Table 10.5 and Table 10.6 outlines the connection type and requirements for fastening 50mm STAAC WALL® panels. The project engineer or framing manufacturer is responsible for specification of alternative details. The minimum performance requirement of the screw is class 3 in minimum screw coating class in accordance with AS 3566.

Table 10.5 Screw specification for intertenancy wall

TYPE OF SCREW	APPLICATION	SOCKET TYPE
M8 Dynabolt	Bottom angle / track to structure	600mm max. centres
14-10 x 40mm hex head type 17 screws	Bottom angle to STAAC WALL® panel	2 fixings per panel, 50mm min. from panel edge
12-11 x 35mm hex head type 17 screws	Aluminium bracket to timber frame	2 fixing per bracket
10-16 x 16mm hex head self-drilling screws	Aluminium bracket to steel frame	2 fixing per bracket
12-11 x 40mm hex head type 17 screws	Aluminium bracket to STAAC WALL® panel	2 fixing per bracket

Table 10.6 Screw specification for dual zero boundary wall

TYPE OF SCREW	APPLICATION	NUMBER OF FIXINGS AND SPACING
14-10 x 65mm bugle head type 17 screw	Fix STAAC WALL® panel to top hat from outside of building	See Table 10.1
12-11 x 40mm hex head type 17 screws	Fix STAAC WALL® panel to batten from inside of building	See Table 10.1
12-11 x 35mm hex head type 17 screws	Fix clip to timber frame or fix batten direct to timber frame	Min. 15mm edge distance and 20mm between screws. Min. 2 screws per clip per stud
10-16 x 16mm hex head self-drilling screws	Fix clip to steel stud frame or fix batten direct to steel frame	Min. 15mm edge distance and 15mm between screws Min. 2 screws per clip per stud
10-16 x 16mm hex head self-drilling screws	Fix 24mm & 35mm battens to batten bracket	2 screws per bracket

11. ACOUSTIC DESIGN

The National Construction Code (NCC) presents the Performance Requirements for sound insulation ratings. These acoustic performance ratings set minimum values to consider for two types of sound: airborne sound and impact generated sound.

The performance requirements for airborne sound insulation and impact sound insulation ratings are dependent upon the form of construction (i.e. walls or floors), class of building, and the type of areas being separated.

The airborne sound performance requirement is a value that could be the weighted sound reduction index (Rw) or weighted reduction index with spectrum adaptation term (Rw + Ctr). The impact sound performance requirement is a value called the weighted normalised impact sound pressure level with spectrum adaptation term (Ln,w + Cl).

The NCC does provide performance requirements for the airborne sound and impact generated sound insulation ratings for an intertenancy wall. Refer to Section 8 of this guide for sound insulation resistance levels of the 50mm STAAC WALL® Intertenancy Wall System.

11.1 IMPACT SOUND PERFORMANCE

Impact sound is caused by vibrations, which are transferred directly through the wall and re-radiated as sound in the adjacent room. These sound vibrations can be generated by actions such as closing of a cupboard door.

The transfer of impact sound can be minimised by ensuring no mechanical connection exists between the two sides of the wall. For impact rated walls the NCC requires walls to be of 'discontinuous construction'. This refers to a wall maintaining a cavity between two separate leaves except at the periphery.

11.2 ACOUSTIC PERFORMANCE DESIGN RECOMMENDATIONS

1. It is recommended to engage a specialist acoustic consultant on a project-by-project basis to provide design advice, confirmation of anticipated field performance, detailing and installation inspections.
2. When selecting the appropriate STAAC WALL® Intertenancy Wall System, the designer or specifier must be aware that the laboratory Rw values are almost always higher than the field measured values. Allowances should be made for the lower expected field values during the selection of the system.
3. Separate advice from a specialist acoustic consultant should be sought to determine the effect on acoustic performance due to any changes to the 50mm STAAC WALL® Intertenancy Wall System, and any required modification of the installation details pertaining to the systems.
4. Increasing of cavity widths, using higher density or thicker insulation or plasterboard, will generally maintain or increase the acoustic performance of the 50mm STAAC WALL® Intertenancy Wall System.
5. The acoustic performance values of the STAAC WALL® Intertenancy Wall System shown in Section 8 is a guide only. They do not constitute a field performance guarantee. Factors such as the presence of flanking paths, quality of installation of the system, onsite detailing of junctions, room shapes and size, etc can significantly affect field performance. Maximising the field performance is dependent on the following factors:
   - The systems are installed in accordance with the manufacturer's standard installation details.
   - Good quality installation practices including the sealing of all junctions and joints and maintaining specified clearances.
   - The systems are installed with all junctions acoustically sealed so that negligible sound transmission occurs at these points.
   - Flanking paths are eliminated and the structures into which the systems are installed are capable of allowing the nominated rating to be achieved.
   - Site testing conditions.
   - To minimise the transfer of sound through the 50mm STAAC WALL® Intertenancy Wall System into the adjacent unit, it is suggested that a control joint be provided to break the mechanical path for the transmission of impact sound and other vibration.
   - All services penetrations, etc are acoustically sealed and treated so that negligible sound transmission occurs through these points.
   - Contact your acoustic consultants for detailing of penetrations to ensure the nominated acoustic performance is achieved.

12. FIRE RESISTANCE DESIGN

12.1 FRL

The fire resistance level (FRL) rating performance of the 50mm STAAC WALL® Intertenancy Wall System detailed in this guide has been derived from CSIRO fire assessment report FCO- 3255 (for STAAC WALL® Intertenancy Wall Systems).

The fire resistance level (FRL) rating performance of the 50mm STAAC WALL® Dual Zero Boundary Wall System detailed in this guide has been derived from CSIRO fire assessment report FCO-3241 (for Dual Zero Boundary Wall system).

This guide has no recommendations for penetrations through the Dual Zero Boundary Wall systems. We recommend contacting the appropriate consultant for design and detailing advice.

12.2 COMPONENT VARIATIONS

Some variations to the installation of the 50mm STAAC WALL® intertenancy Wall system may not affect the FRL as given in the previous section. However, these variations need to be approved by the a fire engineer or building certifier. The possible variations to the systems include:

- Changing the insulation between polyester, glasswool and rockwool
- Putting the insulation on both sides of the 50mm STAAC WALL® panel.

13. WEATHERPROOFING COMPLIANCE TO NCC

The 50mm STAAC WALL® Dual Zero Boundary Wall System has been tested (and results of the test assessed by AECOM) in accordance with the Verification Methods of NCC 2022, specifically the verification methods F3V1 for clause F3P1 (Volume 1) and H2V1 for clause H2P2 (Volume 2).

The results of this test demonstrate the 50mm STAAC WALL® Dual Zero Boundary Wall System (with adhesive applied at the panel joints) and with a suitable acrylic coating system applied over the panel will comply with the performance requirements NCC 2022 for AS 4055 Wind Classifications N1, N2 & N3, specifically the verification methods F3V1 for clauses F3P1 (Volume 1) and H2V1 for clause H2P2 (Volume 2).

14. DELIVERY, STORAGE & HANDLING

14.1 UNLOADING PANEL PACKS

Panel packs should only be unloaded and moved with approved lifting devices. Before use, the lifting devices should be checked for the required lifting tags. Packs should be unloaded as close as possible to the intended installation area. This will increase work efficiency and minimise the need for secondary lifting.

NOTE: Secondary handling increases the risk of panel damage. The repair of damage sustained during lifting and moving is the responsibility of the lifter. Where damage is excessive, the panels must be replaced.

14.2 STORAGE

All materials must be kept dry and preferably stored undercover. Care should be taken to avoid sagging or damage to ends, edges and surfaces.

All STAAC WALL® products must be stacked on edge and properly supported off the ground, on a level platform. Panel bundles can be stacked two high. The project engineer should be consulted as to the adequacy of the structure to support the stacked bundles.

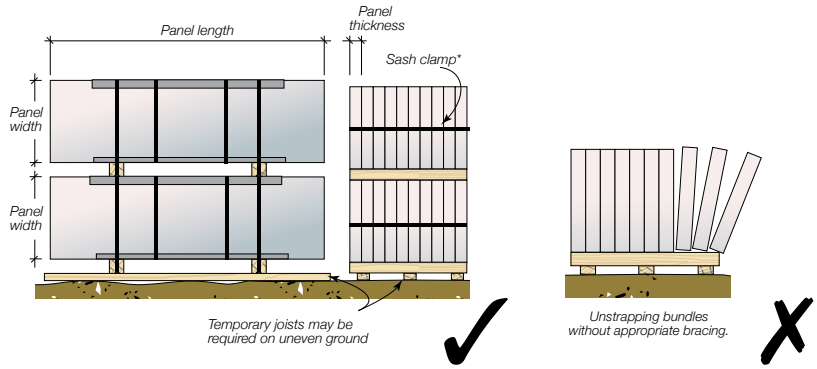
If outside, STAAC WALL® panels must be stored off the ground and protected from the weather. Only single bundles positioned on the ground can be opened. To provide a level surface, we recommend placing temporary joists beneath the supporting cleats.

When storing, the panel orientation must be horizontal with the long edge supported to timber bearers.

14.3 UNSTRAPPING PACKS

Ensure appropriate bracing is installed to packs prior to removal of strapping to prevent panels from falling. Panels can be held together with sash clamps, ratchet, straps or stabilising bars.

Figure 14.1 Stacking packs of STAAC WALL® panels



14.4 HANDLING

Moving and handling STAAC WALL® panels should be handled as much as possible using mechanical aids such as forklifts, cranes or panel lifting trolleys. Manual handling where people physically move a panel should be kept to a minimum, with the weight being supported by an individual kept as small as possible. Any concerns regarding the weight to be handled should be discussed with the panel installation supervisor.

