

FyreSTRAP



The FyreSTRAP is a retro-fit head of wall service penetration upgrade system designed to prevent the spread of fire through small service penetrations that are located through the head joints of plasterboard, hebel, Speedpanel, concrete and block walls.



KEY FEATURES



- Flat packed for easy shipping, transport and storage
- Simple and quick to install
- Cost effective
- Allows mixed services to pass through one opening
- Space saving, eliminates need for 200mm separation between services
- Fire tested to AS1530.4-2014 in a full scale wall to evaluate performance at the deflection head

APPLICATIONS



Rectification of head of wall service penetrations with:

- PVC Conduits
- Power and comms Cables
- PEX and PEX-Al-PEX pipes

Approved for use with

- Plasterboard walls
- Hebel walls
- Speedpanel Walls
- Concrete and masonry walls
- Fire rated ceilings

TRADES



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OVERVIEW

WHAT IS THE FYRESTRAP?

The FyreSTRAP system comprises of a flat packed sheet metal strip that can be folded into a U-shape the be bolted around service penetrations that are installed through the head track of a fire wall, and be backfilled with an intumescent sealant (FyrePEX HP Sealant). In the event of a fire, the intumescent based FyrePEX HP Sealant will expand and form a tight seal around cables and crush plastic conduits/pipes to prevent fire from spreading from one side of the wall to the other.



APPLICATIONS

Walls: FyreSTRAP systems are designed for use in head rectification of service penetrations located at the head of fire walls including power and comms cables, PVC conduits, PEX and PEX-AL-PEX pipes. They are suitable for use in any building for penetrations through fire rated plasterboard, hebel, Speedpanel or concrete/masonry walls for FRL's up to-/120/120.



Ceilings: FyreSTRAP systems are also suitable for use where small cable and conduit services which have been run up a wall and penetrate through a fire rated ceiling, close to the wall through the ceiling's J-track. This application is tested for FRL's up to-/120/120 with an RISF rating of 60 minutes, to meet all requirements of the NCC.



COMPLIANCE

ISSUES WITH SERVICES INSTALLED AT THE HEAD OF WALLS

Lightweight walls like plasterboard, hebel and speedpanel walls include what is called a 'deflection' joint where the top of the wall bolts to the underside of the concrete slab above. This is designed to allow for deflection between the concrete and the wall with thermal expansions, concrete sag and other building movements. It is generally not good practice to install service penetrations (cables, pipes & conduits) through these flexible joints for three reasons:

1. The services penetrate through the head of wall fire sealant, avoiding the 'meat' of the fire wall.
2. Traditional service penetration systems are simply not tested like this, and NCC C3.15 (now C4D15) requires the tested system to be installed **identically** on site to how it has been tested.
3. When a fire wall is tested, it must be tested in a full scale test furnace at 3x3m in size to evaluate the performance of the head track as wall deflects under fire conditions.

Despite this, it is extremely common for older buildings to have new services installed after the building has been occupied, and as the fire industry matures these services are resulting in huge defect reports from the annual AS1851 building inspections, leaving little options for rectification without re-running these pipes or cables.

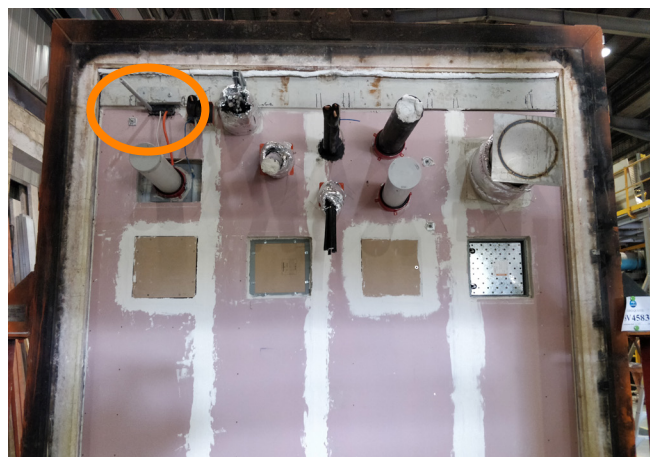
COMPLIANCE AND THE FYRESTRAP

Walls: To address the issues mentioned above the FyreSTRAP system has been tested in a full scale wall fire test to AS1530.4-2014 on a 3x3m size furnace, with a wall that had a concrete lintel and **deflection head included as part of the tested system**. This testing included a mix of 3x different service types grouped together into the one FyreSTRAP penetration and achieved an FRL of-/120/120. BRANZ assesment report FAR4849 uses the test data to apply additional minor variations to the tested system to include a wider range of services and wall types.

