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FyrePLUG®
Fire Rated Pillow

Trafalgar Fire FyrePLUG® pillows are a tried and tested passive fire penetration system that have been used across the industry for over forty years and are Made in Australia.

AUSTRALIAN MADE AND OWNED

NCC 2022 READY

Online Calculator Click Here

NEW ORANGE COLOUR
PREVIOUSLY BLUE

KEY FEATURES

- Proudly Australian made
- Quick and easy installation
- Used in floors and walls
- Tested to AS1530.4-2014
- Removable
- Suitable for cables and metal pipes
- Approved with Speedpanel® and Hebel® walls
- Tested with Trafalgar Fire TWRAP™ for increased insulation ratings small medium and large, to suit various applications

WHAT IS FyrePLUG®?

- Tested for a range of modern services and fire barriers to AS1530.4-2014
- Ideal for small to medium size penetrations for temporary fire stopping
- Undisturbed provide a permanent fire protection as required by the National Construction Code (NCC)
- Fire tested for wall and floor openings with other Trafalgar Fire systems and with an impressive range of service penetration types
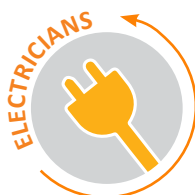
TRADES

ELECTRICIANS

PLUMBERS

PASSIVE FIRE PROFESSIONALS

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FyrePLUG®
INSULATION SYSTEMS

WHAT IS FyrePLUG®

Trafalgar Fire FyrePLUG® pillows are a tried and tested passive fire penetration system that have been used across the industry for over forty years. Made in Australia, FyrePLUG® pillows consist of a high temperature resistant and granulated fire stopping material enclosed in a durable and fire-resistant covering which can be tightly hand packed into an opening around service penetrations to provide a high level of fire separation.

FyrePLUG® pillows were the first product of its kind developed in Australia in the early 1970's, originally designed as a temporary means of providing fire protection to openings for electrical service penetrations in telephone exchanges.

Since their humble beginning, FyrePLUG® pillows have now been tested for a range of modern services and fire barriers to AS1530.4-2014, and are ideal for small to medium size penetrations for temporary fire stopping, but if left undisturbed do provide a permanent form of fire protection as required by the National Construction Code (NCC).

Fire testing has been conducted for both wall and floor openings in conjunction with other Trafalgar Fire systems and with an impressive range of service penetration types.
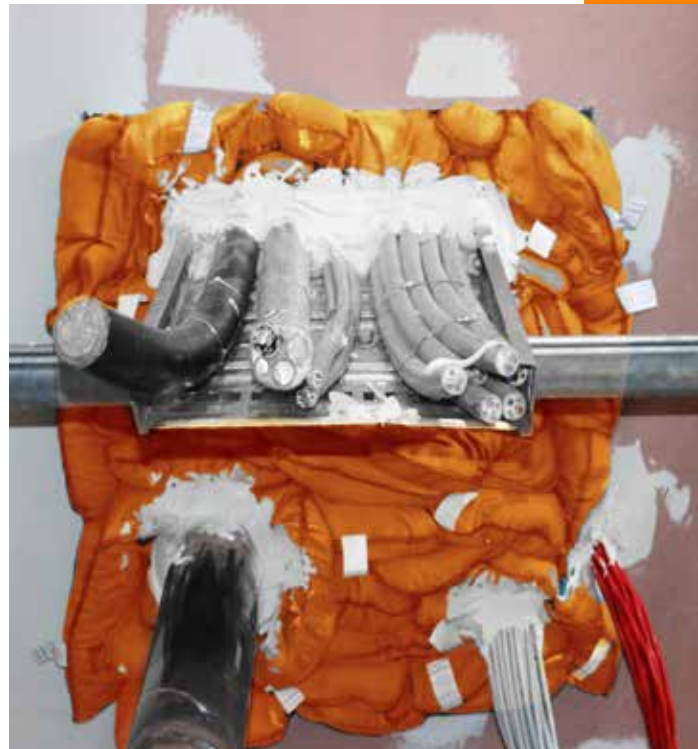
APPLICATIONS

FyrePLUG® Pillows are suitable for:

- Electrical cables and cable trays
- Data/comms cables and cable trays (including NBN fibre)
- Copper and steel pipes
- Air conditioning pair-coil when used in conjunction with FyreBOX™ Mini
- PVC conduits when used in conjunction with FyrePEX™ HP sealant and a pipe former

COMPLIANCE: FyrePLUG®

FyrePLUG®
FIRE RATED PILLOW

NCC 2022 READY

COMPLIANCE WITH THE NATIONAL CONSTRUCTION CODE (NCC)

Formerly known as BCA

Under the building code, a Deemed to Satisfy (DTS) solution is one that satisfies the performance requirements set out in section C of volume one. Section C specifically deals with the fire protection of openings in fire barriers (i.e. service penetrations in fire rated walls and floors).

