FAR 3789

Fire Resistance of Speedpanel Junction Detail

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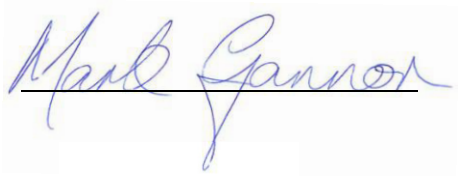

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      - The date when the service should have been completed in the event of any alleged non-performance.

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   iii. any defects in the Products the subject of the Services; or
   iv. any changes, modifications or alterations to the Products the subject of the Services.

Fire Resistance of Speedpanel Junction Detail

1. CLIENT

Speedpanel (Vic) Pty Ltd
89-91 Canterbury Road
Kilsyth VIC 3137
Australia

2. INTRODUCTION

This report gives BRANZ's assessment of the fire resistance in accordance with AS 1530.4-2005 of a Speedpanel junction detail (see Figure 1) at the vertical sides using SDS screws for a fire resistance level (FRL) of up to -/120/120 minutes.

3. BACKGROUND

3.1 BWA Fire Resistance Test Report 2257600.4

In Bodycote Warringtonfire (Aus) Pty fire research test report BWA No. 2257600 a Speedpanel wall was tested in accordance with AS 1530.4-2005 with the panels orientated horizontally. The wall consisted of a number of different installation details including at the top and bottom of the wall where the panels were not in contact with the perimeter specimen frame. At the top and bottom of the wall there was a C-track nominally 83 mm wide x 54 mm high x 1.19 mm thick secured to the panels at nominal 450 mm centres. At the top of the wall there was a 25 mm gap and at the bottom there was a 80 mm gap. A layer of ceramic fibre was secured to the exposed face of the channel and specimen frame to seal the opening.

3.2 BRANZ Fire Resistance Test Report FR 3569

In BRANZ fire resistance test FR 3569 a non-loading bearing Speedwall wall nominally 4,000 mm x 3,000 mm x 78 mm thick was tested in accordance with AS 1530.4-1997. The wall consisted of interlocking panels each 286 mm wide x 78 mm thick x 4,000 mm long. The perimeter of the wall was encapsulated with C-channels nominally 60 mm x 80 mm x 1.16 mm thick. Down one side of the wall the channels were secured to the specimen frame. Thermocouples were positioned on the unexposed face of the fixed channel and did not exceed the maximum temperature criteria for the 141 minute duration of the test.

Permission has been granted by Speedwall New Zealand Ltd to use FR 3569 test data for the current assessment.

4. DISSCUSION

In BRANZ fire resistance test FR 3569 the vertical sides C channel did not fail the insulation or integrity criteria for the 141 minute duration of the test. The Speedpanel drawing in Figure 1 shows the proposed junction detail comprising a horizontal panel joined to the face of vertical orientated Speedpanel wall creating a T junction. The 1.16 mm thick steel C channel (60 mm x 80 mm x 60 mm) which houses the horizontal panels is fixed to the vertical panels using SDS 14 gauge 20 mm x 115 mm long

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screws which penetrate the vertical panels through to the C channel flange. These screw fixings are spaced at 450 mm centres (vertically) as tested in BWA fire resistance test 2257600.4.

The horizontal panels are fixed to the vertical C channel at 250 mm to 300 mm centres using 5 mm x 15 mm long TEC screws on both sides. Fire rated sealant is applied to the underside of the C channel, where it abuts the vertical panel wall, the top and bottom channel web legs and the penetration hole in the channel created by the SDS 14 gauge 20 mm x 115 mm long screws at 450 mm centres as shown in Figure 1.

Fire exposure for this junction detail is considered from the direction of the vertical panels where the head of the SDS screw is exposed (left side of Figure 1). This is considered the most onerous direction and fire exposure from all other sides is covered by previous assessments and or test evidence. For fire exposure from the outside of the vertical panels, based on experience with fire resistance testing of Speedpanel walls, it is expected that the panels will deflect towards the fire.

Due to the screw fixings at the junction design and the similar fixings of the horizontal panel opposing end to a fixed point, it is considered that the junction will not detach for at least 120 minutes. Based on the integrity and insulation performance of the vertical C channel in BWA 257600 and FR 3569. It is also considered that the proposed junction detail will maintain the integrity and insulation criteria of AS 1530.4-2005 for at least 120 minutes.