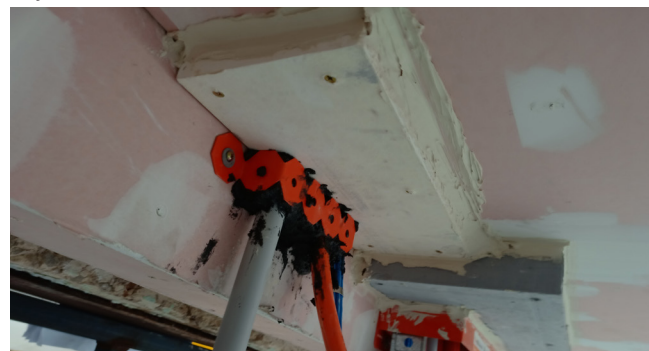
Ceilings: FyreStrap has also been tested to AS1530.4-2014 undearneath a 2 hour fire rated plasterboard ceiling, which had a section of fire rated wall installed inside the furnace along the edge of the ceiling to simulate a wall/ceiling interface. Before installation of the FyreSTRAP the ceiling was thickened locally with Corex board.

This ceiling was an RISF rated ceiling with a 500mm cavity between the floor and ceiling, and acheived an FRL of-/120/120 and has an RISF rating of 60 minutes. BRANZ assesment report FAR4849 uses the test data to apply additional minor variations to the tested ssytem to include a wider range of services.

Acces a copy of FAR 4849 online here: <https://tfire.com.au/test-reports/>



Above: FyreSTRAP installed in a full scale wall fire test
Below: FyreSTRAP installed in a ceiling fire test with an adjacent wall



FRL: FYRESTRAP

FIRE RATING – HOW IS FIRE PERFORMANCE MEASURED?

An FRL (fire resistance level) is a handy way of summarising the performance of a building element. It consists of 3 numbers, all given in minutes:

FRL 120/120/120

(example)



Structural Adequacy

The ability of the building element to support the weight of adjacent building elements.

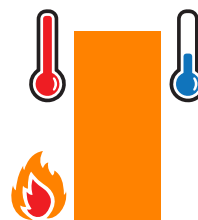
ie: a brick wall supporting a concrete floor slab above.



Integrity

The ability of an element to prevent the passage of flames and hot gasses.

ie: a plasterboard wall remaining intact and not allowing holes to form.



Insulation

The ability of an element to resist heat transfer from the exposed face to the unexposed face.

ie: a bundle of cables remaining below a set temperature limit on the unexposed side of the wall penetration system.

Note: Penetrations are not required to have a Structural Adequacy rating and is usually expressed as a dash. For example, a penetration through a 2 hour load bearing wall would be written as -/120/120.

INTEGRITY

The FyreSTRAP and FyrePEX™ HP Sealant system will achieve the integrity performance for up to 2 hours physically stopping the direct spread of fire, however the insulation performance of the penetration will be limited to the type of wall being used and conductivity of the services in the penetration.

INSULATION (TEMPERATURE RISE)

Heat transfer via conduction (or heat rise) will occur through the conductive parts of any penetration system. The FyreSTRAP and FyrePEX™ HP Sealant system is designed for small penetrations that will achieve 2 hours of insulation with no wrap required!

