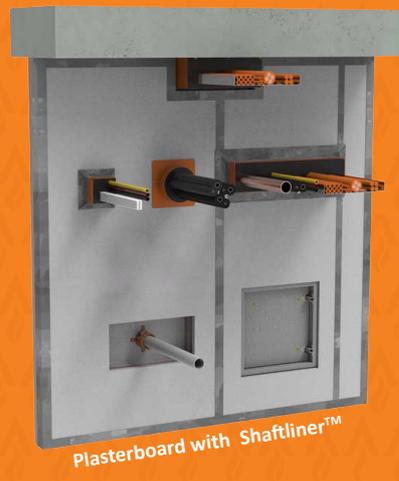


# SHAFT WALL Penetrations



Riser shafts are critical in any multi-level building in order to pass services vertically through a building whilst maintaining the fire separation between compartments.

Shaft wall systems can be constructed in numerous ways, often using Shaftliner™ panel or laminated plasterboard construction which makes finding fully compliant service penetration systems quite challenging!

This manual specifically lists the tested systems that are approved to maintain the fire resistance level (FRL) of service penetrations through these specific types of shaft wall systems.

## SYSTEMS

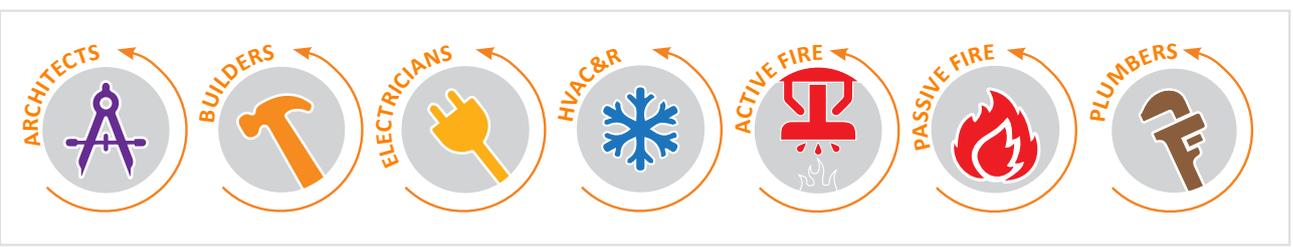
- FyreBOARD MAXILITE**
- FyreBOX CAST-IN**
- FyreBOX MAXI**
- FyreBOX MINI**
- FyreBOX SLAB-MOUNT**
- FyreCOLLAR CONDUIT**
- FyreCOLLAR MIXED SERVICES**
- FyreCOLLAR PREMIUM RETROFIT**
- FyreFLEX**
- FyreSHIELD**
- TWRAP**



## APPLICATIONS

<b>Electricians</b>	Power cables Data cables PVC Conduits
<b>HVAC&amp;R</b>	Insulated pipes Pair Coils Bundles
<b>Plumbers</b>	Copper and Steel pipes PEX pipes PEX-AL-PEX pipes
<b>Active Fire Professionals</b>	Steel Sprinkler pipes Fire cables

## TRADES



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## SYSTEMS OVERVIEW

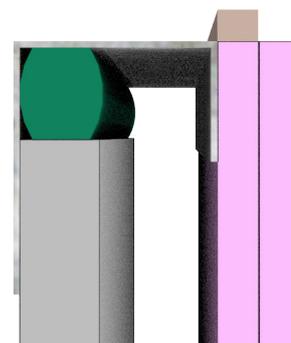
Trafalgar Fire is committed to innovation within the passive fire industry developing new products and existing technologies, specifically designed to maintain the fire resistance level (FRL) of service penetrations through riser shaft wall systems like the Shaftliner™ and laminated plasterboard wall systems.

Riser shafts are critical in any multi-level building in order to pass services vertically to satisfy various systems on differing levels, and it is often ideal for these types of wall to be constructed all from the outside of the shaft. This has led to the development of some unique shaft wall construction using plasterboard, CH studs and Shaftliner™ panels. This manual specifically lists the fire tested systems that are approved to maintain the fire resistance level (FRL) of service penetrations through these specific types of riser shaft wall systems.

Riser shaft wall systems can be constructed in numerous ways, two in common ways can be seen below.

