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# ASSESSMENT REPORT

## Fire resistance of vertical Speedpanel walls incorporating window openings

Client: Speedpanel Holdings Pty Ltd. 421 Dorset Road, BayWater VIC, Australia

Job number: 25757-01 Issuing consultant: Rami Al Darwish

Date: 8 May 2019 Revision: R1.0

# Amendment schedule

| Version | Date | Information relating to report | | | |
|---|---|---|---|---|---|
| R0.0 | Issue: 05/04/2011 | Reason for issue | Window applications section placed in new assessment, head and base details removed from scope | | |
| | | | Prepared by | Reviewed by | Approved by |
| | Expiry: 31/03/2016 | Name | K.Nicholls | S.Townsend | - |
| | | Signature | | | |
| R1.0 | Issue: 08/05/2019 | Reason for issue | Revalidation for additional 5 years. | | |
| | | | Prepared by | Reviewed by | Approved by |
| | Expiry: 31/05/2024 | Name | Rami Al-Darwish | Tanmay Bhat | Tanmay Bhat |
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# Contents

# 1. Introduction

This report presents an assessment on the likely fire resistance of vertical Speedpanel walls incorporating window openings if tested in accordance with AS1530.4-2014.

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 report are summarised in Section 5.

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

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

# 2. Tested prototypes

This assessment refers to fire resistance tests BWA 2286900.5 and FR 4322 being tests of Speedpanel wall systems tested in accordance with AS 1530.4-2005.

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 3min 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

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

# 3. Variation to tested prototypes

**SpeedPanel Panels for Window Applications**

Walls incorporating windows shall be constructed from vertically installed Speedpanels with an opening into which windows (designed by others) shall be fitted. The Speedpanel, base detail and side detail shall be otherwise tested for an FRL of -/120/120 if tested in accordance with AS1530.4-2014.

These windows are not required to be fire rated. The nature of such a wall means that typical fire resistance testing is not possible. For the purpose of this assessment, the wall shall be considered in two sections- upper (above windows) and lower (below windows) details. The discussion shall be undertaken assuming that a fire resistance tests compliant with AS1530.4-2014 could be undertaken, with the window section maintaining integrity and insulation for at least the same period of time as the sections of wall above and below.

The upper detail shall comprise 700mm (max.) high panels (which have been otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014) which are to be supported at the head of the wall as per figure via a protected top track. A protected support beam shall be secured to each panel and in turn it shall be supported by vertical and lateral members. The panels shall be fixed together (as per BWA 2286900.5) with panel-to-panel connecting screws at mid-height.

The lower detail shall comprise 1200mm (max.) high panels (which have been otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014) which are to be fixed at the base of the wall. The base detail shall be otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014. Protected support columns shall be located adjacent to the panels and connected to the panels, through the top and bottom tracks, via the steel angle. Each support column shall be fixed to the floor via a welded steel plate and two dynabolts, such that a cantilever can be maintained. The column and column restraint sizing shall be determined by others such that the columns can support the weight of the windows above. The panels shall be fixed together (as per BWA 2286900.5) with panel-to-panel connecting screws at mid-height.

