REGULATORY INFORMATION REPORT

The fire resistance performance of walls and floors penetrated by electrical cables and metal pipes protected by 3M CP 25WB+ Sealant if tested in accordance with AS1530.4-2005 and assessed in accordance with AS4072.1-2005.

Report No:

RIR 23263-01

Report Sponsor:

3M Australia Pty Ltd
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Testing. Advising. Assuring.

DOCUMENT REVISION STATUS

Date Issued	Issue No	Description
30/06/09	RIR 23263-00	Initial Issue
26/06/13	RIR 23263-01	Revised to include additional wrapping options for service penetrations

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CONTENTS

1 INTRODUCTION

This report contains the minimum information sufficient for regulatory compliance and refers to the Assessment Report EWFA 23263-01.
The referenced report presents an assessment of the fire resistance performance of walls and floors penetrated by electrical cables and metal pipes protected by 3M CP 25WB+ Sealant if tested in accordance with AS1530.4-2005 and assessed in accordance with AS4072.1-2005.

The tested prototypes described in Section 2 of this report, when subject to the proposed variations described in Section 3, are to perform satisfactorily if tested in accordance with the referenced 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 7, 8 and 9 of this report.

Summaries of the test data on which this assessment is based are provided in Appendix A. A summary of the critical issues leading to the assessment conclusions including the main points of argument are included in Appendix B.

2 TESTED PROTOTYPES

The referenced assessment is based on reference to the tests WF165863, WF165864/A, WF155355, and WF155352, which comprised apertures in walls penetrated by electrical cables and metal pipes and protected by 3M CP 25WB+ Sealant and 3M IC 15WB+ Sealant and tested in accordance with EN1363-3:2004.

The referenced assessment also makes reference to the test EWFA 2800000, which comprised two pipe penetrations and two cable penetrations in a wall protected by 3M Interam E-5A-4 Endothermic Mat.

In addition, reference is made to the tests BWA2243201 and test BWA2243202, which comprised apertures in a wall and a floor, respectively, penetrated by electrical cables and protected by 3M IC 15WB+ Sealant and tested in accordance with AS1530.4-2005.

3M CP25 WB+, whilst being of a similar base composition to 3M IC 15WB+, is stated by 3M to be a superior product, its performance being enhanced by the increased intumescent properties.

Refer to Appendix A for a full summary of the referenced test data.

3 VARIATION TO TESTED PROTOTYPES

3.1 FLOORS

The proposed floor construction shall be as tested in BWA 2243202 Service A & B subject to the following variations:

- Increase in floor depth
- Without services as a blank seal as tested in WF165864/A
- 3M CP 25WB+ Sealant in lieu of the 3M IC 15WB+ Sealant as tested
- Penetrations shall be wrapped with 3M Interam E-5A-4 Endothermic Mat (Emat) each side of the floor construction
- The service penetrations shall be located a minimum of 40mm apart

3.2 WALLS

The proposed wall construction shall be as tested in BWA 2243201 Service C & D subject to the following variations:

- Without services as a blank seal as tested in WF165864/A and WF165863
- Inclusion of metal pipes as tested in WF165864/A and WF165863
- Applicability to solid and hollow core masonry and reinforced concrete walls 116mm thick or thicker
- Applicability to lightweight walls as 116mm thick or thicker.
- 3M CP 25WB+ Sealant in lieu of the 3M IC 15WB+ Sealant as tested
- Penetrations shall be wrapped with 3M Interam E-5A-4 Endothermic Mat (Emat) each side of the wall construction
- The service penetrations shall be located a minimum of 40mm apart

4 REFERENCED TEST PROCEDURES

This report is prepared with reference to the requirements of AS1530.4-2005 and AS4072.1-2005 for the determination of a FRL.

5 FORMAL ASSESSMENT SUMMARY

On the basis of the discussion presented in the referenced report, it is the opinion of this testing authority that if the tested prototypes described in Section 2 had been varied as in Section 3, they would have been likely to achieve the fire resistance performances below if tested in accordance with the test method referenced in Section 4 and subject to the requirements of Section 7.

5.1 FLOOR PENETRATIONS

The performance of 3M IC 15WB+ Sealant protecting PVC insulated cables in normal weight concrete floors is shown in Table 1. Refer to Table 1 and 2 and Figure 1, 2, 3 and 4 for construction details.

Table 1 – Performance of 3M CP 25WB+ Sealant for Floors

Penetration Seal Material	Seal Size	Penetrating Service	Min. Slab Depth	FRL
3M CP 25WB+ Sealant	40mm deep, 25mm to 60mm wide fixed over 80mm minimum thickness friction fitted mineral wool 100kg/m^3	PVC-insulated cables as per AS1530.4-2005, D1 and D2 cables	120mm	-/120/30
		PVC Insulated Cables as per AS 1530.4-2005 D1 and D2 cables wrapped with 500mm long Emat each side		-/120/120
		PVC-insulated cables as per AS1530.4-2005, D2 cables only	150mm	-/180/30
		PVC Insulated Cables as per AS1530.4-2005 D2 cables only wrapped with 500mm long Emat each side		-/180/120
	40mm deep, 110mm maximum diameter fixed over 80mm thick friction fitted mineral wool 100kg/m^3	Blank Seal	120mm	-/180/120
		Blank Seal	150mm	-/180/180

