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Regulatory information report

78 mm thick Speedpanel wall systems installed in scissor stair configurations

Sponsor: Speedpanel Holdings Pty Ltd

Report number: 35875300 Revision: RIR7.3 Reference number: FAS200272

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Quality management

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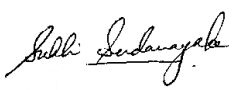
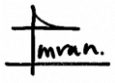
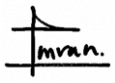
		Signature			

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Executive summary

This report contains the minimum information required for regulatory compliance and refers to the assessment report 35875300 R7.3. Summaries of the test data on which the referenced assessment is based are provided in the appendices which are only available in the full report.

The analysis conducted in the referenced assessment report presents an assessment of the fire resistance performance of 78 mm thick Speedpanel wall systems installed for fire compartmentalisation in scissor stair configurations if tested in accordance with AS 1530.4:2014. Horizontally and vertically oriented single and dual-stacked Speedpanel wall systems and Speedpanel boxed and triangular stair risers are also assessed in this report.

The analysis conducted in sections 5 to 9 of the referenced assessment report found that the proposed variations are likely to achieve the fire resistance level (FRL) shown in Table 1, if tested in accordance with AS 1530.4:2014.

Table 1 Variations and assessment outcome

Description	Referenced Figures	Variations	Fire Resistance Level (FRL)
Horizontally stacked Speedpanel wall	Figure 1 to Figure 7	Maximum horizontal span is 5 m and maximum slab-to-slab height is 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks. Allowable gaps between the stair stringer and the bottom angle are 0-95 mm and the size of the steel angle will vary to accommodate these gaps.	**-/120/120**
Vertically stacked Speedpanel wall	Figure 8 to Figure 13	Maximum span is unlimited in the horizontal direction, and the slab-to-slab height is maximum 3 m with 1.15 mm BMT and 1.95 mm BMT side C/J-tracks. Allowable gaps between the stair stringer and the bottom angle are 0-95 mm and the size of the steel angle will vary to accommodate these gaps.	
Dual-stacked walls with back-to-back C/J-tracks or central T bracket	Figure 14 to Figure 19	The spans of the horizontally oriented Speedpanel walls are increased by stacking multiple Speedpanel walls together, connected through back-to-back C/J-tracks or T brackets to increase structural stability. Maximum individual horizontal span is 3 m. The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks.	
Dual-stacked wall system with vertical wall segment between two horizontal walls	Figure 20 to Figure 34	Multiple wall system with a vertically oriented wall section between two horizontally stacked walls. The horizontal and vertical oriented wall sections are connected via back-to-back C/J-tracks. The vertical Speedpanel wall – at mid-width of the dual-stack wall system – is anchored and supported by a concrete mid-landing. Maximum horizontal span of the individual horizontally oriented walls is 3 m. Minimum horizontal width of the vertical wall segment is 500 mm (two panels oriented vertically). The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks.	

Description	Referenced Figures	Variations	Fire Resistance Level (FRL)
Single void box riser	Figure 35 to Figure 38	Constructed from a continuous single or dual-stacked horizontally oriented Speedpanel wall in the longitudinal direction (long ends) with horizontally or vertically oriented transverse wall sections at the edges. Maximum spans of 3 m or 6 m if extended with back-to-back C/J-tracks. The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks. The box risers may include air grilles that are to be installed within an aperture built into a horizontal Speedpanel wall where the aperture must be compliant to EWFA 21622	-/120/120
Dual void box riser	Figure 39 to Figure 49	The void is divided centrally into two by a transverse section of Speedpanel wall at mid-span. Constructed from either a continuous single or dual-stacked horizontally oriented Speedpanel wall in the longitudinal direction (long ends) with horizontally oriented wall section at mid-span and either horizontally oriented or vertical transverse wall sections at each end. or vertically orientated transverse wall sections at mid-span and the edges. Maximum horizontal spans are 4.5 m or 6 m if extended to dual-stack system. The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks. The box risers may include air grilles that are to be installed within an aperture built into a horizontal Speedpanel wall where the aperture must be compliant to EWFA 21622	
Riser fixed to side of stairwell	Figure 50 to Figure 54	Same as single or dual void riser. However, it is to be constructed to the side of the stairwell and not central to it.	
Triangular riser	Figure 55 and Figure 56	Angled connections in a triangular riser construction, proposed as an alternative to the boxed riser. The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks.	
Head track details	Figure 22 to Figure 25, Figure 47 to Figure 48 and Figure 63 to Figure 64	Steel flashing on the unexposed side replaced with equivalent unequal steel angle of 6 mm plate thickness. Where an additional Speedpanel wall segment connects perpendicular to an existing spine wall separating scissor stairs, the head of the additional Speedpanel wall can be angled to suit the angle of the stair stringer.	
Fixings and supports	Figure 15 to Figure 19, Figure 21, Figure 36 to Figure 38, Figure 41 to Figure 46, Figure 54 to Figure 56	Where the C/J-tracks are exposed with fixings in the void side, they shall be covered over with steel flashings incorporating fire sealants to avoid direct heat exposure and to maintain insulation performance.	
Horizontal butt join	Figure 57 and Figure 58	Installed around consecutive landing slabs not aligned vertically that prevent the same length of panels being used throughout the floor height.	

Description	Referenced Figures	Variations	Fire Resistance Level (FRL)
		The last panel at the slab edge is cut at both ends and butt join the panels at their vertical cuts with minimum 0.4 mm BMT Speedpanel profile cover skin, caulked and installed as per EWFA 21622.	
Optional lining with 6 mm fibre cement sheets	Figure 16, Figure 18 and Figure 20 to Figure 34	The fibre cement sheets will act as a fire resistant barrier on the unexposed side and can substitute for the steel flashing over the panel joints on the unexposed side.	
Optional system with a single protected bottom angle on one face of the single or dual stacked Speedpanel wall	Figure 59	A single protected structural angle on one face of the Speedpanel walls is used to support the single and dual stacked Speedpanel wall systems (horizontally or vertically oriented) instead of two angles on both sides of the wall. This means that there is the stair stringer only run along one side of the wall.	
Protected structural steel beam supporting Speedpanel wall	Figure 60 to Figure 62	Protected structural steel beam installed perpendicular to the dual stacked spine walls as a fixing point between horizontal wall sections instead of a concrete landing. The maximum slab-to-slab heights must be maintained. The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks. If the wall heights extend beyond 3.3 m with C-tracks of 1.15 mm BMT and 4 m with C-tracks of 1.95 mm BMT, the walls must be supported by a structural column.	
Speedpanel walls suspended off the side of stair stringers at the top and the base	Figure 65 to Figure 68	The Speedpanel walls are supported by vertical perimeter C-tracks on either side as well as angled structural steel angles and C-tracks running along the top and the base. The angled C-tracks are fixed to structural steel angles, which are screw fixed to the concrete stairs through FS0885 mechanical power fasteners or equivalent bolts.	

The variations and outcomes of the referenced assessment report are subject to the limitations and requirements described in sections 2, 3 and 6 of this report. The results of this report are valid until 30 September 2025.

Contents

1. Introduction

This report contains the minimum information required for regulatory compliance and refers to the assessment report 35875300 R7.3.

The analysis conducted in the referenced assessment report presents an assessment of the fire resistance performance of 78 mm thick Speedpanel wall systems installed for fire compartmentalisation in scissor stair configurations if tested in accordance with AS 1530.4:2014[1]. Horizontally and vertically oriented single and dual-stacked Speedpanel wall systems and Speedpanel boxed and triangular stair risers are also assessed.

This assessment was carried out at the request of Speedpanel Holdings Pty Ltd. The sponsor details are included in Table 2.

Table 2 Sponsor details

Sponsor	Address
Speedpanel Holdings Pty Ltd	421 Dorset Road, Bayswater, VIC 3153, Australia.

2. Framework for the assessment

2.1 Assessment approach

An assessment is an opinion about the likely performance of a component or element of structure if it was subject to a standard fire test.

No specific framework, methodology, standard or guidance documents exists in Australia for doing these assessments. We have therefore followed the 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the Passive Fire Protection Forum (PFPF) in the UK in 2019[2].

This guide provides a framework for undertaking assessments in the absence of specific fire test results. Some areas where assessments may be offered are:

- Where a modification is made to a construction which has already been tested
- The interpolation or extrapolation of results of a series of fire resistance tests, or utilisation of a series of fire test results to evaluate a range of variables in a construction design or a product
- Where, for various reasons – eg size or configuration – it is not possible to subject a construction or a product to a fire test.

Assessments will vary from relatively simple judgements on small changes to a product or construction through to detailed and often complex engineering assessments of large or sophisticated constructions.

The referenced assessment uses established empirical methods and our experience of fire testing similar products to extend the scope of application by determining the limits for the design based on the tested constructions and performances obtained. The assessment is an evaluation of the potential fire resistance performance if the elements were to be tested in accordance with AS 1530.4:2014.

The referenced assessment has been written using appropriate test evidence generated at accredited laboratories to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturer's stated design.

The referenced assessment report has been prepared to meet the evidence of suitability requirements of the National Construction Code Volumes One and Two – Building Code of Australia (NCC) 2019[3] under A.5.2.(1) (d) and 2016 under Specification A2.3, including amendments.

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[1] Standards Australia (2014) Methods for fire tests on building materials, components and structures Part 4: Fire resistance tests for elements of construction, AS 1530.4:2014.

[2] Passive Fire Protection Forum (PFPF) 2019, Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence, Passive Fire Protection Forum (PFPF), UK.

[3] National Construction Code Volume One – Building Code of Australia 2019 Amendment 1, Australian Building Codes Board, Australia.

This referenced assessment has been written in accordance with the general principles outlined in EN 15725:2010[4] for extended application reports on the fire performance of construction products and building elements. It also references test evidence for meeting a performance requirement or deemed to satisfy (DTS) provisions of the NCC under A5.4 for fire resistance levels (FRL), as applicable to the assessed systems.

2.2 Declaration

The 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the PFPF in the UK requires a declaration from the client. By accepting our fee proposal on 27 August 2021, Speedpanel Holdings Pty Ltd confirmed that:

- To their knowledge the component or element of structure, which is the subject of this assessment, has not been subjected to a fire test to the standard against which this assessment is being made.
- They agree to withdraw this assessment from circulation if the component or element of structure is the subject of a fire test by a test authority in accordance with the standard against which this assessment is being made and the results are not in agreement with this assessment.
- They are not aware of any information that could adversely affect the conclusions of this assessment and – if they subsequently become aware of any such information – they agree to ask the assessing authority to withdraw the assessment.

3. Limitations of this assessment

- The scope of the referenced assessment report is limited to an assessment of the variations to the tested systems described in section 4.3.
- The referenced assessment report details the methods of construction, test conditions and assessed results that are expected if the systems were tested in accordance with AS 1530.4:2014.
- The results of the referenced assessment are applicable to the assessed horizontally or vertically oriented Speedpanel wall systems with fire exposure from either side.
- It is a requirement that the structural steel and concrete members are designed appropriately by a professional structural engineer by considering all the possible design actions. Design of structural steel and concrete members is not a part of the scope of the referenced assessment.
- It is required that the lateral load capacity of the perimeter tracks be verified by an accredited structural engineer for the lateral load capacity under ambient loading conditions.
- It is required that the support construction above and below the wall be capable of providing adequate vertical and lateral support for at least 120 minutes.
- The actual structural strength of the stairs and the surrounding non-Speedpanel walls and their ability to handle the design loads will be validated by a professional structural engineer engaged by others or by the relevant building project construction managers and is not part of the referenced assessment.
- It is expected that the supporting structure, including the perimeter tracks, are of the same or greater fire rating than that of the Speedpanel wall systems.
- Handrails are not to be fixed to Speedpanel systems and hence handrail loads are not considered in the structural calculations performed for the purposes of the referenced assessment.
- The referenced assessment is only valid for Speedpanel wall systems with a maximum floor-to-floor height of 4 m with side C-tracks with a minimum thickness of 1.95 mm BMT. If the Speedpanel wall heights are to be increased beyond the recommended maximum floor-to-

[4] European Committee for Standardization, EN 15725:2010: Extended application reports on the fire performance of construction products and building elements, European Committee for Standardization, Brussels, Belgium.

floor height of 4 m, the supporting structural steel components must be designed accordingly by a professional structural engineer and fire protection of the steel components must be carried out.

- The referenced assessment report is only valid for the assessed systems and must not be used for any other purpose. Any changes with respect to size, construction details, loads, stresses, edge or end conditions – other than those identified in this report – may invalidate the findings of the referenced assessment. If there are changes to the system, a reassessment will need to be done by an Accredited Testing Laboratory (ATL).
- The referenced assessment report has been prepared based on information provided by others. Warringtonfire has not verified the accuracy and/or completeness of that information and will not be responsible for any errors or omissions that may be incorporated into this report as a result.
- The referenced assessment is based on the proposed systems being constructed under comprehensive quality control practices and following appropriate industry regulations and Australian Standards on quality of materials, design of structures, guidance on workmanship and the expert handling, placing and finishing of the products on site. These variables are beyond the control and consideration of this report.

4. Description of the specimen and variations

4.1 System description

Speedpanel wall systems are self-supporting non-load bearing walls that may be constructed with either horizontally stacked panels, vertically stacked panels or a combination of both.

Speedpanel walls assessed in this report comprise of 78 mm thick lightweight aerated concrete panels with a 0.4 mm BMT galvanised mild steel cover sheathing and 'tongue and groove' detail on their longitudinal edge. The width of each panel is 250 mm. The unit weight of a Speedpanel can be considered as 435 kg/m^3.

All wall systems will consist of perimeter C/J-tracks at the vertical edges and at the top and bottom edges. While C-tracks are commonly used as perimeter tracks in Speedpanel walls, J-tracks can also be used in constructions where a C-track is difficult to be installed or if an elongated flange is required. Single 78 mm thick horizontally and/or vertically oriented walls have been tested and it is proposed to extend their fire resistance performance to variations of horizontally and vertically oriented single and dual-stacked Speedpanel wall systems and Speedpanel boxed and triangular stair risers as described in 4.3.

4.2 Referenced test data

The assessment of the variations to the tested systems and the determination of the likely performance is based on the results of the fire tests documented in the reports summarised in Table 3. Further details of the tested system are described in Table 3.

Table 3 Referenced test data

Report number	Test sponsor	Test date	Testing authority
BWA 2286900	Speedpanel (Vic.) Pty Ltd	18 August 2008	Bodycote Warringtonfire Aus Pty Ltd
EWFA 2736000	Speedpanel (Vic.) Pty Ltd	22 June 2012	Exova Warringtonfire Aus Pty Ltd
EWFA 2736001	Speedpanel (Vic.) Pty Ltd	26 June 2012	Exova Warringtonfire Aus Pty Ltd
EWFA 2736002	Speedpanel (Vic.) Pty Ltd	13 July 2012	Exova Warringtonfire Aus Pty Ltd
EWFA 2848300	Speedpanel (Vic.) Pty Ltd	29 May 2013	Exova Warringtonfire Aus Pty Ltd
BWA 2257600	Speedpanel (Vic.) Pty Ltd	6 March 2008	Bodycote Warringtonfire Aus Pty Ltd
EWFA 2741700	Speedpanel (Vic.) Pty Ltd	20 July 2012	Exova Warringtonfire Aus Pty Ltd
WARRES 69754/C	Hilti Ag	14 November 1996	Warrington Fire Research

4.3 Variations to the tested systems

Identical systems have not been subject to a standard fire test. We have therefore assessed the systems using baseline test information for similar systems. The variations to the tested systems together with the referenced standard fire test reports are described in Table 4.

Table 4 Variation to tested systems

Item	Referenced reports	Description	Variations
Singular horizontally or vertically stacked Speedpanel walls	BWA 2286900 EWFA 2736000 EWFA 2736001 EWFA 2736002 EWFA 2848300 BWA 2257600 EWFA 2741700 WARRES 69754/C	Horizontally stacked Speedpanel wall	Maximum span is 5 m and maximum slab-to-slab height is 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks. Allowable gaps between the stair stringer and the bottom angle are 0-95 mm and the size of the steel angle will vary to accommodate these gaps.
		Vertically stacked Speedpanel wall	Maximum span is unlimited in the horizontal direction and the slab-to-slab height is maximum 3 m with 1.15 mm BMT or 1.95 mm BMT side C/J-tracks. Allowable gaps between the stair stringer and the bottom angle are 0-95 mm and the size of the steel angle will vary to accommodate these gaps.
Dual-stacked 78 mm thick Speedpanel walls		Dual-stacked walls with back-to-back C/J-tracks or central T bracket	The spans of the horizontally oriented Speedpanel walls are to be increased by stacking two Speedpanel walls together, connected through back-to-back C/J-tracks or T brackets to increase structural stability. Maximum individual horizontal span is 3 m. The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks.
		Dual-stacked wall system with vertical wall segment between two horizontal walls	Multiple wall system with vertically oriented wall section between two horizontally stacked walls. The horizontal and vertical oriented wall sections are connected via back-to-back C/J-tracks. The vertical Speedpanel wall – at mid-width of the dual-stack wall system – is anchored and supported by a concrete mid-landing. Maximum horizontal span of the individual horizontally oriented walls is 3 m. The minimum horizontal width of the vertical wall segment is 500 mm (two panels oriented vertically). The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks.
Boxed stair pressurisation riser		Single void box riser	Constructed from a continuous single or dual-stacked horizontally oriented Speedpanel wall in the longitudinal direction (long ends) with horizontally or vertically oriented transverse wall sections at the edges. Maximum spans of 3 m or 6 m if extended with back-to-back C/J-tracks.

Item	Referenced reports	Description	Variations
			The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks.
		Dual void box riser	The void is divided centrally into two by a transverse section of Speedpanel wall at mid-span. Constructed from either a continuous single or dual-stacked horizontally oriented Speedpanel wall in the longitudinal direction (long ends) with horizontally oriented wall section at mid-span and either horizontally oriented or vertical transverse wall sections at each end. Maximum spans are 4.5 m or 6 m if extended to dual-stack system. The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks.
		Riser fixed to side of stairwell	Same as single or dual void riser. However, it is to be constructed to the side of the stairwell and not central to it.
		Triangular riser	Angled connections in a triangular riser construction, proposed as an alternative to the boxed riser. The slab-to-slab height is maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks.
Head track detail		Thermal protection of the head track to be protected with flashing on the unexposed side.	It is proposed that the steel flashing on the unexposed side be replaced with equivalent unequal steel angle of 6 mm plate thickness for box risers. it is also proposed that where an additional Speedpanel wall segment connects perpendicular to an existing spine wall separating scissor stairs, the head of the additional Speedpanel wall can be angled to suit the angle of the stair stringer as the wall passes underneath the stairs.
Fixings and supports		The support C/J-tracks shall not be less than 1.15 mm BMT. The fixings of the panels to the main supports shall be mainly from the stair side and be covered with minimum 0.7 mm BMT galvanised steel flashings.	Where the C/J-tracks are exposed with fixings in the void side, they shall be covered over with steel flashings incorporating fire sealants to avoid direct heat exposure and to maintain insulation performance.
Horizontal butt join		To be installed around consecutive landing slabs not aligned vertically that prevent the same length of panels being used throughout the floor height.	It is proposed to cut the last panel at the slab edge at both ends and butt join the panels at their vertical cuts with 0.4 mm BMT Speedpanel profile cover skin, caulked and installed as per EWFA 21622.

Item	Referenced reports	Description	Variations
Optional lining with 6 mm fibre cement sheets		It is proposed that the Speedpanel wall surfaces be optionally lined with 6 mm fibre cement sheets.	The fibre cement sheets will act as a fire resistant barrier on the unexposed side and can substitute for the steel flashing over the panel joints on the unexposed side.
Optional system with a single protected bottom angle on one face of the single or dual stacked Speedpanel wall		A single protected structural angle on one face of the Speedpanel walls	It is proposed that one steel angle connected to one face of the wall is used to support the single and dual stacked Speedpanel wall systems (horizontally or vertically oriented) instead of two angles on both sides of the wall.
Protected structural steel beam supporting Speedpanel wall		Protected structural steel beam installed perpendicular to the dual stacked spine walls as a fixing point between horizontal wall sections instead of a concrete landing.	The maximum slab-to-slab heights of maximum 3.3 m with 1.15 mm BMT side C/J-tracks and 4 m with 1.95 mm BMT C/J-tracks are to be maintained. If the wall heights extend beyond 3.3 m with C-tracks of 1.15 mm BMT and 4 m with C-tracks of 1.95 mm BMT, the walls are to be supported by a structural column.
Speedpanel walls suspended off the side of stair stringers at the top and the base		The Speedpanel walls are supported by vertical perimeter C-tracks on either side as well as angled structural steel angles and C-tracks running along the top and the base.	It is proposed that single and dual stacked Speedpanel walls extend between and connected to the stair stringers.

4.4 Purpose of the test standard

The referenced assessment is prepared in accordance with AS 1530.4:2014.

AS 1530.4:2014 provides methods for determining the fire resistance of various elements of construction when subjected to standard fire exposure conditions. Section 2 of AS 1530.4:2014 specifies the general requirements for conducting fire resistance tests. Section 3 of AS 1530.4:2014 sets out procedures for determining the fire resistance of masonry, prefabricated and framed walls and is to be read in conjunction with section 2.

4.5 Schedule of components

Table 5 outlines the schedule of components for the assessed systems subject to a fire test, as referenced in Appendix B of the referenced report.

Table 5 Schedule of components of assessed systems

Item	Description	
1	Name	Trimming Channel (C-track) or J-track with equal or better sectional bending and compression capacity
	Material	Galvanised mild steel
	Dimensions	• C-tracks: – 55 mm × 82 mm × 55 mm × 1.15 mm BMT; or – 55 mm × 84 mm × 55 mm × 1.95 mm BMT; and • J-tracks: – 55 mm × 82 mm × 90 mm × 1.15 mm BMT; or – 55 mm × 84 mm × 90 mm × 1.95 mm BMT
2	Name	Speedpanel
	Material	Mild steel section filled with aerated lightweight concrete with nominal density 435 kg/m^3. The cover sheathing is minimum 0.4 mm BMT galvanised steel. 
	Dimensions	250 mm × 78 mm thickness
3	Name	Steel angle for stair stringer
	Dimensions	• For a wall-to-stair gap of 0-10 mm – the minimum steel angle size is 50 × 50 × 2 mm • For a wall-to-stair gap of 10-20 mm – the minimum steel angle size is 50 × 50 × 4 mm • For a wall-to-stair gap of 20-35 mm – the minimum steel angle size is 75 × 75 × 5 mm • For a wall-to-stair gap of 35-95 mm – the minimum steel angle size is 150 × 50 × 5 mm
4	Name	Fixings
	Material	Flat-top, self-drilling, zinc-coated steel screws, 10g × 30 mm.
	Installation	Fixed steel tracks (Item 1) to Speedpanel panels: • vertically installed panels at; – 500 mm centres top, bottom and sides (on one face); and – 2-of in each corner (on one face). • horizontally installed panels at: – 250 mm centres on both sides (on both faces); – 500 mm centres top and bottom (on one face); and – 2-of in each corner (on one face).