Section C3.15 – Openings for Service Installations

Where any service penetrates a fire barrier that has a Fire Resistance Level (FRL) with respect to integrity and insulation, the installation should comply with the following tested systems:

A Fire Tested System – An identical prototype, installed in the same wall or floor system that has been tested/approved to the fire testing standard AS1530.4 and AS4072.1 which has achieved an FRL of equal to or greater than that required by the fire barrier.

For example, if the site has a -/120/120 plasterboard wall system with an electrical cable penetration, the product used to seal the cables must have been fire tested at an approved laboratory WITH electrical cables IN the same wall type AND tested for at least 120 minutes without failing the integrity or insulation criteria.

TEST AND ASSESSMENT REPORTS

Fire testing is a timely and expensive process, and it is impossible to test every single possible service configuration 'identically' in a practical sense.

Under the building code C3.15(a)(i)(B) a testing authority is permitted to write a formal assessment confirming the likely fire performance (FRL) of the penetration. The guidelines for what can and can't be included in a formal assessment are outlined in AS4072.1.

Our FyrePLUG® Pillow fire assessment report FAS200048 is written by expert Fire Engineers from a NATA approved laboratory which provides evidence of compliance under the NCC. The report summaries the decades of fire test data for FyrePLUG® Pillows and allows for a large range of practical applications in various walls and floor penetrations.

Compliance will only be achieved when the installation on site mirrors the tested system. Please refer to the 'parent' fire stopping system product manuals for specific installation instructions.

WALL PENETRATIONS

75mm Speedpanel®
75mm Hebel® AAC
2hr Plasterboard and Shaft Walls
2hr & 3hr Concrete and Masonry

Image: Metal Pipes up to 100mm, unwrapped bundles of small cables and cable trays

Fire Barriers	78mm Speedpanel® walls	75mm Hebel® AAC Walls	2 Hour Plasterboard and Shaft Walls	2 Hour Concrete and Masonry Walls	3 Hour Concrete and Masonry Walls
Max Opening Size	350w x 450h	350w x 450h	600 x 600	800 x 600	800 x 600
FRL	-/120/120	-/90/90	-/120/120	-/120/120	-/180/180
Services	TWRAP™ lengths required per service:				
Power cables on cable trays 350 wide (Appendix D1)	600mm, both sides of the wall		300mm, both sides of the wall		N/A
Comms/data cables on 350mm wide trays (Appendix D2)	300mm, both sides of the wall				N/A
Up to 50mm copper & steel pipes	300mm, both sides of the wall				600mm
Up to 100mm copper & steel pipes	1st layer: 600mm, both sides of the wall 2nd layer: 300mm, both sides of the wall		600mm, both sides of the wall		
Small cable bundles*	No TWRAP™ needed				300mm
25mm PVC conduit	No TWRAP™ needed. Conduit installed with FyrePEX HP sealant and a pipe former. Refer to page 15 for specific installation requirements.				

Small cables bundles include any mix of cables of up to 20x CAT6 data or TPS fire or TPS power or fibre cables.

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FLOOR PENETRATIONS

90 min, 2hr and 4hr Concrete Floors

Fire Barriers	90-minute Concrete floors	2-hour Concrete floors	4-hour Concrete floors
Max Opening Size	600x600	600x600 (or modules of 700x200)	1000x300
FRL	-/90/90	-/120/120	-/240/240
Services	TWRAP™ lengths required per service:		
Power cables on cable trays 350 wide (Appendix D1)	300mm, top side only	500mm, top side only	N/A
Comms/data cables on 350mm wide trays (Appendix D2)	300mm, top side only	500mm, top side only	N/A
Up to 50mm copper & steel pipes	450mm, top side only		N/A
Up to 100mm copper & steel pipes	600mm, top side only		N/A
Small cable bundles*	No TWRAP™ needed		300mm
FyreBOX™ Mini**	No TWRAP™ needed	300mm	300mm for -/240/180
Unpenetrated	No TWRAP™ needed		