Table 2 – Description of Items in Drawings

Item	Description
1	PVC Insulated Cables as per AS1530.4-2005 D1 cables
2	PVC Insulated Cables as per AS1530.4-2005 D2 cables
3	Normal Weight concrete floor slab, 120mm, thick or greater
4	Steel Pipe 114mm x 4.5mm
5	3M CP 25WB+ Sealant
6	Mineral wool (100kg/m^3)
7	Lightweight wall lined each side with 2 layers of 13mm fire grade plasterboard
8	Solid or hollow masonry, and normal weight concrete walls, 116mm thick
9	Copper or ferrous pipes 15mm x 0.91mm.
10	Mineral wool (140kg/m^3)
11	Steel Pipe 34mm x 3.5mm
12	3M Interam E-5A-4 Endothermic Mat (Emat) wrapped with VentureTape® 1577CW and hold in place with 1.0mm Mild steel modelling wire at 50mm from lagging ends and one at the centre as per tested in EWFA 2800000
13	3M Fire Barrier Sealant CP 25WB+ Intumescent

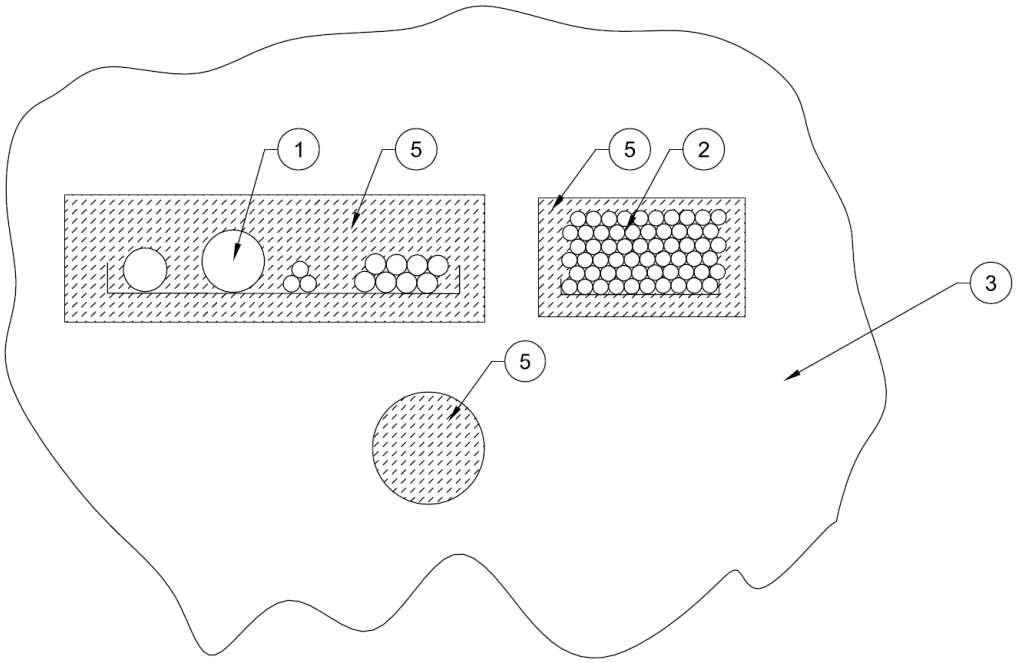

Figure 1– Typical arrangement of 3M CP 25WB+ Sealant for Floors

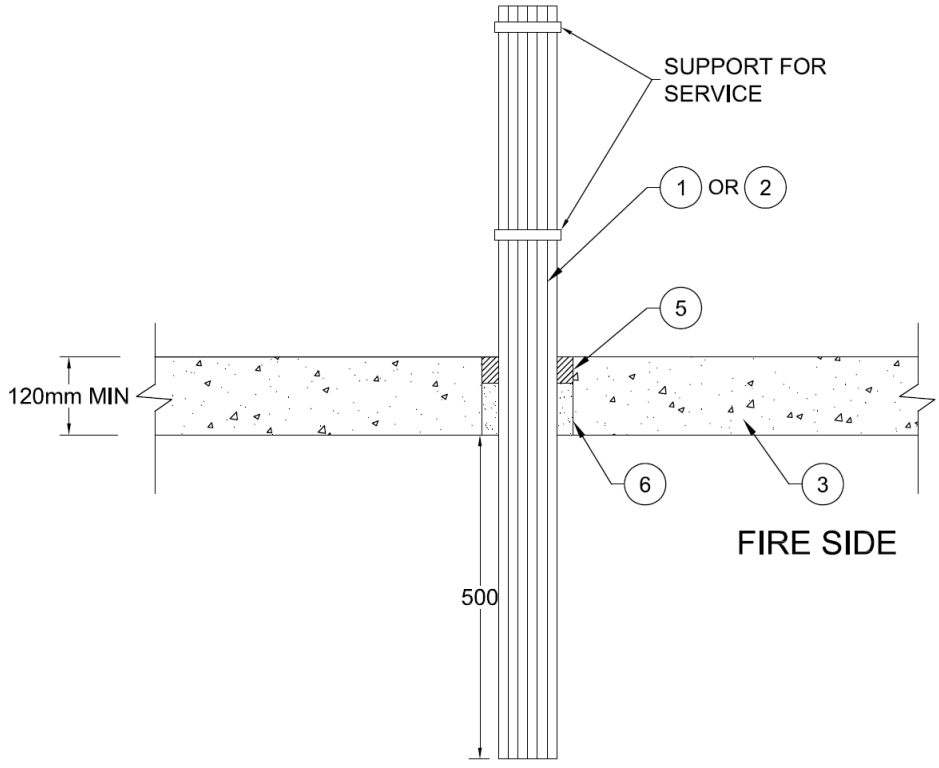

Figure 2– Typical details for cables and metal pipes penetrating floors with 3M CP 25WB+ Sealant