**Table 2 – Schedule of Components for SpeedPanel Walls for Window Applications**

| Item | | Description |
|---|---|---|
| 1 | **Name** | **Speedpanel Panel** |
| | **Material** | Mild steel section filled with lightweight concrete as tested in BWA 2286900.5.  |
| | **Size** | 250mm wide x 78mm thickness |
| 2 | **Name** | **Speedpanel Channel** |
| | **Material** | Galvanised mild steel |
| | **Size** | 83mm wide x 58mm high x 1.2mm thick |
| | **Sealant** | Fire rated acrylic sealant used to seal any gaps between the channels and panels.<br>Fire rated acrylic sealant also used to seal interface of channel and surrounding construction. |
| 3 | **Name** | **Panel to Panel connecting screws** |
| | **Material** | 10G self drilling screw through tongue and groove connecting panel together, on each side of panel. |
| | **Spacing** | Above dampers at 400mm vertical centres in every joint.<br>Wall (up to 4.5m in height) generally 1500mm centres in every joint.<br>Wall (up to 6.0m in height) generally 1000mm centres in every joint. |
| 4 | **Name** | **Beam Protection** |
| | **Material** | Board Material such as Boral Firestop plasterboard |
| | **Specification** | Protection system shall be tested or assessed to have an FRL of at least 120/-/- when installed on beam section protected. All connections shall be protected with the maximum protection thickness required of any of the members utilising the connection, as per AS4100-1998 clause 12.10.1. |
| | **Installation** | Board protection shall be fixed in accordance with tested or assessed prototype design. |
| 5 | **Name** | **Column Protection** |
| | **Material** | Fire Grade Plasterboard |
| | **Specification** | Protection system shall be tested or assessed to have an FRL of at least 120/-/- when installed on column section protected. All connections shall be protected with the maximum protection thickness required of any of the members utilising the connection, as per AS4100-1998 clause 12.10.1. |
| | **Installation** | Board protection shall be fixed in accordance with tested or assessed prototype design. |
| 6 | **Name** | **L Brace** |
| | **Material** | Mild Steel |

| | | |
|---|---|---|
| | **Specification** | Protection system shall be tested shall be tested or assessed to have an FRL of at least 120/-/- when installed on beam section protected. All connections shall be protected with the maximum protection thickness required of any of the members utilising the connection, as per AS4100-1998 clause 12.10.1. |
| 7 | **Name** | **Inclined Brace / Prop.** |
| | **Material** | Mild Steel |
| | **Specification** | Brace / prop. Shall be fixed to underside of slab and designed to laterally support beam (item 11) for ambient loading. All connections shall be protected with the maximum protection thickness required of any of the members utilising the connection, as per AS4100-1998 clause 12.10.1. |
| 8 | **Name** | **SHS Vertical Support** |
| | **Specification** | DuraGal 50 x 50 x 4mm (min) |
| 9 | **Name** | **Lintel RHS** |
| | **Specification** | DuraGal 100 x 50 x 4mm (min). Shall be used in conjunction with vertical restraining members (see item 10), which shall be located at maximum 3705mm centres; and also in conjunction with lateral restraining members (see items 8 and 9).<br>Lateral restraining members shall be designed and installed such that lintel has a maximum deflection of span/360 or 20mm for internal building pressures. |
| 10 | **Name** | **Plate** |
| | **Specification** | 50 x 200 x 6mm steel plate (min) |
| | **Installation** | Welded to item 11 and bolt fixed to items 8, 9 and 10. |
| 11 | **Name** | **Tek Screw** |
| | **Specification** | 14 – 20 x 150mm |
| | **Installation** | Installed through RHS section into wall panel. Two screws shall be installed at nominally 250mm centres at each panel joint location which fully penetrate the panel. |
| 12 | **Name** | **Support Column** |
| | **Size** | Sizing and spacing to be determined by others such that columns can support weight of windows above. |
| | **Installation** | Fixed to Speedpanel panels at head and base via angle (item 17). Fixed to floor via 6mm thick welded plate and two-off dynabolts such that a cantilever can be maintained. The column and column restraint sizing shall be determined by others such that the columns can support the windows above. |
| 13 | **Name** | **Steel Angle** |
| | **Thickness** | 1.2 mm |
| | **Installation** | Fixed at head and base of panels using tek screw into support column and tek screw through track into Speedpanel panel. |
| 14 | **Name** | **Bottom Track Detail** |
| | **Specification** | Bottom track detail must have, via test or assessment, demonstrated integrity and insulation performance of at least 120 minutes if tested in accordance with AS1530.4-2014. |
| 15 | **Name** | **Top Track Detail** |
| | **Specification** | Top track detail must have, via test or assessment, demonstrated integrity and insulation performance of at least 120 minutes if tested in accordance with AS1530.4-2014. |
| 16 | **Name** | **Aperture Protection** |

| | | |
|---|---|---|
| | **Material** | CSR Fyrchek Plasterboard |
| | **Size** | 13mm thick strip |
| | **Installation** | Screw fixed over aperture capping |
| 17 | **Name** | **Metal Capping** |
| | **Thickness** | 1mm |
| | **Installation** | Screw fixed around window aperture. |

