



REGULATORY INFORMATION REPORT

An assessment of the fire resistance performance of vertical Speedpanel wall systems if tested in accordance with AS1530.4-2005

EWFA Report No:

RIR 22551-11

Report Sponsor:

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DOCUMENT REVISION STATUS

Date Issued	Issue No	Description
02/02/2015	RIR 22551-11	Initial Issue

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1 INTRODUCTION

This report contains the minimum information sufficient for regulatory compliance and refers to the Assessment report EWFA 22551-11.

The referenced report presents an assessment of the fire resistance performance of vertical Speedpanel wall systems if tested in accordance with AS1530.4-2005.

The tested systems are described in Section 2 and are to be subject to the design variations described in Section 3 and tested in accordance with the test method described in Section 4. The conclusions of the referenced report are summarised in Section 5.

The validity of the referenced assessment is conditional on compliance with Sections 6, 7 and 8 of this report.

Summaries of the test data on which the referenced assessment is based are provided in the Appendices together with a summary of the critical issues leading to the referenced assessment conclusions including the main points of argument.

2 TESTED PROTOTYPES

The referenced assessment makes reference to BWA 2286900.5 and FR 4322 being tests of Speedpanel wall systems tested in accordance with AS 1530.4-2005 and AS 1530.4-1997 respectively.

BWA 2286900.5 comprised a test of a vertical 78mm thick Speedpanel wall system 3m x 3m in size. The wall was loaded to simulate a wall of increased height. The specimen was tested in accordance with AS 1530.4-2005 and sponsored by Speedpanel Vic Pty. Ltd

FR 4322 comprised a test of a vertical 78mm thick Speedpanel wall system 3m x 3m in size. The wall system incorporated two doorsets nominally 2.1m x 0.92m in size. The specimen was tested in accordance with AS 1530.4-2005 and sponsored by Speedpanel Vic Pty. Ltd

The referenced assessment also makes reference to test EWFA 2798800.1 2736000 and EWFA 2741700 being tests of 51mm and 78mm Speedpanel wall systems. The tests were conducted by Exova Warringtonfire Aus Pty Ltd and were sponsored by Speedpanel Vic Pty Ltd.

The referenced assessment also makes reference to test TE 93878. The test was conducted by BRE and was sponsored by Cafco Europe Group SA.

Permission has been granted by Cafco Europe Group SA for referencing the test report TE 93878.

Refer to Appendix A for a detailed summary of the reference test data.

3 VARIATION TO TESTED PROTOTYPES

Continuous Speedpanel Walls

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

- Modified head details A to D. Refer to Figure 2 to 9.
- Inclusion of structurally protected head details A and B for wall heights up to 6m
- Inclusion of standard unprotected head details C to E for walls up to 4.9m
- Decrease in panel joint fixing spacing at ends of walls.
- Inclusion of inclined vertical Speedpanel wall between 4m and 6m high with varied corresponding inclined angle shown in Table 3.
- Inclusion of angle connection options for two vertical walls as shown in figure 16 to 18.
- Inclusion of vertical Speedpanel walls curved (in plan) to a minimum radius of 3.320m for wall height up to 6m high and 1.5m for wall height up to 4.9m.
- Inclusion of structurally protected head detail F for wall heights up to 6m.
- Refer to Table 1, 2 and 3 and Figure 1 through 20 for a summary of the proposed construction.

Table 1 – Schedule of Components for Continuous Speedpanel Walls

ID	Item	Description
1	Panel	78mm thick Speedpanel as tested in BWA 2286900.5 arranged vertically and support by item 2 at the top and item 3 at the bottom. For the first two panels from a support or junction joint fixings shall be at 500mm centres For panels 3 and 4 from a support or junction joint fixings shall be at 750mm centres For panels more than 4 from a support or junction joint fixings shall be at 1000mm centres Panels screwed together at vertical joins with 15mm 10g self-tapping screws. For curved walls refer to table 2 for fixing spacing. Panels screwed together at vertical joins with 15mm 10g self tapping screws.
2	Top Track	Minimum 50mm deep x 1.2mm or 1.5mm C track Fixed to support structure with item 4 and fixed to the Speedpanel panel (Item 1) with 10 gauge x 30mm long self-drilling screws at 250mm centres.
3	Bottom Track	Minimum 50mm deep x 1.2mm or 1.5mm C track Fixed to support structure with item 4 and fixed to the Speedpanel panel (Item 1) with 10 gauge x 30mm long self-drilling screws at 250mm centres.
4	Track Fixing	Mechanical fixing of track to surround minimum 5mm mild steel bolt at 500mm maximum centres and shall be in accordance with project engineer's specification.

