



# FIRE ASSESSMENT REPORT

## FAR 3600 ISSUE 3

**FIRE RESISTANCE ASSESSMENT OF MAXILITE PANELS TO BE USED IN DAMPER INSTALLATION IN WALLS AND FLOORS**

### CLIENT

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## ASSESSMENT OBJECTIVE

This report gives BRANZ's assessment of the fire resistance for up to 120 minutes of fire damper installations in Maxilite lined openings and panels attached to fire resistance rated walls and floors.

## CONCLUSION

It is considered that installing a mechanical or intumescent fire damper previously tested or assessed to provide an FRL of up to at least -/120/- in the systems shown in Figure 1 to Figure 21 would not be detrimental to their fire resistance for an FRL of at least -/120/-.

## 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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02	20 June 2022	Update to AS 1530.4: 2014, additional installations added amendment to report formatting – Project No. FC15665-001
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# 1. INTRODUCTION

This report gives BRANZ's assessment of the fire resistance for up to 120 minutes of fire damper installations in Maxilite lined openings and panels attached to fire resistance rated walls and floors.

## 2. BACKGROUND

### 2.1 Supporting Data

#### 2.1.1 BRANZ Fire Resistance Test FP 4344

In pilot fire resistance test FP 4344 a Maxilite panel nominally 1,080 mm high x 1,000 mm wide x 30 mm thick was tested generally in accordance with AS 1530.4-2005. The panel was screw fixed to a steel frame at nominal 200 mm centres starting 50 mm from the corner of the board. The panel was tested for 250 minutes without cracking and exceeded a maximum temperature rise of 180 K after 142 minutes.

#### 2.1.2 CSIRO Fire Resistance Test FSP 1991

Ad-hoc fire resistance test report FSP 1991 details a pilot scale fire resistance test of a horizontal panel comprising two, 1,180 mm long x 460 mm wide x 60 mm thick Maxilite boards which were butt jointed together. Each Maxilite board included a 305 mm wide x 25 mm high slot which was cut across the from their outer 'long' edge running towards the central butt joint at mid span. The slots were loosely filled with a ceramic fibre blanket. The Maxilite boards were placed on top of a horizontal furnace aperture and were supported with 100 mm wide x 60 mm thick Maxilite board packers on their 'short' edges, the long edges were unsupported and free to deflect. The butt joint and the gaps between the unsupported board edges and the furnace aperture were packed with ceramic fibre blanket.

The panel assembly did not crack or fail the Integrity criteria defined in AS 1530.4:2014 for a duration of 240 minutes. At 242 minutes, a 2.9 kg deadload was applied at the centre of each panel, the deadload was then incrementally increased such that at 260 minutes the total deadload on each panel was 21.75 kg. No instances of Integrity failure were observed. At 263 minutes was increased to 31.75 kg and at this time one of the panels developed a crack which was considered to be a failure of Structural Adequacy. The test was terminated after a duration of 265 minutes.

#### 2.1.3 CSIRO Fire Resistance Test FSP 1907

Indicative fire resistance test report FSP 1907 details a pilot scale fire resistance test of a horizontal Bulkhead comprising two, 1,000 mm long x 500 mm wide x 40 mm thick Maxilite boards which were butt jointed together. The two panels were suspended below 50 mm x 50 mm x 0.9 mm thick steel angles which were fixed on all four sides of an opening formed in a concrete floor slab. The Maxilite panels were fixed to the angles at nominally 200 mm centres with 12g x 65 mm plasterboard screws. On the exposed face, the central butt joint was covered with a 100 mm wide x 30 mm thick Maxilite strip, half of the joint was sealed with Fyreflex sealant.

The Bulkhead assembly did not crack or collapse during the 121 minute test duration, an Integrity failure was observed after a duration of 55 minutes which occurred as a result of ignition of a cotton wool pad positioned directly over the unsealed butt joint.



#### 2.1.4 CSIRO Fire Resistance Test FSP 2095

Ad-hoc fire resistance test report FSP 12095 details an Ad-hoc pilot scale fire resistance test of a 600 mm x 600 mm Trafalgar Wombat intumescent damper mounted within an aperture formed in a 1,200 mm x 1,200 mm x 60 mm thick Maxilite wall panel. The annular gaps between the damper and the Maxilite boards were nominally 20 mm wide on all four sides and were sealed with FyreFLEX sealant to a depth of nominally 40 mm. The test duration was 121 minutes and at no time during the fire exposure was any Integrity failure attributed to the sealant observed.

#### 2.1.5 Warringtonfire Fire Assessment Report FAS 210132

The Warringtonfire fire assessment report FAS 210132 details a series of fire resistance tests conducted at Efectis Turkey of various thicknesses of A1 Corex plasterboard mounted to one side of a shaftwall steel framing system in accordance with EN1364-1:2015.

The test wall specimens were all nominally 3,000 mm high by 3,000 mm wide and briefly comprised 74 mm deep steel shaft wall framing sections with vertical studs spaced at nominally 600 mm centres, there were no noggings. The framing was lined on one face with two layers of the A1 COREX plasterboard. A full width horizontal butt joint was provided in both layers of the plasterboard, nominally 1,000 mm below the head in the outer layer and nominally 1,000 mm above the base in the inner layer. One of the vertical perimeter edges was not restrained to the specimen restraint frame.

A summary of the systems tested and the results are shown below:

Test Reference	Lining Reference	Lining Side	Integrity Minutes	Insulation Minutes
RFTR21184	A1 COREX 25 mm	Exposed Face	131 No Failure	130
RFTR21185	A1 COREX 25 mm	Unexposed Face	129 No Failure	128
RFTR21186	A1 COREX 20 mm	Exposed Face	94 No Failure	93
RFTR21187	A1 COREX 20 mm	Unexposed Face	92 No Failure	91
RFTR21188	A1 COREX 15 mm	Exposed Face	64 No Failure	63
RFTR21189	A1 COREX 15 mm	Unexposed Face	66 No Failure	65

The assessment concluded:

- Two x 15 mm A1 COREX boards mounted on one of the sides of the steel framework would provide an FRL of -/60/60 when exposed to fire from either side (not simultaneously).
- Two x 20 mm A1 COREX boards mounted on one of the sides of the steel framework would provide an FRL of -/90/90 when exposed to fire from either side (not simultaneously).
- Two x 25 mm A1 COREX boards mounted on one of the sides of the steel framework would provide an FRL of -/120/120 when exposed to fire from either side (not simultaneously).

#### 2.1.6 Exova Warringtonfire Assessment Report RIR 21622-23

In Exova Warringtonfire fire assessment report No. RIR 21622-23 it was determined a number of installation and construction details for Speedpanel walls with penetrations would not prejudice the fire resistance of the wall system before at least 120 minutes subject to the specific details and wall thickness modifications.



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## 3. DISCUSSION

### 3.1 Standards

#### 3.1.1 AS 1530.4-2005 v AS 1530.4:2014

The testing referenced in Section 2.1.1 above described a fire resistance test conducted in accordance with the heating conditions of AS 1530.4-2005. A review has been undertaken between the 2005 and 2014 versions of AS 1530.4 with respect to the heating conditions and failure criteria of the respective standards. Based on the review it is considered the changes in versions would not have changed the reported performance of the specimen. Therefore, it is expected had the specimen been tested in accordance with AS 1530.4:2014 a similar result for Integrity and Insulation would be expected.

#### 3.1.2 EN 1364-1:2015 v AS 1530.4:2014

The testing referenced in Section 2.1.4 above described a series of fire tests conducted in accordance with EN 1364-1:2015 'Fire resistance tests for non-loadbearing elements – Part 1: Walls'. There are no significant differences between the two standards with respect to specified furnace temperature and pressure conditions or the evaluation of Integrity and Insulation failure for wall specimens.

There is however one noted difference between the two standards regarding the method of measurement of the actual furnace temperature. EN 1364-1:2015 states that the heating and pressure conditions and the furnace atmosphere shall conform to those given in EN 1363-1 which requires the use of plate thermometers for furnace temperature measurement. Due to the plate thermometer being insulated it is considered that a test performed using plate thermometers to control the furnace temperature would be more severe than a test performed using the 3 mm diameter MIMS thermocouples required by AS 1530.4. In both cases the thermocouples are Type K. Therefore, it can be reasonably considered had the specimens been tested in accordance with AS 1530.4:2014 a similar result for Integrity and Insulation would be expected.

### 3.2 FyreFLEX Sealant for Annular Gaps

The client has proposed the use of FyreFLEX sealant as a substitute to that specified by the damper approval.

The client has provided details of an Ad-hoc fire resistance test (FSP 2095) where a vertically orientated 600 mm x 600 mm Trafalgar Wombat intumescent damper was mounted within an aperture formed in a 1,200 mm x 1,200 mm x 60 mm thick Maxilite wall panel. The annular gaps between the damper and the Maxilite were nominally 20 mm wide on all four sides and were sealed with FyreFLEX sealant to a depth of nominally 40 mm. The test duration was 121 minutes and at no time during the exposure was any Integrity failure attributed to the sealant observed.

Based on the discussion above, it can be reasonably considered that the use of FyreFLEX sealant as a substitute for an approved fire resistant sealant to seal annular gaps would not be detrimental to the Integrity of the damper installation if sealant is required by the damper approval for at least 120 minutes.



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### 3.3 General

#### 3.3.1 Dampers in Walls

In fire resistance test FP 4344 a vertical panel of nominally 1,080 mm wide x 1,000 mm high x 30 mm thick Maxilite was tested for 250 minutes. The panel did not crack or fail the Integrity criteria defined in AS 1530.4-2005 for the 250 minute duration of the test. It is proposed to use Maxilite board to fill in openings in a fire rated walls around dampers.

The dampers must be independently tested and validated for use in a wall for up to 120 minutes.

It is proposed to use the Maxilite board as an in-fill of an existing fire rated walls where the opening in the wall is larger than the damper to be installed.

The maximum size of the Maxilite panel is limited to a single sheet of 1,200 mm x 1,200 mm or 1,500 mm x 1,000 mm. It is considered the increase in size by up to 400 mm to that tested in FP 4344 in addition to an increase in thickness, would not prejudice the performance of the Maxilite panel.

Where a damper is installed into the panel the maximum damper size is limited to 800 mm x 800 mm.

#### 3.3.2 Dampers in Floors

In CSIRO fire resistance test FSP 1991 a horizontal panel formed from two, nominally 1,180 mm long x 460 mm wide x 60 mm thick Maxilite boards was tested for 263 minutes. The panel did not crack or fail the Integrity criteria defined in AS 1530.4:2014 for the 242 minute duration of the test prior to a dead load being applied.

In CSIRO fire resistance test FSP 1907 a horizontal Bulkhead formed from two nominally 1,000 mm long x 500 mm wide x 40 mm thick Maxilite panels was tested for 121 minutes in which time, the Bulkhead did not crack or collapse. Integrity failure at 55 minutes occurred at the joint between boards which is not a feature of the proposed design discussed below. The test demonstrated that the Maxilite panels could be suspended below a floor slab and remain in place for at least 120 minutes when subjected to the heating conditions specified in AS 1530.4.

It is proposed to use Maxilite board to fill in openings in a fire rated floors around dampers.

The dampers must be independently tested and validated for use in a floor for up to 120 minutes.

It is proposed to use the Maxilite board as an in-fill of an existing fire rated floor where the opening in the floor is larger than the damper to be installed.