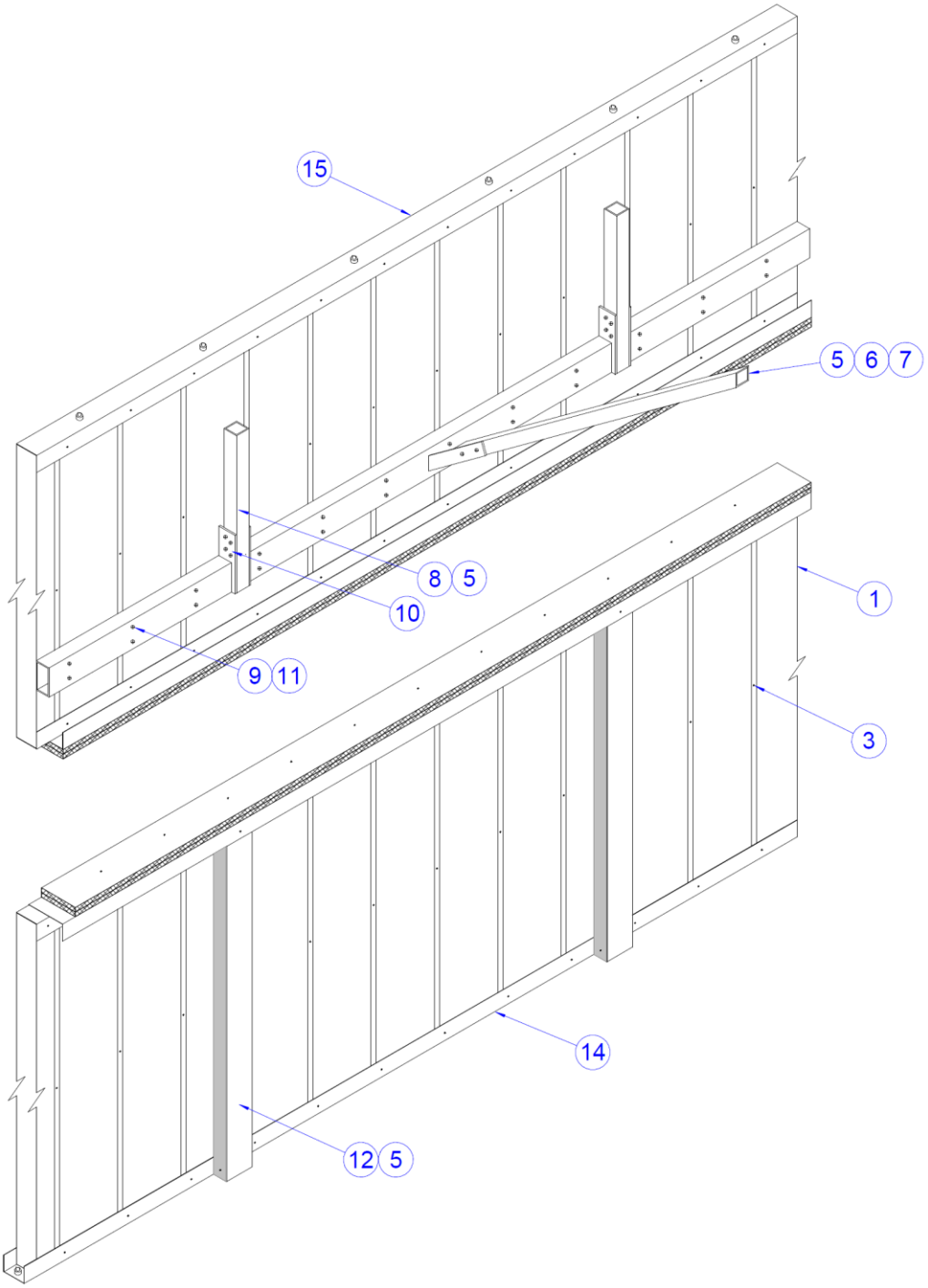


**Figure 1 – Walls for Window Applications**

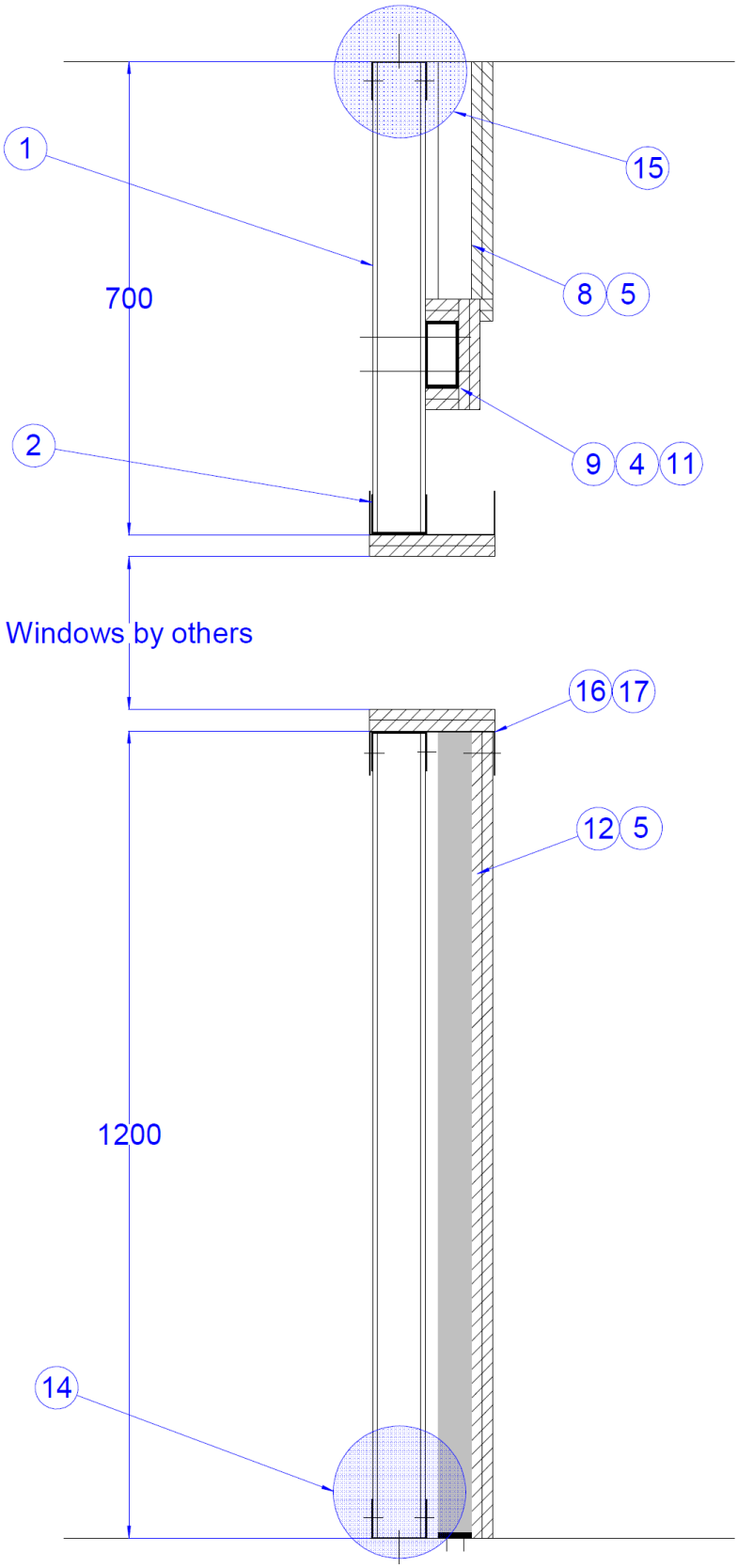


**Figure 2 – Walls for Window Applications (Vertical Section)**

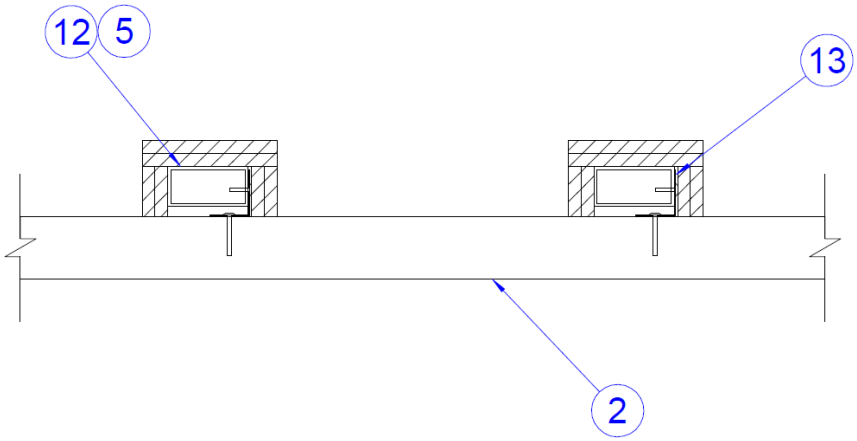


**Figure 3 – Walls for Window Applications (Horizontal Section)**

# 4. Referenced test standard

This report is prepared with reference to the requirements of AS 1530.4-2014

# 5. Formal assessment summary

Based on the discussion presented in this 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 would have been likely to 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.

**Speedpanel Walls for Window Applications:**

| Refer to Figures | FRL |
|---|---|
| 1, 2, 3 | **-/120/120** |

# 6. Direct field of application

The application of the results of this assessment is to wall systems when exposed to fire from either direction.

# 7. Requirements

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 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 that the head, base and side details be otherwise tested or assessed for integrity and insulation performances of at least 120 minutes if tested in accordance with AS1530.4-2014.