ID	Item	Description
5	Plaster Strip	<p><i>For Top Track:</i></p> <p>One layer of 13mm fire grade plasterboard 120mm wide fixed on each side of the top track. (Refer figure 2 through 3, Head Detail A)</p> <p><i>Or</i></p> <p>Two layers of 16mm fire grade plasterboard 120mm wide fixed on one side of top track, secured with fixings through metal capping into top track. (Refer figure 3 through 6, Head Detail B).</p> <p><i>Or</i></p> <p>One layer of 13mm thick Fyrchek plasterboard 120mm wide fixed on side of top track by using 6g × 40mm Bugle head, Fine Thread, Self-drilling screws. (Refer figures 9 and 10, Head Detail D). Fixing details as per test EWFA 279800.1.</p> <p><i>Or</i></p> <p>One layer of PROMATECT® 100 board 120mm wide fixed one side of top track by using 6g × 40mm Bugle head, Fine Thread, Self-drilling screws. (Refer figures 11 and 12, Head Option E). Fixing details as per test EWFA 2798800.1.</p>
6	Flashing	<p>150mm wide galvanised steel flashing fixed over plasterboard strip and screw fixed through plasterboard into track and panel at top track at 500mm centres for one layer of 13mm thick plasterboard strip and at 250mm centres for two layers of 16mm thick plasterboard strip. (Refer figure 2 and 3, Head Detail A).</p> <p><i>Or</i></p> <p>0.7mm BMT × 130mm wide galvanised steel flashing screw fixed into head track and panel at head track at 250mm centres on one side of the head track. (Refer figures 7 and 8, Head Detail C). Fixing details as per test EWFA 2741700.1.</p>
7	Steel Angle	<p>50mm × 25mm × 1.2mm thick installed in two options</p> <p><i>Option 1</i></p> <p>Installed between top C-track (Item 2) and two layers of 16mm thick fire grade plasterboard (Item 5) and fixed through the C-track into panel at 250mm centres and then fixed to concrete slab by using fixing (Item 4) (Refer figure 5).</p> <p><i>Option 2</i></p> <p>Installed adjacent to metal flashing (Item 6) and fixed through plasterboard and C-track into panel at 250mm centres and then fixed to concrete slab by using track fixing (Item 4). (Refer figure 6)</p>
8	Steel Angle	<p>70mm × 70mm × 1.15mm BMT angle</p> <p>Folded to suit inclined angle of Speedpanel (Θ), fixed to Speedpanel panel (Item 1) by using 10 gauge × 30mm SDS screw at 500mm centres and fixed to the concrete slab by using M6.5 × 38mm mushroom head spike at 400mm centres.</p>
9	Steel Angle	<p>100mm × 70mm × 2mm BMT angle</p> <p>Folded to suit inclined angle of Speedpanel (Θ), fixed to Speedpanel panel (Item 1) by using 12 gauge × 40mm wafer head screws at 250mm centres and fixed to the concrete slab by using track fixing (Item 4) at maximum 500mm centres.</p>
10	Sealant	<p>Hilti CP 606 fire resistance acoustic mastic sealant</p> <p>Used to seal all gaps between tracks and panels.</p> <p>For walls with radius, sealant shall be applied at the panel joints on both side and optionally at the female and male panel joints when the radius is smaller than 2500mm.</p>

ID	Item	Description
11	Protection Lining	13mm thick fire grade plasterboard, 20mm thick PROMATECT® 100 board or 50mm thick Intubatt Fixed to the Speedpanel cut edge with 10 gauge × 30mm long self-drilling screws at 500mm centres as shown in figure 16 and 17.
12	Steel flashing Capping	1.2mm BMT steel folded to suit angle with minimum 80mm overlap with Speedpanel panel Fixed to Speedpanel panel (Item 1) with 10 gauge × 30mm long self-drilling screws at 500mm centres.
13	Side Track	Minimum 50mm deep × 1.2mm or 1.5mm C track and fixed to support structure with item 4 Fixed to the Speedpanel panel (Item 1) with 10 gauge × 30mm long self-drilling screws at 500mm centres.
14	Steel Strip	1.2BMT × 50mm Steel Strip Fixed to the convex side of Speedpanel radius wall only by using 10 gauge × 15mm SDS screws at 500mm centres
15	Head Protection	Promat CAFCO® 300 vermiculite gypsum based wet mix spray Spray over the steel structure, the flange of top track and the interface of the track and Speedpanel panels with a minimum thickness of 25mm each side.

