



FIRE ASSESSMENT REPORT

FC17768-01-1

FIRE RESISTANCE OF A TRAFALGAR MAXILITE DUCT ACCESS PANEL

CLIENT

Trafalgar Group Pty Ltd
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ASSESSMENT OBJECTIVE

To assess the fire resistance, in accordance with AS 1530.4:2014, of Trafalgar Field-Made and Factory-Made FDAP access panels when installed as part of a Monokote® duct protection fire rated duct system.

CONCLUSION

It is considered that the Trafalgar Field-Made or Factory-Made FDAP access panel when installed on a steel duct, as shown in Figure 1 and Figure 2 respectively, protected with GCP Monokote® duct protection system applied to provide at least 120 minutes fire resistance in accordance with AS 1530.4:2014 would not be detrimental to the fire resistance of the duct for at least 120 minutes Integrity and Insulation.

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.

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



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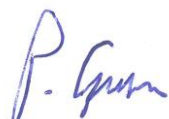
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DOCUMENT REVISION STATUS

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01	25 May 2023	Initial Issue



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1. INTRODUCTION

This report gives BRANZ's assessment of the fire resistance of a Trafalgar Field-Made or Factory-Made (FDAP) fire rated duct access panel to be installed with a Monokote® duct protection system and if tested in accordance with AS 1530.4:2014.

2. BACKGROUND

In CSIRO fire resistance test FSP 1307 an access panel was installed in a masonry wall and tested in accordance with AS 1530.4-2005. The access panel consisted of a Z-profile perimeter steel frame nominally 1.1 mm thick with a 25 mm wide architrave finishing flush to the unexposed face of the masonry wall. The steel perimeter frame provided a nominal 750 mm x 750 mm opening for the access panel and incorporated a 30 mm wide rebate. Lorient HP4002 intumescent seal was provided in the frame rebate. The access panel consisted of nominally 60 mm thick Maxilite board faced with 4 mm MDF to each face with an overall size nominally 740 mm x 740 mm. The access panel was secured to the frame with M6 bolts nominally at 250 mm centres (two per side). The access panel maintained the Integrity criteria for the 241 minute duration of the test and Insulation criteria for 20 minutes.

3. BASIS OF ASSESSMENT

This assessment is based on the tested performance of the Trafalgar 60 mm thick Maxilite panel when installed as discussed in this assessment with a GCP Monokote® duct protection system. The specific design and performance of the Monokote® duct protection system is outside the scope of this assessment. This assessment should be read in conjunction with GCP Monokote® technical documentation.

The steel duct liner shall include a non-fire rated access panel at the location of the Trafalgar access panels.

4. DISCUSSION

4.1 AS 1530.4-2005 vs 2014

The different versions of AS 1530.4 have been reviewed with respect to access panels. Based on the review it is considered had the access panel tested in CSIRO fire resistance test FSP 1307 been undertaken in accordance with AS 1530.4:2014 the same results would have been achieved.

4.2 General

It is proposed to install a Trafalgar Field-Made or Factory-Made FDAP access panel in a steel duct protected with a GCP Monokote® duct protection system as shown in Figure 1 and Figure 2 respectively. The performance of the GCP Monokote® is subject to a separate assessment. The access panels will be installed over a non-fire rated access panel in the steel duct liner with a maximum opening size up to 800 mm x 800 mm.

The access panel may be faced with MDF as tested in FSP 1307 or only the 60 mm thick Maxilite panel without facing.



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4.3 Field-Made FDAP

The Field-Made FDAP consists of an unequal channel section nominally 100 mm x 65 mm x 50 mm x minimum 1 mm thick. The 100 mm flange is in contact with the steel duct liner and secured with steel rivets or tek screws at 100 mm nominal centres. The Maxilite panel is secured to the frame with minimum 8g x 75 mm screws at maximum 250 mm centres starting nominally 50 mm from the corners. The Maxilite panel is to overlap the end of the frame flange by a minimum of 70 mm. See Figure 1 for details.

