

FIRE ASSESSMENT REPORT

FC21355-01-1

FIRE RESISTANCE OF H.B. FULLER FULAFLEX™ FR SEALANT CONTROL JOINTS IN HEBEL WALLS IN ACCORDANCE WITH AS 1530.4:2014

CLIENT

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ASSESSMENT OBJECTIVE

To assess the fire resistance of H.B. Fuller FulaFlex™ FR sealant control joints in accordance with AS 1530.4:2014 and with reference to AS 4072.1-2005 (including Amendment No. 1) with reference to Section 4, when installed in a 75 mm thick Hebel Powerpanel Single Mesh wall.

CONCLUSION

It is considered that the H.B. Fuller FulaFlex™ FR sealant control joints would be expected to achieve the stated FRL if tested in accordance with AS 1530.4:2014 with reference to AS 4072.1-2005 (including Amendment No. 1) Section 4, as stated in the following table.

H.B. Fuller FulaFlex™ FR Sealant Control Joints in 75 mm Thick Hebel Walls

Minimum Wall Thickness	Sealant Backing	Sealant Installed From	Maximum Joint Width (mm)	Minimum Sealant Depth (mm)	FRL
Single Sided Vertical or Horizontal Perimeter Edge Seal - Installed From Either Face					
75 mm	Backing rod	Exposed or Unexposed Steel angle to opposite face	10	10	-/90/90
75 mm	Backing rod	Exposed or Unexposed Steel angle to opposite face	20	16	-/90/90
Double Sided Vertical Hebel to Hebel Control Joint - Installed From Both Faces					
75 mm	Backing rod	Exposed and Unexposed	10	10	-/90/90
75 mm	Backing rod	Exposed and Unexposed	20	16	-/90/90

Drawings of the perimeter edge seal and control joint configurations are shown in Figure 1.

LIMITATION

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

BRANZ reserves the right to amend or withdraw this assessment if information becomes available which indicates the stated fire performance may not be achieved.

This assessment report may only be quoted or reproduced in full.

TERMS AND CONDITIONS

This report is issued in accordance with the Terms and Conditions as detailed and agreed in BRANZ Services Agreement for this work.

The results reported here relate only to the item/s described in this report.

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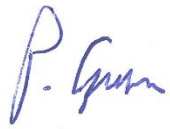

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1. INTRODUCTION

This report gives BRANZ's assessment on the fire resistance of HB Fuller FulaFlex™ FR sealant control joints in a 75 mm thick Hebel Powerpanel Single Mesh wall if tested in accordance with AS 1530.4:2014 with reference to AS 4072.1-2005 (including Amendment No. 1) with reference to Section 4.

2. BACKGROUND

2.1 BRANZ Fire Resistance Test FP20542-01

In BRANZ fire resistance test FP20542-01, a number of control joints were tested in a nominal 75 mm thick Hebel Powerpanel Single Mesh wall in accordance with AS 1530.4:2014. The Hebel Powerpanel Single Mesh wall was formed from four separate panel sections arranged within a concrete lined specimen holder to provide four, 1.000 mm long/high by 20 mm wide apertures.

The asymmetric perimeter edge seal joint systems (A, B and D) consisted of a foam backing rod inserted into the specimen aperture, between the edge of the Hebel panel and the specimen holder from one side of the wall, recessed to the desired sealant depth with a 1.2 mm thick, 75 mm x 50 mm unequal mild steel angle installed on the opposite side of the wall. FulaFlex™ FR sealant was applied onto the backing rod and trowel finished flush with the face of the Hebel panel. Specimen C was a symmetrical, vertical Hebel to Hebel Control joint consisting of foam backing rod inserted from both sides and sealed with FulaFlex™ FR sealant.

A summary of the control joint configuration and test performance of the control joints relevant to this assessment is shown in Table 1.

