

# **FyreWrap**

# **FyreWrap**<sup>®</sup>

FyreWrap<sup>®</sup> is the leading passive fire protection solution for commercial ductwork. The lightweight Insulfrax core ensures high temperature insulation and performance. Fibreglass reinforced scrim completely encapsulates the core for additional handling strength, tear resistance and antibacterial resistance.

## Fast. Clean. Easy.



Watch the Installation NCC 2022 Video here READY

### Amended FRL's after updates to AS1530.4-2014

### **KEY FEATURES**

- Lightweight up to 5 times lighter than traditional fire spray
- Clean and easy installation no mesh required
- Greenguard listed for microbial resistance
- No masking required
- Quick and efficient construction
- Simple repair tape up or replace section
- Seismic and vibration tolerant
- FyreWrap Access Panel as part of the tested system
- Tested to AS1530.4-2014 for internal and external fire applications

### APPLICATIONS

• Supply air ducts

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- Zone pressurisation ducts
- Smoke exhaust ducts
- Carpark exhaust ducts
- Kitchen exhaust ducts
- Any steel ducts that require fire separation





FyreWrap<sup>®</sup> is a registered Trademark of Unifrax



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**Click** page title to go to Page

## **TABLE OF CONTENTS**

**FyreWrap** 

	Secti	Page	
	Over	view	1
	What	: is FyreWrap <sup>®</sup> ?	3
	Bene	fits	4
	Speci	fications	5
	Gree	n Star / Health & Safety	6
	Fire F	Resistance Level	7
	FRL T	able- Vertical & Horizontal Ducts	8-9
		Measuring Up	10
	nual	Wrapping	11
	Installation Manual	Wall Penetrations	12
	ation	Overlap Details	13
	stalla	Fixings	14
	h	Typical Hanger/Trapeze Detail for External Fire Applications	15
		Installation Checklists - Duct Wrap	16-17
	Syste	m Range- FyreWrap® Access Panel	18
	Fyre\	Vrap® Access Panel Installation	19-20
	Syste	m Range	21
	FAQ		22
	es	Table 1: Annular Gap Size	23
	s Tab	Table 2: Fixing Specs	23
	Specifications Tables	Table 3: Hanger Spacings	24
	ecifica	Table 4: Walls Penetrations Additional Layers of FyreWrap®	24
	Spe	Table 5: Floor Penetrations Additional Layers of FyreWrap®	25
	Tech	nical Drawings	26-46
-			



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Contents

## WHAT'S FyreWrap<sup>®</sup>?

**FyreWrap** 

FyreWrap<sup>®</sup> is a foil-faced, fire protection wrap/blanket designed to provide fire rating to ducts, kitchen exhausts, smoke spill systems and penetration seals. FyreWrap<sup>®</sup> is fire tested and approved for FR up to three hours in accordance with AS1530.4-2014 to meet the requirements of AS 1668.1 and the NCC for both internal and new updated external fire test method.

FyreWrap<sup>®</sup>'s core material incorporates the highly engineered, lightweight and high temperature thermal insulation material Insulfrax<sup>®</sup>. Insulfrax<sup>®</sup> is a high-temperature insulation made from calcia, magnesia and silica chemistry, designed to enhance bio-solubility.

FyreWrap<sup>®</sup>'s aluminium foil, fiberglass-reinforced scrim completely encapsulates the core and provides additional handling strength, protection from tearing and provides a high resistance to mould growth. Importantly, it also allows ease of identification of FyreWrap<sup>®</sup> in the field by building certifiers and engineers.

FyreWrap<sup>®</sup> has undergone extensive testing to ensure it meets the highest quality in terms of environmental impact and health. The material is a completely bio-soluble solution and FyreWrap<sup>®</sup> has been Greenguard listed for microbial (mould growth) resistance.

## **APPLICATIONS**

FyreWrap<sup>®</sup> is diverse in its application ability. FyreWrap<sup>®</sup>'s extensive library of certifications and approvals, makes FyreWrap<sup>®</sup> perfect for applications in:

- Hospitals
- Commercial buildings
- Residential properties
- Commercial accommodation
- Aged care accommodation
- Sporting event and function centres
- Commercial and industrial kitchens
- Education facilities
- Detention complexes
- External applications\*

(\*Requires extra lining. Please contact the Trafalgar Fire Technical Team for further information)





BENEFITS - FyreWrap®

## **FyreWrap**<sup>®</sup>

**FyreWrap** 

### **BENEFITS**

FyreWrap<sup>®</sup> is the safest and most environmentally friendly method of fire rating ductwork and other services in Australia. In addition to these qualities a range of other benefits come with the use of FyreWrap<sup>®</sup>. FyreWrap<sup>®</sup> is the premium choice, far ahead of its counterparts including conventional fire spray.

The choice is clear.

FAST. CLEAN. EASY.

### **DO THE COMPARISON**

INSTALLATION	FyreWrap	Conventional Fire Spray
Fast, clean and easy installation	$\checkmark$	×
No ventilation, temperature concerns, substrate cleaning and worker slip hazard care.	$\checkmark$	×
No water source needed on site	$\checkmark$	×
Nearby work can continue uninterupted	$\checkmark$	×
No dust or waste in nearby drains	$\checkmark$	×
No masking for overspray	$\checkmark$	×
Off-site installation	$\checkmark$	×
Easy certification	$\checkmark$	Difficult to determine thickness
SYSTEM		
Clean simple repair	$\checkmark$	×
System weight	up to 5 times lighter	Heavy
Easy to use access panels	$\checkmark$	×
Vibration/seismic tolerance	$\checkmark$	×
Antimicrobial (mould) tested	$\checkmark$	×
Design Life of 30+ years	$\checkmark$	×
Ease of identification AS1851 Maintenance of Fire Systems	$\checkmark$	×



SPECIFICATIONS - FyreWrap®



### **SPECIFICATIONS**

Thickness	38mm		
Roll Widths	610mm	1220mm	
Surface area	4.65m²	9.30m <sup>2</sup>	
Roll weight	22kg	44kg	
Material density	96k	g/m³	
Microbial/mould resistance	GREENGUARD certified		
Bio-soluble	Yes		
Green Building Council /LEED Accreditation			
Contains Volatile Organic Compounds (VOC)	No		
R-Value (Thermal Resistance)	1.2m².K/W		
Acoustic Rating	31	dB	
Ozone depleting manufacture/ composition	1	lo	





FyreWrap is an environmentally friendly solution

Contents



# **GREEN ADVANTAGE**

FyreWrap<sup>®</sup> is the ultimate green product. Approved by the Green Building Council and LEED (Leadership in Energy and Environment Design), FyreWrap<sup>®</sup> has received third-party verification by the world's best practice in energy conservation, green asset management and ensuring safe and healthy building for occupants and workers.

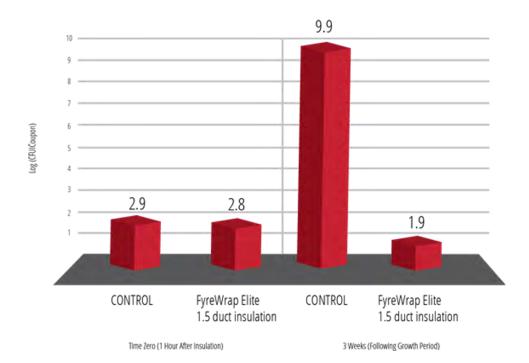
Local VOC testing has also been undertaken confirming FyreWrap<sup>®</sup> contains low VOCs (volatile organic compounds). No ODP Products are used in the composition or manufacturing of the product and no chemical blowing agents are used in the production of FyreWrap<sup>®</sup>.

## **HEALTH AND SAFETY**

The bio-persistence of the fibres in the core FyreWrap<sup>®</sup> product was identified after short-term exposure by inhalation in a study (No. 02G97008) by the European Ceramic Fibres Industry Association. As a result FyreWrap<sup>®</sup> was deemed bio-soluble, and is completely safe for installers and anyone handling or coming into contact with the product.

FyreWrap<sup>®</sup> has also had microbial resistance testing completed by Green Guard and Air Quality Services. FyreWrap<sup>®</sup> was supplied, without any pre-conditioning, and relevant material samples were inoculated with spores of Penicillium brevicompactum and transferred to a static control environment chamber maintained at 95% humidity and 25°C.

This makes FyreWrap<sup>®</sup> resistant to mould colonisation, and perfect for environments such as hospitals, nursing homes and restaurant kitchens in which any type of mould grouping or activity could have severe consequences. The below chart demonstrates FyreWrap<sup>®</sup>'s resistance to mould growth.



Contents



**FyreWrap** 

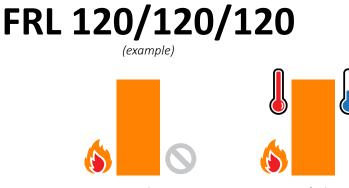
### FIRE RATING - HOW IS FIRE PERFORMANCE MEASURED?

For ducting applications, AS1530.4-2014 section 9 defines **two separate** fire test methods to represent fire exposure from inside the duct OR a fire outside of the duct. Both fire test methods include a suspended duct penetratiing a wall or floor to evaluate the full system performance. An FRL (Fire Resistance Level) is assigned to the tested duct and protection system based on the expoure direction (internal or external). It consists of 3 numbers, all given in minutes. Ductwork uses different FRLs based on the application, as shown below:



#### Structural Adequacy

For both internal and external fire conditions, the duct and supports must maintain their size and shape allowing for the duct to maintain its intended function.



#### Integrity

**EXTERNAL FIRE:** The ability of the protected duct to prevent the passage of flames and hot gases into the duct.

**INTERNAL FIRE:** The ability of the protected duct to prevent the spread of hot gassess from escaping the duct.

Both tests include measurements at the wall or floor penetrations.

#### Insulation

**EXTERNAL FIRE:** Includes a 1- meter per second (1m/s) air flow through the duct, and temperatures are measured on the inside duct walls, the outside of the wall or floor penetration as well as the exit air stream. All locations must remain below a 180 degree temperature rise.

**INTERNAL FIRE:** Temperatures are measured at points on the outside of the duct protection material, and also on the face of the fire wall or floor next to the duct penetration. Temperatures must stay below a 180 degree rise.

#### FYREWRAP TESTED FOR EXTERNAL FIRES:



#### FYREWRAP TESTED FOR INTERNAL FIRES:



The building code, AS1530.4-2014 and AS1668.1 all have various requirements on which test method (internal, external or both) should be applied depending on the exact application. Please refere to the next page for a list of common applications and the required FyreWrap specification.