Item	Description	
		• box riser: – 250 mm centres (on one face); – 500 mm centres top and bottom (on one face); and – 2-of in each corner (on one face).
5	Name	Hilti CP 606 Flexible Firestop Sealant
	Installation	Filled into the panel to stairs joints for minimum 20 mm deep on the topside of the joint and in the normal Speedpanel installation locations to fill all gaps.
6	Name	Backing rod
	Material	Polyethylene foam backing rod
		• For a maximum joint width of 8 mm – PE rod has a nominal diameter of 10 mm • For a maximum joint width of 12 mm – PE rod has a nominal diameter of 15 mm • For a maximum joint width of 16 mm – PE rod has a nominal diameter of 20 mm • For a maximum joint width of 20 mm – PE rod has a nominal diameter of 25 mm
	Installation	Installed into the panel to stairs joints and at least 20mm back from the topside of joint.
7	Name	Backfilling material
	Material	Rockwool insulation with a density of minimum 140 kg/m^3
	Installation	At least 20 mm backed from the topside of joint and filled the rest of the joint
8	Name	Fixings to concrete landings/stair stringers
	Material	Minimum 8 mm diameter FS0885 mechanical power fasteners or equivalent bolt
	Installation	Mechanically fixed at top and bottom of side tracks and at least 60 mm embedment into concrete.
9	Name	Firetherm/TBA Intubatt
	Material	50 mm thick Rockwool with nominal density of 180 kg/m^3, coated on both sides with TBA Intumastic to a thickness of 1.0 mm.
	Installation	One layer of batt shall be friction fitted into the gap and sitting on the top of the steel angle (item 3). Two large beads of TBA Intumastic shall be applied before the installation of the batt along the longitudinal ends and two fillets of TBA Intumastic shall be applied after the installation of the batt.
10	Name	Steel flashing
	Material	0.55 mm thick
	Installation	Capped on topside of the wall to stair joint between Speedpanel barrier and concrete stair and fixed at maximum 500 mm centres by self- drilling, galvanised-coated steel screws, 10g x 30 mm (Item 4).
11	Name	Head Track Protection
	Material	13 mm × 120 mm strip of fire rated plasterboard
	Installation	2 rows of min. 10g SDS screws at 250mm centres (staggered at 125mm)
12	Name	Metal Flashing (Junction Protection)
	Material	Minimum 0.7 mm thick galvanised mild steel
	Installation	Fixed to at least one face over junctions.
13	Name	Fibre Cement sheeting
	Material	Minimum 6 mm thick Fibre cement sheets
	Installation	Fixed to both unexposed and exposed sides as per manufacturer's specifications.

Item	Description	
14	Name	Fixing – Series 500
	Material	Minimum 12g SDS
	Installation	Fixed through: C/J-Track and any structural steel (Items 1 and 15); and supporting head angles (Items 20 and 21)
15	Name	Structural Steel
	Material	To be engineered by others to support the load of the Speedpanel and any other imposed loads
16	Name	Fixing – Panel to Panel
	Material	Flat top, self-drilling, zinc-coated steel screws, 10g × 16 mm
	Installation	Fixed on minimum one face at every joint at • 1000 mm centres; or • 500 mm centres on vertical panels when installed between horizontal stacks
17	Name	Head Track Flashing
	Material	Minimum 0.7 mm × 130 mm Steel flashing
	Installation	Fixed using Item 4 in two rows at 250 mm centres (staggered at 125 mm)
18	Name	Hilti HUS3-P Screw Anchors
	Material	6 × 40/5
	Installation	500 mm centres into concrete structure
19	Name	Fixings – Back-to-Back and Box Riser Connections
	Material	Min. 10 g × 30 mm SDS
	Installation	250 mm centres staggered from side to side within track
20	Name	Steel angle at head track
	Material	50 mm × 50 mm × 1.15 mm BMT
21	Name	Steel angle at head track
	Material	125 mm × 75 mm × 6 mm
22		Structural steel protection (consider fitness for purpose) • Blue areas outline scope boundaries of the referenced assessment; and • Green areas outline regions requiring further advice from manufacturer of passive fire protection options listed below
	Name	Option 1 – Promatect® 250
	Material	1 × 15 mm
	Installation	Lapped minimum 100 mm onto all exposed faces of the Speedpanel and installed as per the manufacturer's and project engineer's specifications
	Name	Option 2 – Vermiculite spray
	Material	Cafco® 300 Vermiculite
	Installation	Over sprayed minimum 100 mm × 20 mm deep onto all faces of the Speedpanel and installed as per the manufacturer's and project engineer's specifications
	Name	Option 3 – Cementitious spray
	Material	Cafco Fendolite® MII
	Installation	Over sprayed minimum 100 mm × 20 mm deep onto all faces of the Speedpanel and installed as per the manufacturer's and project engineer's specifications

Item	Description	
23	Name	Fire rated sealant (for passive fire protection)
	Material	Promat Promaseal A
		Seal all gaps between the panels (Item 2and 22) and Promatect® 250
24	Name	Fixing – through corner
	Material	Min. 12g coarse thread SDS
	Installation	Fixed through C-tracks (Item 1) to form corner at: • 500 mm through C-track in vertically installed wall; and • 250 mm centres through C-track in horizontally installed wall
25	Name	Flashing - corner
	Material	160 mm × 160 mm × 0.7 mm BMT galvanised mild steel
	Installation	Fixed along both edges at max. 500 mm centres using Item 4

Figure 1 to Figure 7 show the single 78 mm thick horizontally stacked wall.

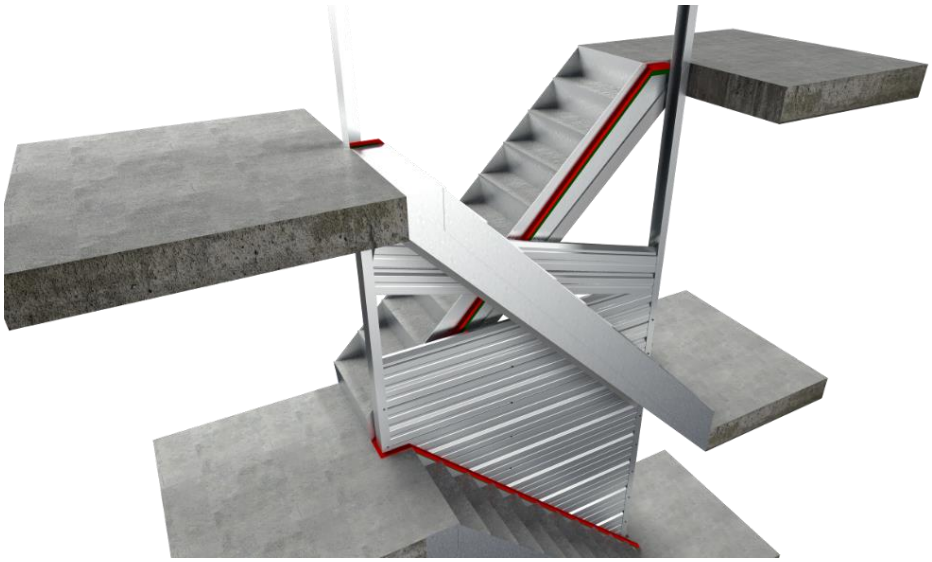


Figure 1 Single 78 mm thick horizontally stacked wall – Hilti CP 606 sealant shown in red

Figure 2 Single 78 mm thick horizontally stacked wall – steel angle at bottom of stringer

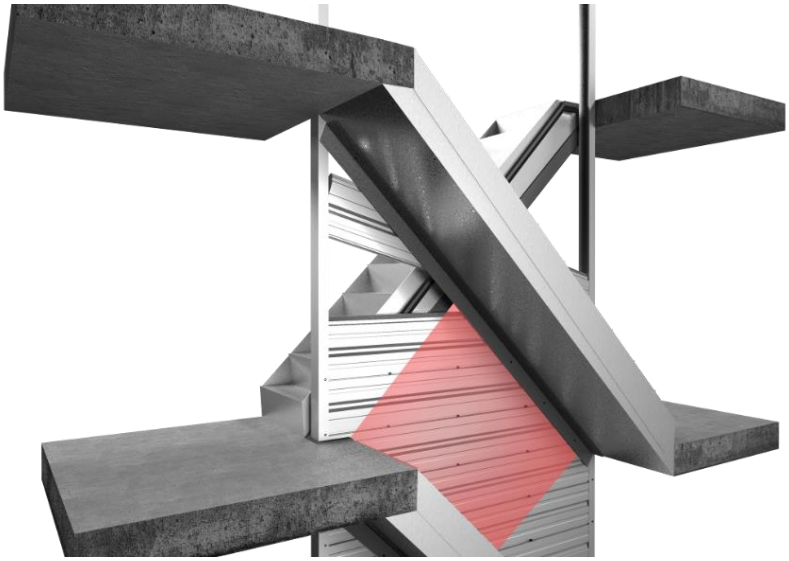


Figure 3 The section of horizontally oriented wall providing fire separation highlighted

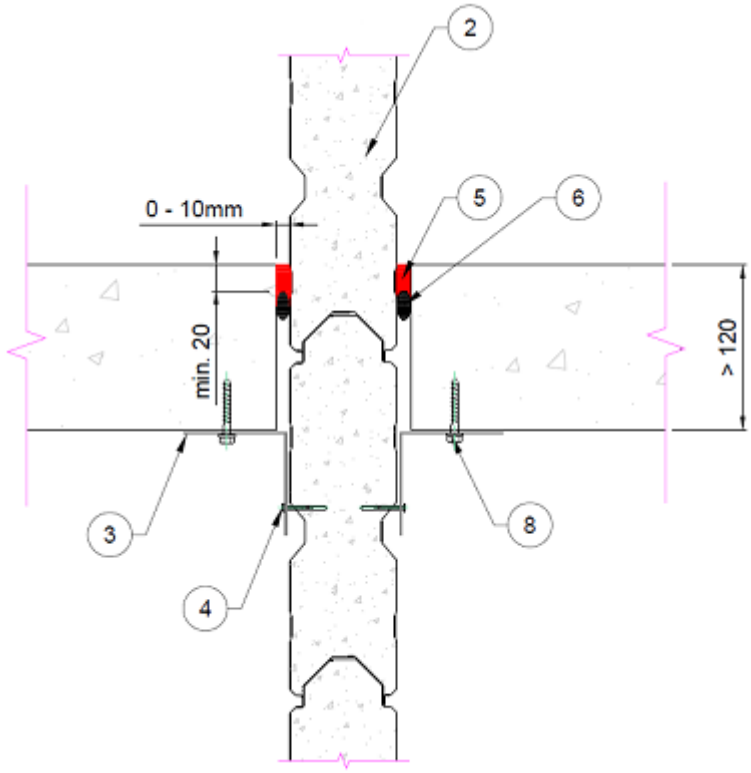


Figure 4 Wall-to-stair joint (0-10 mm gap)

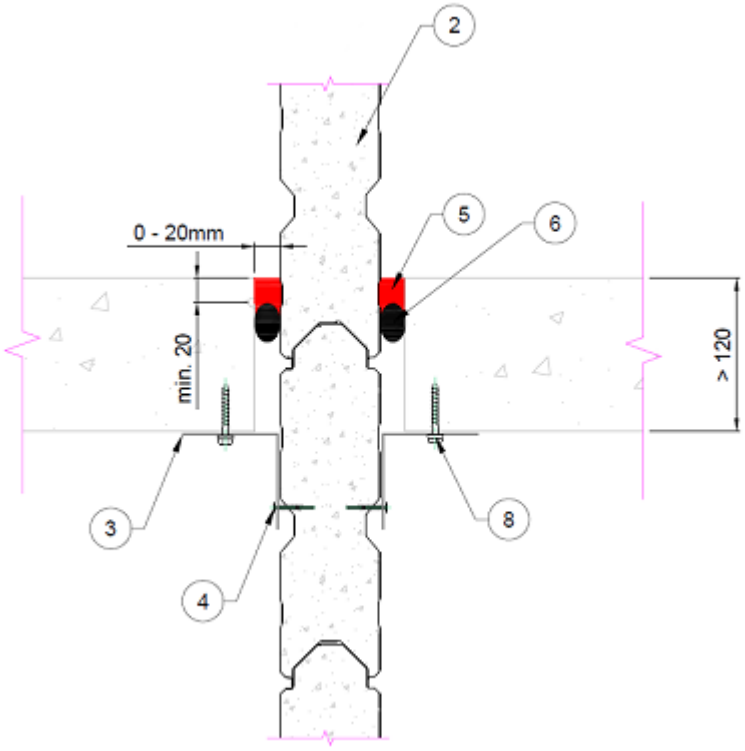


Figure 5 Wall-to-stair joint (10-20 mm gap)

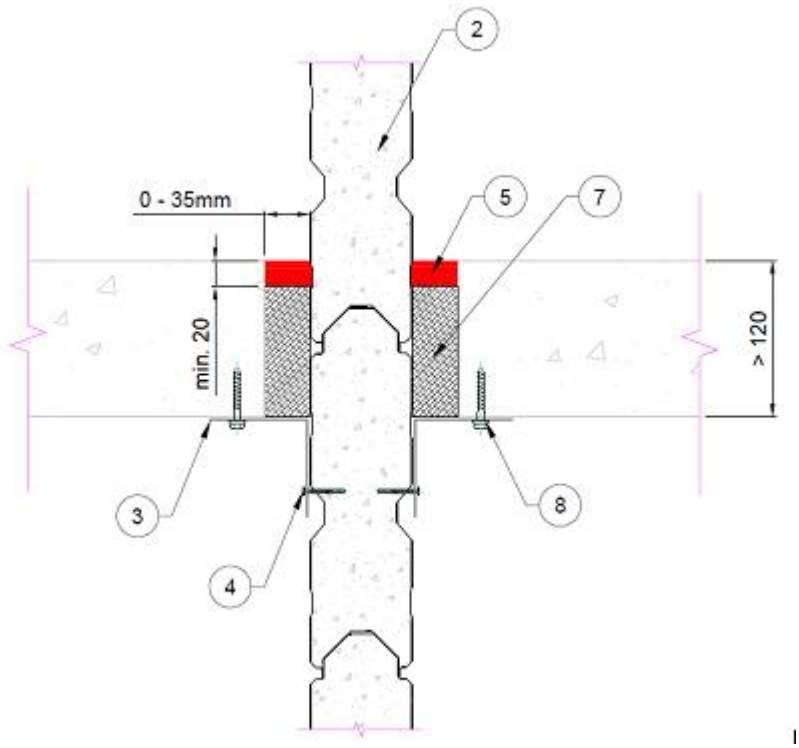


Figure 6 Wall-to-stair joint (20-35 mm gap)

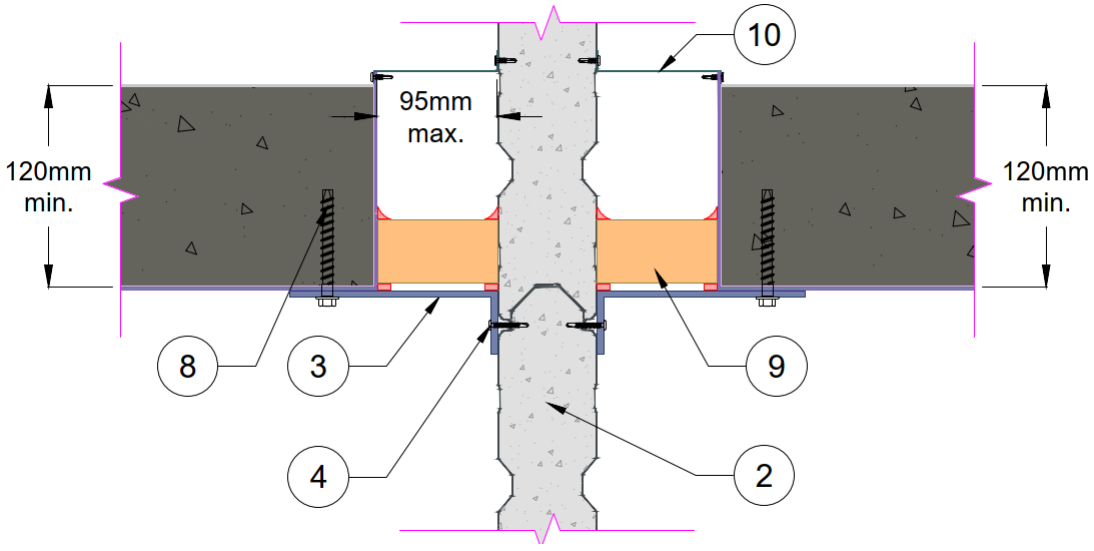


Figure 7 Wall-to-stair joint (35-95 mm gap)

Figure 8 to Figure 13 show the single 78 mm thick vertically stacked wall.

Figure 8 Single 78 mm thick vertically stacked wall – steel angle at bottom of stringer

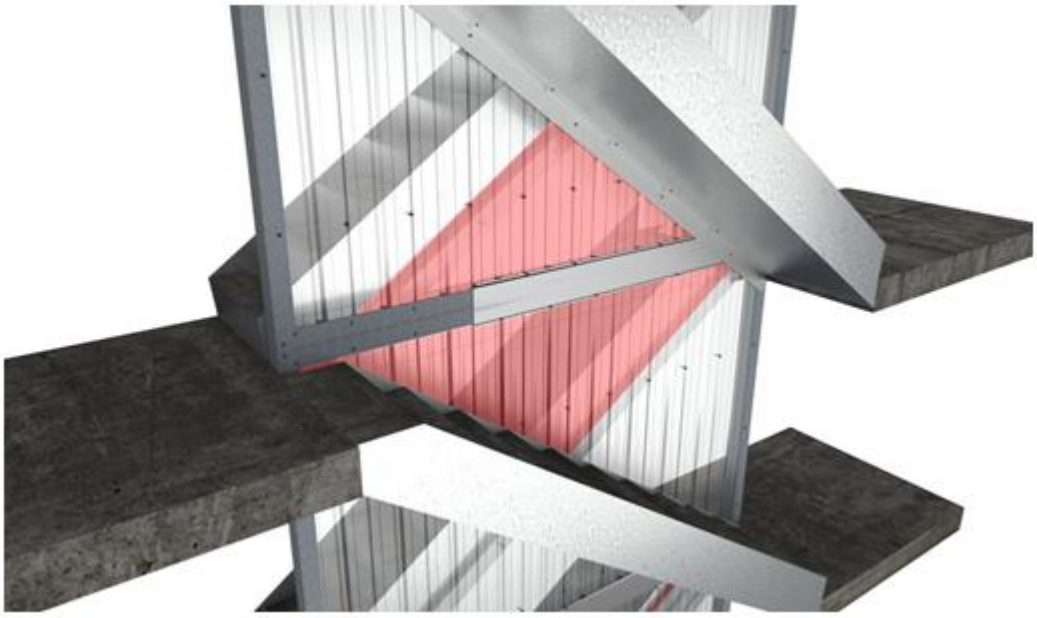


Figure 9 The section of vertically oriented wall providing fire separation highlighted

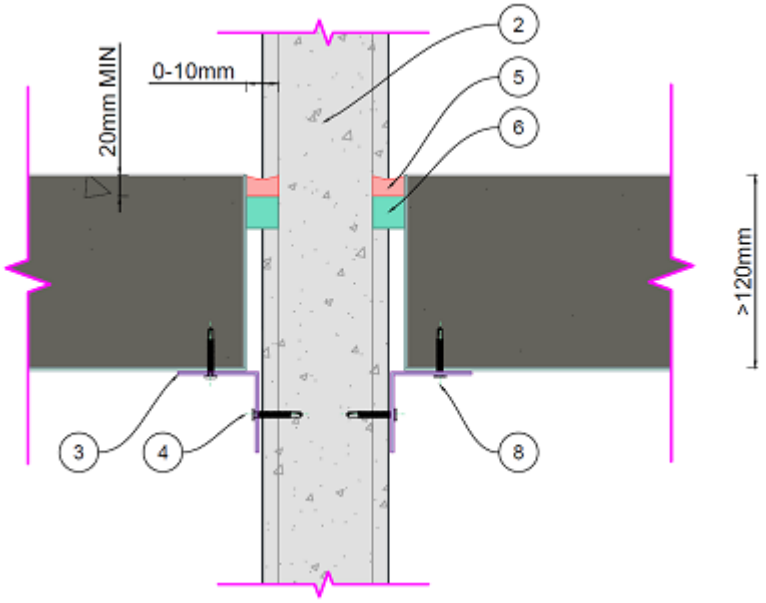


Figure 10 Wall-to-stair joint (0-10 mm gap)

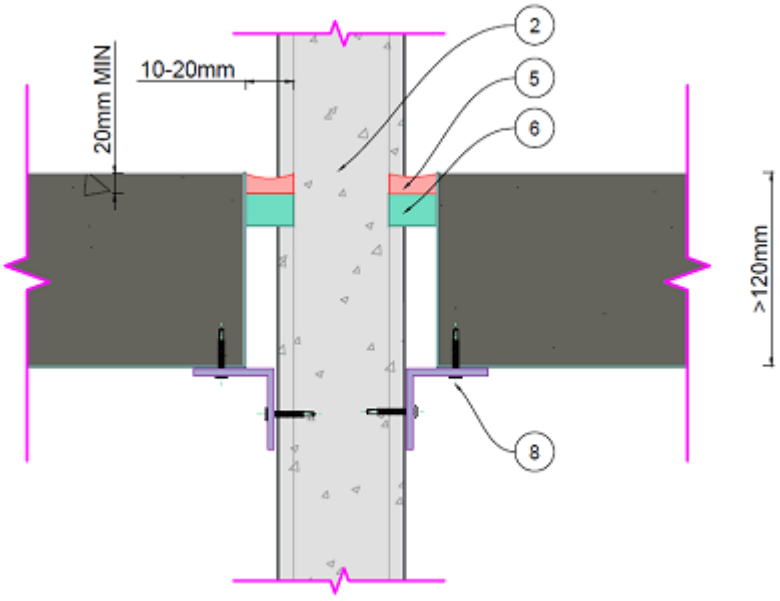


Figure 11 Wall-to-stair joint (10-20 mm gap)