Follow the suggestions below to avoid injuries to installation personnel:

- Use mechanical lifting / support equipment, such as trolleys, forklifts, cranes and levers
- Manual lifting and moving of panels should be carried out in accordance with safework requirements
- Keep the work place clean to reduce the risk of slips, trips and falls, which can cause injury
- Plan the sequence of installation to minimise panel movements and avoid unnecessary lifts
- Train employees in good lifting techniques to minimise the risk of injury
- Lift panels only from the edges, they must not be handled horizontally

14.5 HEALTH, SAFETY & PERSONAL PROTECTIVE EQUIPMENT (PPE)

Always wear gloves when handling panels, AAC is produced from cement and may cause skin irritation.

Approved fit tested respirators to AS/NZS 1715 and AS/NZS 1715 and safety eyewear to AS 1336 must be worn at all times when cutting and chasing AAC material. Check the STAAC WALL® Material Safety Data Sheets for material safety information.

14.6 CUTTING

The standard STAAC WALL® panel can be reduced in length by cutting 150mm maximum from each end when used in an intertenancy wall application, and to a minimum width of 270mm.

Penetration through intertenancy wall must be avoided at all time. Consult relevant design consultants (fire, acoustic & thermal) on the effect of penetration to intertenancy wall performance.

Cutting of cement based products may cause dust, which contains respirable crystalline silica, with the potential to cause bronchitis, silicosis and lung cancer after repeated and prolonged exposure. When using power or hand tools, on AAC products, wear a P1 or P2 fit tested respirator and eye protection. When cutting, routing or chasing AAC products with power tools, use dust extraction equipment that complies with M or H class requirements of AS/NZS 60335.2.69-2017 and wear hearing protection. Wet cutting may be mandatory in certain Australian States. Please confirm with local work safe authority on cutting / chasing requirements for AAC products. Refer to the appropriate STAAC WALL® MSDS for further information.

Reinforcement exposed during cutting must be coated with a liberal application of STAAC WALL® recommended Anti-corrosion protection paint.

15. CONSTRUCTION DETAILS

15.1 Construction Details - Intertenancy Wall

15.2 Construction Details -Dual Zero Boundary Wall

15.1 CONSTRUCTION DETAILS - INTERTENANCY WALL

Figure 15.1.1 Typical layout of STAAC WALL® Intertenancy Walls

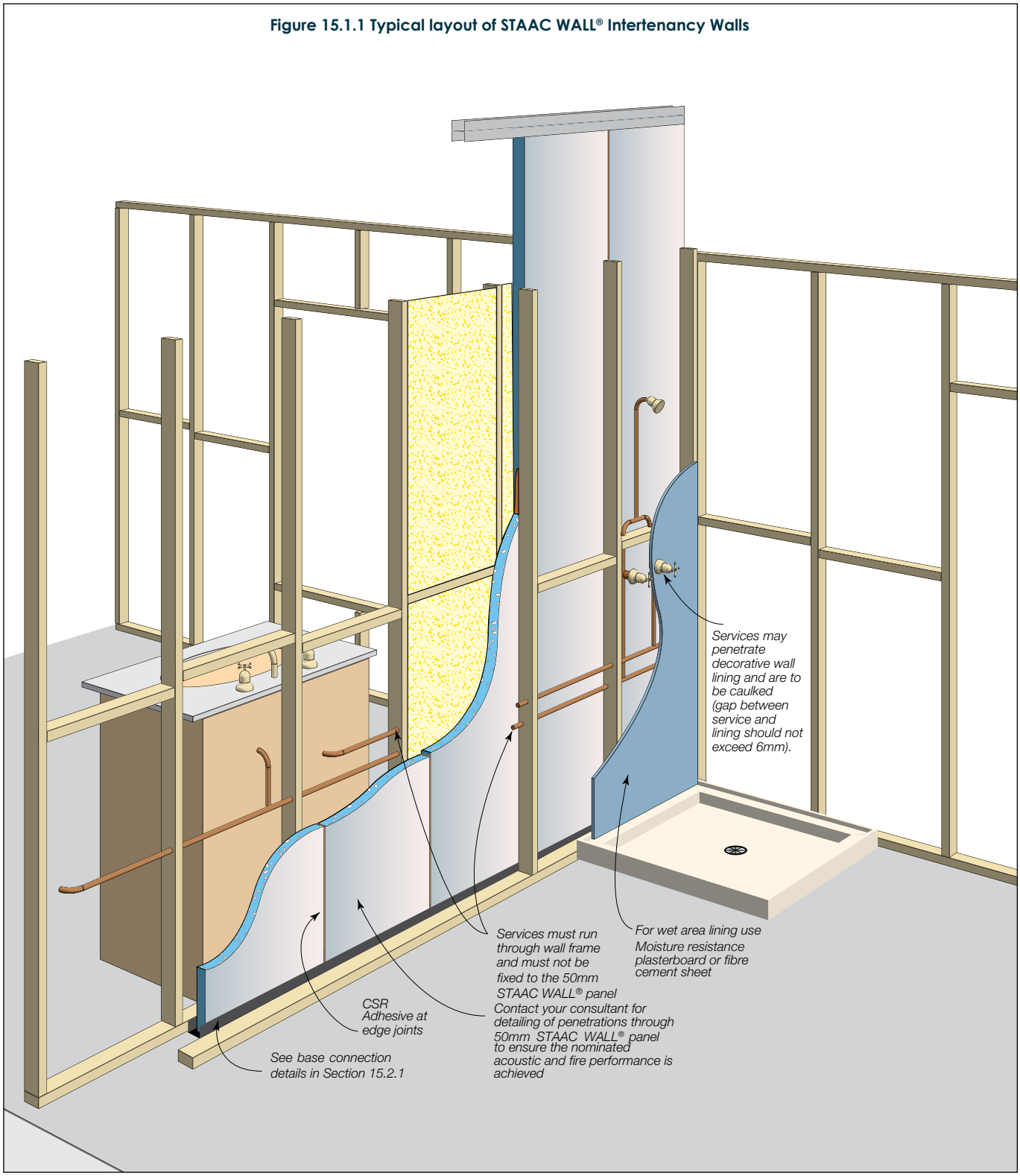
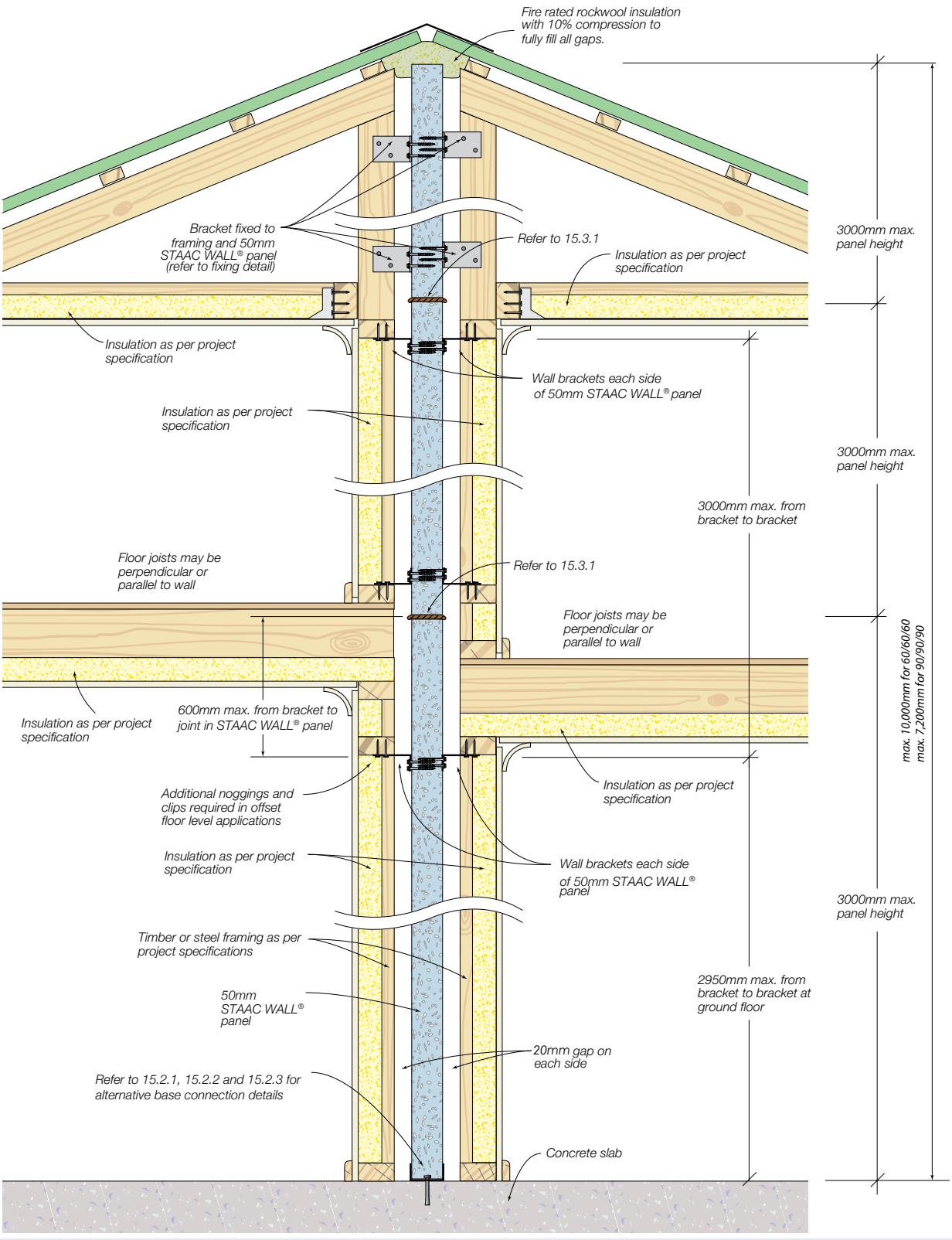


Figure 15.1.2 Vertical cross section of STAAC WALL® Intertenancy Walls



NOTE: Wall brackets can be fixed to studs or noggins within a distance of 150mm from ceiling or floor.