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

# 8. Validity

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

The conclusions of this 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.

Because of 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 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.

This 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 this report be reviewed on or, before, the stated expiry date.

The information contained in this 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 this 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.

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# Appendix A Summary of supporting data

## A.1 Test report – BWA 2286900.5

### A.1.1 Report sponsor

Speedpanel Holdings Pty Ltd. 421 Dorset Road, BayWater VIC, Australia

### A.1.2 Test laboratory

Warringtonfire Aus Pty Ltd, Unit 2, 409-411 Hammond Road, Dandenong, Victoria 3175, Australia.

### A.1.3 Test date

The fire resistance test was conducted on 18/08/2008.

### A.1.4 Test standards

The test was conducted in accordance with AS1530.4-2005 Sections 2 & 3.

### A.1.5 Variations to test standards

None

### A.1.6 General description of tested specimen

The test specimen comprised a nominal 2790mm wide x 3000mm high x 78mm thick loadbearing wall made of vertically oriented 78mm thick Speedpanel panels that incorporated a “tongue and groove” detail on their vertical edges. The panels were made form 0.42mm galvanized mild steel.

The perimeter framing comprised 83mm wide x 58mm high x 1.2mm thick steel C-tracks on the top and bottom of the wall system. End cap on the west side was 50mm wide x 59mm high x 0.6mm thick C-track and on the east side was 17mm wide x 60mm high x 0.6mm thick C-track.

The panels were fixed to the top and bottom C-tracks at nominal 250mm centres and fixed to each other along the horizontal centreline on both exposed and unexposed sides with 15mm long self tapping screws.

Fire rated acrylic sealant was used to seal any gaps in the construction prior to testing.

The wall was loaded from the base of the wall at six points at 500mm centres. The average load that was applied at each point for the duration of the test was approximately 2.0kN per load point (4.3kN/m).