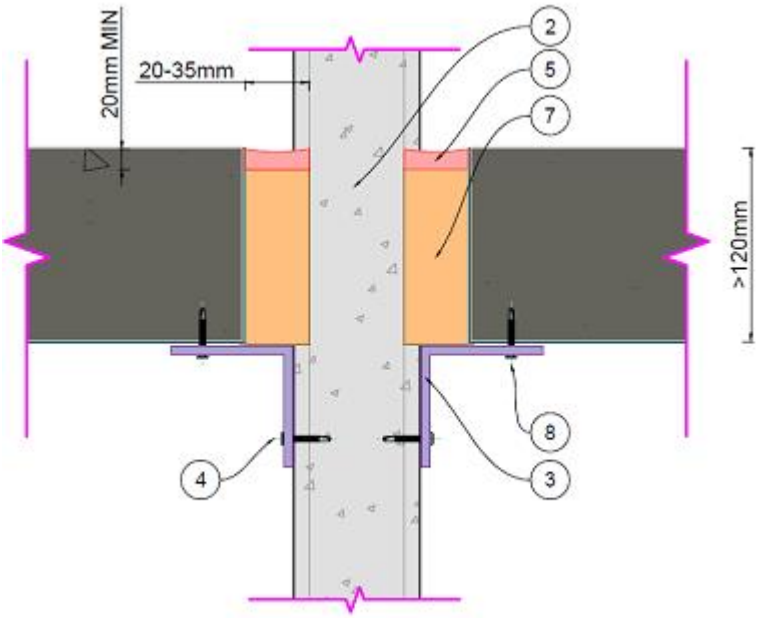


Figure 12 Wall-to-stair joint (20-35 mm gap)

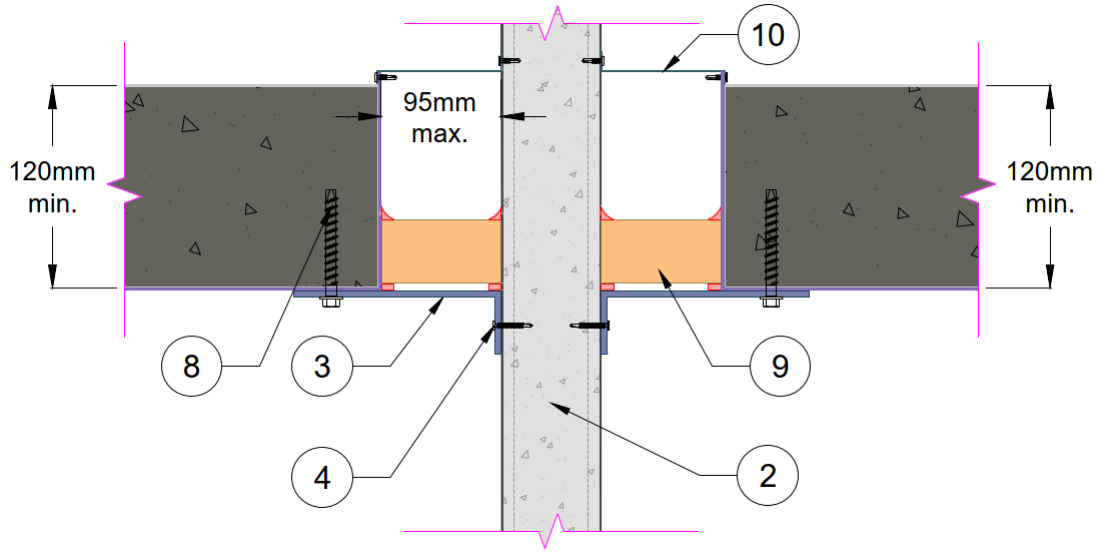


Figure 13 Wall-to-stair joint (35-95 mm gap)

Figure 14 to Figure 34 show the proposed multiple stacked 78 mm thick walls.

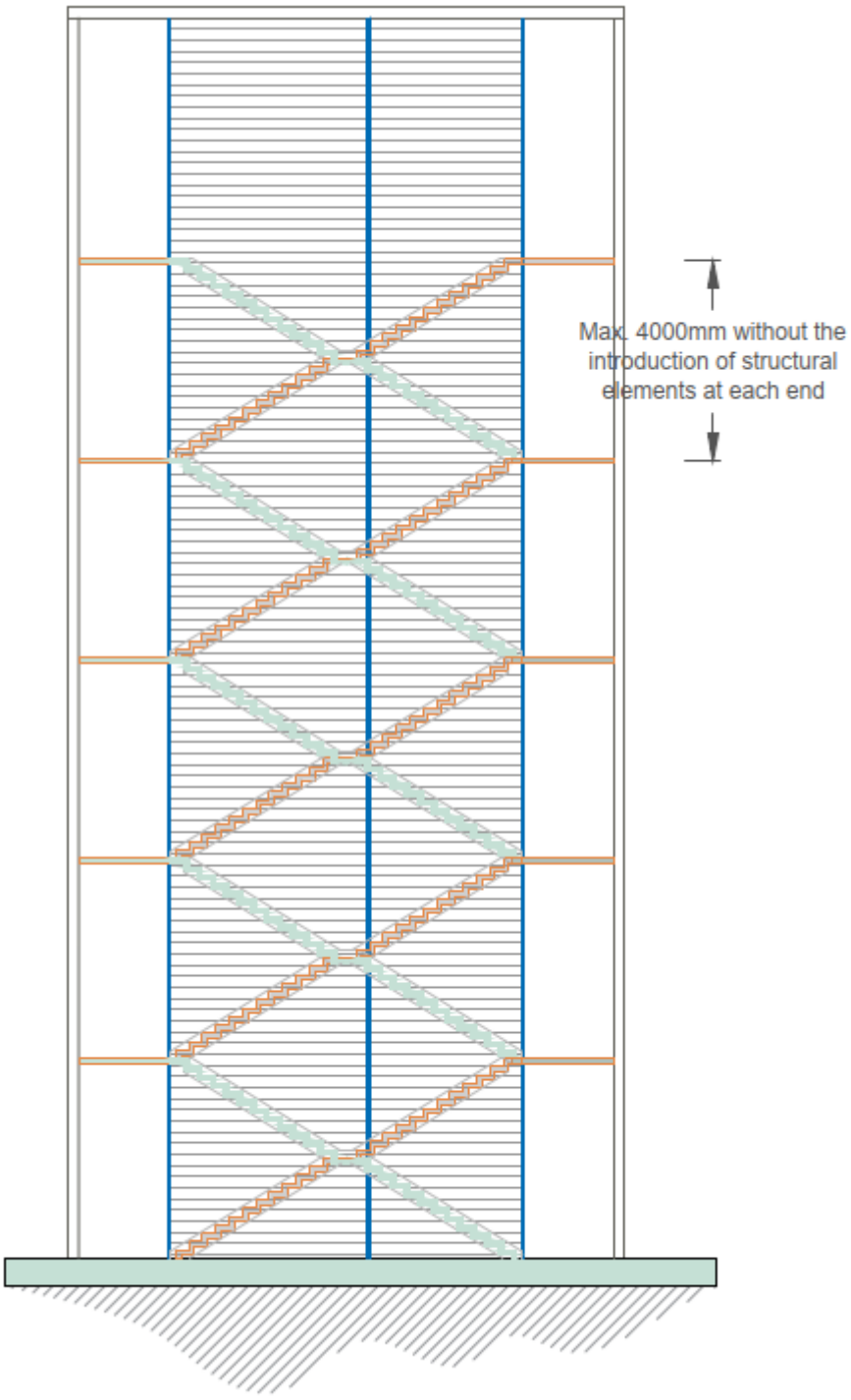


Figure 14 Dual stack scissor stair – elevation view

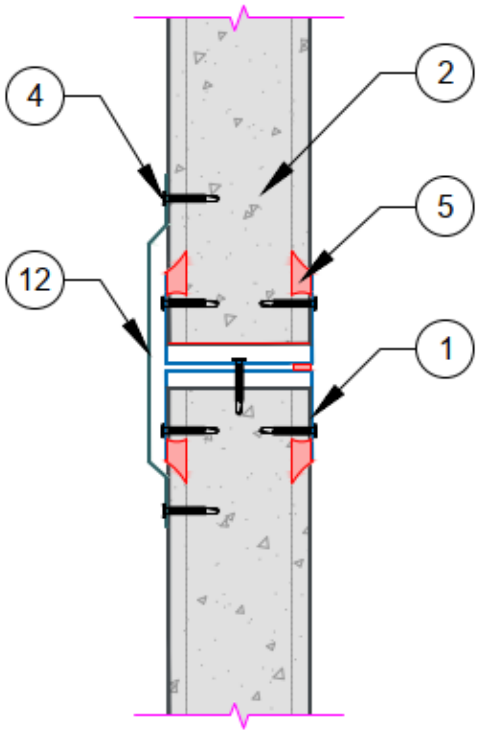


Figure 15 Back-to-back C-track connection in dual stack wall with metal flashing on unexposed side

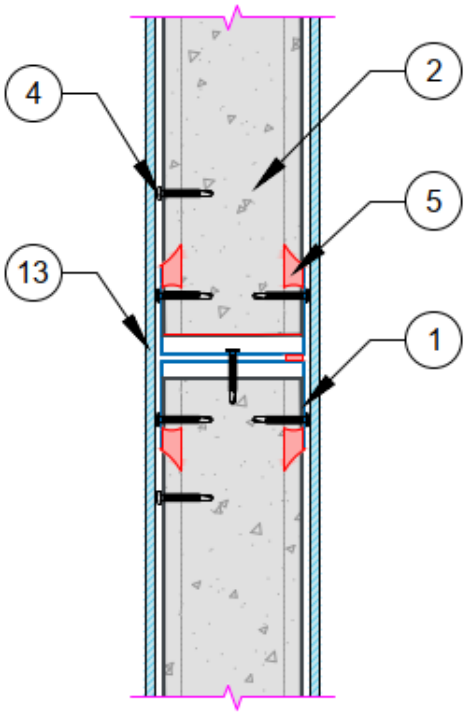


Figure 16 Back-to-back C-track connection in dual stack wall with 6 mm fibre cement lining

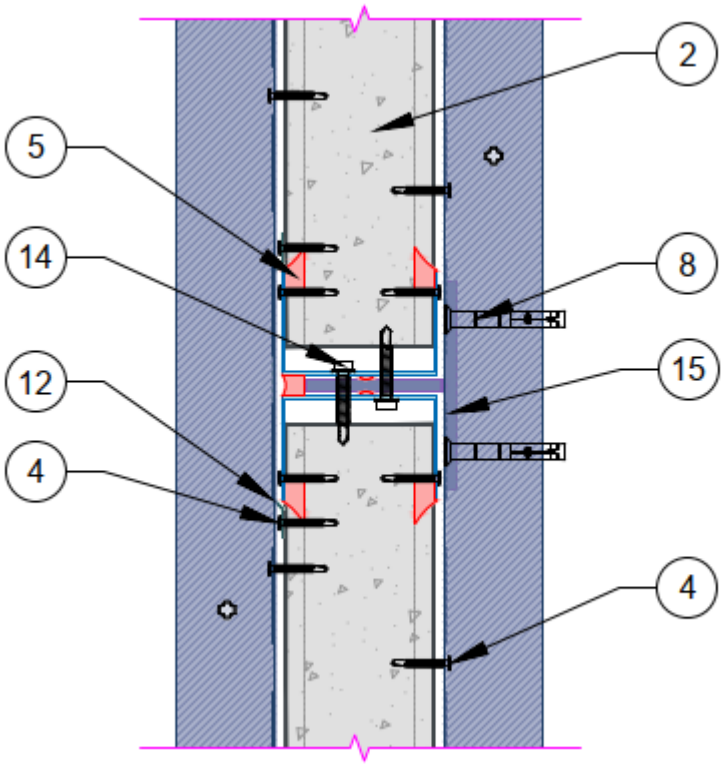


Figure 17 T-bracket connection in dual stack wall at landing/stair stringer

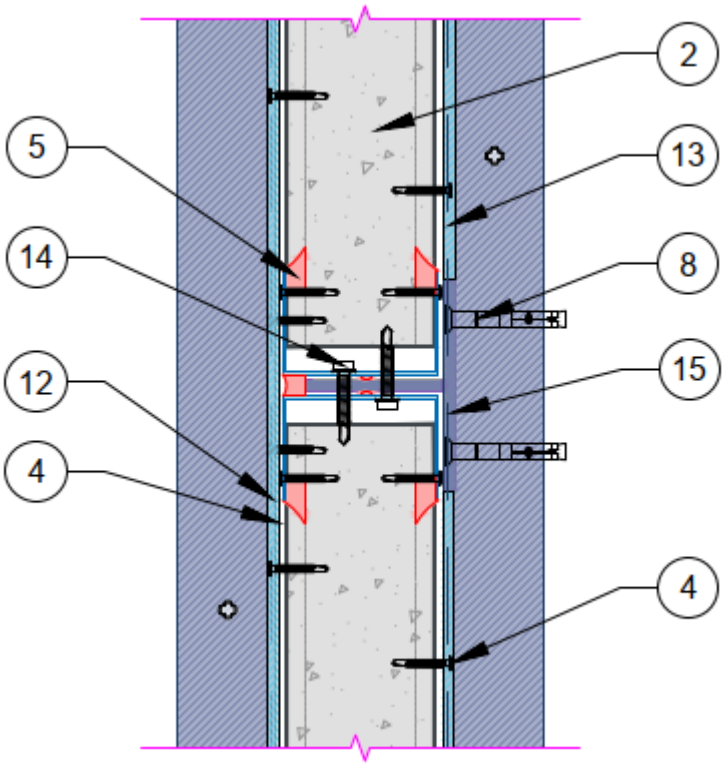


Figure 18 T-bracket connection in dual-stack wall with 6 mm fibre cement lining

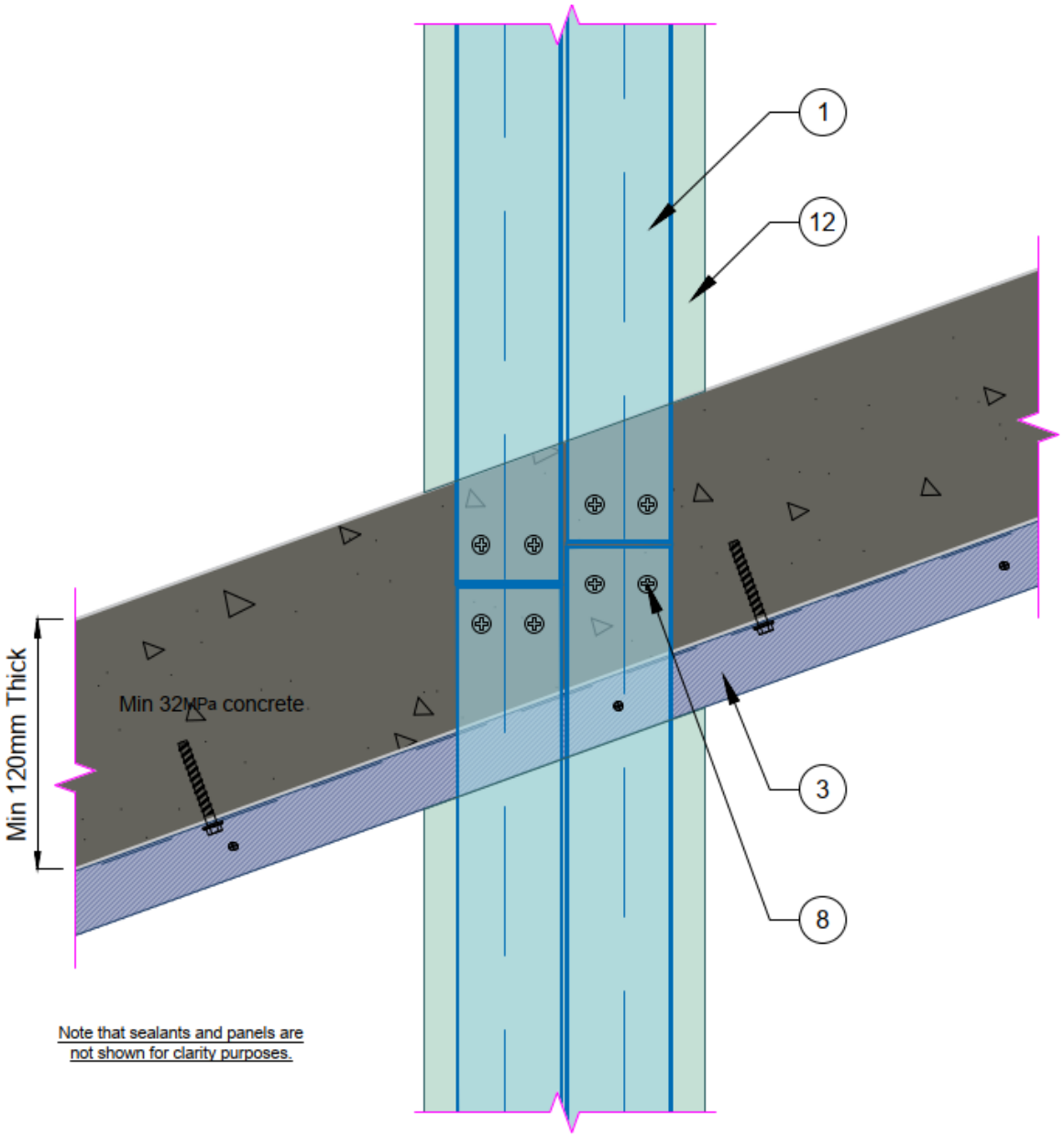


Figure 19 Elevation of stair stringer connection in dual-stack wall

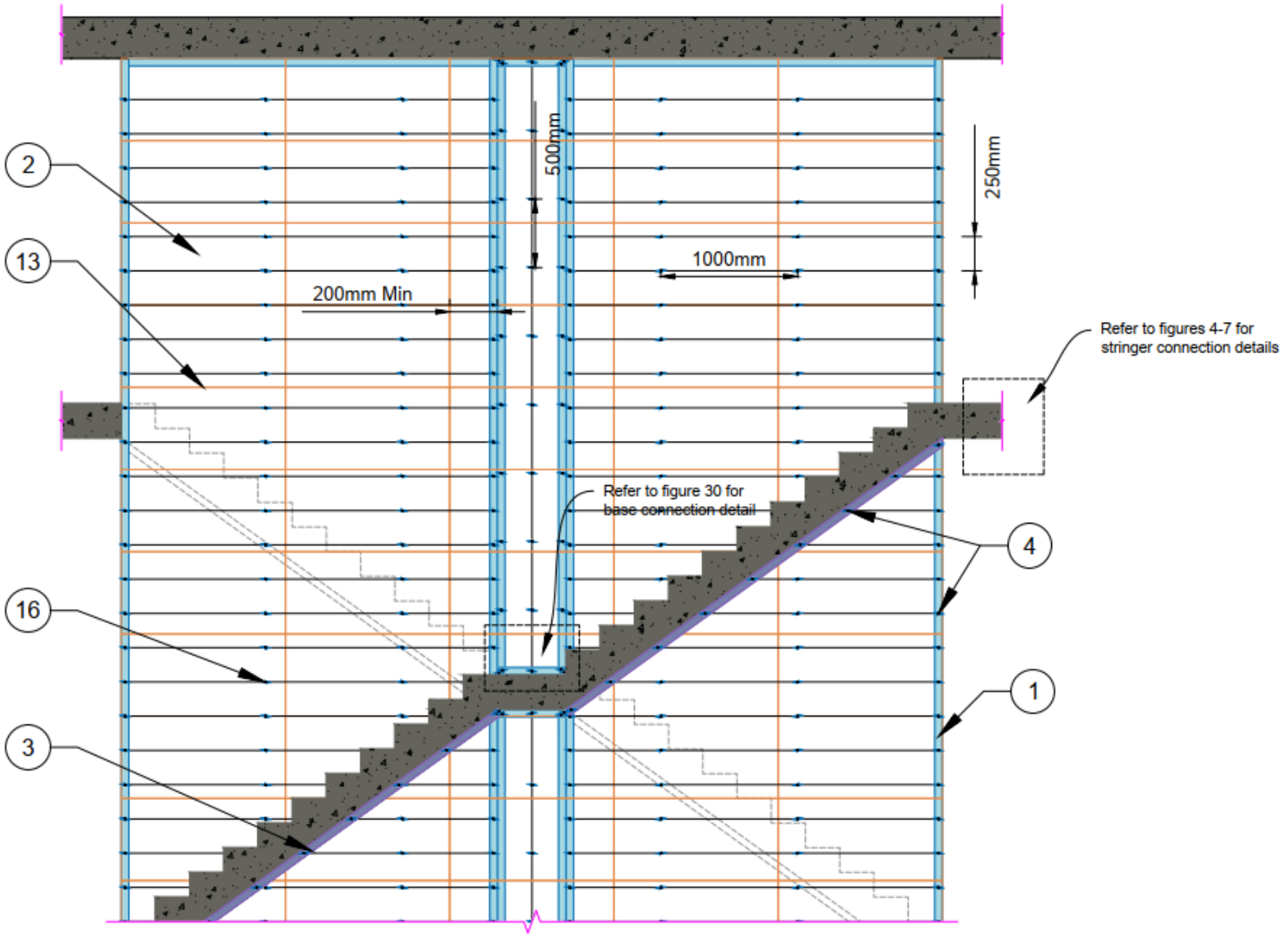


Figure 20 Dual wall system with vertical wall between horizontal walls – elevation view