15.2 BASE CONNECTION

Figure 15.2.1 Base connection - Continuous deflection head track

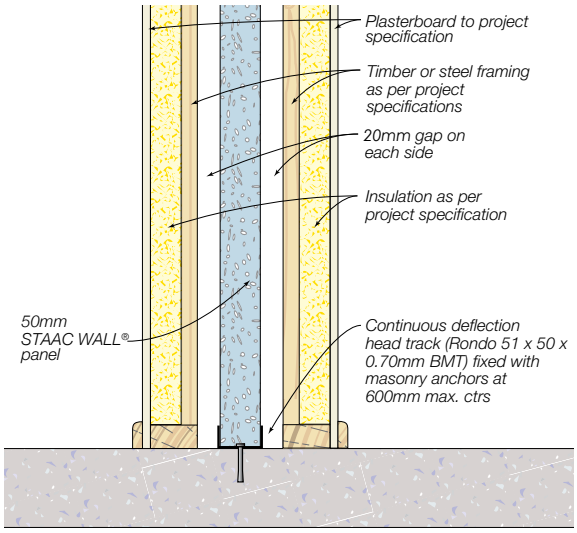


Figure 15.2.2 Base connection - Continuous steel angle

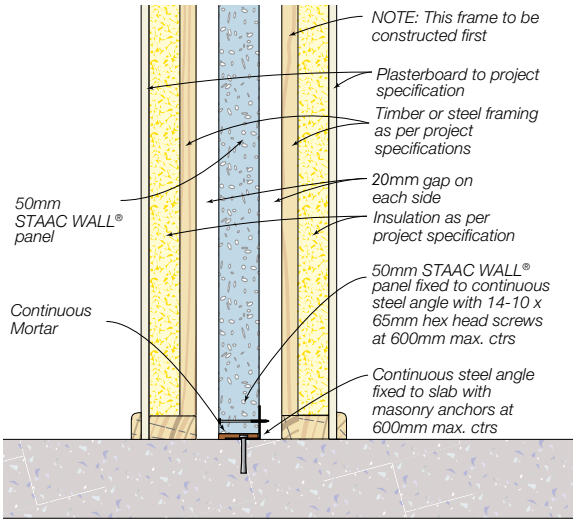


Figure 15.2.3 Base connection - Wall bracket

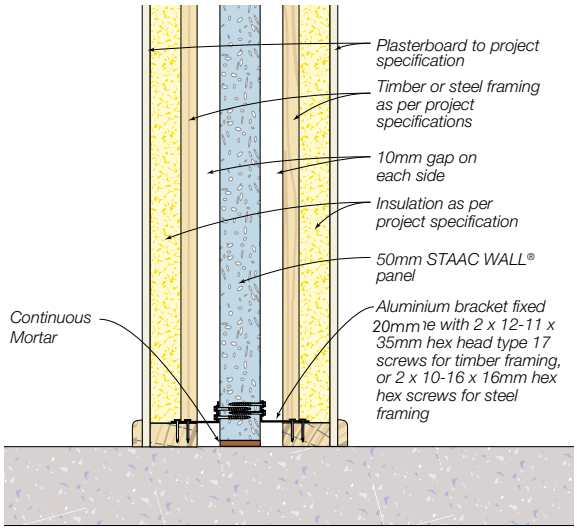
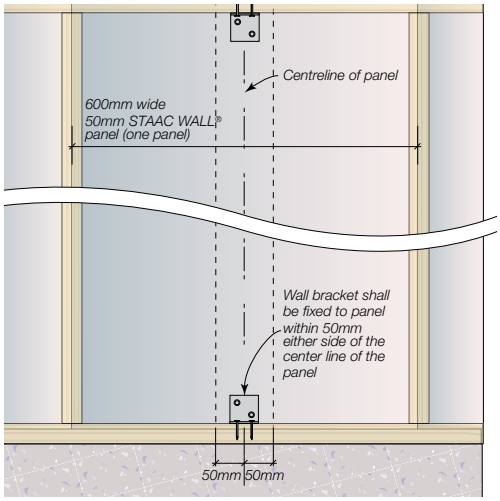


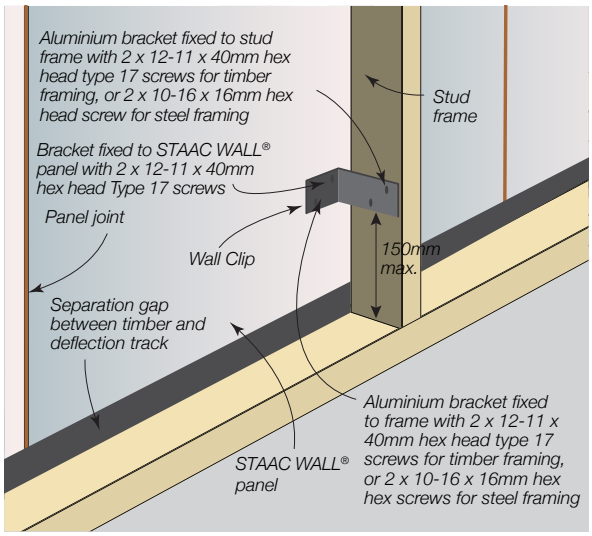
Figure 15.2.4 - Wall bracket fixing



NOTE:

1. GROUND LEVEL: Screw fix wall bracket at top and bottom plates of wall frame and to the 50mm STAAC WALL® panel. No brackets are required at bottom plate when using a continuous deflection head track or continuous steel angle for base connection. See Section 5.3 for base connection options.
2. UPPER LEVEL: Screw fix wall bracket at top and bottom plates of wall frame and to the 50mm STAAC WALL® panel.
3. Wall brackets are screw fixed to 50mm STAAC WALL® panel at 600mm centres, within 50mm either side of centreline of each panel. Use fixings specified in Table 10.5.

Figure 15.2.5 - Wall bracket offset detailing



15.3 CONTROL JOINTS

Figure 15.3.1 Horizontal joints (FRL: 90 minutes)

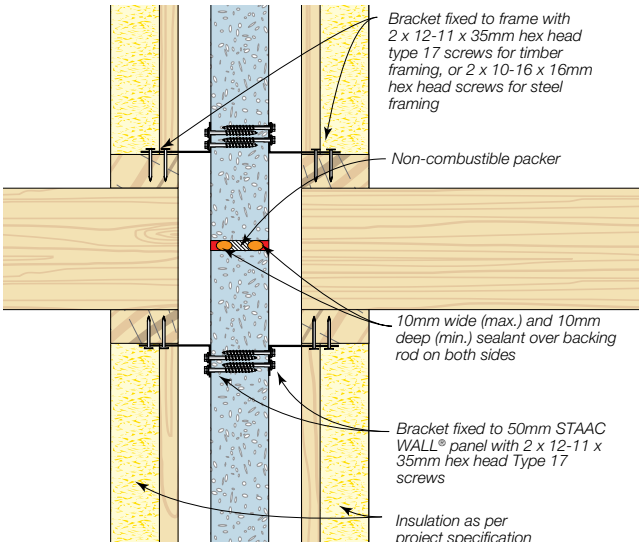


Figure 15.3.2 Vertical joints - Option 1 (FRL: 60 minutes)

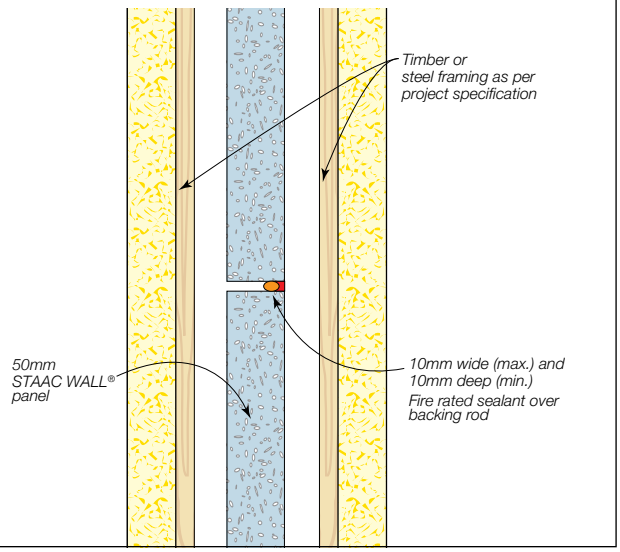
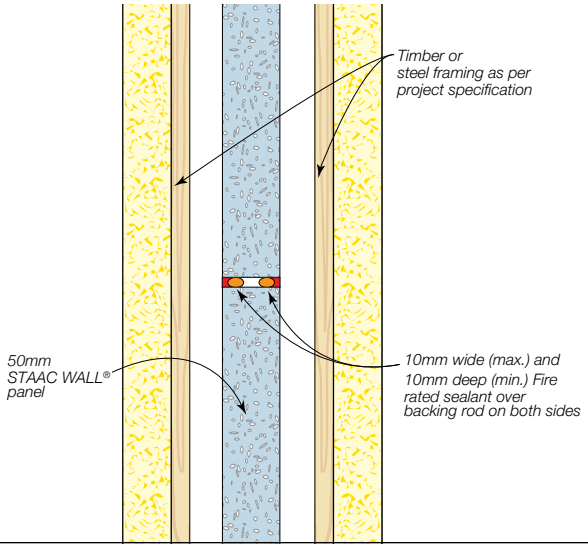


Figure 15.3.3 Vertical joints - Option 2 (FRL: 90 minutes)