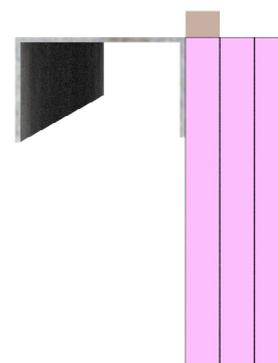
**a)** 25mm Shaftliner™ wall within a steel CH-Stud, and 1 or 2 laminated layers of fire rated plasterboard on the corridor side of the stud, depending on required fire rating. Below is an example of common Shaftliner™ wall constructions taken from CSR Redbook 2019 for use as an example only.

FRL	Shaftliner™ Thickness (Inside CH Stud)	Plasterboard Thickness (Corridor side)	Over wall Wall Thickness
-/60/60	25mm	1x 13mm	77mm
-/90/90		2x 13mm	90mm
-/120/120		2x 16mm	96mm



*Note that different plasterboard manufacturers may have similar wall systems, but may differ – always refer to the specific plasterboard construction details when reviewing service penetrations.*

**b)** Some so called 'laminated' plasterboard walls have fire rated plasterboard facings on only one side of a steel stud, and can potentially achieve -/90/90 & -/120/120 for 3x 13mm and 3x 16mm respectively as an example. Always check with the specific plasterboard manufacturer to determine the FRL of the wall system that is being used.



## COMPLIANCE



## COMPLIANCE WITH THE NATIONAL CONSTRUCTION CODE (NCC)

Formerly known as BCA

The National Construction Code (or NCC) specifies that openings for service penetrations in a building element that is required to have an FRL, a fire tested must be installed in accordance AS1530.4 and AS4072.1 to meet the requirements of clause C3.15A, and Schedule 5.

**Conventional plasterboard wall Fire Testing cannot be used to certify shaft wall construction. Specific shaft wall Fire Testing is required.**

When it comes to service penetrations through these shaft wall systems, it is important to note that fire testing approvals that are approved in more the common/traditional plasterboard stud walls that have a cavity (i.e.: Plasterboard facings on the outsides of both of the studs) are usually not compatible with the Shaftliner™ and/or laminated wall systems.



There are **some permissible variations** to tested systems in AS1530.4 (section 10.12) that apply to **framed wall systems** however these **do not allow** the use of **test data** from **configuration a)** to be **applied** to **b)** or **c)** due to the **reduction in overall wall thickness compared** to the **shaft wall**. It requires any penetration through a thinner wall system to be fire-tested specifically to determine the FRL of the penetration system as a whole.

The Trafalgar systems in this manual have been fire tested specifically in these shaft wall configurations and are fully compliant under the National Construction Code (NCC).

To obtain a copy of the relevant fire test reports for your application, head to the Knowledge Centre on [tfire.com.au](https://tfire.com.au) or contact [technical@tgroup.com.au](mailto:technical@tgroup.com.au).

## 2-WAY FRL'S FOR SHAFT WALLS

**It is a common misconception that shaft walls only require treatment from the outside only – this is false!** The full tested system must be installed to comply with the NCC requirements for walls which have 2-way rated FRL (i.e. we don't know if the fire will be on the inside or outside of the shaft wall).

To achieve a 2-way rated FRL in a wall system, AS1530.4 requires the tested system to be symmetrical, otherwise the penetration will only have an FRL awarded in one direction (which is largely useless!). **Non-symmetrical penetrations** like an **access panel** or even the **shaft walls** themselves need to have **two separate fire tests done**, with exposure from each side of the wall to gain the full FRL in both directions. For penetration systems, this means that you will need to install the fire sealant and insulation wraps to **both sides of the wall, so access is required!** Trafalgar Fire provide a range of solutions for fire rated access panels to allow for quick and inconspicuous access.

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# FyreSHIELD™

## ACCESS PANEL



Applications	Trade Icons	System	Details	FRL	Report Reference
<p>Access Panel – Perfect for where access is needed on both sides of the shaft wall for maintenance, or to complete a penetration system inside the shaft.</p>		<p>FyreSHIELD™ Access Panel up to 600x600mm</p>	<p>For specific system and FRL details refer to the:</p> <p><a href="#">FyreSHIELD™ Technical Manual</a></p> <p>Available from the <a href="#">Trafalgar Fire Knowledge Centre Technical Manuals</a> page on the website</p>	<p>Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ &amp; 2 x 13mm plaster</p> <p>Up to 2 hour FRL for shaft walls</p>	<p>FAS200221</p>