*Small cables bundles include any mix of cables of up to 20x CAT6 data or 15 x TPS fire or TPS power or fibre cables.
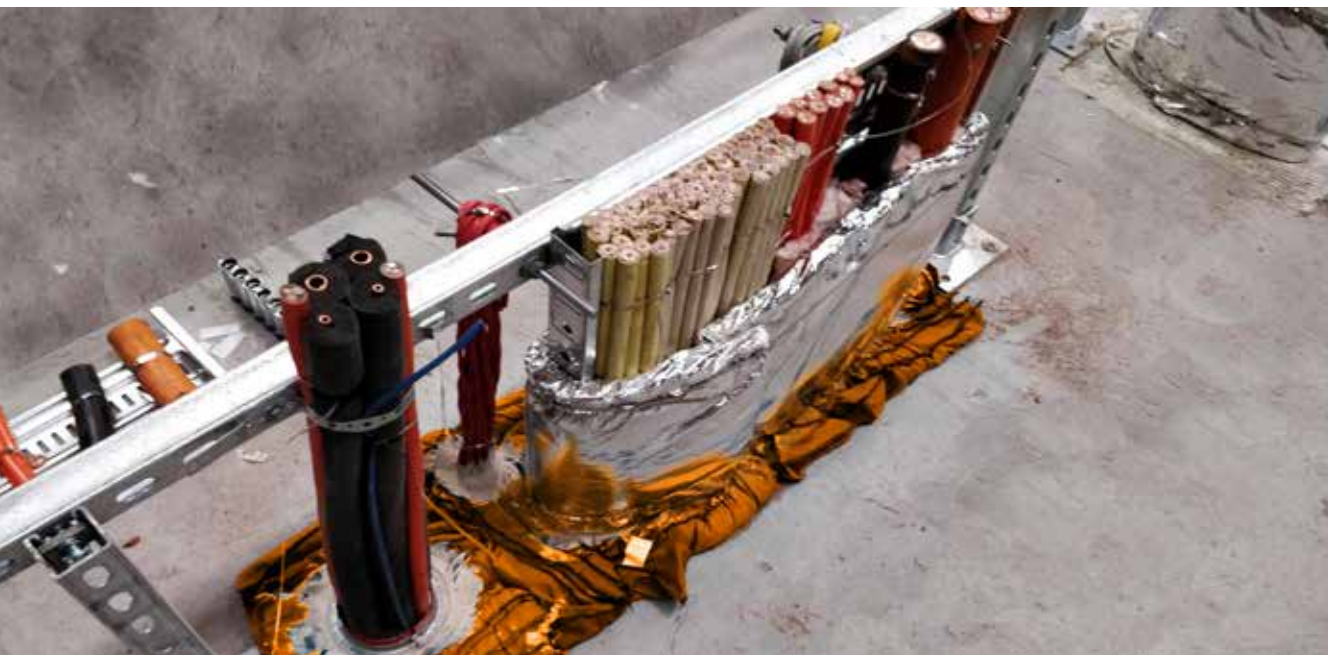** FyreBOX™ services may include up to 2x insulated pair coil with associated power/data cables.

Image: Pair coil penetrations with FyreBOX™ Mini-R, unwrapped bundles of small cables and cable trays.
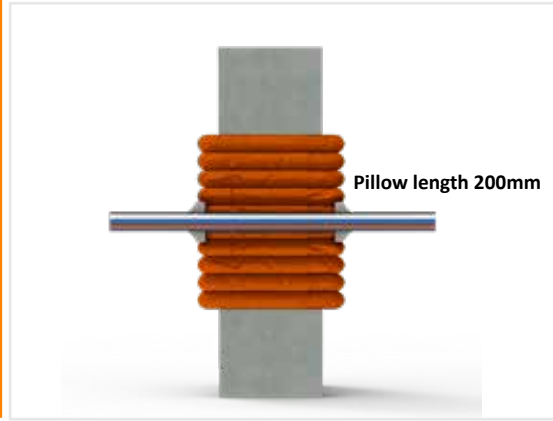
FyrePLUG

INSTALLATION

FyrePLUG® pillows will only be compliant if they are installed exactly how they have been tested otherwise the FRL performance can't be confirmed, so it is important that the following installation instructions are followed closely.

