

# FyreBOX™ Cast-In



The FyreBOX™ Cast-In is a simple multi-service passive fire penetration system that can be cast directly into the floor slabs of a building that will prevent the spread of fire through service penetrations whilst reducing the footprint needed for riser shafts and cupboards.

The FyreBOX™ Range has been tested to AS1530.4-2014 for a range of mixed services and is one of the most fire tested products in the world with industry leading FRL's of up to -/240/240 (system specific).



**BIM MODELS  
NOW AVAILABLE**  
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Installation Video



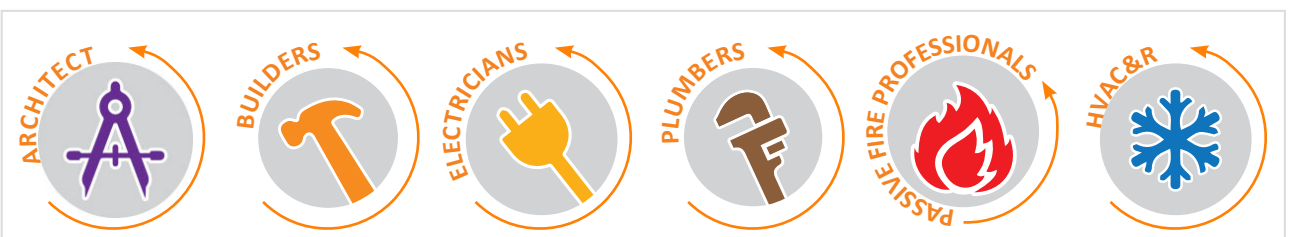
## KEY FEATURES

- Cast into slab to save time in construction
- Allows multiple and mixed services to pass through one opening
- Mixed services approved in any quantity or configuration
- Space saving, eliminates the need for 200mm separation between adjacent services
- Tested in various slab thickness
- Fire tested in independent laboratories
- Thoroughly tested to AS1530.4-2014

## APPLICATIONS

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

## TRADES



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# FyreBOX™

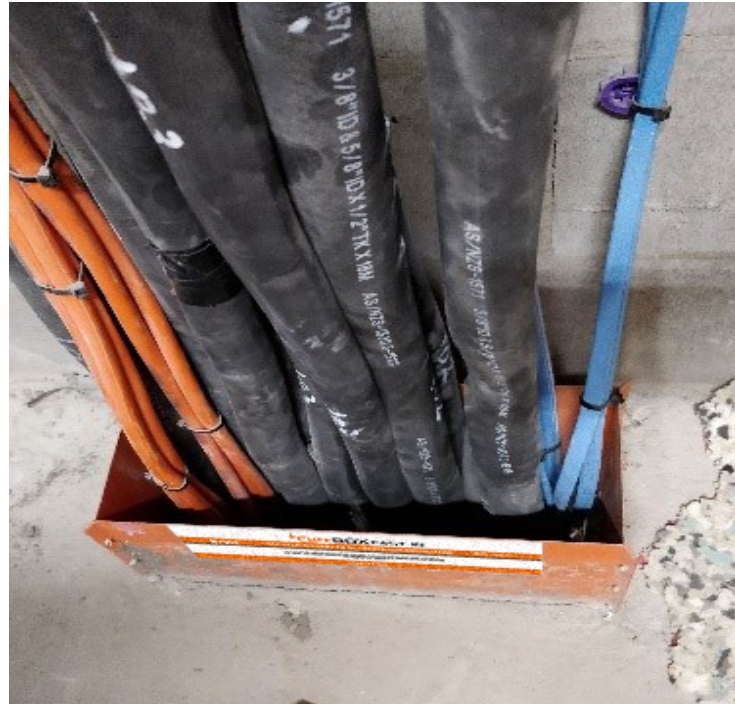
## Cast-In

### What is FyreBOX™ Cast-In?

Trafalgar Fire’s FyreBOX™ Cast-In is an intumescent lined product designed to prevent the spread of fire through service penetrations. Think of FyreBOX™ Cast-In as a fire rated hole, and as a fire takes hold the intumescent material expands to close off the penetration, forming a tight seal around the services and crushing off plastic pipes and pipe insulation. Intumescent foam plugs are also fitted, giving the FyreBOX™ superior reliability and acoustic properties, and the ability to allow for adds, moves and changes.

FyreBOX™ Cast-In is tested for multiple and mixed service types, which removes the need to separate service penetrations. All contractors can run their services through the one penetration.

The proudly Australian Made FyreBOX™ Cast-In systems come in various stock sizes to suit floor slabs up to 350mm thick and can be ordered in custom sizes to suit any application or slab thickness.