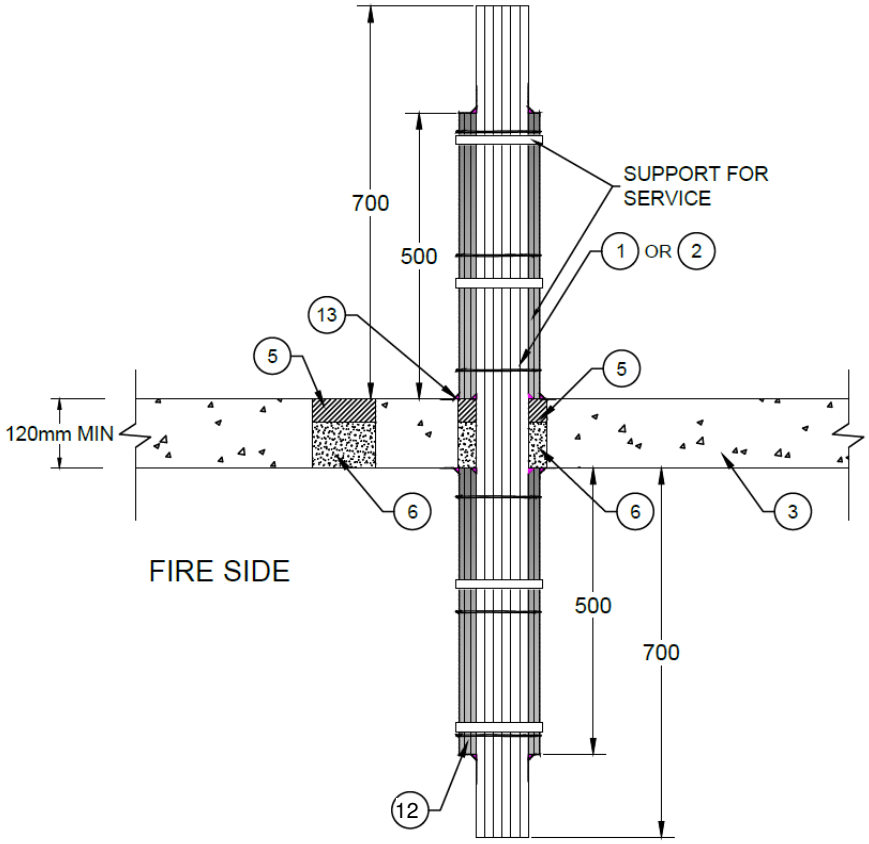

Figure 3– Typical details for cables and metal pipes penetrating floors wrapped with Emat

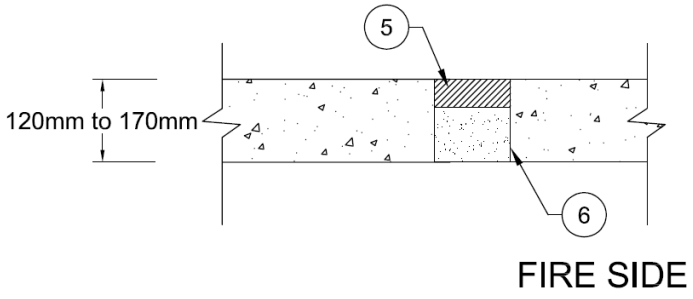

Figure 4– Typical details for Blank Penetration Seals in floors

5.2 WALL PENETRATIONS

The performance of 3M CP 25WB+ Sealant protecting PVC insulated cables and metal pipes in drywall is shown in Table 3 and solid or hollow masonry and normal weight concrete walls is shown in Table 5. Refer to Tables 3, 4 and 5, and Figures 5-13 for construction details.

Table 3 – Performance of 3M CP 25WB+ Sealant for Plasterboard Walls

Penetration Seal Material	Seal Size	Penetrating Service	Min Wall Width (mm)	FRL
3M CP 25WB+ Sealant	20mm deep, 25mm to 60mm wide. Fixed over 75mm minimum thickness friction fitted mineral wool 100kg/m^3	PVC-insulated cables as per AS1530.4-2005, D1 and D2 cables	116mm	-/120/30
		PVC Insulated Cables as per AS1530.4-2005 D1 and D2 cables wrapped with 500mm long Emat each side		-/120/120
	110mm diameter fixed over 100mm minimum thickness friction fitted mineral wool 100kg/m^3	Blank Seal		-/120/120
	110mm diameter fixed over 100mm minimum thickness friction fitted mineral wool 140kg/m^3	Copper or ferrous pipes 15mm x 0.91mm. Diameter may be decreased and wall thickness may be increased.	150mm	-/120/30
		Copper or ferrous pipes 15mm x 0.91mm wrapped with 600mm long Emat each side		-/120/120
		Steel pipe 34mm x 3.5mm. Diameter may be decreased and wall thickness may be increased.		-/120/30
		Steel pipe 34mm x 3.5mm wrapped with 600mm long Emat each side		-/120/120
		Steel pipe 114mm x 4.5mm. Diameter may be decreased and wall thickness may be increased.		-/120/-
		Steel pipe 114mm x 4.5mm wrapped with 600mm long Emat each side		-/120/120