STEP 1

Ensure that the opening in the wall/floor is within the approved size range as per the below tables. If the wall is of plasterboard construction, the opening MUST be framed with stud and lined with plasterboard as per the wall manufactures recommendations. Speedpanel® and Hebel® AAC walls also include additional framing for large openings.

STEP 2

Pillow length 200mm

Pack FyrePLUG® pillows into the opening tightly, with the 200mm edge of the pillows perpendicular to the face of the wall (so that the 200mm edge runs in the same direction as the services).

Installation tips: As a rule of thumb, the pillows need to be packed as tightly as possible. If you can fit more pillows, then you haven't reached the packing density!

STEP 3

Check the packing density of pillows to ensure there are enough pillows per square meter.
- Small: 600 pillows per square meter
- Medium: 190 pillows per square meter
- Large: 125 pillows per square meter

Calculating how many FyrePLUG®?

Example, a 600x600mm opening with no services, you can estimate the quantity of large pillows as follows:

= Packing Density x Area (m2)

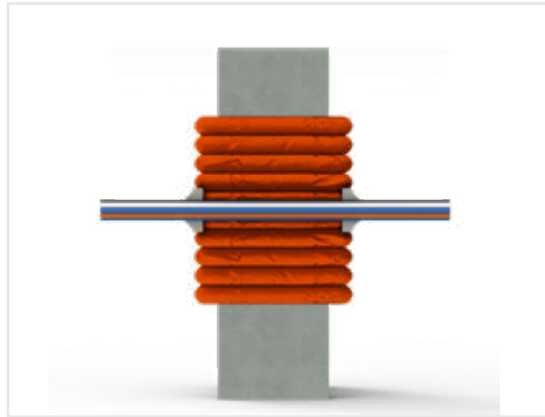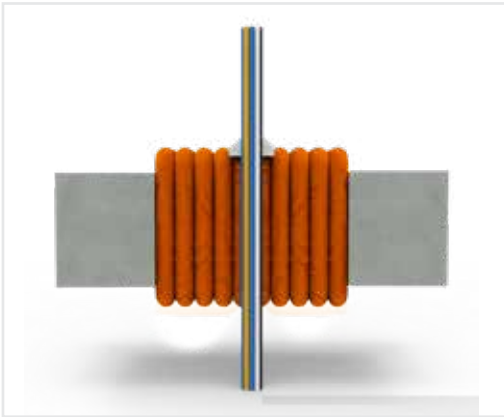= 125 x (0.6x0.6)

= 45x large pillows.

Online Calculator Click Here

Installation tips: Use the medium and large size pillows to take up large empty space in the penetration and use the small pillows to pack out the smaller gaps that form around the services to make sure that no through-gaps occur.

FyrePLUG

INSTALLATION

STEP 4

FyreFLEX® Sealant is required to be applied at the following locations:
- A 50mm fillet is applied to the services where they penetrate the pillows
- For walls this required on BOTH SIDES of the wall
- For floors, this is required on the top side only
- At the T-junction between a vertical and horizontal pillows

Installation tip

To reduce sealant use, it is recommended that pillows be all stacked in the same orientation (i.e. all vertical, or all horizontal).

STEP 5 (Speedpanel® Walls)

Install two strips of 2x13mm FR plasterboard 100mm wide around the perimeter of the penetration on one side of the wall with 8gx40mm needle head (plasterboard) screws at 300mm centres. During fire conditions, increased heat transfer may occur across the top section of the steel C-Track lining the penetration, so plasterboard strips are used to prevent hot spots at the head of the Speedpanel® walls.

During fire conditions, increased heat transfer may occur across the top section of the steel C-Track lining the penetration, so plasterboard strips are used to prevent hot spots at the head of the Speedpanel® walls.

INSTALLATION

STEP 6

Install TWRAP™ around the services if required, to increase the insulation performance to -/120/120. The length of TWRAP™ will be depend on the specific service, refer to below 'TWRAP™ Installation' section for service specific requirements.

STEP 7

Document the penetration. It is general good practice to take photographs and label all completed penetration works to add to the site's documentation for future inspections. AS4072 includes some recommendations and templates for penetration register stickers.

Installation tips

Tape up any cut edges of TWRAP™ to prevent infill material from falling away.

TWRAP™ is required on both sides of the wall, but only on the top side of a floor.