FRL Approvals Tables

FRL tables


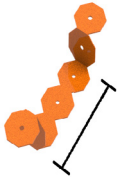
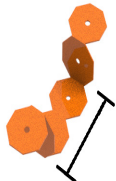
Approved fire walls

The FyreSTRAP system has been tested/approved for use in the following types of fire wall constructions:

Fire wall		FyreSTRAP FRL	Test Reference
Single layer plasterboard stud walls	13mm plasterpbard, minimum 90mm thick	-/60/60	FAR4849
	16mm plasterpbard, minimum 90mm thick	-/90/90*	
Double layer plasterboard	Walls minimum 116mm thick	-/120/120	
Hebel/Walsc AAC panel	75mm thickness	-/90/90	
Speedpanel walls	78mm thickness	-/120/120	
Concrete and Masonry walls	Minimum 116mm thickness	-/120/120	
Maxilite Board penetration and bulkhead systems	60mm Maxilite board (installed as per FCO 2586)	-/120/60	

*Single layer, 90 minute plasterboard walls require a local patch of fire rated plasterboard on both sides of the wall

The FyreSTRAP is supplied as a flat piece of steel, that can be folded into three sizes to fit various amounts of services as listed in the table below.

FyreSTRAP Fold Sizes		Approved Services	Test Reference
160mm long MAX 3x Services		<p>The FyreSTRAP may have a mix of the following services:</p> <ul style="list-style-type: none"> PVC Conduits (25mm) with or without cables Power Cables (up to 16mm² copper core) Comms Cables (CAT and RG6) PEX pipes (20mm) PEX-Al-PEX pipes (20mm) 	FAR4849
120mm long MAX 2x Services			
80mm long MAX 1x Service			

FRL Approvals Tables

FRL tables

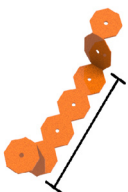
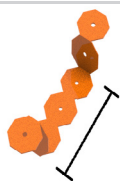
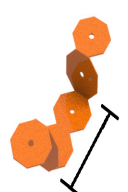
Penetrations in Fire Rated Ceilings

The FyreSTRAP system has been tested/approved for use in the following types of ceiling constructions:


Ceiling specifications		FyreSTRAP FRL	Test Reference
2-hour plasterboard ceilings	Triple layer fire rated plasterboard, with a minimum 500mm high ceiling cavity* thickened on the underside with 2x 25mm Corex board locally	-/120/120 + 60 minutes of RISF	FAR4849

*Testing with a ceiling cavity allows the FyreSTRAP to achieve the Resistance to Incipient Spread of Fire (RISF) rating which is required for all fire rated ceilings under the building code (NCC).

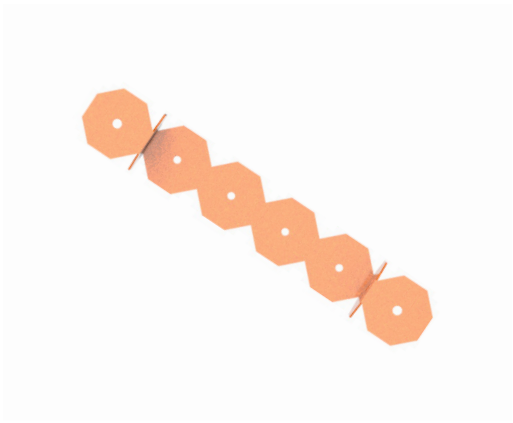
The FyreSTRAP is supplied as a flat piece of steel, that can be folded into three sizes to fit various amounts of services as listed in the table below.

FyreSTRAP Fold Sizes		Approved Services	Test Reference
160mm long MAX 3x Services		<p>The FyreSTRAP may have a mix of the following services in fire rated ceiling penetrations:</p> <ul style="list-style-type: none">• PVC Conduits (25mm) with or without cables• Power Cables (up to 19mm² copper core)• Comms Cables (up to 6x CAT6 bundled together as 1x service)	FAR4849
120mm long MAX 2x Services			
80mm long MAX 1x Service			

INSTALLATION - WALLS



STEP 1 - CUT



FyreSTRAP can be folded into shape, and redundant segments cut off as required. Refer to page 6 for appropriate folding size based on service quantity.



STEP 2 - BEND



Bend the FyreSTRAP to fit around services and secure FyreSTRAP to soffit with Min. M6 masonry bolts (dynabolts or anka screws) on each end of the FyreSTRAP. Repeat on both sides of the wall.