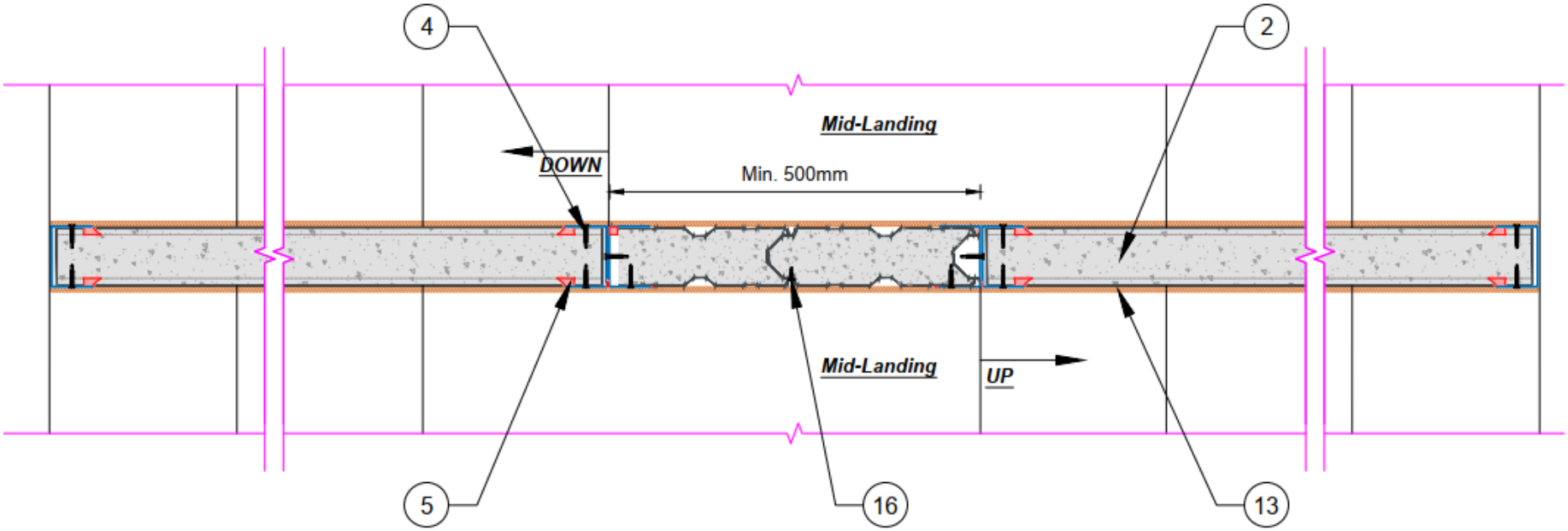


Figure 21 Dual wall system with vertical wall between horizontal walls – plan view

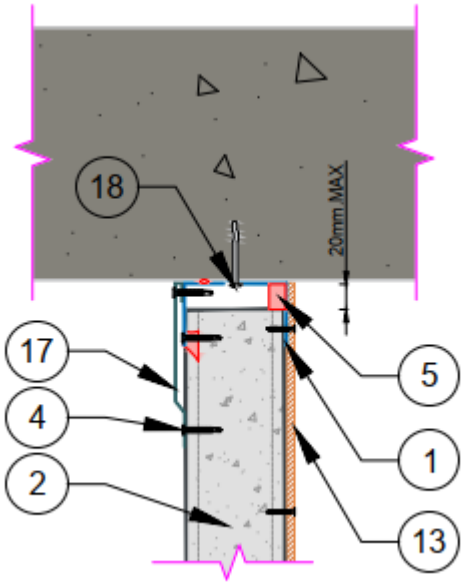


Figure 22 Dual wall system with vertical wall between horizontal walls – vertical head detail – option 01

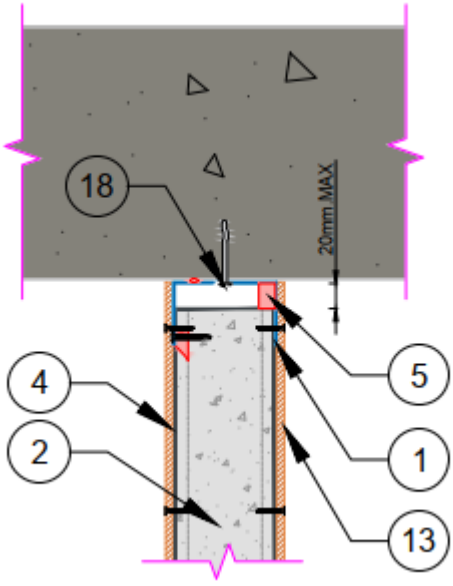


Figure 23 Dual wall system with vertical wall between horizontal walls – vertical head detail – option 02

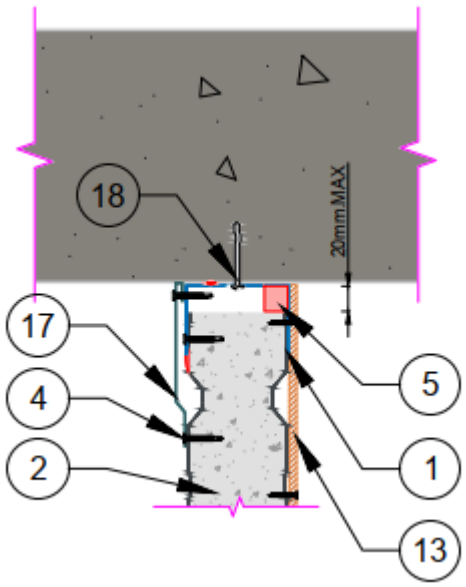


Figure 24 Dual wall system with vertical wall between horizontal walls – horizontal head detail – option 01

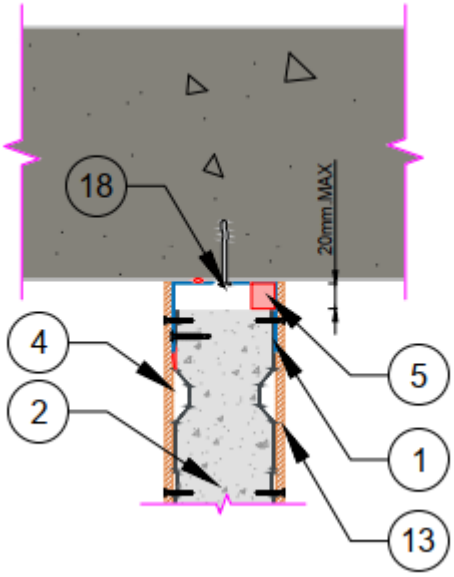


Figure 25 Dual wall system with vertical wall between horizontal walls – horizontal head detail – option 02

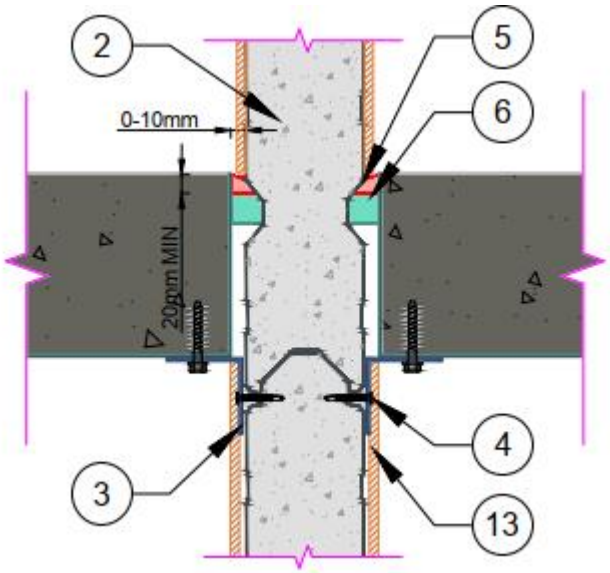


Figure 26 Dual wall system with vertical wall between horizontal walls –gap width of 0-10 mm between the stair and horizontally oriented wall

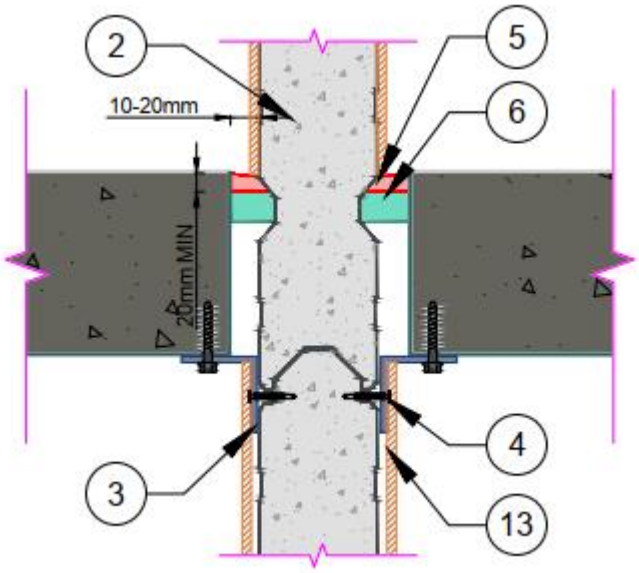


Figure 27 Dual wall system with vertical wall between horizontal walls – gap width of 10-20 mm between the stair and horizontally oriented wall

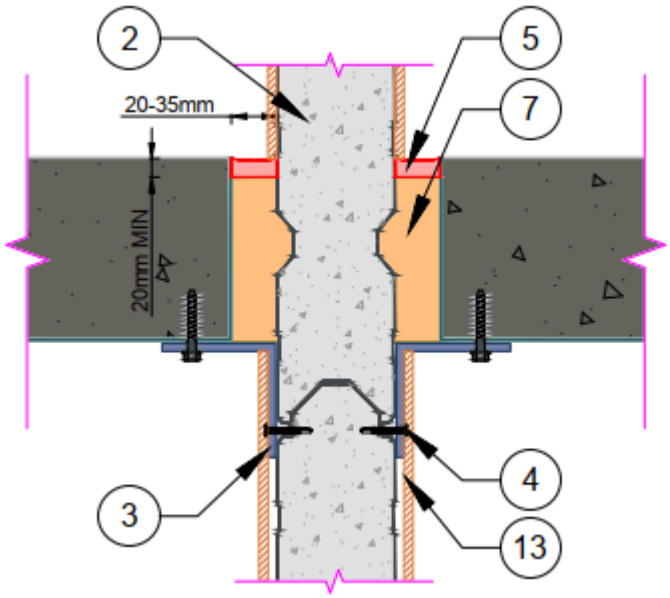


Figure 28 Dual wall system with vertical wall between horizontal walls – gap width of 20-35 mm between the stair and horizontally oriented wall

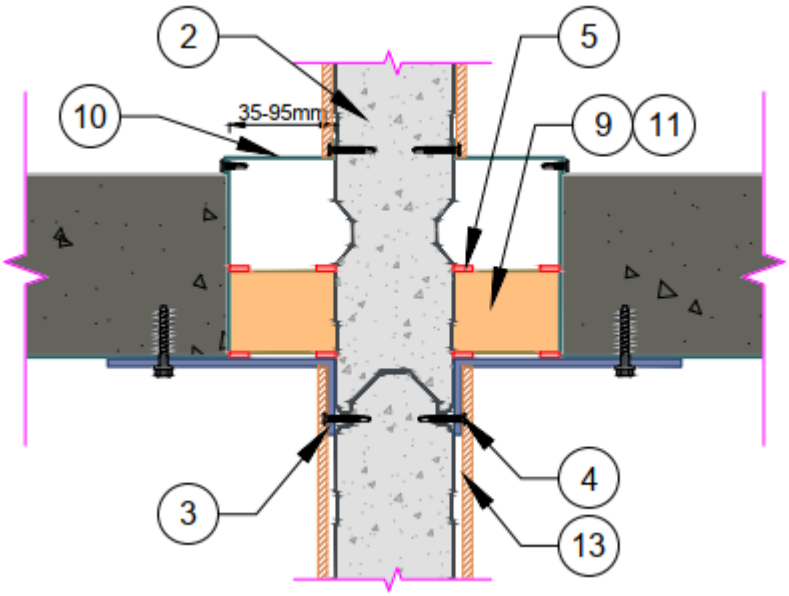


Figure 29 Dual wall system with vertical wall between horizontal walls – gap width of 35-95 mm between the stair and horizontally oriented wall

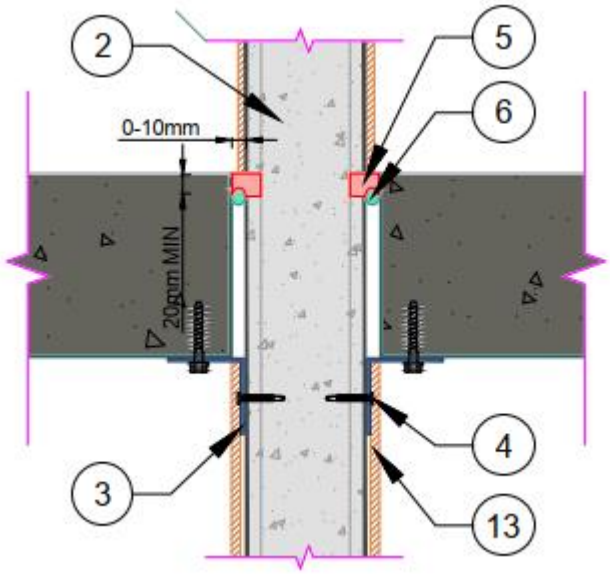


Figure 30 Dual wall system with vertical wall between horizontal walls – gap width of 0-10 mm between the stair and vertically oriented wall

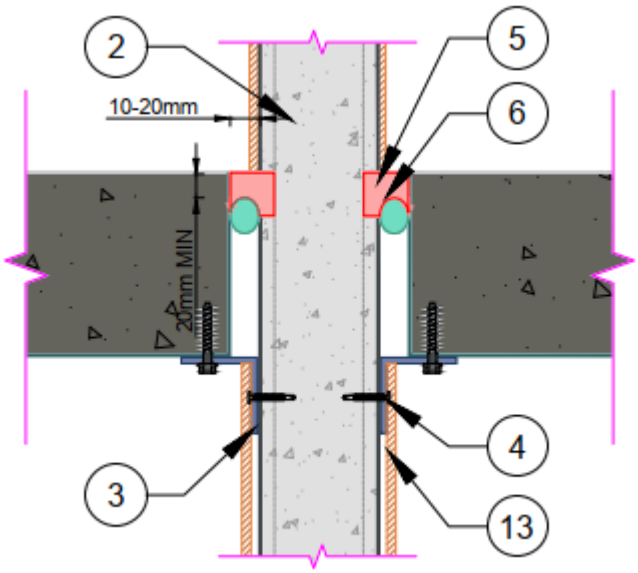


Figure 31 Dual wall system with vertical wall between horizontal walls – gap width of 10-20 mm between the stair and vertically oriented wall

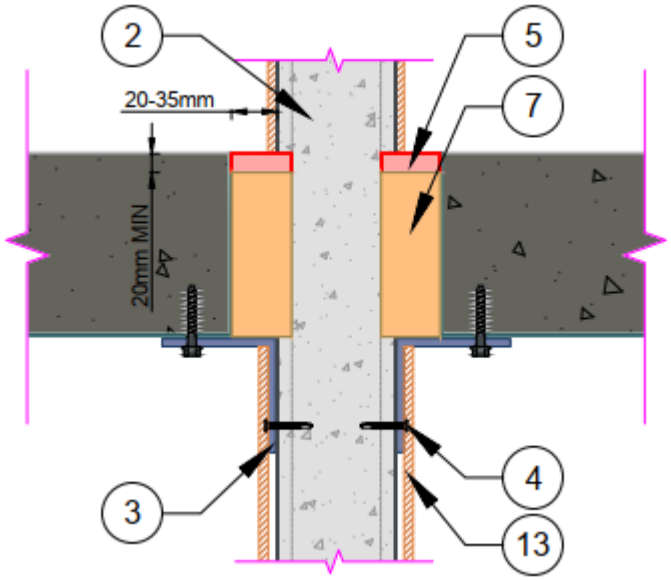


Figure 32 Dual wall system with vertical wall between horizontal walls – gap width of 20-35 mm between the stair and vertically oriented wall

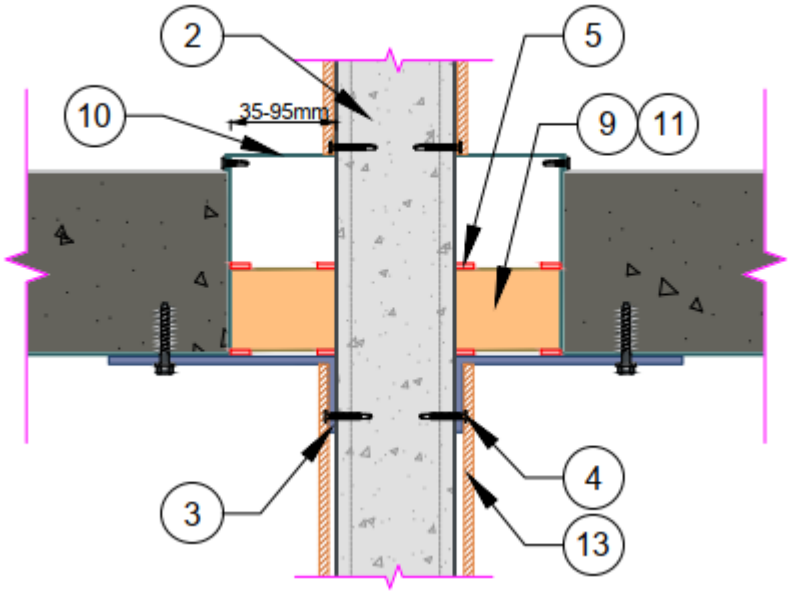


Figure 33 Dual wall system with vertical wall between horizontal walls – gap width of 35-95 mm between the stair and vertically oriented wall

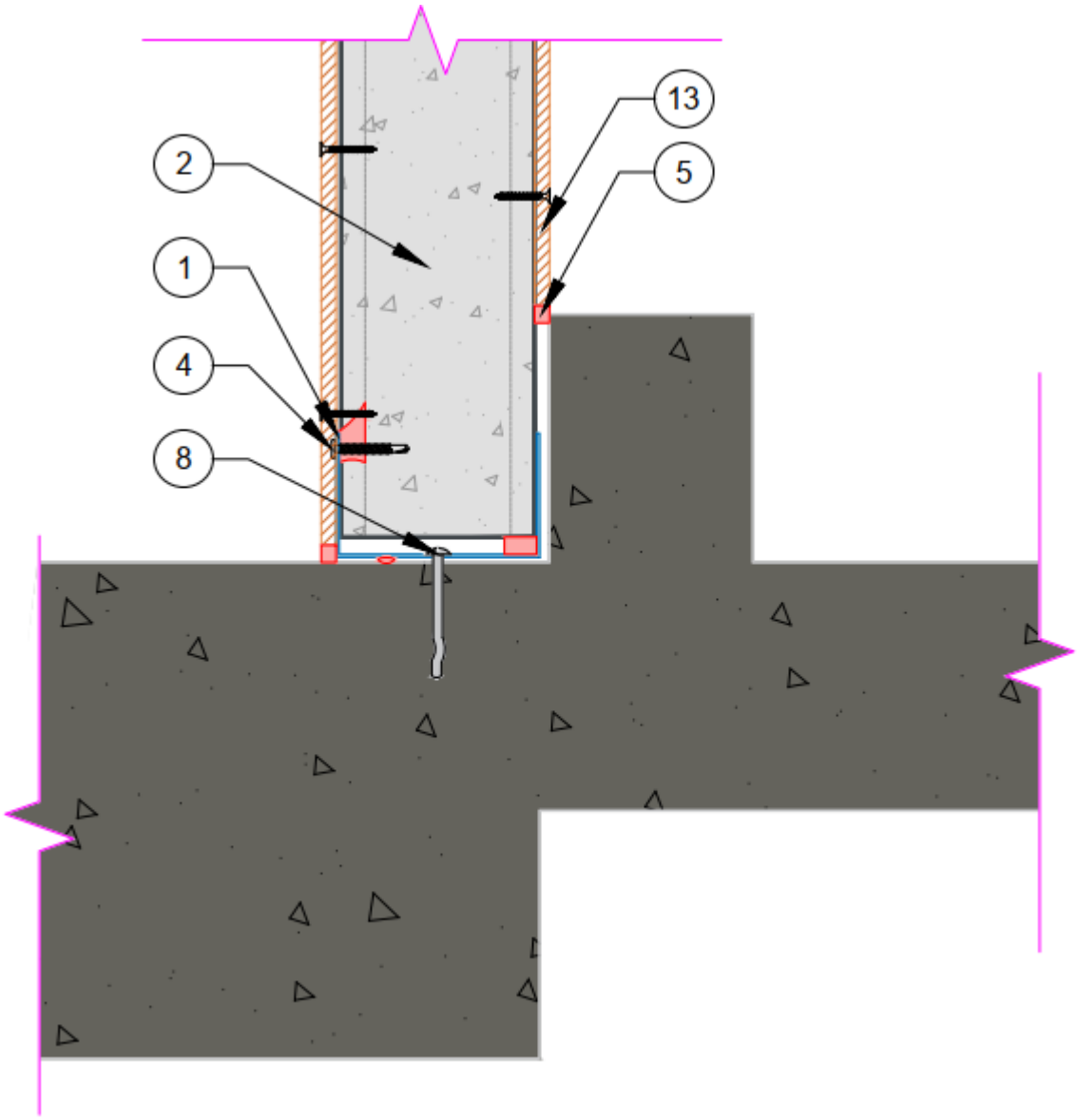
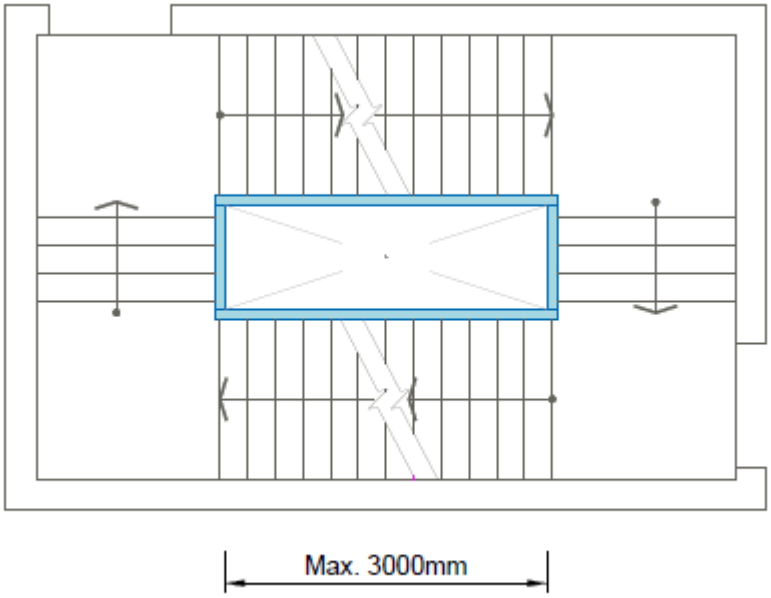


Figure 34 Dual wall system with vertical wall between horizontal walls – vertical Speedpanel base detail at mid-landings

Figure 35 to Figure 56 show the proposed riser systems.