Table 4 – Performance of 3M CP 25WB+ Sealant for Masonry Walls

Penetration Seal Material	Seal Size	Penetrating Service	Min Wall Width (mm)	FRL
3M CP 25WB+ Sealant	20mm deep, 25mm to 60mm wide. Fixed over 75mm minimum thickness friction fitted mineral wool 100kg/m^3	PVC-insulated cables as per AS1530.4-2005, D1 and D2 cables	116mm	-/120/30
		PVC Insulated Cables as per AS1530.4-2005 D1 and D2 cables wrapped with 500mm long Emat each side		-/120/120
	25mm deep, 110mm diameter fixed over 100mm minimum thickness friction fitted mineral wool 100kg/m^3	No Services	116mm	-/120/120
			150mm	-/240/180
			170mm	-/240/240
	25mm deep, 110mm diameter fixed over 100mm minimum thickness friction fitted mineral wool 140kg/m^3	Copper or ferrous pipes 15mm x 0.91mm. Diameter may be decreased and wall thickness may be increased.	150mm	-/240/30
		Copper or ferrous pipes 15mm x 0.91mm wrapped with 600mm long Emat each side		-/240/120
		Steel pipe 34mm x 3.5mm. Diameter may be decreased and wall thickness may be increased.		-/240/30
		Steel pipe 34mm x 3.5mm wrapped with 600mm long Emat each side		-/240/120
		Steel pipe 114mm x 4.5mm. Diameter may be decreased and wall thickness may be increased.		-/240/30
		Steel pipe 114mm x 4.5mm wrapped with 600mm long Emat each side		-/240/120

Table 5 – Description of Items for Walls

Item	Description
1	PVC Insulated Cables as per AS1530.4-2005 D1 cables
2	PVC Insulated Cables as per AS1530.4-2005 D2 cables
3	Normal Weight concrete floor slab, 120mm, thick or greater
4	Steel Pipe 114mm x 4.5mm
5	3M CP 25WB+ Sealant
6	Mineral wool (100kg/m^3)
7	Lightweight wall lined each side with 2 layers of 13mm fire grade plasterboard
8	Solid or hollow masonry and normal weight concrete walls 116mm thick
9	Copper or ferrous pipes 15mm x 0.91mm.
10	Mineral wool (140kg/m^3)
11	Steel Pipe 34mm x 3.5mm
12	3M Interam E-5A-4 Endothermic Mat (Emat) wrapped with VentureTape® 1577CW and hold in place with 1.0mm Mild steel modelling wire at 50mm from lagging ends and one at the centre as per tested in EWFA 2800000
13	3M Fire Barrier Sealant CP 25WB+ Intumescent

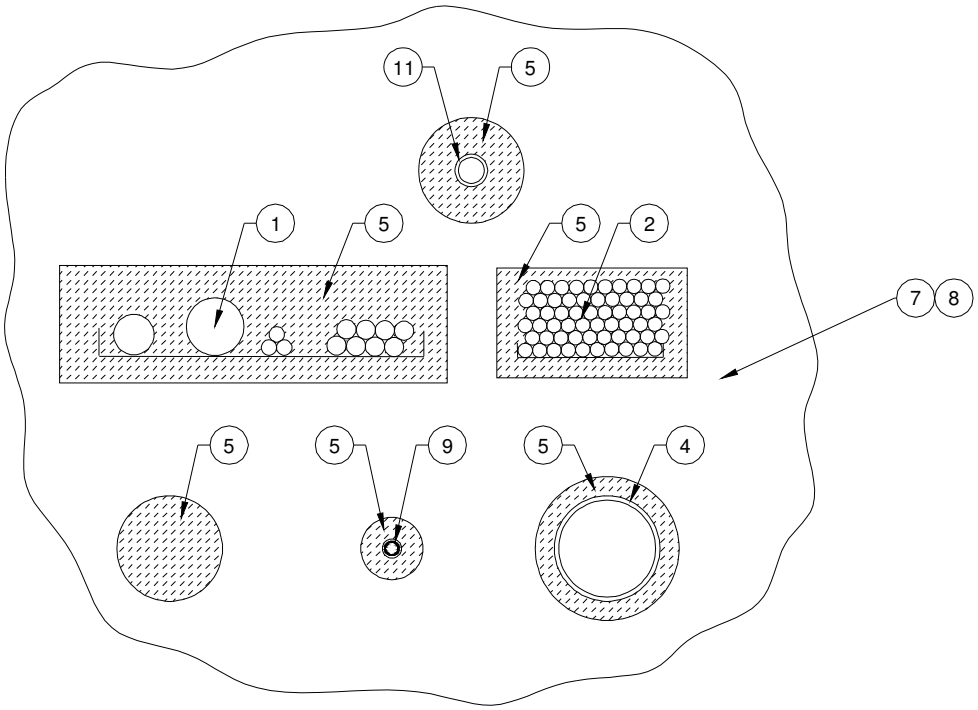

Figure 5– Typical Arrangement of 3M CP 25WB+ Sealant in Walls

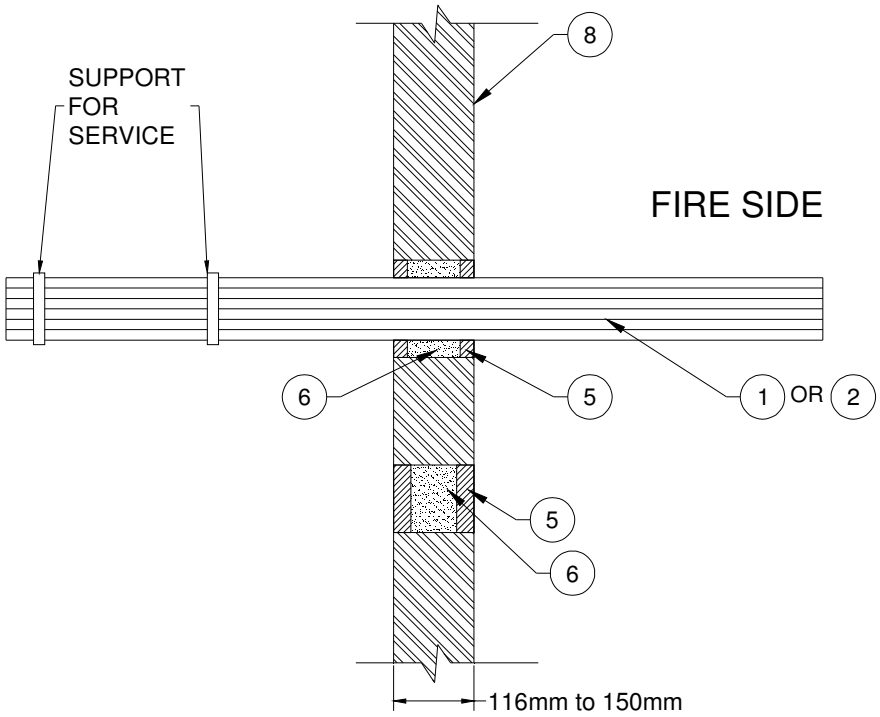

Figure 6– Typical Details for Cables Protected with 3M CP 25WB+ Sealant for Masonry Walls