The maximum size of the Maxilite panel is limited to a single sheet of 1,200 mm x 1,200 mm or 1,500 mm x 1,000 mm. It is considered the increase in size by up to 400 mm to that tested in FSP 1991 in addition to an increase in thickness, would not prejudice the performance of the Maxilite panel.

Where a damper is installed into the panel the maximum damper size is limited to 800 mm x 800 mm.



### 3.3.3 Dampers in Speedpanel Walls

Exova Warringtonfire assessment report No. RIR 21622-23 provides a number of installation details for penetrations in Speedpanel wall systems. Where there is an opening in the Speedpanel wall system the edges of the panels are trimmed with a 50 mm x 1.15 mm thick mild steel channel with a bead of sealant under the channel. The channel is then screw fixed to the face of the Speedpanel panel sections.

Included in the range of penetrations are fire rated dampers. The dampers have been independently tested/assessed to determine their fire resistance. Typically, the opening in the Speedpanel is trimmed with a channel section to the four edges. The damper is then installed in accordance with the manufacturer's instructions.

Fire resistance test FP 4344 demonstrated the ability of the Maxilite panel to satisfy the Integrity criteria of the test standard for the 250 minute duration of the test without cracking or breaking up with a 30 mm thick panel. Where the opening size in the Speedpanel wall exceeds that required for the installation instructions for the fire rated damper a strip of Maxilite board is to be secured in line with the wall to the underside of concrete slab above. The Maxilite is to be the same width as the Speedpanel and secured with M6 masonry anchors at maximum 400 mm centres. Prior to installation the Maxilite is to be bedded in a bead of fire rated sealant. The fire rated damper must be installed in accordance with the manufacturer's instructions and comply with required gaps and packing etc. The only exception to this is if the damper instructions only require mild steel angles installed to one face of the wall. Angles must be installed to both sides of the wall and to all four sides of the damper.

It is considered that trimming an opening in a Speedpanel wall with Maxilite up to 60 mm thick would not prejudice the fire resistance of the Speedpanel wall or fire rated damper before at least 120 minutes Integrity if tested in accordance with AS 1530.4.

### 3.3.4 A1 COREX Plasterboard

In the fire resistance tests described in Warringtonfire Fire Assessment Report FAS 210132 the specimens constructed from two layers of 15 mm, 20 mm and 25 mm thick A1 COREX plasterboard demonstrated their ability to maintain Integrity and Insulation for 60 minutes, 90 minutes and 120 minutes respectively when tested from both directions (not simultaneously). It therefore can be considered that the inclusion of Maxilite panels to cover gaps between the opening within an A1 COREX plasterboard wall and a damper would not prejudice the Integrity of the wall for the relevant FRL.

## 3.4 Fire Resistance Rating

### 3.4.1 75 mm AAC/Concrete/Masonry Fire Rated Wall with Installed Damper

This installation detail is for dampers installed into 75 mm AAC/Concrete/Masonry Fire Rated walls. Where the opening in the fire rated wall is to be penetrated with a damper, the fire rating of the Maxilite infill is limited to a maximum of -/120/120 (subject to the insulation rating achieved by the wall and the damper). The minimum thickness of the Maxilite panels is 30 mm. Specific details are discussed below.



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#### 3.4.1.1 MFDU-1 Damper Installation Details

The installation detail consists of strips of Maxilite of minimum thickness of 40 mm secured to the perimeter of the wall and/or soffit with M6 masonry anchors at maximum 300 mm centres. A strip of Maxilite is also positioned around the perimeter of the damper. The strips are then lined with Maxilite of minimum thickness of 30 mm and screw fixed with 8g plasterboard screws at maximum 200 mm centres. See Figure 1 for specific details.

#### 3.4.1.2 MFDU-2 Damper Installation Details

The installation detail consists of a nominal 110 mm wide strip of 30 mm thick Maxilite around the perimeter of the opening in the masonry wall and/or slab above. The strip is secured with M6 masonry anchors at maximum 300 mm centres. The opening is then trimmed with strips of Maxilite secured to either the perimeter strip or a central square hollow section (SHS) with 8g plasterboard screws at nominally 200 mm centres. See Figure 2 for specific details.

#### 3.4.1.3 MFDU-3, MFDU-4 and MFDU-5 Damper Installation Details

These installation details consist of solid Maxlite laminated barriers secured to the perimeter opening and each other to provide the infill of the opening in the wall. Figure 3 and Figure 5 are secured to the opening with M6 masonry anchors at maximum 300 mm centres. Figure 4 has a mild steel angle secured to the opening in the wall which is then laminated each side with Maxilite board. See Figure 3 to Figure 5 for specific details.

#### 3.4.1.4 MFDU-6 Damper Installation Details

The installation detail is similar to Figure 1 except where the opening coincides with the wall the Maxilite facing overlaps the face of the wall. The Maxilite is to be installed as per section 4.3.1.1 except where the Maxilite extends over the face of the wall is to be secured with M6 masonry anchors at maximum 300 mm centres. See Figure 6 for specific details.

#### 3.4.1.5 MFDU-7 Damper Installation Details

The installation detail consists of a panel of Maxilite of 60 mm minimum thickness secured to the face of a wall with an intumescent damper. The panel is to be secured to the wall with M6 masonry anchors at maximum centres of 300 mm. The maximum size of the panel is limited to a single sheet of 1,200 mm x 1,200 mm or 1,500 mm x 1,000 mm and maximum damper size is limited to 800 mm x 800 mm. See Figure 7 for specific details.

#### 3.4.2 Plasterboard Fire Rated Wall with Installed Damper

This installation detail is for dampers installed into plasterboard walls. Where the opening in the plasterboard fire rated wall is to be penetrated with a damper, the fire rating of the Maxilite infill is limited to a maximum of -/120/120 (subject to the insulation rating achieved by the wall and the damper). Suitable evidence must be supplied in conjunction with this assessment to determine if the damper is suitable to be installed into plasterboard walls. Specific details are discussed below.

#### 3.4.2.1 WMD1 Damper Installation Details

The installation detail consists of one to three layers of 30 mm minimum thickness Maxilite secured on all four sides of the opening of the fire rated wall Plasterboard wall with 8g plasterboard screws at maximum 200 mm centres. A maximum 25 mm annular gap is permitted between the damper and the Maxilite which shall be sealed as per the damper approval. The damper mounting flanges are secured to the Maxilite with 8g plasterboard screws at maximum 200 mm centres. See Figure 8 for specific details.



### 3.4.2.2 WMD2 Damper Installation Details

The installation detail consists of the opening in the fire rated plasterboard wall is trimmed with a strip of Maxilite of minimum 60 mm thick to all four sides x the depth of the stud and screw fixed with 8g plasterboard screws at maximum 200 mm centres. See Figure 9 for specific details.

### 3.4.2.3 WMD3 Damper Installation Details

The installation detail consists of one to three layers of 30 mm minimum thickness Maxilite secured on all four sides of the opening of the fire rated shaft wall with 8g plasterboard screws at maximum 200 mm centres. A maximum 25 mm annular gap is permitted between the damper and the Maxilite which shall be sealed as per the damper approval. The damper mounting flanges are secured to the Maxilite with 8g plasterboard screws at maximum 200 mm centres. See Figure 10 for specific details.

### 3.4.2.4 WMD4 Damper Installation Details

The installation detail consists of the opening in the plasterboard or shaft wall is trimmed with a strip of Maxilite of minimum 30 mm thick to all four sides x the depth of the stud and screw fixed at nominal 200 mm centres. The opening is then framed on all four sides with one to three layers of 30 mm minimum thickness Maxilite secured on all four sides of the opening in the fire rated plasterboard or shaft wall with 8g plasterboard screws at maximum 200 mm centres.

A maximum 25 mm annular gap is permitted between the damper and the Maxilite which shall be sealed as per the damper approval. The damper mounting flanges are secured to the Maxilite with 8g plasterboard screws at maximum 200 mm centres. See Figure 11 for specific details.

### 3.4.2.5 WMD5 Damper Installation

The installation detail consists of a panel of Maxilite of 60 mm minimum thickness secured to the face of a wall with an intumescent damper. The panel is to be secured to the wall with 8g plasterboard screws at maximum centres of 200 mm. The maximum size of the panel is limited to a single sheet of 1,200 mm x 1,200 mm or 1,500 mm x 1,000 mm and maximum damper size is limited to 800 mm x 800 mm. See Figure 12 for specific details.

### 3.4.2.6 WMD6 Damper Installation

The installation detail consists of one to three layers of 30 mm minimum thickness Maxilite secured on all four sides of the opening of the A1 COREX plasterboard shaft wall with 8g plasterboard screws at maximum 200 mm centres. A maximum 25 mm annular gap is permitted between the damper and the Maxilite which shall be sealed as per the damper approval. The damper mounting flanges are secured to the Maxilite with 8g plasterboard screws at maximum 200 mm centres. See Figure 13 for specific details.

### 3.4.3 Speedpanel Walls with Installed Damper

For situations where a fire rated damper is to be installed to the underside of a concrete slab and the trimmed opening in the Speedpanel is larger than required for the damper it is proposed to install a strip of Maxilite board. The Maxilite may be installed up to a maximum thickness of 60 mm. If made up of layers any butt joints must be staggered between fixings (400 mm centres) and installed with fire rated sealant. The lower layer may be secured to the one above with laminating screws, however the top board must be secured with masonry anchors to the concrete slab above. See Figure 14 for specific details.



### 3.4.4 Fire Rated Floor with Installed Damper

This installation detail is for dampers installed into fire rated floors. Where the opening in the fire rated floor is to be penetrated with a damper, the fire rating of the Maxilite infill is limited to a maximum of -/120/120 (subject to the insulation rating achieved by the floor and the damper). Suitable evidence must be supplied in conjunction with this assessment to determine if the damper is suitable to be installed into fire rated floors. Specific details are discussed below.

#### 3.4.4.1 FMD1 Damper Installation Details

The installation detail consists of two layers of minimum 30 mm Maxilite positioned flush to all four sides of the opening. The lower layer is secured with M6 masonry anchors at maximum 300 mm centres, the upper layer is secure to the lower layer with 8g plasterboard screws at maximum 200 mm centres. A maximum 25 mm annular gap is permitted between the damper and the Maxilite which shall be sealed to the full depth of the two layers of Maxilite. See Figure 15 for specific details.

#### 3.4.4.2 FMD2 Damper Installation Details

This installation detail consists of one layer of minimum 60 mm thick Maxilite fitted within the opening on four sides level to the underside of the floor. The Maxilite is secured within the opening either with 50 mm x 50 mm x 0.9 mm thick steel angle fixed inside the opening, above the Maxilite on all four sides or with 60 mm x 60 mm strips of Maxilite fixed inside the opening, above the Maxilite on all four sides. For both methods, M6 masonry anchors are used at maximum 300 mm centres. The horizontal Maxilite panels are secured to the angle or the strips with 8g plasterboard screws at maximum 200 mm centres. A maximum 25 mm annular gap is permitted between the damper and the Maxilite which shall be sealed as per the damper approval. See Figure 16 for specific details.

#### 3.4.4.3 FMD3 and FMD4 Damper Installation Details

These installation details consist of one layer of minimum 60 mm thick Maxilite above or below the fire rated floor slab. The Maxilite should overhang all sides of the opening by a minimum of 100 mm. The Maxilite is secured with M6 masonry anchors at maximum centres of 300 mm. A maximum 25 mm annular gap is permitted between the damper and the Maxilite which shall be sealed as per the damper approval. The damper mounting flanges are secured to the Maxilite with 8g plasterboard screws at maximum 200 mm centres. See Figure 17 and Figure 18 for specific details.