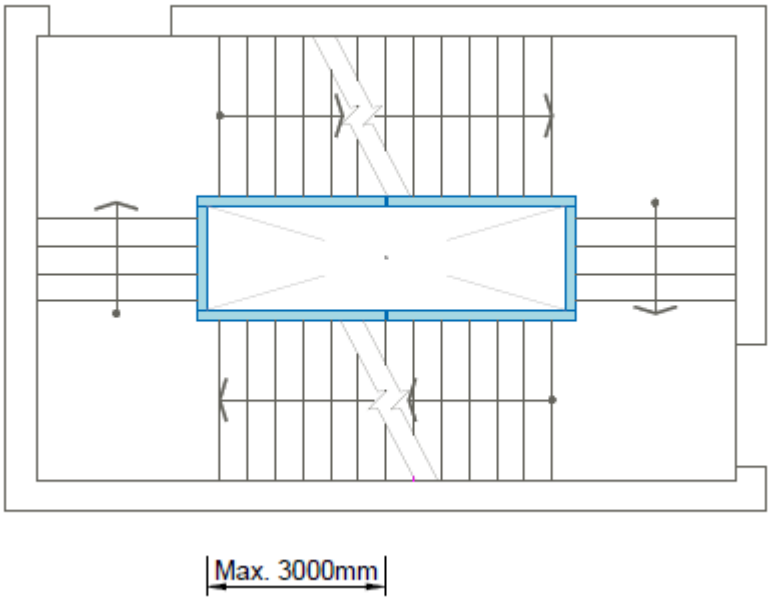


Figure 35 Single void box riser – plan views

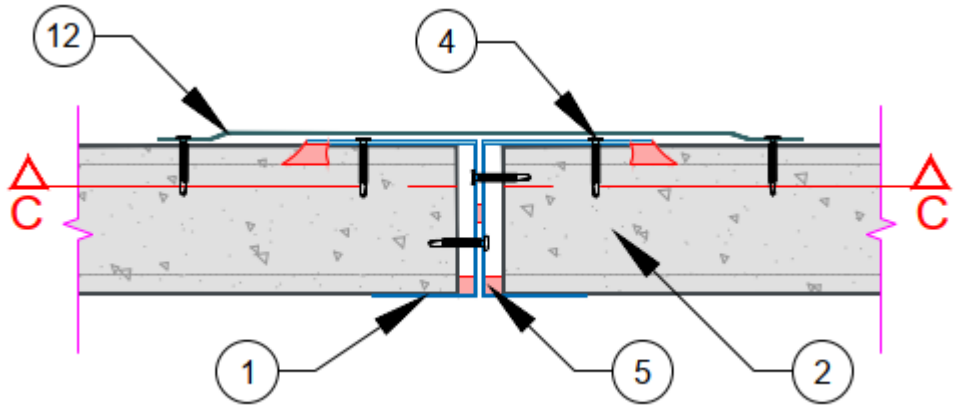


Figure 36 Single void box riser – mid-wall connection when span is 6 m (metal flashing on unexposed side)

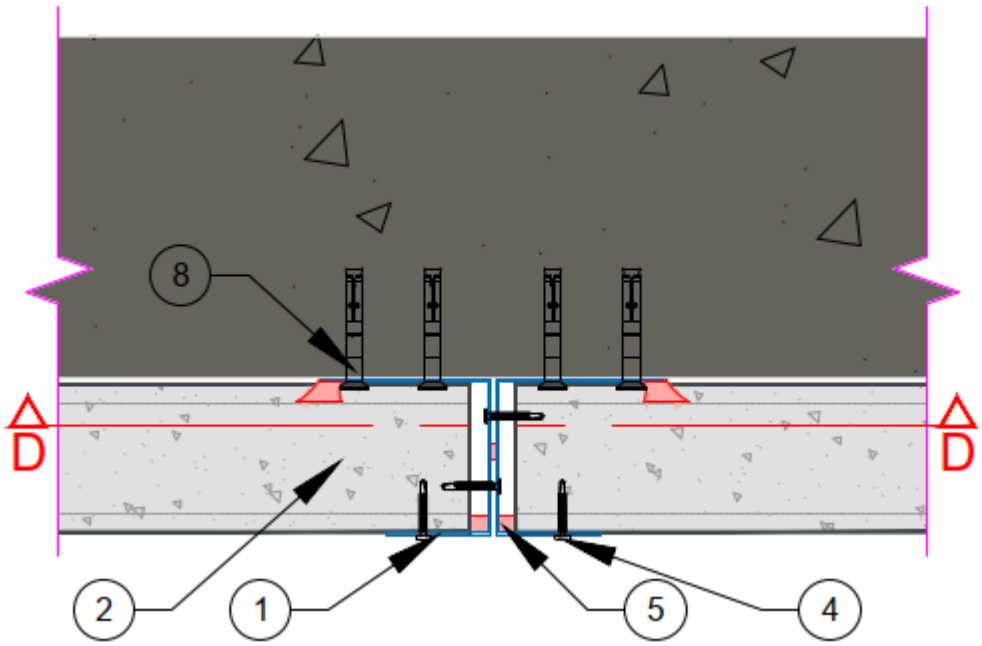


Figure 37 Single void box riser – mid-wall connection when span is 6 m (connection to stringer)

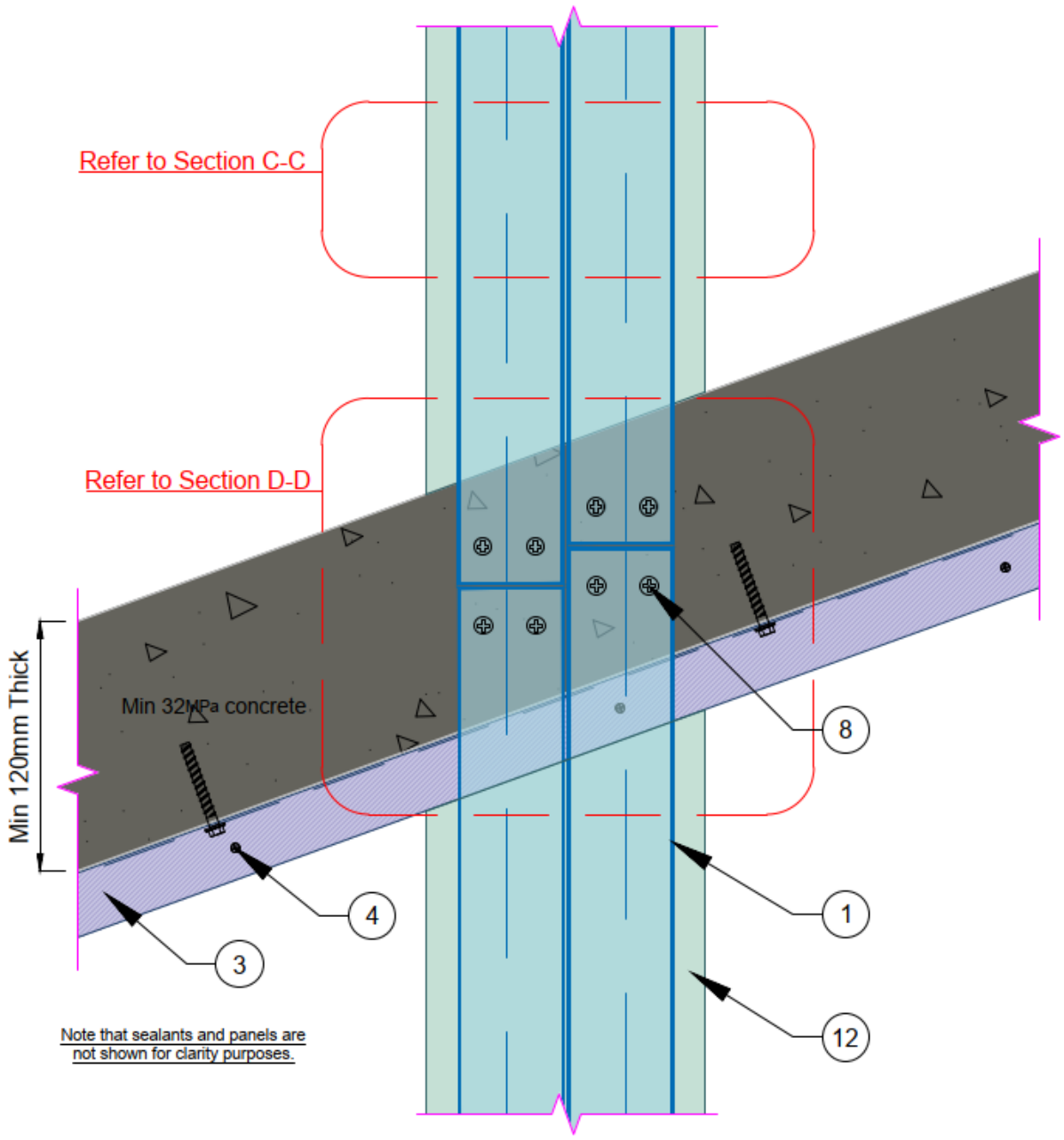


Figure 38 Single void box riser – mid-wall connection to stair stringer

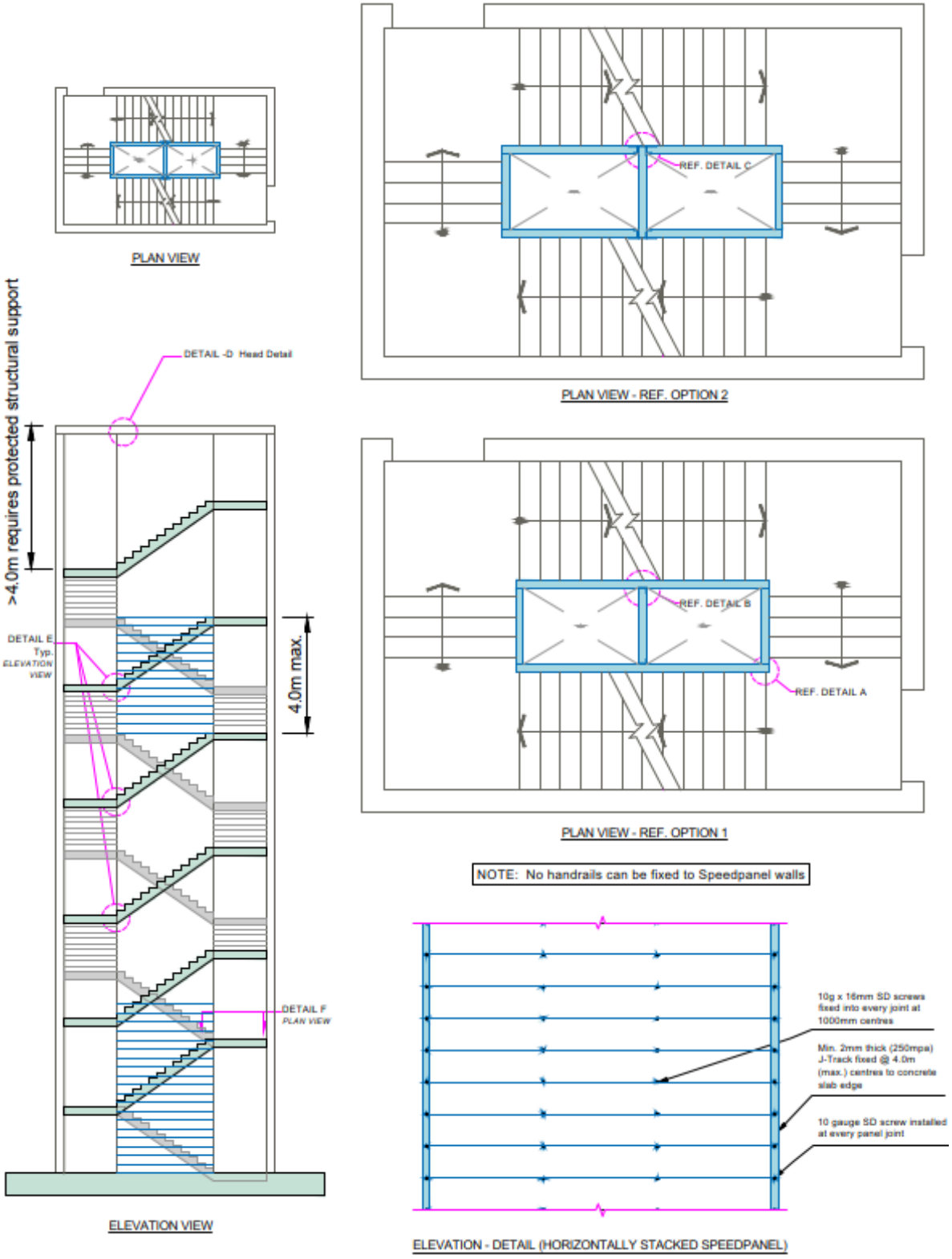


Figure 39 Dual void box riser – section and elevation views

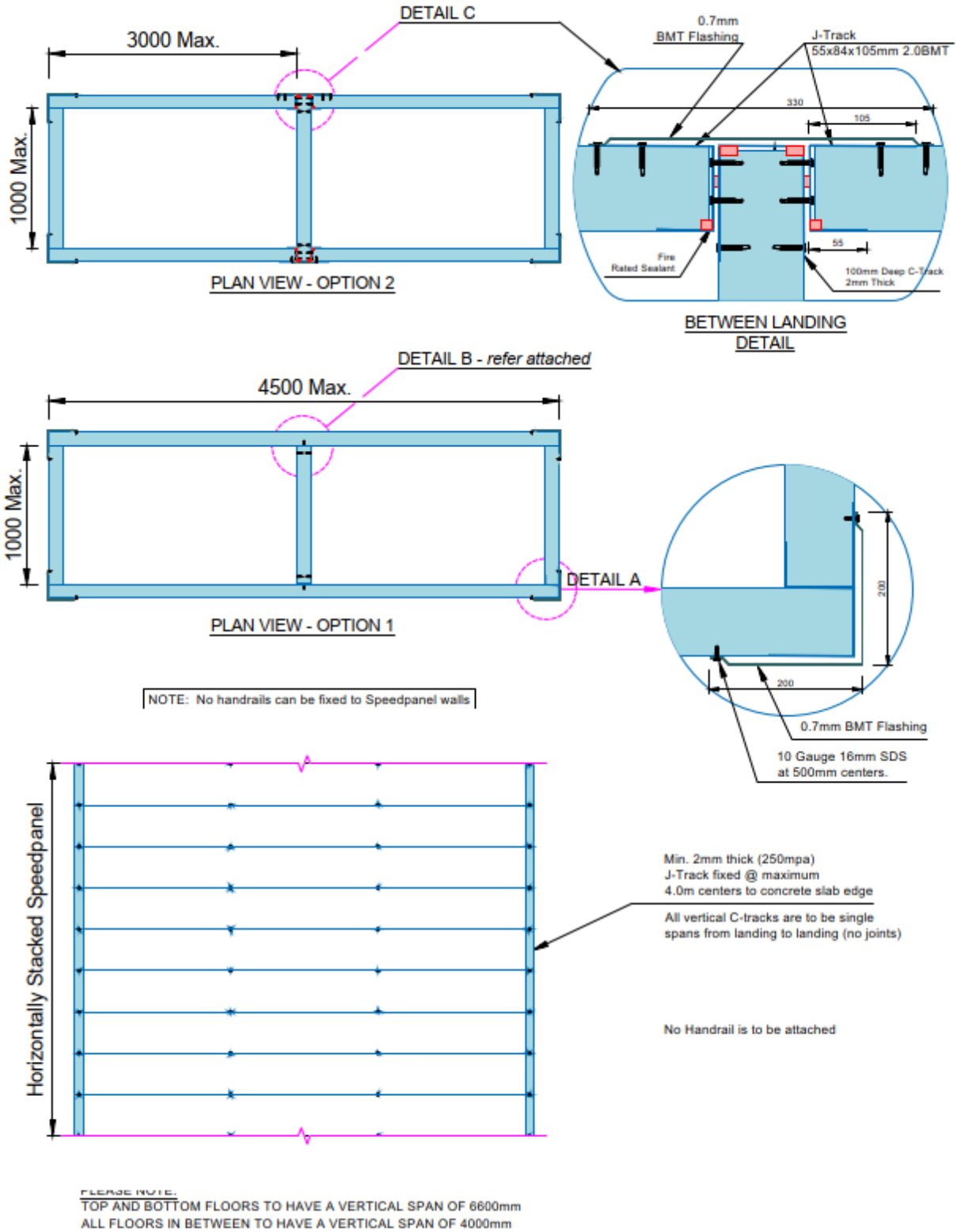


Figure 40 Dual void box riser – plan and elevation views

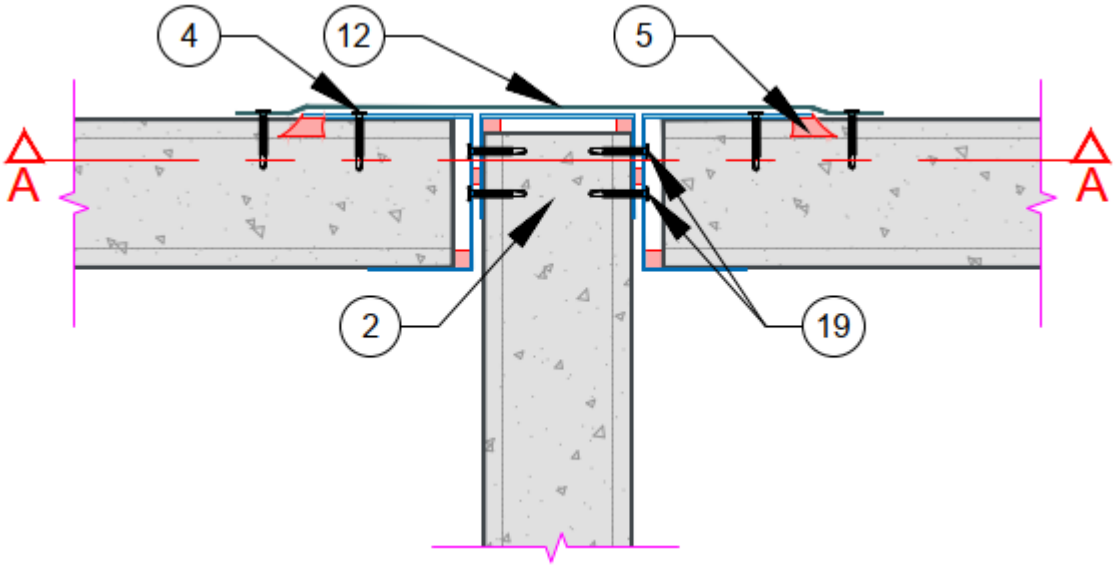


Figure 41 **Dual void box riser – mid-wall connection when span is 6 m (metal flashing on unexposed side)**

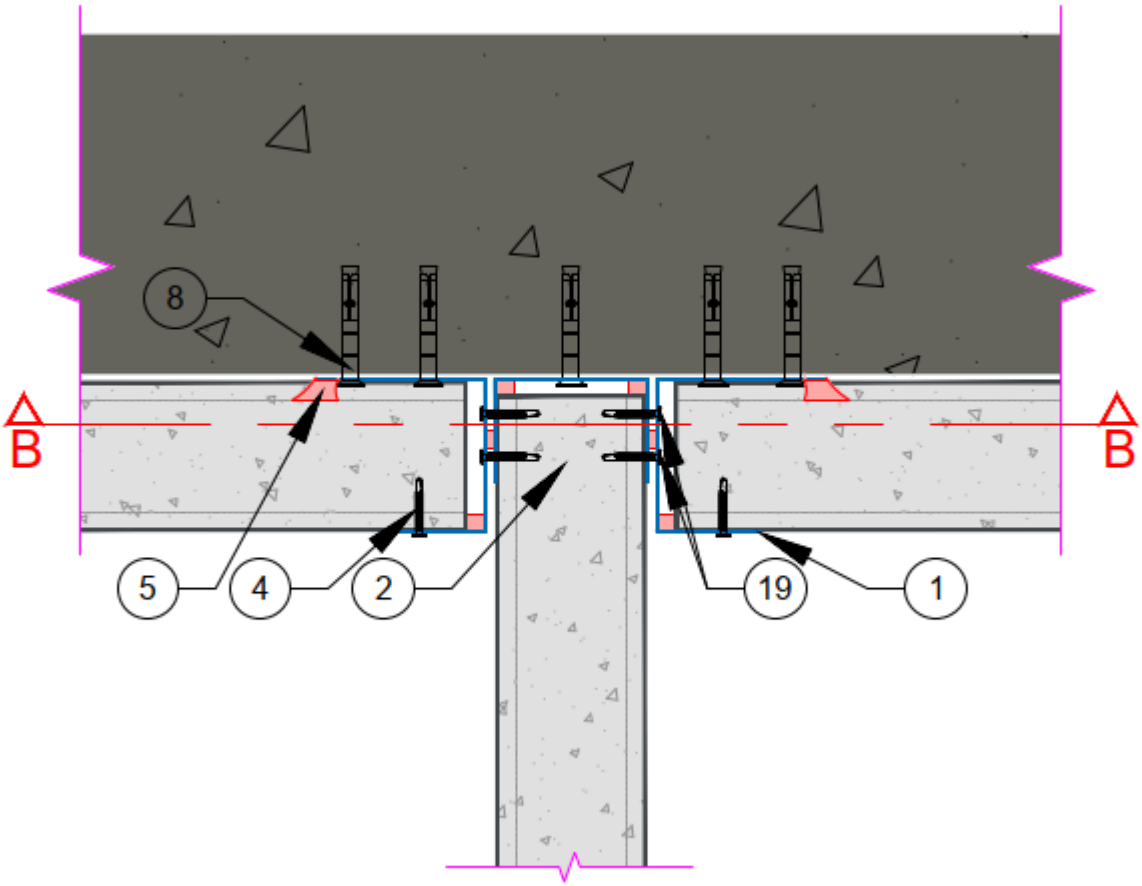


Figure 42 **Dual void box riser – mid-wall connection when span is 6 m (connection to stringer)**