7

# FRL TABLES

## **EXHAUST DUCTS**

AS1530.4-2014 section 9 defines two separate fire test methods to represent fire exposure from inside the duct or a fire outside of the duct, and makes distinctions on which exposure method applies to which type of duct application. Exhaust ducts are categorised as having fire exposures inside the duct (internal fire), however it is important to note that AS1668.1 does also add requirements based off the application in some instances. Trafalgar have compiled a list of typical applications, their governing clauses from AS1668.1, and our interpretation of the appropriate FRL and FyreWrap requirements for the applications.



# PLEASE CONSULT WITH YOUR PROJECT SURVEYOR OR CERTIFIER TO CONFIRM THE ACCEPTABILITY OF THIS INTERPRETATION. WHERE ANY DIFFERENCES EXIST TRAFALGAR ARE HAPPY TO OFFER A SOLUTION TO MEET THE INTERPRETATION OF THE SITES CERTIFYING BODY.

		Compliance	FRL To match the FRL o e.g. 120/120/120 in a		Fire test/
Application	Fire risk	requirement	External fire (FyreWrap layers)	Internal Fire (FyreWrap layers)	assessment report
Kitchen Exhaust Only (ductwork outside of the kitchen)	Fire inside the kitchen and/ or ducting spreading to other compartments, and we need to make sure it stays inside the duct.	AS1668.1 Section 6 AS1668.1 Clause 3.4	Not required as per AS1530.4 FRL defini- tions (9.1b)	120/120/120 <b>(1x layer)*</b>	FCO3226
Combined kitchen and smoke exhaust system	Fire inside the kitchen and/or ducting, integrity of the smoke exhaust systems of the building.	AS1668.1 Section 6 Clause 6.2.2 AS1668.1 Section 3 Clause 3.7.2	120/120/- (1x layer)	120/120/120 <b>(1x layer)*</b>	FCO3226 & FC 17299
Smoke Exhaust	Fire in compartment causing smoke to rise and fill space quickly, integrity of the smoke exhaust systems of the building.	AS1668.1 Section 3.7.2	120/120/- (1x layer)	120/120/120 (1x layer)*	FCO3226 & FC 17299
Diesel pump ventilation system	Fire in duct spreading to other compartments, or hot products of combustion escaping and igniting.	AS1668.1 3.3.3 e) AS1668.1 Clause 3.4	Not required as per AS1530.4 FRL defini- tions (9.1b)	120/120/120 <b>(1x layer)*</b>	FCO3226 & FC 17299
Kitchen Exhaust ductwork inside the kitchen compartment	Fires inside the duct spreading to combustible materials within 300mm of the duct.	AS1668.1 section 6 Clause 6.2.3.3	Not required as per AS1530.4 FRL defini- tions (9.1b)	-/30/30 <b>(1x layer)</b>	FCO3226 & FC 17299
Fire Stair pressurization relief ducts	Fire & smoke passing through to fire escapes preventing safe evacuation.	AS1668.1 Clause 10.4.3	120/120/- (1x layer)	120/120/120 <b>(1x layer)*</b>	FCO3226 & FC 17299
Any other exhaust duct e.g.	Fire in duct spreading to other compartments, or hot products of combustion escaping and igniting.	AS1668.1 Clause 3.4	Not required as per AS1530.4 FRL defini- tions (9.1b)	120/120/120 (1x layer)*	FCO3226

\*Additional layer locally where duct passes through fire barriers

For 3 and 4 hour FRL requirements please contact Trafalgar at technical@tgroup.com.au



FRL TABLE - FyreWrap

# FRL TABLES

# **PRESSURISATION DUCTS**

This FRL table details what the FRL requirements are for pressurisation ducts.

Under AS1530.4-2014 section 9, pressurisation ducts are categorised as having fire exposures outside the duct (external fire) however it is important to note that AS1668.1 does also have additional requirements to consider based off the application.



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Application	Fire Risk	Compliance			Fire Test/ Assessment	
Аррисатон	FILE NISK	Requirement	External fire (FyreWrap layers)	Internal Fire (FyreWrap layers)	Assessment Report	
Stair or fire escape pressurisation ducts	Fire & smoke passing through to fire escapes preventing safe evacuation.	NCC2019-C3.9 NC2022-C4D10 AS1668.1 section 10	120/120/60 <b>(2x layers)</b>	Not required as per AS1530.4 FRL definitions (9.1a)	FC 17299	
Fire Stair pressurization relief ducts	Fire & smoke passing through to fire escapes preventing safe evacuation.	AS1668.1 Clause 10.4.3	120/120/- (1x layer)	120/120/120 <b>(1x layer)*</b>	FCO3226 & FC 17299	
Any other ducts that blow air to pressurize a compartment	Fire & smoke passing through fire compartments via the ducting system where fire dampers are not installed or permitted to be used.	AS1668.1 Clause 3.4	120/120/120 <b>(3x layers)</b>	Not required as per AS1530.4 FRL definitions (9.1a)	FC 17299	

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\*Additional layer locally where duct passes through fire barriers

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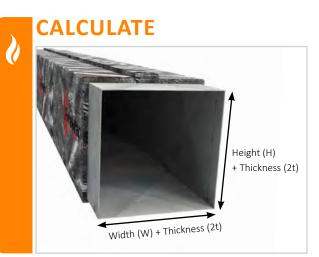
## INSTALLATION

### **MEASURING UP**

FyreWrap<sup>®</sup> may be installed with zero clearance to surrounding combustibles at any location of the wrap in crowded environments. To minimise waste FyreWrap<sup>®</sup> should be measured accurately and applied tautly.



Measure the outside dimensions of the duct, then add the thickness of the FyreWrap<sup>®</sup> (38mm) to each of the four sides. Add an additional 100mm for the longitudinal overlap, then a small allowance for margin of error.



Example: Length to cut in L in millimeters:

 $L = 2 \times (W+2t) + 2 \times (H+2t) + 100 + 100$ 

### Alternative method for estimating the cut length L = duct perimeter + 400mm



Unroll the FyreWrap<sup>®</sup> to the full length, and gently shake from end to end to allow the wrap to uncompress from storage. Measure the cut length with the FyreWrap<sup>®</sup> taut, and cut the required length uisng a sharp blade.

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Immediately after the FyreWrap<sup>®</sup> is cut, any exposed edges should be sealed with an aluminium reinforced foil tape to prevent damage to the infill material.







### **INSTALLATION**

### WRAPPING

FyreWrap<sup>®</sup> may be installed with three different fixing methods dependent on the size of the duct



Wrap the FyreWrap<sup>®</sup> around the perimeter of the duct with a 100mm overlap where FyreWrap<sup>®</sup> meets itself (longitudinal overlap). NOTE where additional layers are used, the first layer does not need an overlap. Place the next length of FyreWrap<sup>®</sup> with a 100mm overlap adjacent to the previous wrapped length of FyreWrap<sup>®</sup> (circumferential joint). All overlaps/joints must be taped down with reinforced Aluminium tape.

### DUCTS LESS THAN 600MM X 600MM



For ducts less than 600mm x 600mm, a 12mm wide and 0.4 thick steel banding is used to permanently support the FyreWrap<sup>®</sup> around the duct. The steel banding is placed 40mm from the edge of the FyreWrap<sup>®</sup> blanket, over the overlaps and one additional band between the overlaps at 265mm centres. (see fixings table page 14)



### DUCTS 600MM X 600MM FO 1200MM X 1200MM



For ducts greater than 600mm x 600mm but less than 1200mm x 1200mm, the banding system is used in conjunction with either pre-welded pins or cup head style pins along the bottom of the duct. Self adhesive pins must not be used. Pins should be installed at 200mm centres. (see fixtures table page 14)





For ducts greater than 1200mm x 1200mm, either pre-welded pins or cup head style pins over all four sides of the duct must be used. Self adhesive pins must not be used. Pins should be installed at 200mm centres. (see fixtures table page 14)

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**INSTALLATION - WRAPPING** 

Clic

Contents



**FyreWrap** 

### WALL PENETRATIONS



Ensure that the annular gaps are within the approved range based on your size of duct. Refer to table 1 on page 23 for specifics. Pack the annular gaps with loose FyreWrap<sup>®</sup> infill material, and seal with FyreFLEX<sup>®</sup> sealant.

### STEEL ANGLE



Install a steel angle to secure the duct to the wall/ floor. Table 1 on page 23 lists the appropriate size steel angle based on the size of the duct.

IMPORTANT: Allow for at least 200mm of clearance between ducts and any other service penetration

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Install strips of FyreBOARD Maxilite<sup>®</sup> over the steel angle, lining the perimeter of the duct. Table 1 on page 23 shows the correct size FyreBOARD Maxilite<sup>®</sup> strips to use based on the size of duct.

### WRAP - ADDITIONAL LAYERS



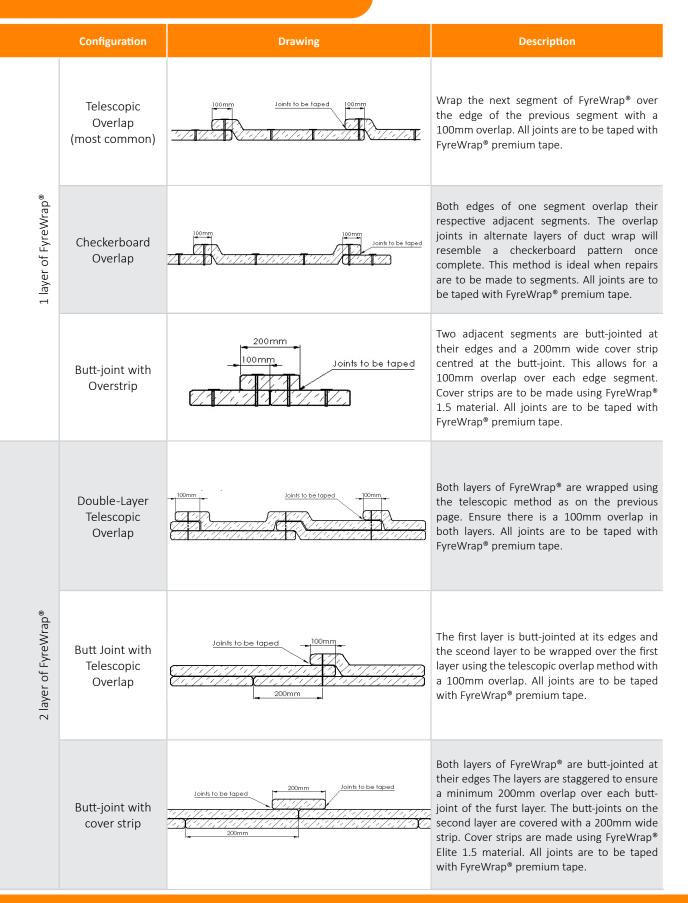
Wrap the duct with 2x layers of FyreWrap® for a distance detailed in table 4 on page 24. Floor penetrations may require a third layer of FyreWrap® depending on the size of the duct. Floor distances detailed in Table 5 on page 25





## INSTALLATION

## **OVERLAP DETAILS**





**INSTALLATION - FIXINGS** 

INSTALLATION

### **FIXINGS**

### **FIXING METHOD**

Duct section (mm)	Steel Banding Only	Steel banding and Pins*	Pins Only (all sides)
Small less than 600 x 600mm	$\checkmark$	$\checkmark$	$\checkmark$
Medium up to 1200 x 1200 mm		$\checkmark$	$\checkmark$
Large over 1200 x 1200mm			$\checkmark$

\* Pins must be installed on the bottom side of horizontal ducts or one long side for vertical ducts.