#### 3.4.4.4 FMD5 and FMD6 Damper Installation Details

These installation details consist of one layer of minimum 60 mm thick Maxilite fitted within the opening on all four sides either level with the underside of the floor or level with the finished floor level. 75 mm x 75 mm x 2 mm thick steel SHS sections are installed at mid depth of the opening on all four sides, secured with M6 masonry anchors at maximum 300 mm centres.

75 mm x 75 mm x 2 mm thick steel SHS sections are provided on all four exterior edges of the damper secured to the Maxilite and damper mounting flanges (not directly fixed to the damper sleeve). Where the horizontal Maxilite panels are positioned level with the finished floor level, the SHS sections below are encased with strips of 60 mm thick Maxilite. See Figure 19 and Figure 20 for specific details.



#### 3.4.4.5 FMD7 Damper Installation Details

The installation details consist of one or more layers of minimum 30 mm thick Maxilite fitted on one to four sides of the opening with M6 masonry anchors at maximum centres of 300 mm. A maximum 25 mm annular gap is permitted between the damper and the Maxilite or the damper and the opening which shall be sealed as per the damper approval. The damper mounting flanges shall be extended to allow for fixing of the damper to the concrete floor with M6 masonry anchors at maximum 300 mm centres. See Figure 21 for specific details.

## 4. CONCLUSION

It is considered that installing a mechanical or intumescent fire damper previously tested or assessed to provide an FRL of up to at least -/120/- in the systems shown in Figure 1 to Figure 21 would not be detrimental to their fire resistance for an FRL of at least -/120/-.



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Figure 1: MFDU-1 Damper Installation Details

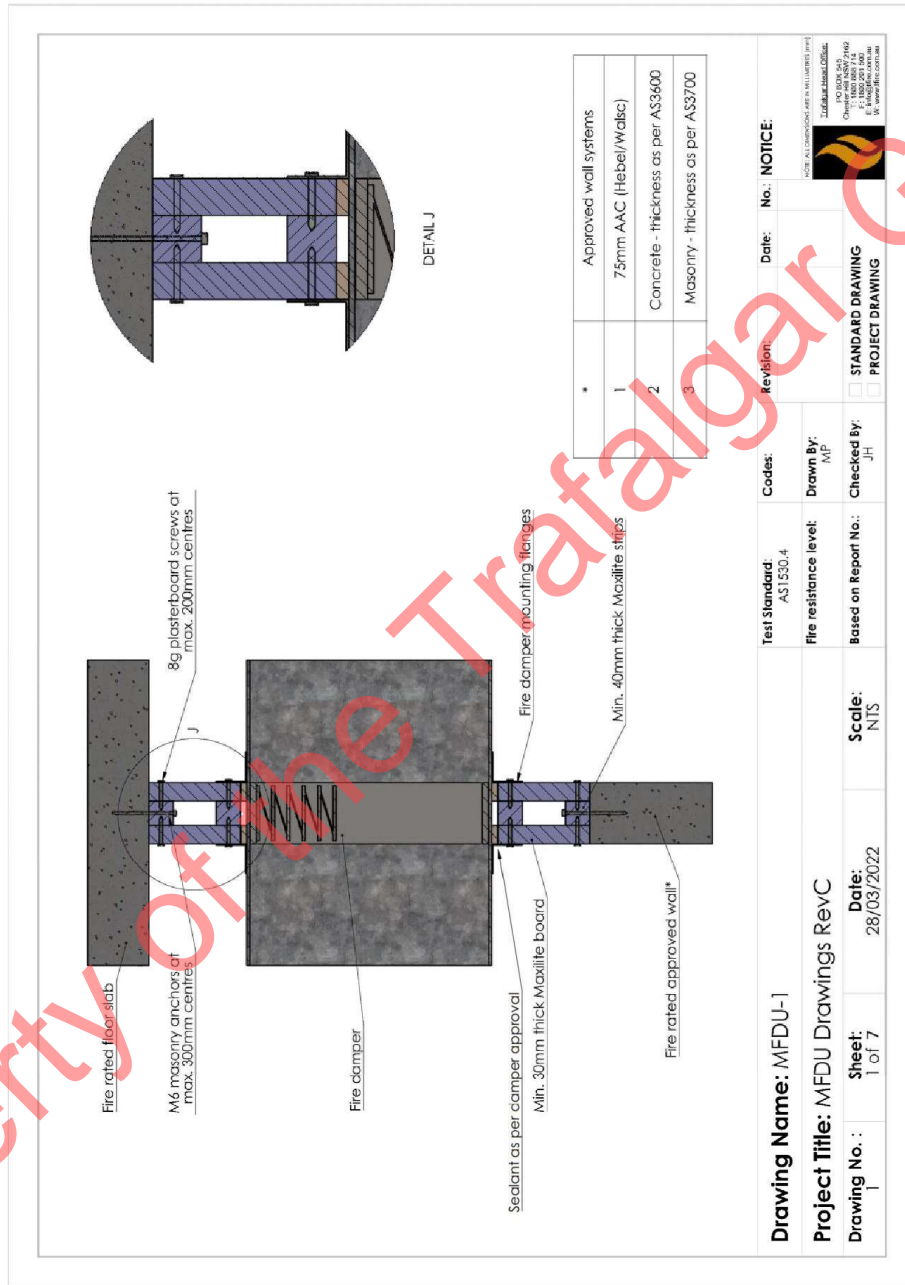




Figure 2: MFDU-2 Damper Installation Details

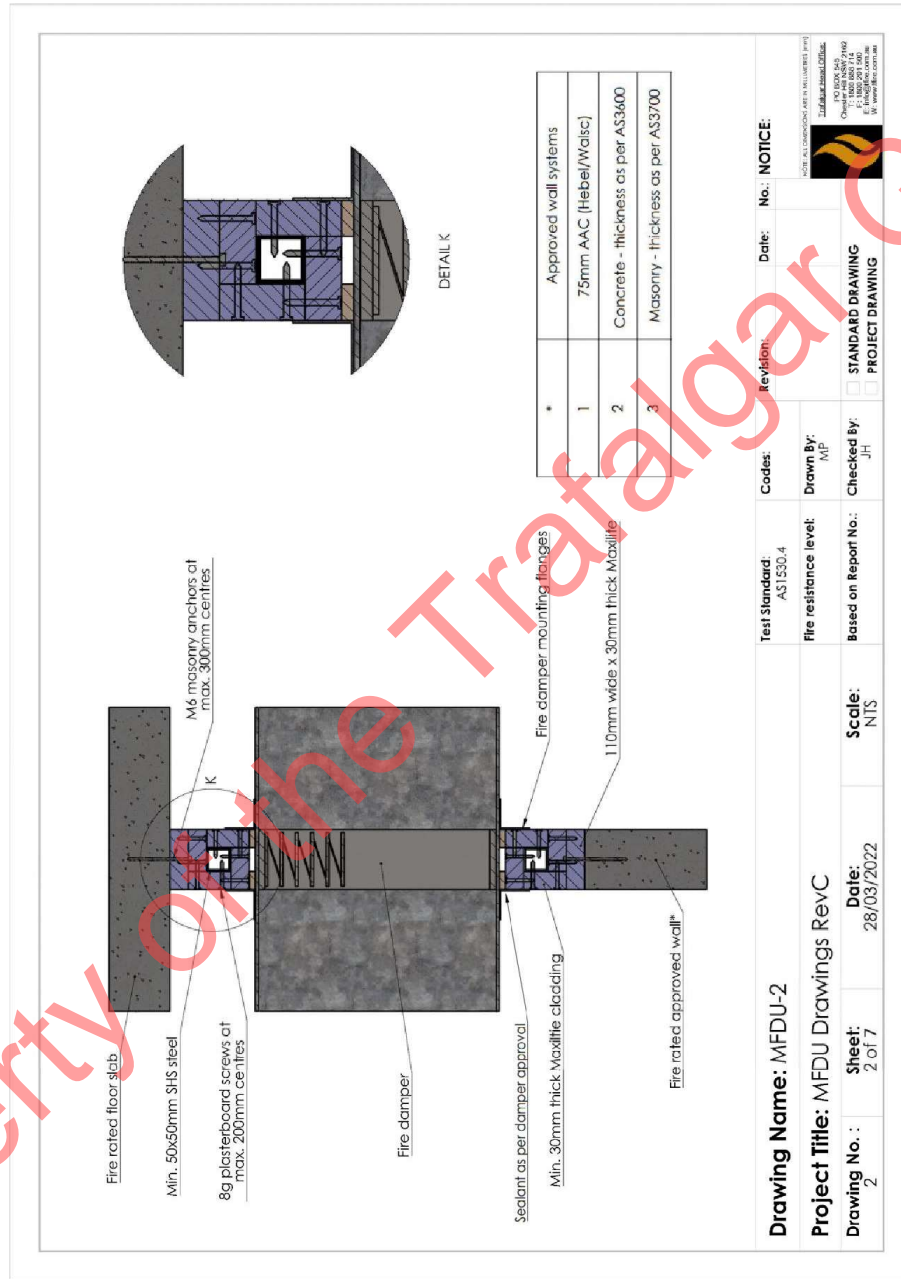
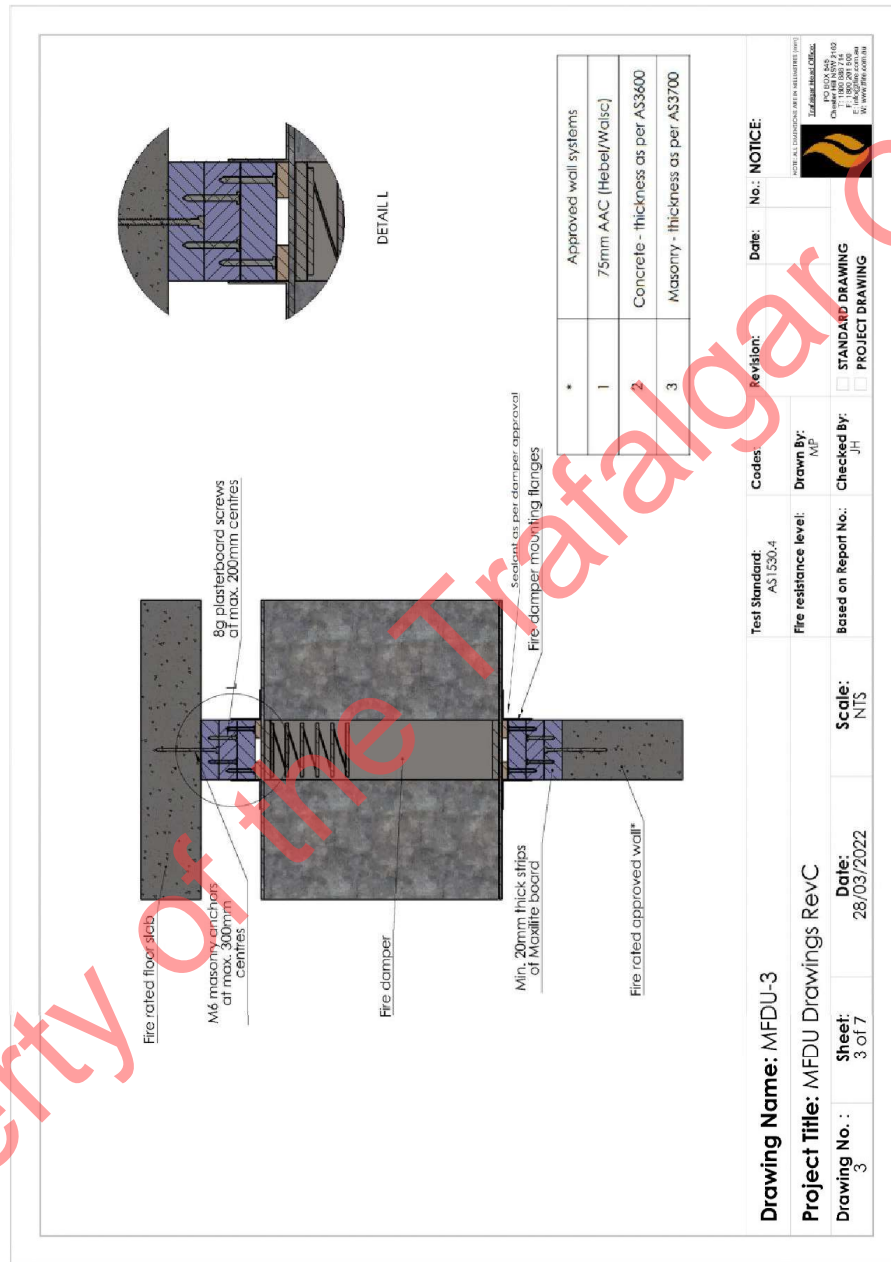
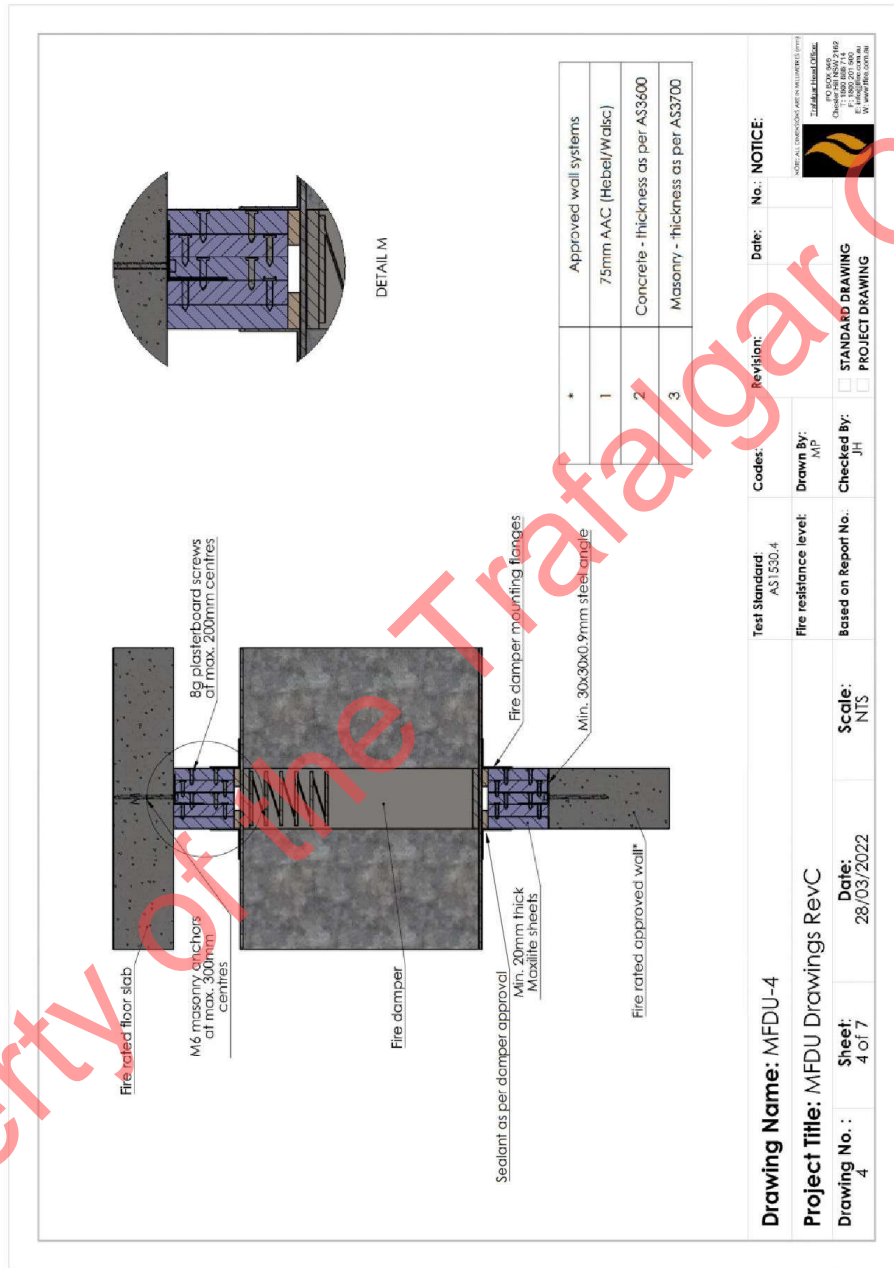