### Access Panel Plasterboard Wall



# FyreBOX RANGE

## FyreBOX Slab-Mount MIXED SERVICE PENETRATION



### FyreBOX SLAB-MOUNT

Applications	Trade Icons	System	Details	FRL	Report Reference
<p>Residential or commercial services in any quantity or configuration.</p> <p>Allows for high volume of services in a small footprint.</p> <p>Perfect for tightly enclosed riser shaft penetrations without needing separation between services:</p> <ul style="list-style-type: none"> <li>• Electrical and Data Cables</li> <li>• PVC Conduits</li> <li>• PEX pipes</li> <li>• Gas PEX Pipes</li> <li>• Insulated Pair Coil</li> <li>• Sprinkler Pipes</li> </ul>	ARCHITECTS BUILDERS ELECTRICIANS HVAC/R ACTIVE FIRE PASSIVE FIRE PLUMBERS	<p>FyreBOX Slab-Mount sizes:</p> <ul style="list-style-type: none"> <li>• 160 x 125mm</li> <li>• 350 x 125mm</li> <li>• 550 x 125mm</li> <li>• 650 x 125mm</li> <li>• Custom up to 1100 x 125mm</li> </ul>	<p>Installed to the slab soffit before or after the walls are constructed.</p> <p>Allows service trades to run their pipes and cables quicker/sooner, speeding up build time and reducing risk of defects on site.</p> <p>Rw50 acoustic rating.</p> <p>For specific system and FRL details refer to the:  <a href="#">FyreBOX Slab-Mount Technical Manual</a></p> <p>Available from the Trafalgar Fire <a href="#">Knowledge Centre Technical Manuals</a> on the website.</p>	<p>Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ &amp; 2 x 13mm plaster -/90/90</p> <p>Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ &amp; 2 x 16mm plaster -/120/120</p> <p>3x 16mm minimum laminated Shaft wall on 64mm minimum stud -/90/90</p>	<p>FC10266-001</p>

\*Depending on the thickness of the studs, and the service configuration [TWRAP™](#) may be required. Refer to the product manuals or contact Trafalgar Fire for more information.

#### FyreBOX™ Slab Mount Applications



### FyreBOX SLAB-MOUNT

# FyreBOX RANGE

## FyreBOX Mini MIXED SERVICE PENETRATION



Applications	Trade Icons	System	Details	FRL	Report Reference
Small services including: <ul style="list-style-type: none"> <li>• Electrical and Data Cables</li> <li>• PVC Conduit</li> <li>• PEX</li> <li>• Gas PEX Pipes</li> <li>• Insulated Pair Coil</li> </ul>		FyreBOX Mini Range: <ul style="list-style-type: none"> <li>• 100mm diameter</li> <li>• 150 mm diameter</li> <li>• 65x65mm square</li> <li>• 100x100mm square</li> </ul>	Mounted anywhere in the wall with steel mounting flanges (FyreFLANGE™), hinged for easy retrofit.	Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ & 2 x 13mm plaster -/90/90	FC10266-001
			Allows for high volume of services in a small footprint.	Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ & 2 x 16mm plaster -/120/120	
			For specific system and FRL details refer to the: <a href="#">FyreBOX Maxi and Mini Technical Manual</a>	Available from the Trafalgar Fire <a href="#">Knowledge Centre Technical Manuals</a> page on the website	

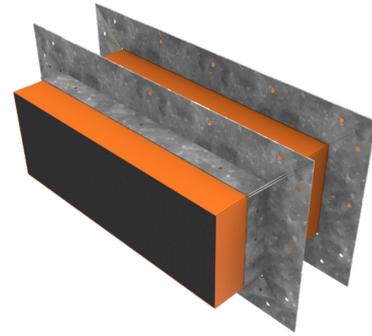
\* For insulation rating, [TWRAP™](#) must be installed around the system on both sides of the wall depending on service configuration.

### Small Services



# FyreBOX RANGE

## FyreBOX Maxi MIXED SERVICE PENETRATION



Applications	Trade Icons	System	Details	FRL	Report Reference
Large services bundles mixed services including: <ul style="list-style-type: none"> <li>• Insulated/Bare Copper or Steel Pipes</li> <li>• Cable Trays and Conduits</li> <li>• Electrical and Data Cables</li> <li>• PVC Conduit</li> <li>• PEX</li> <li>• Gas PEX Pipes</li> <li>• Insulated Pair Coil</li> </ul>		FyreBOX Maxi Range: <ul style="list-style-type: none"> <li>• 350x125mm</li> <li>• 550x125mm</li> <li>• 650x125mm</li> <li>• 750x125mm</li> <li>• 1100x125mm</li> </ul>	Mounted anywhere in the wall with steel mounting flanges (FyreFLANGE™), hinged for easy retrofit.	Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ & 2 x 13mm plaster -/90/90	FC10266-001
			Allows for high volume of services in a small footprint.	Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ & 2 x 16mm plaster -/120/120	
			For specific system and FRL details refer to the: <a href="#">FyreBOX Maxi and Mini Technical Manual</a>	Available from the Trafalgar Fire <a href="#">Knowledge Centre Technical Manuals</a> page on the website	

\* For insulation rating, [TWRAP™](#) must be installed around the system on both sides of the wall depending on service configuration.

