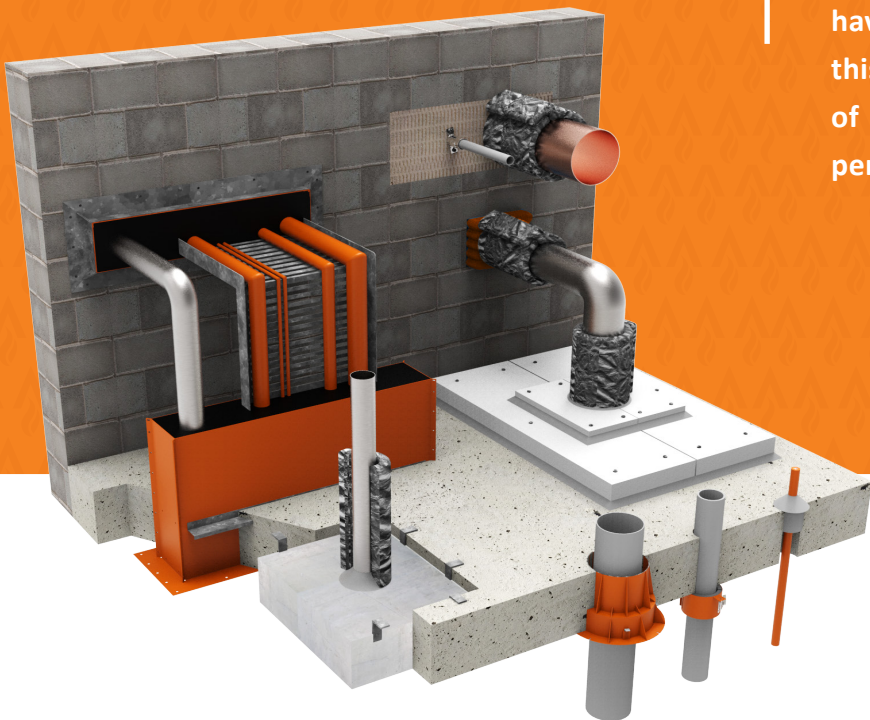


3-4 HOUR

Penetration Systems



Service Penetrations requiring three or four hour FRL's often have very limited solutions available if any at all. Trafalgar Fire has a wide range of systems that have been specifically fire tested for this application to cover a large range of service types to meet the high performance required.



SYSTEMS

- FyreBATT
- FyreBOARD Maxilite®
- FyreBOX Range
- FyreCOLLARS
- FyreFLEX® Sealant
- FyrePLUG® Pillows
- FyreSET® Mortar

APPLICATIONS

Electricians	Power Cables
	Data cables
	PVC Conduits
HVAC&R	Pair Coil
Plumbers	Copper and Steel pipes
	PVC pipes
	Other Plastic Pipes (HDPE, Raupiano, PEX)
Fire Professionals	Fire Cables

TRADES

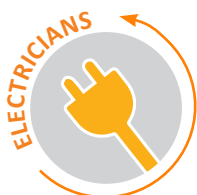


TABLE OF CONTENTS



Section		Trade/s	Page
Compliance			3
FRL Tables	Electrical & Data Concrete Walls		4
	Electrical & Data Concrete Floors		5
	HVAC & R Concrete Walls		6
	HVAC & R Concrete Floors		7
	Plumbers Concrete Walls		8
	Plumbers Concrete Floors		9

COMPLIANCE

OVERVIEW

The National Construction Code (NCC C3.15) specifies that when a service penetrates a building element that is required to have an FRL, a tested system must be installed in accordance with AS4072.1 and AS1530.4, or a system assessed to AS4072.1.