### A.1.7 Instrumentation

The test report states that the instrumentation was in accordance with AS1530.4-2005.

### A.1.8 Test results

The test specimen achieved the following result:

The test was terminated at 144 minutes.

The ambient temperature at the start of the test was 29oC and varied between 29oC and 30oC during the test.

The specimen achieved the following performance:

| Criteria | Performance |
|---|---|
| Structural adequacy | 144 minutes |
| Integrity | 120 minutes |

| | |
|---|---|
| | Ignition of sealant at interface of top C-track and panel initiated failure of specimen by sustained flaming for longer than 10 seconds. |
| Insulation (Wall System) | 64 minutes<br>Maximum temperature on top C-track (T/C B6) exceeded 180 K above the initial temperature. |
| Insulation (Panel only) | 80 minutes<br>Maximum temperature 15 mm from the edge of a vertical joint (T/C B8) exceeded 180 K above the initial temperature. |

## A.2 Test report – FR4322

### A.2.1 Report sponsor

Speedpanel Holdings Pty Ltd. 421 Dorset Road, BayWater VIC, Australia

### A.2.2 Test laboratory

BRANZ, Moonshine Road, Judgeford, Porirua City, New Zealand

### Test date

The fire resistance test was conducted on 22/10/2009.

### A.2.3 Test standards

The test was conducted in accordance with AS1530.4-2005 Sections 2 & 3.

### A.2.4 Variations to test standards

None

### A.2.5 General description of tested specimen

The test specimen consisted of a non-loadbearing aerated concrete wall system manufactured by Speedpanel. The nominal dimensions of the wall system was 3,000mm high x 3,000mm wide x 78mm thick and made up of 12 pre-fabricated panels with two integrated Pyropanel fire doorsets. The two single acting doorsets were labelled doorset “A” and “B”. Both doorsets had the latch engaged and opened into the furnace.

The wall system consisted of 12 “Speedpanel” panels fitted together with tongue and groove (T&G) joints. The panels consisted of aerated concrete enclosed within a nominally 0.4mm thick galvanised steel envelope. The overall dimensions of an individual section (uncut) was measured as 2,975mm long x 285mm wide x 78mm thick. The wall sections tongue and groove measured 56mm wide x 38mm deep/long and tapered to 20mm wide.

Twelve sections were installed within a galvanised steel perimeter frame, which was fixed to the specimen holder. The perimeter frame was constructed from 1.2mm thick galvanised steel “C” track on the sides and sill and galvanised steel angle at the head of the specimen. The “C” track measured 55mm x 80mm x 55mm and the angle measure 55mm x 70mm.

The C track web was fixed on the vertical left hand side of the specimen holder using six M12 (furnace frame) bolts spaced at 500mm centres. It was also cut to size, on the bottom, to accommodate the clear thresholds for both doorsets. The 70mm side of the angle was fixed to the head of the specimen holder using six M12 (furnace frame) bolts spaced at 500mm centre to centre. As the panels where installed (from left to right) the left hand side panel was fixed with seven equally spaced screws located in the vertical “C” track flanges and penetrated through to the wall panel. Both the track and angle inside corners were lined with CP606 sealant as the panels were installed.

To secure the T&G fitting of the wall panels, two rows of 12 screws were fixed at the panel joining seams 297mm and 740mm from the head of the specimen holder (i.e. just above the head of the doorsets)

As the wall was constructed, the aerated concrete panels were cut to size to accommodate two doorset apertures. The straight edges required for fixing the door frames to the wall system were achieved using “C” track sections fixed to the cut out jambs and head. CP606 sealant was applied to the inside of the track and both track flanges were screwed to the wall panel using 6 equally spaced screws.

Once the wall panels were fully installed, the final section of angle (50mm x 50mm) was fixed to the head of the unexposed face of the wall using 12 equally spaced self tapping screws and the outer angle flange bolted to the specimen holder with 11 equally spaced bolts.