Figure 3: MFDU-3 Damper Installation Details



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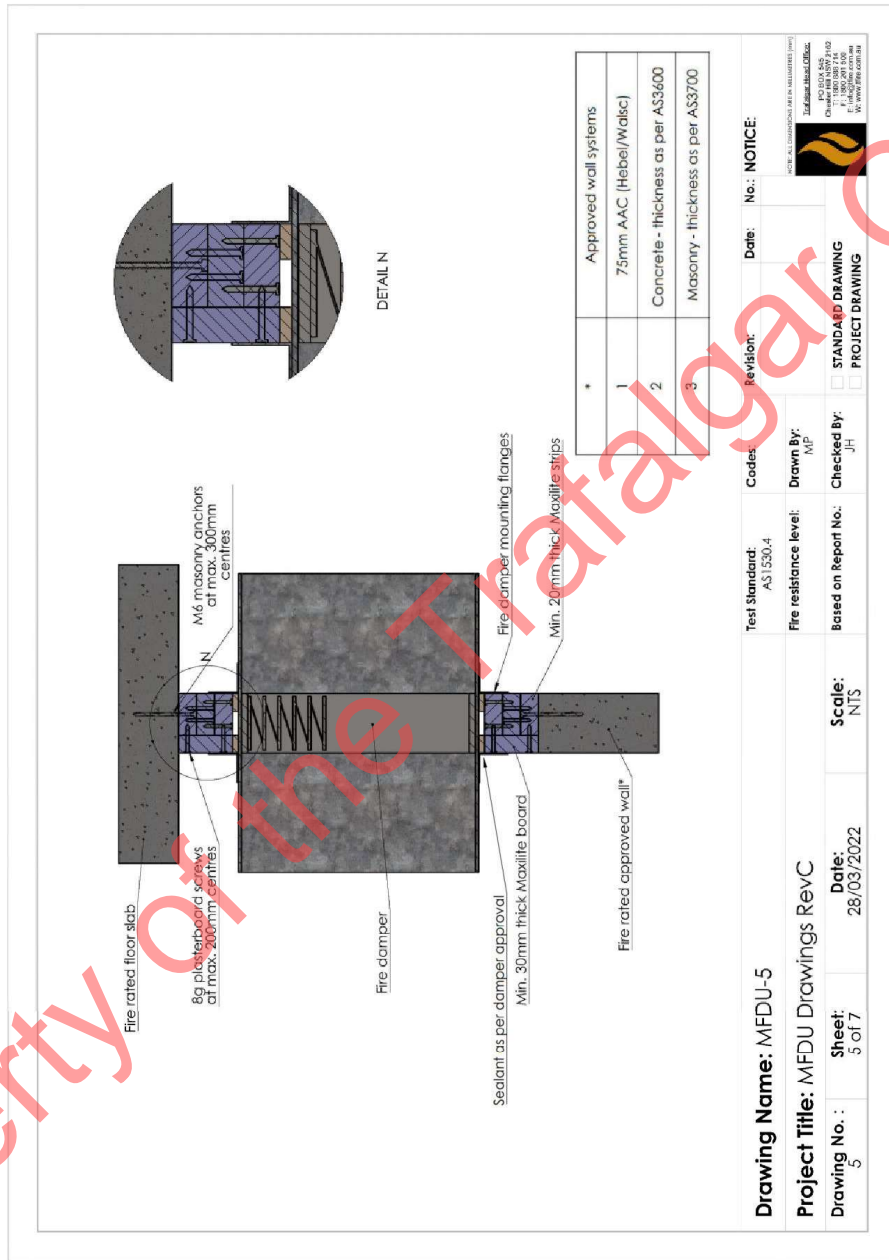
Figure 4: MFDU-4 Damper Installation Details



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Figure 5: MFDU-5 Damper Installation Details



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Figure 6: MFDU-6 Damper Installation Details