Common FRL's range from 1-2 hours, however higher FRL's (3 and 4 hour) are required for certain construction elements in the following construction types:

- Type A Construction
 - Building class 6
 - Building class 7b
 - Building class 8
- Type B Construction
 - Building class 6
 - Building class 7b
 - Building class 8

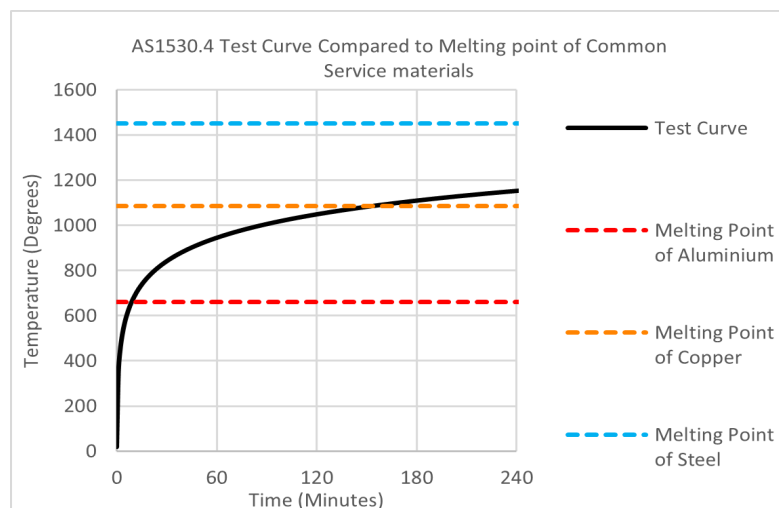
(Reference NCC Specification C1.1)

Fire testing for these FRL's can be quite challenging and impractical, making tested systems hard to come by. It is common to come into a scenario where a-/240/240 FRL is required and there simply is nothing tested on the market to that standard.

This is because the high testing temperatures, as seen in the graph, will get be above the melting point of some metals (providing an obvious problem for cables and copper pipes).

Achieving a full integrity rating of 240min is often practical, however achieving a 240min insulation (heat rise) is very difficult, so this manual documents the systems that we have tested that can meet these onerous FRL requirements as a Deemed to Satisfy solution (DtS).

Instances where full insulation is required and no tested system exists, a fire safety engineer should be engaged to either give concession to the FRL to something more practical (i.e. reduce required FRL from -/240/240 to -/240/180) or approve other performance solutions based off conservative test data and system design. Trafalgar Fire are always happy to collaborate with fire engineers and supply additional test data where required.



FIRE RATED BARRIERS

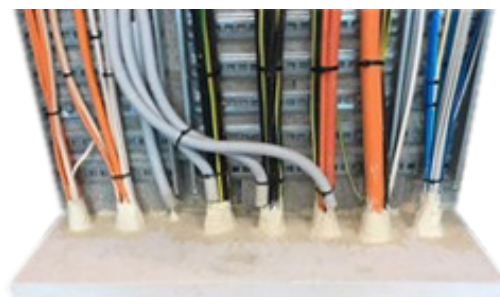
Common 3–4 hour barriers are concrete walls and floor slabs. AS3600 and AS3700 specifies the required thickness. As a rough guide:

Barrier	Thickness	FRL
Concrete floor slab	150mm	180/180/180
	175mm	240/240/240
Masonry (core filled) walls	As per AS3700	180/180/180
	As per AS3700	240/240/240
Concrete wall	150mm	180/180/180
	175mm	240/240/240