15.4 ROOF VALLEY AND PARAPET

Figure 15.4.1 Roof valley for 50mm STAAC WALL® Intertenancy Walls

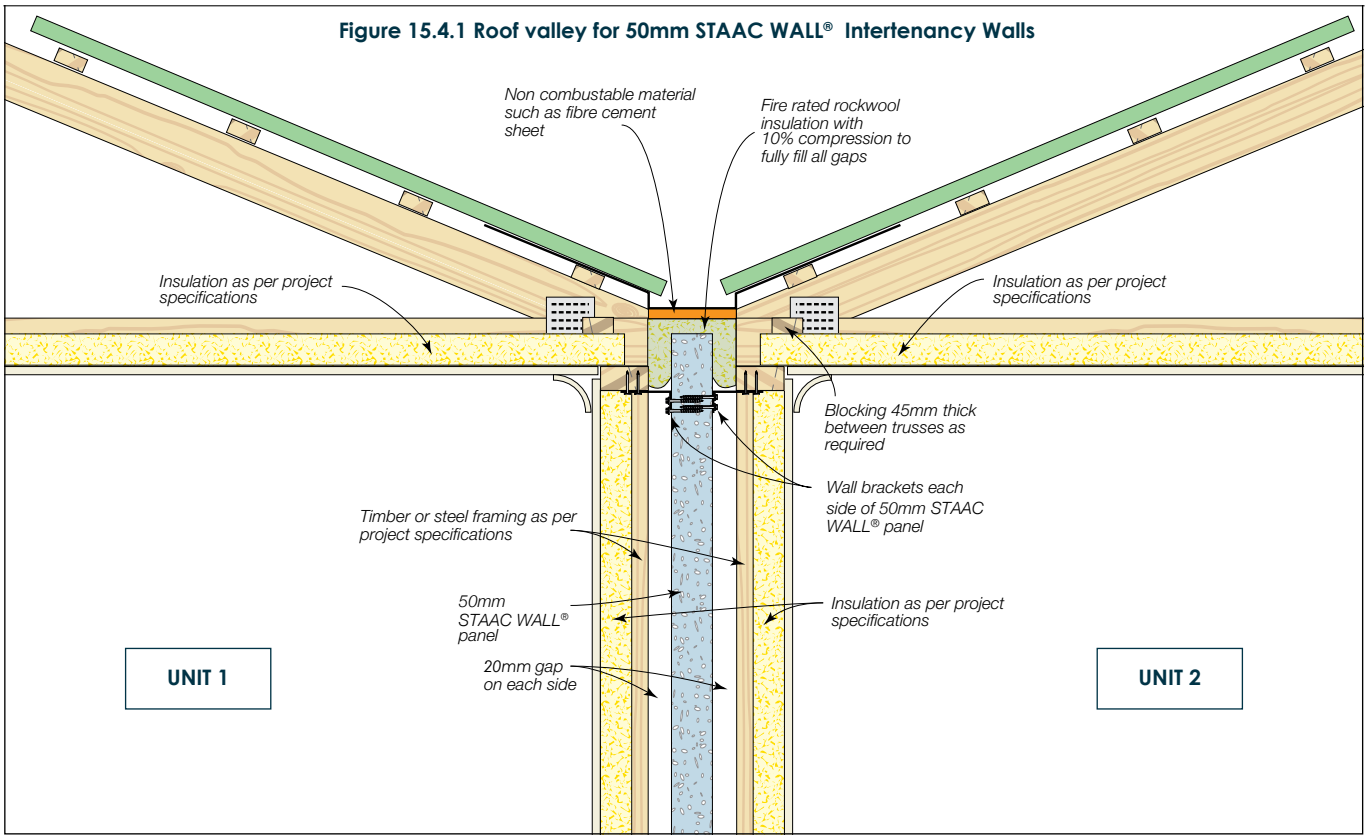


Figure 15.4.2 Roof parapet for 50mm STAAC WALL® Intertenancy Walls

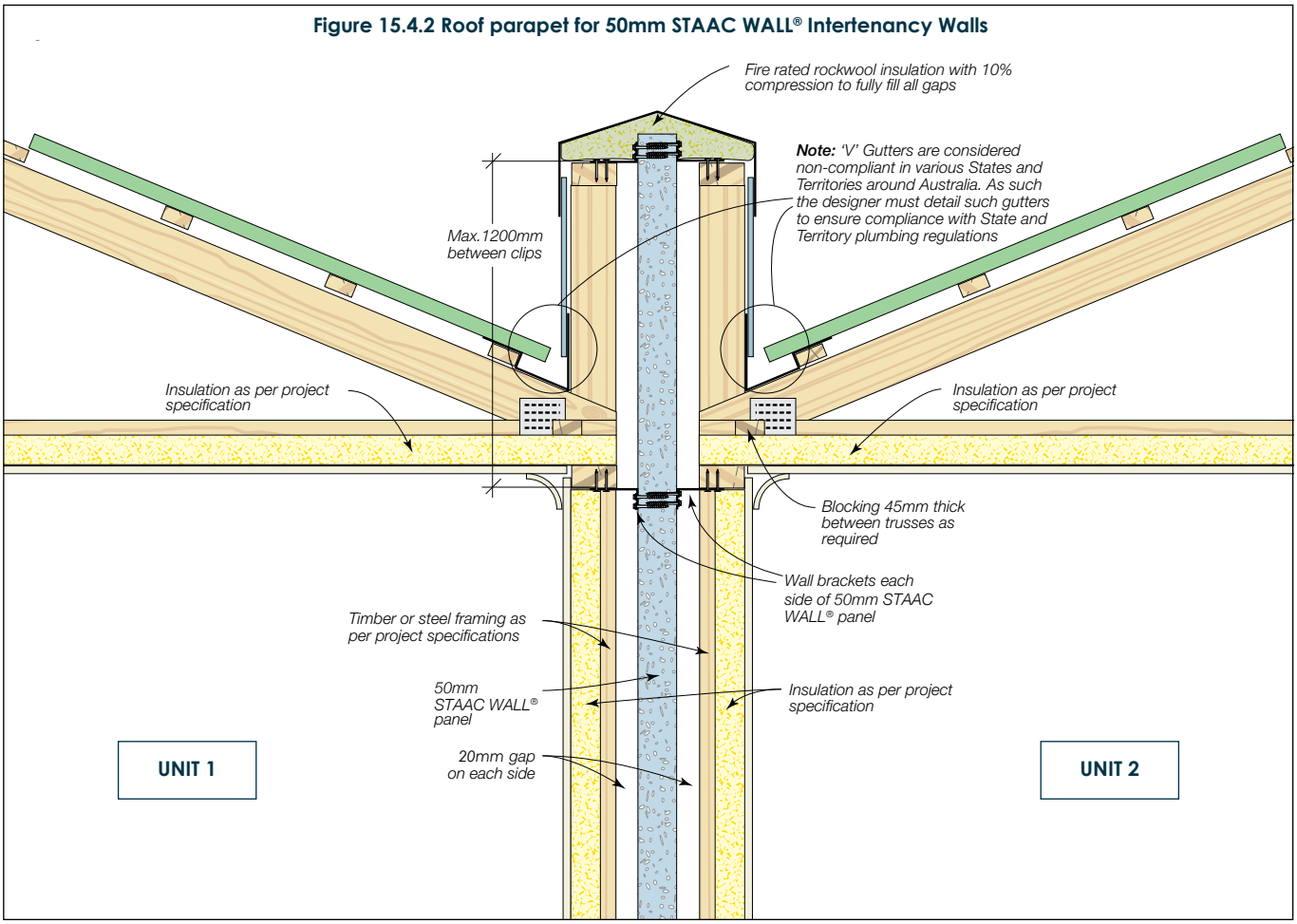


Figure 15.5.1 External wall junction for STAAC WALL ® Intertenancy Walls

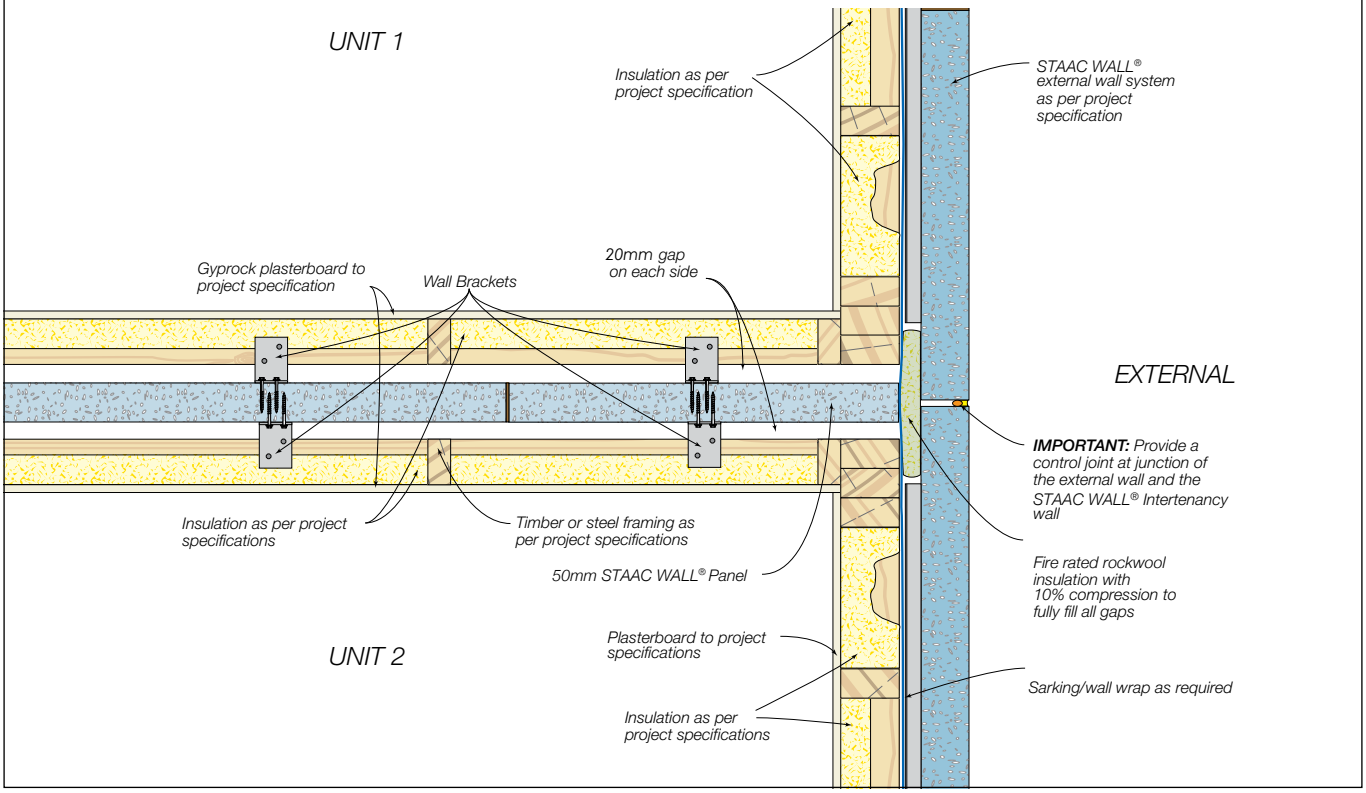