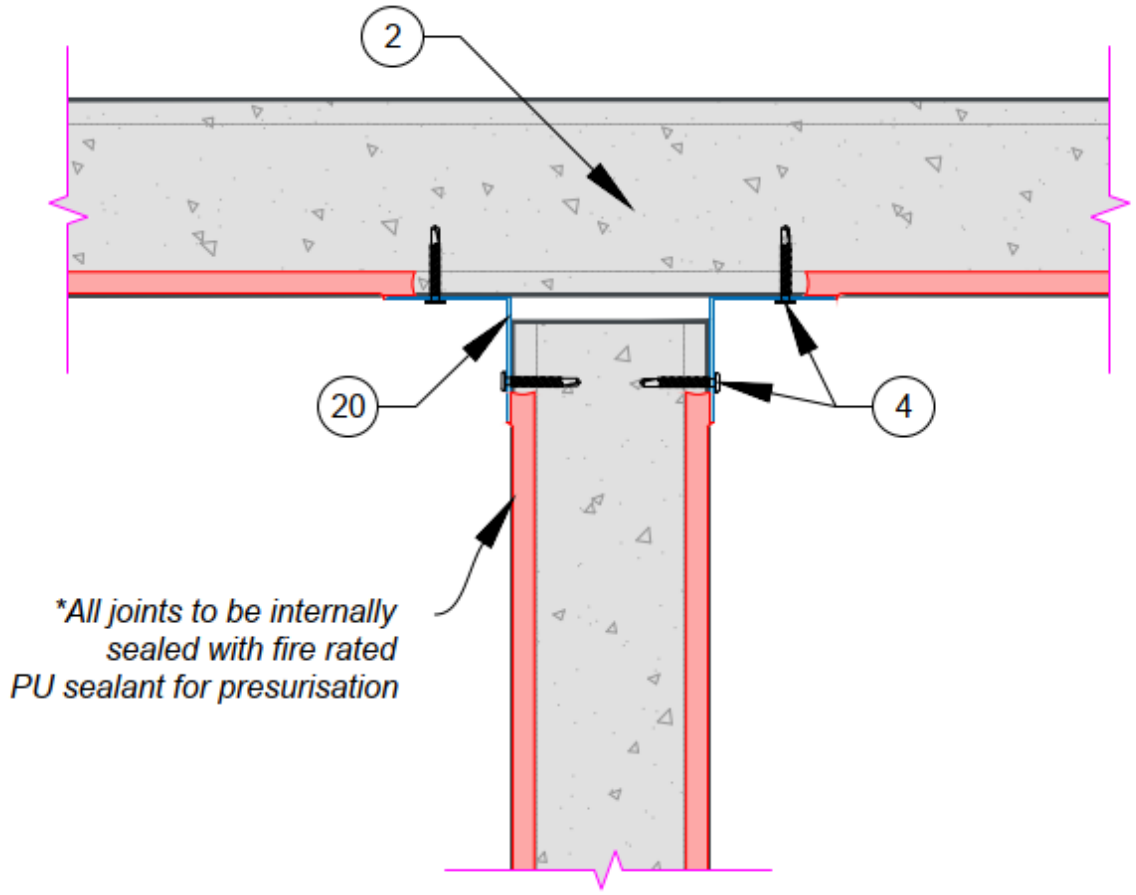


Figure 43 Dual void box riser – mid-wall connection when span is 4.5 m (infill panel connected to continuous panel via steel angles)