5. CONCLUSION

It is considered the installation detail as describe above and in Figure 1 would maintain the Integrity and Insulation criteria of vertical Speedpanel walls nominally 78 mm thick for at least 120 minutes in accordance with AS1530.4 - 2005.

6. LIMITATION

This assessment is subject to the completeness and accuracy of the information supplied.

BRANZ reserves the right to amend or withdraw this assessment should additional information become available regarding the fire performance of the items assessed in this report.

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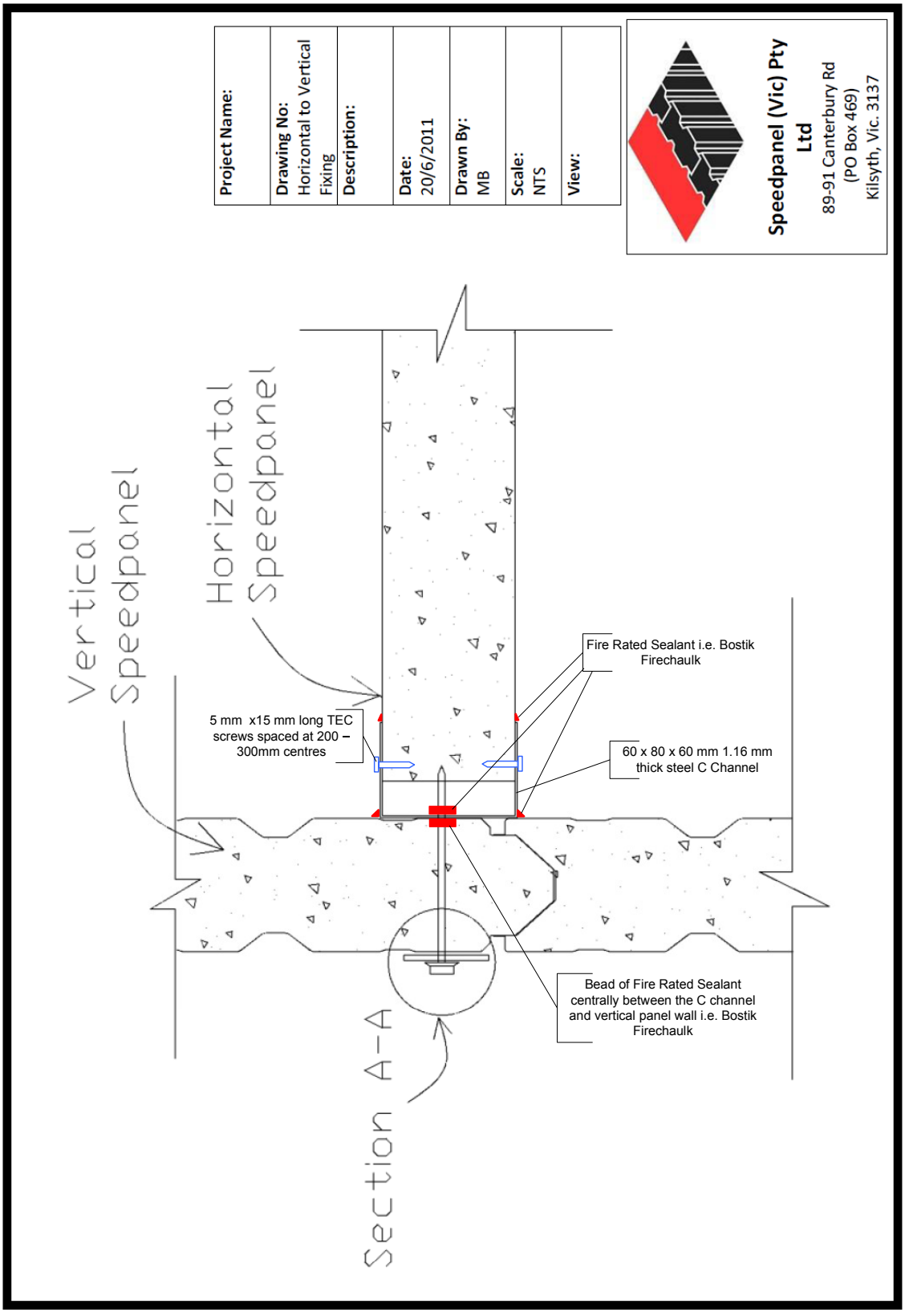
Figure 1 – Client supplied drawing – Horizontal Panel to Vertical Panel Junction



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