## **FIXINGS**

Component	Туре		Min Size	Centres Max
Band crimps	Steel		25mm long	-
Bands	Steel	12mm wide x 0.4mm thick		40mm from edges max 265mm centres
Bands	Stainless Steel	12mm wide x 0.4mm thick		40mm from edges max 265mm centres
Pre-welded pins	Steel	Pin Dia 2.7mm	Pin Length 1st Layer - 25mm 2nd Layer - 50mm 3rd Layer - 75mm	Grid of 200mm centres
Cup-head pins	Steel	Pin Dia 2.7mm	Pin Length 1st Layer - 25mm 2nd Layer - 50mm 3rd Layer - 75mm	Grid of 200mm centres
FyreWrap <sup>®</sup> Premium Reinforced Tape	Reinforced Aluminum	50mm wide		Taped over cut edges of FyreWrap®



Contents



- Due to FyreWrap<sup>®</sup> being an extremely light weight product, one of the huge benefits of using it, is that the rodhangers and trapeze are **not required to be wrapped** in FyreWrap<sup>®</sup>.
- Both our internal and external fire reports allow for the use of the **standard hanger/support spacings under AS4254.2-2012**, with one additional hanger located within 600mm of any fire-rated wall penetrations.
- The table below outlines typical duct sizes, thickness and trapeze spacings together with minimum support requirements.
- Please contact Trafalgar Fire Technical Team if you need a copy of these report or your duct arrangements differ from the table below.

Specifications for the fabrication of ducting and duct suspension systems for Fyrewrap*							
R	ectangular/Square	Ducts	Unp	rotected Suspension	nsion System Specification		
Duct Height (mm)	Duct Width (mm)	Min. Material Thickness (mm)	Max. Trapeze Spacing (mm)	Mild Steel Trapeze Angle (mm)	Min. Threaded Rod Diameter	Centres Max	
1200	1200	1.0*	1520	40 x 40 x 3	10**	N/A	
1600			1200	50 x 50 x 5	10**	NI / A	
1600	1600	1.0*	1520	50 x 50 x 6	12**	N/A	
600		1.0*	1200	50 x 50 x 5	10**	NI / A	
600	2800	1.0*	1520	50 x 50 x 6	12**	N/A	
2400	2400	1.0*	1200	50 x 50 x 5	12**	1***	
3200	3200	1.0*	1200	50 x 50 x 5	12**	2***	
3600	4800	1.0*	1200	50 x 50 x 5	16**	2***	
Circular Duct			Unp	rotected Suspensi	on System Specifica	tion	
		Min. Material Thickness (mm)	Max. Trapeze Spacing (mm)	Mild Steel Trapeze Angle (mm)	Min. Threaded Rod Diameter	Centres Max	
1200		1.0*	1200	40 x 40 x 3	10**	N/A	

Specifications for the fabrication of ducting and duct suspension systems for FyreWrap®

This specification is to be read in conjunction with the relevant detailed drawings.

Fixings and angles specified are the minimum requirements.

\*Ducts shall be constructed in accordance with requirements of AS4254.

\*\*Threaded rod diameters must not exceed the allowable stress level of 10MPa or 10N/mm<sup>2</sup>

\*\*\*Addition of internal tie rods required for each 1600mm width of duct to a maximum width of 4800mm.



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**FyreWrap** 

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**INSTALLATION CHECKLIST - DUCT WRAP** 

## INSTALLATION CHECKLIST

This document is a checklist that can be used to ensure that the FyreWrap<sup>®</sup> Elite 1.5 duct protection system has been installed correctly and should not be used as an installation manual. For full installation instructions please refer to the Technical Manual and installation videos available at <u>tfire.com.au</u> or at the following links:

TECHNICAL MANUAL TRAFALGAR

 FyreWrap® Label/Identifier No.

 Installer Name:

 Company:

 Site:

 Floor/Level:

Bef	<b>CT CONSTRUCTION AND PREPARATION WORK</b> ore being wrapped, ensure that the duct is constructed in accordance with AS4254.2 ifications, for a pressure class of at least 500.	Satisfactory	Action Required
1	The hanger rod size shall be in accordance with AS 4254.2-2012 as appropriate for Pressure Class 500		
2	Hanger spacings shall be in accordance with AS 4254.2-2012 as appropriate for Pressure Class 500		
3	Duct BMT, stiffeners, jointing etc shall be in accordance with AS 4254.2-2012 as appropriate for Pressure Class 500		
4	If access is required, the duct should be fitted with non-fire rated duct access panels before FyreWrap® and FyreWrap® Access Panel are fitted		
5	Ensure that separate duct penetrations through fire barriers are at least 200mm apart (allow enough room for FyreBOARD Maxilite® strips, see below)		
If th wel pen	E BARRIER PENETRATIONS the duct passes through a fire rated wall of floor, it is important to maintain the FRL of the actual barrier, as I as the FRL of the duct system. Fire testing to AS1530.4-2014 shows that temperatures around these duct etrations are typically higher than the rest of the duct, and will require additional layers of FyreWrap® as pws.	Satisfactory	Action Required
1	<ul> <li>Are the wall penetrations prepared in accordance with the wall manufactures requirements?</li> <li>Plasterboard wall apertures require stud framing and lined with strips of plasterboard</li> <li>AAC wall apertures may need additional stiffening angles to the perimeter</li> <li>Speedpanel wall apertures need a U-channel installed around their perimeter</li> </ul>		
2	Are the wall and floor penetrations the correct size to be within the maximum annular gap for the FyreWrap <sup>®</sup> penetration system? Refer to <u>page 23</u> of the technical manual for annular gap sizes based off the duct size		
3	Were the annular gaps packed with loose FyreWrap <sup>®</sup> , and sealed with FyreFLEX <sup>®</sup> Sealant?		
4	Were the correct size steel angles fitted around the duct on both sides of the wall? Fixed using appropriate fixings to the wall, and steel screws or rivets to the duct?		
5	Have the FyreBOARD Maxilite® strips been installed over the steel angles with screw fixings as appropriate for the fire barrier, on both sides of the wall?		
6	Has FyreFLEX <sup>®</sup> Sealant been applied to the perimeter of the FyreBOARD Maxilite <sup>®</sup> strips and fire barrier interface with a 20x20mm fillet?		
7	Has FyreFLEX® Sealant been applied to the perimeter of the FyreBOARD Maxilite® strips and duct interface with a 20x20mm fillet?		
8	Have multiple layers of FyreWrap <sup>®</sup> been installed locally to the wall penetration on both sides of the wall (or just the top side of a floor)? Refer to the Technical Manual requirements		



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Contents



## INSTALLATION CHECKLIST

FyreWrap <sup>®</sup> Label/Identifier No.	
Installer Name:	
Company:	
Site:	
Floor/Level:	FRL

The	<b>IERAL WRAPPING</b> following table details the general requirements for wrapping the FyreWrap <sup>®</sup> away from the fire rier penetrations.	Satisfactory	Action Required
1	Have all cut sections of FyreWrap <sup>®</sup> been taped over with reinforced aluminium tape?		
2	Has the FyreWrap <sup>®</sup> been installed with 100mm overlap around the duct?		
3	Have adjacent sections of the FyreWrap <sup>®</sup> been installed with 100mm overlap (or a butt joint with a 200mm coverstrip)? Refer to <u>page 13</u> of the Technical Manual for approved overlap configurations.		
4	Have all overlaps been taped with reinforced aluminium tape?		
5	If steel straps have been used for ducts under 600x600: - Is the steel banding placed 40mm from the ends of the FyreWrap® blanket, and/or over the overlaps, with additional straps between the overlaps at 265mm centres?		
6	Are the steel straps at least 12mm wide 0.4mm thick?		
7	If steel straps have been used for ducts under 1200x1200: - Same requirements as above, plus the underside pinned at 200mm grid centres (to prevent sag)?		
8	If pins are used instead of straps (for any size duct): - Have they been installed at 200mm grid centres? - Including overlaps		
9	If pins are used, are the pins minimum 2.7mm dia cup head or pre-welded pins, at the correct length for the thickness of FyreWrap®?		
10	Any damaged or torn sections of FyreWrap® repaired: - Cosmetic rips in the foil scrim taped over with foil tape - For damaged core material, replace or wrapped over with a cover piece		
ACC	ESS PANELS	Satisfactory	Action Required
1	Has a standard (non-fire rated) duct access panel been fitted first?		
2	Have the correct steel rivet or self tapping screws been used to fix the FyreWrap® Access Panel over the existing duct access panel at 150mm centres?		
3	Are there at least 2x layers of FyreWrap <sup>®</sup> installed around the FyreWrap <sup>®</sup> Access Panel frame, for at least 100mm?		
4	Has FyreFLEX® Sealant been applied to the exposed steel frame of the FyreWrap® Access Panel?		