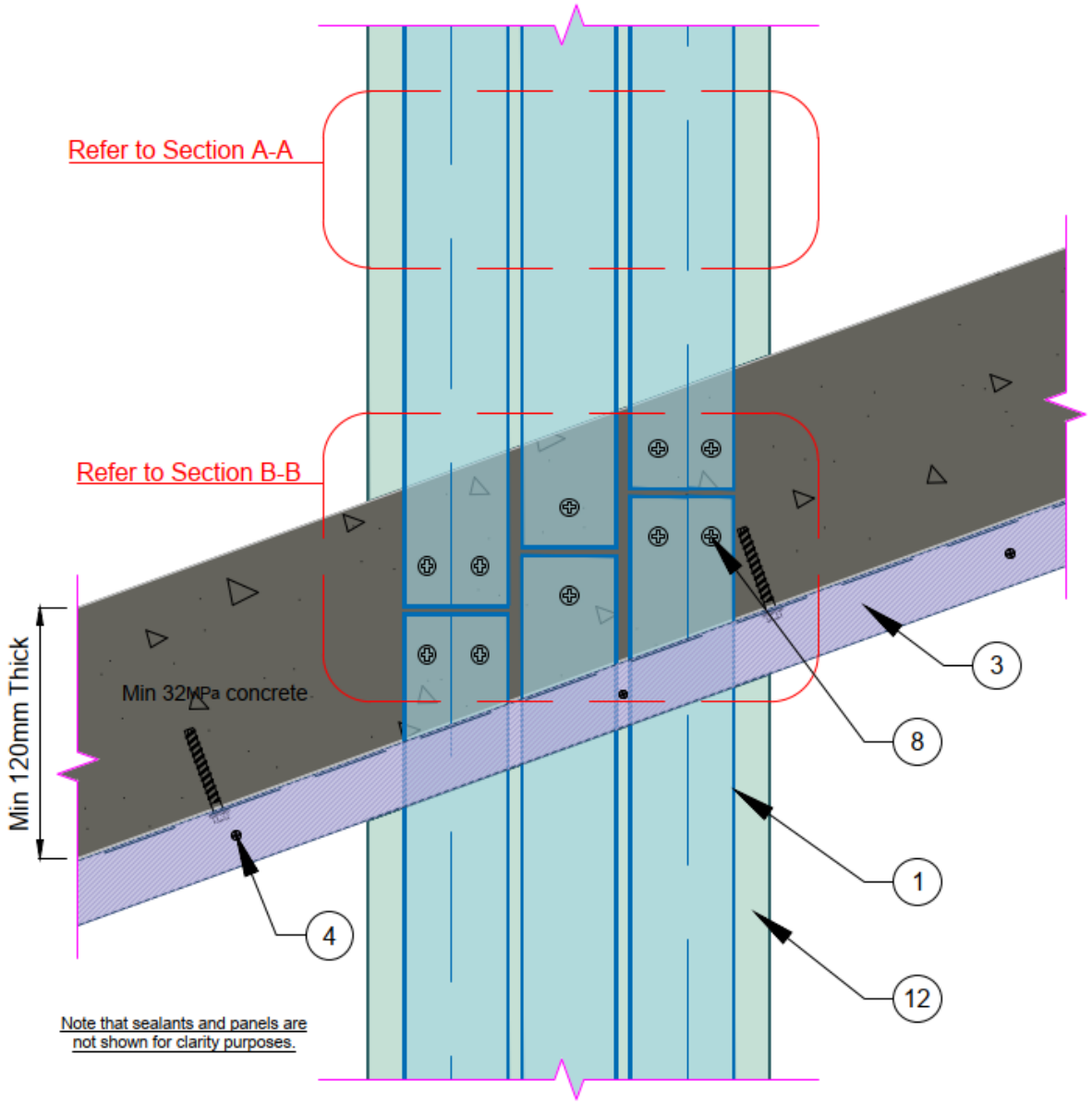


Figure 44 Dual void box riser – mid-wall connection to stair stringer

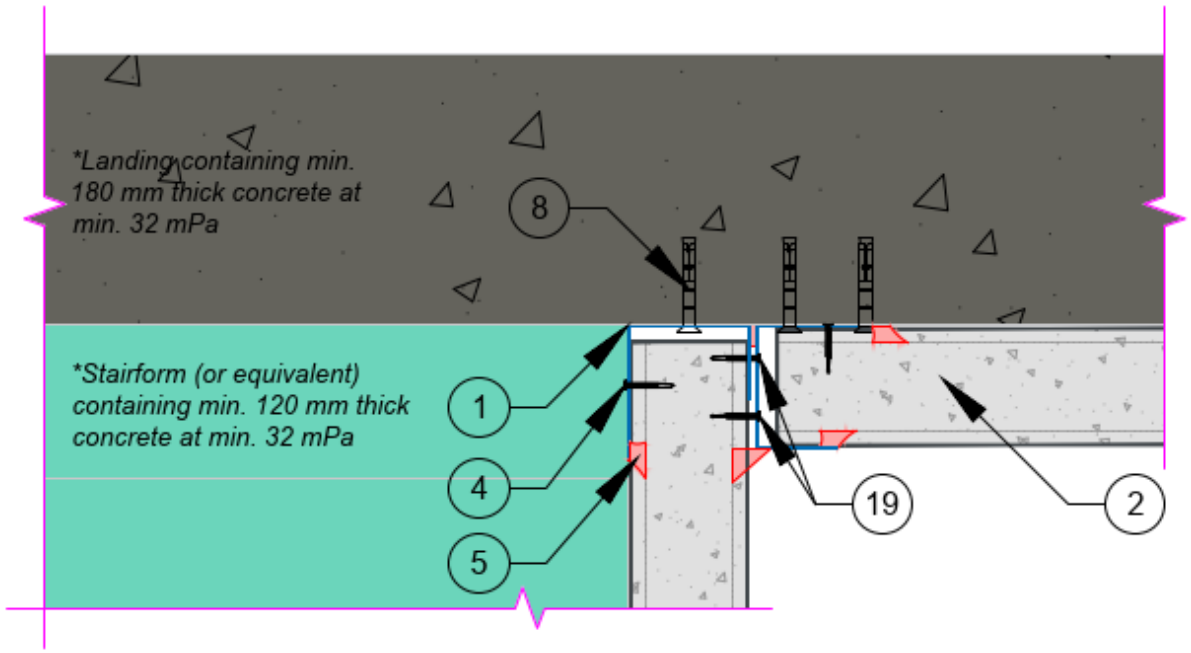


Figure 45 Box riser – plan view of corner details

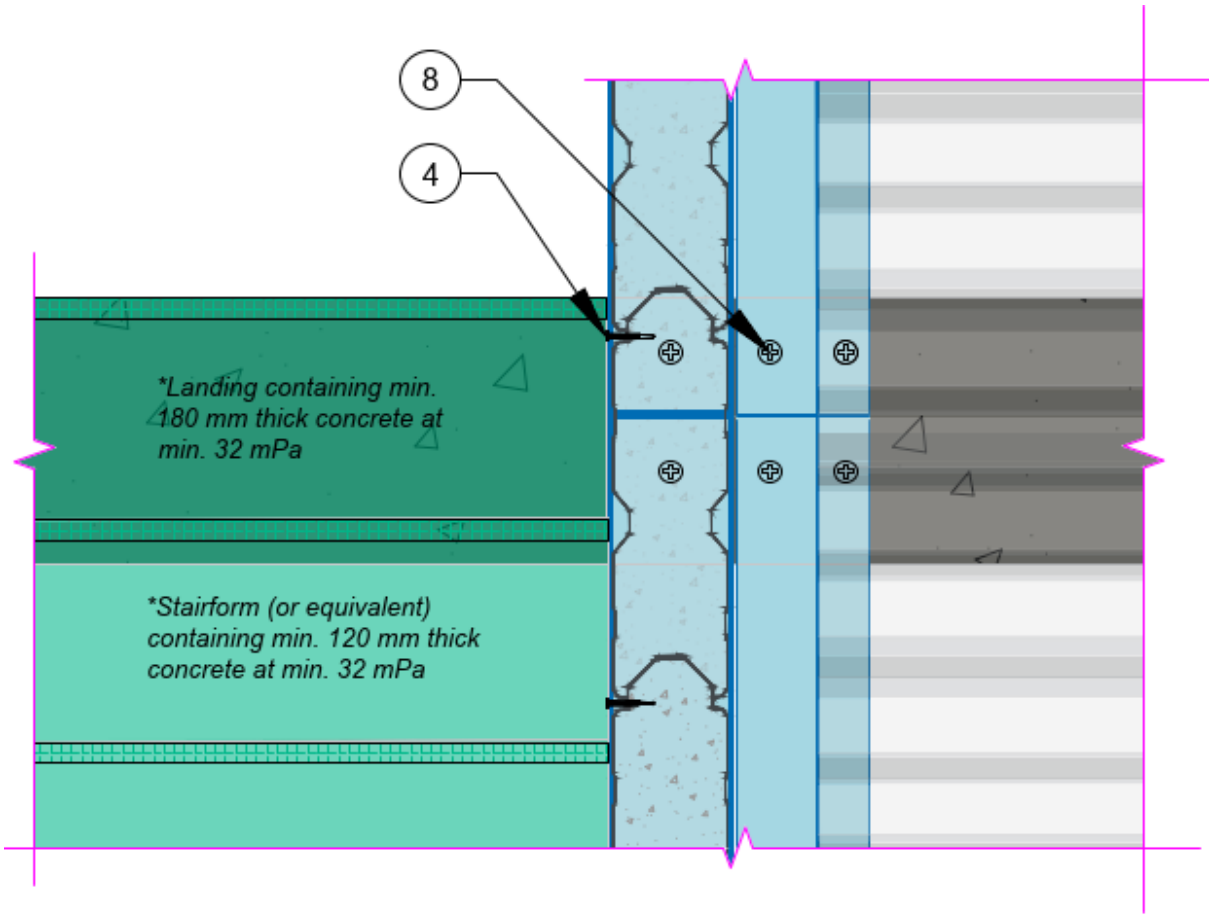


Figure 46 Box riser – section view of corner details

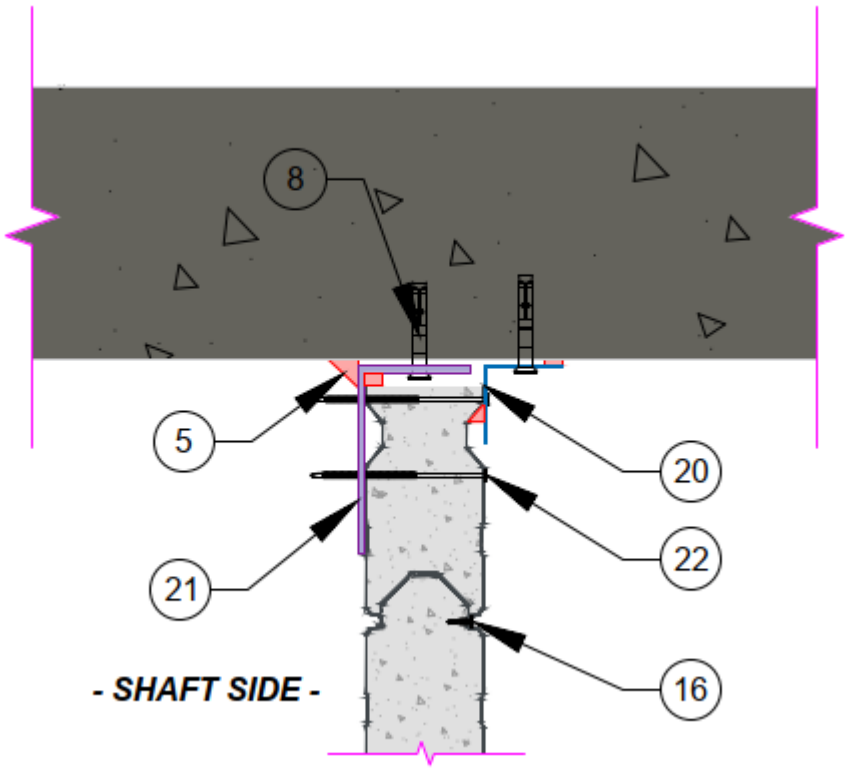


Figure 47 Box riser – head support option 01

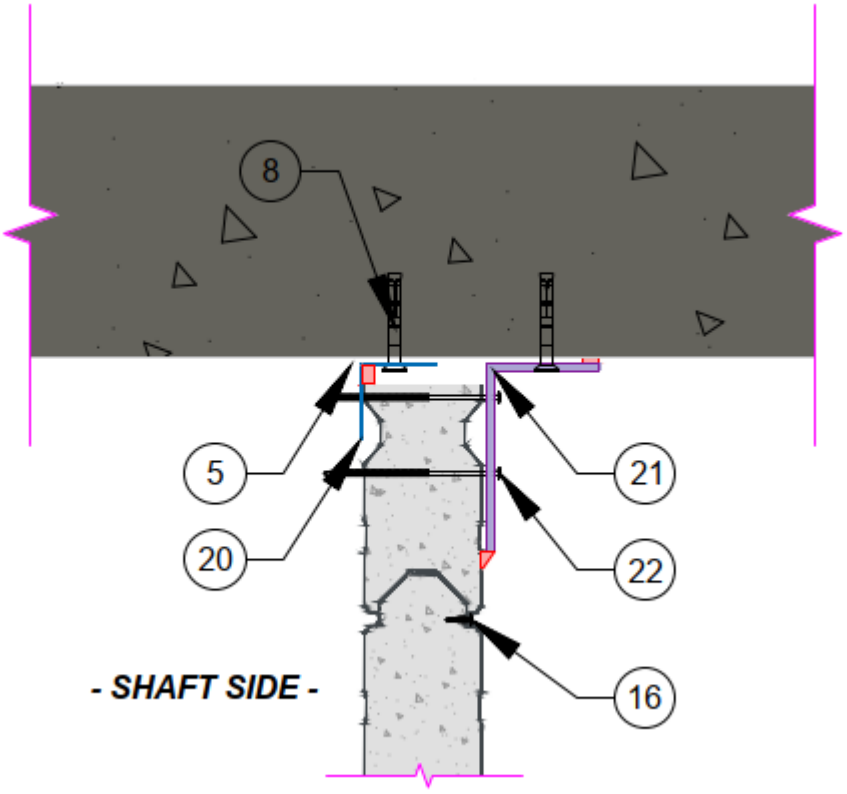


Figure 48 Box riser – head support option 02

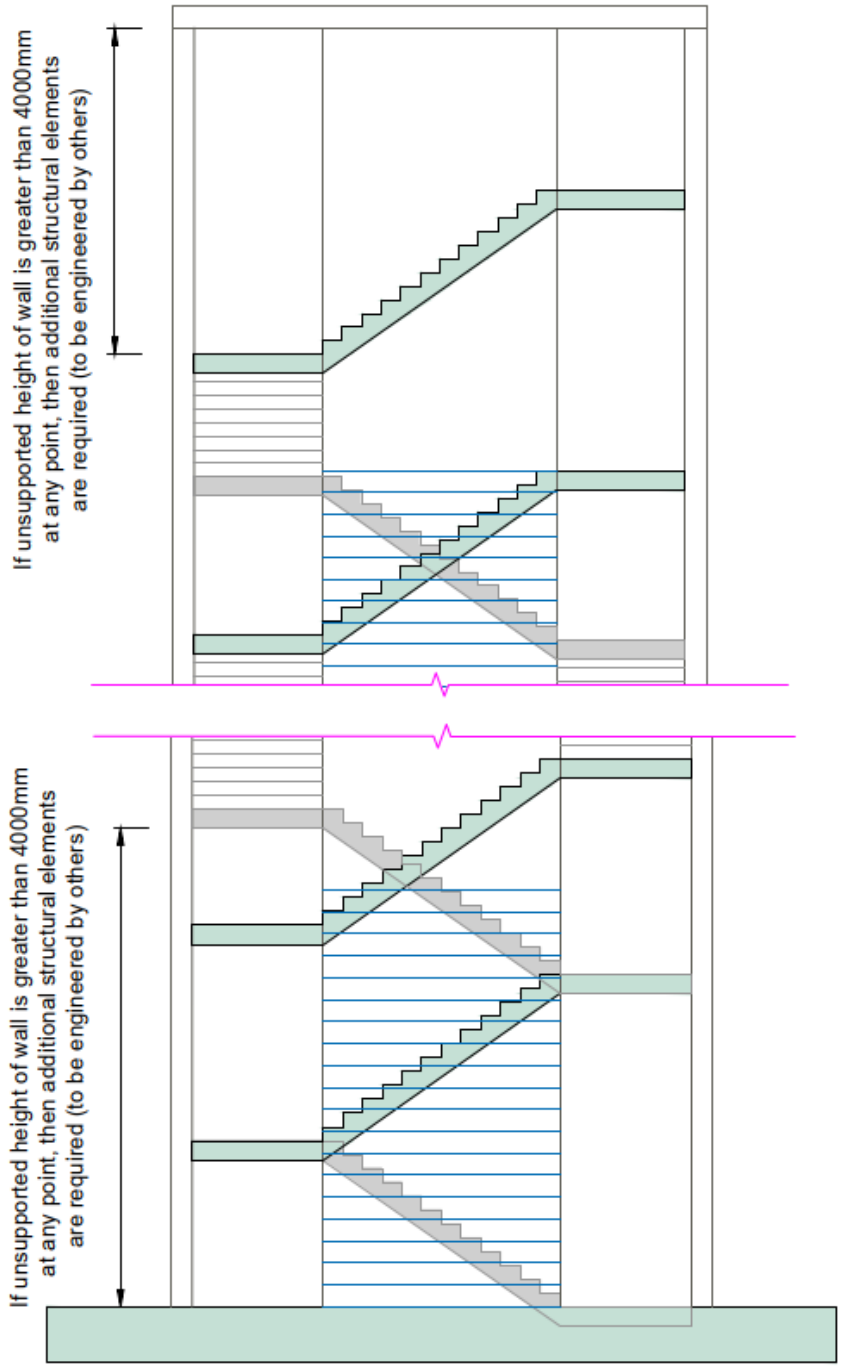


Figure 49 Box riser – elevation views

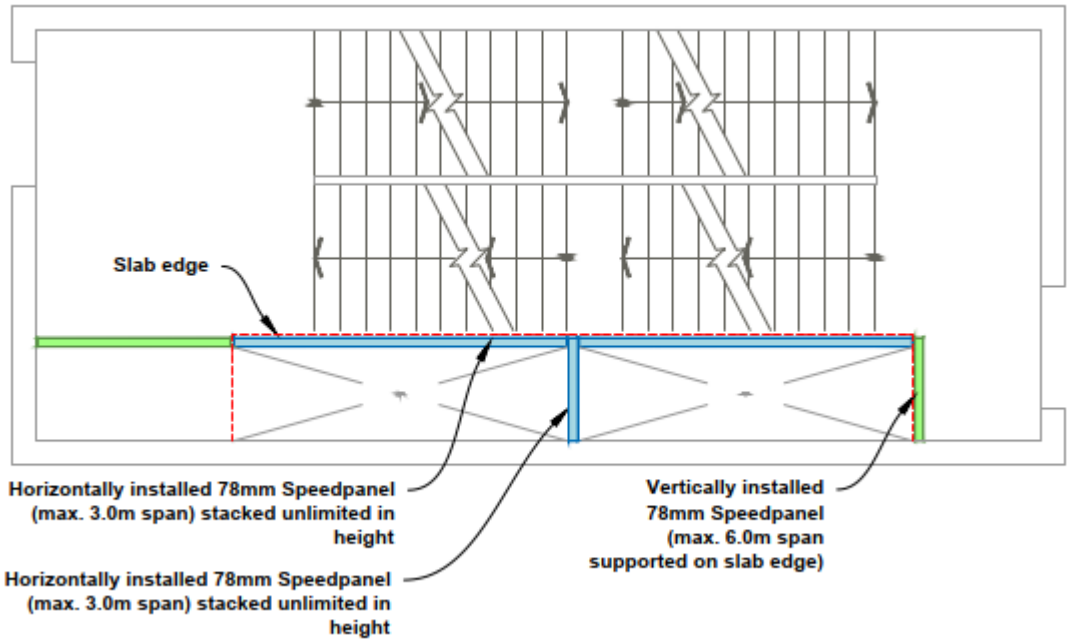


Figure 50 Riser fixed to side of stair – option 01

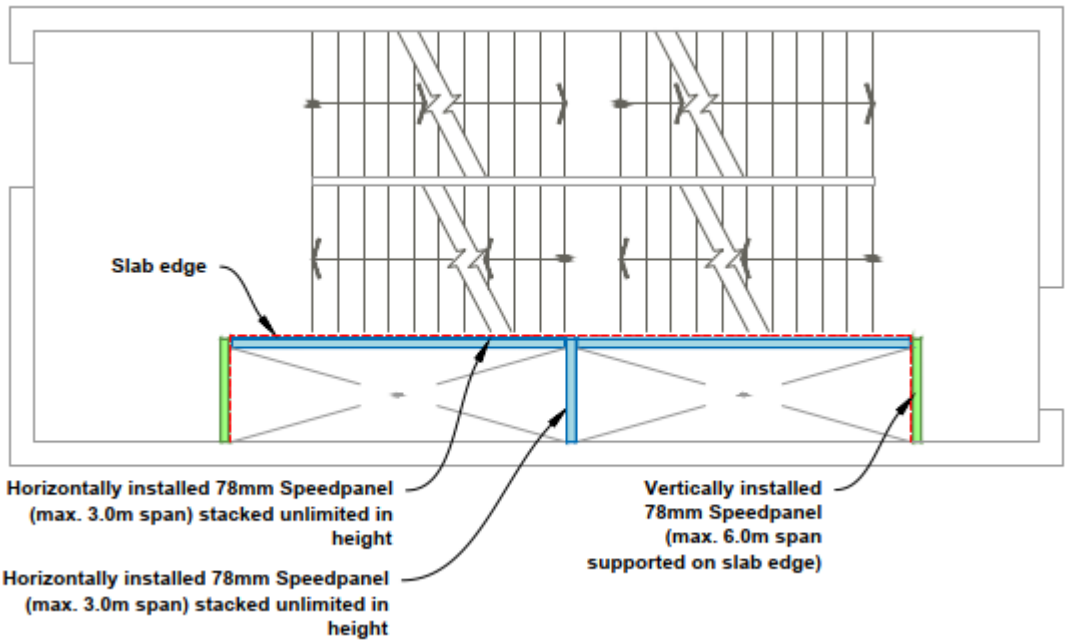


Figure 51 Riser fixed to side of stair – option 02

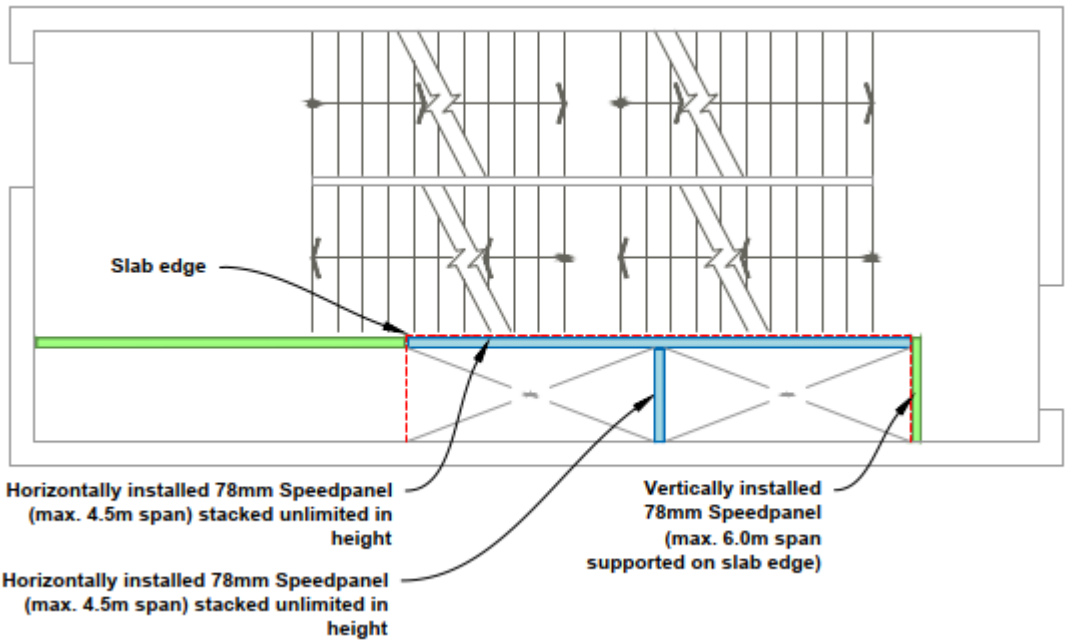


Figure 52 Riser fixed to side of stair – option 03

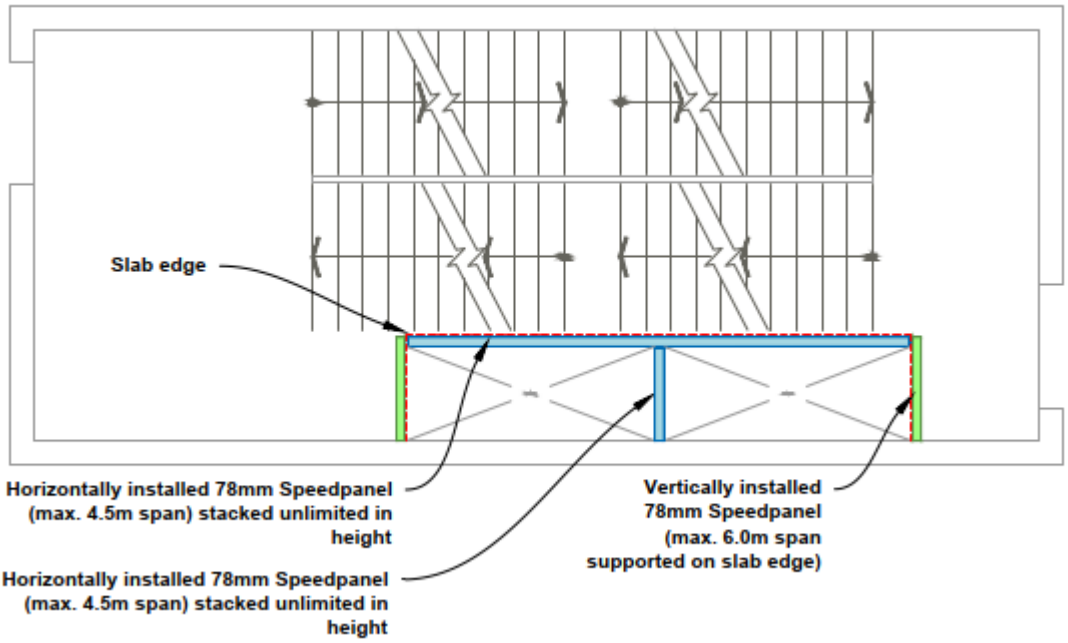


Figure 53 Riser fixed to side of stair – option 04

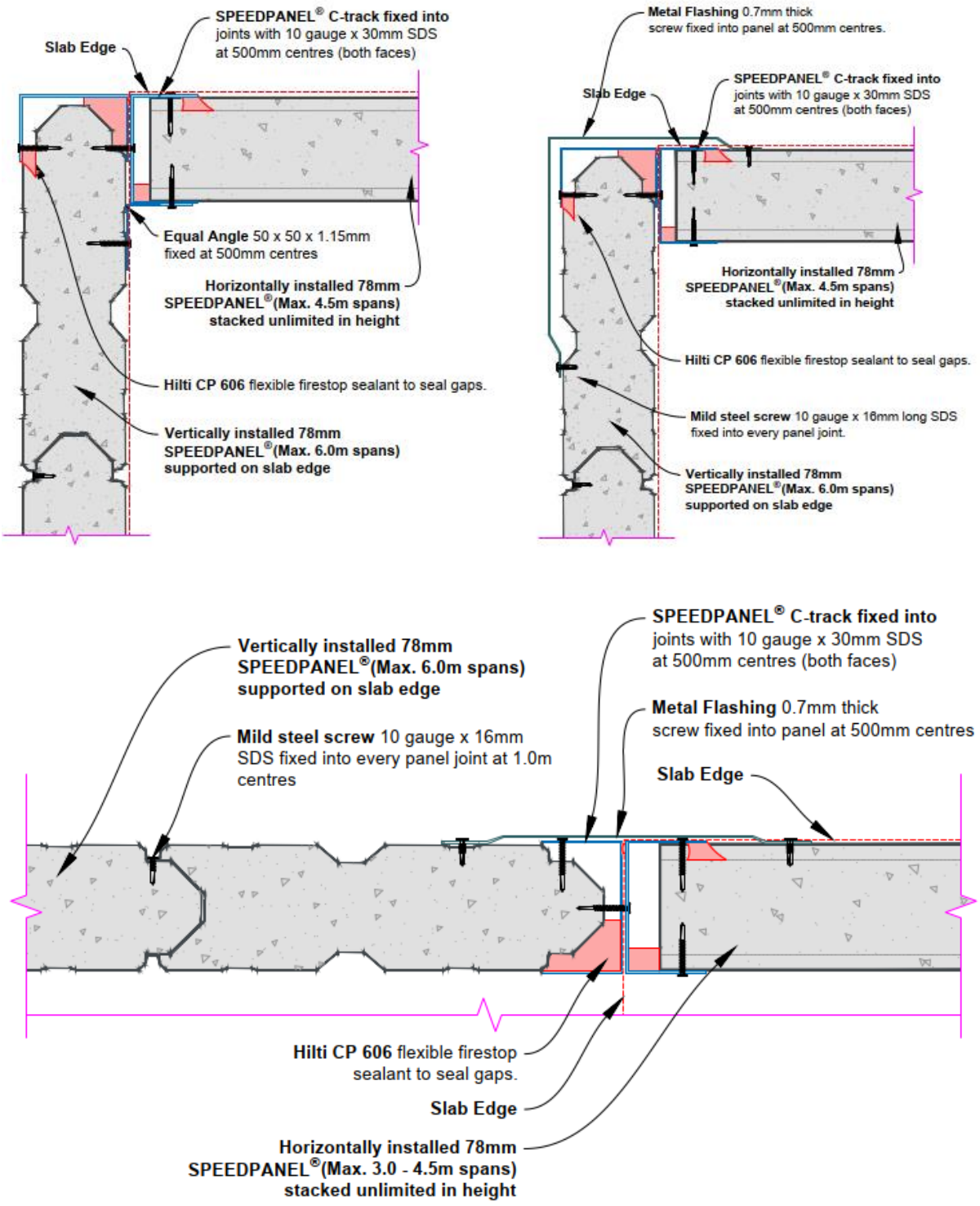


Figure 54 Riser fixed to side of stair – connection details

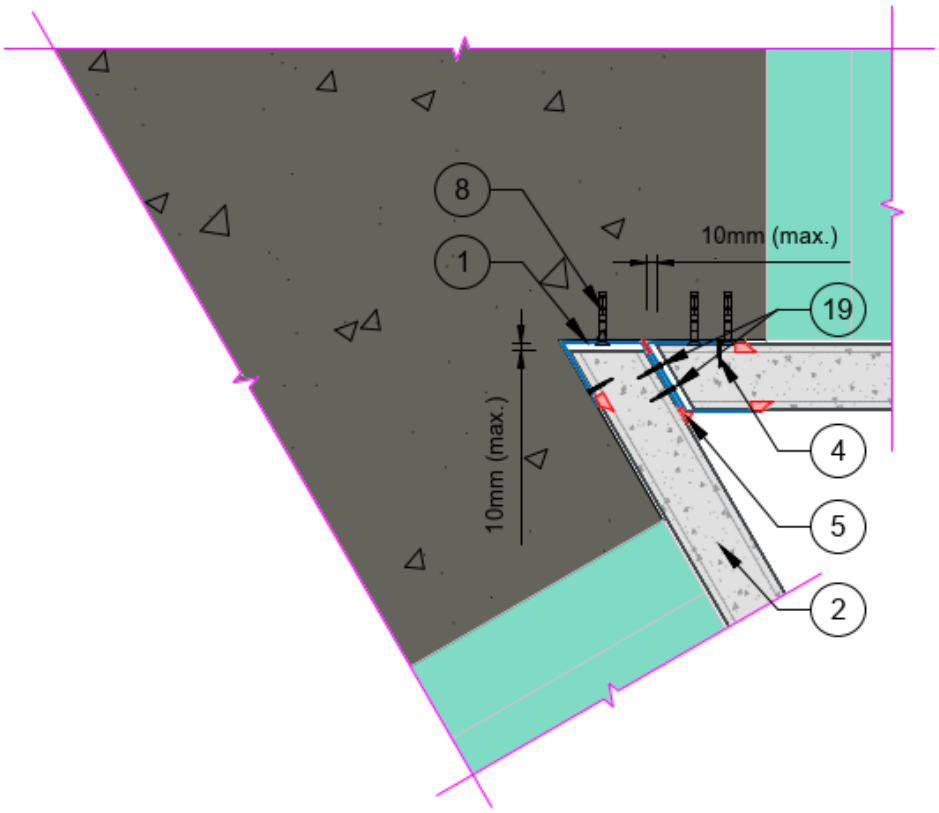


Figure 55 Triangular riser – plan view

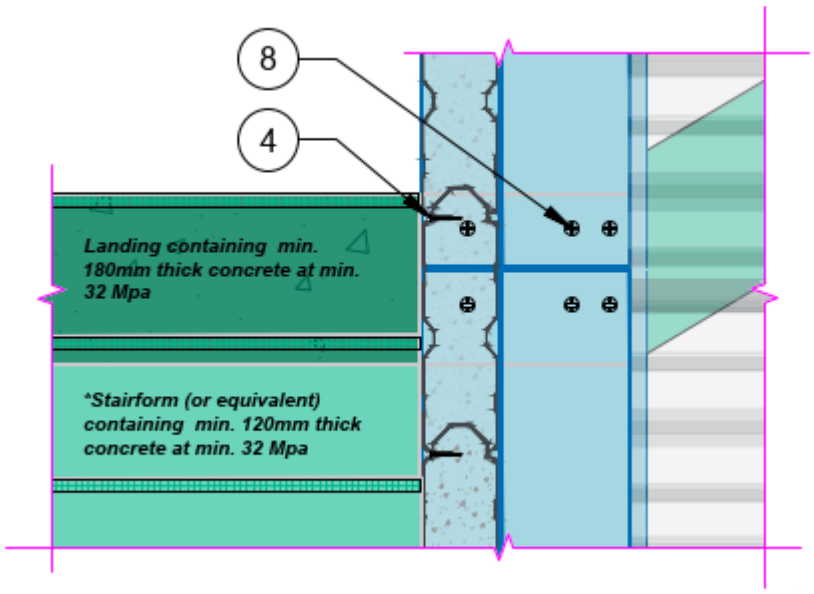


Figure 56 Triangular riser – connection to stair stringer

Figure 57 and Figure 58 show the proposed horizontal butt joins.

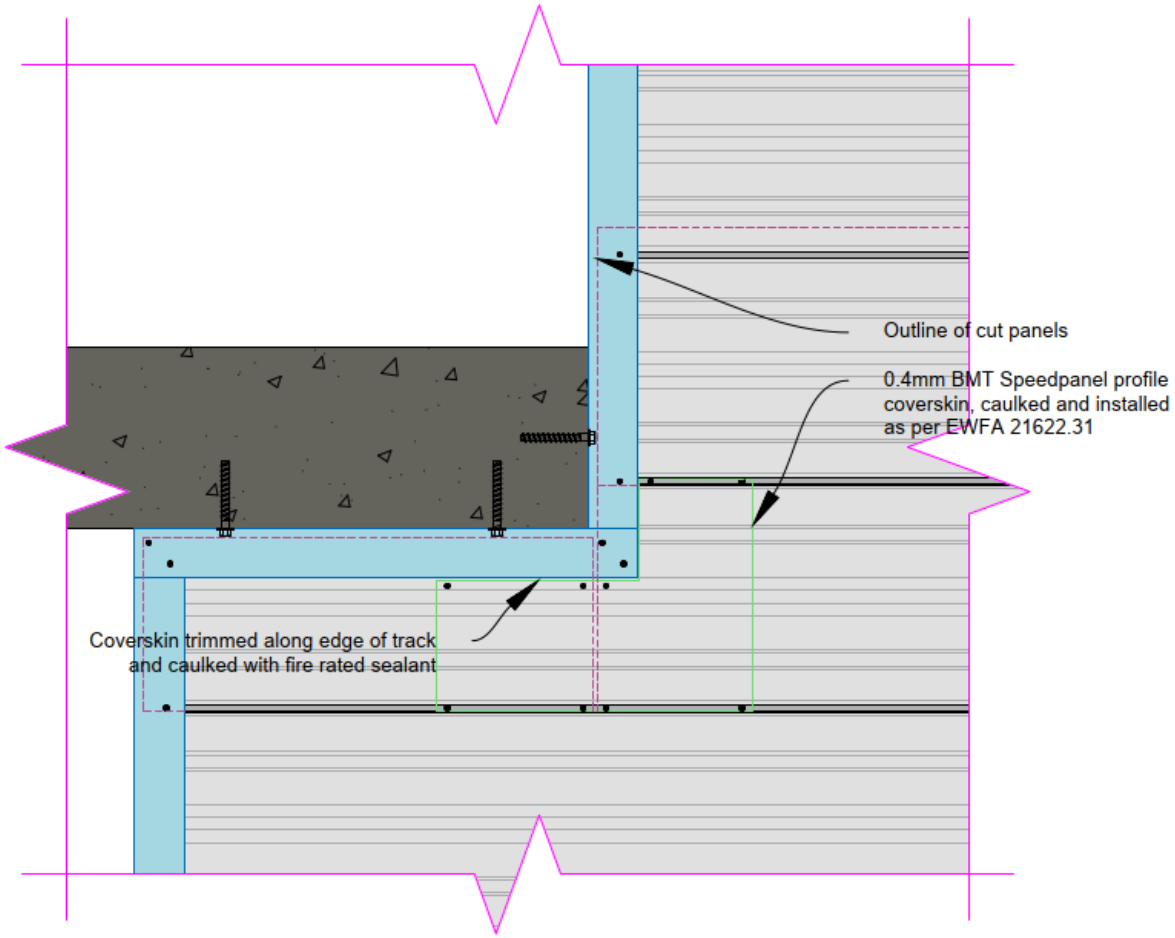


Figure 57 Horizontal butt join on vertical cuts – option 01

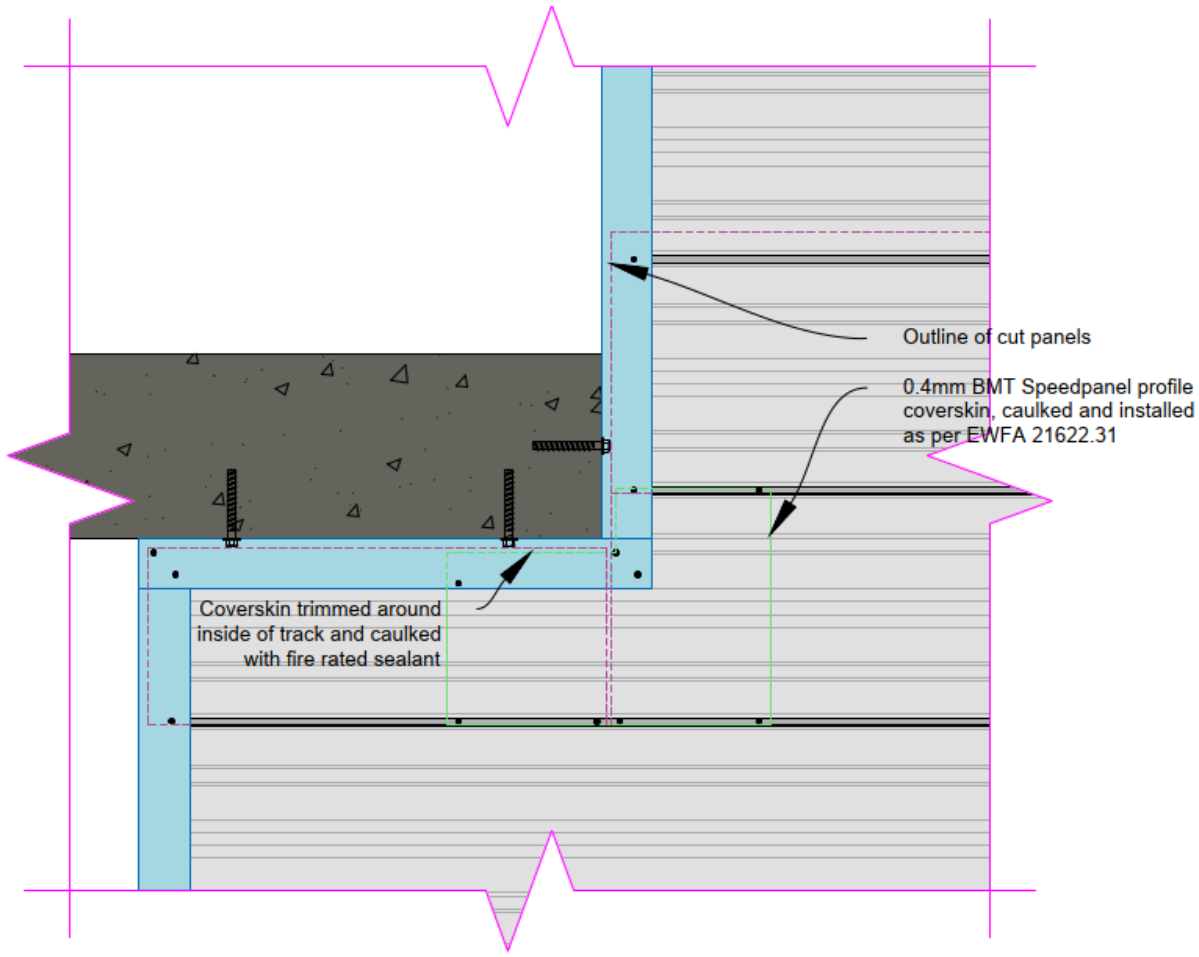


Figure 58 Horizontal butt join on vertical cuts – option 02

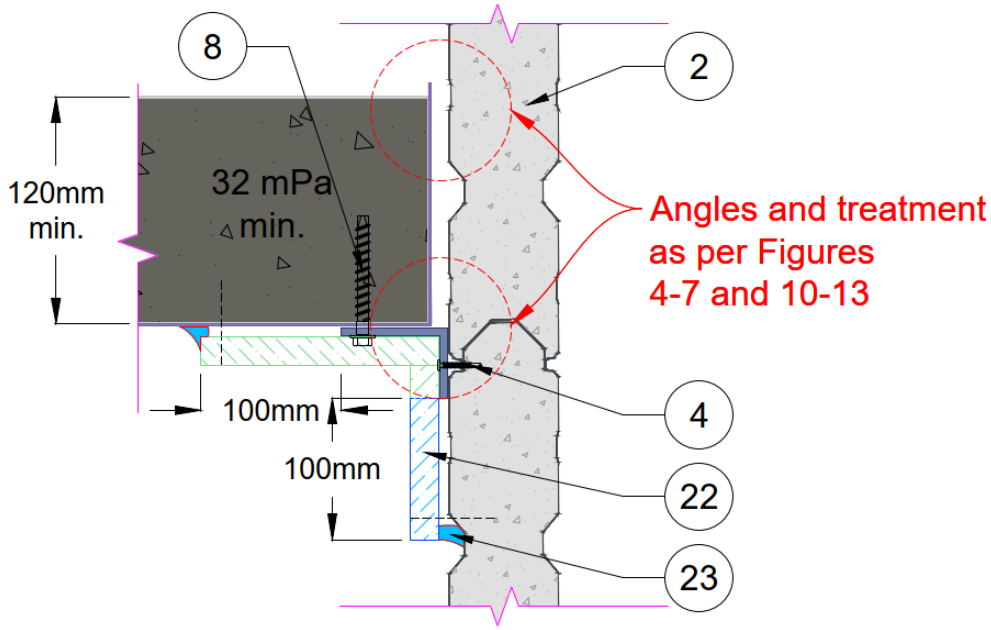


Figure 59 Spine wall to protected angle on one face (section view)