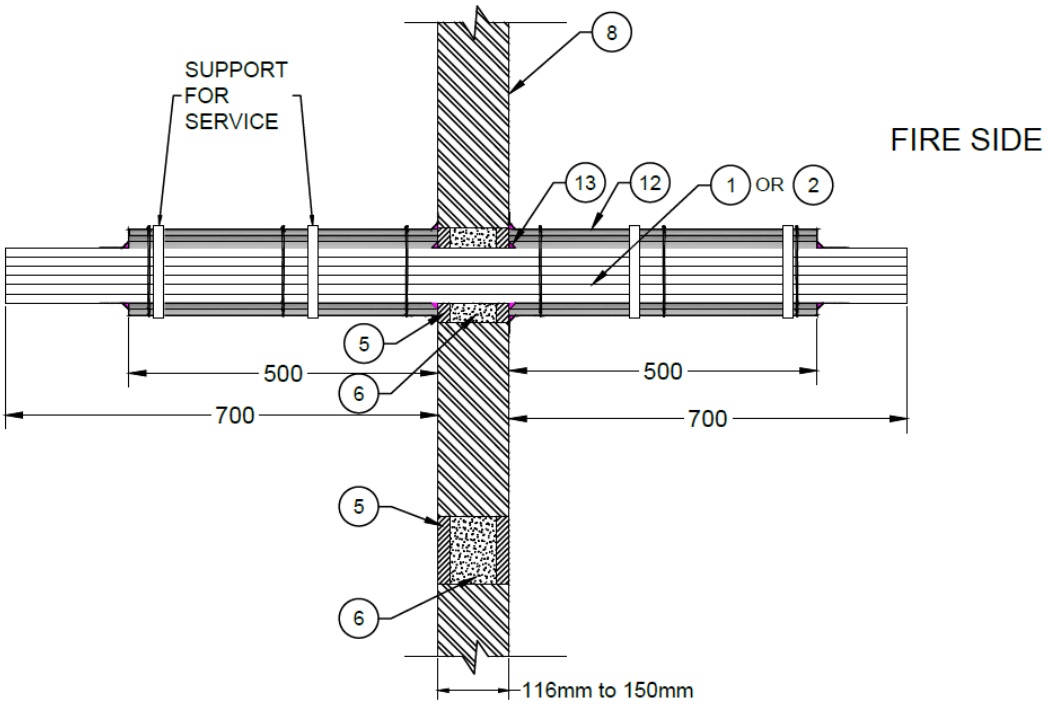

Figure 7– Typical Details for Cables wrapped with Emat for Masonry Walls

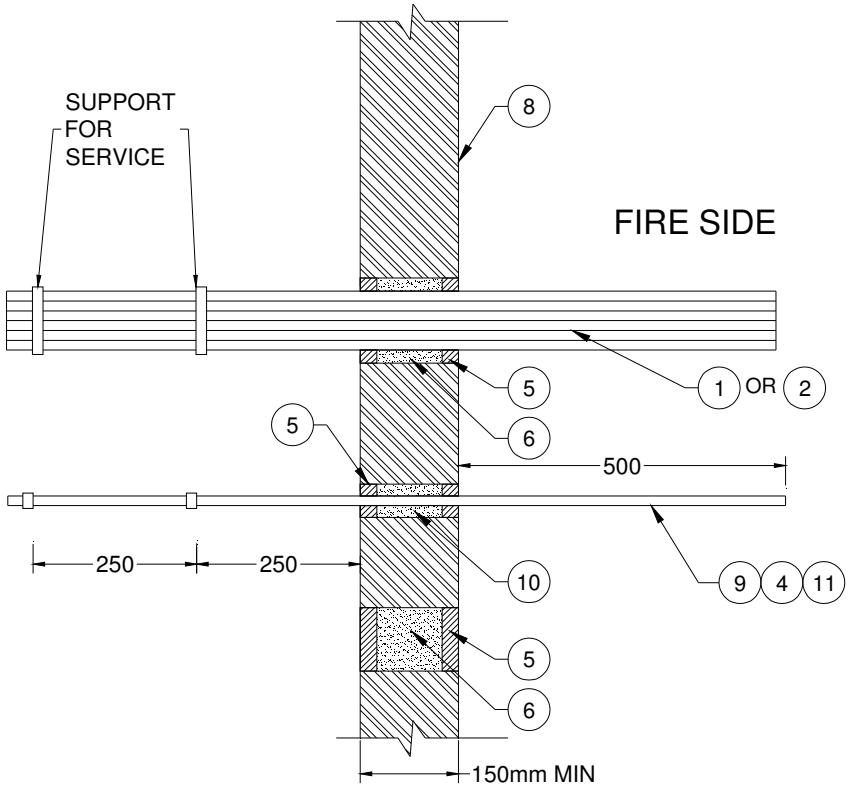

Figure 8 – Typical Details for Cables and Metal pipes Protected with 3M CP 25WB+ Sealant for Masonry Walls 150mm thick