# SYSTEM RANGE ACCESS PANEL



### FYREWRAP<sup>®</sup> ACCESS PANELS (FWAP)

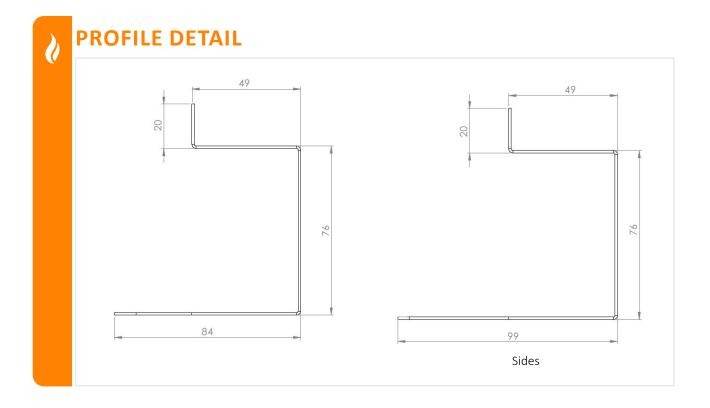
- Are a patented system designed for use on ducts protected by the innovative FyreWrap® system.
- Provide fire rating on ducts and allow access for the purpose of inspection, service, repair or replacement of internal equipment such as filters, volume control devices, dampers and fans.
- Patented design includes a number of features and benefits to ensure complete flexibility and ease of installation.
- Are simply installed by fitting directly over the existing 'non-rated duct access panel' and fixed to the duct using rivets through a series of pre-drilled holes.
- Provide additional flexibility on site as they can be either pre-installed or easily retro-fitted.
- Include patented, bendable fastening tabs for slimline ducts to allow access without the need for a full box encasement.

CLICKABLE	Item Number	Size	To Suit	FyreWrap <sup>®</sup> System
	FW-AP-2L-AP0	708mm x 558mm	APO	2 Layer
	FW-AP-2L-AP1	558mm x 433mm	AP1	2 Layer
	FW-AP-2L-AP2	433mm x 301mm	AP2	2 Layer
	FW-AP-2L-AP3	304mm x 214mm	АРЗ	2 Layer
	FW-AP-2L-CUSTOM	Custom Up to 708mm x 558mm	Custom	2 Layer



**INSTALLATION** 

## FyreWrap<sup>®</sup> ACCESS PANELS





Apply FyreFLEX<sup>®</sup> Sealant around the perimeter of the duct access panel to form a 'gasket' where the FyreWrap<sup>®</sup> Access Panel will sit.

Using the preformed holes in the FyreWrap® Access Panel frame, drill and fix (using steel rivets or selftapping screws only) the frame to the ductwork.

\* Fixings are required at maximum 150mm spacing.
\* If required for low profile ductwork, the top and bottom fold-over tabs can be folded over and fixed through the top/bottom side of the ducting.

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### **INSTALLATION**

### FyreWrap<sup>®</sup> ACCESS PANELS



### FyreWrap<sup>®</sup> FIRST LAYER



Install FyreWrap<sup>®</sup> Elite 1.5 according to FyreWrap<sup>®</sup> installation instructions, ensuring that the material fits snugly into the provided recess in the FWAP frame on all sides.

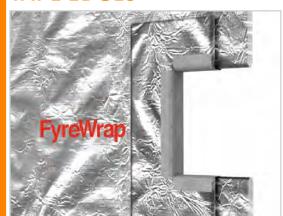
### FyreWrap<sup>®</sup> SECOND LAYER



Install a second layer of FyreWrap® Elite 1.5, 100mm wide on all sides of the FyreWrap® Access Panel, fixing as per the standard FyreWrap® Elite 1.5 installation requirements (steel strapping or welded pins at 200mm centres).



## TAPE EDGES



Tape the edges of both layers of FyreWrap<sup>®</sup> Elite 1.5 together.

### FINISH



Finish the installation with a fillet of FyreFLEX<sup>®</sup> Sealant to the perimeter of the FyreWrap<sup>®</sup> Access Panel, ensuring that none of the metal frame remains exposed.





SYSTEM RANGE - FyreWrap®

### SYSTEM RANGE

# **FyreWrap**

- Lightweight fireproofing
- Fast, clean and easy to install
- Bio-soluble insulation material
- Up to 3 hour fire rating in accordance with AS1530.4-2014 for internal and external fire.



## SYSTEM COMPONENTS



This kit contains one of each item below.

CLICKABLE	Item Number	QTY
FyreWrap® Kit	FyreWrap <sup>®</sup> Premium Reinforced Tape 96mm x 50m Roll	1
	FyreWrap <sup>®</sup> Crimper	1
	FyreWrap <sup>®</sup> Tensioner	1
	Steel Banding Roll 12.7mm x 250m	1
	Snap on Seals 13mm (box of 1000)	1
	Dispenser	1







### FAQ

#### **Q** Do I need to wrap the duct support hangers and trapeze?

A FyreWrap<sup>®</sup> is a lightweight system so in most cases there is no need. Refer to page 15 for more information.

#### **Q** How many layers of FyreWrap<sup>®</sup> do I need to get an FRL of 120/120/120 (2-hours)?

A One layer will achieve the 2 hour FRL, however additional layers are required where the duct passes through fire rated walls and floor systems.

#### **Q** Why would you use FyreWrap<sup>®</sup> instead of a spray system?

A FyreWrap<sup>®</sup> is faster to install, much cleaner on site so there is less cleaning and masking off, and easier for other trades to work side by side. Certification is also easier as there is no need to check thicknesses like a spray system plus there are FyreWrap<sup>®</sup> Access Panels (FWAP's) for easy and compliant access into the duct for future maintenance.

#### **Q** Why do I need additional layers of FyreWrap<sup>®</sup> where the duct passes through a fire rated wall?

A You need to maintain the FRL of the wall, as well as the duct system to prevent spread of fire from one to the other and visa versa. The wall interface is subject to the most intense conditions during a fire, so additional layers of wrap and strips of FyreBOARD Maxilite® are needed to keep the temperatures down and maintain the fire rating.

#### **Q** Can I use FyreWrap<sup>®</sup> on PVC ducting?

A No, FyreWrap<sup>®</sup> is approved for use on steel ducting only which must comply with the duct construction AS4254.2 for pressure class 500.

#### **Q** Can I use FyreWrap<sup>®</sup> on a steel exhaust flue from a fire pump?

A Yes, FyreWrap®'s core material is suitable for temperatures up to 1200°C peak (and at least 1000°C constant temperature) although it is recommended that the foil scrim is removed from the 'hot' side to prevent smoldering of the foil.

#### **Q** Where can I purchase the appropriate equipment and pins required to stud weld the FyreWrap ?

A The equipment and pins can be purchased from KCD Studwelding <a href="https://www.kcdstudwelding.com.au/">https://www.kcdstudwelding.com.au/</a>

#### **Q** Can I wrap two ducts together?

A No, the ducts must be wrapped separately, and where they penetrate a fire barrier must be seaparated by at least 200mm in separate penetrations.

#### **Q** Can I wrap fan enclosures?

A Yes, FyreWrap is good solution to wrap fan enclosures and other ducts that are subject to vibrations

#### **Q** How do I finish FyreWrap against an external wall or roof?

A If the external wall or roof does not have an FRL, then all that is needed is a simple waterpoofing seal to protect the FyreWrap from any weather exposure.

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### SOCIAL MEDIA







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**TABLE 1 ANNULAR GAPS & TABLE 2 FIXING SPECS** 

## **FIRE BARRIER & DUCT PENTRATION SPECIFICATION TABLES**

### **TABLE 1: ANNULAR GAP SIZE**

Duct size (mm)	Annular Gap Size	Steel L-angle specifications	FyreBOARD Maxilite <sup>®</sup> Specifications
Up to 600mm	10-30mm	75 x 75 x 1.6mm	100mm width, 60mm thickness
600-1600mm	20-40mm	75 x 75 x 1.6mm	100mm width, 60mm thickness
1600-2600mm	40-60mm	125 x 100 x 2mm	150mm width, 60mm thickness
2600-3600mm	60-80mm	125 x 100 x 2mm	150mm width, 60mm thickness

### **TABLE 2: FIXING SPECS**

Wall Type	Fixing Location	Fixing Type Required	Fixing Spec	Maximum Centres	
All	Angle to duct	Steel rivets	5mm dia. x 10mm length	200mm	
Plasterboard	Angle to wall		8g x 50mm	200mm	
	FyreBOARD Maxilite® to wall	Plasterboard screws	8g x 100mm		
Concrete/ Ma- sonry	Angle to wall	Min. M6 masonry	M6 x 30mm	400mm	
	FyreBOARD Maxilite® to wall	anchors. Length to suit min. 30mm embedment	M6 x 120mm		
AAC Wall/Hebel	Angle to wall	Type 17 bugle/hex head	14g x 50mm	200mm	
	FyreBOARD Maxilite® to wall	screws	14g x 100mm	200mm	
Speedpanel –	Angle to wall		10g x 30mm	200	
	FyreBOARD Maxilite® to wall	Self-drilling screws	10g x 100mm	200mm	



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Contents

### **TABLE 3: HANGER SPACINGS**

**FyreWrap** 

Direction of Exposure	Hanger Spacings and Requirements			
Internal Exposure Only	For ducts exposed to fire from inside only, duct construction shall be in accordance with AS4252.2-2012 Pressure Class 500. Variation to hanger rod size, hanger spacing,			
External or exposure in both directions	support, duct BMT, stiffeners or jointing shall be in accordance with AS4254.2-2012 as appropriate for Pressure Class 500.			

For external exposure, hangers are to be spaced to ensure a maximum of 10MPa stress in all supports unless otherwise stated. An acceptable safety factor should be included in any calculations.

Additional layers of FyreWrap<sup>®</sup> required at penetrations through fire-rated walls may require additional supports at 600mm from fire barrier to allow for the extra weight of material.

Additional supports may be required locally near access panels (as detailed on drawing 20 of the FyreWrap<sup>®</sup> Install Details drawing package). These are not factored into the spacing calculations.

### TABLE 4: WALL PENETRATION ADDITIONAL LAYERS OF FYREWRAP®

Duct Size		Length of second layer from fire barrier		
Duct Width	Duct Height	FRL 60/60/60	FRL 120/120/120	
600mm or less	600mm or less	1350mm	1800mm	
600-1200mm	600mm or less 1600mm		2150mm	
600-1200mm	600-1200mm	1900mm	2600mm	
1200-2400mm	1200-2400mm	2500mm	3450mm	
2400-3600mm	2400-3600mm	2700mm	3750mm	

Please note—The lengths listed above are summaries from Assessment Report FCO 3226. A more thorough breakdown of the required lengths for other duct sizes can be found in this FCO 3226.