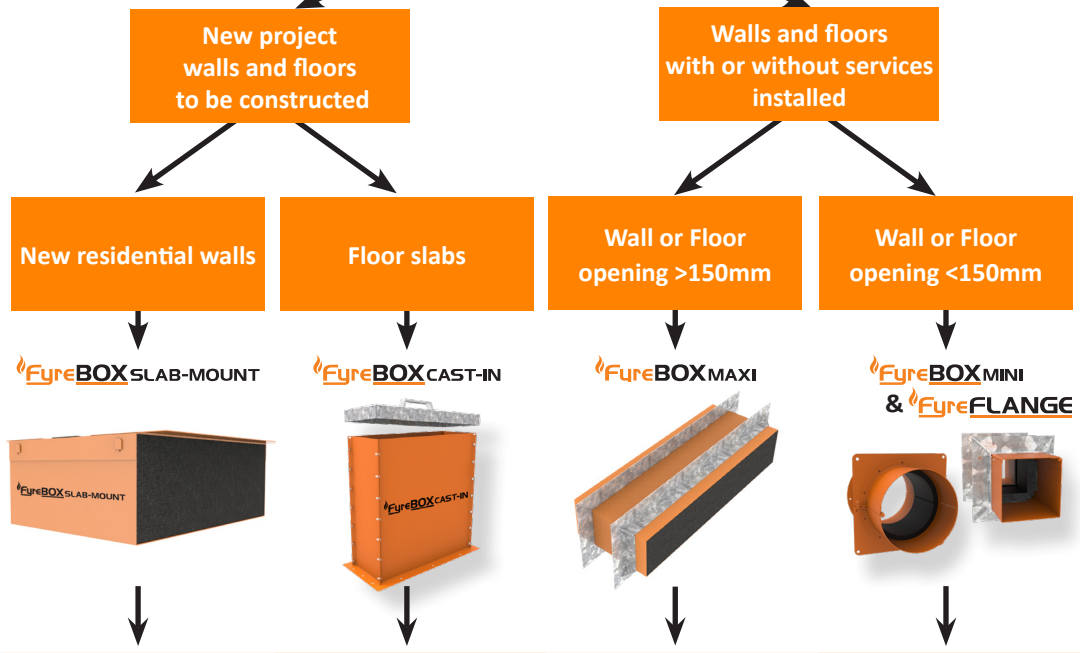
### Applications

FyreBOX™ Cast-In systems are suitable for use in any new building where penetrations are required through concrete floors. They have been tested and approved for the following services:

- Electrical, data and communication cables and trays
- Steel and copper pipes
- Insulated copper pipes
- CPVC sprinkler pipes
- PVC conduits
- PVC (Drain, Waste, Vent) pipes
- PEX and Gas PEX-AL-PEX pipes



**FyreBOX**  
SYSTEM SELECTOR



		FyreBOX SLAB-MOUNT	FyreBOX CAST-IN	FyreBOX MAXI	FyreBOX MINI & FyreFLANGE	
Installation Prior to Fire Barrier Construction		✓	✓	✗	✗	
Hole Cutting Required		✗	✗	✓	✓	
Fire Barrier	Floors	Concrete Slab	✓	✓	✓	
		FyreSET Mortar	✗	✓	✗	✗
	Walls	Masonry Walls	✓	✗	✓	✓
		Concrete Walls	✓	✗	✓	✓
		Plasterboard	✓	✗	✓	✓
		Hebel	✓	✗	✓	✓
		Walsc	✓	✗	✓	✓
		SpeedPanel	✓	✗	✓	✓
		FyreBOARD Maxilite™	✓	✗	✓	✓
		FyreBATT	✗	✗	✗	✓
Services	Power Cables	✓	✓	✓	✓	
	Data Cables	✓	✓	✓	✓	
	Cable Trays	✓	✓	✓	✗	
	Metal Pipes	✓	✓	✓	✓	
	CPVC Pipes	✓	✓	✓	✓	
	PVC Pipes	✗	✓	Floors Only	Floors Only	
	PEX	✓	✓	✓	✓	
	PEX-AL-PEX	✓	✓	✓	✓	
	Insulated Copper	✓	✓	✓	✓	
	Pair Coils	✓	✓	✓	✓	

# FyreBOX™

## Cast-In

### 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.

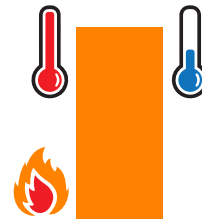
ie: a brick wall supporting a concrete floor slab above.



#### 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 FyreBOX™ Cast-In system will achieve the integrity performance for up to 4 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.

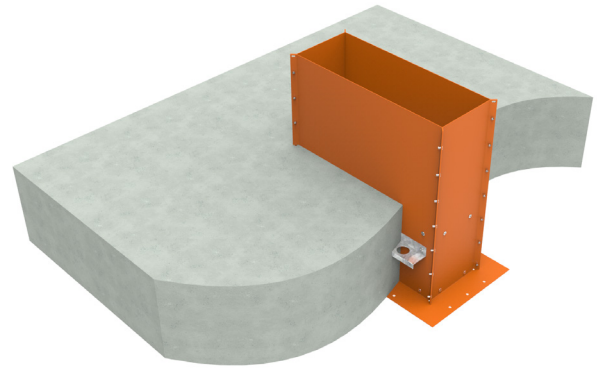
### Insulation (Temperature Rise)

Heat transfer via conduction (or heat rise) will occur through the conductive parts of any penetration system. To limit the heat-rise through the FyreBOX™ Cast-In penetration systems, our 25mm thick TWRAP foil encased blanket can be wrapped around the services and metal casing of the FyreBOX™ to achieve up to 4 hours of insulation performance. There are some applications that won't require any TWRAP to achieve the full FRL, please refer to the tables below for specific details.