TWRAP™ INSTALLATION

TWRAP™ is a 25mm thick foil-faced, fire protection wrap that has been engineered to provide insulation performance on service penetrations as required by the National Construction Code (NCC) in modern construction and has been tested specifically with FyrePLUG® pillow systems to AS1530.4-2014.

TWRAP™'s aluminium foil, fiberglass-reinforced outer layer completely encapsulates the core and provides additional handling strength, protection from tearing and provides a high resistance to mould growth.

The following sections detail installation requirements around different types of service penetrations.

INSTALLATION TWRAP™

FyreWrap® Elite 38mm is still suitable for use to wrap penetrations however it needs to be installed to meet the same length requirements of TWRAP™.

METAL PIPES

TWRAP™ should be wrapped around the services with a 50mm overlap and secured in place with 4.6mm wide steel cable ties at 150mm centres.

TWRAP™ lengths are SERVICE SPECIFIC and are detailed in the FRL tables on pages 5-6.

The larger the pipe, the longer the TWRAP™ length should be. Refer to the FRL tables on pages 5-6.

D100 cooper pipes require an additional layer of TWRAP™, 200mm off the face of the pillows.

SMALL CABLE BUNDLES

Smaller cable bundles don't require any TWRAP™! Refer to the FRL tables on pages 5-6 for specifics on size limitations.

Smaller cable bundles don't transfer as much heat and when tested will achieve -/120/120 without the need for additional insulation wraps.

LARGER CABLE BUNDLES

TWRAP™ should be wrapped around the services with a 50mm overlap and secured in place with 4.6mm wide steel cable ties 50mm from each edge, and at 150mm centres in between.

TWRAP™ lengths are SERVICE SPECIFIC and are detailed in the FRL tables on pages 5-6.

INSTALLATION TWRAP™

CABLE TRAYS
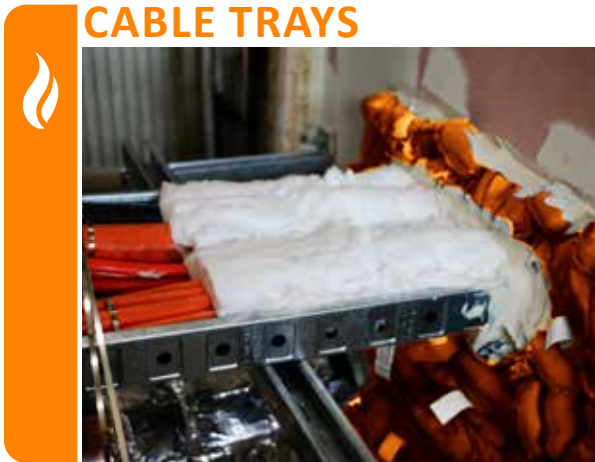
Before wrapping, cable trays should be packed with loose TWRAP™ infill material, for 300mm away from the pillows to fill any gaps in-between the cables as well as the cable tray lip.

WRAP

TWRAP™ should be wrapped around the services with a 50mm overlap.

WRAP

TWRAP™ should be wrapped around the services with a 50mm overlap.

STRAP

TWRAP™ is then secured in place with 4.6mm wide steel cable ties 50mm from each edge, and at 150mm centres in between.

TWRAP™ lengths are SERVICE SPECIFIC and are detailed in the FRL tables on pages 5-6.

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SYSTEM RANGE

FyrePLUG

AUSTRALIAN MADE AND OWNED

Item Number	Description	Min Order Qty	Pallet QTY
FyrePLUG- S	FyrePLUG® Pillow Small 100 x 250mm	30	1200
FyrePLUG- M	FyrePLUG® Pillow Medium 200 x 250mm	20	800
FyrePLUG- L	FyrePLUG® Pillow Large 300 x 250mm	15	600

Split box fee applied to orders below the minimum order quantities. Contact sales@tgroup.com.au for your quoting needs.

FyrePLUG® SYSTEM AND COMPONENTS

Item Number	Description	Min Order Qty	Pallet QTY
FyreFLEX 300W FyreFLEX 300G	FyreFLEX® Sealant Cartridge 300ml White or Grey	20	1440
FyreFLEX 600W FyreFLEX 600G	FyreFLEX® Sealant Sausage 600ml White or Grey	18	810
TWRAP 300	300mm wide, 25mm thick blanket	7620mm long roll	2
TWRAP 450	450mm wide, 38mm thick blanket	7620mm long roll	1
TWRAP 600	600mm wide, 25mm thick blanket	7620mm long roll	1
Cable Tie SS 12 x 521	4.6mm wide x 521mm long	25	N/A
Cable Tie SS 12 x 910	4.6mm wide x 910mm long	25	N/A
Cable Tie SS 12 x 910	Foil tape, 95mm wide, 50m roll	1	N/A

FAQ

Q Can I install my cables hard up against the edge of the penetration?