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Contents



**FyreWrap** 

Duct Size		FRL 120/120/120		FRL 180/180/180	
Duct Width	Duct Height	Length of Second Layer	Length of Third Layer	Length of Second Layer	Length of Third Layer
Up to 600mm	Up to 600mm	2000mm	Not needed	2150mm	1100mm
600-1200mm	Up to 600mm	2550mm	1250mm	2700mm	1400mm
600-1200mm	600-1200mm	3100mm	1500mm	3200mm	1600mm
1200-2400mm	1200-2400mm	4200mm	1950mm	4600mm	2300mm
Up to 3600mm	Up to 3600mm	5200mm	2200mm	5400mm	2500mm

Please note—The lengths listed above are summaries from Assessment Report FCO 3226 for internal fire applications. A more thorough breakdown of the required lengths for other duct sizes can be found in FCO 3226.

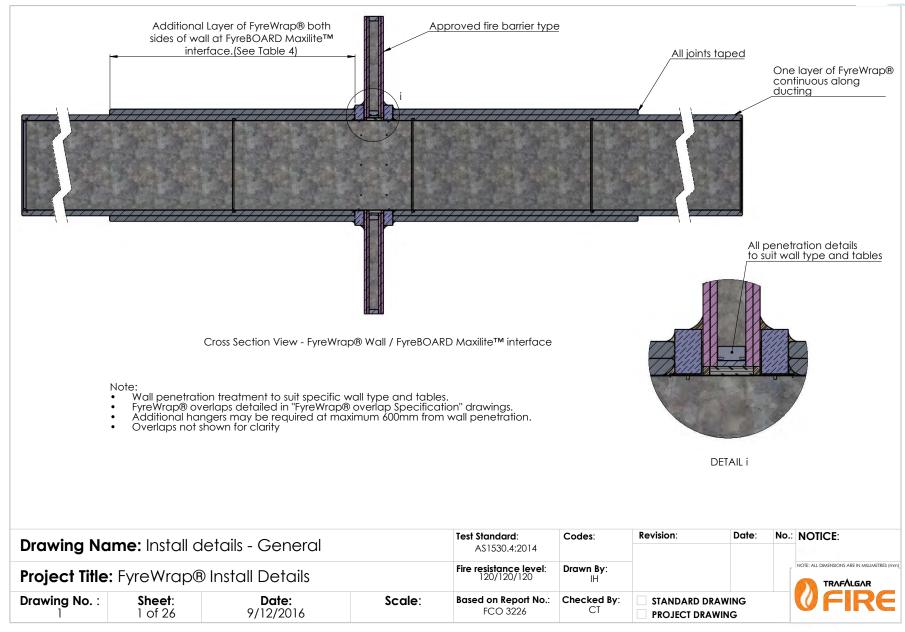




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**TECHNICAL DRAWINGS - GENERAL INSTALL** 

### **General Installation**

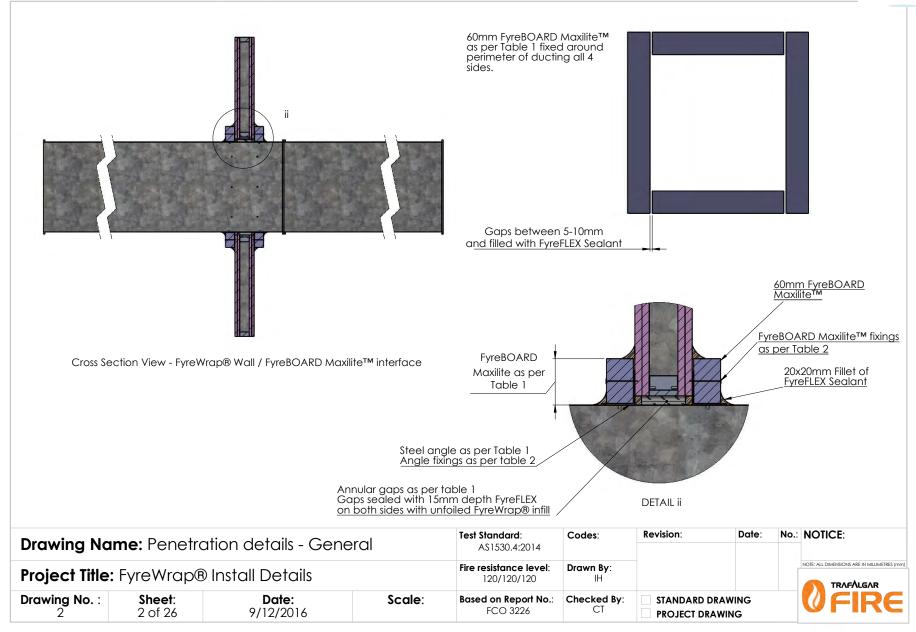




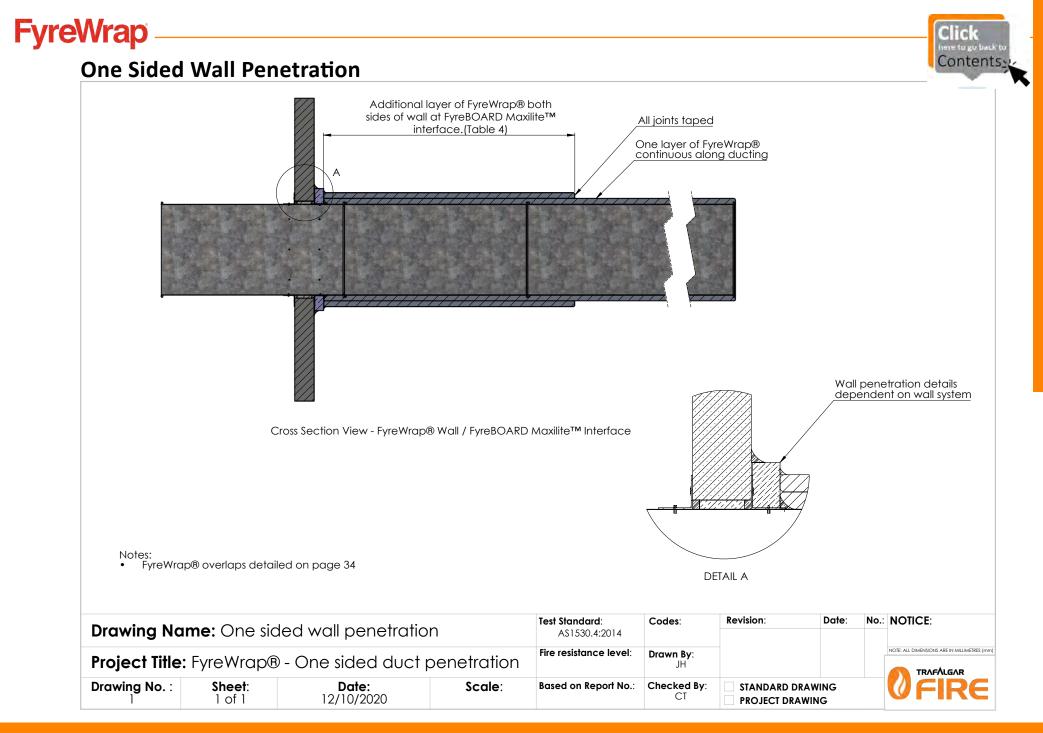
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**TECHNICAL DRAWINGS - GENERAL PENETRATIONS** 

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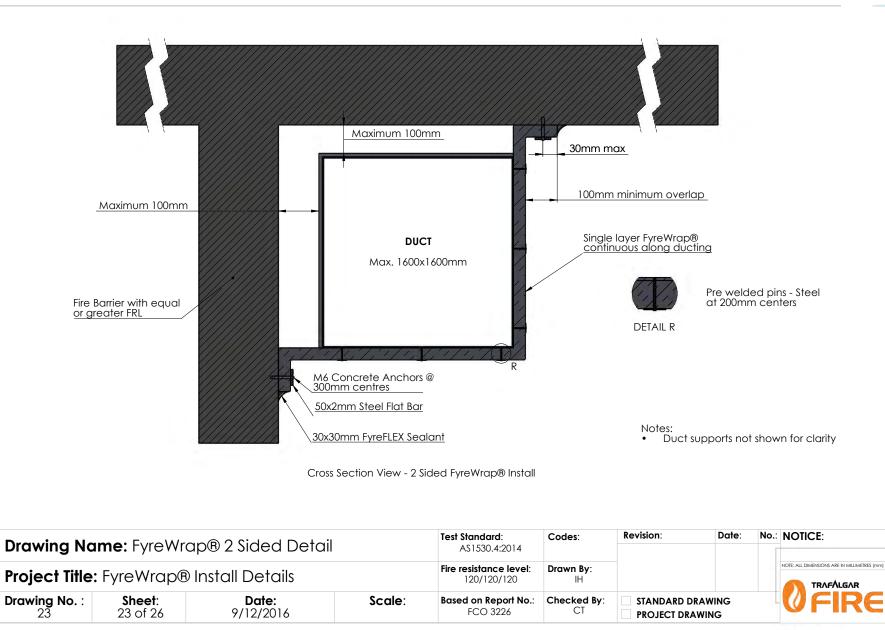
**TECHNICAL DRAWINGS - ONE SIDED WALL** 