## FRL Approvals Tables

### Concrete Floors

Min 120mm thick  
in accordance with AS3600



FRL TABLES

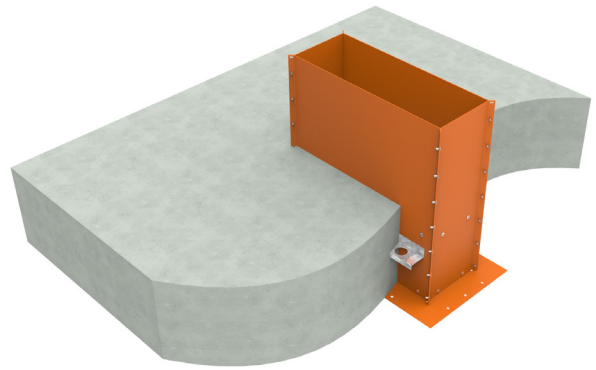
Service Type	Service Specification		FRL no wrap required	FRL with TWRAP/ FyreWrap®	TWRAP Length Required*
Plastic Pipes	PEX pipes	up to 32mm OD	-/120/-	-/120/120	450mm
	PEX-Al-PEX pipes	up to 32mm OD	-/120/-	-/120/120	450mm
	PVC pipes	up to 80mm OD	-/120/-	-/120/120	300mm
Bare Metal Pipes	Copper pipes	up to 42mm OD	-/120/-	-/120/120	450mm
		up to 100mm OD	-/120/-	-/120/120	600mm & 450mm
	Steel pipes	up to 50mm OD	-/120/-	-/120/120	450mm
		50mm to 100mm OD	-/120/-	-/120/120	600mm & 450mm
Insulated Metal Pipes	Copper pipes	up to 50mm OD with FR insulation	-/120/60	-/120/120	300mm
	Stainless Steel pipes	up to 50mm OD with EPS or PE insulation (replaced with Rockwool through the FyreBOX™)	-/120/60	-/120/120	300mm
	Paircoil pipes	up to 9.5 and 19mm OD with PE insulation up to 13mm thick	-/120/60	-/120/120	450mm
		up to 9.5 and 19mm OD with FR insulation up to 20mm thick	-/120/60	-/120/120	450mm
Cable Trays	up to 1000mm wide		-/120/30	-/120/120	As per cable specs
Power Cables	TPS power/alarm cables bundles up to 10x		-/120/60	-/120/120	300mm
	Three core and Earth cables	Up to 2 x 19mm OD cables	-/120/60	-/120/120	300mm
	All copper core power cables (AS1530.4 Appendix D1 cable set)		-/120/30	-/120/90	500mm & 300mm**
Comms Cables	CAT6	Bundles up to 150x	-/120/60	-/120/120	600mm \$ 300mm***
	All comms cables (AS1530.4 Appendix D2 cable sets)		-/120/60	-/120/120	500mm & 30mm**

\* Note: TWRAP applied from surface of the slab. FyreWrap® 38mm may be substituted for TWRAP 25mm.  
 \*\* TWRAP minimum 500mm from slab and loose fill around cable tray up to 300mm from FyreBOX™  
 \*\*\* TWRAP up to 600mm from foam, loose fill packed around cables and tray up to 300mm from FyreBOX™. Second layer of TWRAP up to 300mm from slab.

## FRL Approvals Tables

### Concrete Floors 180-240MIN

min 175mm thick  
in accordance with AS3600



Service Type	Service Specification		FRL no wrap required	FRL with TWRAP FyreWrap®	TWRAP Length Required*
Metal Pipes	Steel pipes	up to 50mm OD	-/120/-	-/240/120	450mm
Insulated Metal Pipes	Stainless Steel pipes	up to 50mm OD with EPS or PE insulation (replaced with Rockwool through the FyreBOX™)	-/240/30	-/240/240	300mm
Power Cables	Three core and Earth cables	Up to 19mm diameter	-/240/30	-/240/120	300mm
Comms Cables	CAT6 cables bundled in group up to 5x		-/240/30	-/240/120	300mm

*Note: FyreWrap® 38mm may be substituted for TWRAP 25mm.*



FyreBOX™ Cast-In after a 4 hour test.

# INSTALLATION

## CONCRETE FLOOR SLABS

### POSITION



Position the FyreBOX™ Cast-In in the desired penetration position and then nail/screw to the timber formwork through the flanges.

### POUR SLAB



Ensure the galvanized steel lid is on the FyreBOX™, and pour the concrete to the specified depth and allow to cure.

*Steel lid is provided for added safety, so tools and materials can't be dropped from one floor of a building to another. Lids can be disposed after use.*

### PREPARE



After the concrete has cured, remove the timber formwork from the other side of the slab. Remove the steel lid and dispose of it. Remove the foam plug and put in a safe location for subsequent use.