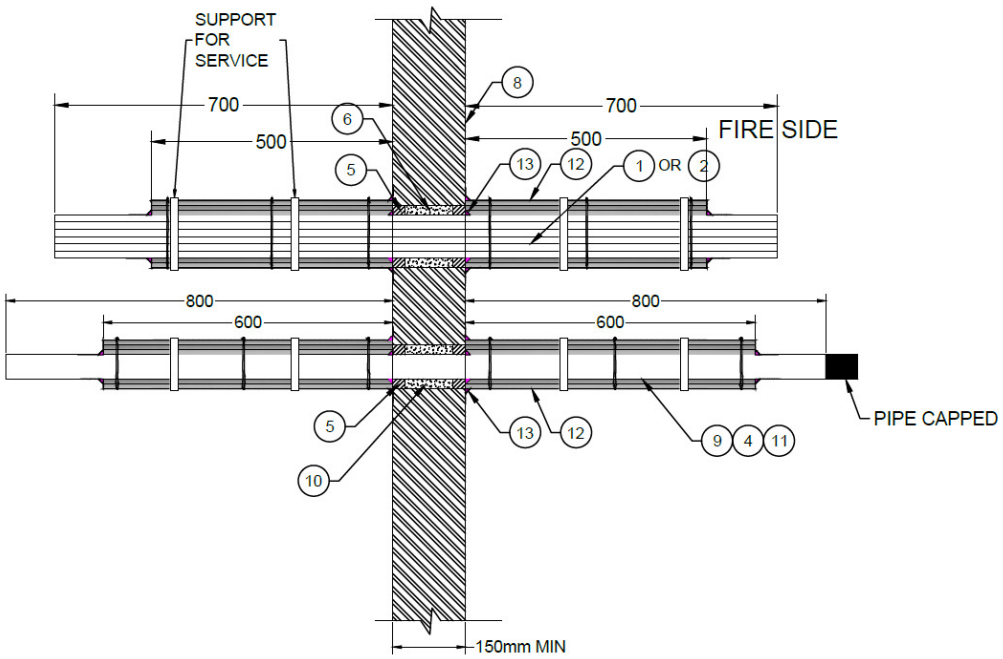

Figure9 – Typical Details for Cables and Metal pipes wrapped with Emat for Masonry Walls 150mm thick

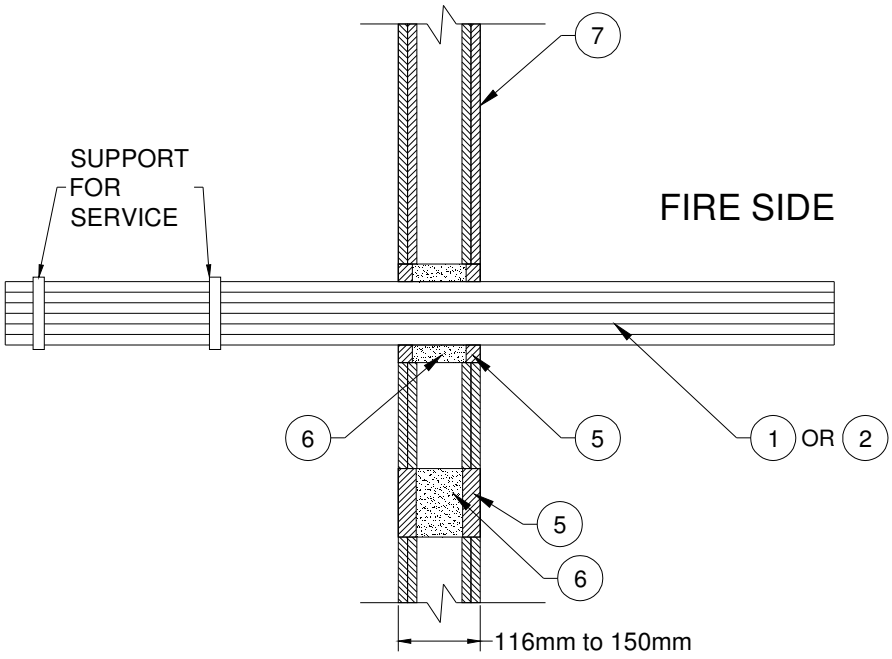

Figure 10 – Typical Details for Cables Protected with 3M CP 25WB+Sealant for Plasterboard lined walls