A Yes.

Q Do I have to cut back my conduit from the pillow penetration?

A In floors yes, in walls you could also keep the PVC conduit and install with FyrePEX™ HP sealant and a 65mm PVC pipe former as shown in drawing on page 15.

Q How far apart can my services be installed within your pillows?

A 50mm apart.

Q How many pillows do I need?

A As many as practically possible. Refer to page 5 which details the packing density required.

Q What length of TWRAP™ do I need for my copper pipe?

A Metal pipes transmit heat very well, and so the larger the pipe the more TWRAP™ will be required. Refer to the FRL tables on pages 5-6 for your specific wall and pipe size.

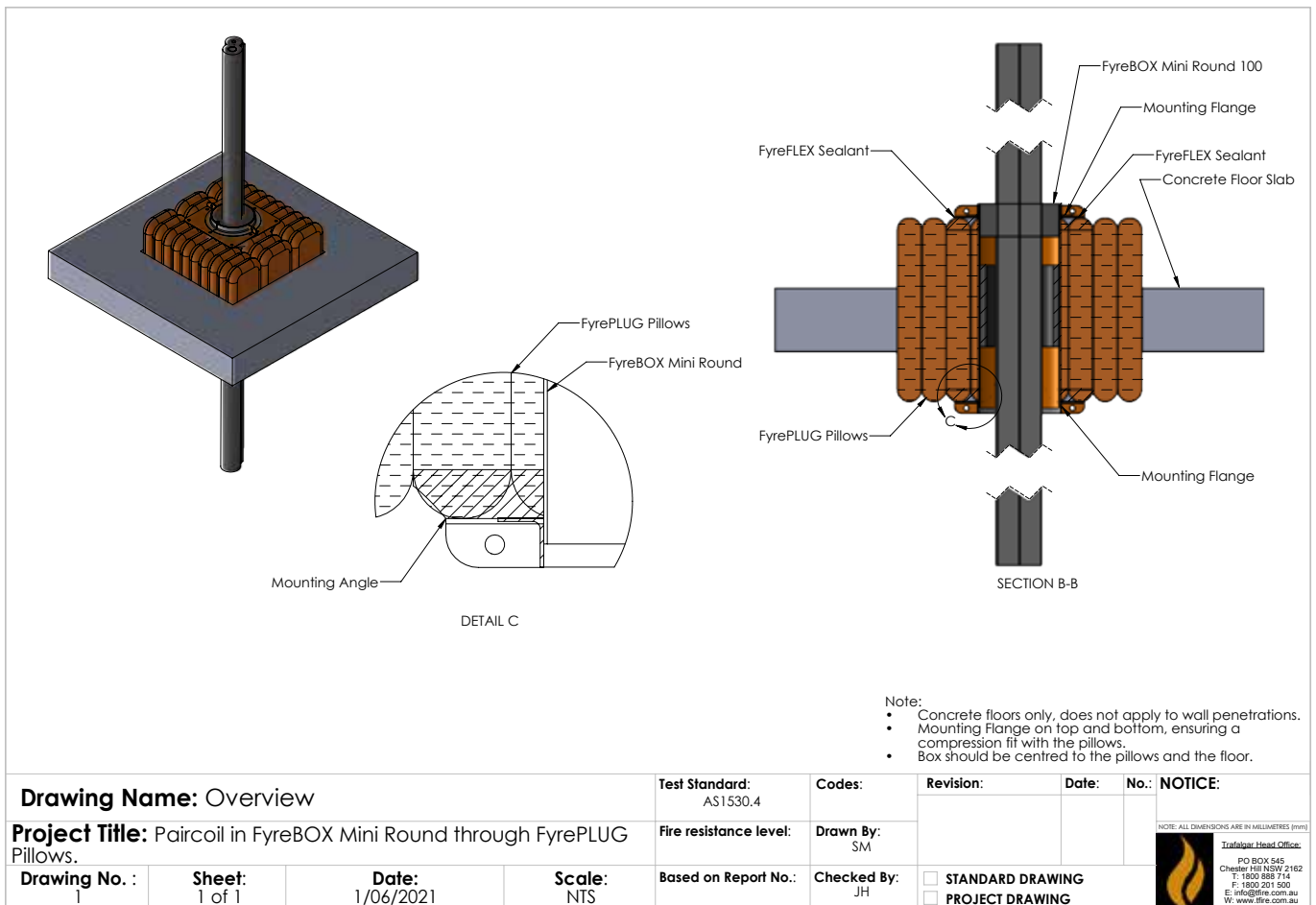**Q** Can I still use FyreWrap® to wrap around my cables and pipe penetrations?