### RUN SERVICES



Install services through the FyreBOX™ Cast-In as required, ensuring the services are approved for use. Refer to the FRL details section on pages 6 & 7 of this manual for details.

Click to Watch Installation Video

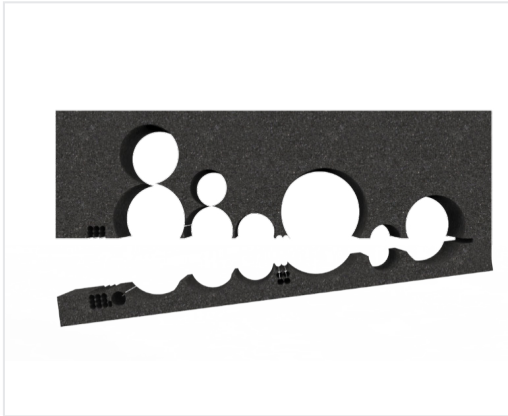




# INSTALLATION

## CONCRETE FLOOR SLABS

### FOAM PLUG



Retrieve the foam end plugs and cut a horizontal slit allowing you to open the foam. Cut out a rough profile of the services so that the foam can be fit snugly around them. Slide the foam over/around the services and into the FyreBOX™.

### FRAME



The foam fit should be snug, such that no daylight can be seen through the FyreBOX™. Small gaps can be plugged with offcuts of foam and/or FyreFLEX® (or FyrePEX HP) sealant.

*Tip: Use a hacksaw blade to cut the foam quickly and accurately.*

### WRAP



Where required, wrap the services with the appropriate length of TWRAP (per FRL tables above). Cable trays require TWRAP infill material to pack out gaps before wrapping.

The TWRAP should overlap itself around the pipe by 50mm, if two strips are required to meet the appropriate length, then where the second length meets the first, a 50mm overlap is required. TWRAP is secured to the service used steel cable ties, 50mm from each end and 150mm centres in-between. TWRAP is applied to the top side of the floor slab only.

### LABELING



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.

Click to Watch Installation Video



# INSTALLATION

## FyreBOX™ Cast-In 350 x 125 (max)

### FyreSET Mortar

#### POSITION



Position the FyreBOX™ Cast-In in the desired penetration position and then nail/screw to the timber formwork through the flanges.

#### Z-CLIPS/POUR



Install 50 x 90 x 50mm steel z-clips to assist the mortar key into the slab. Fix them to the slab using M6 x 50mm Anchors. Pour FyreSET Mortar to a minimum depth of 120mm.

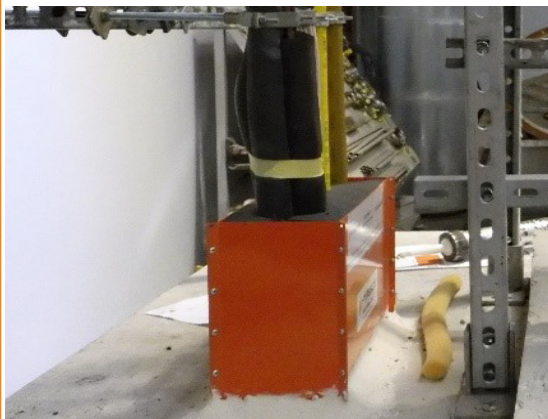
Refer to [FyreSET Mortar Technical Manual](#) for more installation details

#### SEAL



Seal the FyreBOX™ to the FyreSET Mortar with a 25mm fillet of FyreFLEX® Sealant (this step not required for concrete slabs).

#### RUN SERVICES



Install services through the FyreBOX™ Cast-In as required, ensuring the services are approved for use. Refer to the FRL details section on pages 6 & 7 of this manual for details.

Click to Watch Installation Video



## FyreBOX™ Cast-In Systems



**FyreBOX** CAST-IN



Item Number	Description	Dimensions
FyreBOX-CI-350	350 x 125 x 380mm	
FyreBOX-CI-550	550 x 125 x 380mm	
FyreBOX-CI-650	650 x 125 x 380mm	
FyreBOX-CI-1100	1100 x 125 x 380mm	
FyreBOX-CI-Custom	Any width up to 1100 x 125 x (Slab Depth + 50mm)	



## FyreBOX™ Cast-In System Components

Item Number	Description	Min Order Qty	Pallet QTY
TWrap 300	300mm wide, 25mm thick blanket	7620mm long roll	24
TWrap 450	450mm wide, 25mm thick blanket	7620mm long roll	12
TWrap 600	600mm wide, 25mm thick blanket	7620mm long roll	12

# FyreBOX™

## Cast-In



## Compliance with the National Construction Code (NCC)

*Formerly known as BCA*

Under the NCC requirements, a multiple service transit system for service penetrations should be fire tested in every configuration that it is intended for use in, both completely empty (blank seal), partially full and completely full of services so that the product may be installed with as many or as little services as required on site. It is important to fire test in all the different walls types and with different configurations, quantities and types of services which is a time consuming (and expensive) exercise.