This assessment does not specifically detail the installation of the Monokote[®] duct protection system however it shall be applied to completely fill the access panel perimeter frame and overlapping Maxilite panel. Should the Monokote[®] system be less than 65 mm thick the Monokote[®] shall be increased to at least 65 mm for a distance of at least 100 mm around the perimeter of the access panel frame.

4.4 Factory-Made FDAP

The Factory-Made FDAP consists of a lipped channel section nominally 84 mm x 38 mm x 48 mm x 24 mm x minimum 1 mm thick. The 84 mm flange is in contact with the steel duct liner and secured with steel rivets or tek screws at 100 mm nominal centres. The Maxilite panel is secured to the frame with minimum 8g x 75 mm screws at maximum 250 mm centres starting nominally 50 mm from the corners. The Maxilite panel is to be positioned in the frame rebate.

This assessment does not specifically detail the installation of the Monokote[®] duct protection system however it shall be applied to completely fill the access panel perimeter frame and cover the frame. Should the Monokote[®] system be less than 65 mm thick the Monokote[®] shall be increased to at least 65 mm for a distance of at least 100 mm around the perimeter of the access panel frame.

4.5 FDAP Fire Resistance

In fire resistance test FSP 1307 the access panel maintained integrity for the 241 minute duration of the test and failed the insulation criteria after 20 minutes. The insulation failure occurred on the steel frame. Temperatures measured on the access panel did not exceed the failure criteria for the test duration reaching a maximum temperature rise of approximately 160 K at 241 minutes. The temperature of the element of construction that the access panel was installed into exceeded the failure criteria after approximately 62 minutes.

The access panel was mounted in a vertical wall, based on the over performance it is considered the Maxilite panel could be installed horizontally without any significant change in performance of the panel. It is therefore considered the proposed Field-Made and Factory-Made access panels would remain in place and maintain integrity for at least 120 minutes when used with the Monokote[®] duct protection system.

In fire resistance test FSP 1307 the access panel failed the insulation criteria on the exposed steel frame. In the Field-Made access panel design the frame is completely covered by the access panel. As the frame is underneath the panel, which had not failed the criteria for 241 minutes, it is considered an insulation failure would not occur before at least 120 minutes.

The Factory-Made panel is similar to above except it includes a rebate that the access panel sits within. The edge of the frame is covered by the Monokote[®] duct protection system and not



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visible. While the perimeter frame does extend from the steel duct liner to just below the surface of the Monokote® it is not directly exposed. It is expected that the temperature of the frame will be controlled by the temperature of the Monokote® where it is parallel with the steel duct liner or the Maxilite panel depending on the direction of fire exposure. It is therefore considered that the Factory-Made access panel would also be expected to maintain the insulation for at least 120 minutes.

5. CONCLUSION

It is considered that the Trafalgar Field-Made or Factory-Made FDAP access panel when installed on a steel duct, as shown in Figure 1 and Figure 2 respectively, protected with GCP Monokote® duct protection system applied to provide at least 120 minutes fire resistance in accordance with AS 1530.4:2014 would not be detrimental to the fire resistance of the duct for at least 120 minutes Integrity and Insulation.