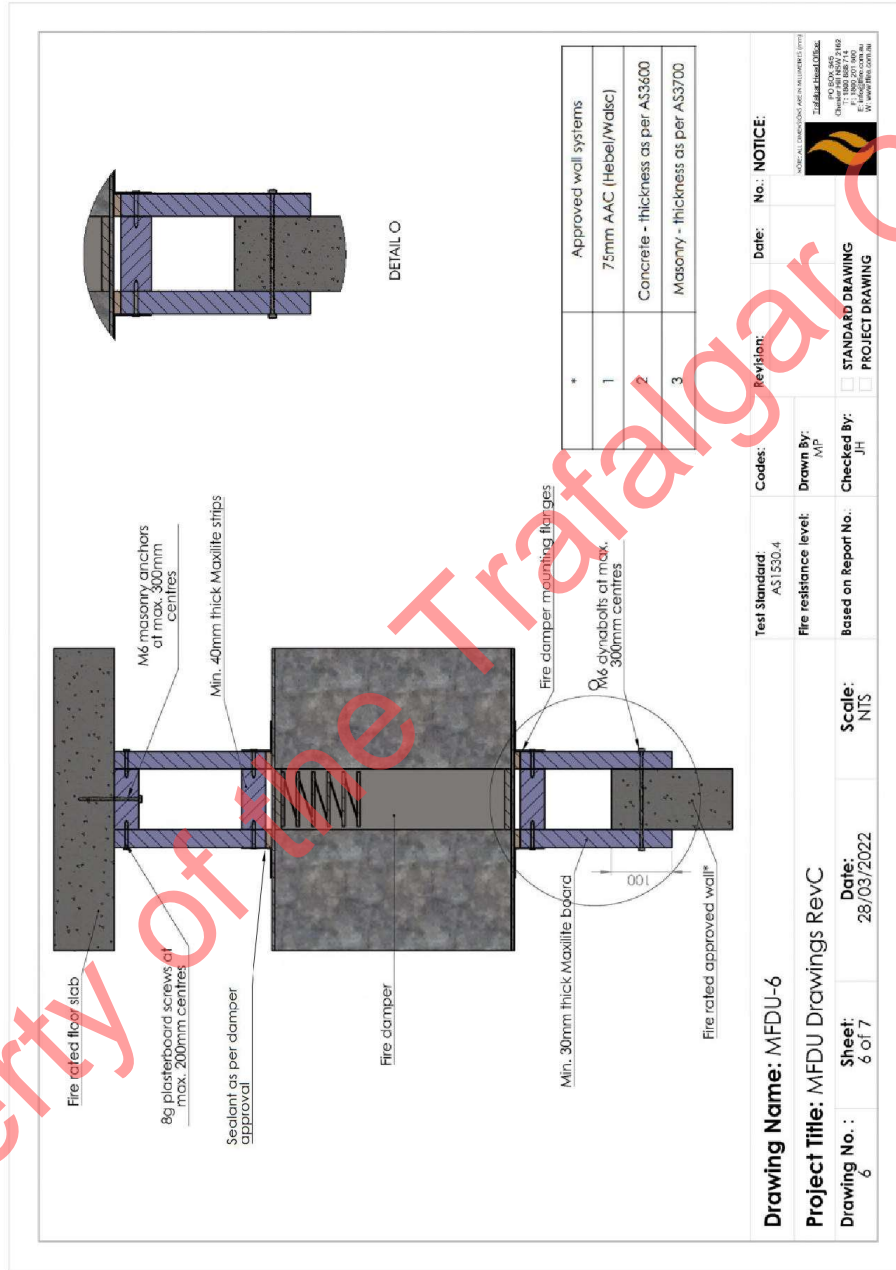
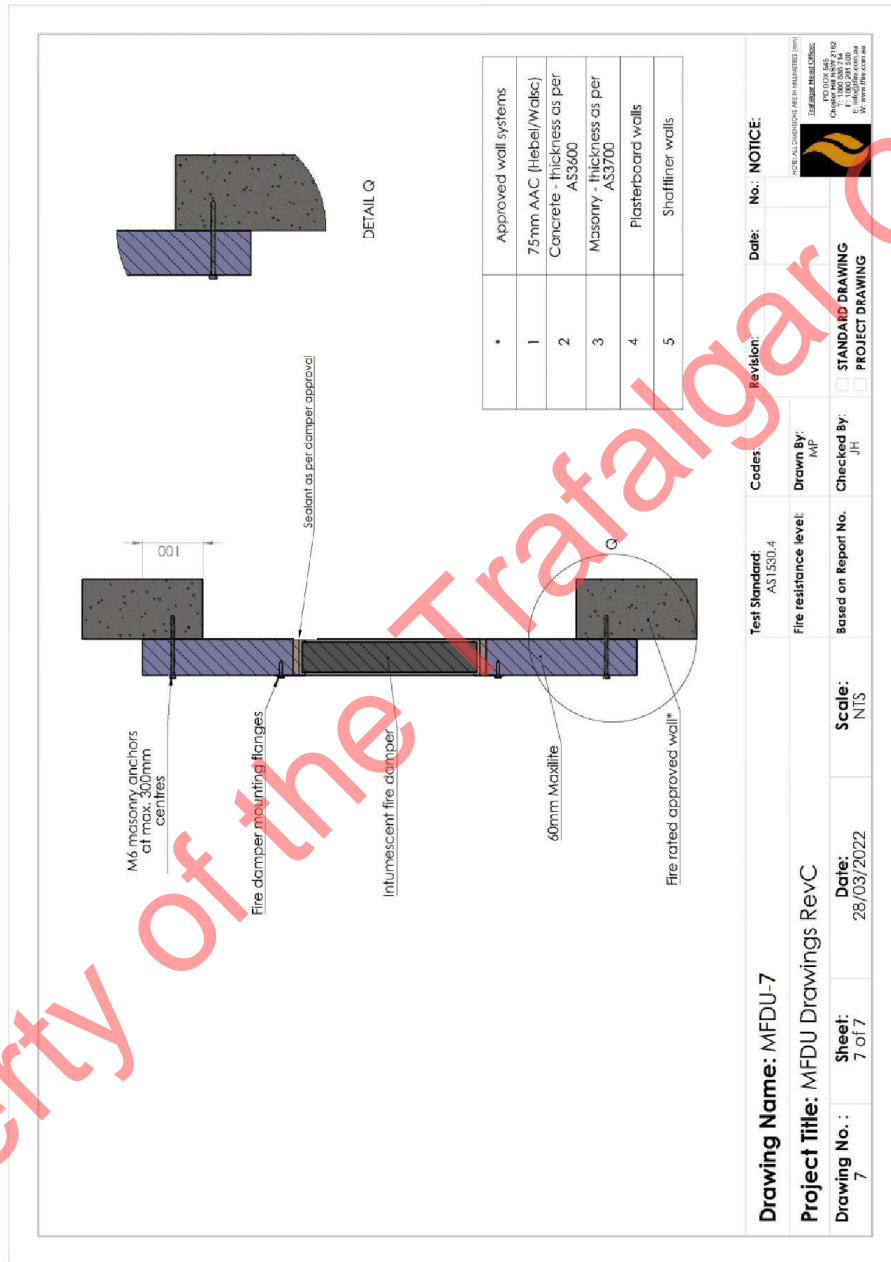


Figure 7: MFDU-7 Damper Installation Details



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Figure 8: WMD1 Damper Installation Details