Trafalgar FyreBOX™ systems have been fire tested extensively to AS1530.4-2014 and approved in accordance with Section 4 AS4072.1 as required by Schedule 5 of the NCC. This includes over 200 hours of accredited furnace time and 30 plus individual test reports to cover the full range of service and wall configurations that allow us to comfortably stand behind our multiple SYSTEM approvals.

These configurations include but are not limited to:

- Service fill ratio: Empty (blank seal), half full and completely full of services
- Barrier types: Various types of plasterboard, concrete, Blockwork, Hebel, Walsc, Speedpanel, Pronto panel, FyreBOARD Maxilite™ board, concrete floors etc
- Services: Bare and insulated metal pipes, cable trays and cable bundles, PVC pipes & conduits, PEX and PEX-AL-PEX pipes, CPVC pipes etc
- Configurations: Blank seal (empty), full of services, double stacked, side by side etc
- Insulation performance: Tested both wrapped and unwrapped with TWrap to ensure the system works in both configurations
- Penetration sizes: 150 x 125, 350x125, 550x125, 1100x125
- FyreBOX™ Variants: Slab Mount, Slab Mount Bambino, Cast-in, Maxi & Mini (retrofit)

When choosing a multiple service transit penetration system like FyreBOX™, it is important to check that all aspects of your system have been fire tested and are fit for purpose.

*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*

## Test and Assessment Reports

The above-mentioned fire testing reports have all been conveniently summarised into **BRANZ assessment report FC10266 (available on [www.tfire.com.au](http://www.tfire.com.au))** which neatly tabulates the approved services in a range of fire barriers, for all FyreBOX™ variants and applications, and covers only minor variations to the tested systems, thereby providing trouble free certification according to NCC.

Importantly, every aspect of the assessment report are backed up by the fire test data and the individual fire test reports are available on request for certification purposes.

# FAQ?

**Q Is the FyreBOX™ Cast-In suitable for my refrigeration lines?**

**A** Yes, the FyreBOX™ Cast-In has been tested with both fire resistant (FR) and non-FR insulation and can be filled with as many lines as will reasonably fit in the box.

**Q My certifier told me I need 2-hour insulation rating on my copper pipe penetrations – does the FyreBOX™ Cast-In achieve this?**

**A** TWRAP (or FyreWrap®) will need to be wrapped around the FyreBOX™ to achieve an insulation rating. Contact Trafalgar Fire for installation details and refer to our YouTube channel for installation videos (<https://youtu.be/qo48SlxeLwc>).

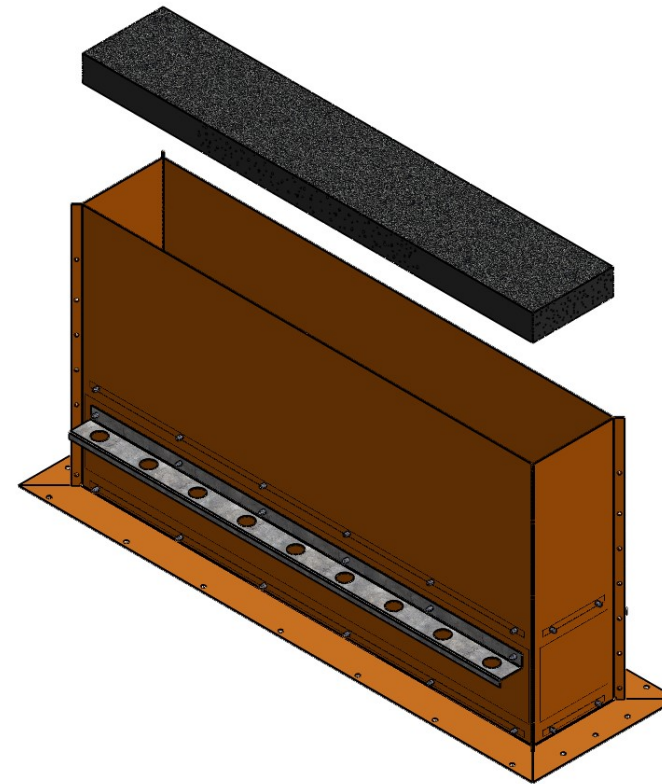
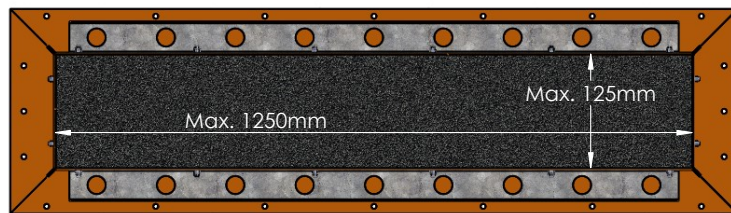
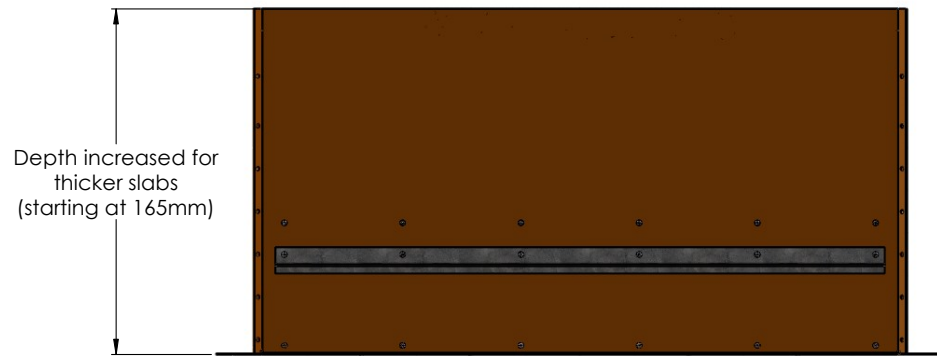
**Q Is the FyreBOX™ Cast-In approved for Bondek Floor slabs?**