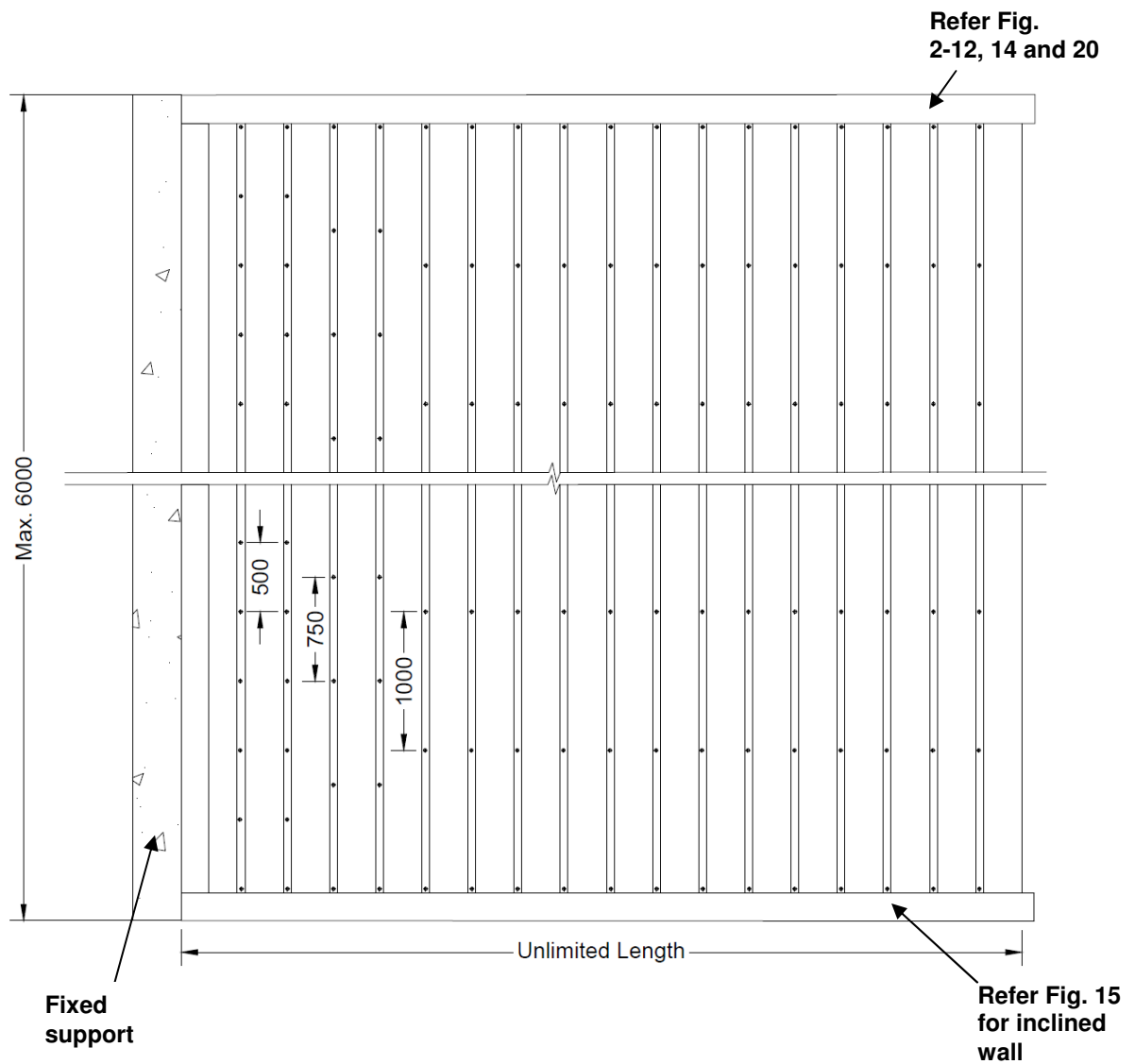


Figure 1 – Elevation of Wall

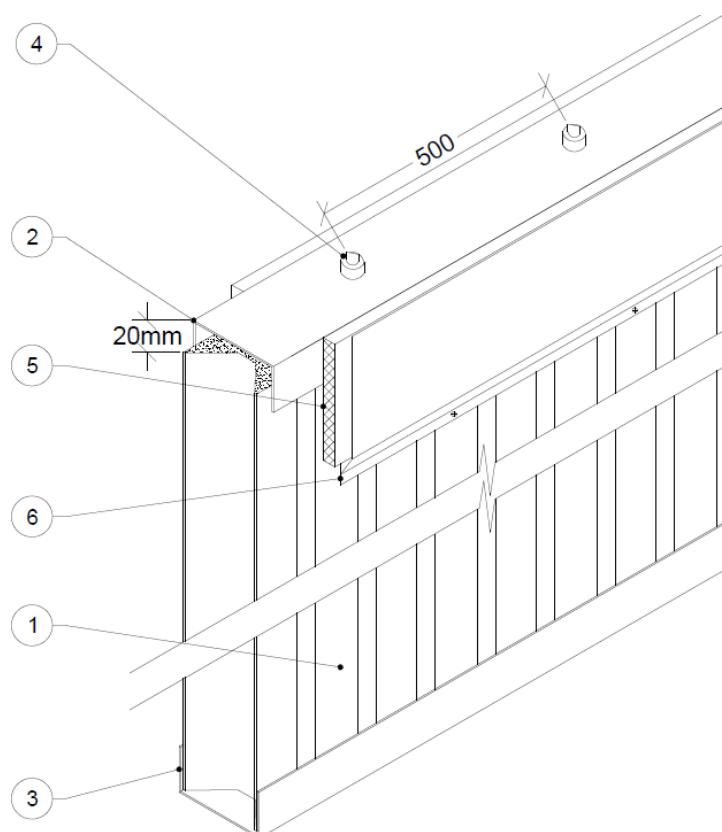


Figure 2 – Head Detail A- Protected Each Side with 13mm thick Fire Grade Plasterboard

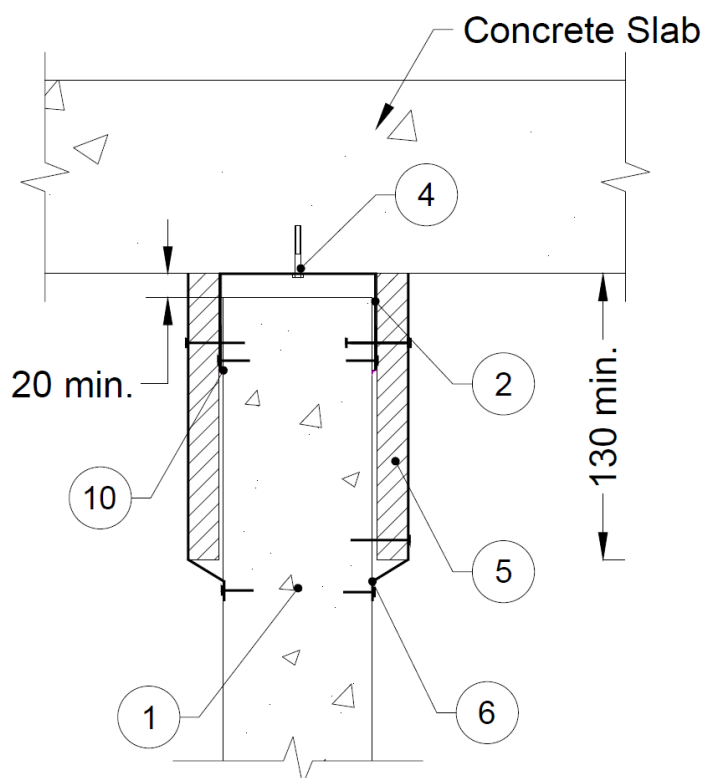


Figure 3 – Head Detail A – Fire Grade Plasterboard Each Side (Section View)

