



JENSEN HUGHES



# Regulatory information report

Assessment of the fire resistance performance of  
Speedpanel and structural steel integrated wall  
systems

Client: Speedpanel Holdings Pty Ltd

Report number: 31919000 Revision: RIR5.1 Project reference number: FAS190315

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## Quality management

Version	Date	Information about the report	
RIR1.0	Issue: 26 Feb 2020	Reason for issue	Report issued to Speedpanel Holdings Pty Ltd.
		<b>Prepared by</b> Name	<b>Reviewed by</b> Derek Thongcharen Omar Saad
RIR4.1*	Issue: 30 Jul 2024	Reason for issue	Update to improve the conciseness with reference to NCC 2022.
		<b>Prepared by</b> Name	<b>Reviewed by</b> Derek Thongcharen Omar Saad
RIR5.0	NA	Reason for issue	Did not issue.
RIR5.1	Issue: 28 Mar 2025	Reason for issue	Update to include additional details and address comments from Speedpanel Holdings Pty Ltd.
	Expiry: 31 December 2029	<b>Prepared by</b> Name	<b>Reviewed by</b> Kevin Feng Edward Kwok
* Previous revision numbers were skipped to match the referenced assessment revision number.			

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Formerly Warringtonfire Australia Pty Ltd<sup>1</sup>

<sup>1</sup> Warringtonfire Australia Pty Ltd was acquired by Jensen Hughes in December 2023. Jensen Hughes Fire Testing Pty Ltd is not affiliated, associated, authorised, or endorsed by Warringtonfire Australia Pty Ltd, Warringtonfire Testing and Certification Limited or its "Warringtonfire" or "Certifire" brands.

## Executive summary

This report contains the minimum information required for regulatory compliance and refers to the referenced assessment report 31919000 R5.1.

This report presents an assessment of the fire resistance performance of various construction details incorporated in Speedpanel and structural steel integrated wall systems in accordance with AS 1530.4:2014. This includes construction details for base, head, corners and T-junctions of the wall and construction details related to horizontal and/or vertical stacked wall systems.

In addition, this report presents an assessment of Speedpanel external wall systems with parapet detail in accordance with AS 1530.4:2014.

The proposed construction shall be 51 mm, 64 mm and 78 mm thick Speedpanel wall systems as tested in EWFA 2736002.1, EWFA 2848300.2 and BWA 2286900.5, respectively, with consideration given to the following variations:

- 51 mm and 64 mm thick, vertically oriented Speedpanel wall systems with a maximum vertical height of 5 m.
- 78 mm thick, vertically oriented Speedpanel wall systems with a maximum vertical height of 6 m without additional lateral restraint.
- 51 mm, 64 mm and 78 mm thick horizontally oriented Speedpanel wall systems with a maximum horizontal span of 4.5 m.
- Base details fixed to structural steel as shown in Figure 1 to Figure 11.
- Head details as shown in Figure 12 to Figure 34.
- Corner details as shown in Figure 35 to Figure 50.
- T-junction details as shown in Figure 51 to Figure 56.
- Horizontally stacked 78 mm Speedpanel wall details as shown in Figure 57 to Figure 65.
- 78 mm horizontal Speedpanel wall supporting vertical panel details as shown in Figure 66 and Figure 67.
- 78 mm thick single span wall system with bracing supports as shown Figure 73 to Figure 76.

For 78 mm thick, vertically oriented Speedpanel external wall systems, the proposed construction shall be as tested in BWA 2286900.5 with consideration given to the following variations:

- Speedpanel wall shall be up to 14 m high.
- The steel structural framing on the unexposed side shall be either minimum 102 mm × 53 mm × 1.2 mm Steel Z-shape purlin, 102 mm × 51 mm × 1.2 mm Steel C-shape purlin or any similar framing designed in accordance with AS/NZS 4600 or AS 3623. The framing shall laterally support the Speedpanel wall as summarised in Table 5 for different wall heights. Also, the framing shall be positioned next to Speedpanel wall junction with maximum 600 mm distance.
- C-shape purlin framing shall be fixed to the Speedpanel barrier with 50 mm × 50 mm × 1.2 mm BMT steel angle at maximum 500 mm centres.
- Inclusion of parapet detail with maximum 500 mm extension.
- The Speedpanel wall junction shall be protected with steel flashing at one side.
- Refer to Table 5, Figure 68 to Figure 72, and Figure 77 to Figure 79 for a summary of the proposed construction.

The analysis in section 5 of the referenced assessment report found that the proposed system, together with the described variations, will achieve fire resistance levels (FRLs) as shown in Table 1 – in accordance with AS 1530.4:2014.

The variations and outcome of this assessment are subject to the limitations and requirements described in sections 2, 3 and 5 of this report. The results of this report are valid until 31 November 2029.

**Table 1 Overview of variations and assessment outcome**

Construction	Direction of fire exposure	Max. width of horizontal 51 mm, 64 mm panel between structural elements (m)	Max. height of vertical 51 mm & 64 mm panel between structural elements (m)	Max. 78 mm horizontal span between structural elements (m)	Max. 78 mm vertical span between structural elements (m)	Max. single vertical span (m)	Max. overall wall height (m)	Figures	FRL
Base details	Either	4.5	5.0	4.5	6.0	-	-	Figure 1-Figure 11	-/60/60 (51 mm), -/90/90 (64 mm), -/120/120 (78 mm)
Head details	One-way	4.5	5.0	4.5	6.0	-	-	Figure 12-Figure 21	
	Either	4.5	5.0	4.5	6.0	-	-	Figure 22-Figure 34	
Corner details	One-way	4.5	5.0	4.5	6.0	-	-	Figure 35-Figure 40	
	Either	4.5	5.0	4.5	6.0	-	-	Figure 41-Figure 48	
	One-way	4.5	5.0	4.5	6.0	-	-	Figure 49-Figure 50	
T-Junction details	One-way	4.5	5.0	4.5	6.0	-	-	Figure 51-Figure 54	
	Either	4.5	5.0	4.5	6.0	-	-	Figure 55-Figure 56	
78 mm Speedpanel horizontal stack	One-way	4.5	-	4.5	-	-	Unlimited	Figure 57-Figure 60	-/120/120
	Either	4.5	-	4.5	-	-	Unlimited	Figure 61-Figure 65	
78 mm Speedpanel horizontal supporting vertical	One-way	-	-	4.5	-	3.0	Unlimited	Figure 66-Figure 67	
78 mm Speedpanel vertical stack (check Table 5 for lateral restraint requirements)	One-way	-	-	-	-	-	14.0	Figure 68, Figure 69, Figure 71 & Figure 72	
Single span 78 mm Speedpanel vertical wall	One-way	-	-	-	-	8.0	8.0	Figure 70-Figure 72	

Construction	Direction of fire exposure	Max. width of horizontal 51 mm, 64 mm panel between structural elements (m)	Max. height of vertical 51 mm & 64 mm panel between structural elements (m)	Max. 78 mm horizontal span between structural elements (m)	Max. 78 mm vertical span between structural elements (m)	Max. single vertical span (m)	Max. overall wall height (m)	Figures	FRL
78 mm Speedpanel braced vertical wall <i>(confirm design with Speedpanel and project structural engineer prior to construction)</i>	One-way	-	-	-	-	8.0	8.0	Figure 73 & Figure 74	
	Either	-	-	-	-	8.0	8.0	Figure 75 & Figure 76	
Back-to-back connection options	One-way	-	-	-	-	-	-	Figure 77-Figure 79	

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## 1. Introduction

This report contains the minimum information required for regulatory compliance and refers to the referenced assessment report 31919000 R5.1.

This report presents an assessment of the fire resistance performance of various construction details incorporated in Speedpanel and structural steel integrated wall systems in accordance with AS 1530.4:2014<sup>2</sup>. This includes construction details for base, head, corners and T-junctions of the wall and construction details related to horizontal and/or vertical stacked wall systems.

In addition, this report presents an assessment of Speedpanel external wall systems with parapet detail in accordance with AS 1530.4:2014.

This report 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

The tested prototypes described in Section 4.2 of this report, when subjected to the proposed variations described in Section 4.3 and tested in accordance with AS 1530.4:2014, are assessed to achieve the performance as summarised in section 5 of this report.

Summaries of the test data on which this assessment is based are provided in Appendix A of the referenced assessment report. A summary of the critical issues leading to the assessment conclusions, including the main points of argument, is discussed in Section 5 of the referenced assessment report.

## 2. Framework for the assessment

### 2.1 Assessment approach

An assessment is a professional opinion about the expected performance of a component or element of structure subjected to a fire test.

No specific framework, methodology, standard or guidance documents exists in Australia for undertaking 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 2021<sup>3</sup>.

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 can 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.

<sup>2</sup> 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.

<sup>3</sup> Passive Fire Protection Forum (PFPF), 2021, Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence, Passive Fire Protection Forum (PFPF), UK.



This report 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 and performance based on the tested constructions and performances obtained. This report is an evaluation of the potential fire resistance performance of the elements in accordance with AS 1530.4:2014.

## 2.2 Compliance with the National Construction Code

This report has been prepared to meet the evidence of suitability requirements of the NCC 2022<sup>4</sup> under A5G3 (1) (d). It references test evidence for meeting deemed to satisfy (DTS) provisions of the NCC under A5G5 for fire resistance level that apply to the assessed systems based on Specifications 1 and 2 for fire resistance for building elements.

This report may also be used to demonstrate compliance with the requirements for evidence of suitability under the relevant sections of previous versions of the NCC.

The proposed details and systems (building elements) in this report are confirmed in accordance with the following:

- Tested and assessed without the aid of an active fire suppression system.
- Assessed on the basis that the prototype tests are equivalent to or more severe than a standard fire test as specified in AS 1530.4:2014, in accordance with NCC 2022 S1C2(b).
- The differences between the proposed systems and details compared to the tested prototypes are considered minor in accordance with NCC 2022 S1C2(c).

## 2.3 Declaration

The 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the PFPPF in the UK requires a declaration from the client. By accepting our fee proposal on 12 April 2024, Speedpanel Holdings Pty Ltd confirmed that:

- To their knowledge, the variations to the component or element of structure, which is the subject of this assessment, have 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. Requirements and limitations of this assessment

- The scope of this report is limited to an assessment of the variations to the tested systems described in section 4.3.
- This report details the methods of construction, test conditions and assessed results in accordance with AS 1530.4:2014.
- This report details the methods of construction, test conditions and assessed results that would have been expected had the specific elements of construction described herein been tested in accordance with AS 1530.4:2014.
- It is a requirement that the structural steel members are designed appropriately by an accredited structural engineer by considering all the possible loading, bending moment and

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<sup>4</sup> National Construction Code Volumes One and Two - Building Code of Australia 2022, Australian Building Codes Board, Australia

torsion effects. Design of structural steel members is not a part of the scope of this assessment.

- For wall systems incorporating structural steel elements protected on both sides of the wall or corner details with steel protection at the inner side, the protection thickness must not be less than 30 mm for PROMATECT®-250 boards to achieve the same insulation and integrity – if required – as the associated Speedpanel walls:
  - Base details: Figure 1 to Figure 8
  - Head details: Figure 28 to Figure 34
  - Corner details: Figure 35, Figure 36, Figure 43, Figure 44, Figure 47 and Figure 48
  - Horizontal stack details: Figure 64 and Figure 65.
- For wall systems incorporating structural steel elements protected on one side of the wall, the protection thickness must not be less than 30 mm for PROMATECT®-250 boards – if required – for up to 90 minutes FRL, and not less than 40 mm for PROMATECT®-250 boards – if required – for up to 120 minutes FRL as the associated Speedpanel walls.
- In wall systems incorporating structural steel elements protected on one side of the wall, such as:
  - Head details: Figure 18 to Figure 21
  - Corner details: Figure 37, Figure 38, Figure 49 and Figure 50
  - Horizontal stack details: Figure 60

To achieve up to 90 minutes FRL, the protection thickness must be not less than 30 mm thick PROMATECT®-250 boards.

Where 120 minutes FRL is required, the protection thickness must not be less than 40 mm thick PROMATECT®-250 boards if insulation and integrity are required; or

- To prevent damage on the PROMATECT®250 boards due to excessive load, the weight applied to the PROMATECT®250 boards must not be greater than the tested load presented in the relevant test report(s).
- Self-weight of each horizontally stacked Speedpanel is expected to transfer to the structural steel column via C-tracks.
- It is required that the lateral load capacity of the side tracks be verified by the 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 the FRL period.
- AS 1530.4:2014 does not provide a methodology for determining FRLs for wall systems with extended heights and spans. Therefore, the design for extended heights and spans must be conducted by a professional structural engineer. The wall height design must consider the outcomes (such as wall deflection at elevated temperatures) presented in the referenced test reports.
- Example calculations are provided within the referenced assessment report at relevant sections. These calculations contain limitations as indicated in each table and should not be used for any building design without the confirmation of the professional structural engineer.
- This report has been prepared based on the fire resistance performance and condition of the systems at the time they were tested. Any deterioration of fire resistance performance due to external factors including but not limited to passage of time and exposure to elements – is not considered in this report.
- This 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 this

assessment. If there are changes to the system, a reassessment will need to be done by an Accredited Testing Laboratory (ATL) that is accredited to the same nominated standards of this report.

- This report has been prepared using information provided by others. Jensen Hughes has not verified the accuracy and/or completeness of that information and will not be responsible for any errors or omissions that may have been incorporated into this report as a result.

## 4. Description of the specimen and variations

### 4.1 Description of assessed systems

The proposed construction comprises 51 mm, 64 mm and 78 mm thick Speedpanel wall systems as tested in EWFA 2736002.1, EWFA 2848300.2 and BWA 2286900.5, subject to the variations summarised in section 4.3.

### 4.2 Referenced test data

The assessment of the variation to the tested system and the determination of the performance are 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 Appendix A of the referenced assessment report.

**Table 3 Referenced test data**

Report number	Test sponsor	Test date	Tested standard
F91794A	Speedpanel VIC Pty Ltd.	2 December 1999	AS 1530.4:1997 <sup>5</sup>
BWA 2257600.5	Speedpanel VIC Pty Ltd.	6 March 2008	AS 1530.4:2005 <sup>6</sup>
BWA 2286900.5	Speedpanel VIC Pty Ltd.	18 August 2008	AS 1530.4:2005
FR 4322	Speedpanel VIC Pty Ltd.	22 October 2009	AS 1530.4:2005
EWFA 2741700.1	Speedpanel VIC Pty Ltd.	20 July 2012	AS 1530.4:2005
EWFA 2736002	Speedpanel VIC Pty Ltd.	13 July 2012	AS 1530.4:2005
EWFA 2798800.1	Speedpanel VIC Pty Ltd.	29 January 2013	AS 1530.4:2005
EWFA 2848300.2	Speedpanel VIC Pty Ltd.	29 May 2013	AS 1530.4:2005
FRT230200 R1.1	Speedpanel Holdings Pty Ltd	1 February 2024	AS 1530.4:2014
FRT230201 R1.1	Speedpanel Holdings Pty Ltd	25 January 2024	AS 1530.4:2014

### 4.3 Variation to tested systems

#### 4.3.1 Assessment of various construction details for Speedpanel and structural steel integrated wall systems

The proposed construction shall be 51 mm, 64 mm and 78 mm thick Speedpanel wall systems as tested in EWFA 2736002.1, EWFA 2848300.2 and BWA 2286900.5, respectively with consideration given to the following variations.

- 51 mm and 64 mm thick vertically oriented Speedpanel wall systems with a maximum vertical height of 5 m.
- 78 mm thick vertically oriented Speedpanel wall systems with a maximum vertical height of 6 m without the introduction of additional lateral restraint.
- 51 mm, 64 mm and 78 mm thick horizontally oriented Speedpanel wall systems with a maximum horizontal span of 4.5 m.
- Base details fixed to structural steel as shown in Figure 1 to Figure 11.
- Head details as shown in Figure 12 to Figure 34.
- Corner details as shown in Figure 35 to Figure 50.

<sup>5</sup> Standards Australia (1997) Methods for fire tests on building materials, components and structures Part 4: Fire resistance tests for elements of construction, AS 1530.4:1997.

<sup>6</sup> Standards Australia (2005) Methods for fire tests on building materials, components and structures Part 4: Fire resistance tests for elements of construction, AS 1530.4:2005.

- T-junction details as shown in Figure 51 to Figure 56.
- Horizontally stacked 78 mm Speedpanel wall details as shown in Figure 57 to Figure 65.
- 78 mm horizontal Speedpanel wall supporting vertical panel details as shown in Figure 66 and Figure 67.
- 78 mm thick single span wall system with bracing supports as shown Figure 73 to Figure 76.

#### **4.3.2 Assessment of 78 mm vertically oriented Speedpanel external wall systems with parapet detail**

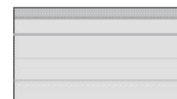
The proposed construction shall be as tested in BWA 2286900.5 with consideration given to the following variations:

- Speedpanel wall up to 14 m high.
- The steel structural framing on the unexposed side shall be either minimum 102 mm × 53 mm × 1.2 mm Steel Z-Shape purlin, 102 mm × 51 mm × 1.2 mm Steel C-shape purlin or any similar framing designed in accordance with AS/NZS 4600 or AS 3623. The framing shall laterally support the Speedpanel wall as summarised in Table 5 for different wall heights. Also, the framing shall be positioned next to Speedpanel wall junction with maximum 600 mm distance.
- C-shape purlin framing fixed to the Speedpanel barrier with 50 mm × 50 mm × 1.2 mm BMT steel angle at maximum 500 mm centres
- Inclusion of parapet detail with maximum 500 mm extension.
- The Speedpanel wall junction protected with steel flashing at one side.
- Refer to Table 5, Figure 68 to Figure 72, and Figure 77 to Figure 79 for a summary of the proposed construction.