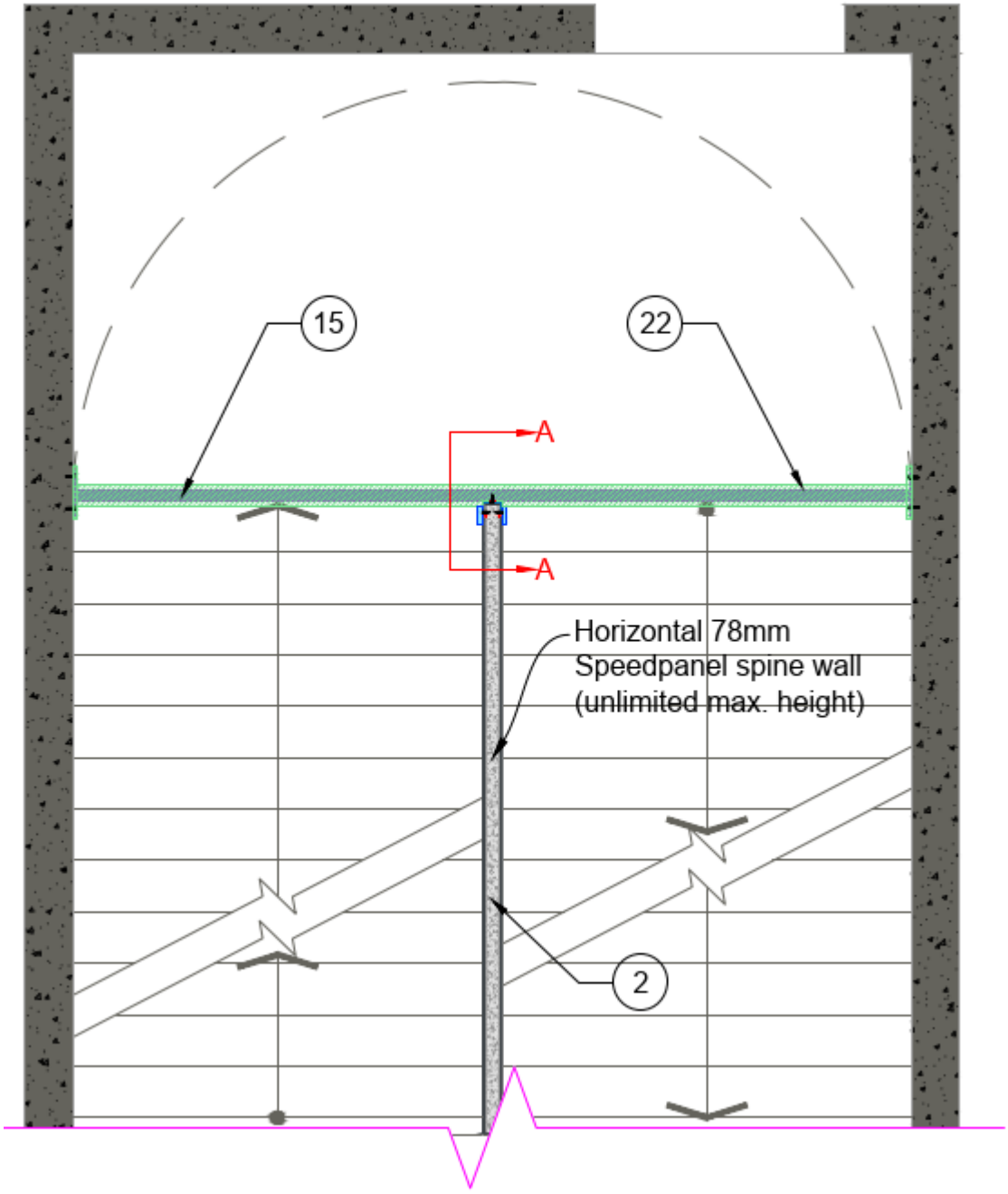


Figure 60 Protected steel beam perpendicular to spine wall

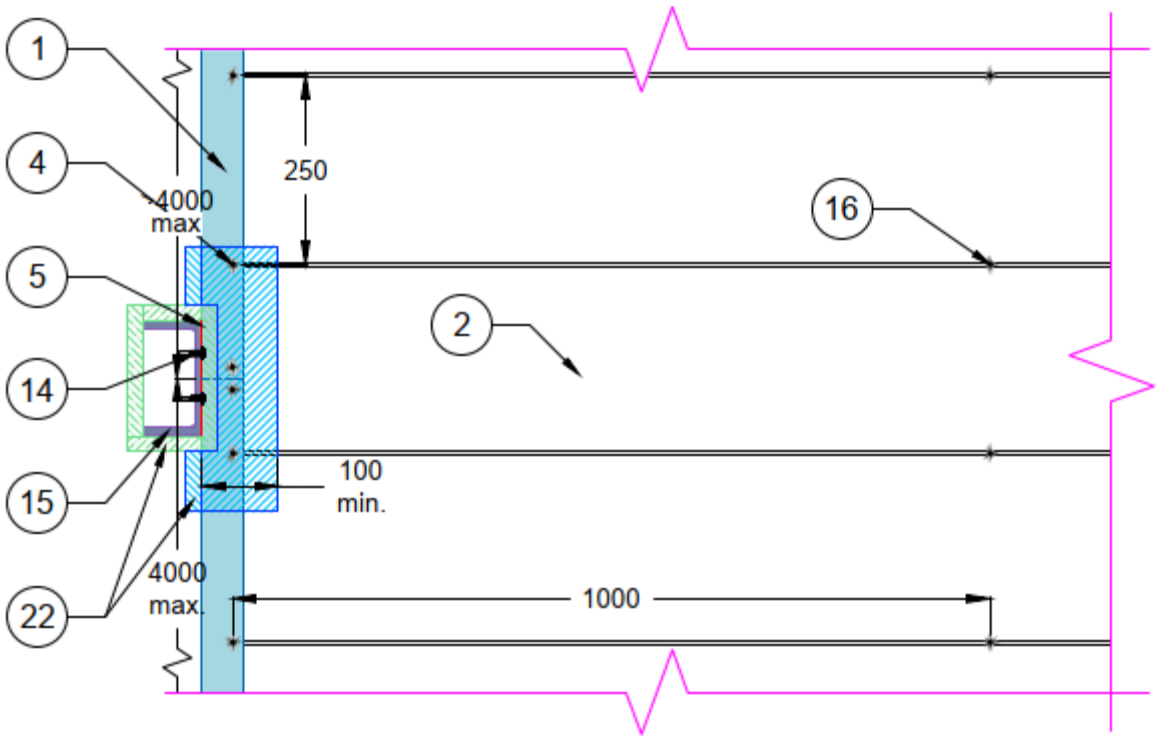


Figure 61 Protected steel beam perpendicular to spine wall – option 1 (section A-A) view

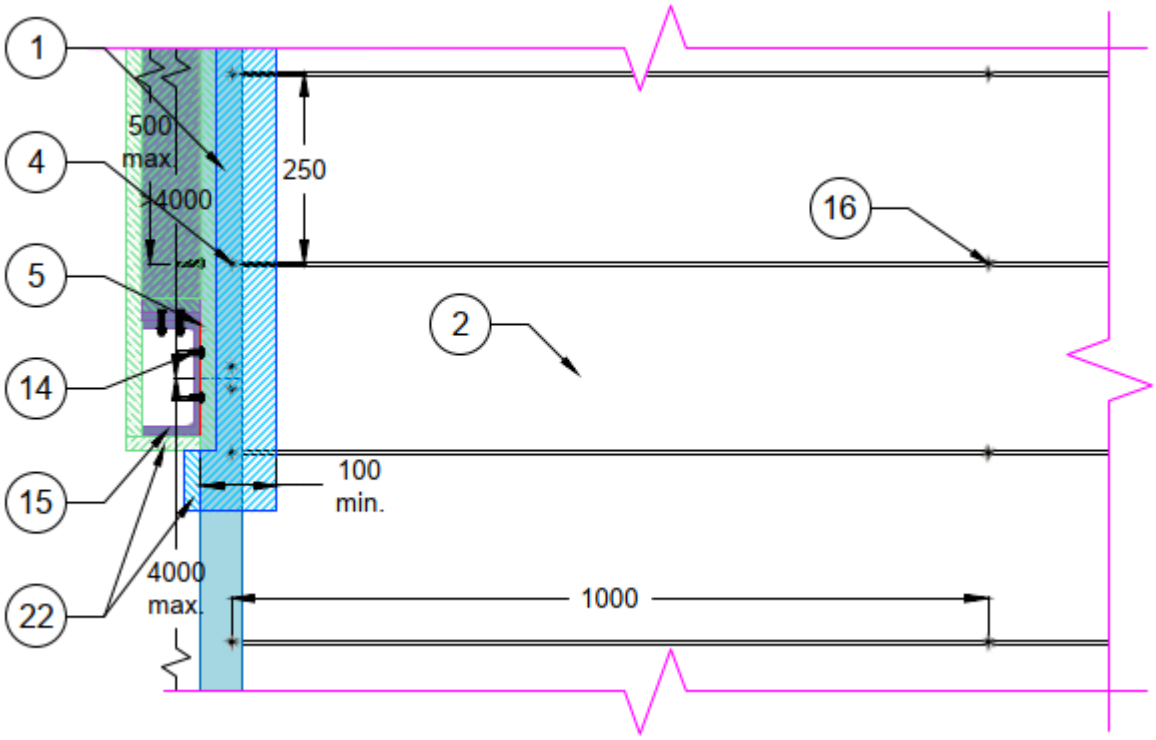


Figure 62 Protected steel beam and dropper perpendicular to spine wall – option 2 (section A-A) view

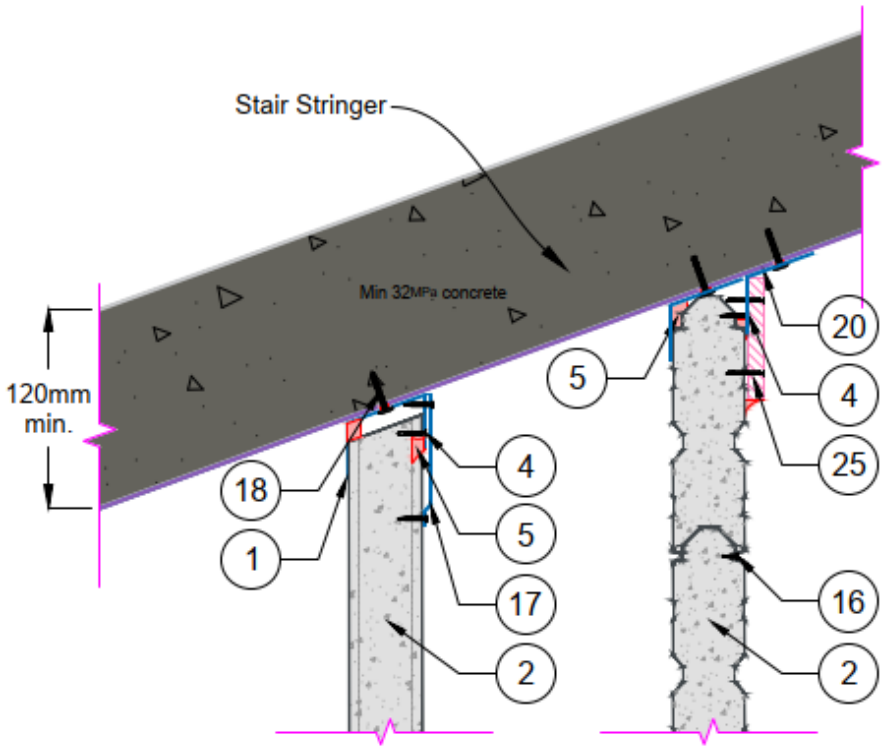


Figure 63 Vertical or horizontal Speedpanel wall under stair stringer (section view)

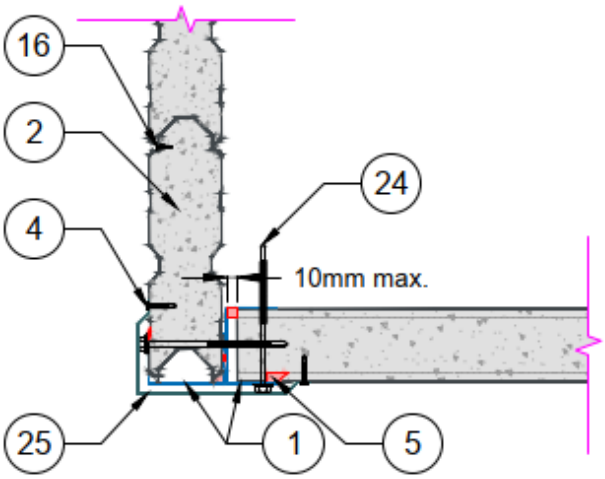


Figure 64 Vertical or horizontal Speedpanel wall under stair stringer (section view)

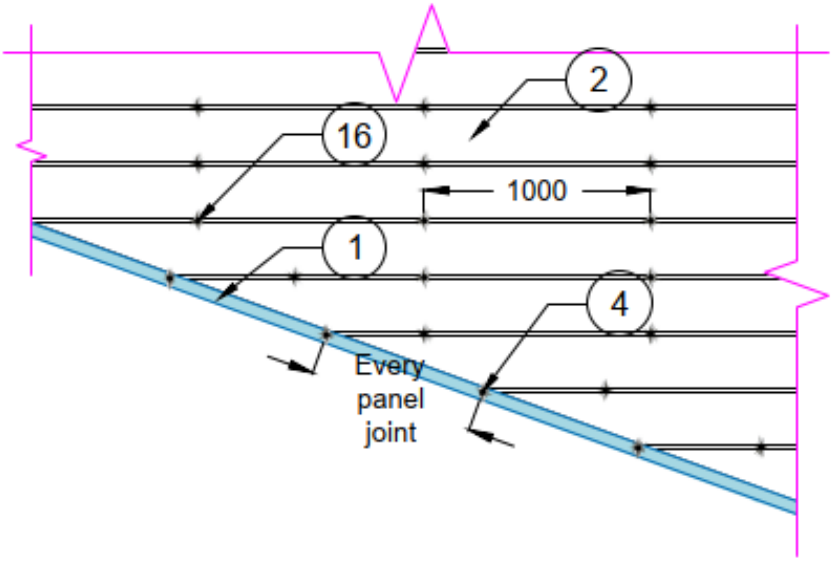


Figure 65 Horizontal Speedpanel wall connected to stair stringer (elevation view)

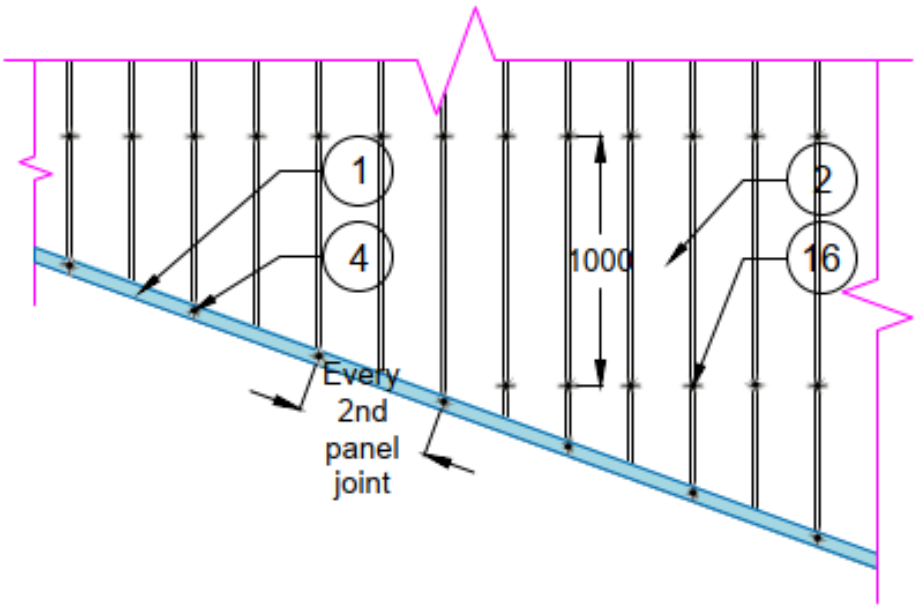


Figure 66 Vertical Speedpanel wall connected to stair stringer (elevation view)

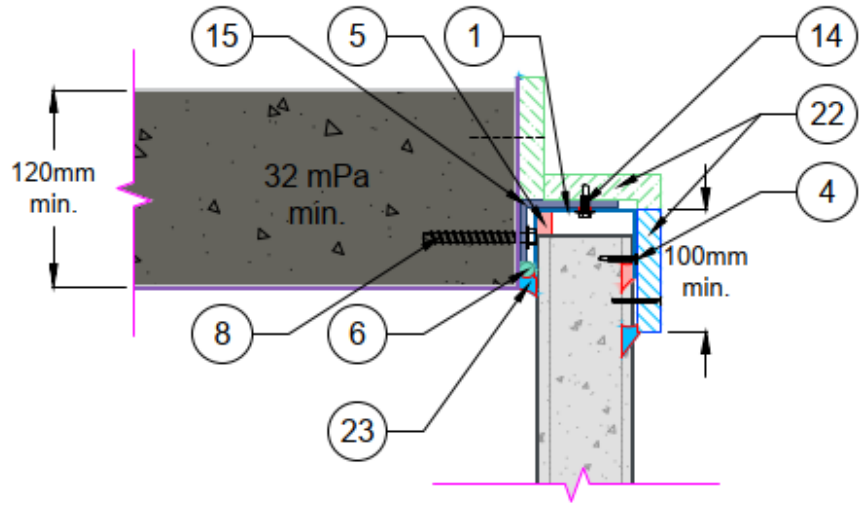


Figure 67 Head – vertical or horizontal wall connected to stringer via structural support (section view)

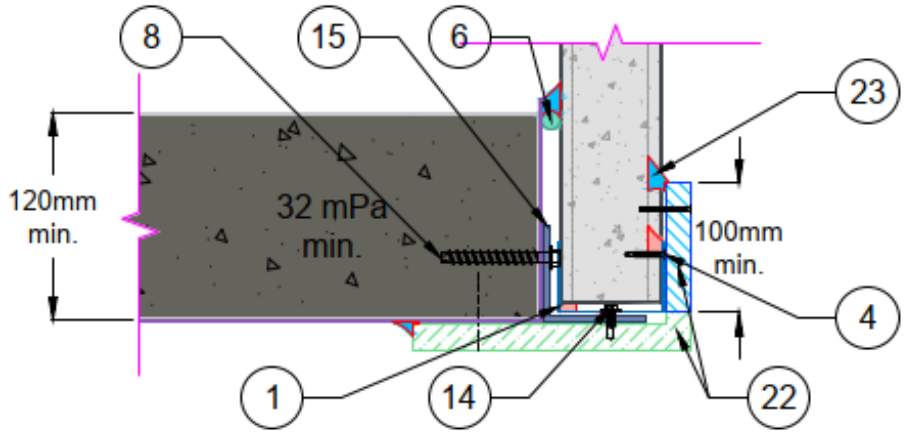


Figure 68 Base – vertical or horizontal wall connected to stringer via structural support (section view)

5. Conclusion

Details of the assessment and discussion are only available in the referenced main assessment report. Based on the discussion presented in sections 5 to 9 of the referenced assessment report, it is considered that the results relating to the integrity and insulation performance of the referenced tests can be used as a basis to assess the fire resistance levels (FRL) of the proposed systems if tested in accordance with AS 1530.4:2014.

Therefore, it has been concluded that if the proposed Speedpanel wall systems are tested in accordance with AS 1530.4:2014 – subjected to the requirements of sections 2, 3 and 6 – they are expected to achieve the fire resistance levels (FRL) outlined in Table 1.

6. Validity

Warringtonfire Australia does not endorse the tested or assessed product in any way. The conclusions of the referenced assessment may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

Due to the nature of fire testing and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.

The referenced assessment is based on information and experience available at the time of preparation. The published procedures for the conduct of tests and the assessment of test results are subject to constant review and improvement. It is therefore recommended that this report be reviewed on or, before, the stated expiry date.

The referenced assessment represents our opinion about the performance likely to be demonstrated on a test in accordance with AS 1530.4:2014, based on the evidence referred to in this report.

The referenced assessment is provided to the Speedpanel Holdings Pty Ltd for its own purposes and we cannot express an opinion on whether it will be accepted by building certifiers or any other third parties for any purpose.