A Yes, FyreWrap® is still suitable for use however it needs to be installed to meet the same length requirements of TWRAP™. For example, if the tables above say that you need 600mm of TWRAP™, then you need to use 600mm of FyreWrap®.

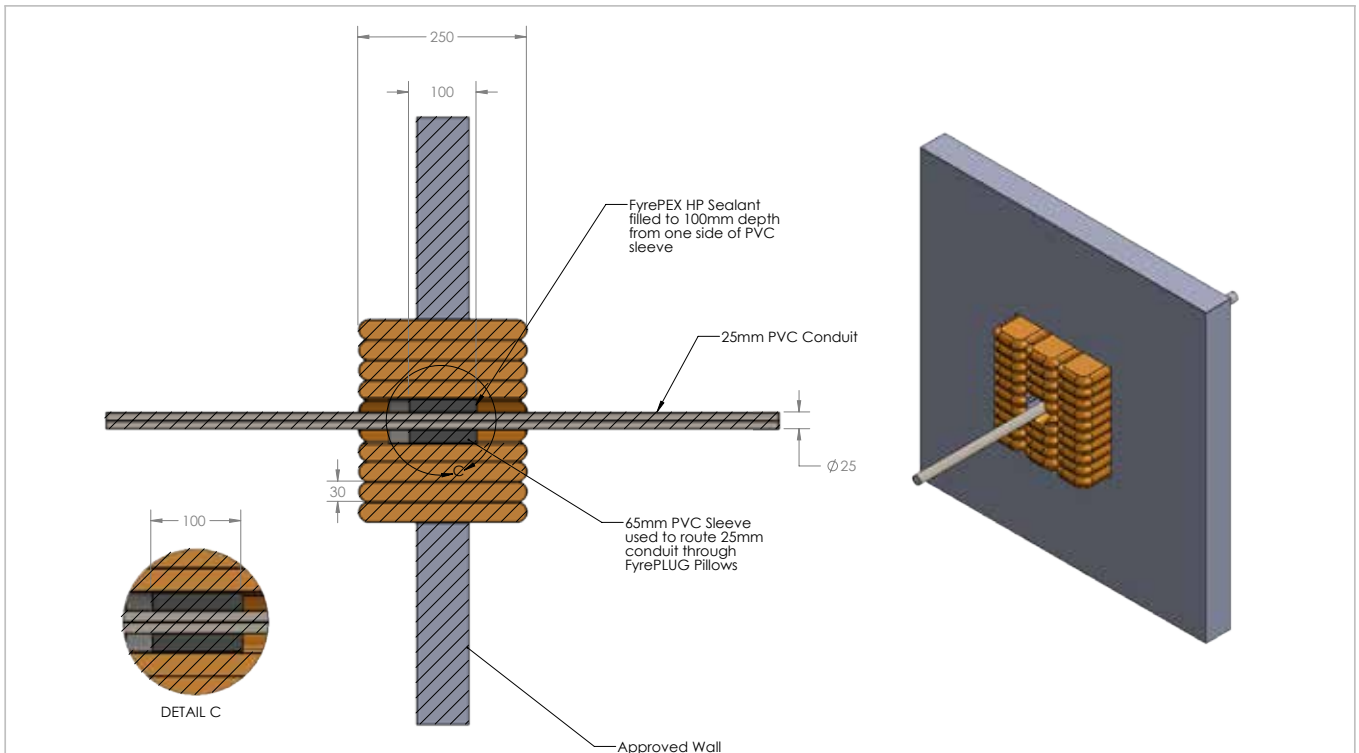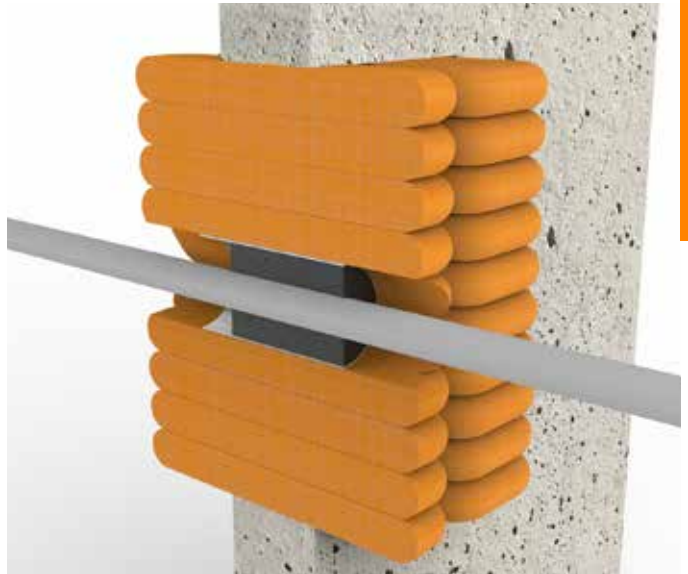## SOCIAL MEDIA