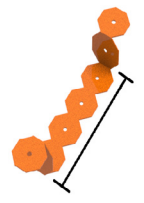
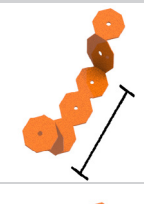
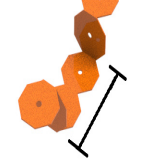
Max. length of FyreSTRAP is 320mm. Approximately 2 cartridges of FyrePEX needed per penetration.



STEP 3 - SEALANT

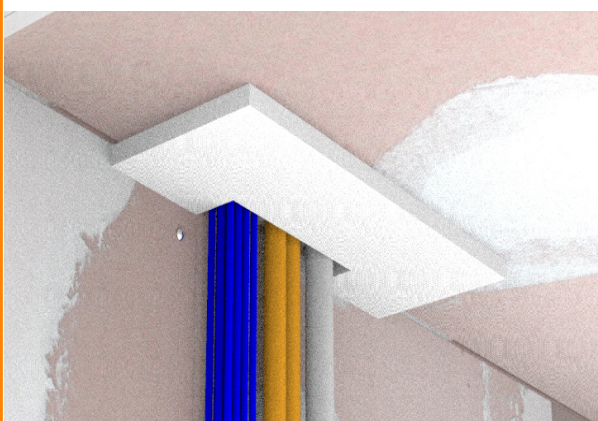


Fill to full depth with FyrePEX HP Sealant on both sides of the wall. Finish the sealant flush with the outside of the FyreSTRAP casing.

Size of FyreSTRAP		No. of FyrePEX HP Cartridges needed to seal both sides
160mm long MAX 3x Services		2x
120mm long MAX 2x Services		2x
80mm long MAX 1x Service		1x

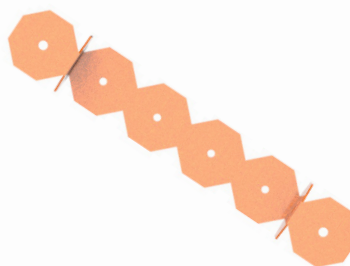
INSTALLATION - CEILINGS

STEP 1 - THICKEN THE PENETRATION



Score/snap (or cut) two layers of Corex 25mm boards to patch around the underside of the ceiling penetration, with 100mm overlaps around the services. Install the two layers of Corex with 8gx100mm plasterboard screws up into the plasterboard with 5x screws (each corner and one centre).

STEP 2 - CUT AND BEND



Bend the FyreSTRAP to fit around services and secure FyreSTRAP to soffit with Min. M6 masonry bolts (dynabolts or anka screws) on each end of the FyreSTRAP. Repeat on both sides of the wall.

Max. length of FyreSTRAP is 4x 40mm segments wide. Approximately 2 cartridges of FyrePEX needed per penetration.

STEP 3 - FIX



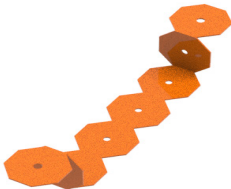
Bend the FyreSTRAP to fit around services and secure FyreSTRAP to soffit with minimum size 3/16", 50mm long gravity toggle steel anchors, one in each end of the FyreSTRAP.

STEP 4 - SEALANT



Fill to full depth with FyrePEX HP Sealant on both sides of the wall. Finish the sealant flush with the outside of the FyreSTRAP casing. This only needs to be done on the underside of the ceiling

SYSTEM RANGE



The FyreSTRAP consists of Zincanneal to hold the intumescent based FyrePEX HP sealant in place.

Item Number	Description	Detail	Min Order Qty
FyreSTRAP320	FyreSTRAP	1.1x40x320mm	1



FyreSTRAP SYSTEM COMPONENTS

Item Number	Description	Min Order Qty
FyrePEX HP310	310ml Cartridge	25

FAQ

Q Do I need access to both sides of the wall?