### Large Services Bundles Mixed Services



# FyreFLEX® RANGE

## FyreFLEX® SEALANT TWRAP™ FOR SOME SERVICES



Applications	Trade Icons	System	Details	FRL	Report Reference
Small Cable Bundles		FyreFLEX® Wrap Free Solution	For specific system and FRL details refer to the: <a href="#">FyreFLEX and TWRAP for Electricians Technical Manual</a>  <a href="#">FyreFLEX and TWRAP for Plumbers Technical Manual</a>	Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ & 2 x 16mm minimum plaster -/90/90 <b>Wrap Free System</b>	FCO 1579
				3x 16mm minimum <b>laminated Shaft wall</b> on 64mm minimum stud -/90/90** <b>Wrap Free System</b>	FSP 2230
Steel Pipes up to 50mm		FyreFLEX® with TWRAP™	<a href="#">TWRAP™ Technical Manual</a>  Available from the Trafalgar Fire <a href="#">Knowledge Centre Technical Manuals</a> page on the website.	3x 16mm minimum <b>laminated Shaft wall</b> on 64mm minimum stud -/90/90*	FSP 2230
Copper Pipes up to 50mm					

\* For insulation rating, [TWRAP™](#) must be installed around the system for varying length on either side of the wall depending on service. \*\* 60mm thick [FyreBOARD Maxilite®](#) patch required to achieve FRL on one side of wall.



# FyreBOARD Maxilite®

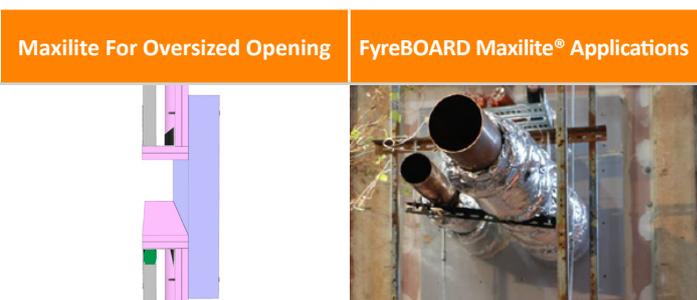
## OVERSIZED OPENINGS



In instances where **one or multiple services** run through a **larger opening**, most of the above fire stopping systems do not directly apply anymore. However, **FyreBOARD Maxilite®** can be used to **bring down the size of an opening** to make it appropriate for some of the above fire stopping systems.

For shaft wall applications containing services running through a larger opening, **60mm FyreBOARD Maxilite®** can be installed to ensure the **full FRL is maintained** as identified below. The FyreBOARD Maxilite® is required to be fixed using plasterboard screws only on the fire rated plasterboard with 100mm overlap over the gap to achieve the intended FRL below.

Applications	Trade Icons	System	Details	FRL	Report Reference
PVC pipes		60mm FyreBOARD Maxilite® & FyreCOLLAR	For specific system and FRL details refer to the: <a href="#">FyreBOARD Maxilite®</a>  Available from the Trafalgar Fire <a href="#">Knowledge Centre Technical Manuals</a> page on the website	Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ & 2 x 13mm minimum plaster -/120/120 (60mm) <b>Wrap Free System</b>	FCO 2586
Metal pipes		60mm FyreBOARD Maxilite® FyreFLEX®Sealant and TWRAP™		Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ & 2 x 13mm minimum plaster -/120/120 (60mm)	
Cable trays and bundles		60mm FyreBOARD Maxilite® FyreBOX™ Maxi and Mini		Studs: 64mm minimum plaster: 1x 25mm Shaftliner™ & 2 x 13mm minimum plaster -/120/120 (60mm) <b>Wrap Free System</b>	
Mixed services		60mm FyreBOARD Maxilite®			
Blank penetration seals		60mm FyreBOARD Maxilite®			



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# RELATED SYSTEMS

### FyreBOARDMAXILITE



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