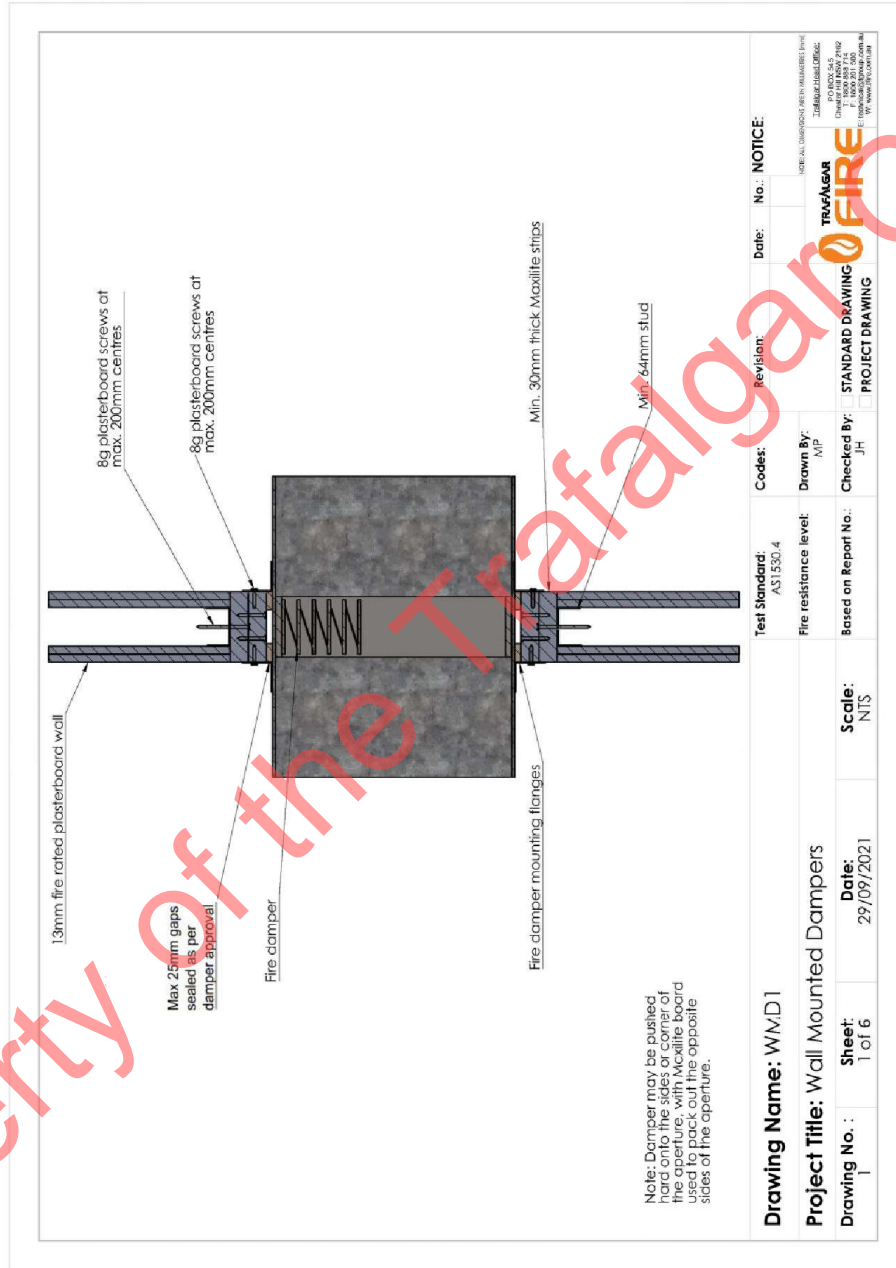




Figure 9: WMD2 Damper Installation Details

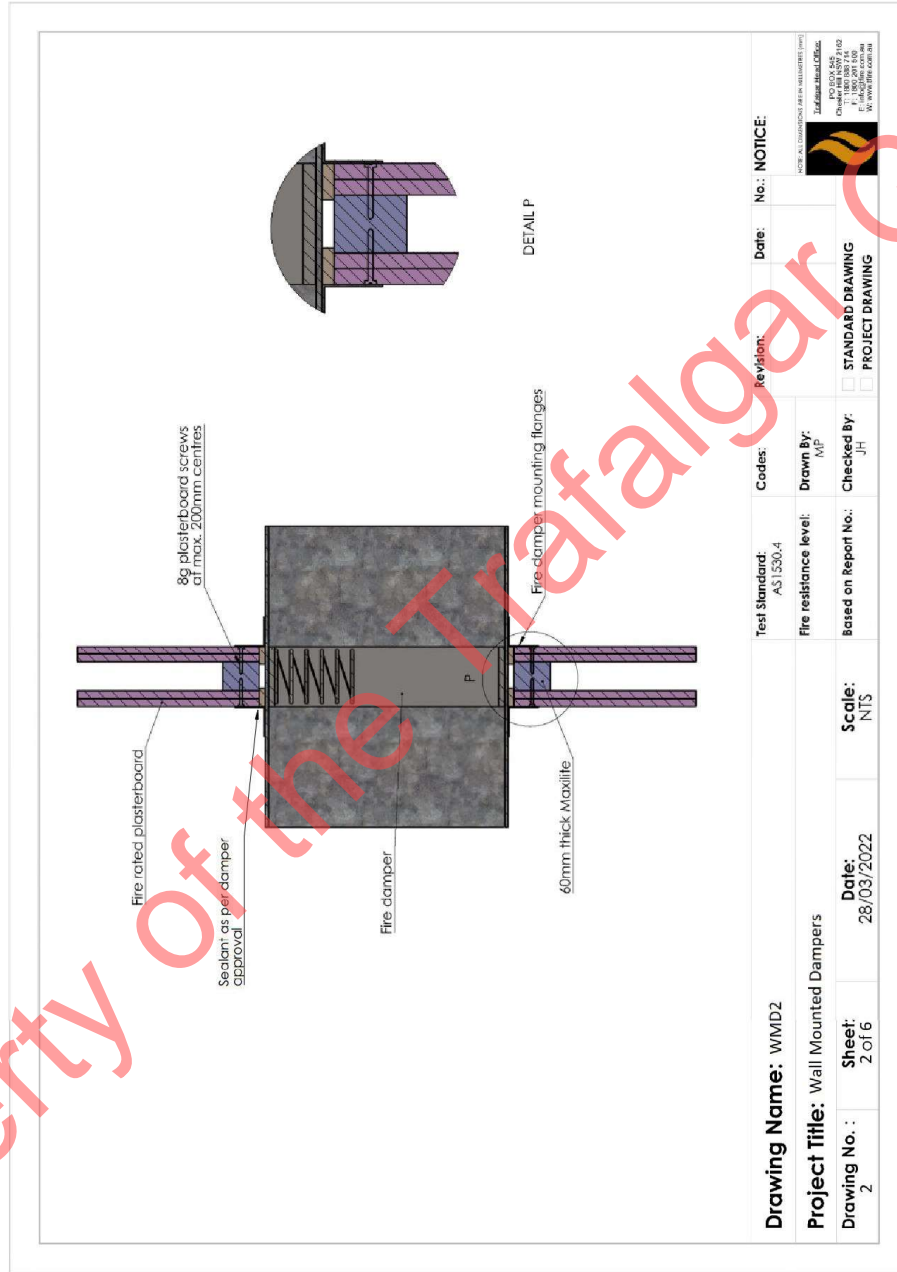
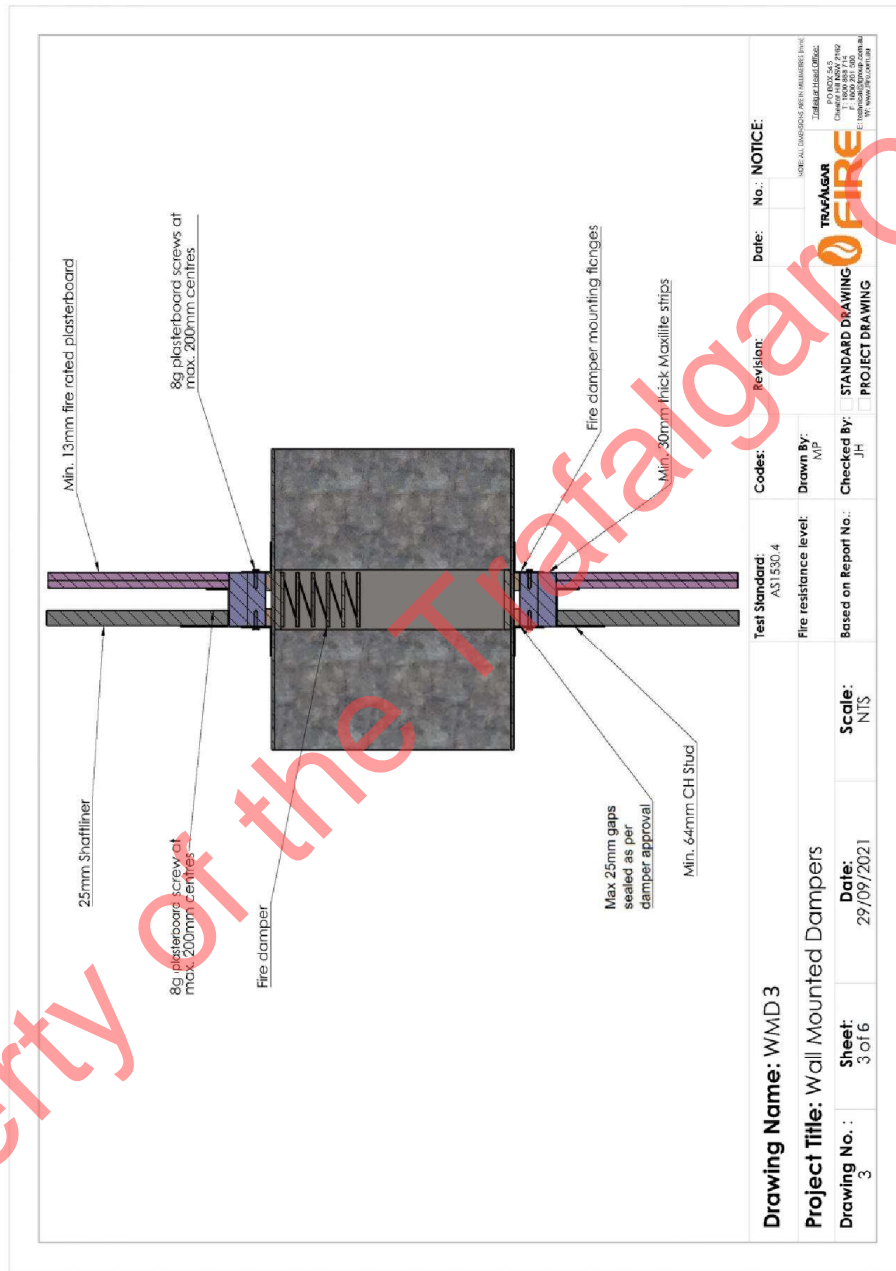


Figure 10: WMD3 Damper Installation Details



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Figure 11: WMD4 Damper Installation Details