### **Two Sided Detail**



**TECHNICAL DRAWINGS - TWO SIDED DETAIL** 









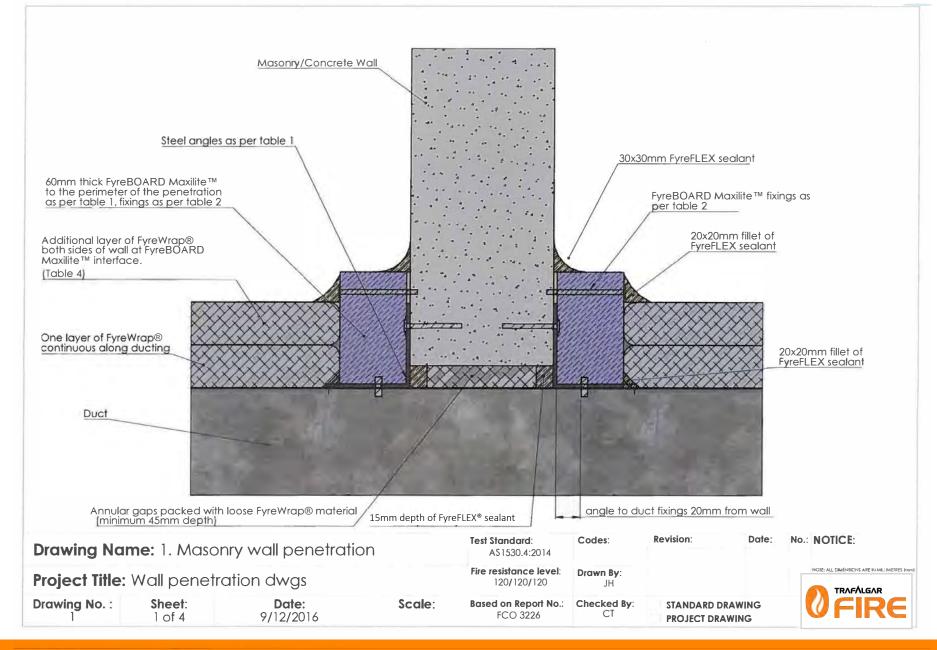


**Masonry Walls** 

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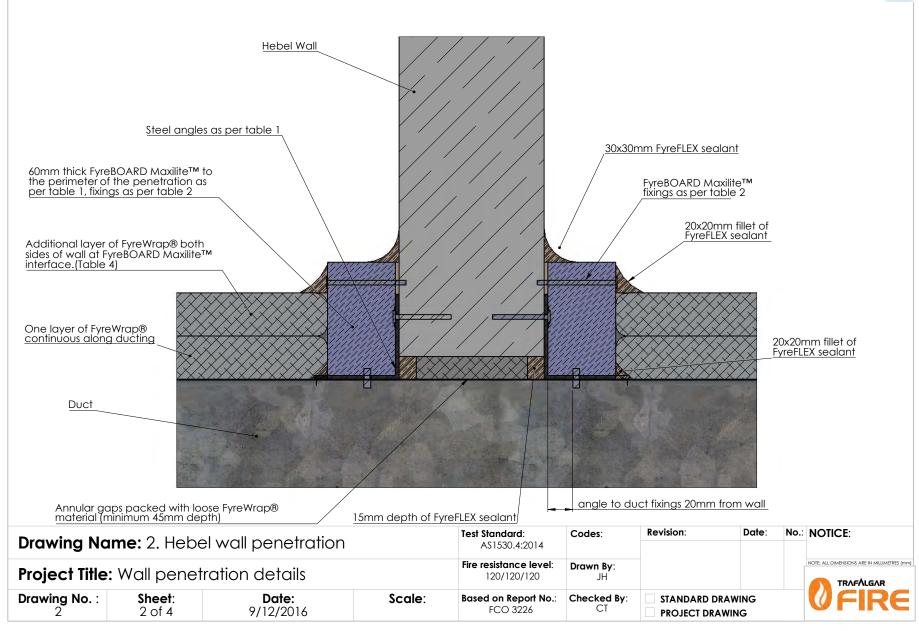




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### **Hebel and Walsc AAC Panel Walls**

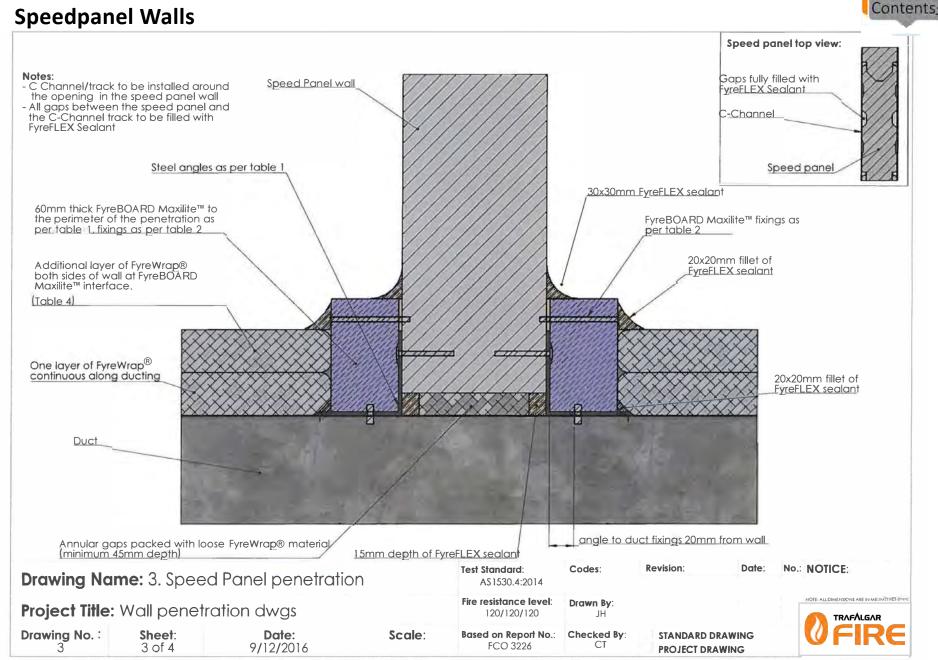






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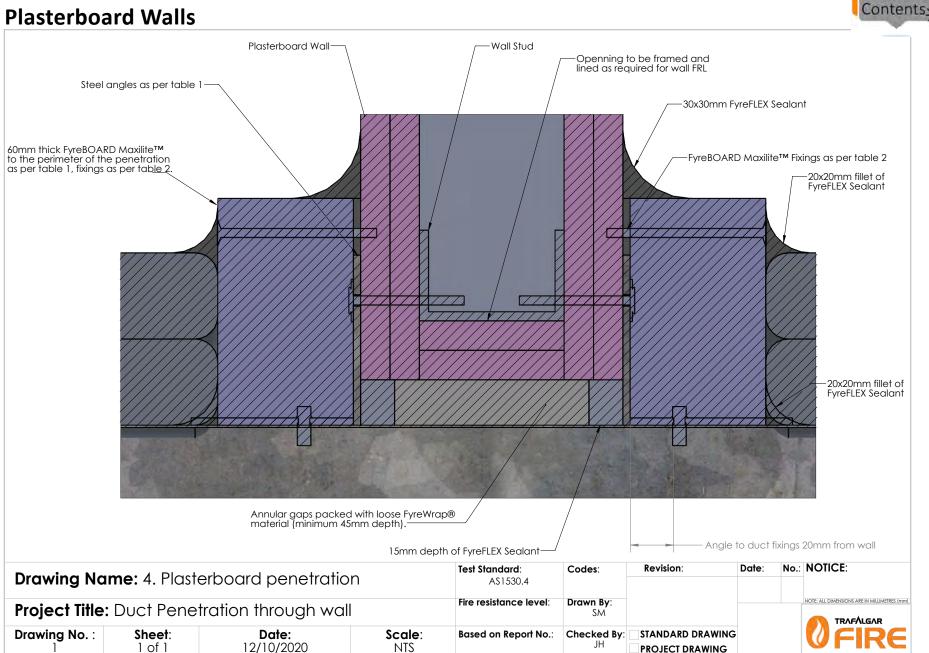
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### **Plasterboard Walls**



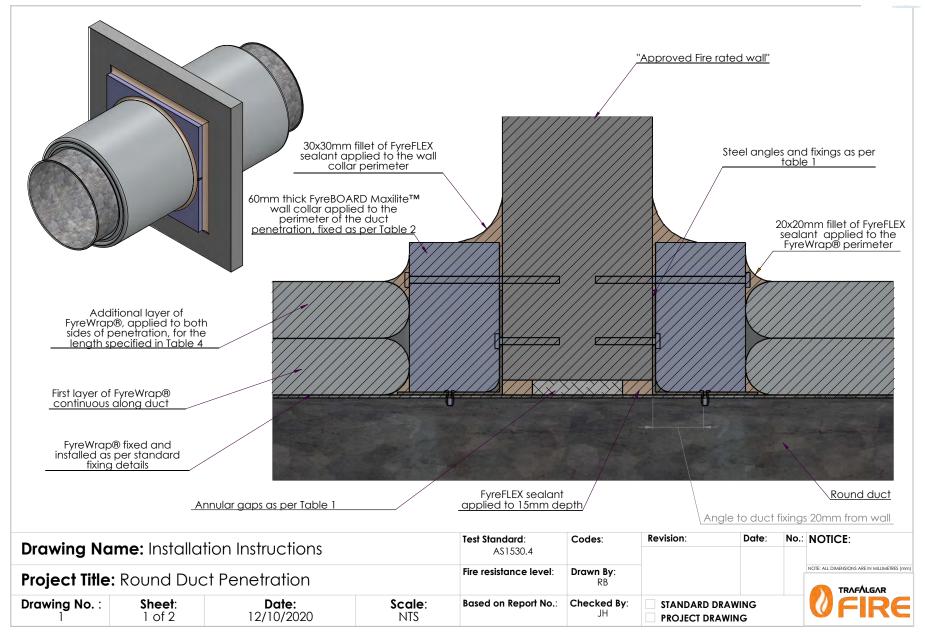
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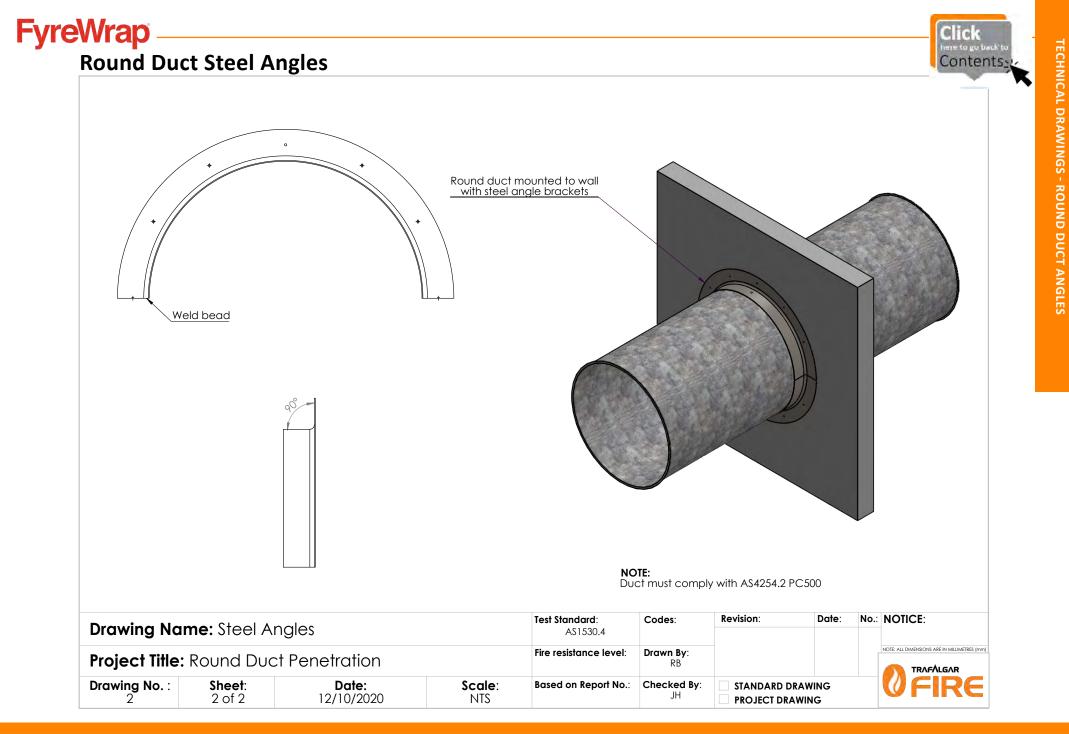
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### **Round Duct Penetration**