**A** Yes, Refer to our How to Install a FyreBOX Cast-In video or contact Trafalgar Fire Technical Team for further assistance.

## SOCIAL MEDIA



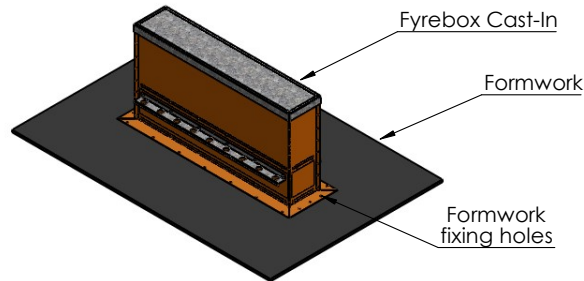
## FyreBOX™ Cast-In - Product Overview



<b>Drawing Name:</b> FyreBOX™ Cast-In Overview				<b>Test Standard:</b> AS1530.4	<b>Codes:</b>	<b>Revision:</b>	<b>Date:</b>	<b>No.:</b>	<b>NOTICE:</b>
<b>Project Title:</b> FyreBOX™ Cast-In - Generic Install				<b>Fire resistance level:</b>	<b>Drawn By:</b> JC				<small>NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)</small>
<b>Drawing No. :</b> 1	<b>Sheet:</b> 1 of 5	<b>Date:</b> 27/05/2020	<b>Scale:</b> NTS	<b>Based on Report No.:</b>	<b>Checked By:</b> CT	<input type="checkbox"/> STANDARD DRAWING			
						<input type="checkbox"/> PROJECT DRAWING			

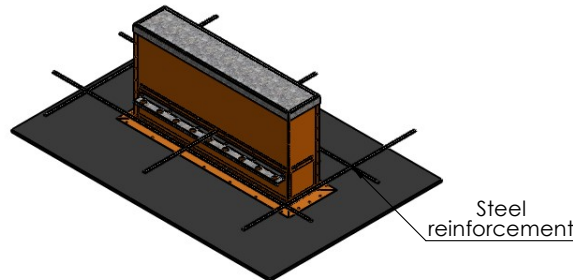
## FyreBOX™ Cast-In - Installation Overview

**STEP 1**



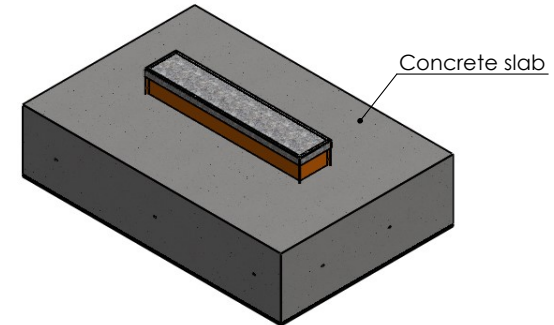
Secure FyreBOX™ Cast-In to formwork, through the fixing holes in the bottom flange

**STEP 2**



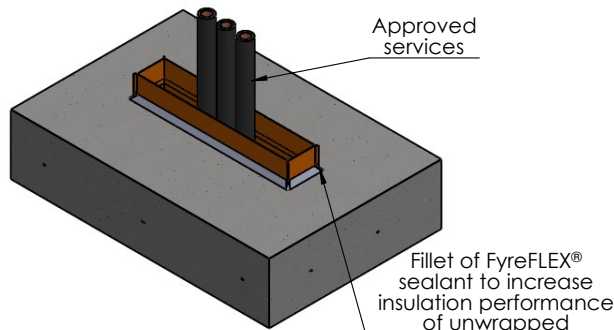
Install steel reinforcement, as required for concrete slab, around the FyreBOX™ Cast-In

**STEP 3**



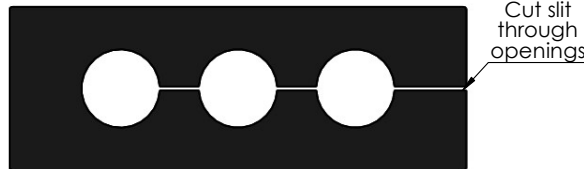
Cast concrete slab around FyreBOX™, to a minimum depth of 120mm