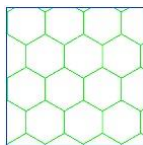
## 4.4 Schedule of components

**Table 4 Schedule of components of assessed systems**

Item	Description	
1.	<b>Name</b>	<b>Speedpanel® Panel – Vertical</b>
	<b>Material</b>	0.4 mm BMT mild steel sheath with lightweight cementitious infill
	<b>a</b>	<b>78 mm Speedpanel®</b>
		78 mm × 285 mm (250 mm engaged – tongue & groove)
	<b>b</b>	<b>64 mm Speedpanel®</b>
		64 mm × 289 mm (250 mm engaged – tongue & groove)
	<b>c</b>	<b>51 mm Speedpanel®</b>
		51 mm × 292 mm (250 mm engaged – tongue & groove)
2.	<b>Name</b>	<b>Speedpanel® Panel – Horizontal</b>
	<b>Material</b>	0.4 mm BMT mild steel sheath with lightweight cementitious infill
	<b>a</b>	<b>78 mm Speedpanel®</b>
		78 mm × 285 mm (250 mm engaged – tongue & groove)
	<b>b</b>	<b>64 mm Speedpanel®</b>
		64 mm × 289 mm (250 mm engaged – tongue & groove)
	<b>c</b>	<b>51 mm Speedpanel®</b>
		51 mm × 292 mm (250 mm engaged – tongue & groove)
3.	<b>Name</b>	<b>Speedpanel® C-track</b>
	<b>Material</b>	1.15 mm BMT (1.2 mm TCT) Galv mild steel
	<b>Sizes</b>	Dependent on application: <ul style="list-style-type: none"> <li>• 78 mm – 55 mm × 82 mm × 55 mm or 90 mm × 82 mm × 90 mm</li> <li>• 64 mm – 90 mm × 68 mm × 55 mm or 90 mm × 68 mm × 90 mm</li> <li>• 51 mm – 55 mm × 56 mm × 55 mm or 90 mm × 56 mm × 90 mm</li> </ul>
4.	<b>Name</b>	<b>Speedpanel® J-track</b>
	<b>Material</b>	1.15 mm BMT (1.2 mm TCT) Galv mild steel
	<b>Sizes</b>	Dependent on application: <ul style="list-style-type: none"> <li>• 78 mm – 55 mm × 82 mm × 90 mm or 60 mm × 82 mm × 100 mm</li> <li>• 64 mm – 55 mm × 68 mm × 90 mm or 60 mm × 68 mm × 100 mm</li> <li>• 51 mm – 55 mm × 56 mm × 90 mm or 60 mm × 56 mm × 100 mm</li> </ul>
5.	<b>Name</b>	<b>Speedpanel® J-track (for exterior applications)</b>
	<b>Material</b>	1.15 mm BMT (1.2 mm TCT) mild steel
	<b>Size</b>	55 mm × 82 mm × 90 mm (with weep holes at 250 mm centres on exterior face)
6.	<b>Name</b>	<b>Speedpanel® 1.15 mm Equal Angle (EA)</b>
	<b>Material</b>	1.15 mm BMT (1.2 mm TCT) Galv mild steel
	<b>Size</b>	50 mm × 50 mm



Item	Description	
7.	<b>Name</b>	<b>Fixing Plate</b>
	<b>Material</b>	Min. 1.15 mm BMT (1.2 mm TCT) mild steel
	<b>Size</b>	Min. 100 mm wide
8.	<b>Name</b>	<b>Track to Panel &amp; Track to Track Fixing</b>
	<b>Material</b>	Min. 10g × 30 mm SDS
	<b>Spacing</b>	Max. 500 mm centres
9.	<b>Name</b>	<b>Panel to Panel Fixing</b>
	<b>Material</b>	Min. 10g × 16 mm SDS
	<b>Installation</b>	Every joint at 1000 mm centres
10.	<b>Name</b>	<b>Plasterboard or Promatect Fixing</b>
	<b>Material</b>	6g Bugle Head Plasterboard SDS (fine thread)
	<b>Spacing</b>	Two rows at maximum 250 mm centres (staggered at 125 mm)
11.	<b>Name</b>	<b>Track to Panel (through) Fixing (for horizontal installation)</b>
	<b>Material</b>	Min. 10g × 115 mm Hex Head SDS (20-24 TPI)
	<b>Installation</b>	Through every panel joint (250 mm centres)
12.	<b>Name</b>	<b>Track to Track (through) Fixing</b>
	<b>Material</b>	Min. 10g × 115 mm Hex Head SDS (20-24 TPI)
	<b>Installation</b>	Max. 500 mm centres
13.	<b>Name</b>	<b>Fire Rated Sealant (for Speedpanel system)</b>
	<b>Products</b>	Promat Promaseal A, Bostik Fireban One or Hilti CP606
	<b>Installation</b>	Seal all joints between the panels (items 1 or 2), perimeter tracks/angles (items 3-6) and head track protection (item 17b)
14.	<b>Name</b>	<b>Fire Rated Sealant (for passive fire steel protection system)</b>
	<b>Material</b>	Promat Promaseal A
	<b>Installation</b>	Seal all gaps between the panels (items 1 or 2) and Promatect board systems (items 17c, 18c, 19a1 and 19b1)
15.	<b>Name</b>	<b>Corner Flashing (external)</b>
	<b>Material</b>	0.7 mm BMT × 160 mm × 160 mm
	<b>Installation</b>	Fixed at 500 mm centres on each face using item 8
16.	<b>Name</b>	<b>Wall Head Infill</b>
	<b>Material</b>	Rockwool
	<b>Installation</b>	Compressed to fill all gaps
17.	<b>Head Track Protection (consider fitness for purpose)</b>	
	<b>a</b>	<b>Name</b> <b>Speedpanel® Head Track Flashing</b>
		<b>Material</b> 0.7 mm BMT × 130 mm
		<b>Installation</b> Fixed using item 8 top and bottom at 500 mm centres (staggered at 250 mm)
	<b>b</b>	<b>Name</b> <b>Fire Rated Plasterboard</b>
		<b>Material</b> 13 mm × 120 mm strip
		<b>Installation</b> Fixed using item 10 top and bottom at 250 mm centres (staggered at 125 mm) (exposed edge to be sealed back to panels with a fillet of item 13)

Item	Description		
	c	Name	PROMATECT®-250/100
		Material	Minimum 15 mm × 120 mm strip
		Installation	Fixed using item 10 top and bottom at 250 mm centres (staggered at 125 mm) and all gaps sealed with item 14
18.	<b>Back-to-Back Track Protection (consider fitness for purpose)</b>		
	a	Name	Speedpanel® Flashing
		Material	Min. 0.7 mm BMT × 130 mm
		Installation	Fixed using item 8 top and bottom at 500 mm centres (staggered at 250 mm)
	b	Name	Fire Rated Plasterboard
		Material	13 mm × 120 mm strip (both exposed edges to be sealed back to the face of the panels with a fillet of item 13)
		Installation	Fixed using item 10 on both exposed edges at 250 mm centres (staggered at 125 mm)
	c	Name	PROMATECT®-250/100
		Material	Minimum 15 mm × 120 mm strip
		Installation	Fixed using item 10 on both exposed edges at 250 mm centres (staggered at 125 mm)
19.	<b>Structural Steel “Coat-back” Protection (consider fitness for purpose)</b>		
	a	<p>Dependent on application:</p> <ol style="list-style-type: none"> <li>Promatect 250/100 – minimum 15 mm thick</li> <li>Cafco® 300 – minimum 20 mm thick</li> <li>Cafco Fendolite® MII – minimum 20 mm thick</li> </ol> <p>Installed to overlap/“coat-back” the face of the Speedpanel to a min. distance of 100 mm from the interface with structure</p>	
<p>ITEMS HEREIN ARE OUTSIDE THE SCOPE OF THIS ASSESSMENT (and may require further structural engineering at elevated temperatures and/or design and installation advice from others)</p>			
19.	b	<p>Dependent on application:</p> <ol style="list-style-type: none"> <li>Promatect 250/100</li> <li>Cafco® 300</li> <li>Cafco Fendolite® MII</li> </ol> <p>Considerations:</p> <ul style="list-style-type: none"> <li>Protected Steel should not exceed the maximum sectional factors listed in the relevant AS 4100:2020<sup>7</sup> structural steel protection certification;</li> <li>Section factor can consider the exposure of a steel element in a 1, 2, 3 or 4-sided configuration (as applicable);</li> <li>Only board systems (item 19b1) can be installed between the Speedpanel and structural steel; and</li> <li>Items 19b1, 19b2 and 19b3 cannot be “mixed and matched” within the scope of this assessment.</li> </ul> <p>Further advice is required from the manufacturer/supplier of their systems, with respect to specifications (including, but not limited to, <u>minimum thickness requirements</u>), installation methodologies and for all considerations above.</p>	
20.	<b>Tracks/Angles to Structure Fixings</b>		
	a	Name	Steel fixings

<sup>7</sup> Standards Australia, 2020, Steel structures, AS 4100:2020, Standards Australia, NSW



Item	Description		
		<b>Tested</b>	12g Series 500 screw at maximum 500 mm centres
		<b>Design &amp; Installation</b>	Fixings to have a shear design capacity of $\geq 3.8$ kN and installed at max. 500mm centres to all relevant Standards based on project-specific requirements and installed as per the fixing manufacturer's specifications. The minimum required design capacities of fixings are provided by Speedpanel and must be reviewed by the project's engineers to confirm if they can satisfy the project requirements.
	<b>b</b>	<b>Name</b>	<b>Concrete anchors</b>
		<b>Tested</b>	6 mm $\times$ 40 mm mechanical anchors at maximum 500 mm centres
		<b>Design &amp; Installation</b>	Fixings to have a shear design capacity of $\geq 3.8$ kN and installed at max. 500mm centres to all relevant Standards based on project-specific requirements and installed as per the fixing manufacturer's specifications The minimum required design capacities of fixings are provided by Speedpanel and must be reviewed by the project's engineers to confirm if they can satisfy the project requirements.
<b>21.</b>	<b>Name</b>	<b>Bracing Connection Angle (maximum 0.5kPa)</b>	
	<b>Material</b>	5 mm BMT $\times$ 65 mm EA – mild steel	
	<b>Installation</b>	Fixed to lintel at maximum 2.4 m centres using 2 $\times$ M16 (4.6S) bolts Refer to Table 6 for bracing spacings along the panel height.	
<b>22.</b>	<b>Name</b>	<b>Bracing Connection Angle (maximum 0.5kPa) - sacrificial</b>	
	<b>Material</b>	6.35 mm BMT $\times$ 63.5 mm EA – aluminium	
	<b>Installation</b>	Fixed to lintels on both faces of the wall at maximum 2.4 m centres using 2 $\times$ M16 (4.6S) bolts. Refer to Table 6 for bracing spacings along the panel height.	
<b>23.</b>	<b>Name</b>	<b>Steel Column (SHS)</b>	
	<b>Material</b>	Cold-rolled mild steel	
	<b>Size</b>	Minimum 5 mm $\times$ 100 mm $\times$ 100 mm	
<b>24.</b>	<b>Name</b>	<b>Steel Z-Purlin</b>	
	<b>Size</b>	102 mm $\times$ 53 mm $\times$ 1.2 mm (min.)	
	<b>Installation</b>	Laterally supporting Speedpanel wall as per table 2 for various Speedpanel wall heights and fixed to Speedpanel wall at 500 mm centres	
<b>25.</b>	<b>Name</b>	<b>Steel C-Purlin</b>	
	<b>Material</b>	102 mm $\times$ 51 mm $\times$ 1.2 mm (min.)	
	<b>Installation</b>	Laterally supporting Speedpanel wall as per table 2 for various Speedpanel wall heights and fixed to Speedpanel wall at 500 mm centres	
<b>26.</b>	<b>Name</b>	<b>Barge Flashing (custom)</b>	
	<b>Material</b>	0.7 mm BMT steel flashing	
	<b>Installation</b>	Capped at the top of Speedpanel parapet detail and fixed to panel with min. 10g SDS screws at maximum 500 mm centres	
<b>27.</b>	<b>Name</b>	<b>Board Flashing (custom)</b>	
	<b>Material</b>	Minimum 1.0 mm mild steel	
	<b>Installation</b>	Designed and installed as per the manufacturer/supplier of the board products (item 19) to protect their systems from external environment	

**Table 5 Support spacing for various wall heights**

Maximum Speedpanel wall height (X)	Maximum lateral support spacing for steel Z-purlin (item 24 in Table 4) and steel C-purlin (item 25 in Table 4)
14 m	2.5 m
12 m	3 m
10 m	3.5 m
9 m	3.5 m
8 m	4 m
7 m	4.5 m
6 m	6 m
5 m	5 m
4 m	4 m
3 m	3 m

**Table 6 Bracing support spacing for various single span wall systems**

Maximum single span Speedpanel wall height	Minimum distance allowed between bracing lintel/s fixings on the face of the wall and wall head track fixings
8.0 m	3.75 m
7.5 m	3.0 m
7.0 m	2.25 m
6.5 m	1.5 m
6.0 m	No bracings are required
Bracing support, if required, must be located at the height of not less than mid-height of the wall. For example, the bracing support for 8 m high wall must be located at minimum 4 m from the wall base.	

Figure 1 to Figure 79 provide illustrations of the proposed details of the Speedpanel wall systems. Figure 16, Figure 35 to Figure 56, and Figure 66 to Figure 79 show the conceptual design with the Speedpanel wall systems.

The conceptual designs shown in Figure 16, Figure 35 to Figure 56, Figure 66 to Figure 79, while containing the Speedpanel wall systems, do not fall under the scope of a specific testing procedure within AS 1530.4:2014. Accordingly, it is confirmed that the Speedpanel wall systems are capable of achieving the FRL as outlined in this report up to the point where they adjoin other walls. If the holistic design is required to demonstrate fire resistance performance, the following must be reviewed by relevant parties to confirm:

1. The behaviour (i.e., deflection) of the construction would not degrade the fire resistance performance of the adjoining elements of construction in a fire scenario.
2. The proposed details meet the requirements for fire compartmentation as per the NCC.

It is noted that while the Speedpanel wall systems have an established FRL, the adjoining external wall, roof cavity and underfloor details fall outside the test procedure due to the absence of specific relevant testing and/or assessment standards adopted by the NCC. The fire resistance performance of the external wall together with its combustibility requirements are not addressed as they do not form part of this assessment. It is noted that the requirements for treatment of gaps between the internal and external walls is interpretive in the NCC. Therefore, the fire and smoke performance – including combustibility – and the treatment of any gap between the internal and external wall elements must be confirmed by the appropriate Authorities Having Jurisdiction (AHJ).