ELECTRICAL & DATA

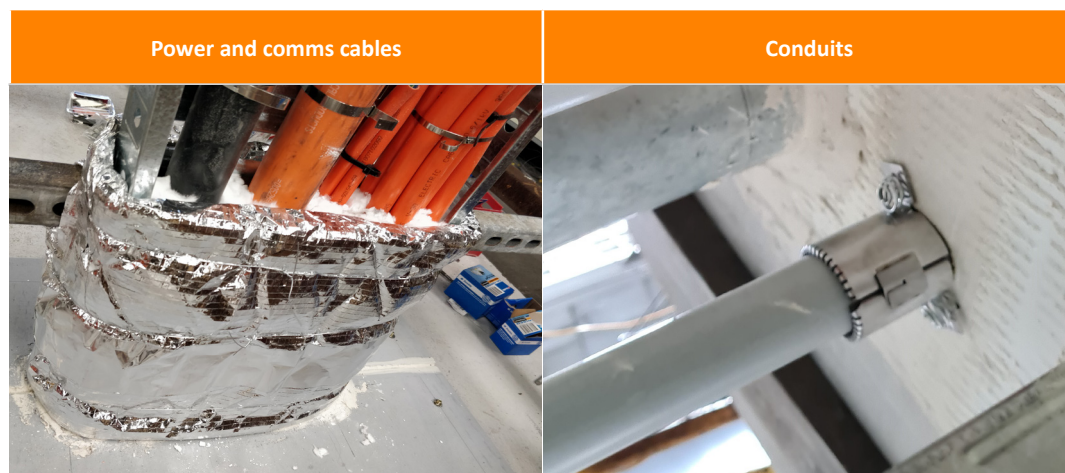


CONCRETE WALLS



Applications	Specifications	System	Specific system and FRL details refer to:	Max. FRL	Report Reference
Power and Comms Cables	Various bundles	FyreBOX Mini	FyreBOX Maxi/Mini Technical Manual	-/240/180	51894900
	Various bundles and cable trays.	FyreBOARD Maxilite® with TWRAP™	FyreBOARD Maxilite® for Penetrations Technical Manual	-/180/120	FCO2586
Conduits	40mm conduits	FyreBATT	FyreBATT Technical manual	-/240/120	FAS210023
	25mm conduits	FyreBOARD Maxilite® with FyrePEX sealant	FyreBOARD Maxilite® for Penetrations Technical Manual	-/240/240	FAR4849

*Contact Trafalgar on 1800 888 714 or email us at technical@tgroup.com.au



ELECTRICAL & DATA



CONCRETE FLOORS



Applications	Specifications	System	Specific system and FRL details refer to:	Max. FRL	Report Reference
Power and Comms Cables	Various bundles and cable trays.	FyreFLEX® Sealant with TWRAP™	FyreFLEX® Sealant Technical Manual	-/180/180 -/240/240	FCO1579
		FyreSET® Mortar with TWRAP™	FyreSET® Technical Manual	-/180/180 -/240/180	FAS200424
		FyreBOARD Maxilite® with TWRAP™	FyreBOARD Maxilite® for Penetrations Technical Manual	-/240/240	FAS200048
		FyreBATT with TWRAP™	FyreBATT Technical manual	-/180/120	FAS210023
	Data bundles inc. fire alarm cables, CAT6 and NBN.	FyrePLUG®	FyrePLUG® Technical Manual	-/180/180	FAS200048
		FyreBATT	FyreBATT Technical manual	-/180/120	FAS210023
		FyreBOARD Maxilite® with TWRAP™	FyreBOARD Maxilite® for Penetrations Technical Manual	-/240/120	FCO2586
Conduits	25mm conduits	FyrePEX HP Sealant and FyreBATT	FyrePEX HP Sealant Technical Manual FyreBATT Technical Manual	-/240/180 -/180/180	FRT200385
		FyreBATT with FyreBOX Mini and TWRAP™	FyreBATT Technical manual	-/240/180 -/180/180	FAS210023
		FyreBOARD Maxilite® with FyrePEX HP	FyreBOARD Maxilite® for Penetrations Technical Manual	-/240/240	FAR4849

3-4 Hour Penetrations

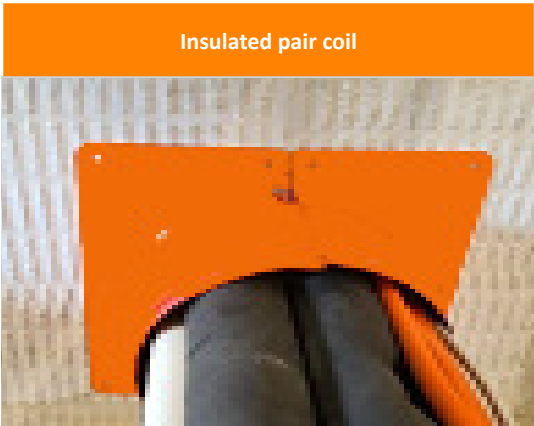
HVAC&R



CONCRETE WALLS



Applications	Specifications	System	Specific system and FRL details refer to:	Max. FRL	Report Reference
Insulated pair coil	3/8" and 3/4" pair coil with FR insulation	FyreBOX Mini	FyreBOX Maxi/Mini Technical Manual	-/240/180	51894900
		FyreBATT with FyreBOX Mini & TWRAP™	FyreBATT Technical manual	-/240/120	FAS210023
Single insulated copper pipe	DN32 copper pipe with 25mm FR insulation	FyreBATT with FyrePEX HP sealant	FyreBATT Technical manual	-/240/90	FAS210023