**STEP 4**



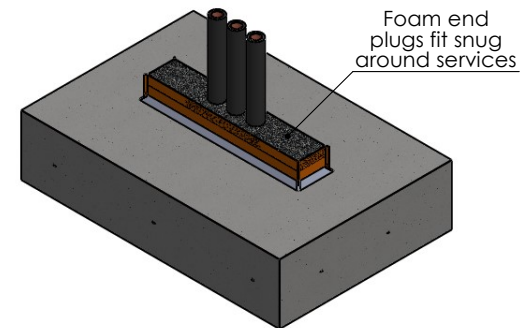
Install approved services through the FyreBOX™ Cast-In

**STEP 5**



Retrieve foam end plugs and form openings to match the services within the FyreBOX™. Cutting a slit through these openings will allow for the plug to be opened and inserted around the existing services

**STEP 6**



Fit foam end plugs tightly around the services, from each side of the FyreBOX™, and plug any gaps with foam off cuts or FyreFLEX® Sealant. Continue to 'TWrap' drawing if wrapping will be required for full insulation.

**Drawing Name:** Installation Overview

**Project Title:** FyreBOX™ Cast-In - Generic Install

**Drawing No. :**  
2

**Sheet:**  
2 of 5

**Date:**  
27/05/2020

**Scale:**  
NTS

**Test Standard:**  
AS1530.4

**Fire resistance level:**

**Based on Report No.:**

**Codes:**

**Drawn By:**  
JC

**Checked By:**  
CT

**Revision:**

**Date:**

**No.:**

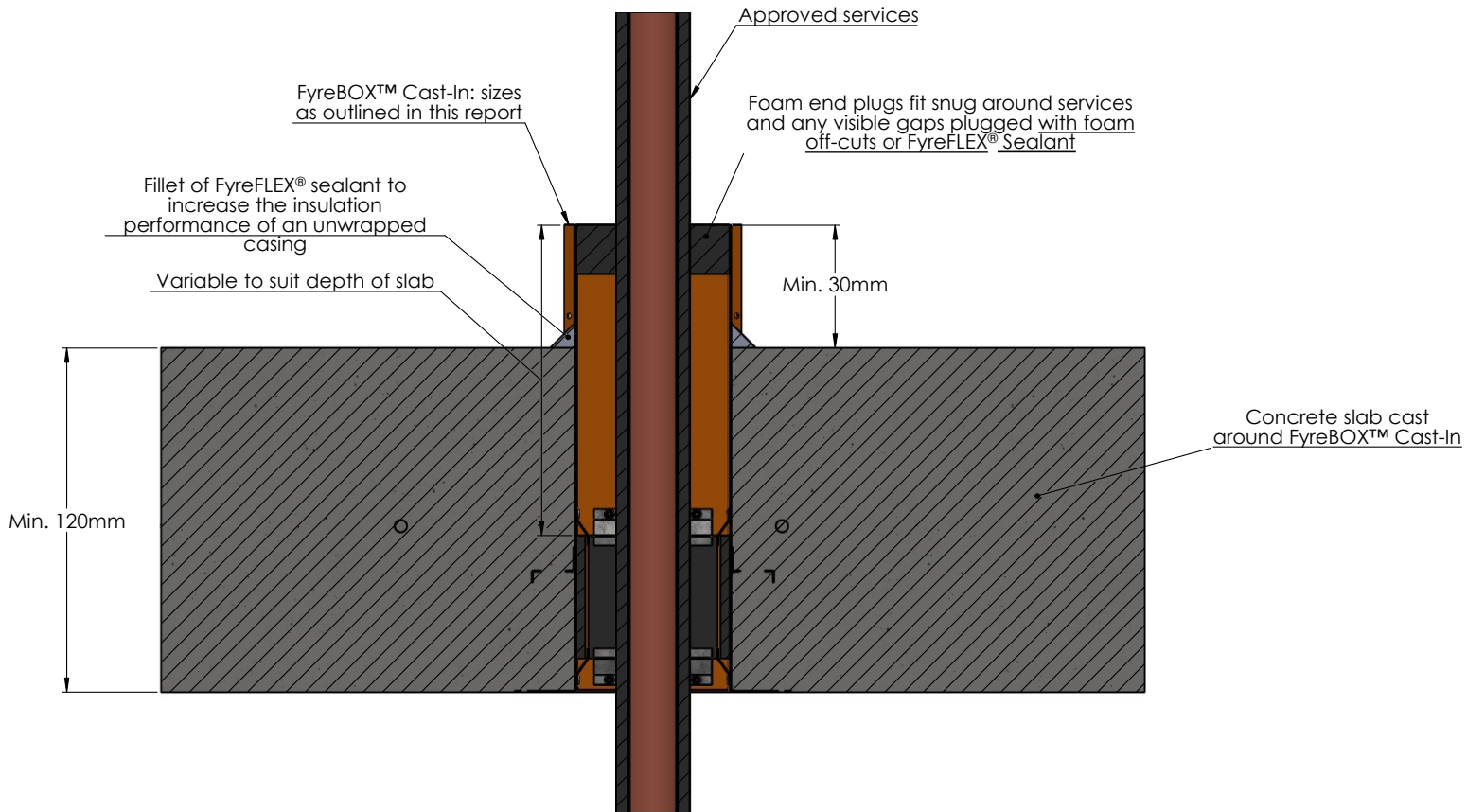
**NOTICE:**

NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)