CP606 sealant was applied where the wall system interfaced with the “C” track sections, angle sections, specimen frame and doorset frames. The right hand side of the specimen was capped with a “C” track section and remained unfixed as a 35mm wide floating edge which was packed with thermal ceramic insulation.

Details of the doors are not relevant to this assessment report.

### A.2.6 Instrumentation

The test report states that the instrumentation was in accordance with AS1530.4-2005.

### A.2.7 Test results

The test was terminated at 240 minutes.

The ambient temperature at the start of the test was 14oC

The specimen achieved the following performance:

| Criteria | Performance |
|---|---|
| Integrity of panel | 92 minutes No failure |
| Insulation on Panel Joint | 126 minutes Maximum temperature on joint exceeded 180 K above the initial temperature. |

## A.3 Relevance of AS1530.4-2005 test data with respect to AS1530.4-2014

### A.3.1 General

The fire resistance tests FR4322 and BWA 2286900.5 were conducted in accordance with AS1530.4-2005, which is differs from AS1530.4-2014. The effect these differences have on fire resistance performance of the referenced test specimens is discussed below.

### A.3.2 Discussion

**Temperature**

The furnace heating regime in fire resistance tests conducted in accordance with AS 1530.4-2014 follows a similar trend to that in AS 1530.4-2005.

The specified specimen heating rate in AS 1530.4-2005 is given by

$$T_t - T_0 = 345\log(8t+1) + 20$$

Where;

$T_t$= furnace temperature at time t, in degrees Celsius

$T_o$= initial furnace temperature, in degrees Celsius, such that

t= the time into the test, measured in minutes from the ignition of the furnace

The parameters outlining the accuracy of control of the furnace temperature in AS 1530.4-2014 and AS 1530.4-2005 are not appreciably different.

**Furnace Pressure**

The furnace pressure conditions for single and multiple penetration sealing systems in AS1530.4-2005 and AS1530.4-2014m are not appreciably different,

The parameters outlining the accuracy of control of the furnace pressure in AS1530.4-2014 and AS1530.4-2005 are not appreciably different.

**Performance Criteria**

AS1530.4-2014 specifies the following performance criteria for building materials and structures:

- Structural Adequacy (not relevant)
- Integrity
- Insulation.

**Integrity**

AS1530.4-2014 stipulates in addition to the 20mm thick x 100mm x 100mm cotton pads additional cotton pads shall be provided with a reduced 30mm x 30mm x 20mm with additional wire frame holder shall be used to determine integrity failure.

Apart from the above variation, the failure criteria for integrity in AS1530.4-2014 and AS1530.4-2005 are not appreciably different.

**Insulation**

The positions of thermocouples and failure criteria for insulation in AS 1530.4-2014 and AS 1530.4-2005 are not appreciably different.

### A.3.3 Application of Test Data to AS1530.4-2014

There is a difference in cotton pad size between standards, however it is confirmed that the variation does not affect the integrity performance of the tested penetrations in the referenced tests for at least 120 minutes.

Based on the above, discussion and in absence of any foreseeable integrity and insulation risk, it is considered that the results relating to the integrity and insulation performance of the specimens tested in FR4322 and BWA 2286900.5can be used to assess the integrity and insulation performance in accordance with AS1530.4-2014.

# Appendix B Assessment of specific variations

## B.1 Speedpanel Walls for Window Application

### B.1.1 Proposed constructions

B.1.1.1 Walls incorporating windows shall be constructed from vertically installed Speedpanel panels which incorporate an opening into which windows (designed by others) shall be fitted. The Speedpanel panels, base detail, head detail and side detail shall be otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014.

B.1.1.2 These windows are not required to be fire rated. For the purpose of this assessment, the wall shall be considered in two sections- upper (above windows) and lower (below windows) details. The discussion shall be undertaken assuming that a fire resistance test compliant with AS1530.4-2014 could be undertaken, with the window section maintaining integrity and insulation for at least the same period of time as the sections of wall above and below.