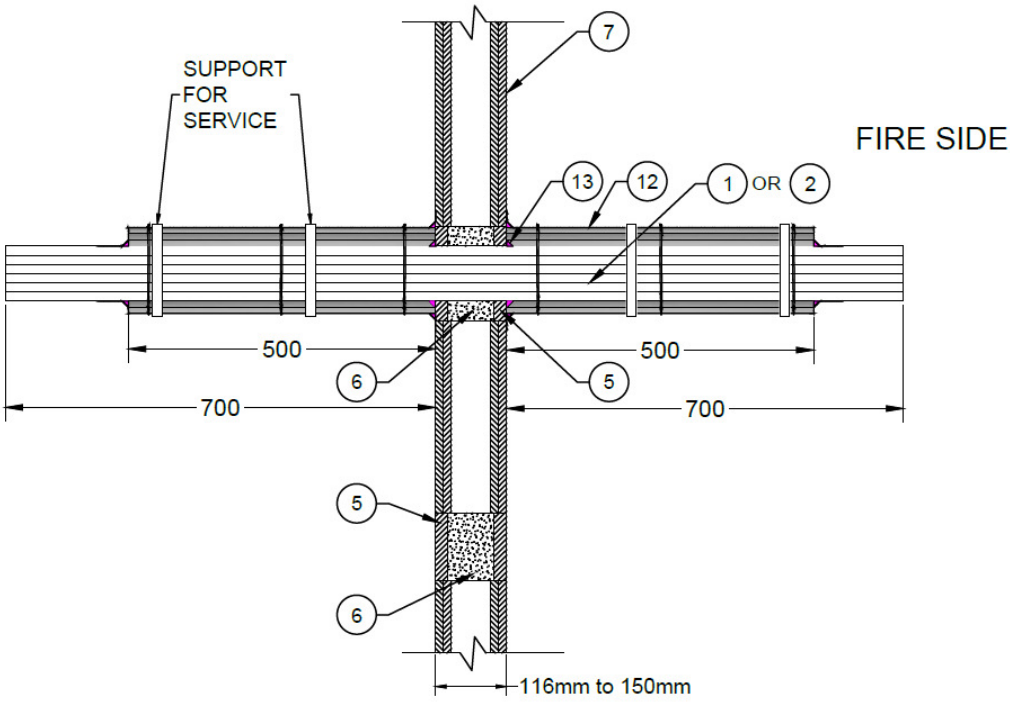

Figure 11 – Typical Details for Cables wrapped with Emat for Plasterboard lined walls

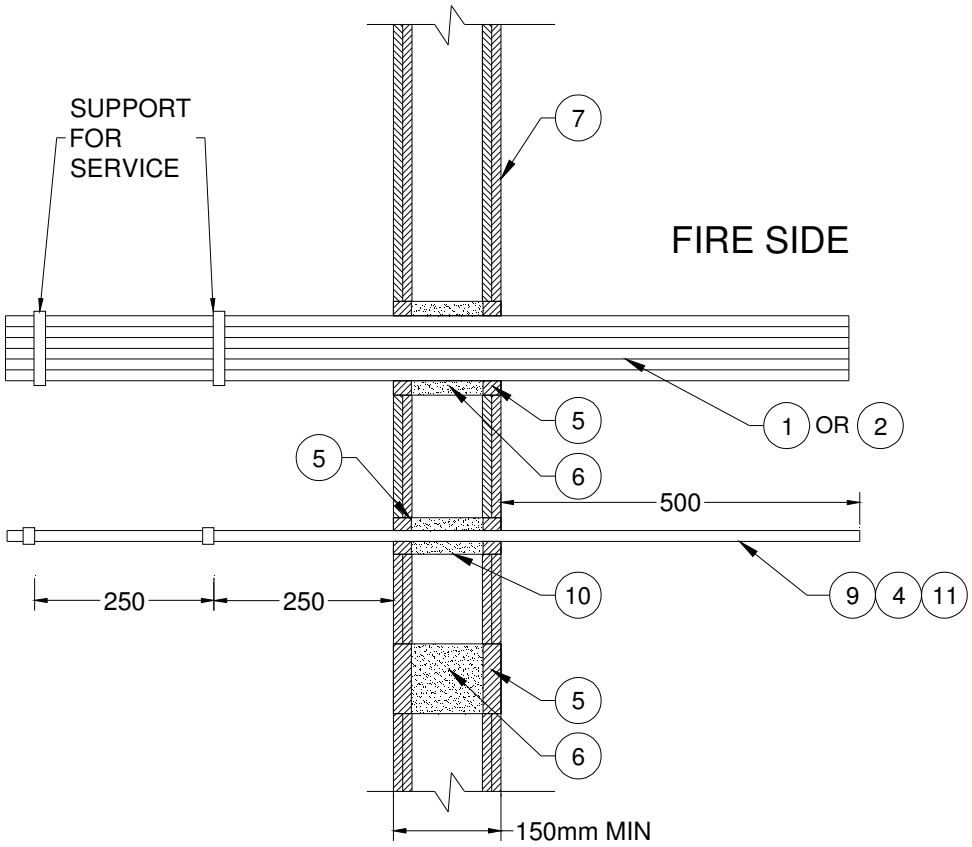

Figure 12 – Typical Details for Cables and Metal Pipes Protected with 3M CP 25WB+ Sealant for Plasterboard lined walls 150mm thick