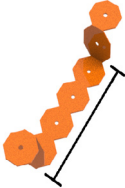
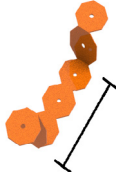
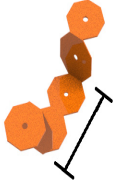
A Yes

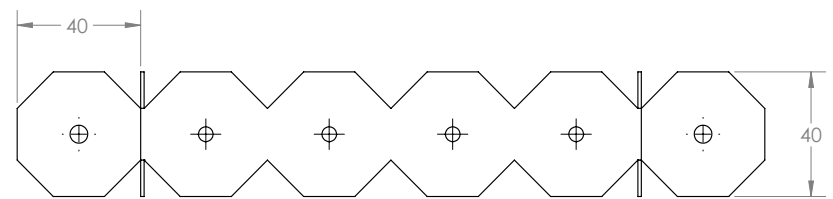
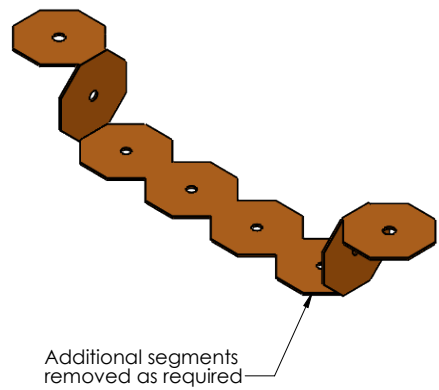
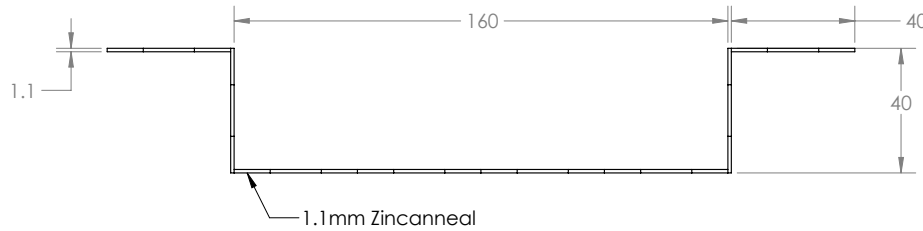
Q Can install a FyreSTRAP after the services have been installed?

A Yes, the FyreSTRAP is easily retrofittable.

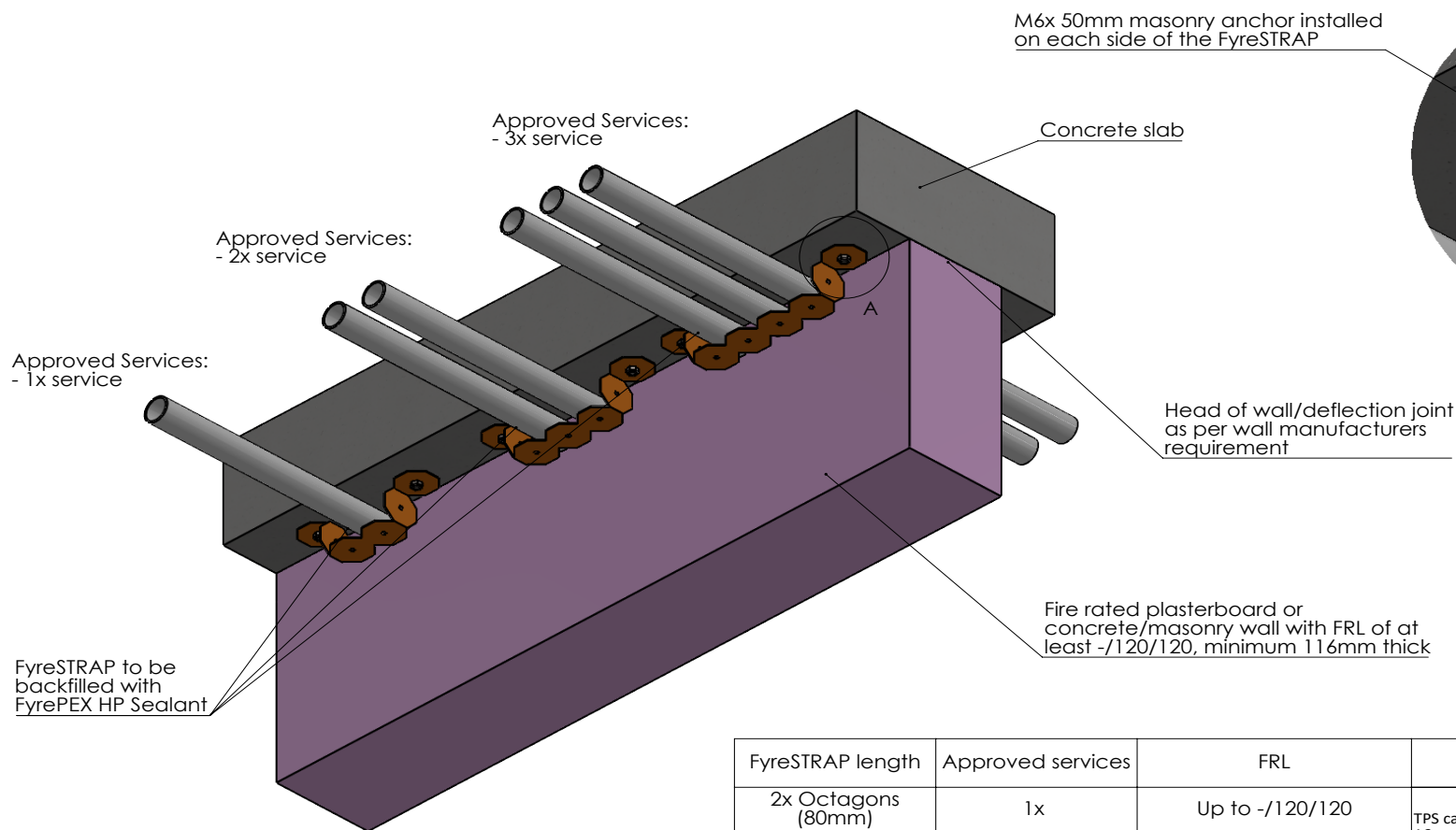
Q How much FyrePEX HP Sealant do I need?