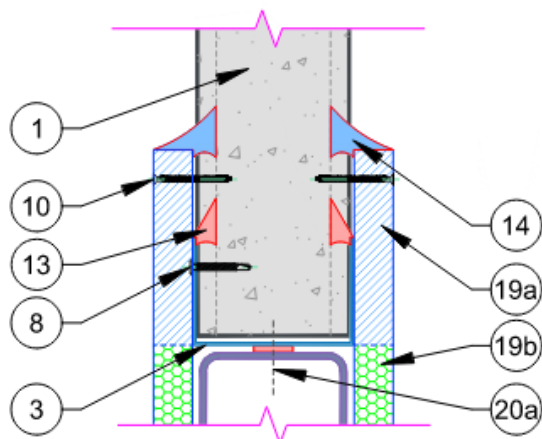


Figure 1 Base detail option 1

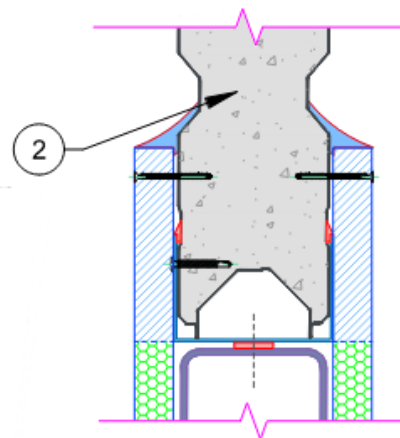


Figure 2 Base detail option 2

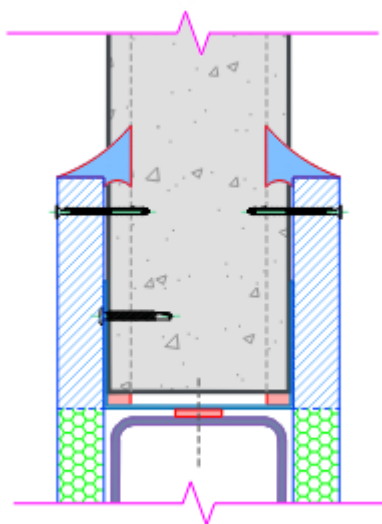


Figure 3 Base detail option 3

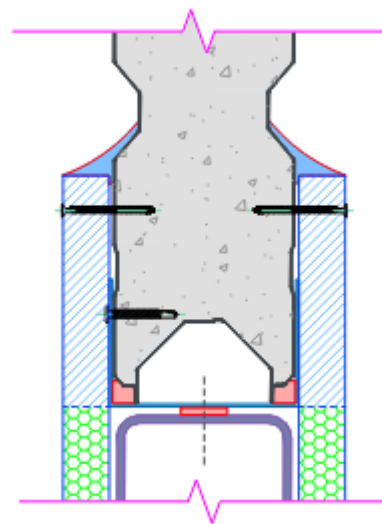


Figure 4 Base detail option 4

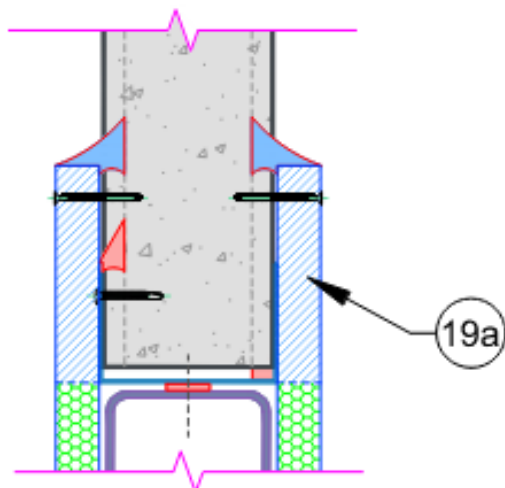


Figure 5 Base detail option 5

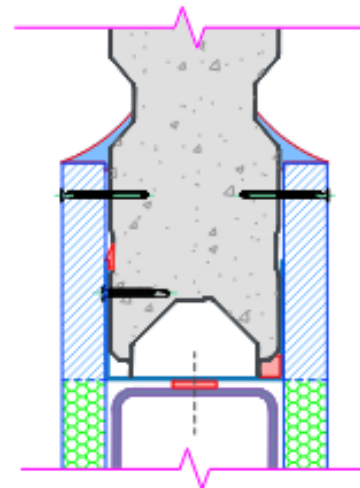


Figure 6 Base detail option 6

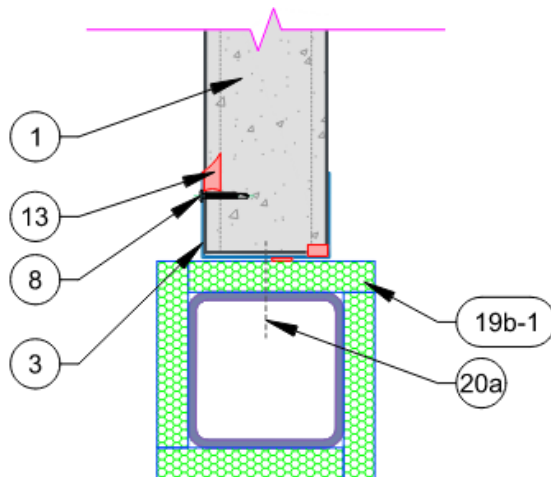


Figure 7 Base detail to wrapped SHS – vertical panel

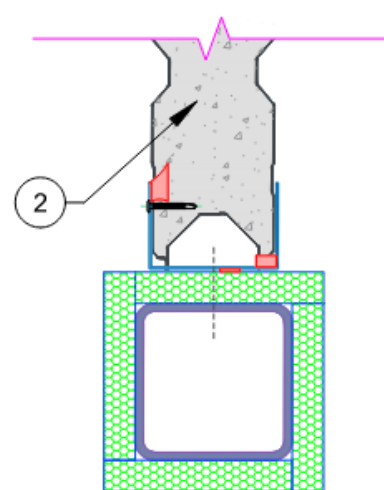
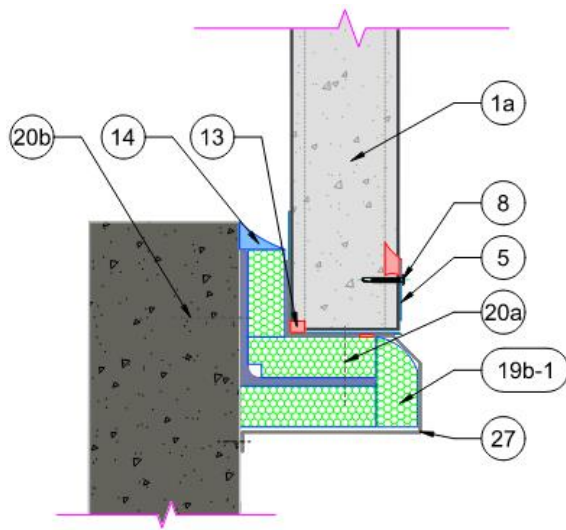
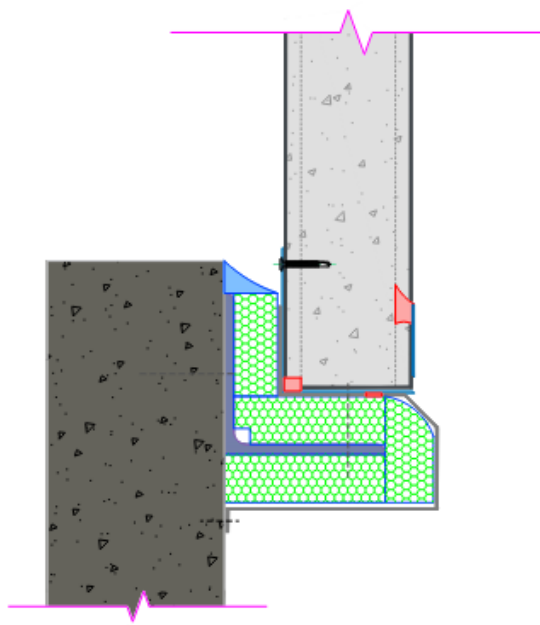


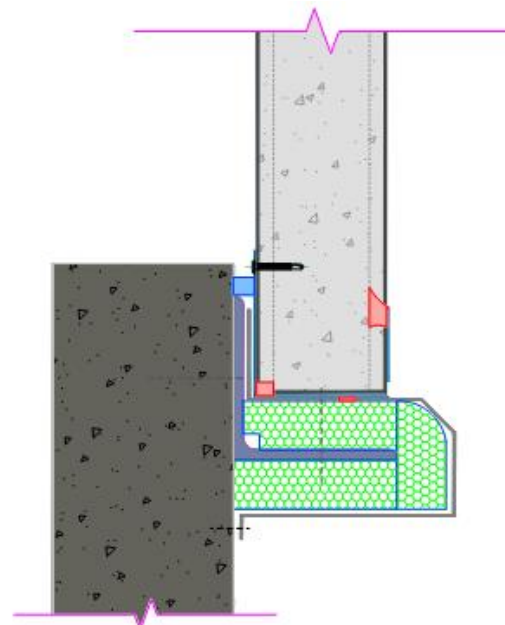
Figure 8 Base detail to wrapped SHS – horizontal panel



**Figure 9** Base detail to wrapped steel angle – vertical and horizontal panel



**Figure 10** Base detail to wrapped steel angle – vertical and horizontal panel



**Figure 11** Base detail to wrapped steel angle – vertical and horizontal panel

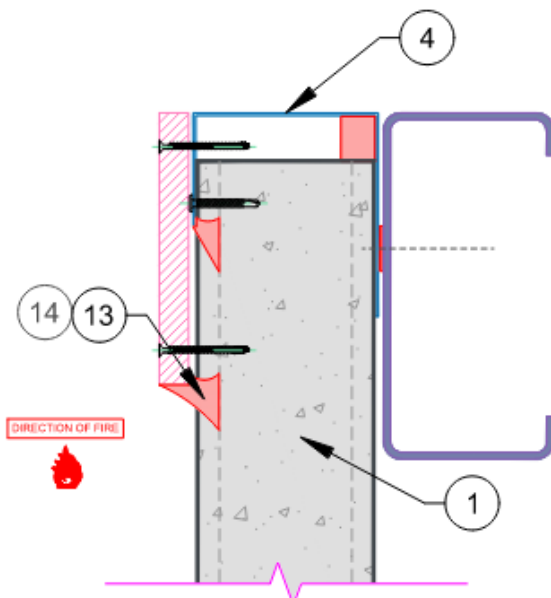


Figure 12 Head detail option 1

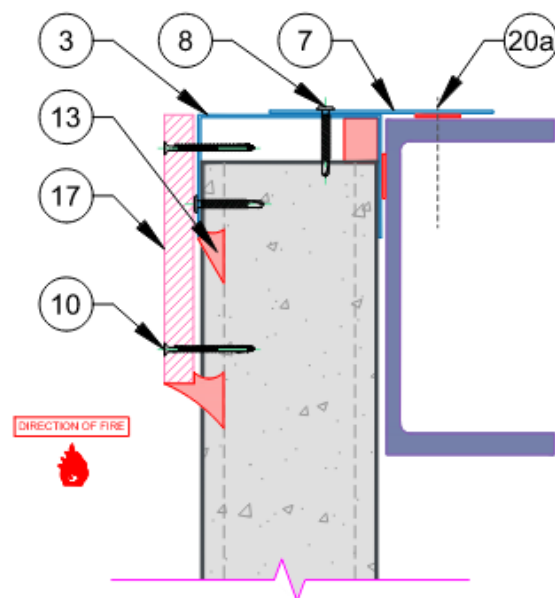


Figure 13 Head detail option 2

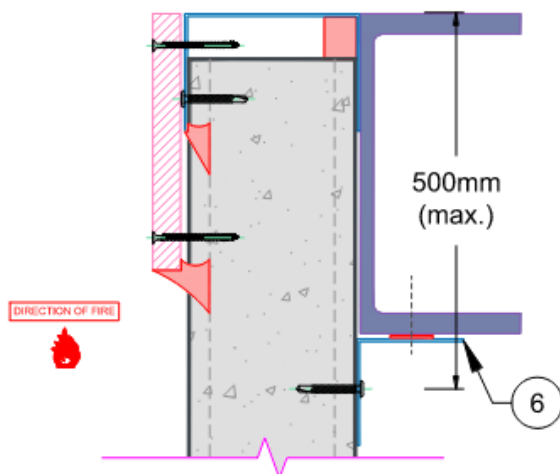


Figure 14 Head detail option 3

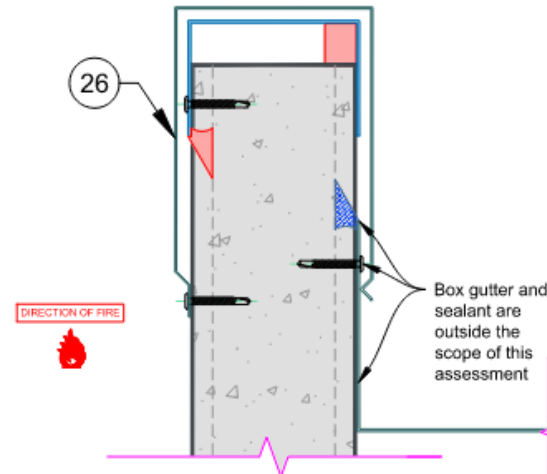
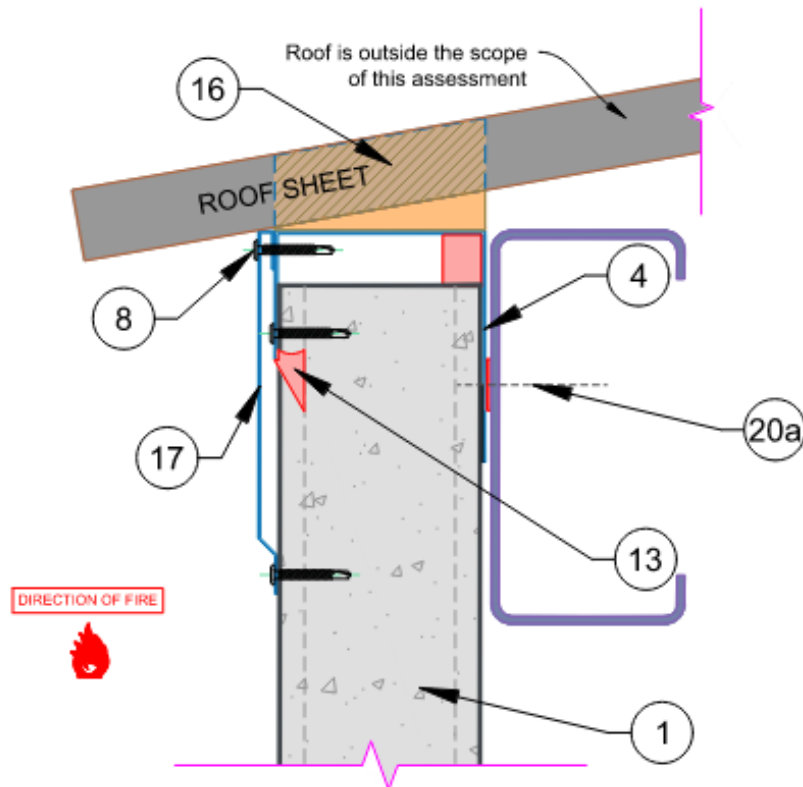
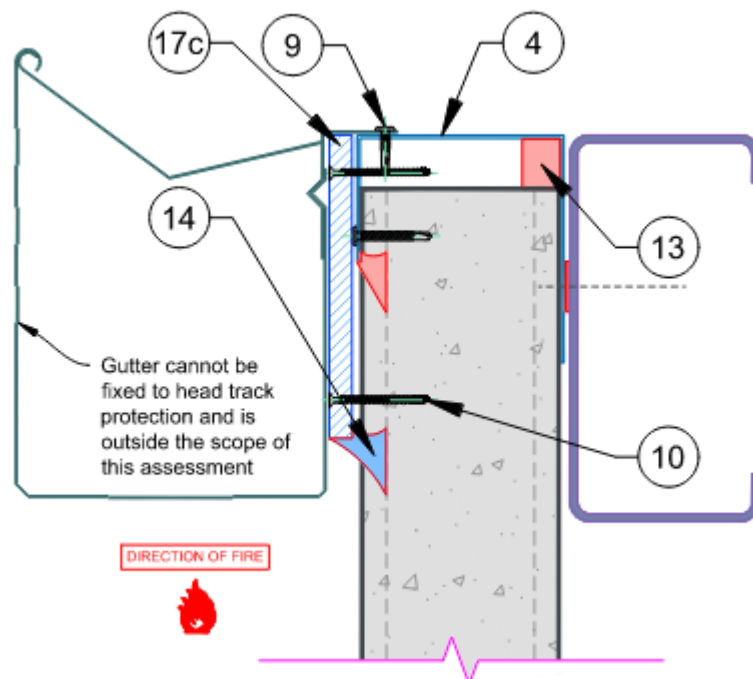