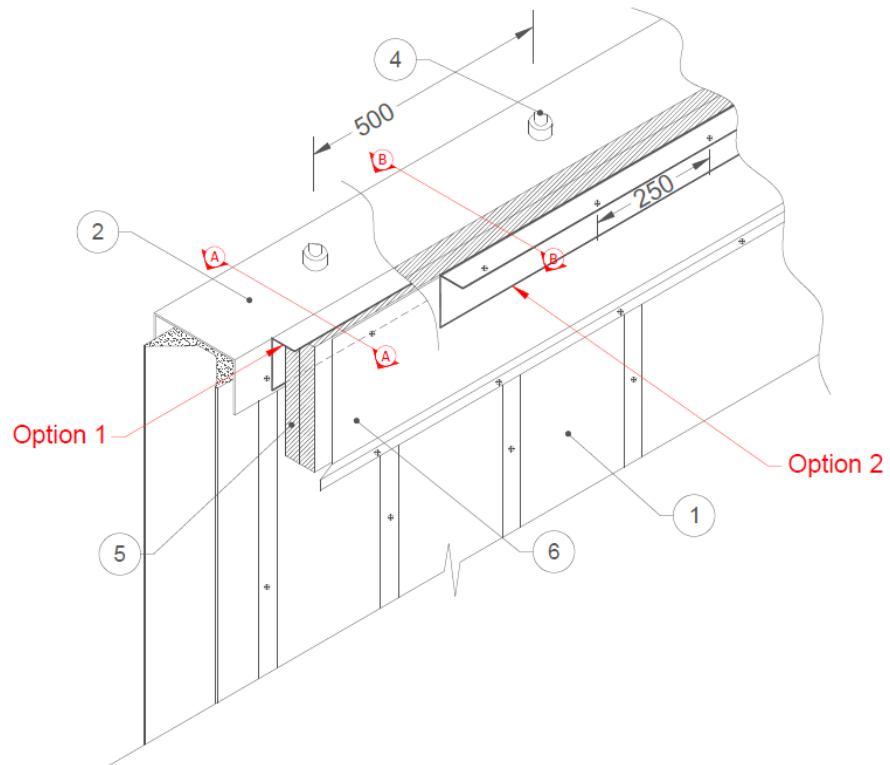
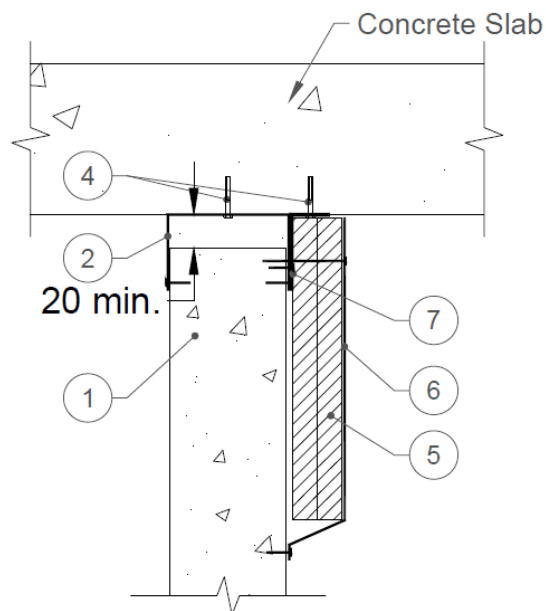
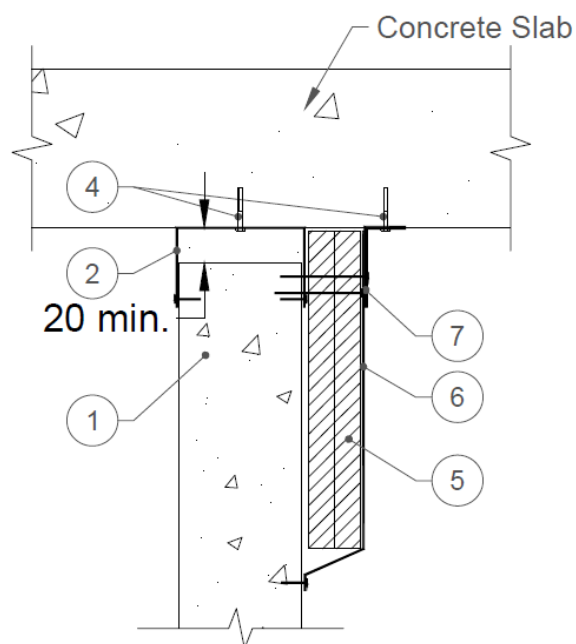


Figure 4 – Head Detail B – Protected One Side with Two Layers of 16mm thick Fire Grad Plasterboard



OPTION 1

Figure 5 – Head Detail B - Steel Angle Installation Option 1 (A-A)



OPTION 2

Figure 6 – Head Detail B - Steel Angle Installation Option 2 (B-B)

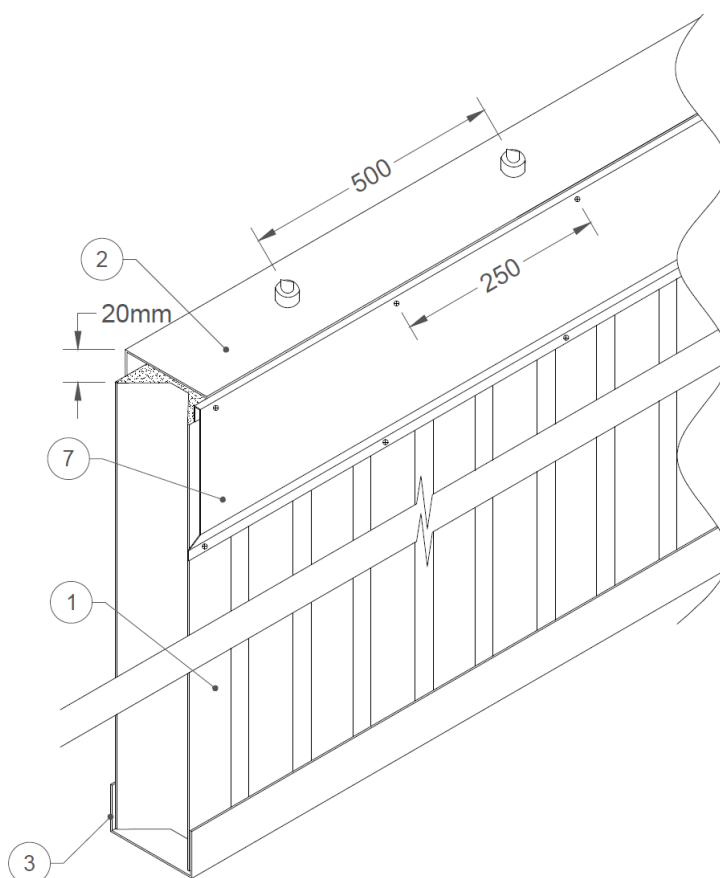


Figure 7 – Head Detail C– Protected by Flashing on One Side

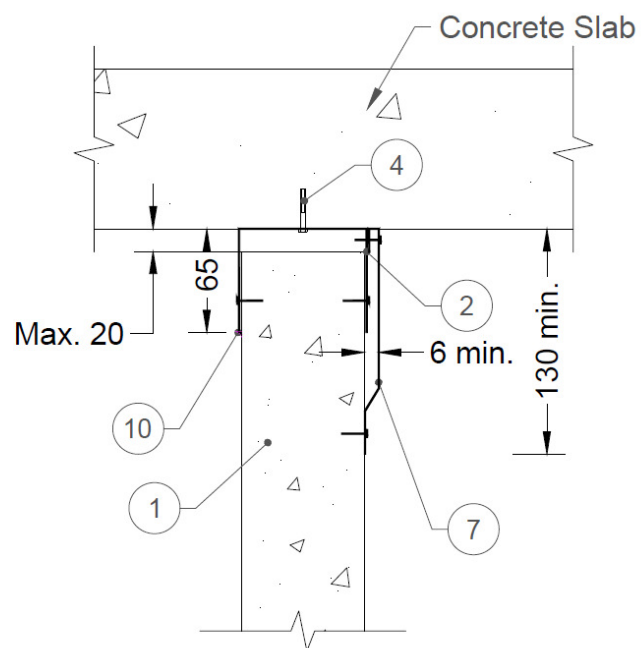


Figure 8 – Head Detail C – Flashing Cap (Section View)