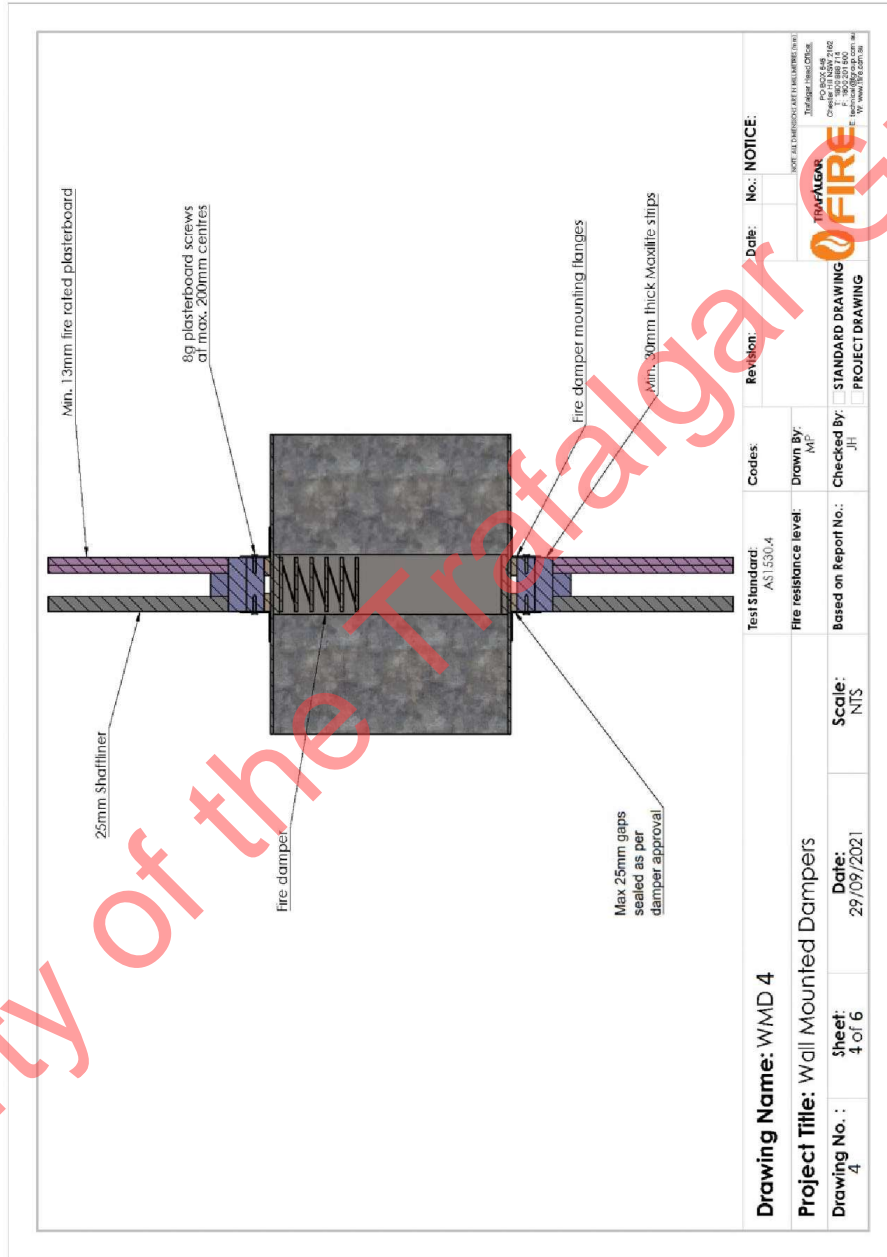


Figure 12: WMD5 Damper Installation Details



Figure 13: WMD6 Damper Installation Details

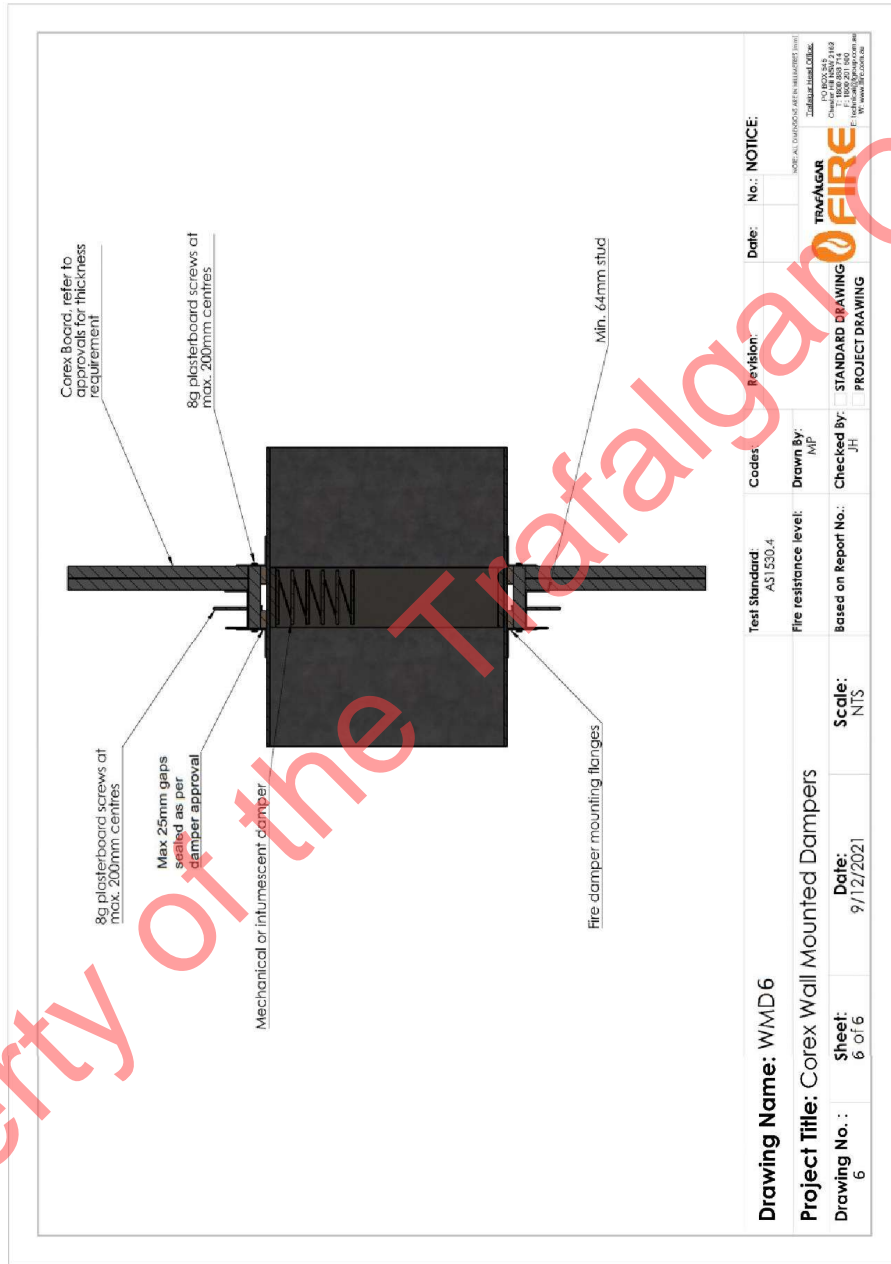
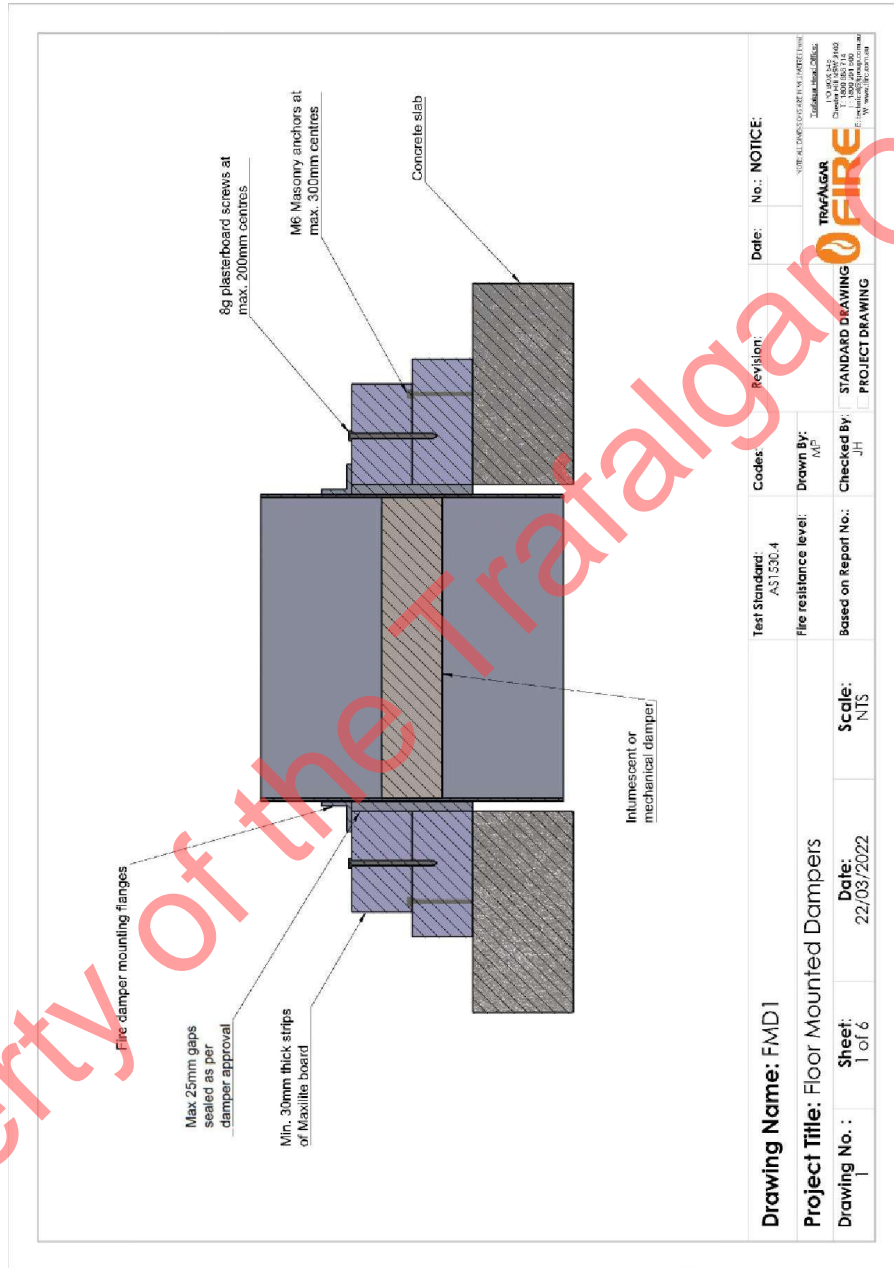




Figure 15: FMD1 Damper Installation Details



<b>Drawing Name:</b> FMD1	<b>Test Standard:</b> AS1530.4	<b>Codes:</b>	<b>Revision:</b>	<b>Date:</b>	<b>No.:</b>	<b>NOTICE:</b>
<b>Project Title:</b> Floor Mounted Dampers	<b>Fire resistance level:</b>	<b>Drawn By:</b> ME				NOTE: ALL DIMENSIONS ARE IN MILLIMETRES 22/08/2022 10:30:52 C:\Users\me\OneDrive\Documents\220822\FMD1.dwg P:\Users\me\OneDrive\Documents\220822\FMD1.dwg
<b>Drawing No.:</b> 1	<b>Based on Report No.:</b>	<b>Checked By:</b> JH	<b>STANDARD DRAWING</b>	<b>PROJECT DRAWING</b>		<b>TRAFALGAR FIRE</b>
<b>Sheet:</b> 1 of 6	<b>Scale:</b> NTS	<b>Date:</b> 22/03/2022				