Table 1: FP20542-01 Specimen Details

Specimen Ref	Edge Seal/ Control Joint Details Width x Depth	Integrity (min)	Insulation (min)	FRL*
A	Horizontal Perimeter Edge Seal 20 mm x 16 mm Backing rod/FulaFlex™ FR - UXF 1.2 mm thick steel angle - EXF	132 NF	90	-/90/90
B	Vertical Perimeter Edge Seal 20 mm x 16 mm Backing rod/FulaFlex™ FR - UXF 1.2 mm thick steel angle - EXF	132 NF	118	-/90/90
C	Hebel to Hebel Control Joint 20 mm x 16 mm Backing rod/FulaFlex™ FR - EXF & UXF	132 NF	109	-/90/90
D	Vertical Perimeter Edge Seal 20 mm x 16 mm Backing rod/FulaFlex™ FR - EXF 1.2 mm thick steel angle - UXF	132 NF	94	-/90/90

UXF = Unexposed Face, EXF = Exposed Face, NF = No Failure.

The test was terminated after 132 minutes.

*The test was conducted on a wall system with an established FRL of -/90/90. The maximum FRL of any test specimen cannot exceed the FRL achieved by the wall system in which it is installed.

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2.2 BRANZ Fire Resistance Test FP20542-02

In BRANZ fire resistance test FP20542-02, a number of control joints were tested in a nominal 75 mm thick Hebel Powerpanel Single Mesh wall in accordance with AS 1530.4:2014. The Hebel Powerpanel Single Mesh wall was formed from four separate sections arranged to provide four, 1.000 mm long/high by 10 mm or 20 mm wide apertures.

The asymmetric perimeter edge seal joint systems (A, B and D) consisted of a foam backing rod inserted into the specimen aperture, between the edge of the Hebel panel and the specimen holder from one side of the wall, recessed to the desired sealant depth with a 1.2 mm thick, 75 mm x 50 mm unequal mild steel angle installed on the opposite side of the wall. FulaFlex™ FR sealant was applied onto the backing rod and trowel finished flush with the face of the Hebel panel. Specimen C was a symmetrical, vertical Hebel to Hebel Control joint consisting of foam backing rod inserted from both sides and sealed with FulaFlex™ FR sealant.

A summary of the control joint configuration and test performance of the control joints relevant to this assessment is shown in Table 2.

Table 2: FP20542-02 Specimen Details

Specimen Ref	Edge Seal/ Control Joint Details Width x Depth	Integrity (min)	Insulation (min)	FRL*
A	Horizontal Perimeter Edge Seal 20 mm x 16 mm Backing rod/FulaFlex™ FR - EXF 1.2 mm thick steel angle - UXF	121 NF	121 NF	-/90/90
B	Vertical Perimeter Edge Seal 10 mm x 10 mm Backing rod/FulaFlex™ FR - UXF 1.2 mm thick steel angle - EXF	121 NF	121 NF	-/90/90
C	Hebel to Hebel Control Joint 10 mm x 10 mm Backing rod/FulaFlex™ FR - EXF & UXF	121 NF	121 NF	-/90/90
D	Vertical Perimeter Edge Seal 10 mm x 10 mm Backing rod/FulaFlex™ FR - EXF 1.2 mm thick steel angle - UXF	121 NF	121 NF	-/90/90

UXF = Unexposed Face, EXF = Exposed Face, NF = No Failure.

The test was terminated after 121 minutes.

*The test was conducted on a wall system with an established FRL of -/90/90. The maximum FRL of any test specimen cannot exceed the FRL achieved by the wall system in which it is installed.

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3. DISCUSSION

3.1 10 mm x 10 mm Horizontal Perimeter Edge Seal

As demonstrated by the fire resistance tests detailed in Section 2, the 20 mm wide x 16 mm deep, horizontal and vertical perimeter edge seals, tested in both exposure directions, all achieved at least 90 minutes for Integrity and Insulation when installed within a 90 minute rated supporting construction. For the 10 mm wide x 10 mm deep perimeter edge seals, the vertically orientated seals both maintained Integrity and Insulation for the 121 minute test duration.

All of the tested specimens maintained Integrity for their entire test durations. Based on the comparison of the Insulation results of vertical joints tested in both directions and of both dimensions, and noting that the insulation failures recorded on the 20 mm wide joints were recorded by thermocouples located on the sealant, which would not be measured on a 10 mm wide gap as defined by the standard, it can be reasonably considered that a 10 mm wide x 10 mm deep horizontal edge seal would at least achieve an equal Insulation result as the tested 20 mm wide x 16 mm deep horizontal edge seals if tested in accordance with AS 1530.4:2014.