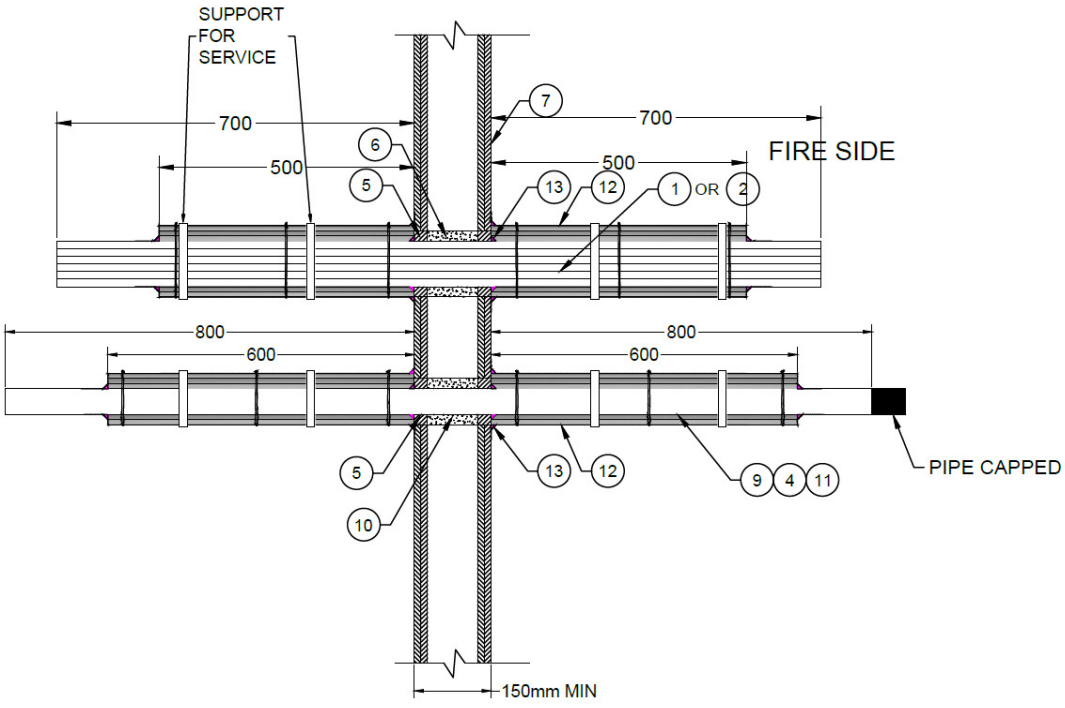

Figure 13 – Typical Details for Cables and Metal Pipes wrapped with Emat for Plasterboard lined walls 150mm thick

6 DIRECT FIELD OF APPLICATION

The results of this assessment are applicable to cables and metal pipes penetrating walls and exposed to fire from either side or to cables and metal pipes penetrating floors exposed to fire from below.

The results of the assessment are based on actual test data and the scope is necessarily limited to the specifications indicated Section 3 and discussed in the Appendices of the referenced report.

However, it can be confirmed that the tested cables described in BWA Report Nos. 2243201 and 2243202 are consistent with the informative specifications in AS1530.4-2005, Appendix D1 and D2 cable configurations. AS1530.4-2005, Clause 10.11.4 extends the application of test data from D1 and D2 cable configurations directly to support all PVC-insulated and sheathed power and communications cables with copper conductors.

Should the extended scope of application in Clause 10.11.4 be adopted, it is recommended that the seal dimensions and specifications of the supporting walls and floors shall be consistent with this assessment.

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 1530.4-2005.

The supporting wall of floor construction shall be capable of providing effective support of the proposed construction for the required fire resistance period (FRL).

In addition, the wall or floor construction shall be capable of tolerating apertures at least as large as the proposed 3M IC 15WB+ Sealant seals without detrimentally affecting the FRL of the support construction.

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

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

The conclusions of the referenced 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 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 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.

9.2 GENERAL CONDITIONS OF USE

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9.3 AUTHORISATION ON BEHALF OF BODYCOTE WARRINGTONFIRE (AUST) PTY LTD

Prepared by: Reviewed by:

K. G. Nicholls S. Hu

9.4 DATE OF ISSUE

26th June 2013

9.5 EXPIRY DATE

30th June 2014

ASSESSMENT REVIEW

Review of assessment report BWA 23263-01 and Regulatory Information Report RIR 23263-01

The fire resistance performance of walls and floors penetrated by electrical cables and metal pipes protected by 3M CP 25WB+ Sealant if tested in accordance with AS1530.4-2005 and assessed in accordance with AS4072.1-2005

EWFA Report No:

33778100.1

Report Sponsor:

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05/02/2015	33778100	Initial Issue
15/08/2016	33778100.1	Revised the assessment report version

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1 INTRODUCTION

The referenced assessment BWA 23263-01 and Regulatory Information Report (RIR) RIR 23263-01, both dated 26th June 2013. They provide an assessment of the fire resistance performance of walls and floors penetrated by electrical cables and metal pipes protected by 3M CP 25WB+ Sealant if tested in accordance with AS1530.4-2005 and assessed in accordance with AS4072.1-2005.

2 CONFIRMATION OF SPECIFICATION

The sponsor of referenced assessment BWA 23263-01 and reflected regulatory information report RIR 23263-01 and the sponsor of referenced test reports BWA 2243201, BWA 2243202, WF165863, WF 165864/A, WF 155352, WF 155355 and EWFA 2800000.1 is 3M Australia Pty Ltd.

3M Australia Pty Ltd has stated in writing that there have been no changes to the design and material specifications of the protection systems or component since the issue of the original formal assessment BWA 23263-01 and reflected regulatory information report RIR 23263-01 which reference the test reports BWA 2243201, BWA 2243202, WF165863, WF 165864/A, WF 155352, WF 155355 and EWFA 2800000.1

3 FORMAL OPINION SUMMARY

Since the issue of assessment report BWA 23263-01 and regulatory information report RIR 23263-01, there have been no changes to the testing experience that could affect the opinion expressed.

The procedures adopted for the original assessment have been re-examined and are similar to those currently in use.

The specification used for the original assessment has been re-examined and found to be satisfactory.

Therefore, with respect to the fire resistance performance of walls and floors penetrated by electrical cables and metal pipes protected by 3M CP 25WB+ Sealant if tested in accordance with AS1530.4-2005 and assessed in accordance with AS4072.1-2005, referenced in assessment report BWA 23263-01 and reflected regulatory information report RIR 23263-01, it is confirmed that the assessed performance is considered valid subject to the requirements in Section 4.

4 VALIDITY

This assessment review does not provide an endorsement by Exova Warringtonfire Aus Pty Ltd of the actual products assessed.

This review 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.

This review remains valid until the expiry date stated in Section 5.5 subject to compliance with the applicant undertakings and conditions in the original assessment and this review.

5 AUTHORITY

5.1 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.

5.2 GENERAL CONDITIONS OF USE

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5.3 AUTHORISATION ON BEHALF OF EXOVA WARRINGTONFIRE AUS PTY LTD

Prepared by:

S. Hu

Reviewed by:

D. Nicholson

5.4 DATE OF ISSUE

15/08/2016

5.5 EXPIRY DATE

31/08/2021