Figure 16: FMD2 Damper Installation Details

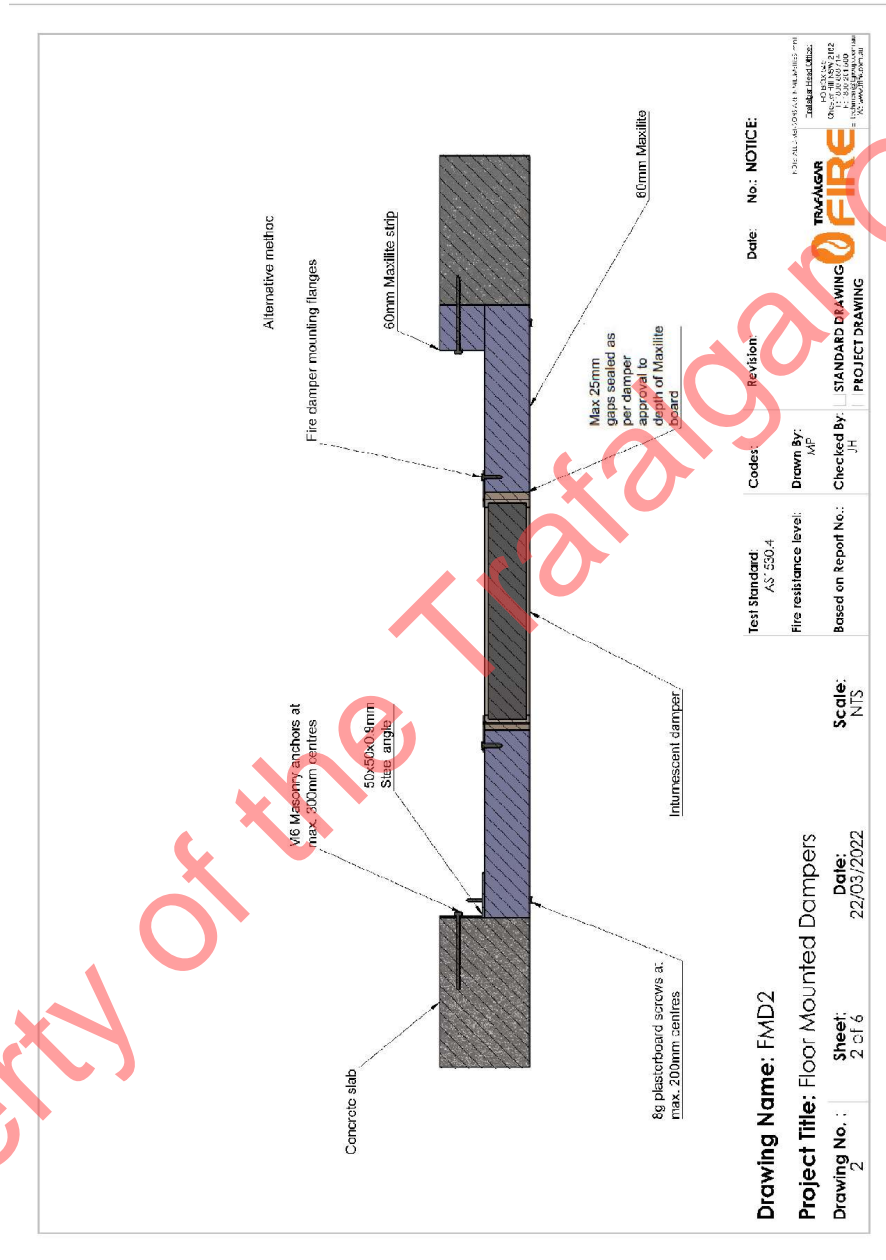


Figure 17: FMD3 Damper Installation Details

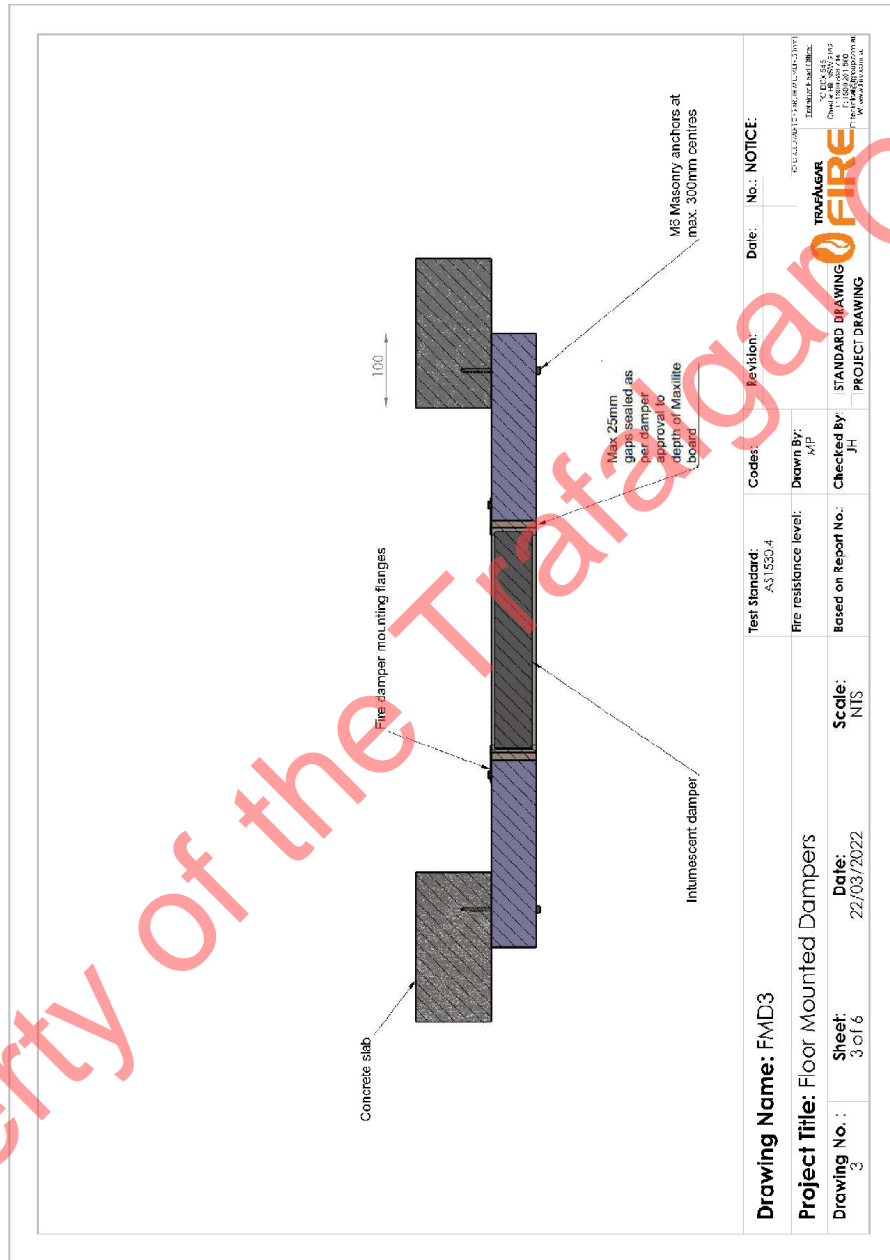
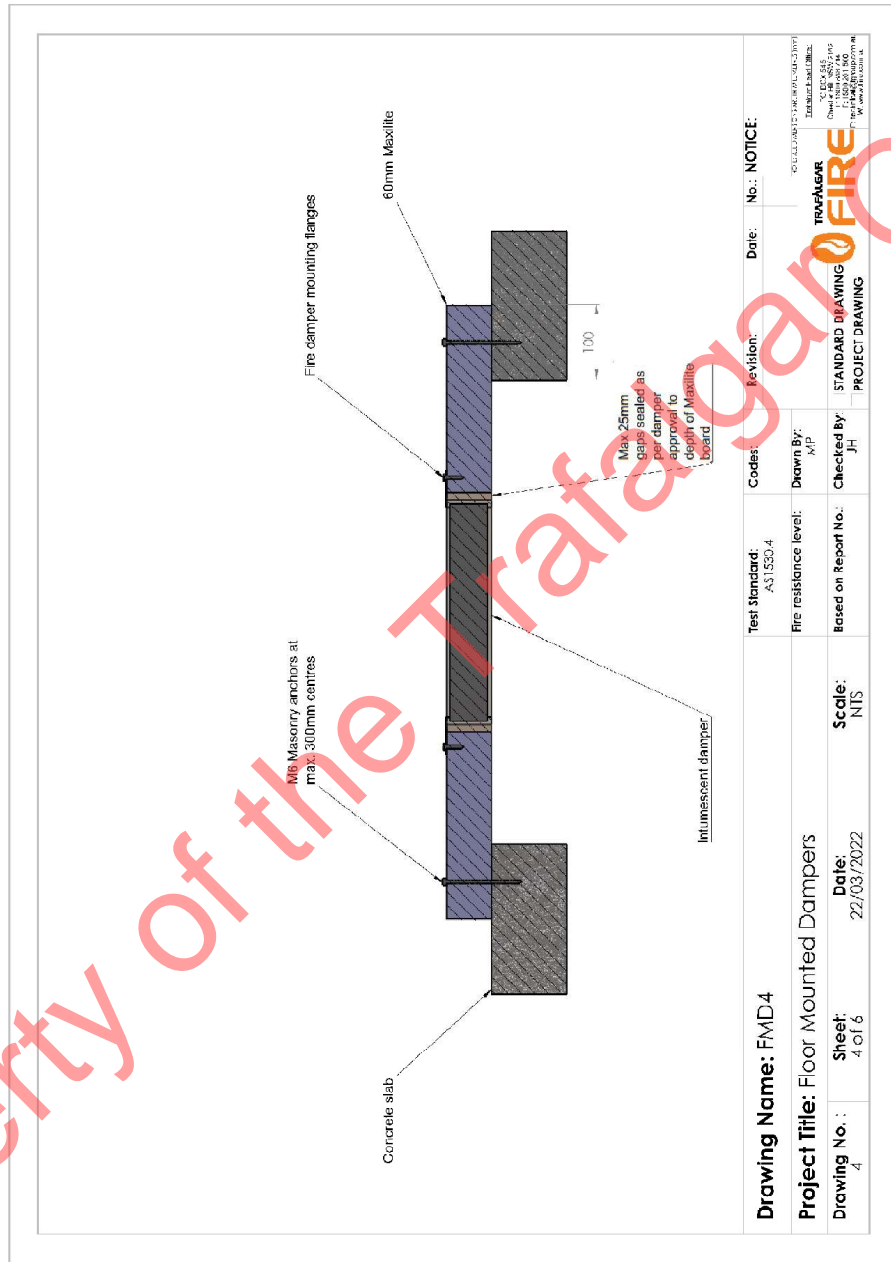


Figure 18: FMD4 Damper Installation Details



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Figure 19: FMD5 Damper Installation Details

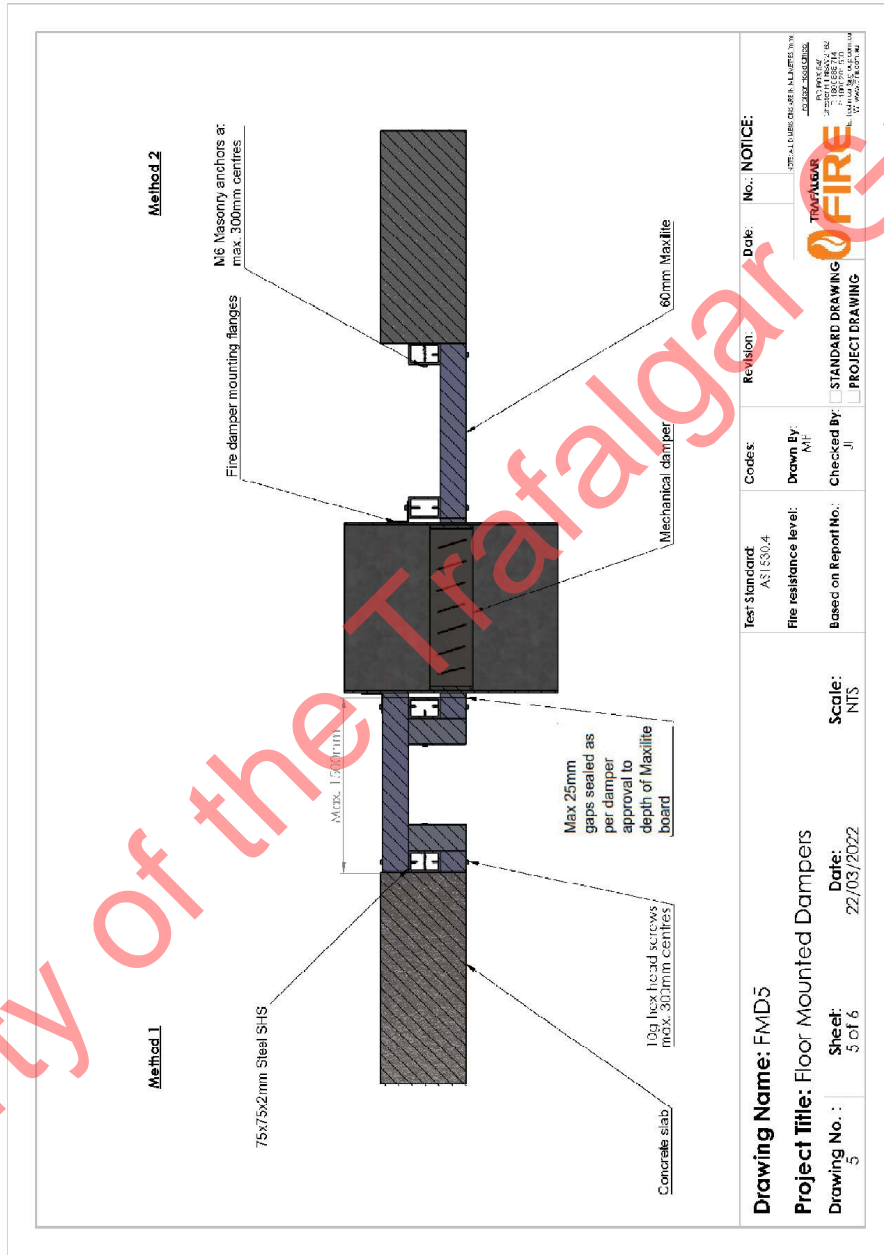


Figure 20: FMD6 Damper Installation Details

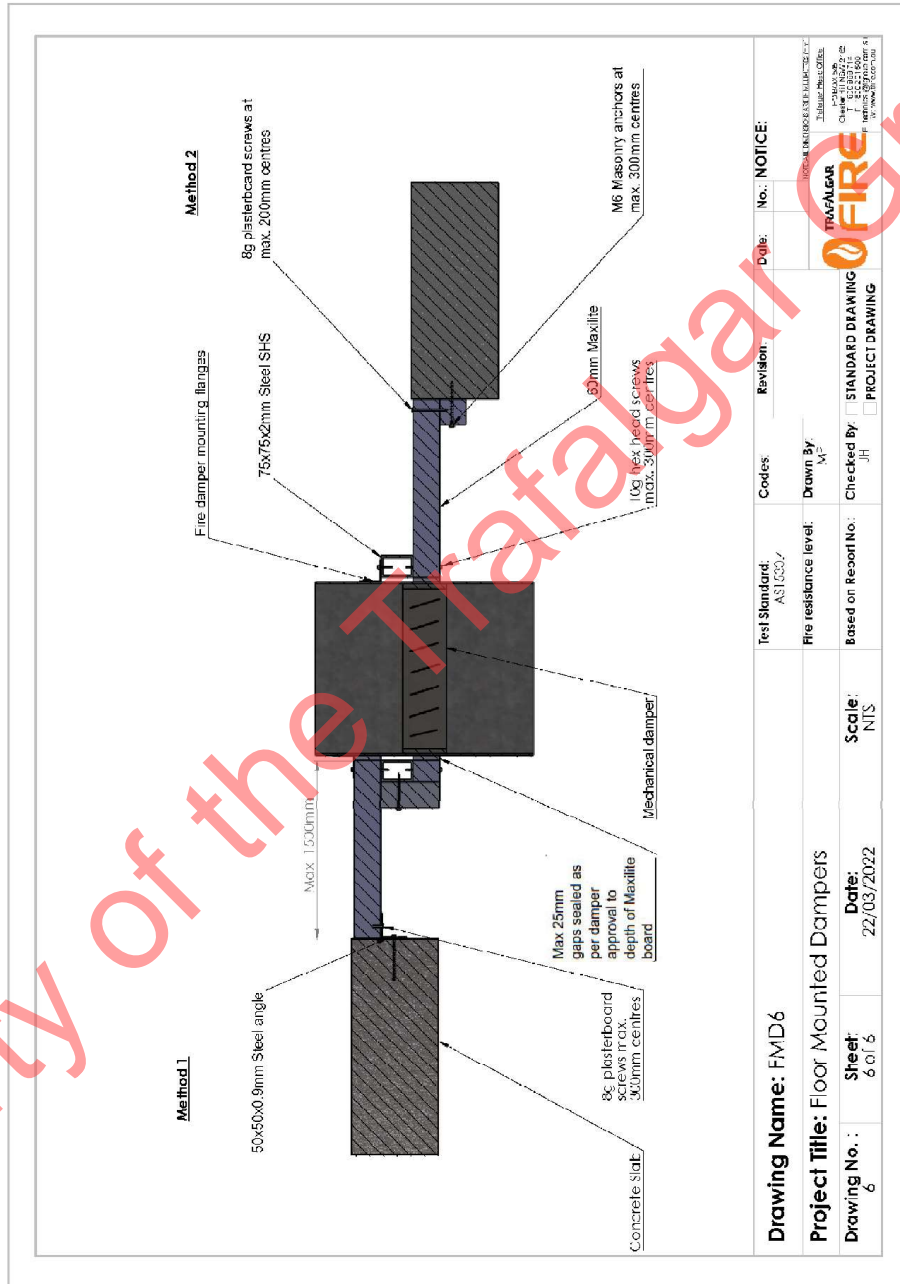


Figure 21: FMD7 Damper Installation Details