4. CONCLUSION

It is considered that the H.B. Fuller FulaFlex™ FR sealant control joints would be expected to achieve the stated FRL if tested in accordance with AS 1530.4:2014 with reference to AS 4072.1-2005 (including Amendment No. 1) Section 4, as stated in the following table.

Table 3: H.B. Fuller FulaFlex™ FR Sealant Control Joints in 75 mm Thick Hebel Walls

Minimum Wall Thickness	Sealant Backing	Sealant Installed From	Maximum Joint Width (mm)	Minimum Sealant Depth (mm)	FRL
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Drawings of the perimeter edge seal and control joint configurations are shown in Figure 1.

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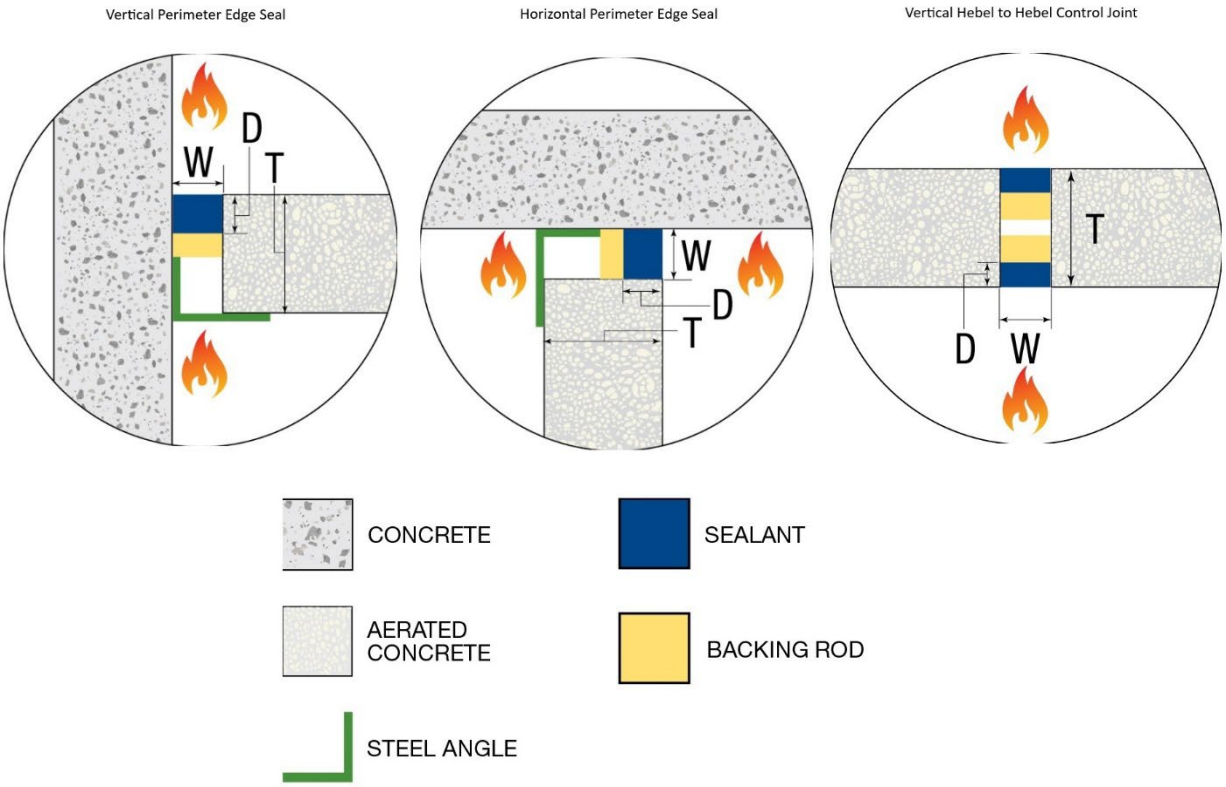
Figure 1: Client Supplied Drawing - Typical Configurations - Section View



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