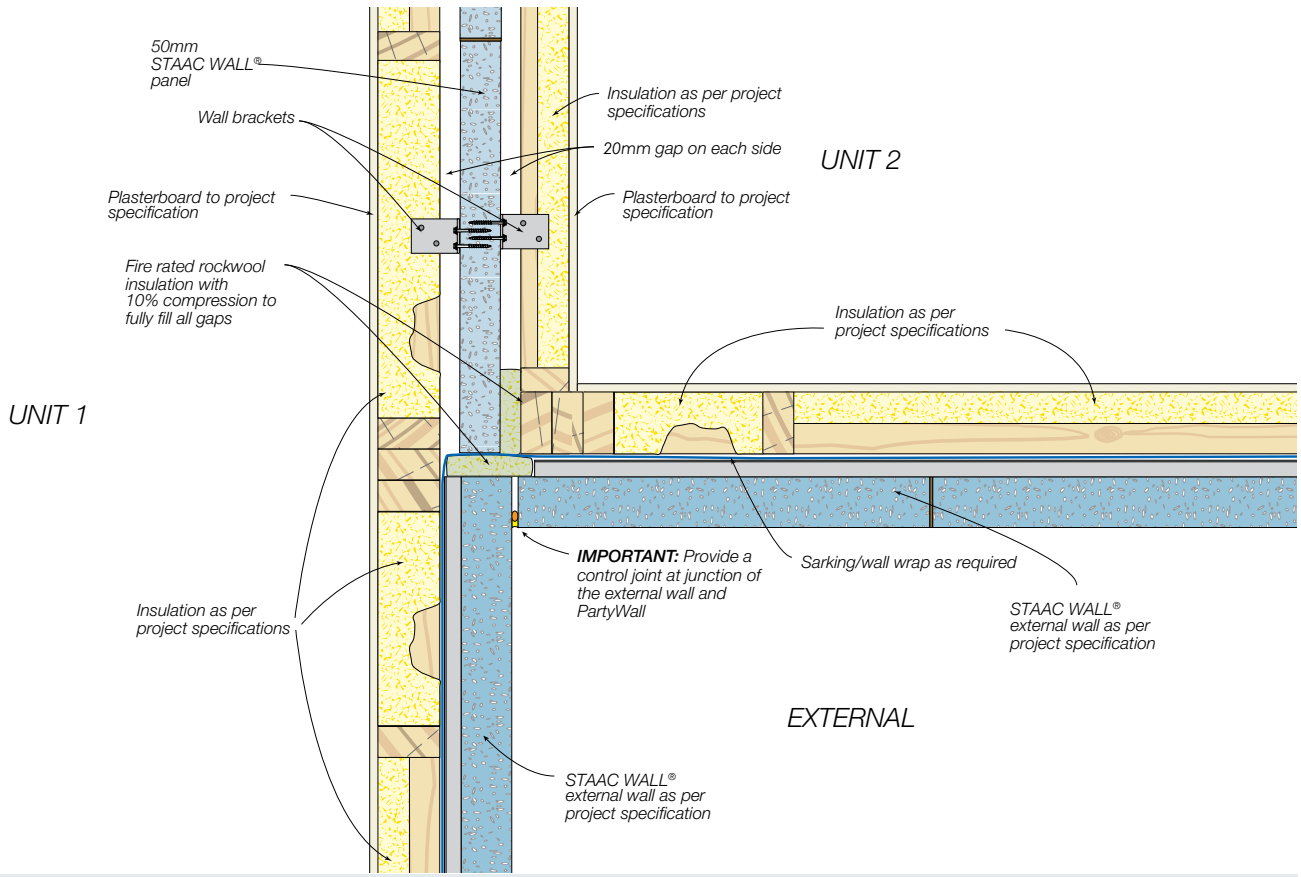


Figure 15.5.2 External wall corner junction for 50mm STAAC WALL® Intertenancy Walls



NOTE: Refer to Houses and Low Rise Multi Residential STAAC WALL External Walls Design & Installation Guide for reference for fixings

Figure 15.5.3 Blade wall junction detail

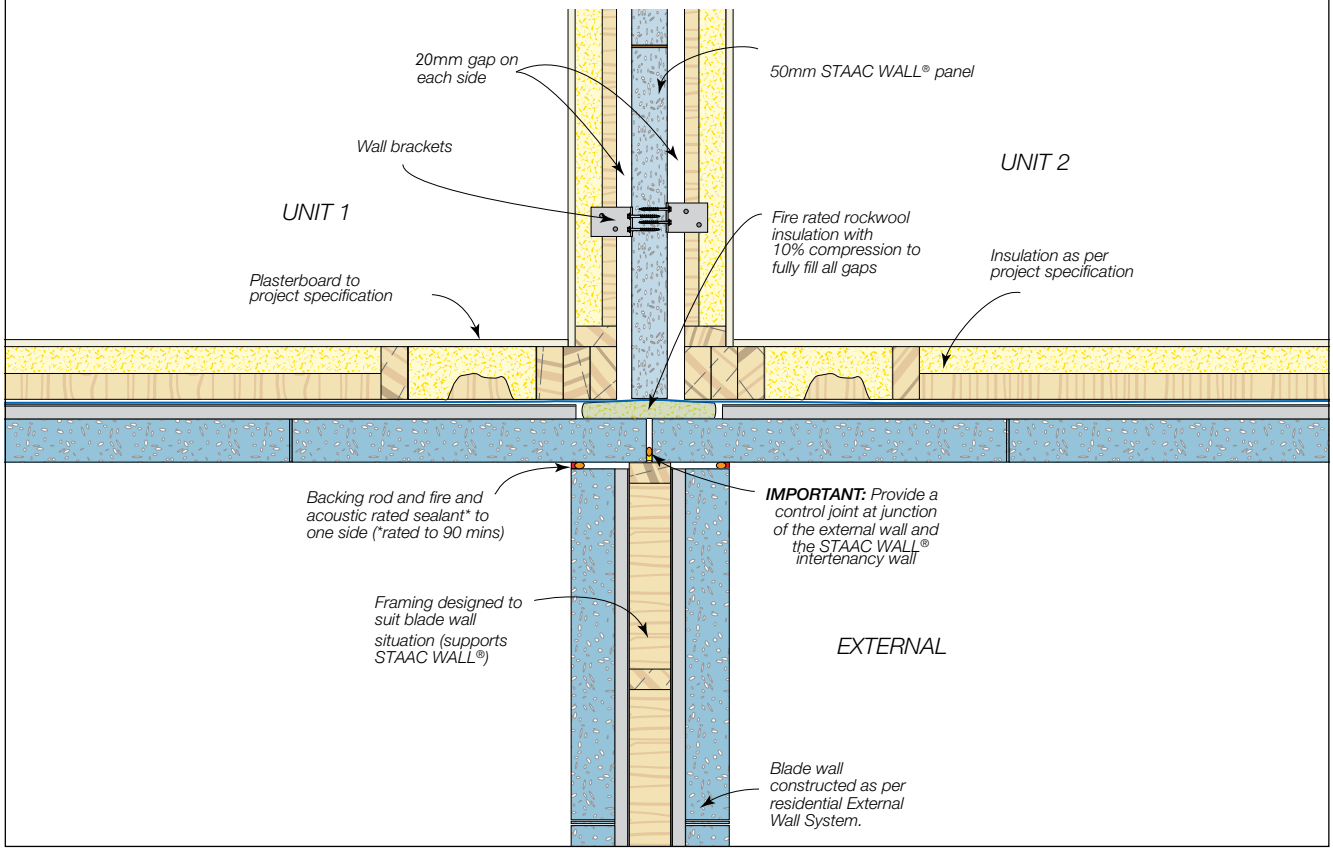
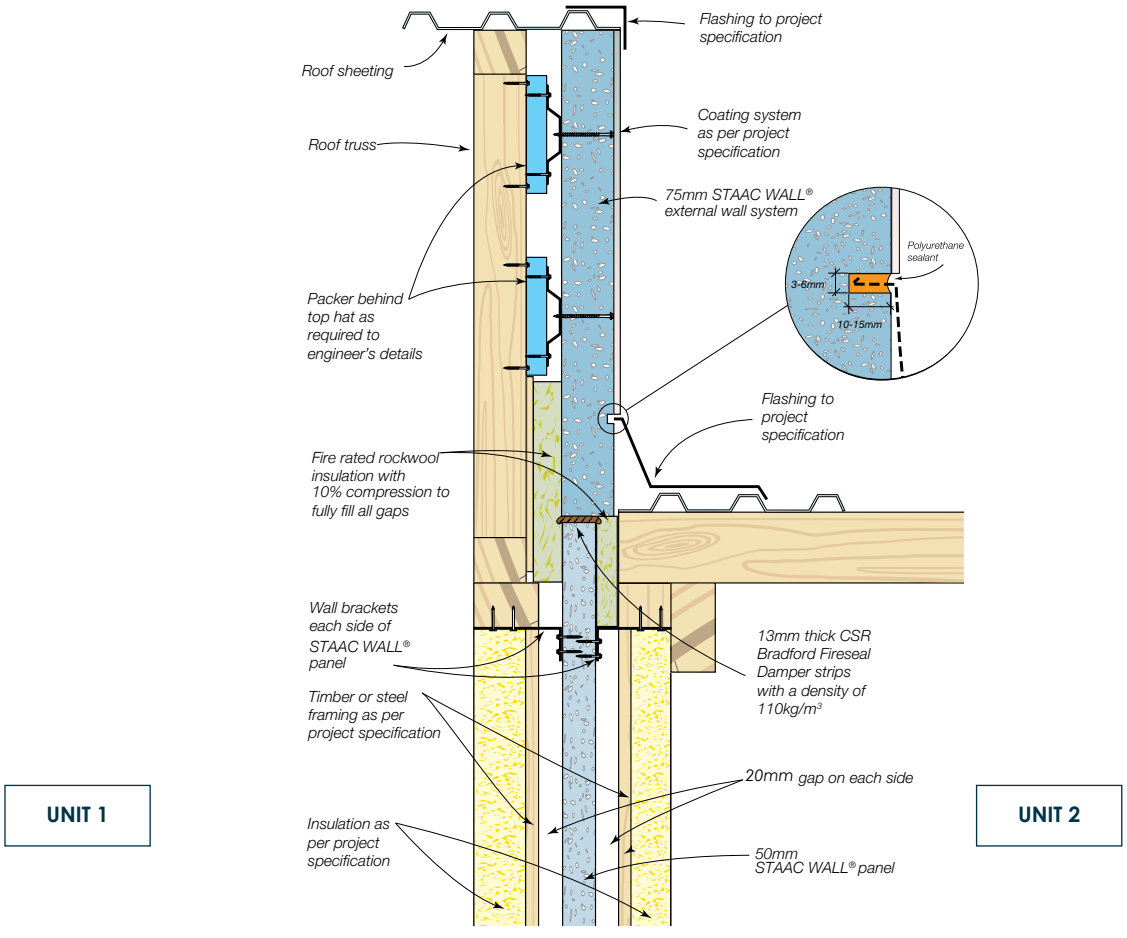