Linked in   YouTube

SPECIAL INSTALLATIONS
FyreBOX™ Mini

To allow for A/C bundles with insulated copper pipe and cables through riser shaft floor penetrations, a FyreBOX™ Mini Round 100 can be installed into the FyrePLUG® Pillows and provide a high level of performance ranging from -/90/90 unwrapped, to -/240/180 (with TWRAP™). The FyreBOX™ is simply friction fit into the pillows, and FyreFLEX® Sealant is used under the edges of the FyreBOX™ mounting flanges (on the top and bottom).

FyrePLUG Pillows
FyreBOX Mini Round
Mounting Angle
DETAIL C

FyreBOX Mini Round 100
Mounting Flange
FyreFLEX Sealant
Concrete Floor Slab
FyreFLEX Sealant
FyrePLUG Pillows
Mounting Flange
SECTION B-B

Note:
- Concrete floors only, does not apply to wall penetrations.
- Mounting Flange on top and bottom, ensuring a compression fit with the pillows.
- Box should be centred to the pillows and the floor.

Drawing Name: Overview				Test Standard: AS1530.4	Codes:	Revision:		Date:	No.:	NOTICE:
Project Title: Paircoil in FyreBOX Mini Round through FyrePLUG Pillows.				Fire resistance level:	Drawn By: SM					NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm) Trafalgar Head Office: PO BOX 545 Chester Hill NSW 2162 T: 1800 888 714 F: 1800 201 500 E: info@tfire.com.au W: www.tfire.com.au
Drawing No. : 1	**Sheet:** 1 of 1	**Date:** 1/06/2021	**Scale:** NTS	Based on Report No.:	Checked By: JH	☐ STANDARD DRAWING ☐ PROJECT DRAWING				

FyrePLUG

SPECIAL INSTALLATIONS CONDUITS IN WALLS

To allow for PVC conduits (perfect for NBN), a 65mm PVC sleeve may be used as a pipe former to assist in routing 25mm conduits through FyrePLUG® Pillow wall installations with the help of our FyrePEX™ HP Sealant. FyrePEX™ HP is filled from one side of the PVC sleeve to a depth of 100mm inside the penetration and prevents the spread of fire for an FRL of -/120/120.

250

100

FyrePEX HP Sealant filled to 100mm depth from one side of PVC sleeve

25mm PVC Conduit

30

Ø 25

65mm PVC Sleeve used to route 25mm conduit through FyrePLUG Pillows

100

DETAIL C

Approved Wall

Note:
Sealant should be centred to the wall.

Drawing Name: FyrePlug Pillows Application: 25mm Conduit in PVC Sleeve					**Test Standard:** AS1530.4	**Codes:**	**Revision:**	**Date:**	**No.:**	NOTICE:
Project Title: FyrePLUG Pillows Product Manual					**Fire resistance level:**	**Drawn By:** SM				NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)
Drawing No. : 1	**Sheet:** 1 of 1	**Date:** 31/05/2021	**Scale:** NTS		**Based on Report No.:**	**Checked By:** JH	☐ STANDARD DRAWING ☐ PROJECT DRAWING			Trafalgar Head Office: PO BOX 545 Chester Hill NSW 2162 T: 1800 888 714 F: 1800 201 500 E: info@tfire.com.au W: www.tfire.com.au