Figure 15 Head detail option 4



**Figure 16** Head detail option 5



**Figure 17** Head detail option 6

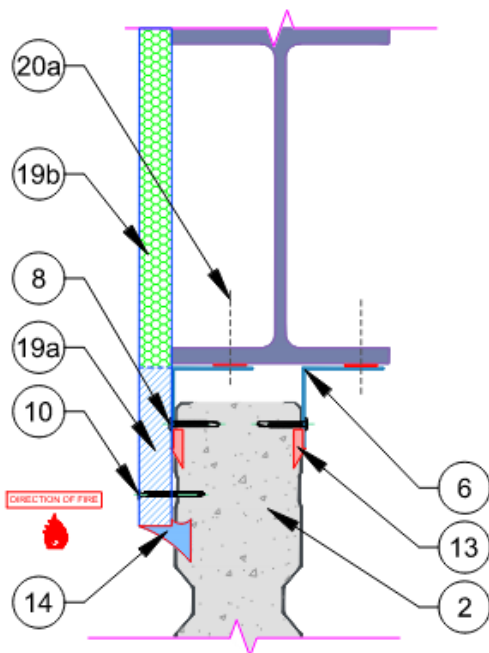


Figure 18 Head detail option 7

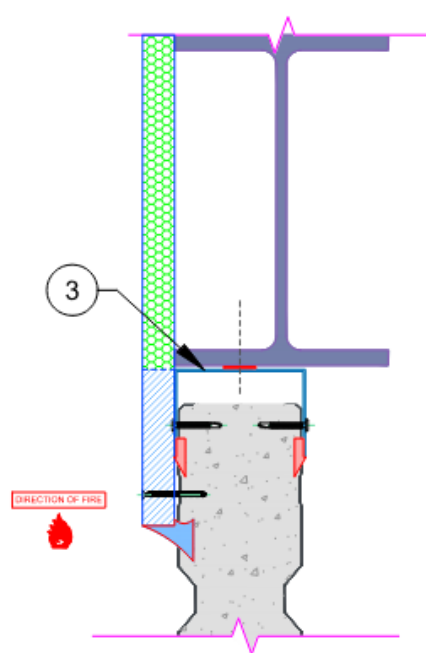


Figure 19 Head detail option 8

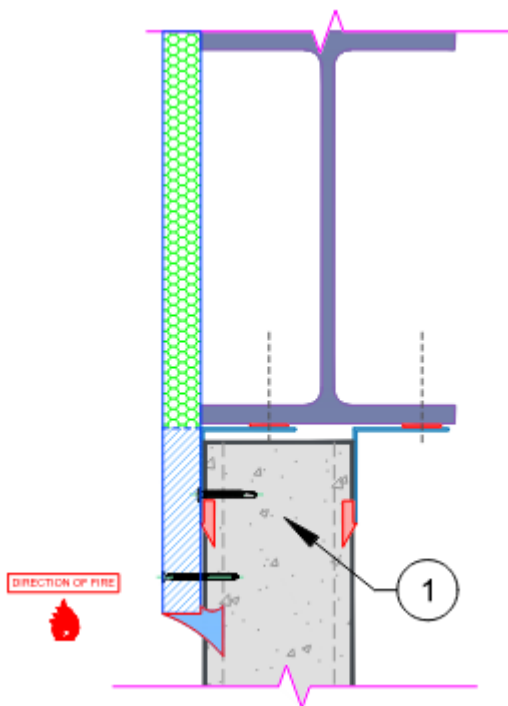


Figure 20 Head detail option 9

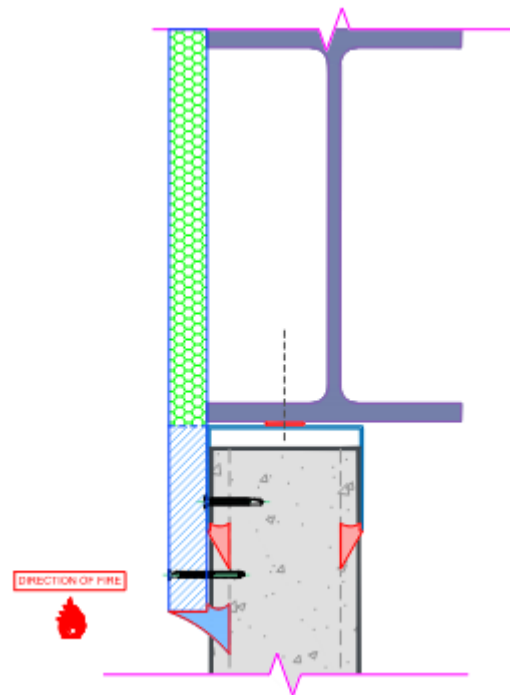


Figure 21 Head detail option 10



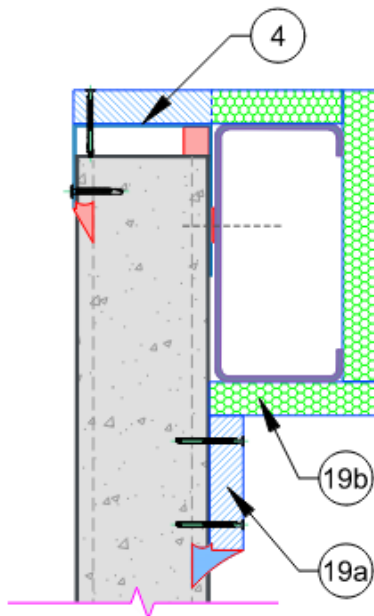


Figure 22 Head detail option 11

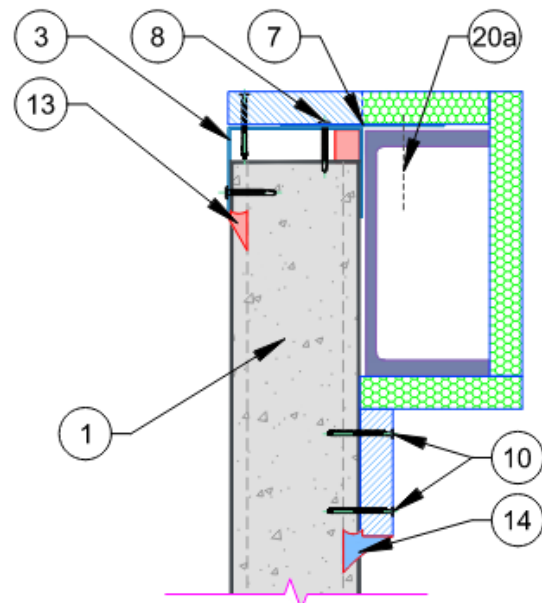


Figure 23 Head detail option 12

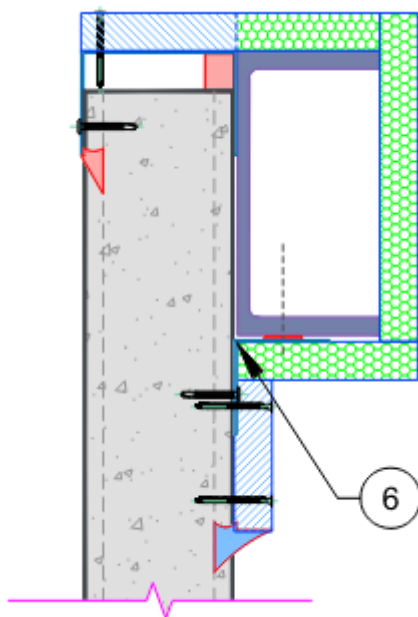


Figure 24 Head detail option 13

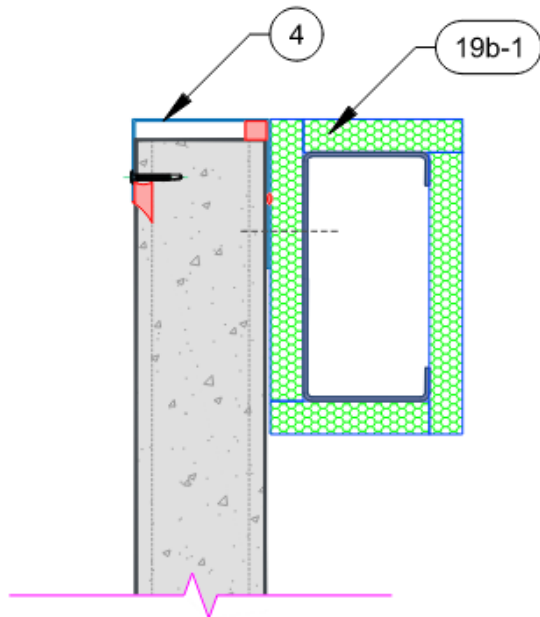


Figure 25 Head detail option 14

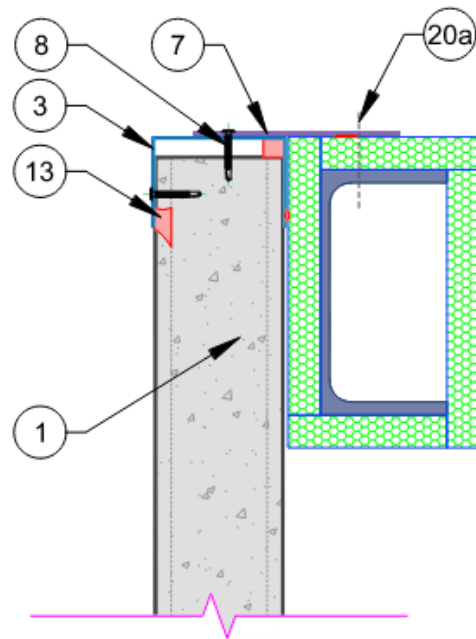


Figure 26 Head detail option 15

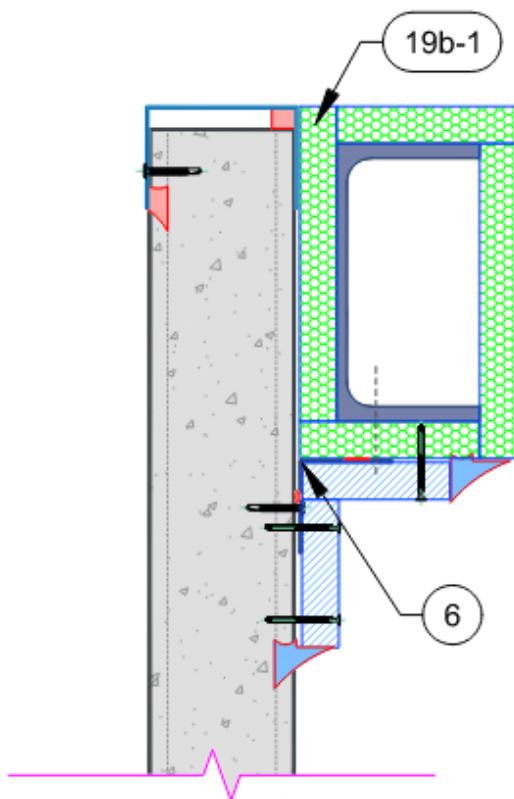


Figure 27 Head detail option 16

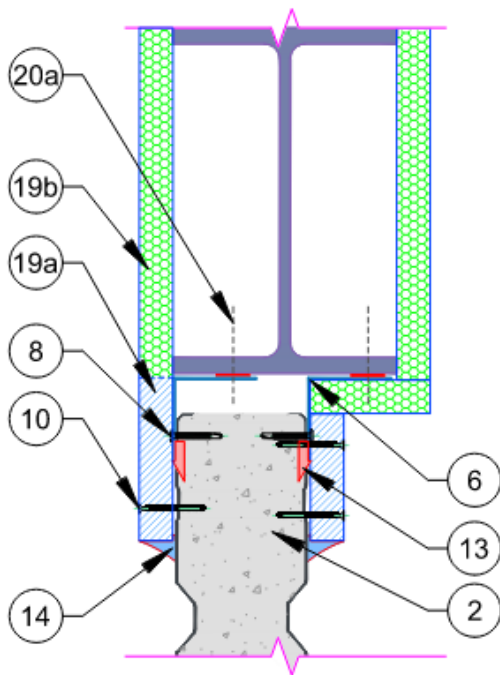


Figure 28 Head detail option 17

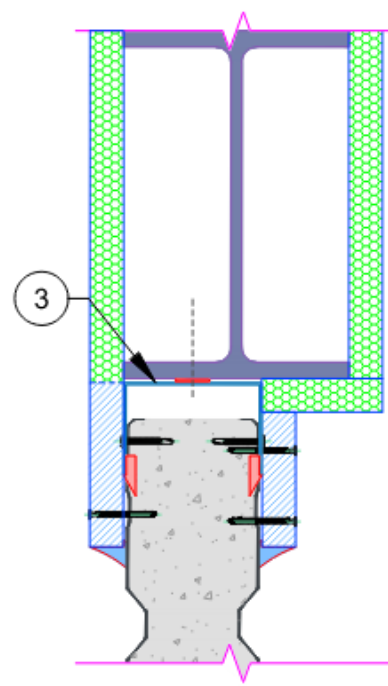


Figure 29 Head detail option 18

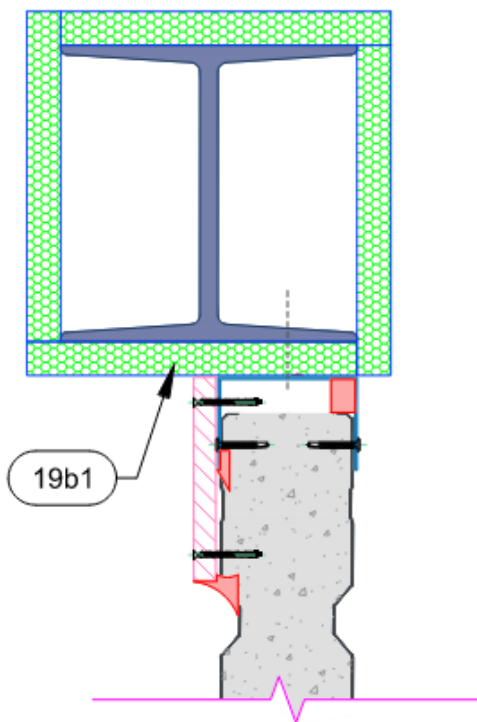


Figure 30 Head detail option 19

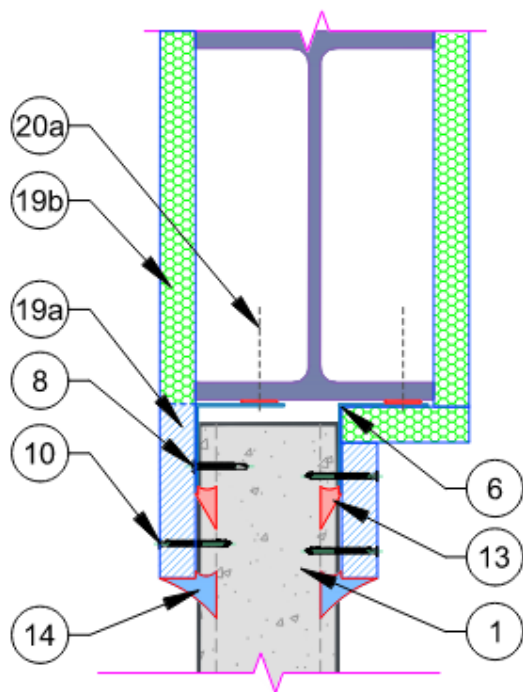


Figure 31 Head details option 20

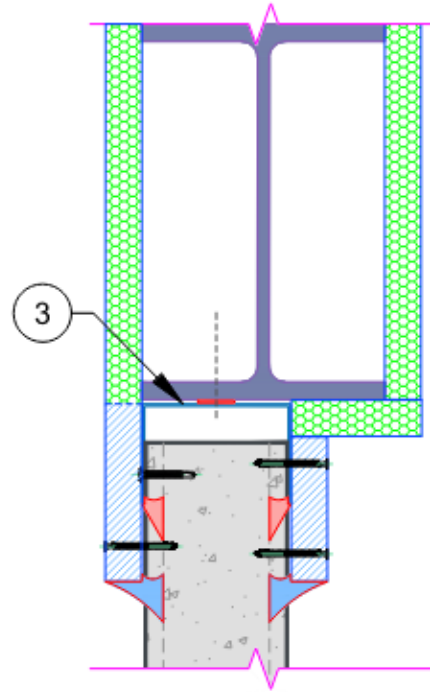


Figure 32 Head details option 21

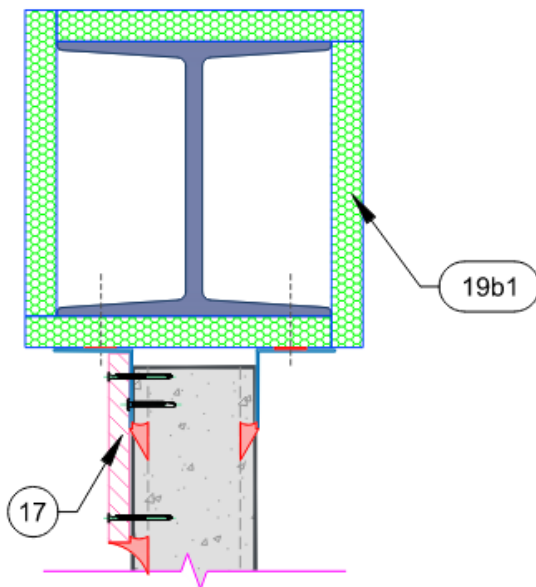


Figure 33 Head details option 22

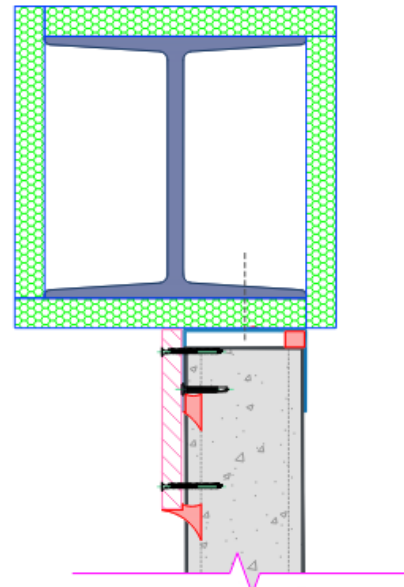


Figure 34 Head details option 23

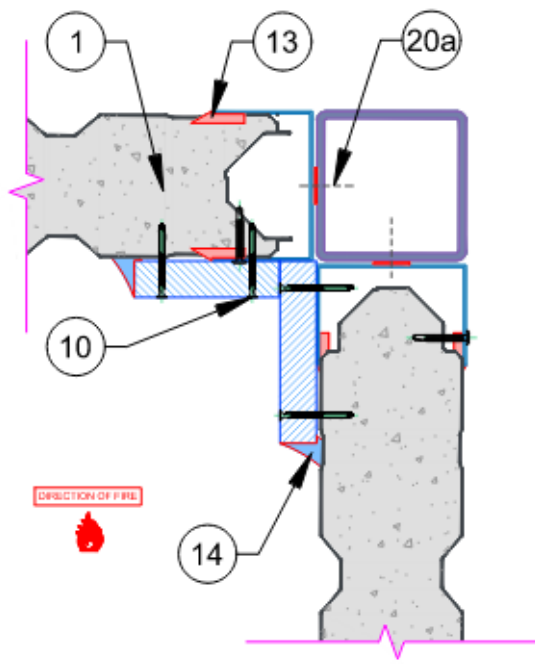


Figure 35 Corner detail option 1

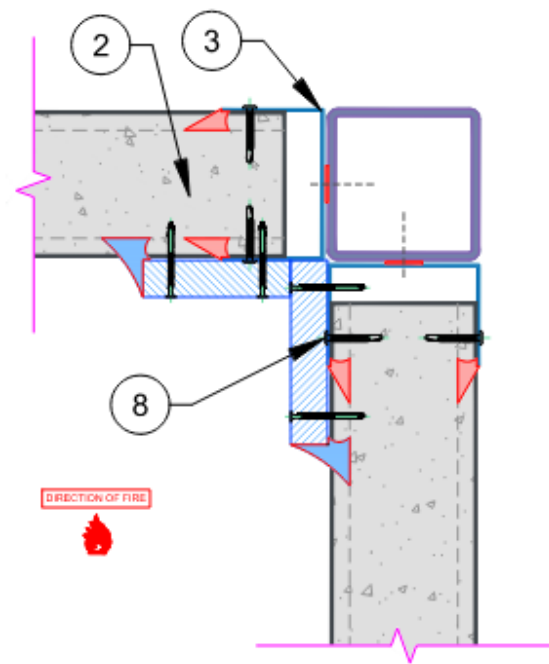


Figure 36 Corner detail option 2

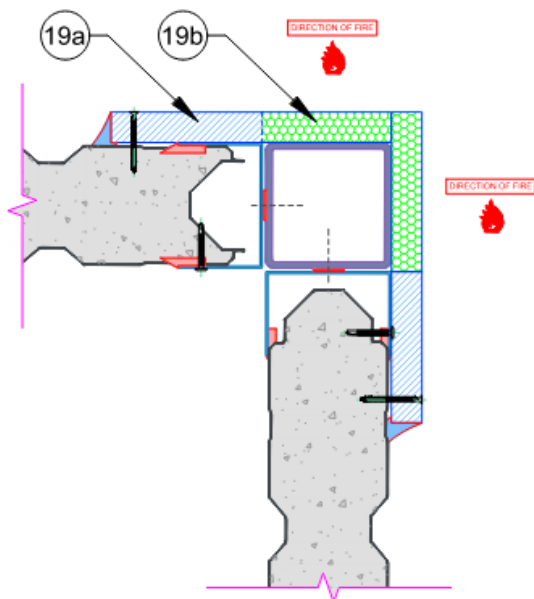


Figure 37 Corner detail option 3

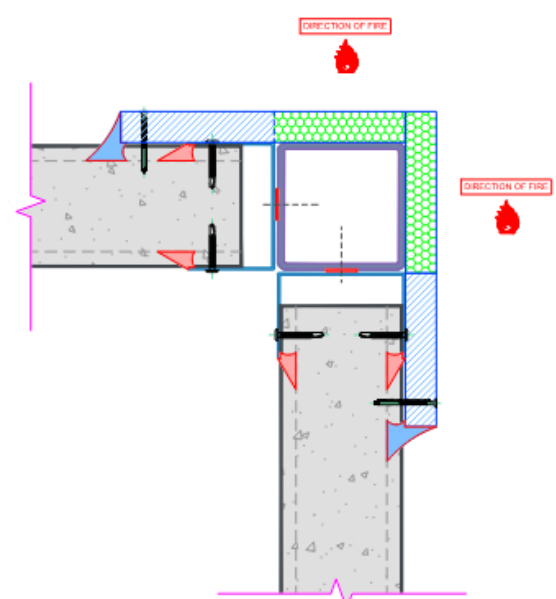


Figure 38 Corner detail option 4

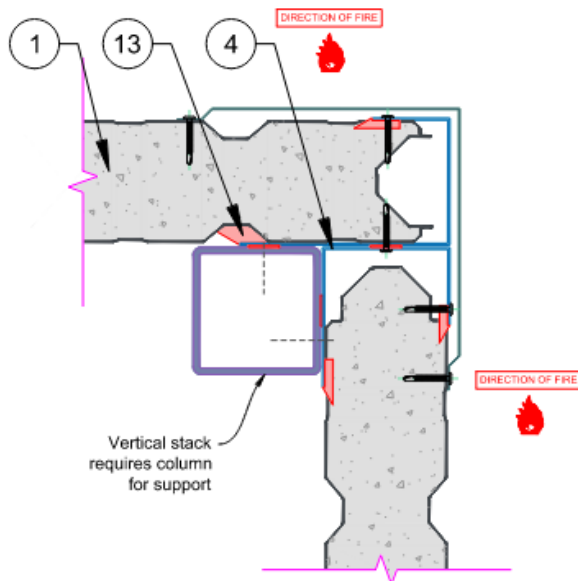


Figure 39 Corner detail option 5

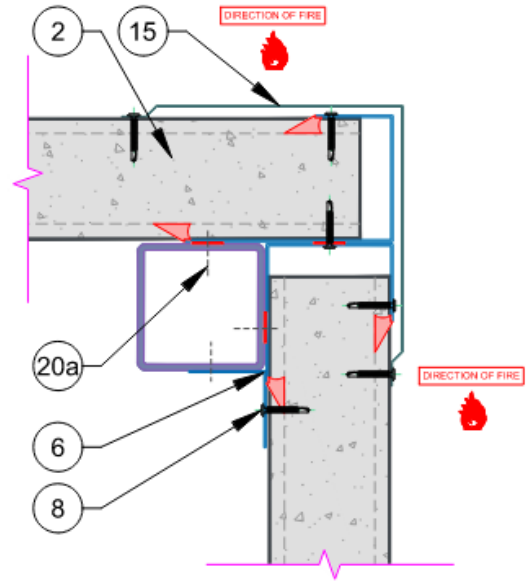


Figure 40 Corner detail option 6

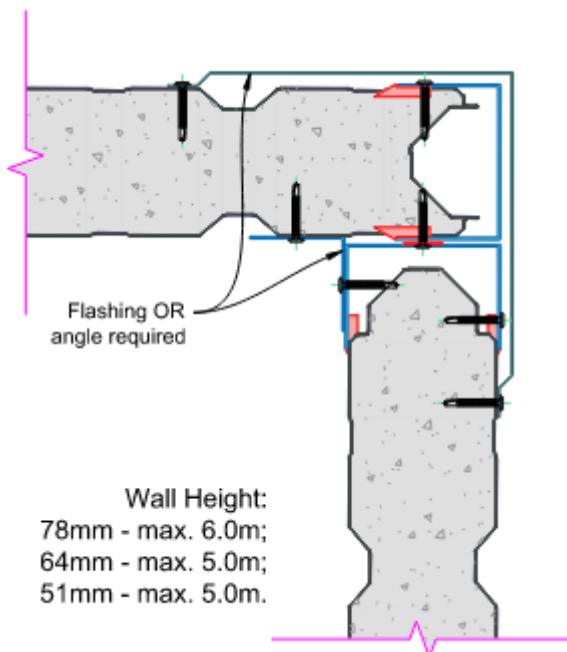


Figure 41 Corner detail option 7

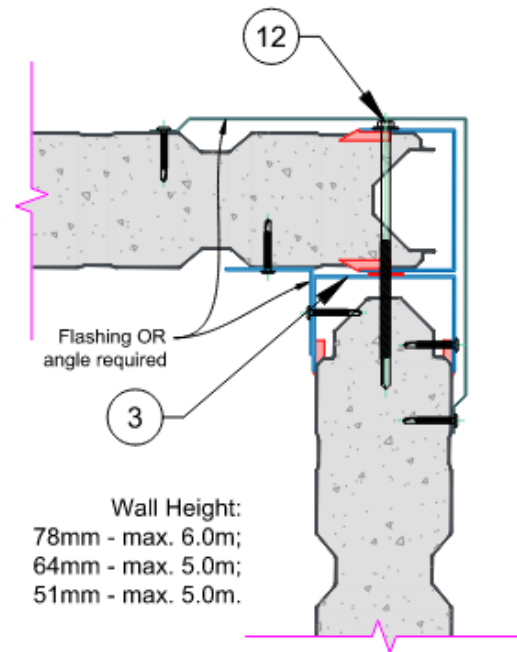
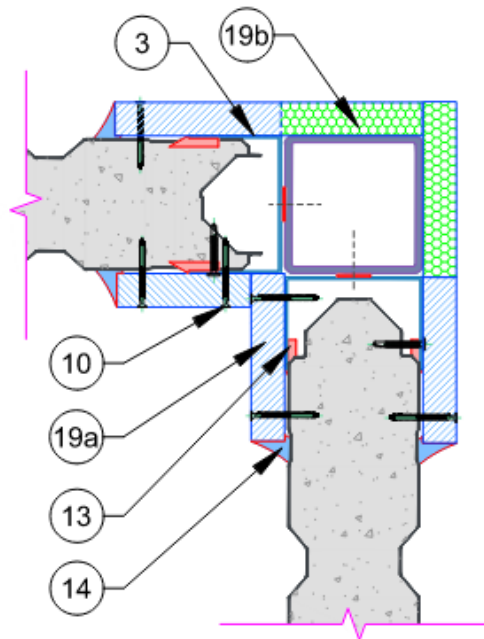
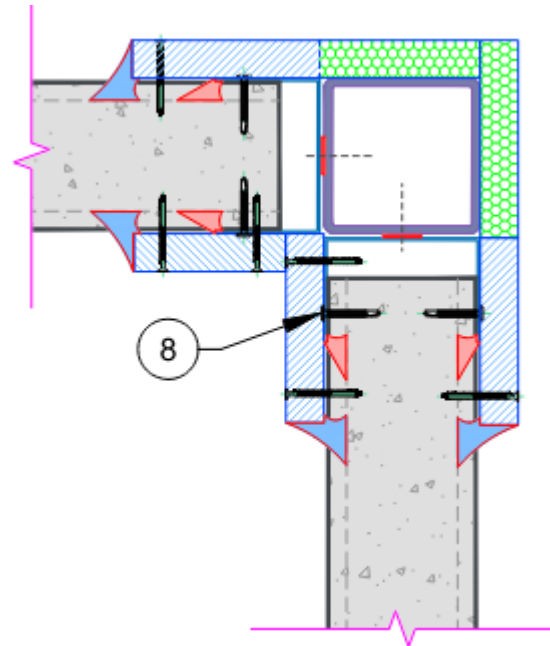