Figure 15.5.4 Intertenancy wall to external wall system



15.6 CEILING AND ROOF

Figure 15.6.1 Ceiling and roof detail

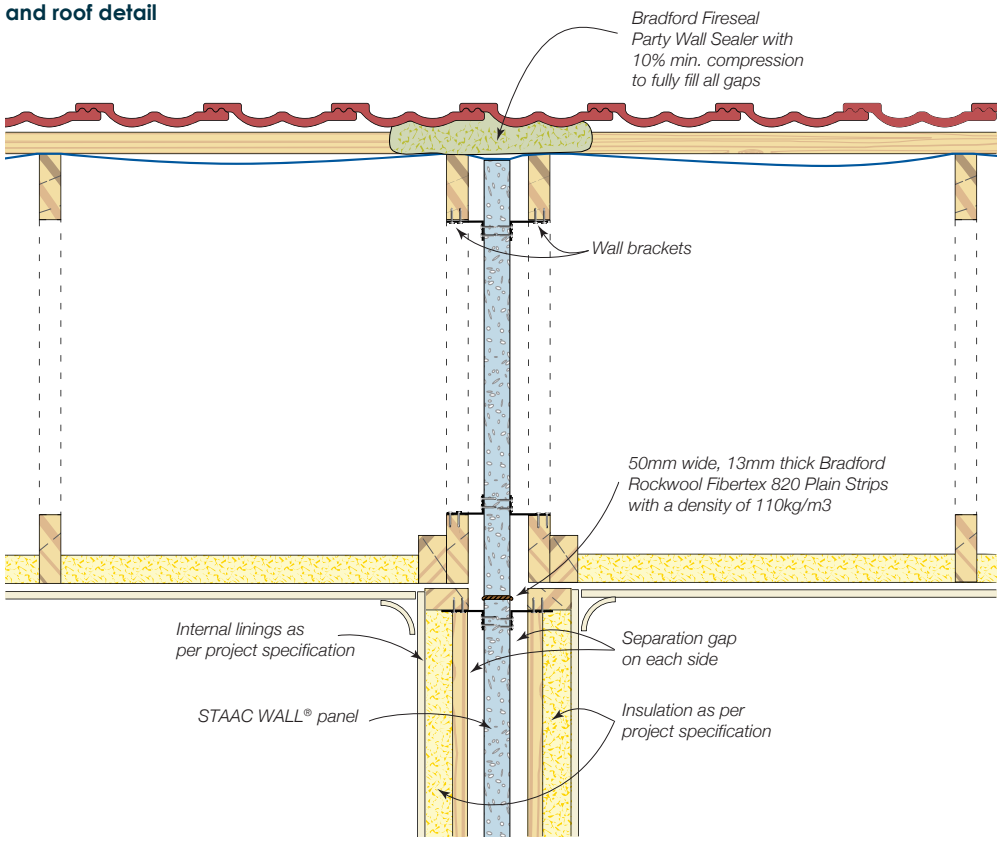
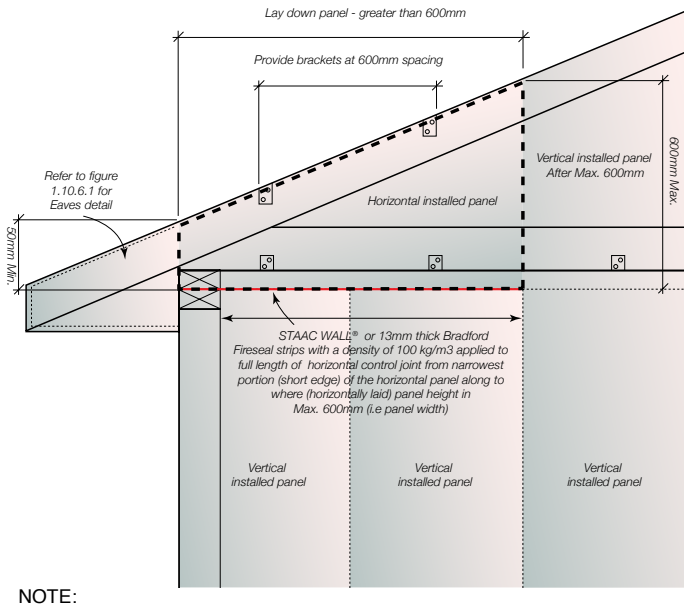


Figure 15.6.2 Horizontal panel in roof void



NOTE:

1. Allowed short edge distance of horizontal panel to be minimum 50mm.
2. STAAC WALL® Fire sealant applied to one side of the joint to achieve wall system FRL of 60/60/60 (Refer to Figure 15.3.2)
3. STAAC WALL® Fire sealant applied to both sides of the joint to achieve wall system FRL of 90/90/90 (Refer to Figure 15.3.3)
4. The height of the last horizontally installed Hebel panel installed after the last vertical installed Hebel panel in the roof void could be tapered to zero. If panels are cracked or damaged the panels will need to be replaced.

15.7 CONSTRUCTION DETAILS - DUAL ZERO BOUNDARY WALL

Figure 15.7.1 Typical section detail for 50mm STAAC WALL® Dual Zero Boundary Walls – 3900mm max. wall height.

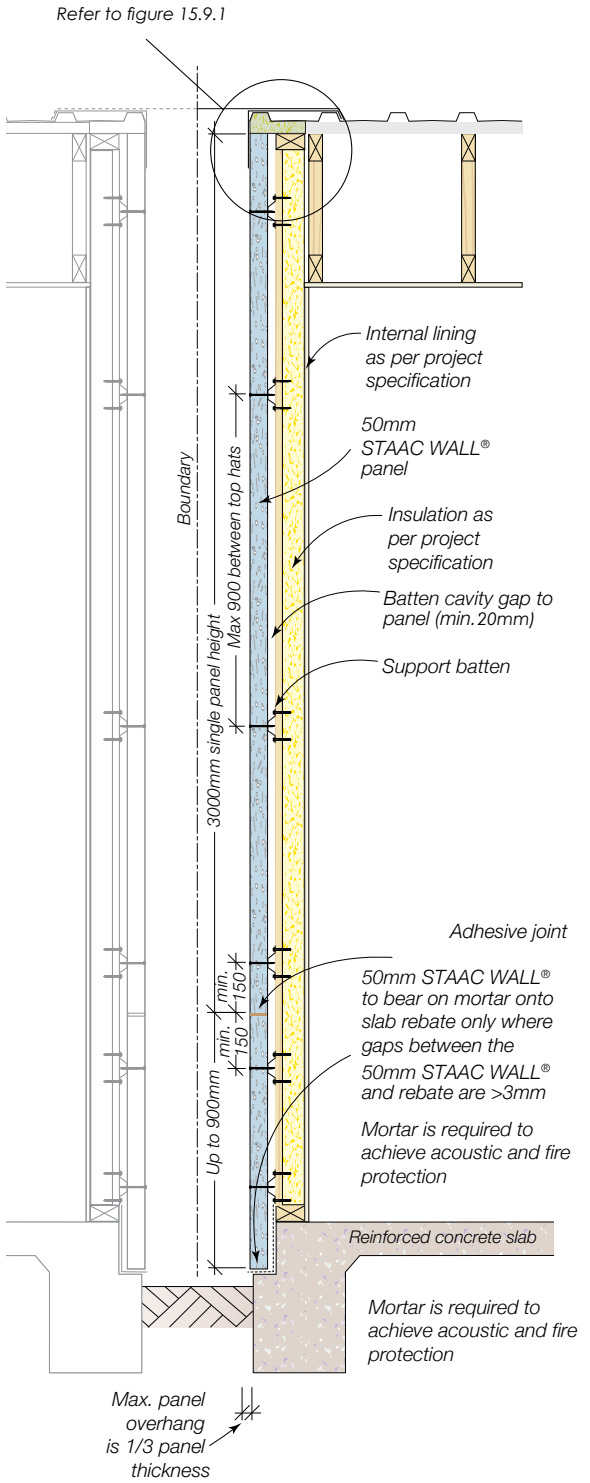
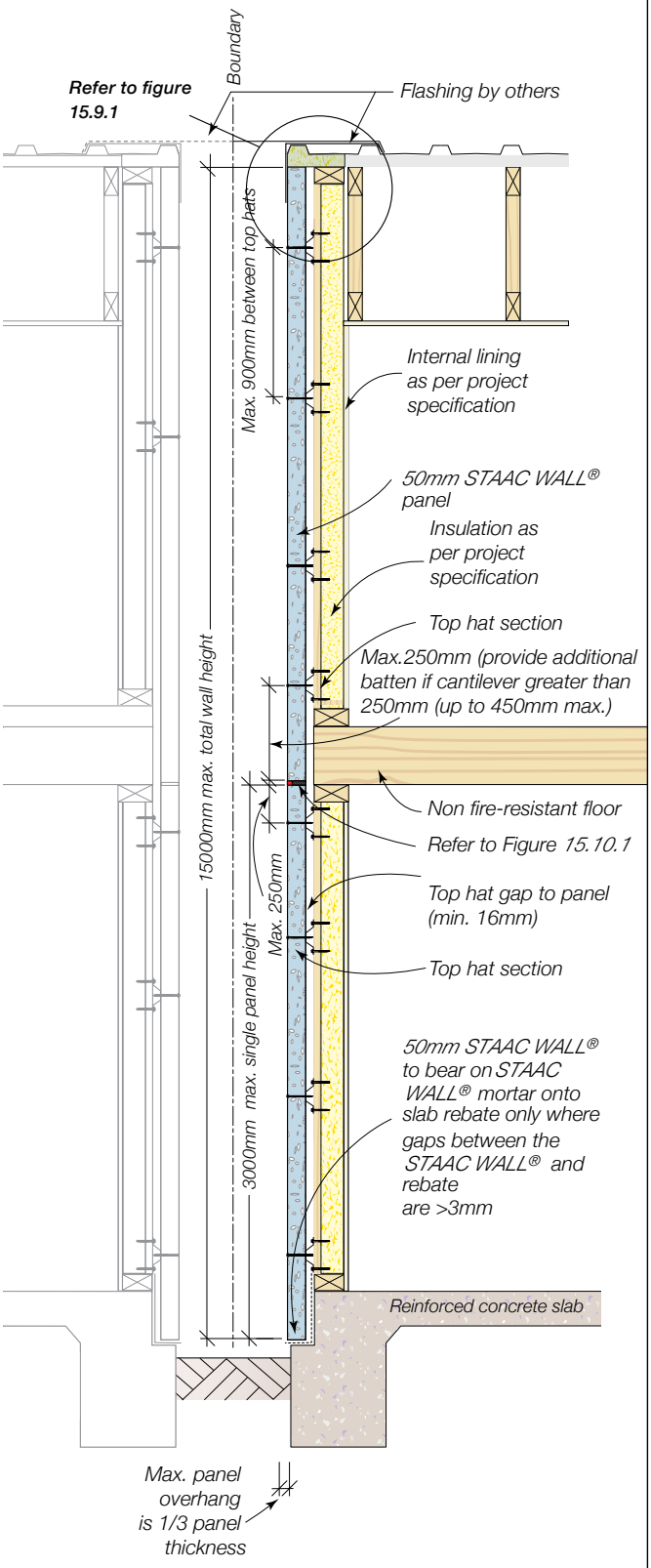