B.1.1.3 The upper detail shall comprise 700mm (max.) high panels (which have been otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014) which are to be supported at the head of the wall. The head detail shall be otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014. A protected support beam shall be secured to each panel and in turn it shall be supported by vertical and lateral members. The panels shall be fixed together (as per BWA 2286900.5) with panel-to-panel connecting screws at mid-height.

B.1.1.4 The lower detail shall comprise 1200mm (max.) high panels (which have been otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014) which are to be fixed at the base of the wall. The base detail shall be otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014. Protected support columns shall be located adjacent to the panels and connected to the panels, through the top and bottom tracks, via the steel angle. Each support column shall be fixed to the floor via a welded steel plate and two dynabolts, such that a cantilever can be maintained. The column and column restraint sizing shall be determined by others such that the columns can support the weight of the windows above. The panels shall be fixed together (as per BWA 2286900.5) with panel-to-panel connecting screws at mid-height.

### B.1.2 Upper Detail

B.1.2.1 The proposed construction is shown in Figures 3 – 4.

B.1.2.2 The proposed construction includes vertical and lateral support members. Specifically, a DuraGal 100 x 50 x 4mm (min.) RHS lintel is attached to the panels via 14 – 20 x 150mm tek screws, two of which are installed at nominally 250mm centres, at each panel joint location. The RHS lintel is vertically supported at maximum 3705mm centres via DuraGal 50 x 50 x 4mm (min.) RHS elements. The lintel shall also be supported laterally via members (L-brace, inclined brace/prop) which shall be designed and installed such that lintel has a maximum deflection of span/360 or 20mm for internal building pressures.

B.1.2.3 The stresses in the proposed vertical and lateral support structure have been checked for dead loads during the fire and found to be lower than yield stress by considerable margin. It is a requirement that the structure be clad in plasterboard or other board protection. Provided this protection can maintain the structural adequacy for 120 minutes, it is expected that the support arrangement will continue to provide support to the 700mm-high section of panels for at least 120 minutes.

B.1.2.4 In light of the above, it is expected that the head of the upper detail will behave approximately the same as those tested in BWA 2286900.5 (loaded wall) and EWFA 2517300.2 (unloaded wall). Both mentioned tested walls maintained integrity for at least 120 minutes at the head of the wall.

B.1.2.5 The panel head detail shall be otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014. It is thus not expected that this detail would pose a weakness in the proposed construction. It is thus not expected that this detail would pose a weakness in the proposed construction.

B.1.2.6 Considering the connections and the overall height of the panels (700mm), minimal thermal deflections are expected over the length of the upper wall section. It is thus not considered likely that deflection of the upper wall section would produce integrity weakness at the lower boundary of the upper wall section. The plasterboard protection prescribed over the aperture capping is considered capable of preventing heat flanking the section and is thus considered likely to prevent insulation weakness at that location.

### B.1.3 Lower Detail

B.1.3.1 The proposed construction is shown in Figures 3 – 5.

B.1.3.2 The proposed support columns are required to be designed such that the columns can support the weight of the windows above. It is a requirement that the structure be clad in plasterboard or other board protection. Provided this protection can maintain the structural adequacy for 120 minutes, it is expected that the support columns will continue to provide support to the windows above for at least 120 minutes.

B.1.3.3 The panel base detail shall be otherwise tested or assessed for an FRL of -/120/120 if tested in accordance with AS1530.4-2014. It is thus not expected that this detail would pose a weakness in the proposed construction.

B.1.3.4 The Speedpanel panels are connected the support columns at the head and base track via the steel angle. It is considered that this connection will likely allow the panels to withstand the likely lateral loads placed on them (building pressures). Considering these connections and the overall height of the panels (1200mm), the panel thermal deflections are expected to be very low. It is thus not considered likely that deflection of the lower wall section would produce integrity weakness at the upper boundary of the lower wall section. The plasterboard protection prescribed over the aperture capping is considered capable of preventing heat flanking the section and is thus considered likely to prevent insulation weakness at that location.