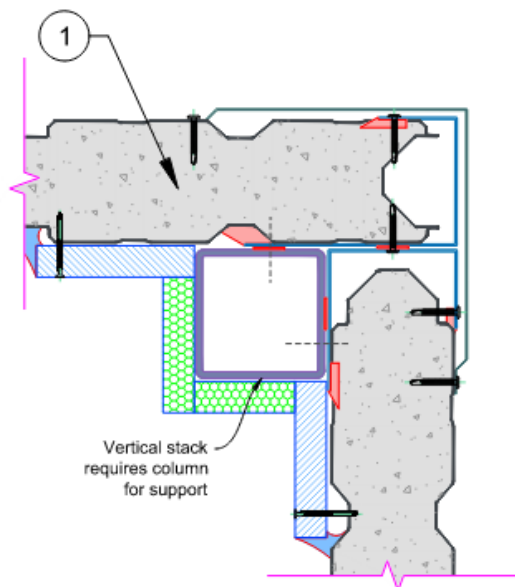
Figure 42 Corner detail option 8



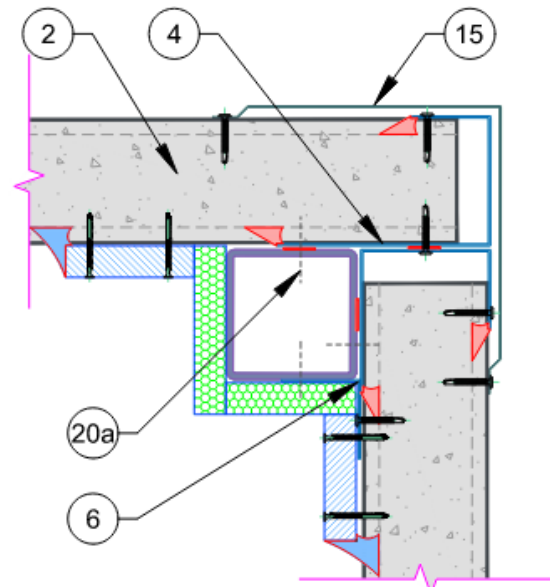
**Figure 43** Corner detail option 9



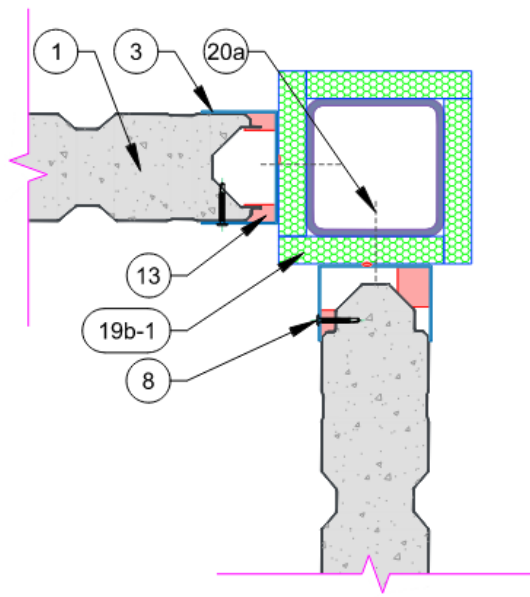
**Figure 44** Corner detail option 10



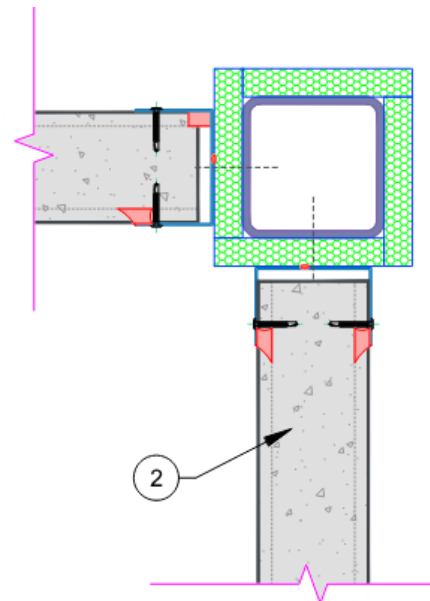
**Figure 45** Corner detail option 11



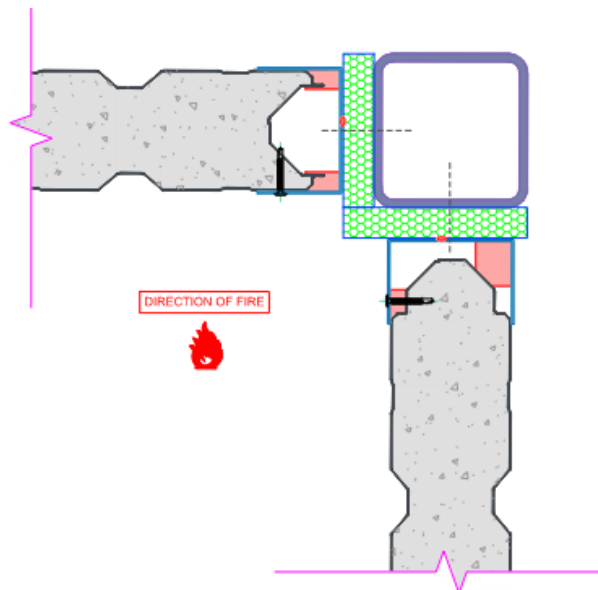
**Figure 46** Corner detail option 12



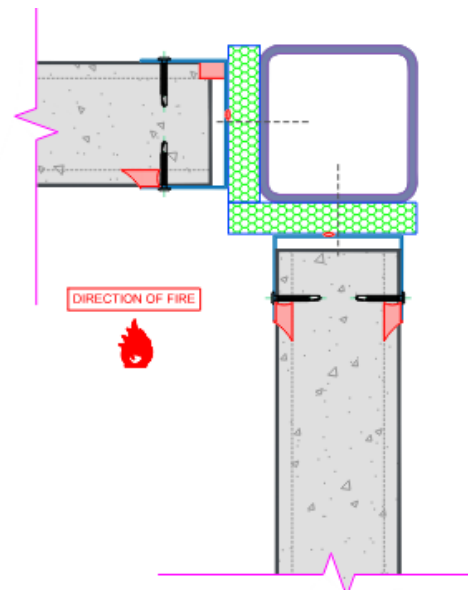
**Figure 47** Corner detail option 13



**Figure 48** Corner detail option 14



**Figure 49** Corner detail option 15



**Figure 50** Corner detail option 16



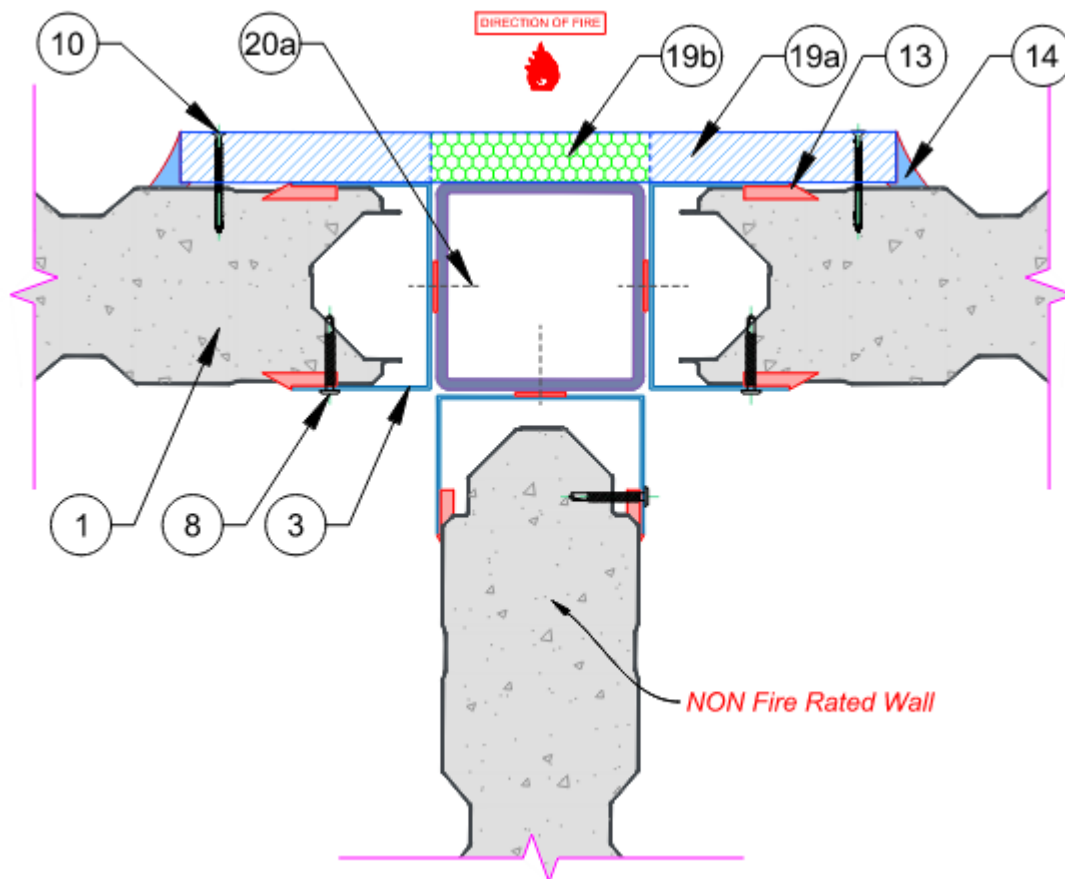


Figure 51 T-junction detail option 1

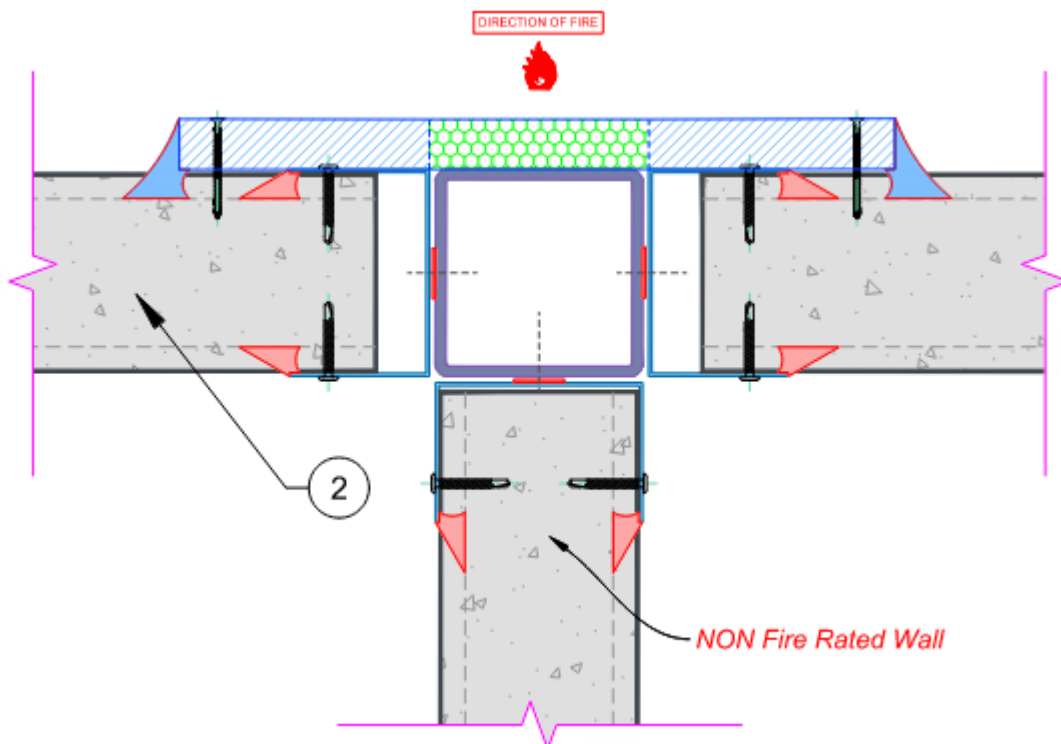


Figure 52 T-junction detail option 2

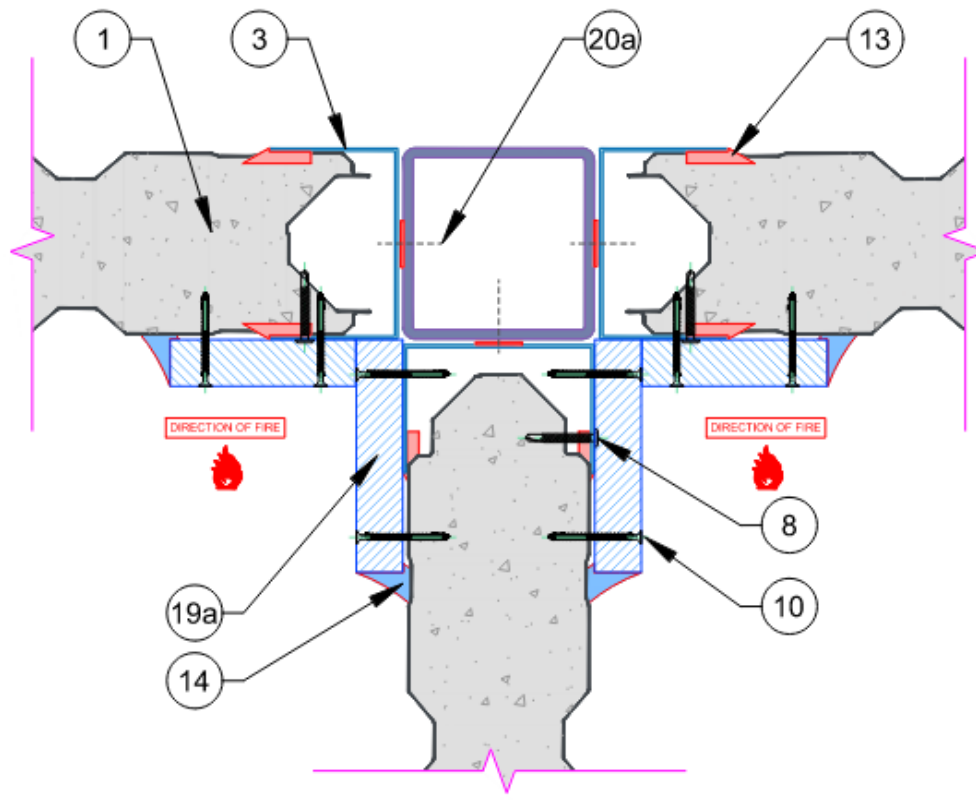


Figure 53 T-junction detail option 3

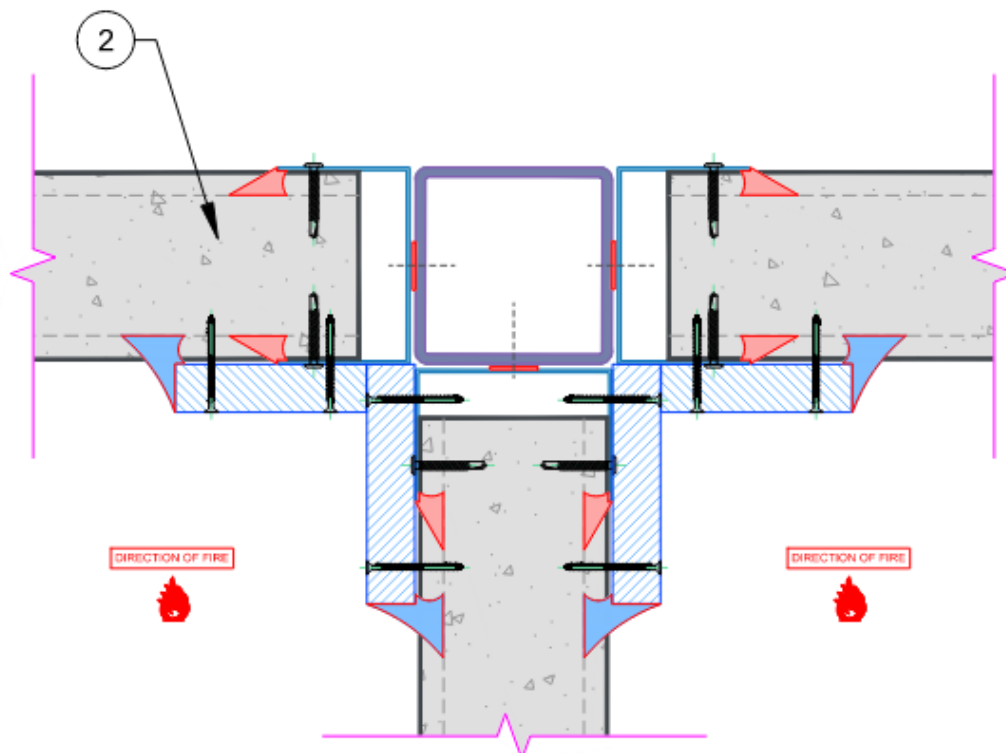
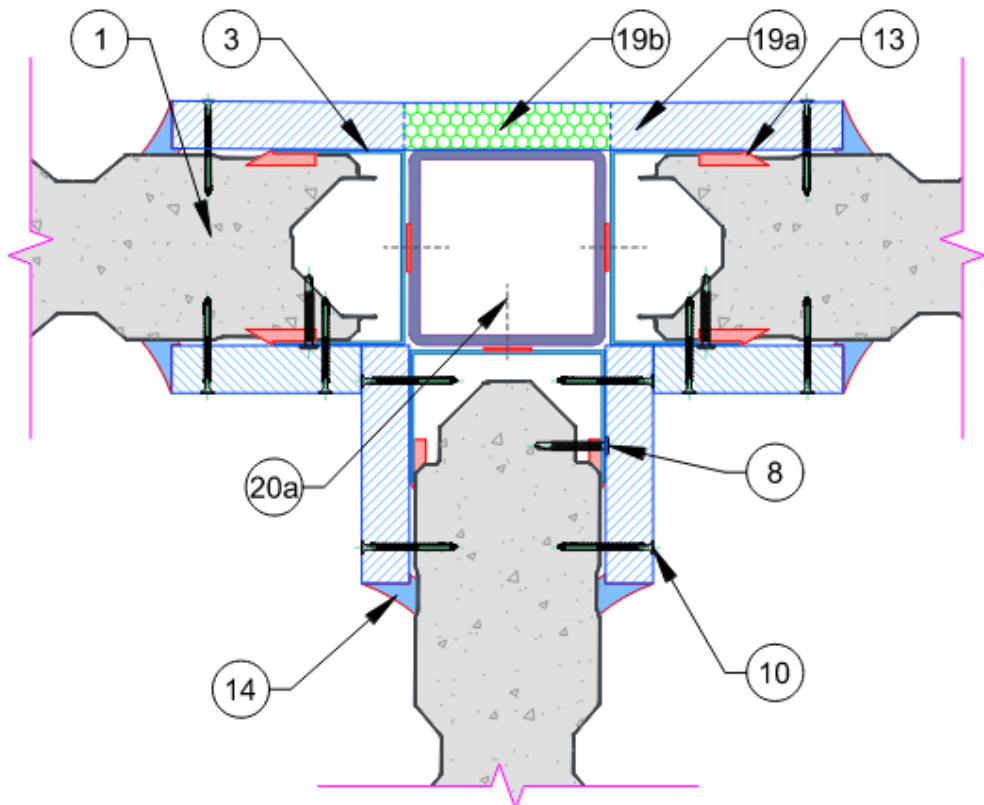
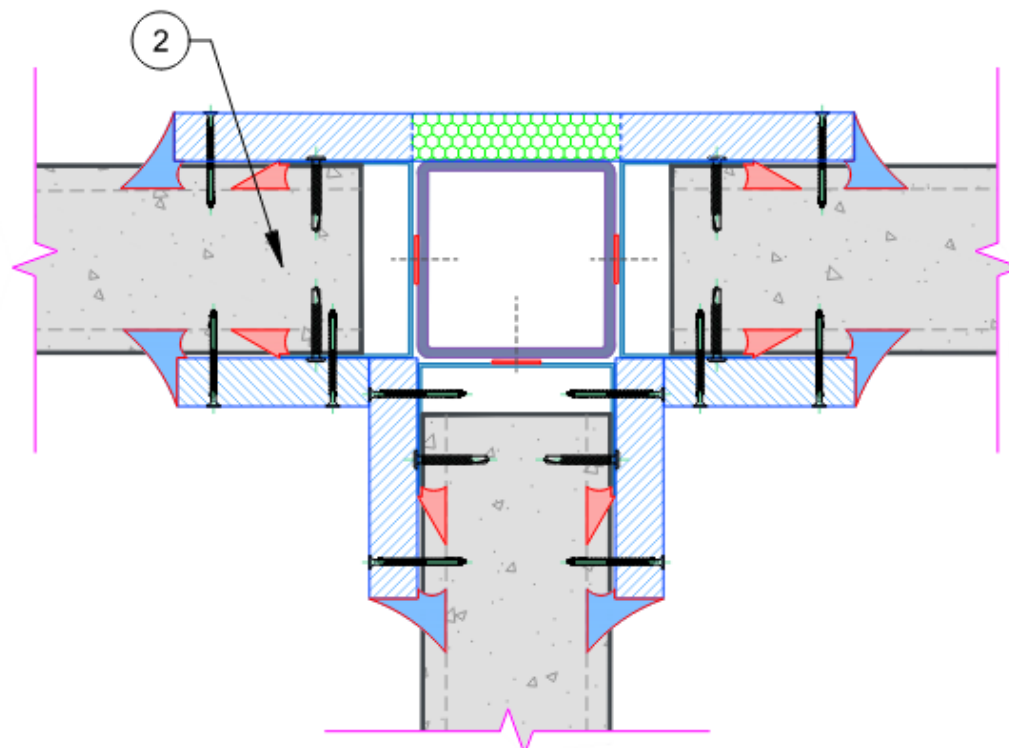