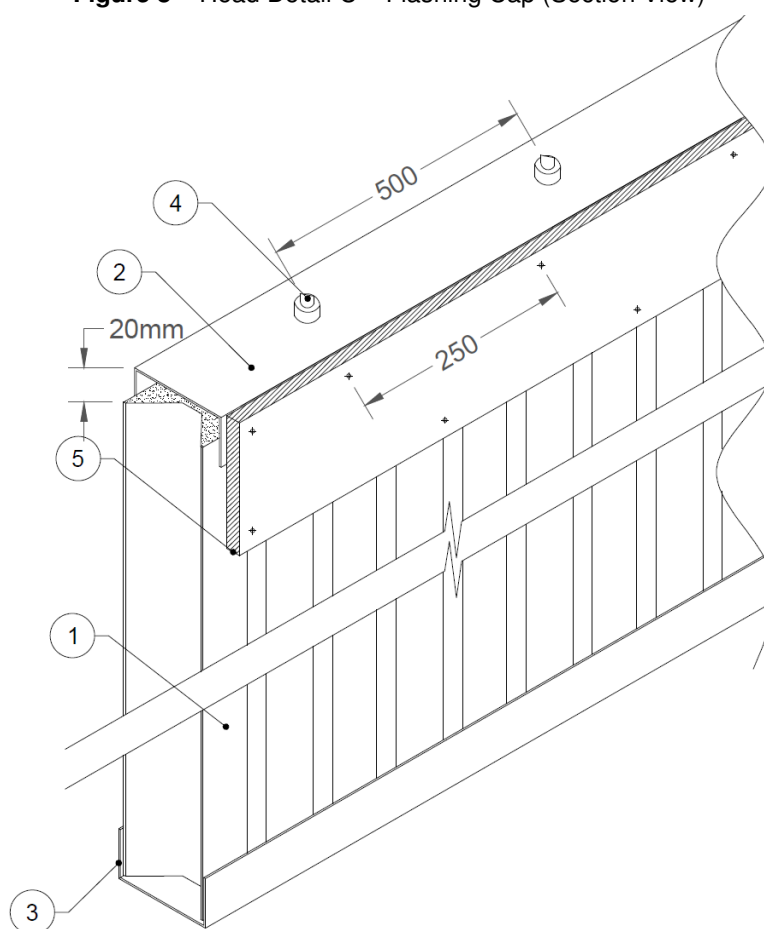
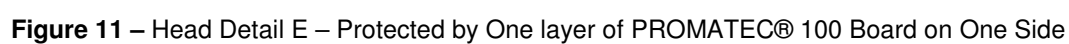
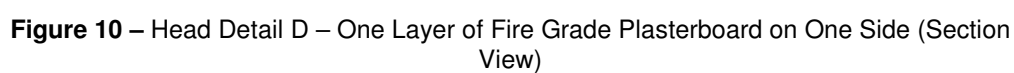
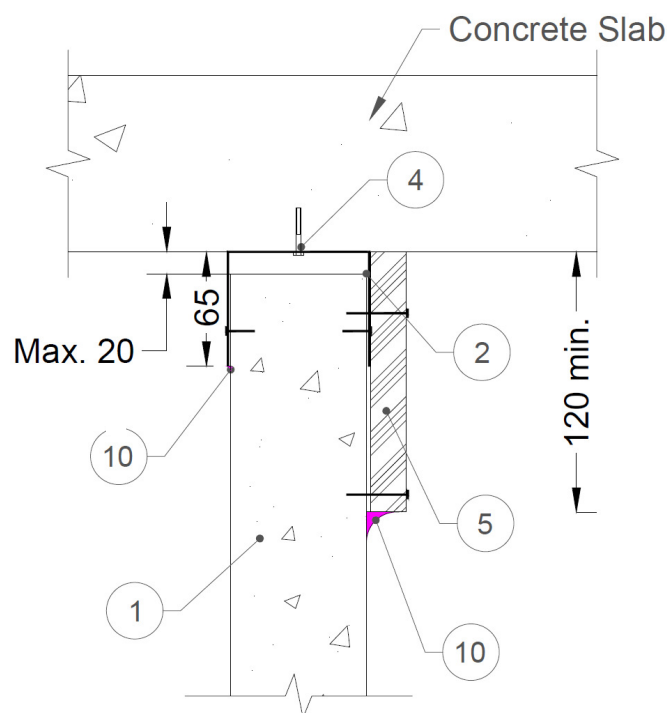


Figure 9 – Head Detail D – Protected by One layer of Fire Grade Plasterboard on One Side