A FyrePEX HP Sealant required depends on the length of FyreSTRAP used and size of the opening.
Refer to the table below for approximate quantity required


Size of FyreSTRAP		No. of Cartridges needed to seal both sides
160mm long MAX 3x Services		1
120mm long MAX 2x Services		2
80mm long MAX 1x Service		2



Drawing Name: Overview				Test Standard: AS1530.4	Codes:	Revision:	Date:	No.:	NOTICE:
Project Title: FyreSTRAP				Fire resistance level:	Drawn By: SM	<input type="checkbox"/> STANDARD DRAWING <input type="checkbox"/> PROJECT DRAWING	<small>NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm).</small> TRAFALGAR FIRE Trafalgar Head Office: PO BOX 545 Chester Hill NSW 2162 T: 1800 888 714 F: 1800 201 500 E: technical@tgroup.com.au W: www.tfire.com.au		
Drawing No. : 1	Sheet: 1 of 1	Date: 7/07/2022	Scale: NTS	Based on Report No.:	Checked By: JH				



FyreSTRAP length	Approved services	FRL	Approved service(s)
2x Octagons (80mm)	1x	Up to -/120/120	TPS cables up to 2.5 mm ² , 2C+E & 3C+E cables up to 16mm ² , CAT6 cables, RG6 cables, up to 25-mm PVC conduits (with any of the above cables or fibre cables), up to 20mm PEX pipes, up to 20mm PEX-AL-PEX pipes
3x Octagons (120mm)	2x	Up to -/120/120	
4x Octagons (160mm)	3x	Up to -/120/120	

Drawing Name: FyreSTRAP Configurations				Test Standard: AS1530.4	Codes:	Revision:	Date:	No.:	NOTICE:
Project Title: FyreSTRAP installation				Fire resistance level:	Drawn By: JH	<small>NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)</small>  TRAFALGAR FIRE <small>Trafalgar Head Office: PO BOX 545 Chester Hill NSW 2162 T: 1800 888 714 F: 1800 201 500 E: technical@tgroup.com.au W: www.tfire.com.au</small>			
Drawing No. : 1	Sheet: 1 of 1	Date: 27/04/2023	Scale: NTS	Based on Report No.:	Checked By: MP				
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