Figure15.7.2 Typical section detail for 50mm STAAC WALL® Dual Zero Boundary Walls – 15000mm max. wall height



15.8 FIXING & INSTALLATION DETAIL

Figure 15.8.1 50mm STAAC WALL® Dual Zero Boundary Walls fixing detail - externally fixed

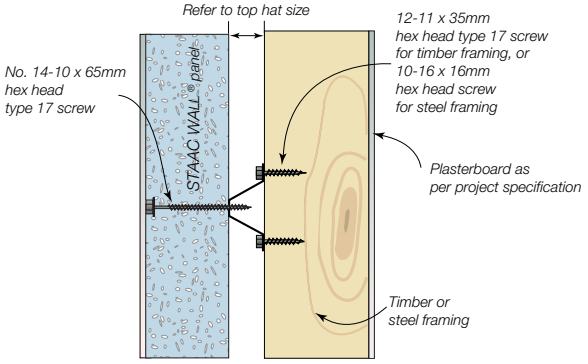
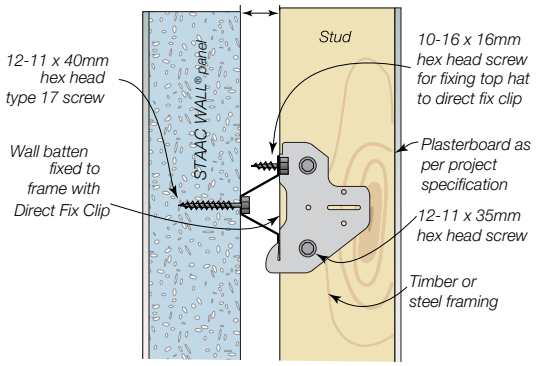


Figure 15.8.2 50mm STAAC WALL® Dual Zero Boundary Walls fixing detail - internally fixed



IMPORTANT: Top hat clip is fixed on the left hand side of the stud (when looking from inside to the outside of the building) except at the last stud, only, when the clip may be installed upside down.

Installing the clip upside down i.e where the screw fixing from the clip to the top hat is at the bottom flange of the top hat, will be acceptable provided that:

A. *The upside down clip is fixed on the right hand side of the stud (when looking from the inside to the outside of the building)*
B. *The upside down clip installation is to the last stud of a wall run (only), such that the spacing between the last and second last studs is no greater than 600mm,*
C. *The top hat is continuous in this region for a minimum of two spans i.e top hat extends across two stud spacings,*
D. *In all other locations, clips are to be installed to the left hand side of the stud with the screw fixing to the top side of the clip i.e into the top flange of the horizontal top hat.*

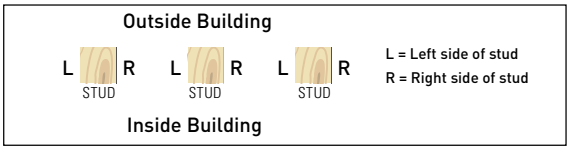


Figure 15.8.3 Screw layout drawing

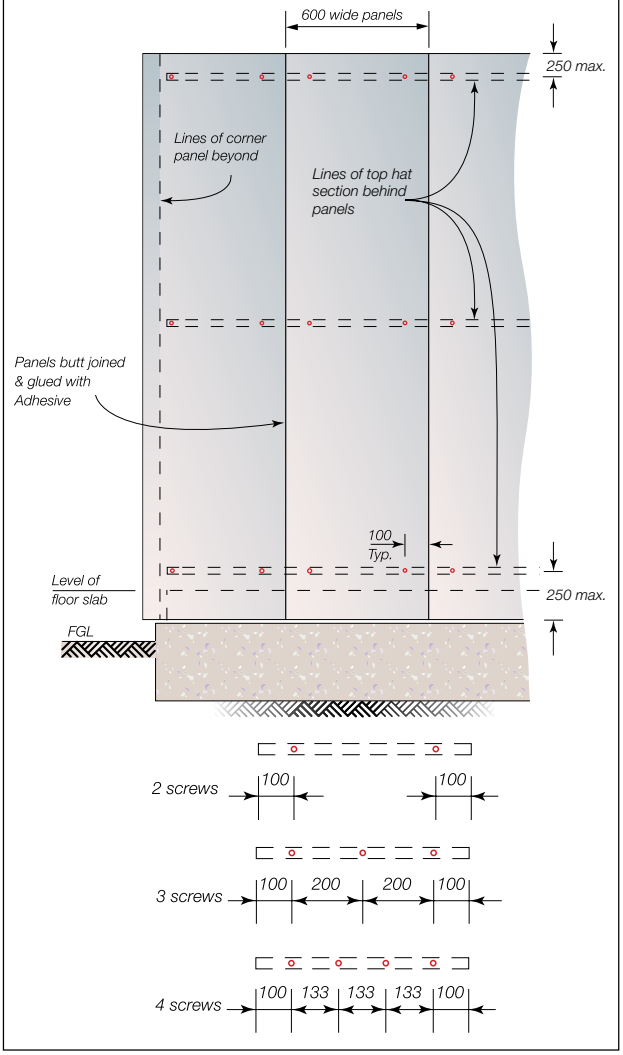
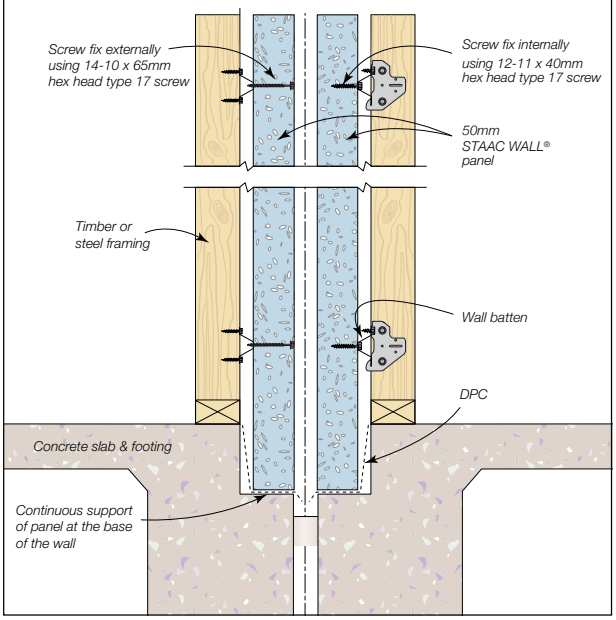


Figure 15.8.4 Typical Dual Zero Boundary Wall section detail



NOTE:

1. Fixing top hats directly to the frame, or, connecting top hats to the direct fix clip are both acceptable methods of installation.
2. When positioning the stud frames allow 5-7mm extra cavity width for the sheet bracing between top hat and timber stud.