**Figure 12 – Head Detail E – One Layer of PROMATECT® 100 Board on One Side
(Section View)**

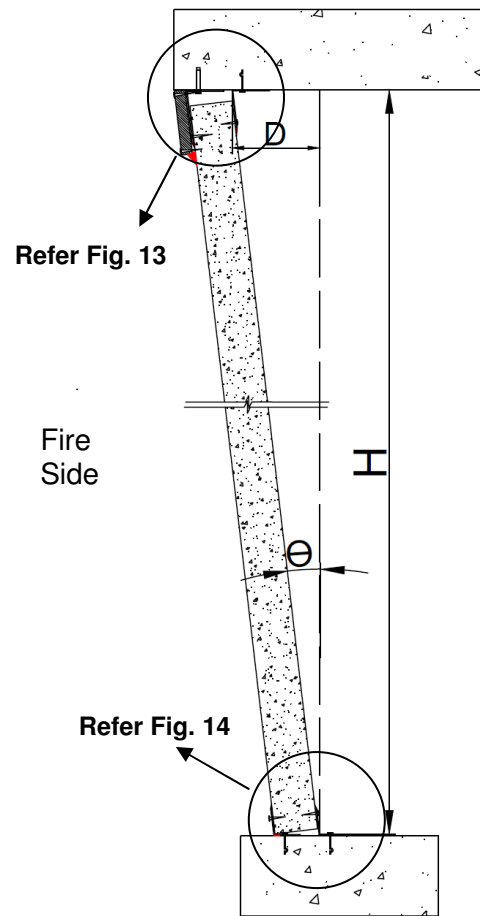


Figure 13 – Inclined Vertical Speedpanel Panel Wall

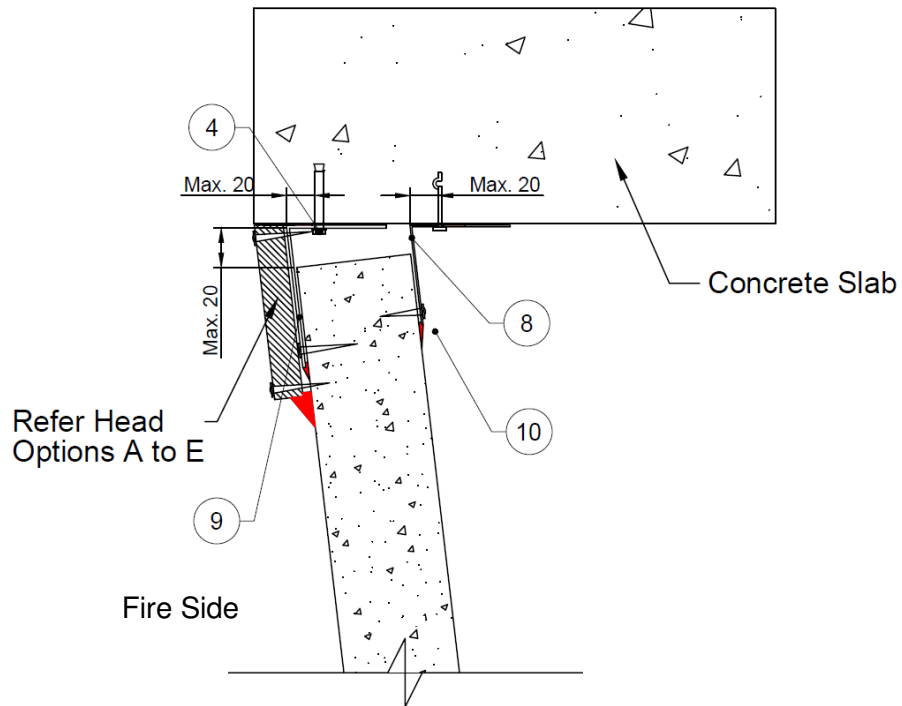


Figure 14 – Head Detail of Inclined Wall

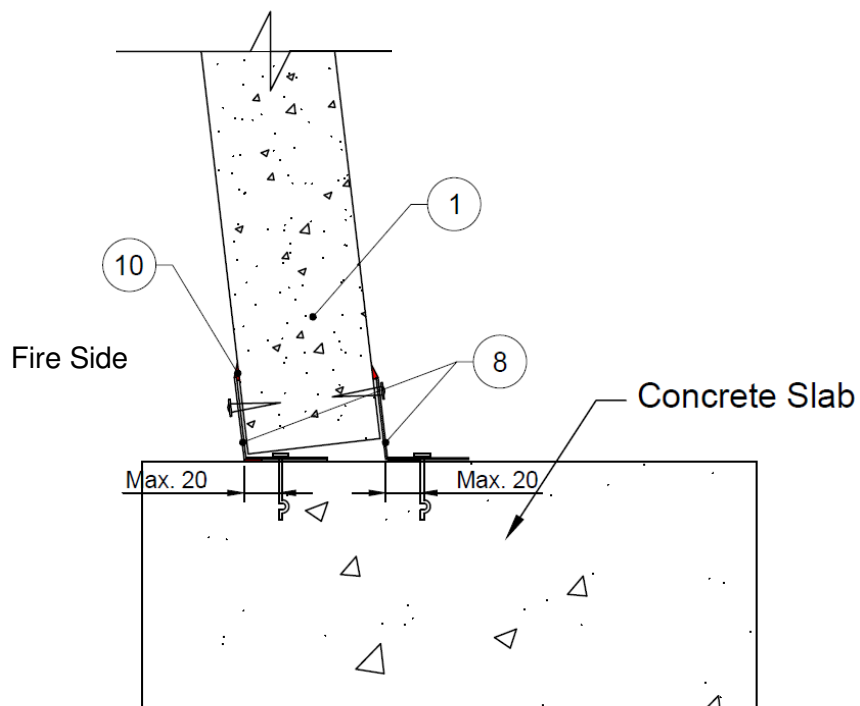


Figure 15 – Bottom Detail of Inclined Wall

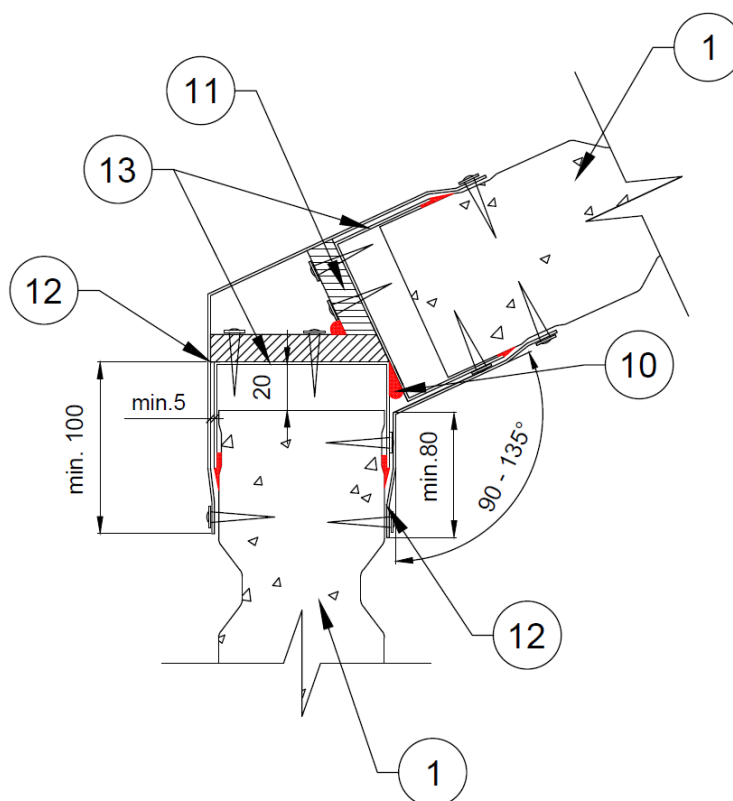


Figure 16 – Angle Connection Detail 1

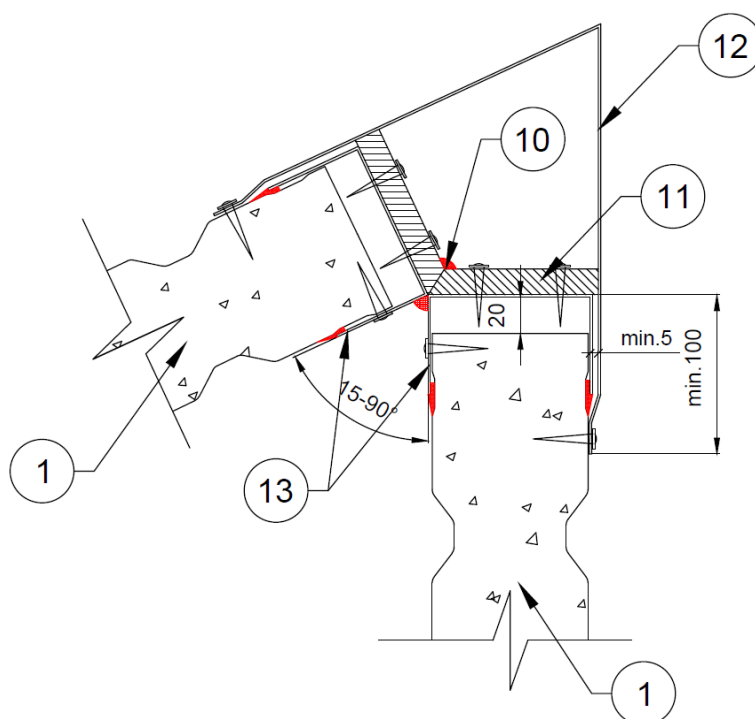


Figure 17 – Angle Connection Detail 2

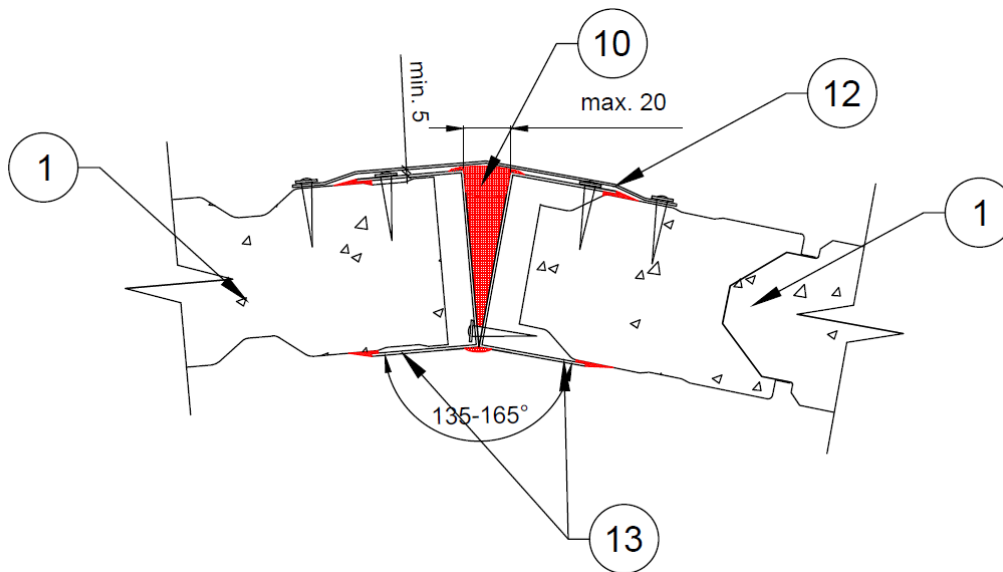