Figure 54 T-junction detail option 4



**Figure 55** T-junction detail option 5



**Figure 56** T-junction detail option 6

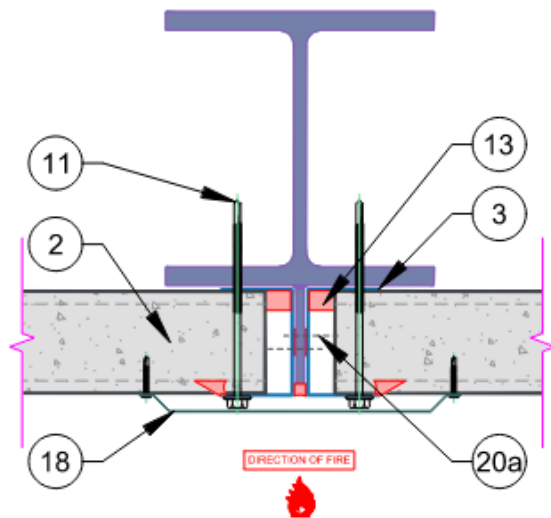


Figure 57 Horizontal stack detail option 1

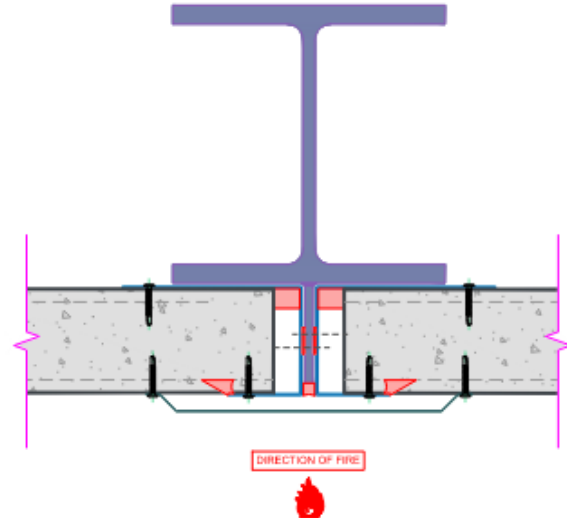


Figure 58 Horizontal stack detail option 2

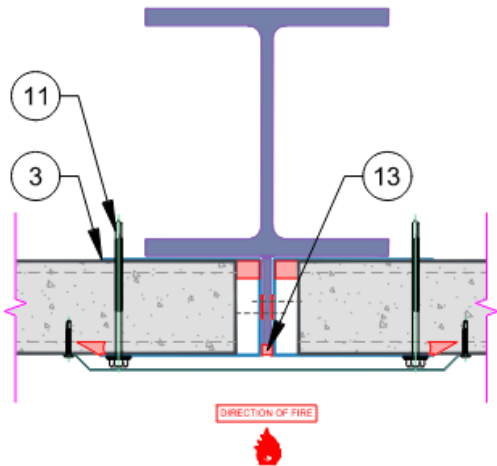


Figure 59 Horizontal stack detail option 3

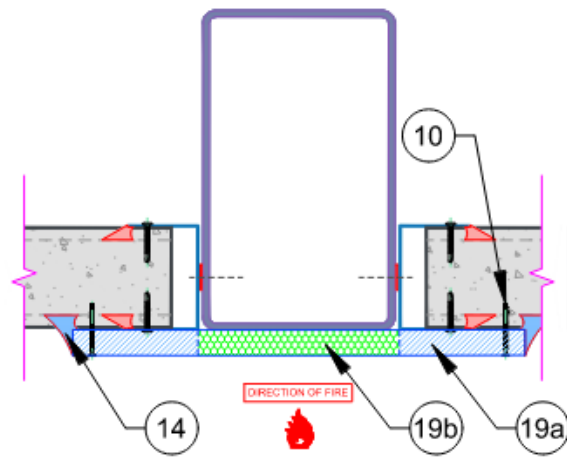


Figure 60 Horizontal stack detail option 4

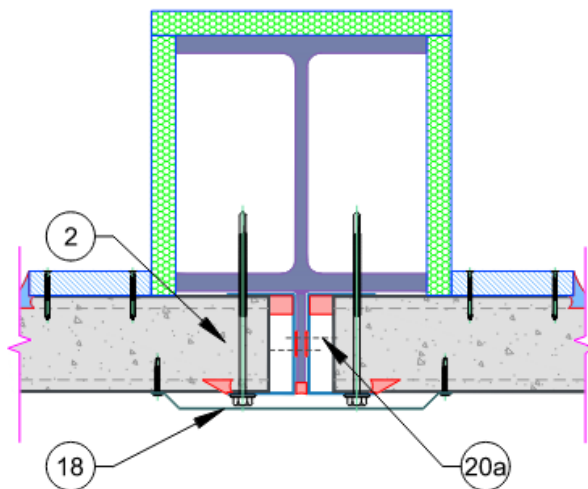


Figure 61 Horizontal stack detail option 5

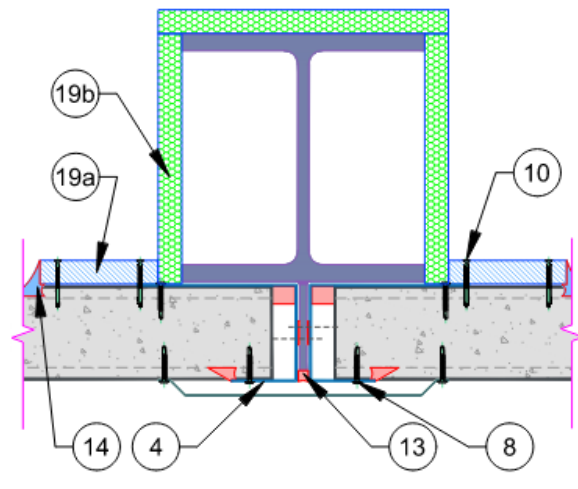


Figure 62 Horizontal stack detail option 6

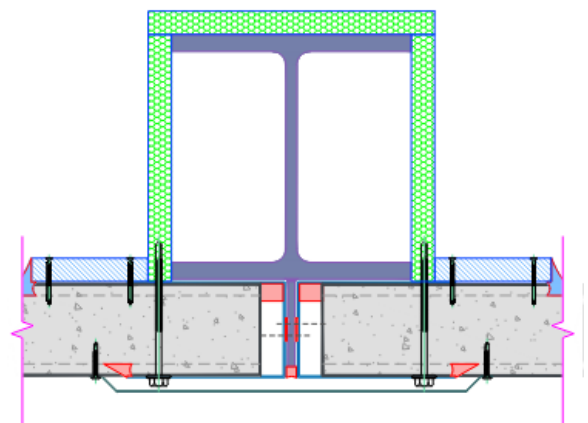


Figure 63 Horizontal stack detail option 7

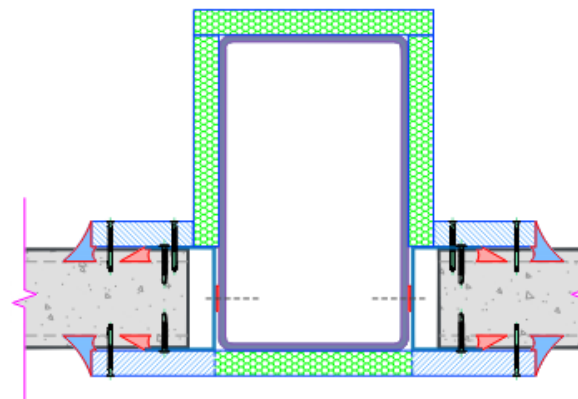


Figure 64 Horizontal stack detail option 8

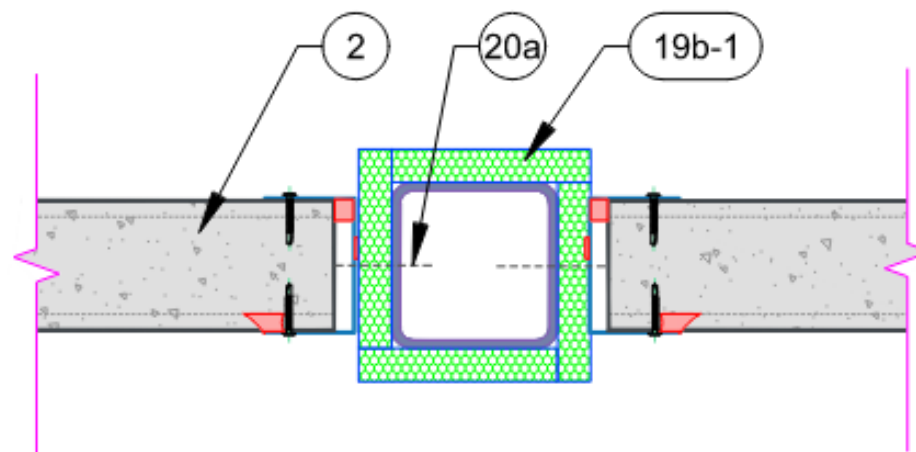
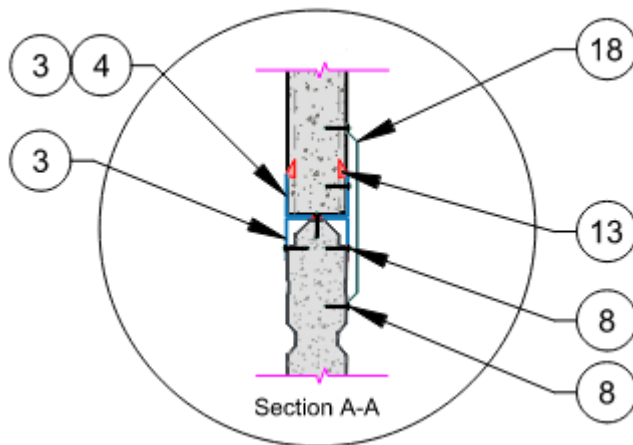
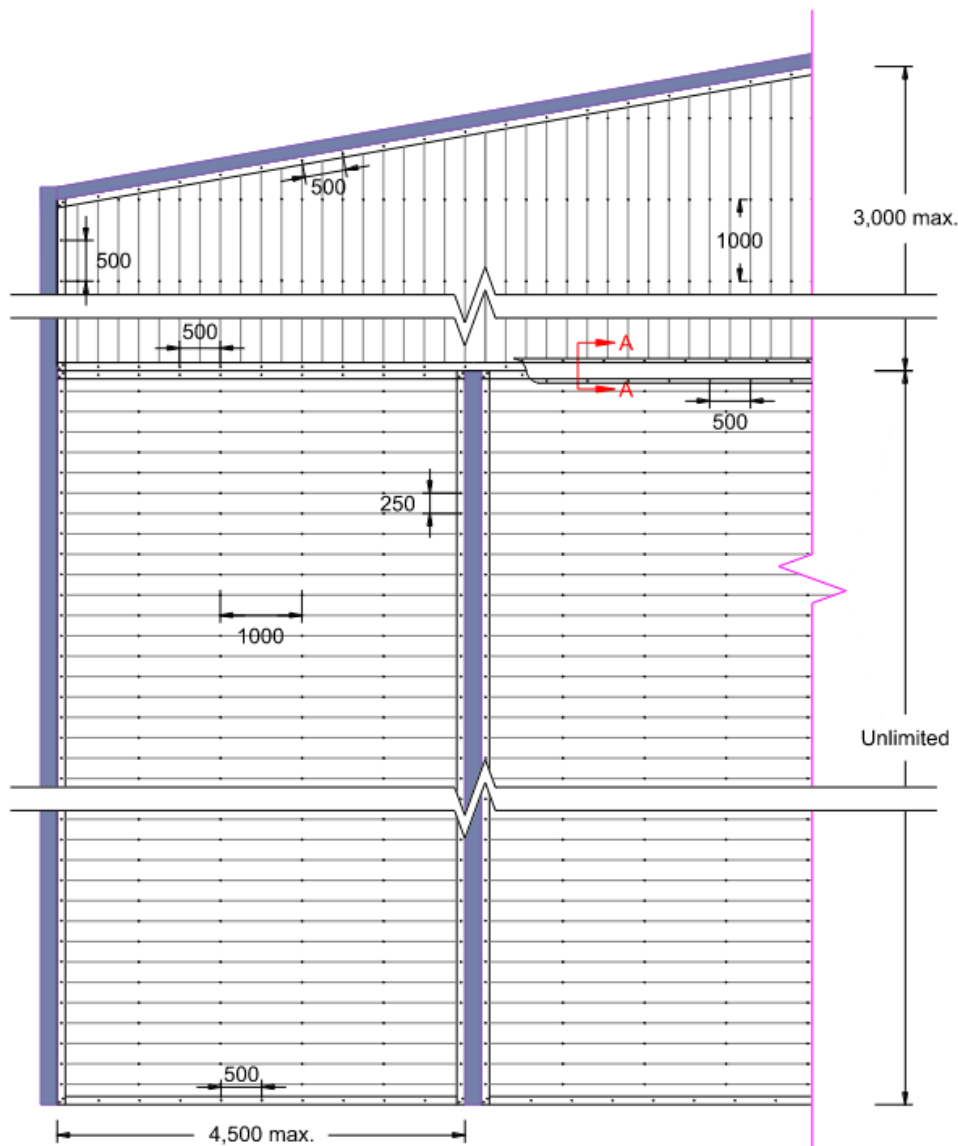