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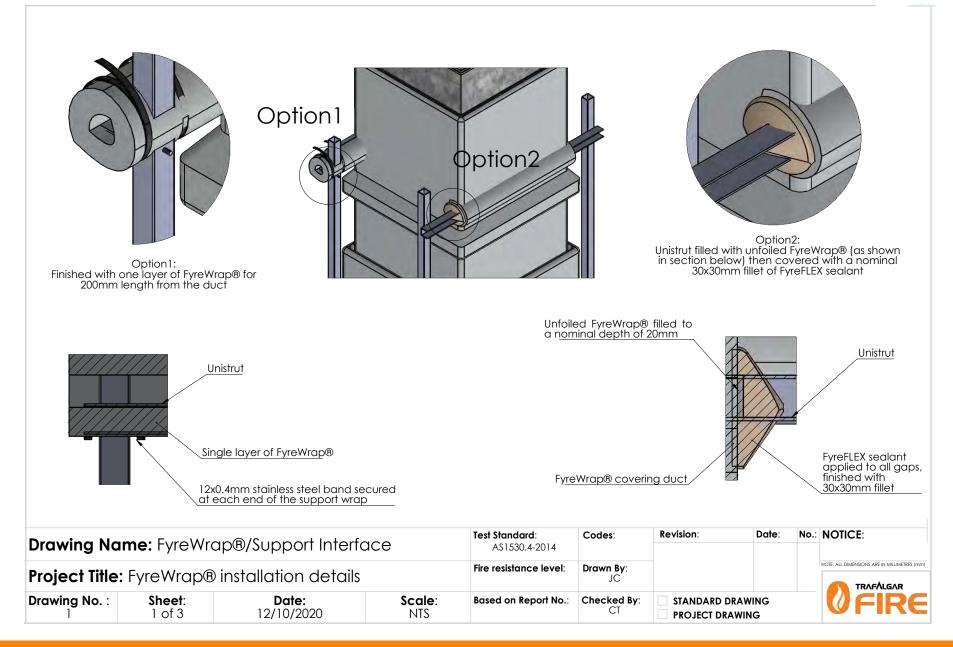


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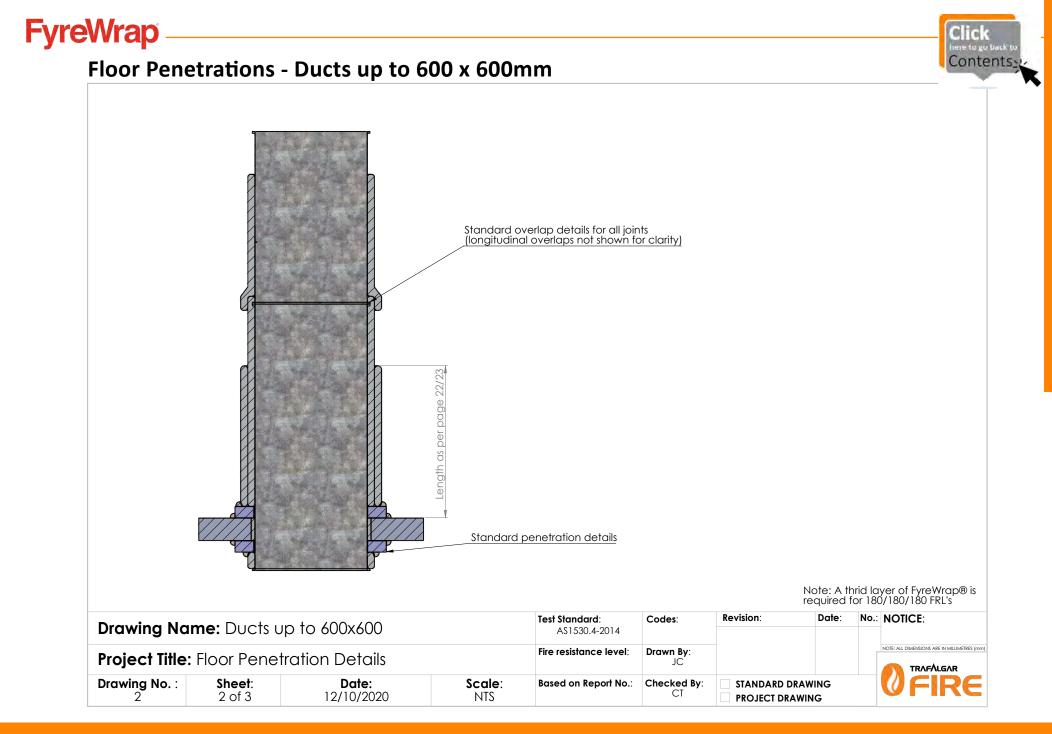
### **Support Interface Details**



**TECHNICAL DRAWINGS - SUPPORT INTERFACE DETAILS** 





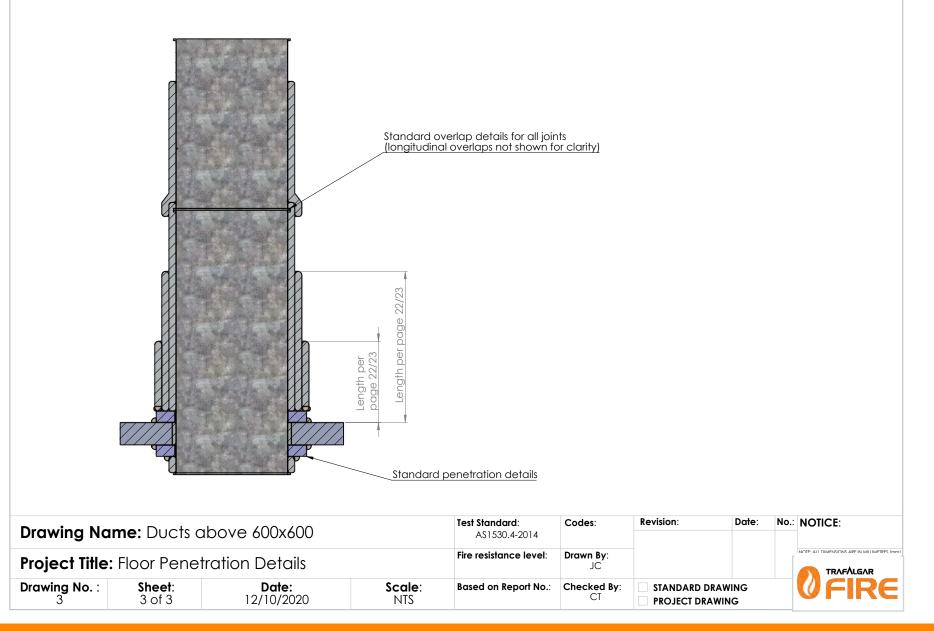




**TECHNICAL DRAWINGS - FLOORS** 



### Floor Penetrations - Ducts over 600 x 600mm





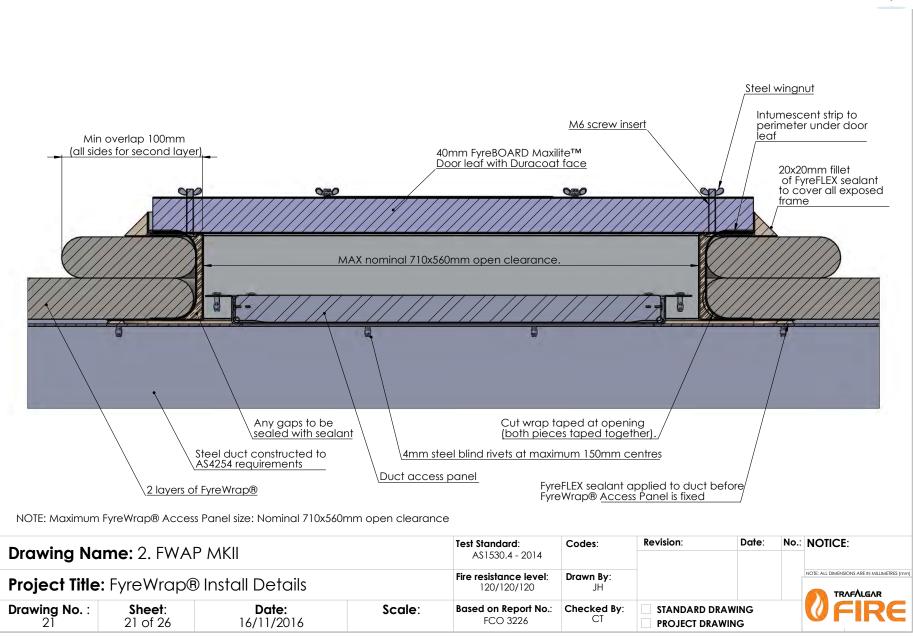
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Contents