3-4 Hour Penetrations

HVAC&R

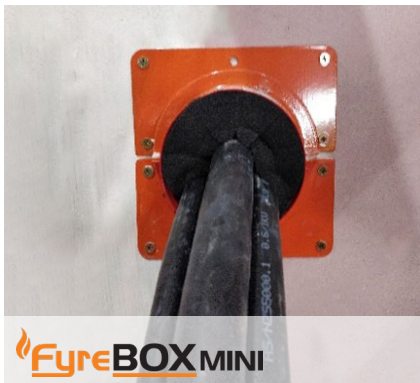


CONCRETE FLOORS



Applications	Specifications	System	Specific system and FRL details refer to:	Max. FRL	Report Reference
Insulated steel pipes	Up to 50mm OD (EPS or PE insulation and rockwool)	FyreBOX Range	FyreBOX Cast-In Technical Manual FyreBOX Maxi/Mini Technical Manual	-/240/240	FC 10266
Insulated pair coil	1x pair coil 3/8" and 3/4" pair coil with FR insulation. Bundle can include a CAT 6 cable and a 2.5mm ² 3C + E power cable	FyreBATT with FyrePEX HP sealant	FyreBATT Technical manual	-/180/120	FAS210023
	1x pair coil 3/8" and 3/4" pair coil with FR insulation. Bundle can include a CAT 6 cable, a 2.5mm ² 3C + E power cable & 20mm PVC drain	FyreBATT with FyreBOX Mini & TWRAP™	FyreBATT Technical manual	-/180/180	FAS210023
	3x pair coil 3/8" and 3/4" pair coil with FR insulation. Bundle can include a CAT 6 cable, a 2.5mm ² 3C + E power cable & 20mm PVC drain pipe	FyreBATT with FyreBOX Mini & TWRAP™	FyreBATT Technical manual	-/180/120	FAS210023

Pre-plan your fire-stopping and with a FyreBOX Cast-in.



FyreBOX Maxi & Mini are retro-fit FyreBOX options that can be located in any position in a wall or floor slab.