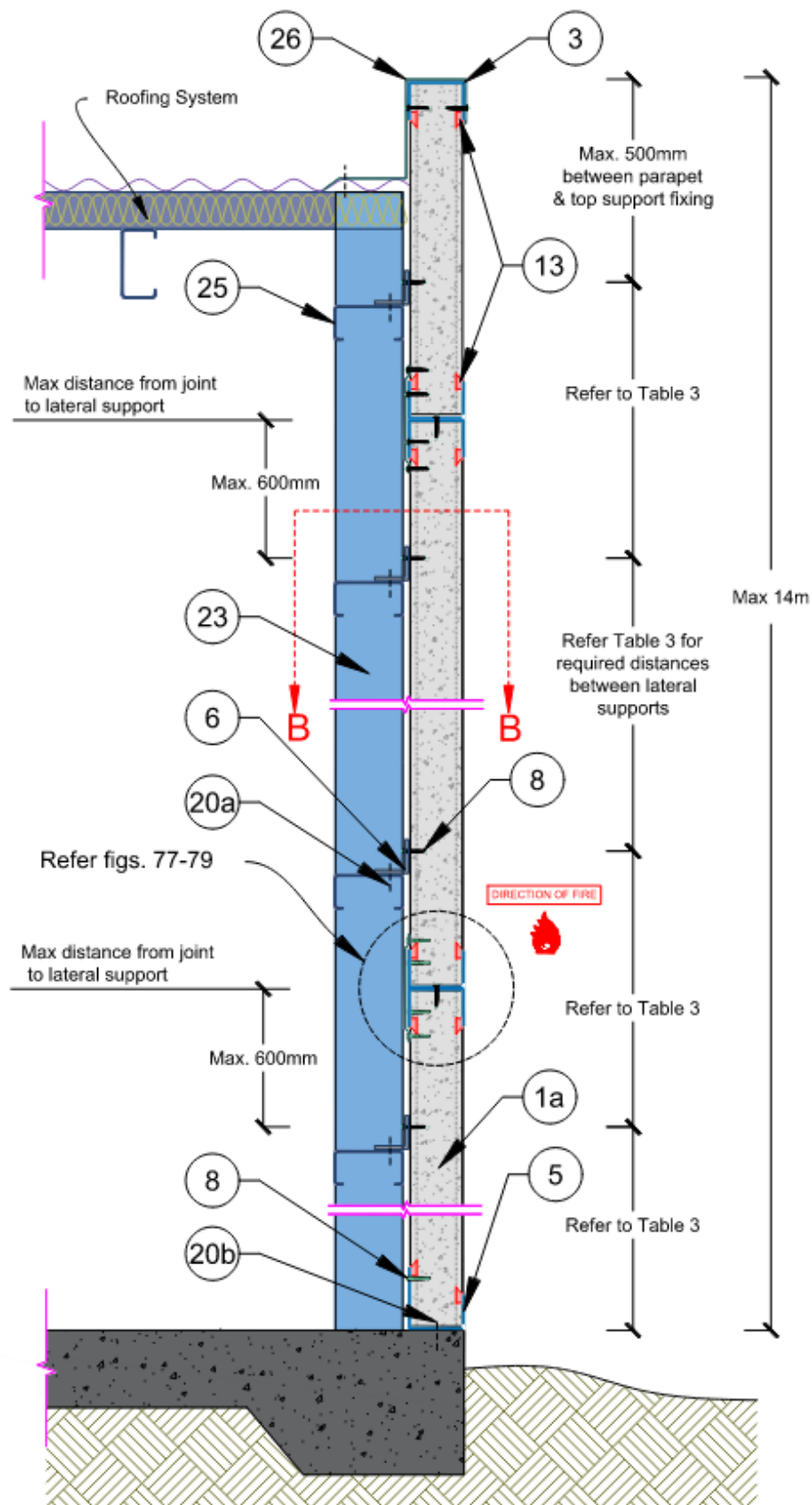
Figure 65 Horizontal stack detail option 9



**Figure 66 Section A-A**



**Figure 67 Horizontal wall supporting vertical panel system**

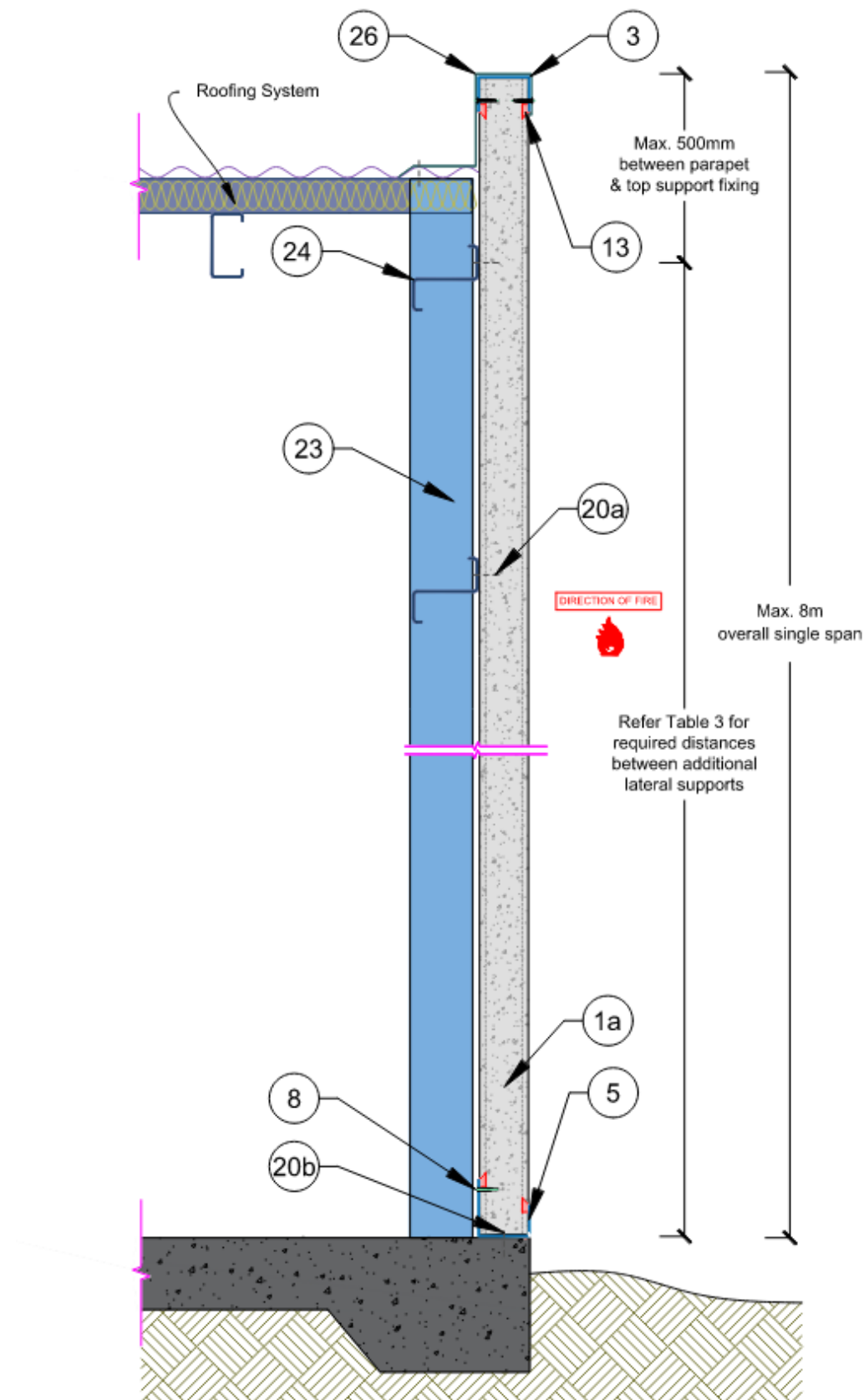


**Figure 68** Speedpanel wall with unprotected framing at one side – C-purlin option

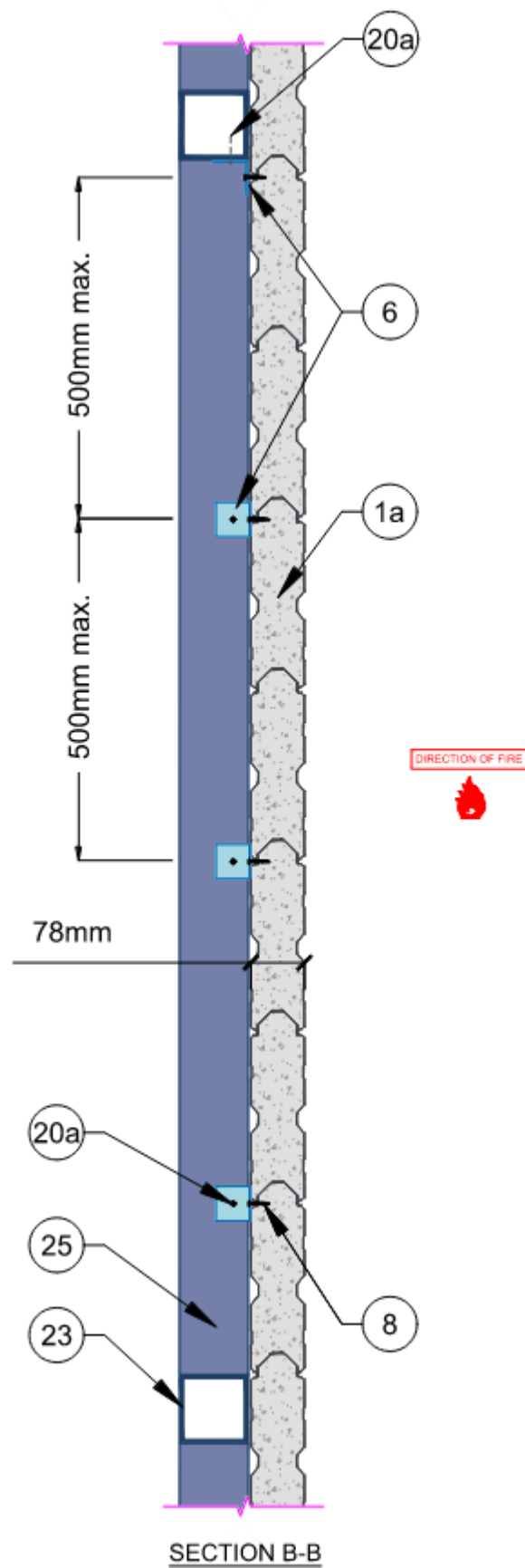




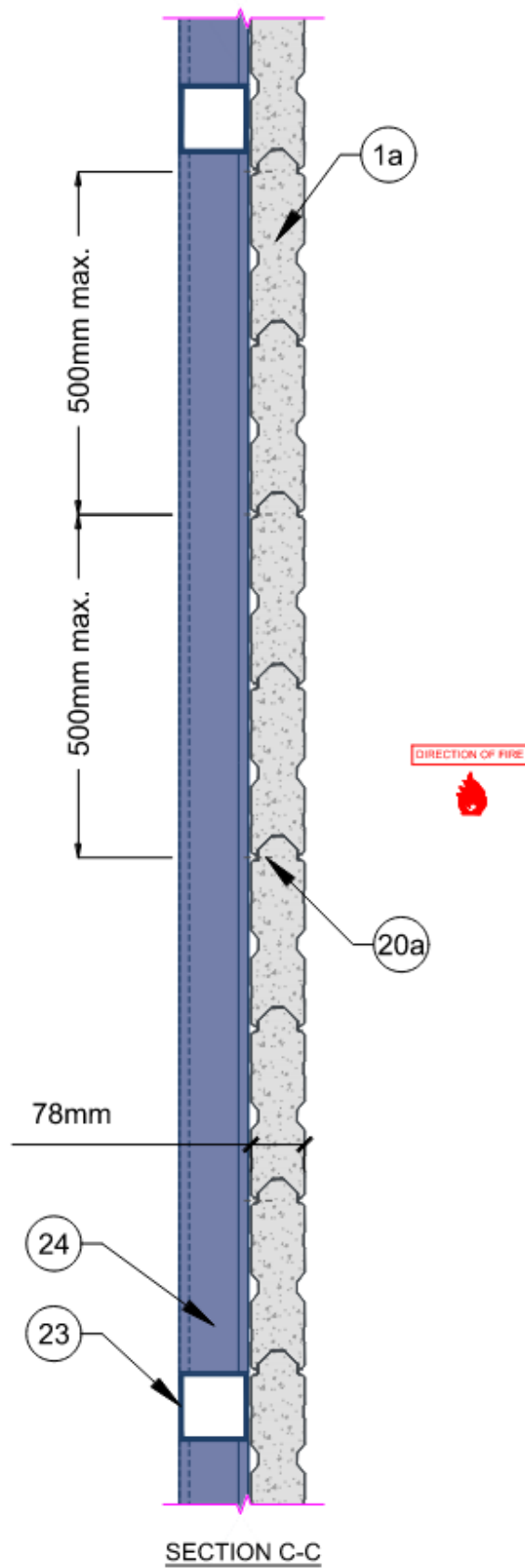




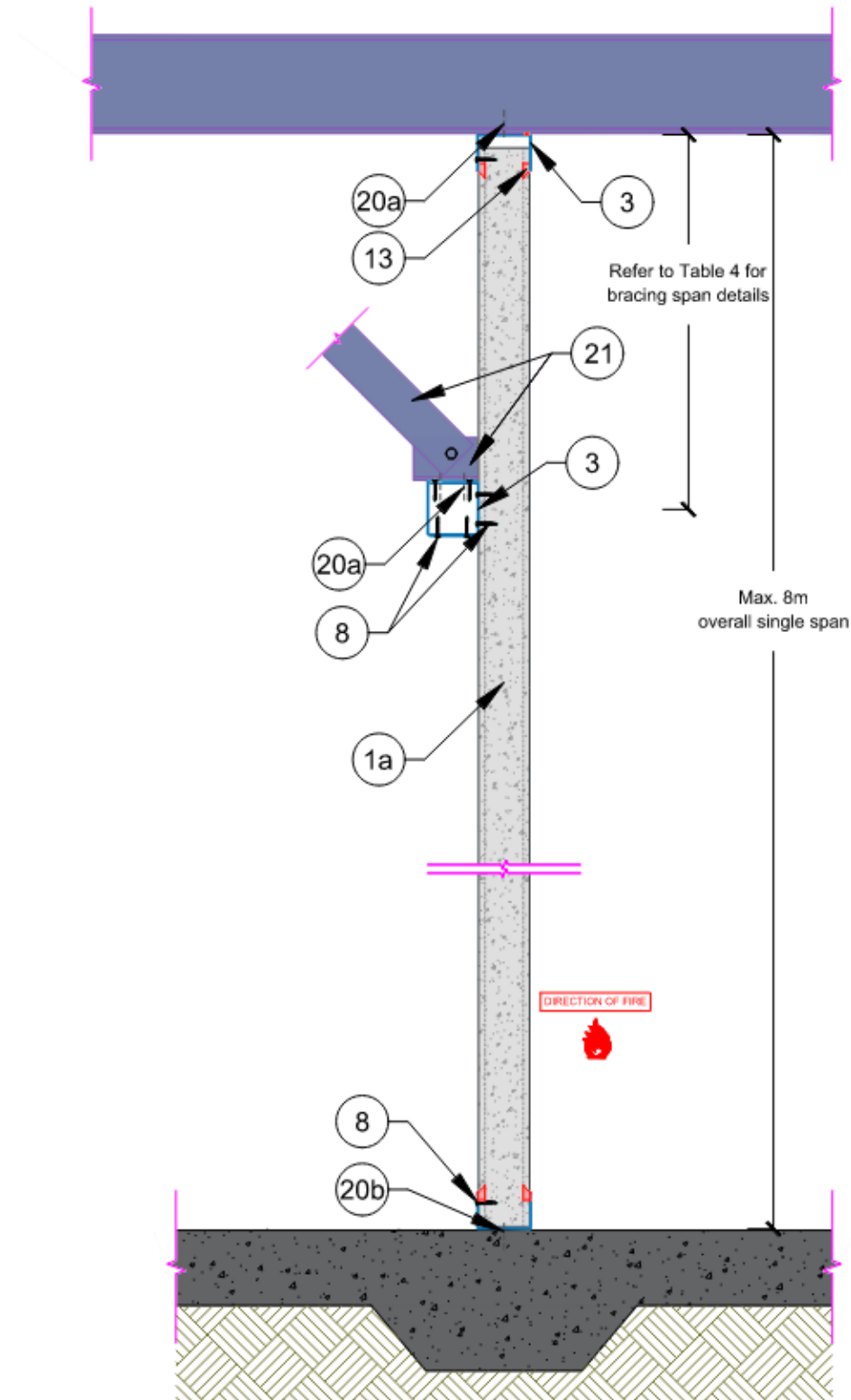
**Figure 70** Speedpanel single span wall with unprotected framing at one side