Figure 18 – Angle Connection Detail 3

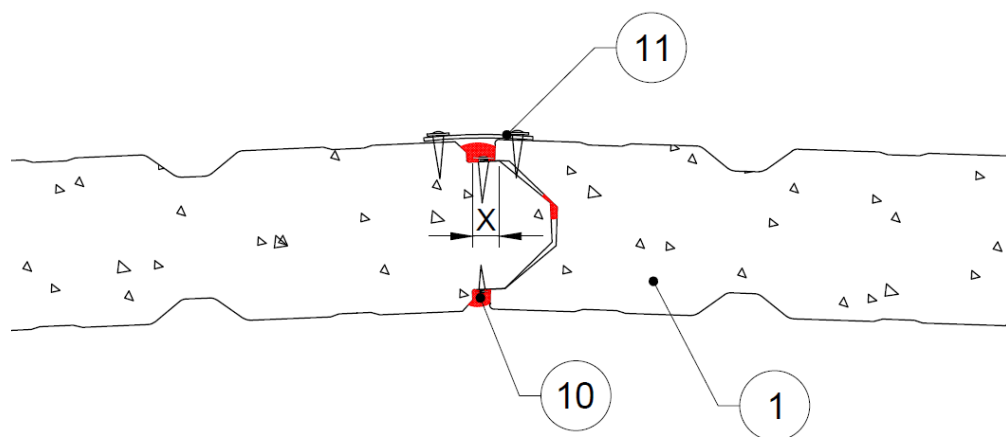


Figure 19 – Panel Joint Sealant Detail for Walls with Radius

Table 2 – Vertical Wall with Radius

Radius of Curvature in plan (m)	Max. Wall Height H (m)	Increase in Joint on Concave Side (mm)	Joint Overlap on Convex Side X (mm)	Panel Joint Fixing Spacing
3.32	6.0	0.6	14.4	The panels shall be fixed at 500mm centres
3.0		0.7	14.3	
2.5		1.0	14.0	
2.3		1.2	13.8	
2.0		1.6	13.4	
1.8		1.9	13.1	
1.5	4.9	2.8	12.2	The panels shall be fixed at 300mm centres