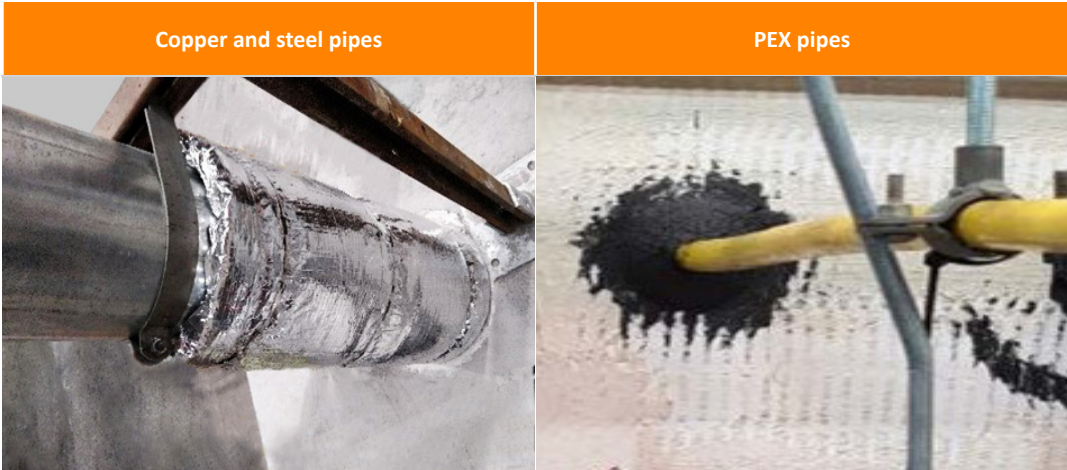
PLUMBERS



CONCRETE WALLS



Applications	Specifications	System	Specific system and FRL details refer to:	Max. FRL	Report Reference
Copper and steel pipes	Up to 100mm	FyrePLUG® with TWRAP™	FyrePLUG® Technical Manual	-/180/180	FAS200048
	Up to 150mm	FyreBATTwith TWRAP™ witTWRAP™	FyreBATT Technical manual	-/240/120	FAS210023
	Up to 150mm	FyreBATTwith TWRAP™	FyreBATT Technical manual	/240/240	FAS210023
	Up to 150mm	FyreBOARD Maxilite® with TWRAP™	FyreBOARD Maxilite® for Penetrations Technical Manual	-/180/120	FCO2586
	Up to 150mm	FyreFLEX sealant with TWrap™	FyreFLEX® Sealant Technical Manual	-/240/240	Contact Trafalgar
PEX pipes	20mm	FyreBATT with FyrePEX HP sealant	FyreBATT Technical manual	-/240/60	FAS210023
PVC pipes	Up to 100mm	FyreBATT with FyreCOLLAR Premium	FyreBATT Technical manual	-/240/120 -/240/60	FAS210023



PLUMBERS



CONCRETE FLOORS



Applications	Specifications	System	Specific system and FRL details refer to:	Max. FRL	Report Reference
Copper and Steel Pipes	Up to DN 100 Copper or steel	FyreBATT with TWRAP™	FyreBATT Technical Manual	-/240/120	FAS210023
	NB 150 (steel only)	FyreBATT with TWRAP™	FyreBATT Technical Manual	-/180/120	FAS210023
	DN 150 Copper or steel	FyreBATT with UniGUARD	FyreBATT Technical Manual	-/180/180	FAS210023
	Up to DN 100 Copper or Steel	FyreFLEX® with TWRAP™	FyreFLEX® Technical Manual	-/180/180	FCO 1579
	Up to NB 150 (steel only)	FyreFLEX® with TWRAP™	FyreFLEX® Technical Manual	-/240/180	
	NB 100 (steel only)	FyreSET® with TWRAP™	FyreSET® Technical Manual	-/180/180 -/240/240	FAS 200424
Drinks Python	90mm OD	FyreBOX Mini with TWRAP™	FyreBOX Maxi/Mini Technical Manual	-/240/240	FRT 190292
PEX pipes	20mm	FyreBATT with FyreBOX Mini & TWRAP™	FyreBATT Technical Manual	-/180/120	FRT 200384
		FyreBATT with FyrePEX HP	FyreBATT Technical Manual	-/180/180 -/240/90	FAS210023
PVC pipes	Up to 50mm uPVC	FyreBATT with FyreCOLLAR Premium Retrofit	FyreBATT Technical manual	-/180/180	FAS210023
	Up to 100mm uPVC	FyreCOLLAR Premium Retrofit	FyreCOLLAR Premium Retrofit Technical Manual	-/240/240 -/180/180	FC 11190
	150mm uPVC	FyreCOLLAR Premium Retrofit	FyreCOLLAR Premium Retrofit Technical Manual	-/180/180	
Other Plastic pipes- HDPE, Plastic, PP, Rehau/Raupiano	Various pipe sizes and materials, refer to technical manual	FyreCOLLAR Premium Retrofit	FyreCOLLAR Premium Retrofit Technical Manual	-/180/180 -/240/240	Contact Trafalgar
		FyreCOLLAR Cast-In Stack	FyreCOLLAR Cast-in Stack Technical Manual	-/180/180 -/240/240	
Plastic Pipes (Floor Waste) - PVC, HDPE, Rehau)	100mm pipe size with various materials, refer to technical manual	FyreCOLLAR Cast-In Floor Waste	FyreCOLLAR Cast-In Floor Waste Technical Manual	-/180/180 -/240/240	FSP2199