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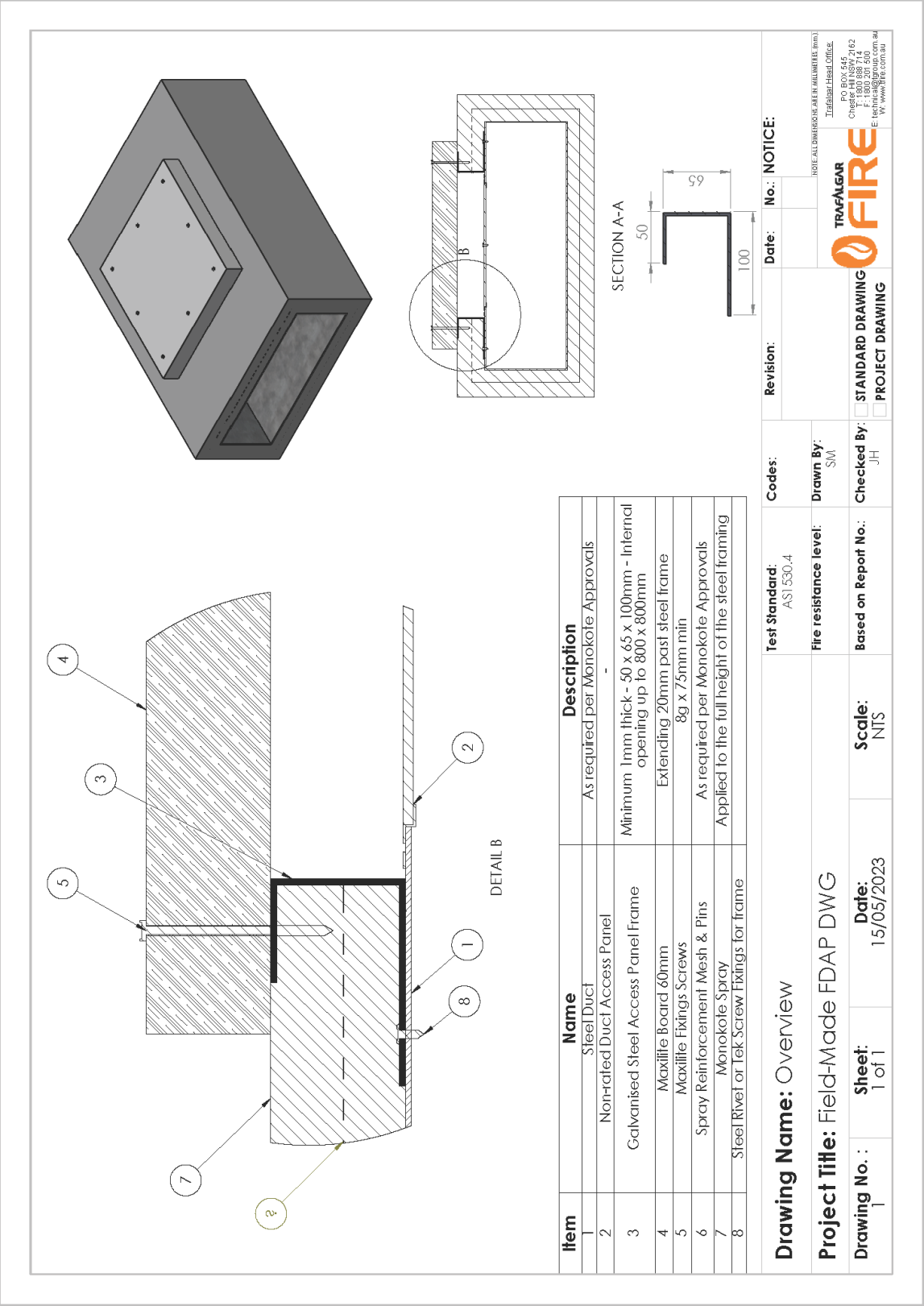
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Figure 1: Client Drawing – Field-Made FDAP



Item	Name	Description
1	Steel Duct	As per Monokote approvals
2	Non-rated Duct Access Panel	-
3	FDAP Frame	1.1mm thick - Internal opening up to 800 x 800mm 60mm Maxilite laminated with 4mm MDF front & back
4	FDAP Door Leaf	8g x 75mm min
5	FDAP Screw Fixings	As per Monokote approvals
6	Spray Reinforcement Mesh & Pins	Applied to the full height of the steel framing
7	Monokote Spray	-
8	Steel rivet or Tek Screw Fixings for frame	-

Drawing Name: Overview

Project Title: Factory-Made FDAP DWG

Drawing No.: 1 of 1 **Sheet:** 1 of 1 **Date:** 15/05/2023 **Scale:** NTS

Test Standard: AS1530.4
Fire resistance level: -
Based on Report No.: -

Codes: **Revision:** **Date:** **No.:** **NOTICE:**

Drawn By: SM
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STANDARD DRAWING
PROJECT DRAWING

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