15.9 WALL JUNCTION DETAILS AND SECTIONS

Figure 15.9.1 Typical Dual Zero Boundary Wall to roof detail

(to be read in conjunction with Figs. 15.6.1, 15.6.2)

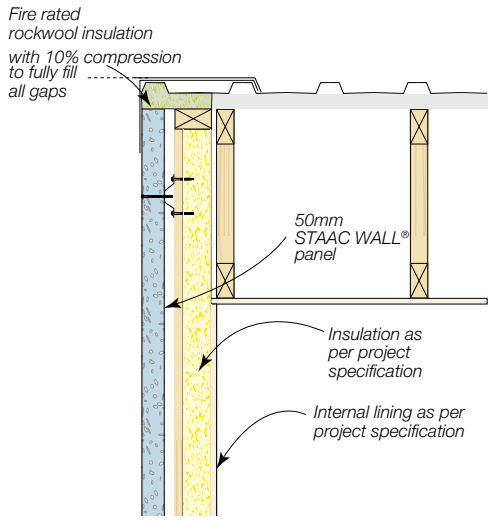


Figure 15.9.2 Typical Dual Zero Boundary roof parapet detail

(to be read in conjunction with Figs. 15.6.1, 15.6.2)

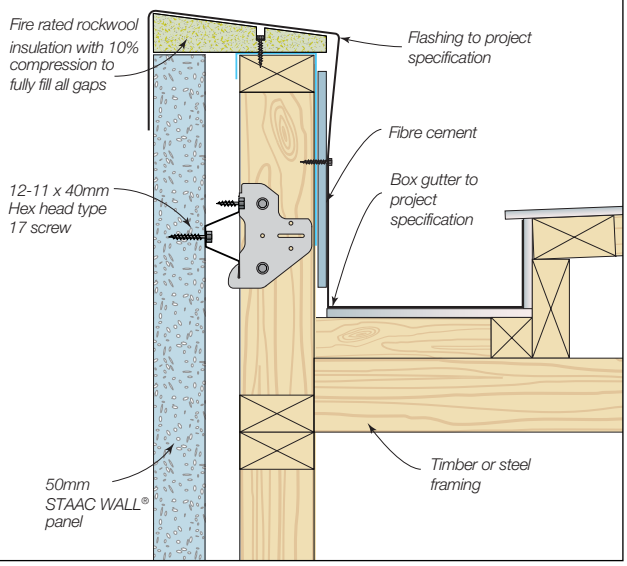
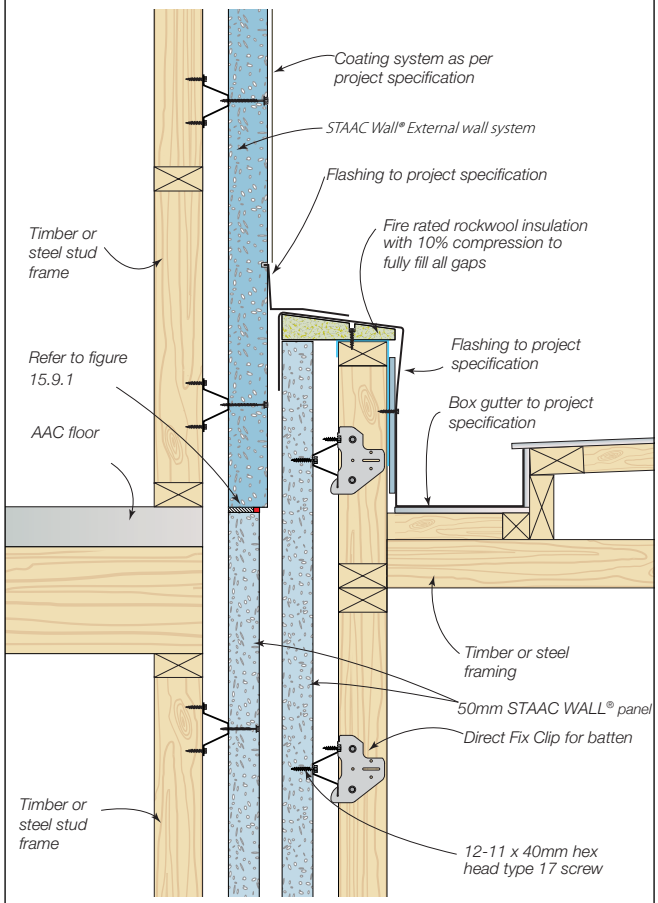
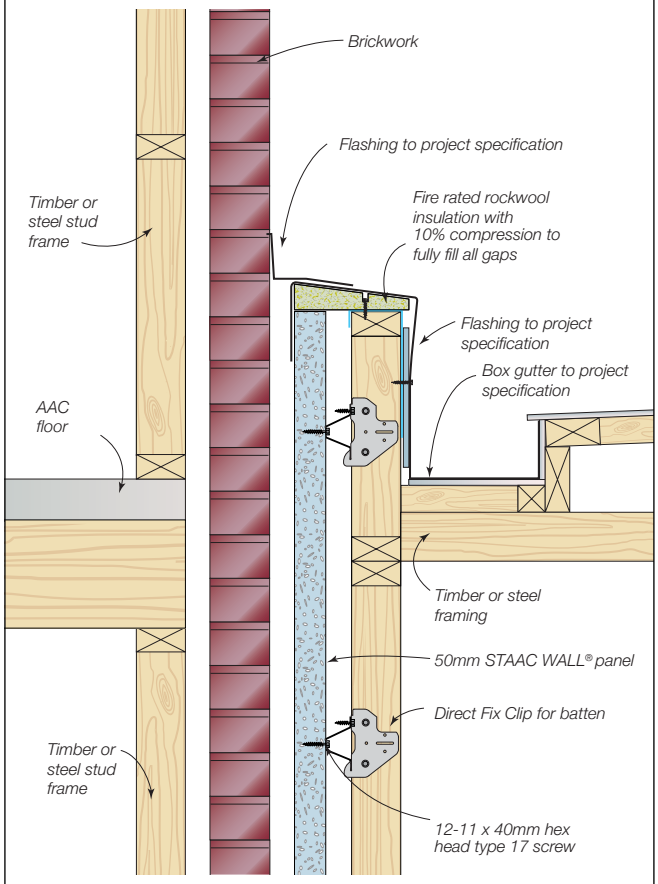


Figure 15.9.3 Dual Zero Boundary Wall detail to 50mm STAAC WALL® External Walls



NOTE: Using 13mm thick Bradford Fireseal Damper strips with density of 110kg/m3 horizontal control joint is required for Dual Zero Boundary Walls when the horizontal control joint is not exposed to outside weather conditions and when the top of the wall is capped with flashing between boundary.

Figure 15.9.4 Dual Zero Boundary Wall detail to brick veneer



15.10 CONTROL JOINTS

Figure 15.10.1 Typical horizontal control joint

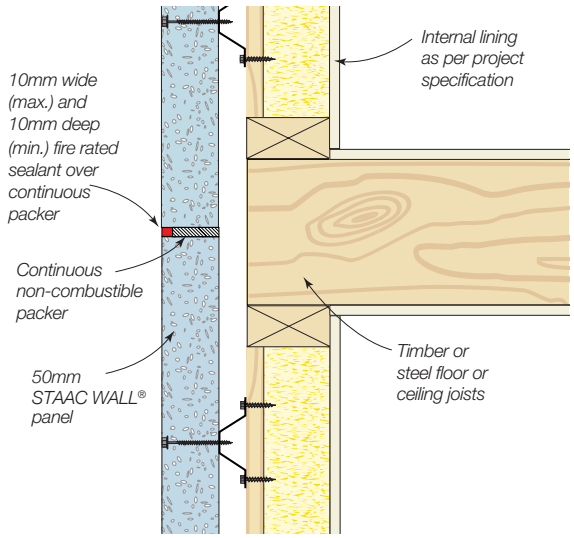
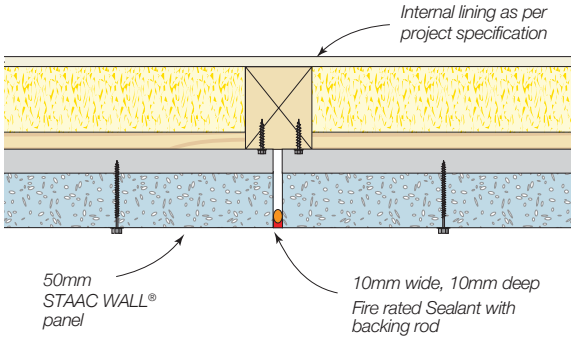


Figure 15.10.2 Typical vertical control joint



17. APPENDIX: REFERENCING CODES AND STANDARDS

- AS 2870 – 2011 Residential slabs and footings
- AS 3566.1: 2002 – Self-drilling screws for the building and construction industries Part 1: General requirements and mechanical properties
- AS 4200.1:2017 – Pliable building membranes and underlays Part 1: Materials (incorporating amendment 1)
- AS 4200.2:2017 – Pliable building membranes and underlays Part 2: Installation requirements (incorporating amendment 1 and 2)
- AS 5146.1: 2015 – Reinforced Autoclaved Aerated Concrete Part 1: Structures (Incorporating Amendment No.1)
- AS 5146.2: 2018 – Reinforced Autoclaved Aerated Concrete Part 2: Design
- AS 5146.3: 2018 – Reinforced Autoclaved Aerated Concrete Part 3: Construction
- AS/NZS 1170.2: 2021 – Structural design actions, Part 2: Wind actions
- AS/NZS 1336: 2014 – Eye and face protection – Guidelines
- AS/NZS 1715: 2009 – Selection, use and maintenance of respiratory protective equipment
- AS/NZS 1715: 2012 – Respiratory protective devices
- AS/NZS 4600: 2018 – Cold-formed steel structures
- AS/NZS 4859.1: 2018 – Thermal insulation materials for buildings General criteria and technical provisions
- NASH Hand book – Design of residential & low-rise steel framing
- NASH Standard – Residential and low-rise steel framing Part 1: Design Criteria
- NASH Standard – Residential and low-rise steel framing Part 2: Design Solutions
- National Construction Code 2022 Volume One: Building Code of Australia – Class 2 to Class 9 Buildings
- National Construction Code 2022 Volume Two & Housing Provisions – Class 1 and 10 Buildings

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