**Figure 71** Speedpanel wall with unprotected framing – C-purlin (plan view) – section B-B

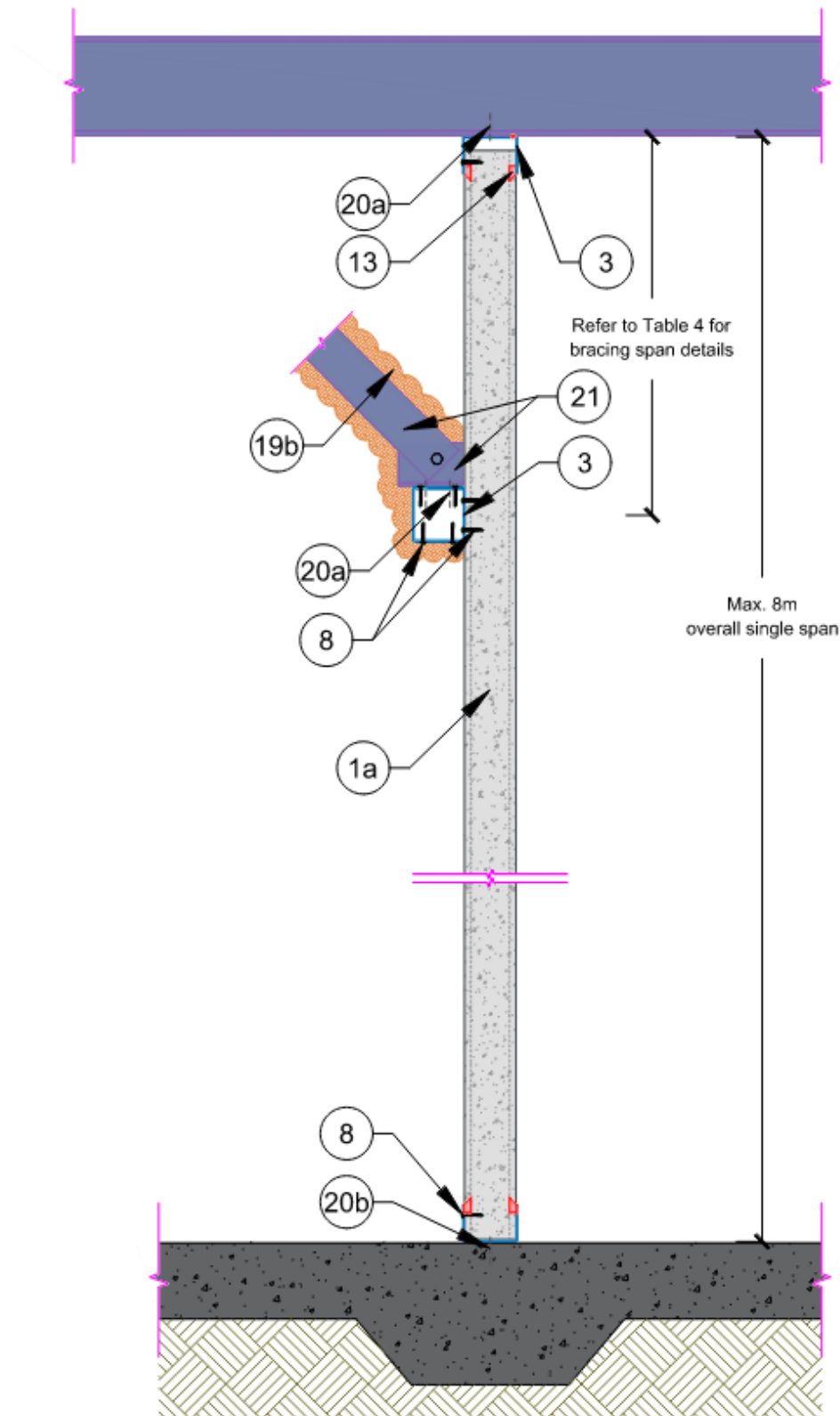


**Figure 72** Speedpanel wall with unprotected framing – Z-purlin (plan view) – section C-C



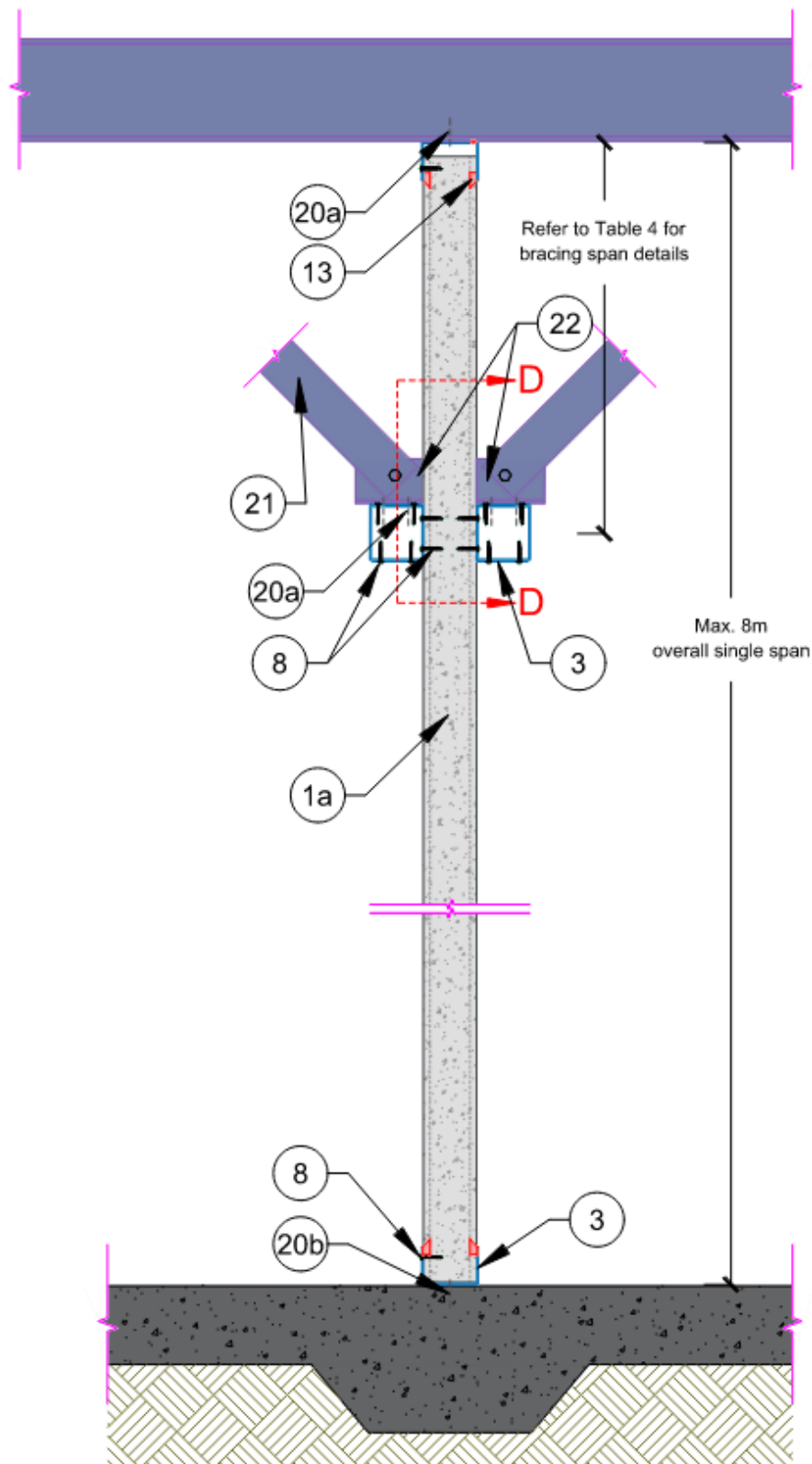
**Figure 73 Speedpanel wall with bracing system on unexposed side**

Note: Refer Table 6 for bracing height requirements corresponding to overall height of the single span wall. The design of the overhead structural support and subsequent protection requirements of the structural support are outside the scope of this assessment.



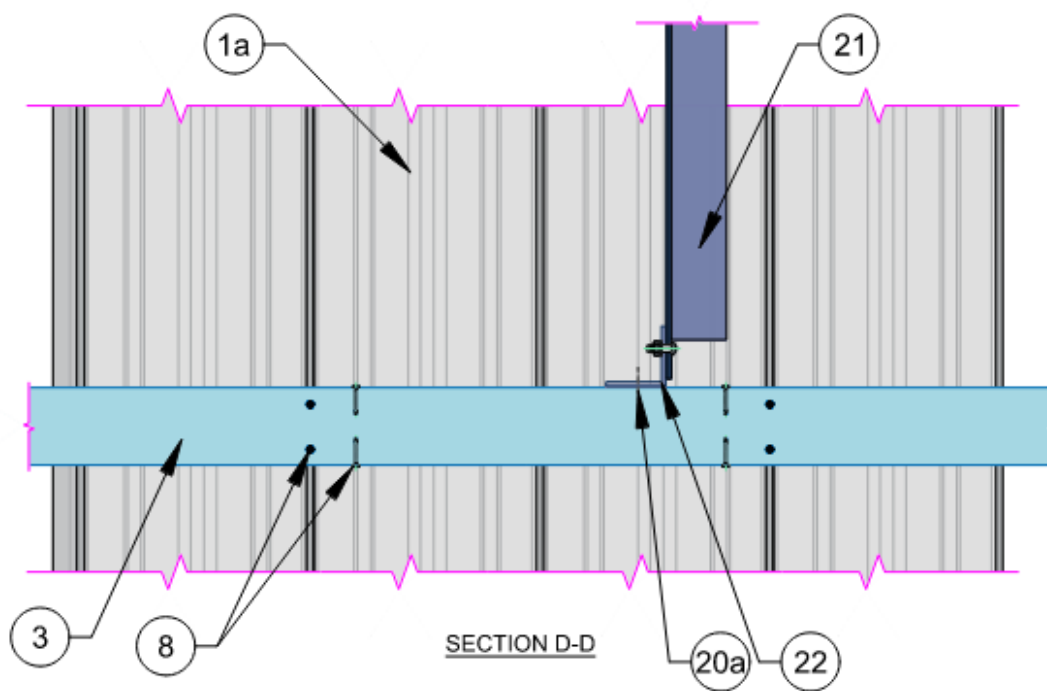
**Figure 74 Speedpanel wall with protected bracing system on one side**

Note: Refer Table 6 for bracing height requirements corresponding to overall height of the single span wall. The design of the overhead structural support and subsequent protection requirements of the structural support are outside the scope of this assessment.

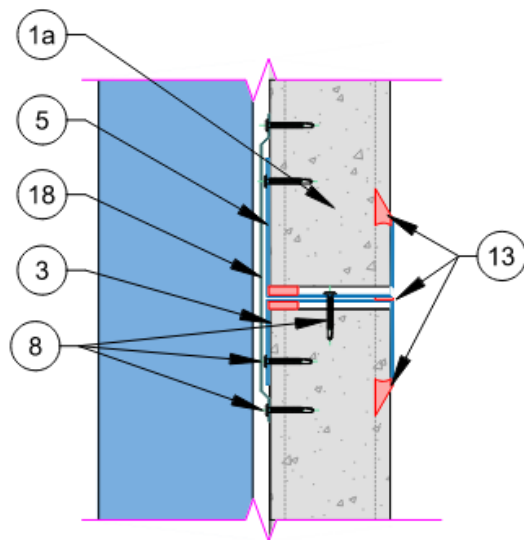


**Figure 75 Speedpanel wall with bracing systems on both sides**

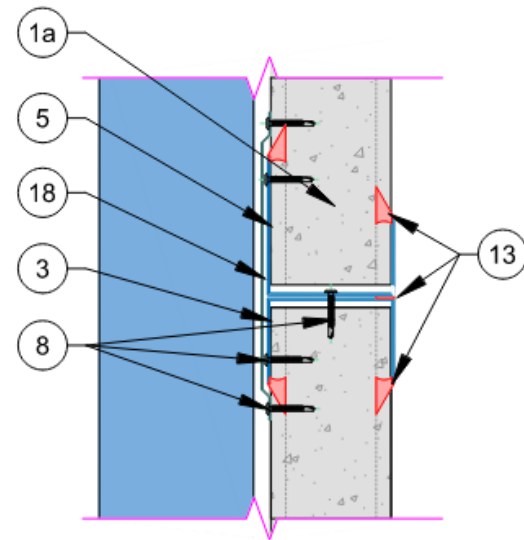
Note: Refer Table 6 for bracing height requirements corresponding to overall height of the single span wall. The design of the overhead structural support and subsequent protection requirements of the structural support are outside the scope of this assessment.



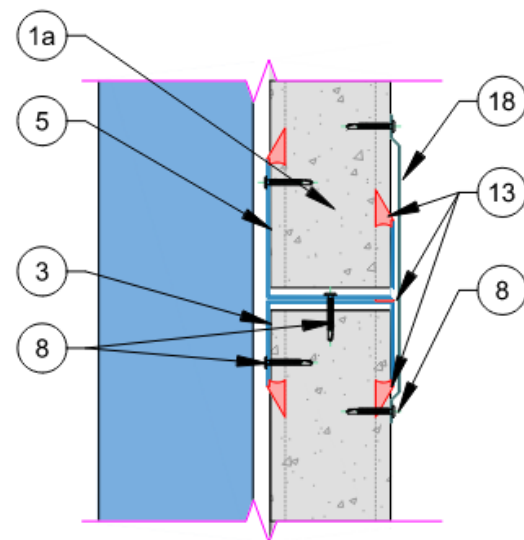
**Figure 76 Section D-D – Side elevation of bracing system**



**Figure 77 Protection of junction option 1**



**Figure 78 Protection of junction option 2**



**Figure 79 Protection of junction option 3**



## 5. Assessment outcome

On the basis of the discussion presented in the referenced assessment report, it is the opinion of this testing authority that if the tested prototype described in section 4.1 had been varied as in section 4.3, will achieve the fire resistance levels (FRL) as stated in Table 7 in accordance with AS 1530.4:2014.

**Table 7 Assessment summary**

Construction	Direction of fire exposure	Max. width of horizontal 51 mm, 64 mm panel between structural elements (m)	Max. height of vertical 51 mm & 64 mm panel between structural elements (m)	Max. 78 mm horizontal span between structural elements (m)	Max. 78 mm vertical span between structural elements (m)	Max. single vertical span (m)	Max. overall wall height (m)	Figures	FRL
Base details	Either	4.5	5.0	4.5	6.0	-	-	Figure 1-Figure 11	-/60/60 (51 mm), -/90/90 (64 mm), -/120/120 (78 mm)
Head details	One-way	4.5	5.0	4.5	6.0	-	-	Figure 12-Figure 21	
	Either	4.5	5.0	4.5	6.0	-	-	Figure 22-Figure 34	
Corner details	One-way	4.5	5.0	4.5	6.0	-	-	Figure 35-Figure 40	
	Either	4.5	5.0	4.5	6.0	-	-	Figure 41-Figure 48	
	One-way	4.5	5.0	4.5	6.0	-	-	Figure 49-Figure 50	
T-Junction details	One-way	4.5	5.0	4.5	6.0	-	-	Figure 51-Figure 54	
	Either	4.5	5.0	4.5	6.0	-	-	Figure 55-Figure 56	
78 mm Speedpanel horizontal stack	One-way	4.5	-	4.5	-	-	Unlimited	Figure 57-Figure 60	
	Either	4.5	-	4.5	-	-	Unlimited	Figure 61-Figure 65	
78 mm Speedpanel horizontal supporting vertical	One-way	-	-	4.5	-	3.0	Unlimited	Figure 66-Figure 67	-/120/120
78 mm Speedpanel vertical stack (check Table 5 for lateral restraint requirements)	One-way	-	-	-	-	-	14.0	Figure 68, Figure 69, Figure 71 & Figure 72	

Construction	Direction of fire exposure	Max. width of horizontal 51 mm, 64 mm panel between structural elements (m)	Max. height of vertical 51 mm & 64 mm panel between structural elements (m)	Max. 78 mm horizontal span between structural elements (m)	Max. 78 mm vertical span between structural elements (m)	Max. single vertical span (m)	Max. overall wall height (m)	Figures	FRL
Single span 78 mm Speedpanel vertical wall	One-way	-	-	-	-	8.0	8.0	Figure 70-Figure 72	
78 mm Speedpanel braced vertical wall <i>(confirm design with Speedpanel and project structural engineer prior to construction)</i>	One-way	-	-	-	-	8.0	8.0	Figure 73 & Figure 74	
	Either	-	-	-	-	8.0	8.0	Figure 75 & Figure 76	
Back-to-back connection options	One-way	-	-	-	-	-	-	Figure 77-Figure 79	

## 6. Validity

Jensen Hughes does not endorse the tested or assessed products and systems in any way. The conclusions of this assessment may be used to directly assess fire resistance, but it should be recognised that a single test method will not provide a full assessment of fire resistance 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.

This assessment is based on test data, information and experience available at the time of preparation. If contradictory evidence becomes available to the assessing authority, the assessment will be unconditionally withdrawn and the report sponsor will be notified in writing. Similarly, the assessment should be re-evaluated, if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

The sponsor is responsible for formally notifying Jensen Hughes of any additional testing performed on their product/system. This obligation applies regardless of where the test was conducted, the results of the test, or whether it was initially considered part of Jensen Hughes' ongoing assessment. The primary goal of this notification is to allow Jensen Hughes to review the changes and determine whether they require re-evaluation or re-testing to determine whether the changes have affected the product's performance. It is important that the client promptly notify Jensen Hughes if any such changes are implemented.

The procedures for the conduct of tests and the assessment of test results are subject to constant review and improvement. The sponsor is therefore recommended that this report be reviewed on, or before, the stated expiry date.

This assessment represents our opinion about the performance of the proposed systems that is expected to be demonstrated when subjected to test conditions in accordance with AS 1530.4:2014, based on the evidence referred to in this report.

This assessment is provided to Speedpanel Holdings Pty Ltd for their own specific purposes. This report may be used as evidence of suitability in accordance with the requirements of the relevant National Construction Code. Building certifiers and other third parties must determine the suitability of the systems described in this report for a specific installation.