### **FyreWrap® Access Panel Details**

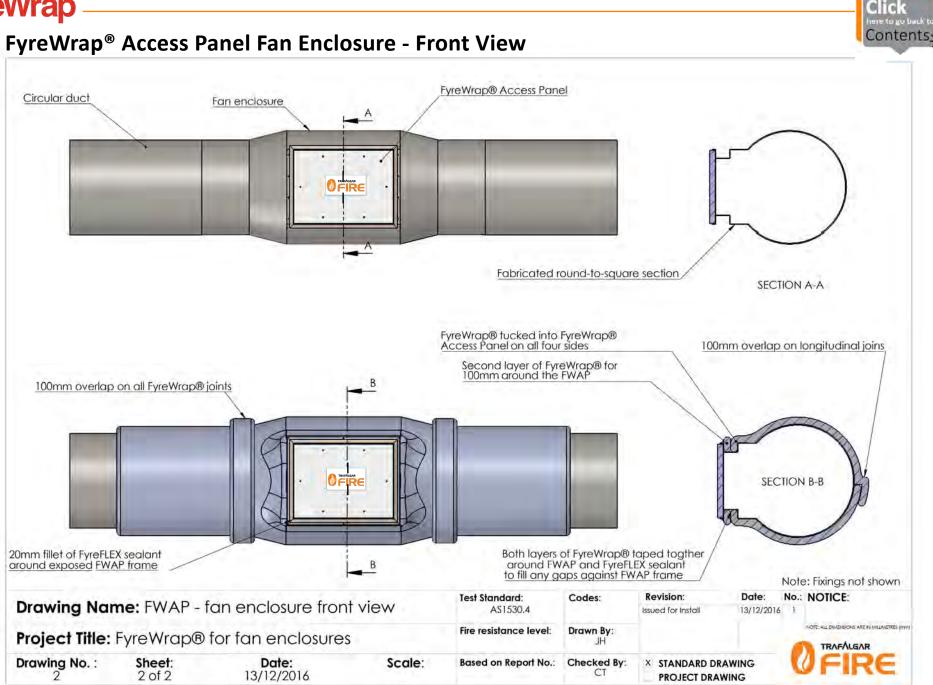




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Contents

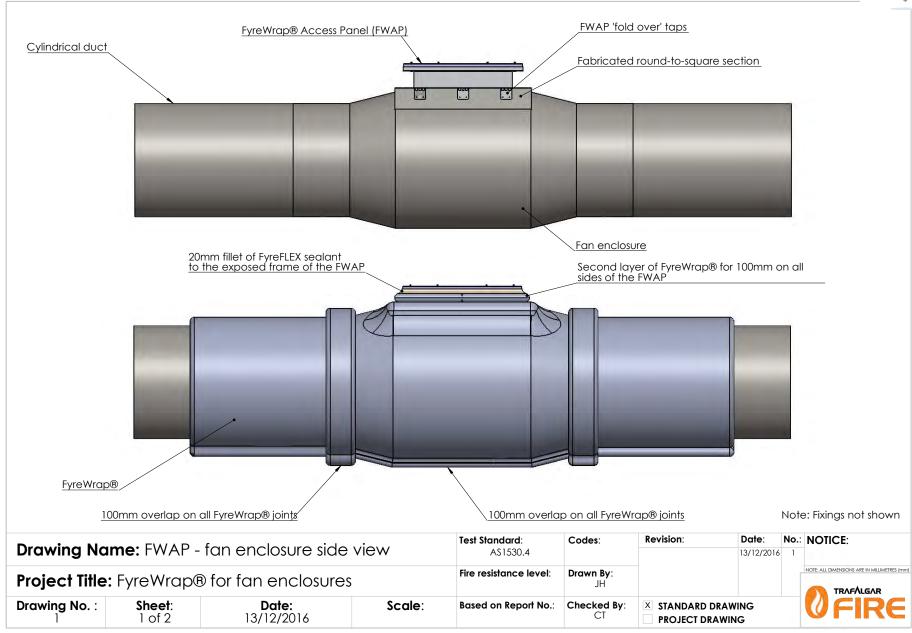






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## FyreWrap® Access Panel Fan Enclosure - Side View





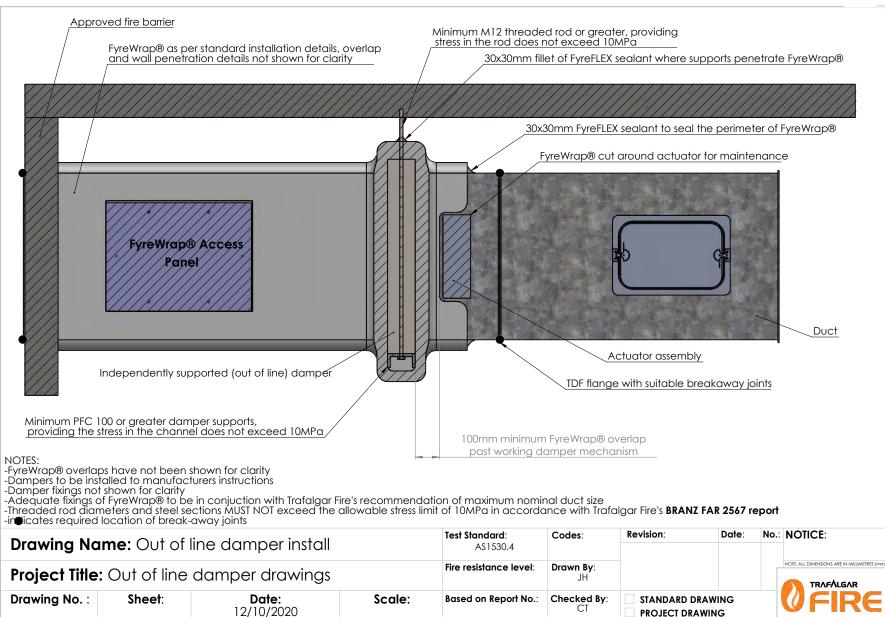
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Contents

### **Out of Line Damper**



**TECHNICAL DRAWINGS - OUT OF LINE DAMPER** 

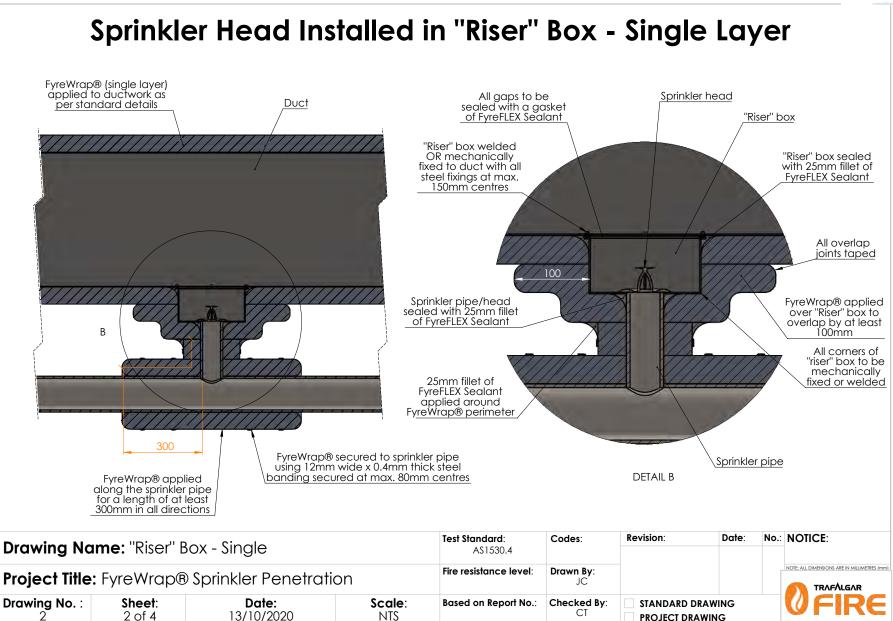




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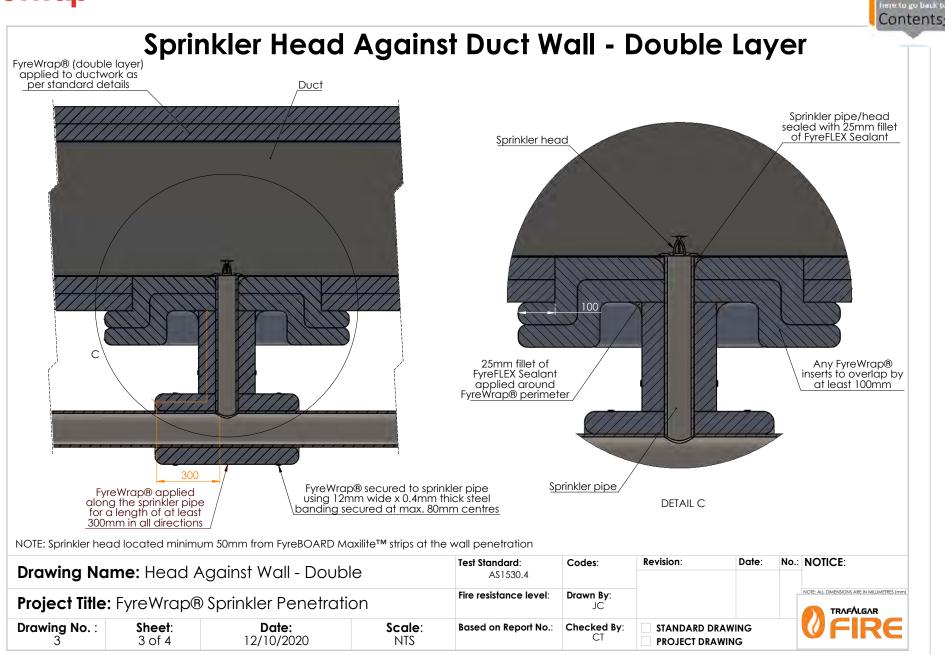




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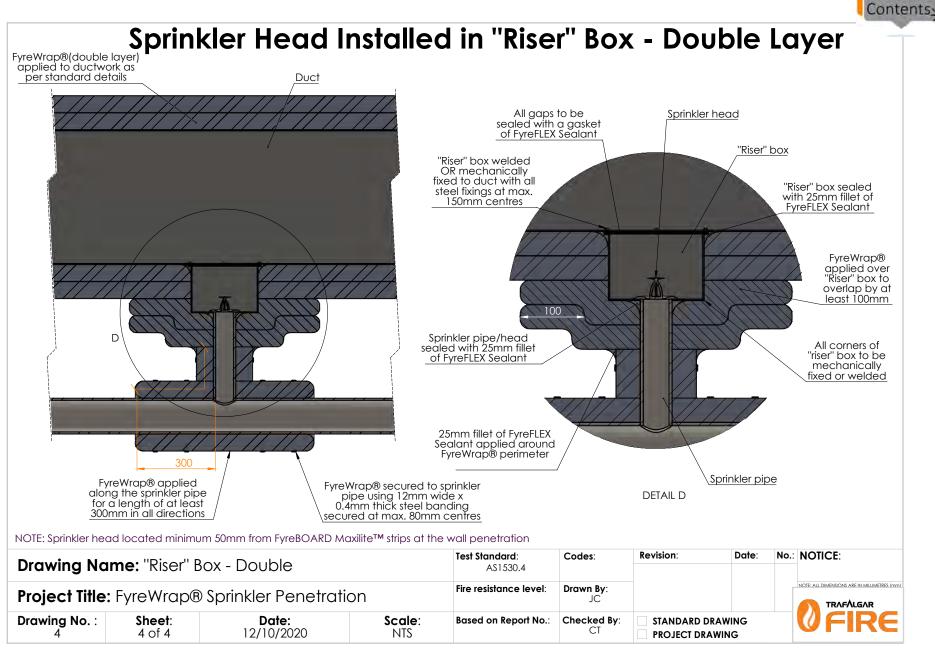
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