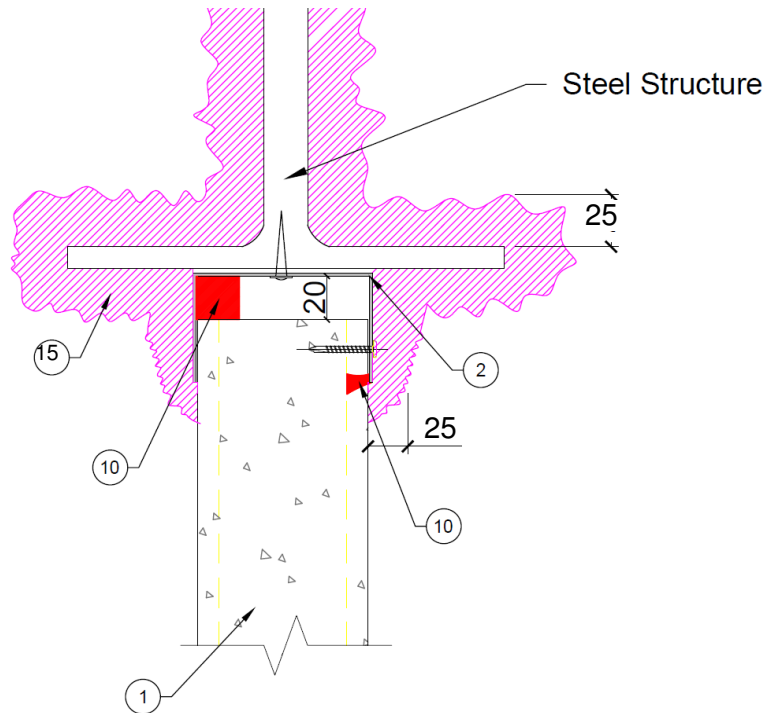


Figure 20 – Head Detail connected to Steel Structure

4 REFERENCED TEST PROCEDURES

The referenced report is prepared with reference to the requirements of AS 1530.4-2005

5 FORMAL ASSESSMENT SUMMARY

Based on the discussion presented in the referenced report, it is the opinion of this registered testing authority that if the tested prototype described in Section 2 had been modified as described in Section 3, it will achieve the FRL as stated below if tested in accordance with the method referenced in Section 4 and subject to the requirements of Section 7.

Table 3 – Inclined wall height with corresponding inclined angle

Table 5 – Inclined wall height with corresponding inclined angle						
Wall Height H (m)	Max. Inclined Distance D (m)	Max. Inclined Angle Θ (°)	Construction Details	Angle Connection of two Vertical Walls	Minimum Radius of Curvature in plan	FRL
4	1.34	19	Refer figures 1 and 7 to 13	-	-	-/120/120 from one side only
4.2	1.18	16				
4.5	0.94	12				
4.7	0.79	10				
4.8	0.71	8				
4.9	0.64	7				
5	0.56	6	Refer figures 1- 6 and 13			
5.2	0.42	5				
5.5	0.19	2				
5.7	0.04	0				
5.8	0	0				
4.9	0	0	Refer figures 1 and 7 to 12	Refer figures 16 to 18	-	-/120/120
4.9	0	0	Refer figures 1, 7, 8, 18, 19 and Table 2	-	1.5m	-/120/120
6.0	0	0	Refer figures 1- 6	Refer figures 16 to 18	-	-/120/120
6.0	0	0	Refer figures 1-6, 8, 18, 19 and Table 2	-	3.22m	-/120/120
6.0	0	0	Refer figures 1 and 20	-	-	-/120/120

6 DIRECT FIELD OF APPLICATION

The application of the results of the referenced assessment is to walls of unlimited length exposed to the effects of fire from one side or either direction based on design.

7 REQUIREMENTS

The referenced 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 1530.4-2005.

It is required that the lateral load capacity of the head track and base track be verified by the design engineer for the lateral load capacity under ambient loading conditions.

It is required the support construction above and below the wall be capable of providing adequate vertical and lateral support for the FRL period.

It is required the steel structure above the wall shall be protected with vermiculite spray be providing adequate support for the FRL period.

Any further variations with respect to size, constructional details, loads, stresses, edge or end conditions, other than those identified in the referenced report, may invalidate the conclusions drawn in this report.

8 VALIDITY

The referenced assessment report does not provide an endorsement by Exova Warringtonfire Aus Pty Ltd of the actual products supplied.

The conclusions of the referenced assessment may be used to directly assess the fire resistance performance under such conditions, but it should be recognised that a single test method will not provide a full assessment of the fire hazard under all fire conditions.

Because of the nature of fire resistance 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 can therefore only relate only to the actual prototype test specimens, testing conditions and methodology described in the supporting data, and does not imply any performance abilities of constructions of subsequent manufacture. 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 the subject of constant review and improvement and it is recommended that the referenced report be reviewed on or, before, the stated expiry date.

The information contained in the referenced report shall not be used for the assessment of variations other than those stated in the conclusions above. The assessment is valid provided no modifications are made to the systems detailed in the referenced report.

All details of construction should be consistent with the requirements stated in the relevant test reports and all referenced documents.

9 AUTHORITY

9.1 APPLICANT UNDERTAKINGS AND CONDITIONS OF USE

By using this report as evidence of compliance or performance, the applicant(s) confirms 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, and
- they agree to withdraw this assessment from circulation should the component or element of structure be 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, and
- 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, agree to ask the assessing authority to withdraw the assessment.

9.2 GENERAL CONDITIONS OF USE

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9.3 AUTHORISATION ON BEHALF OF EXOVA WARRINGTONFIRE AUS PTY LTD

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Reviewed by:



S. Hu

9.4 DATE OF ISSUE

02/02/2015

9.5 EXPIRY DATE

31/1/2020