- STANDARD DRAWING
- PROJECT DRAWING

### Concrete Slabs



**Drawing Name:** Concrete Slab

**Project Title:** FyreBOX™ Cast-In - Generic Install

**Drawing No. :**  
3

**Sheet:**  
3 of 5

**Date:**  
27/05/2020

**Scale:**  
NTS

**Test Standard:**  
AS1530.4

**Fire resistance level:**

**Based on Report No.:**

**Codes:**

**Drawn By:**  
JC

**Checked By:**  
CT

**Revision:**

**Date:**

**No.:**

**NOTICE:**

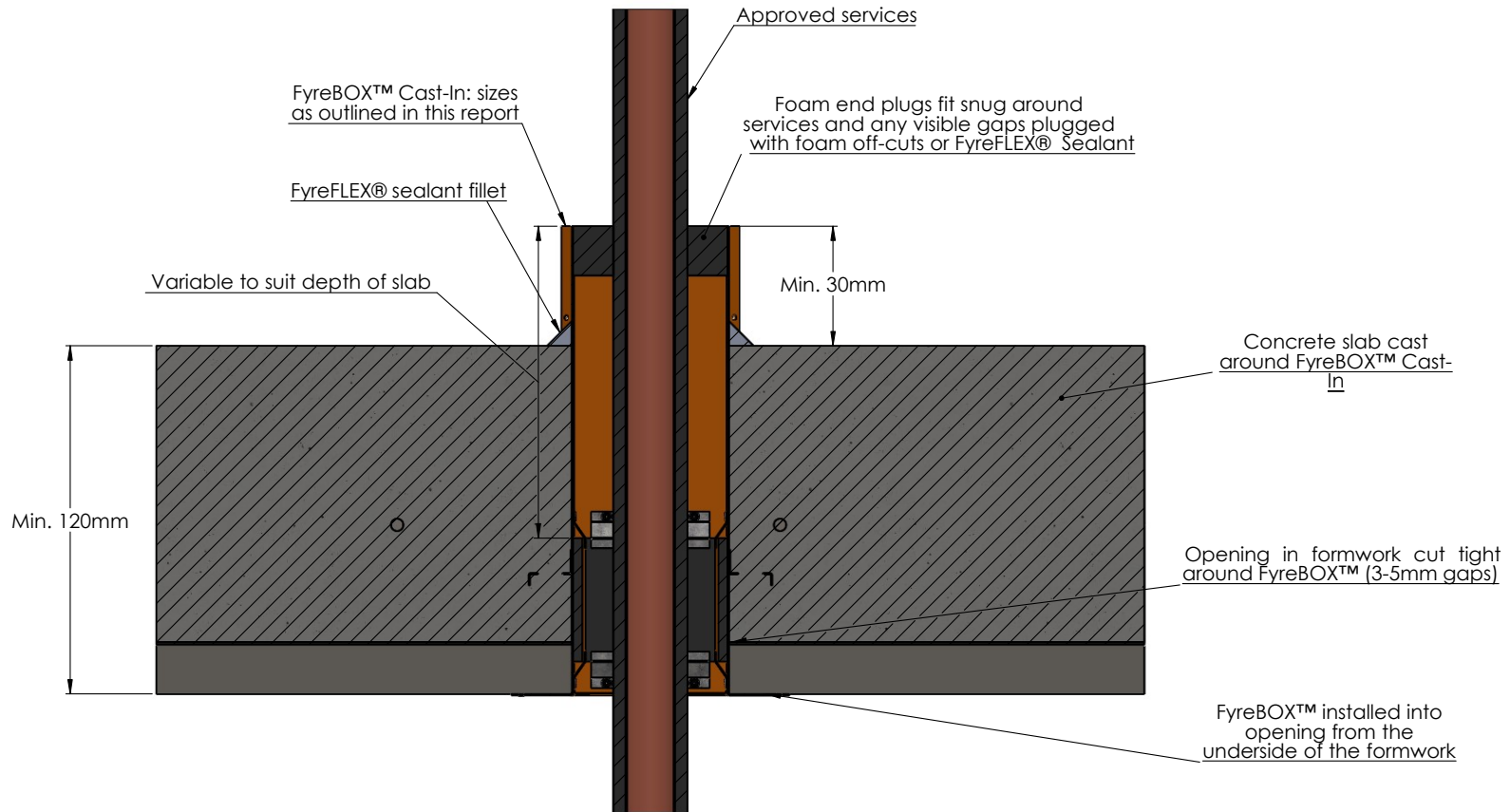
NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)


STANDARD DRAWING  
 PROJECT DRAWING





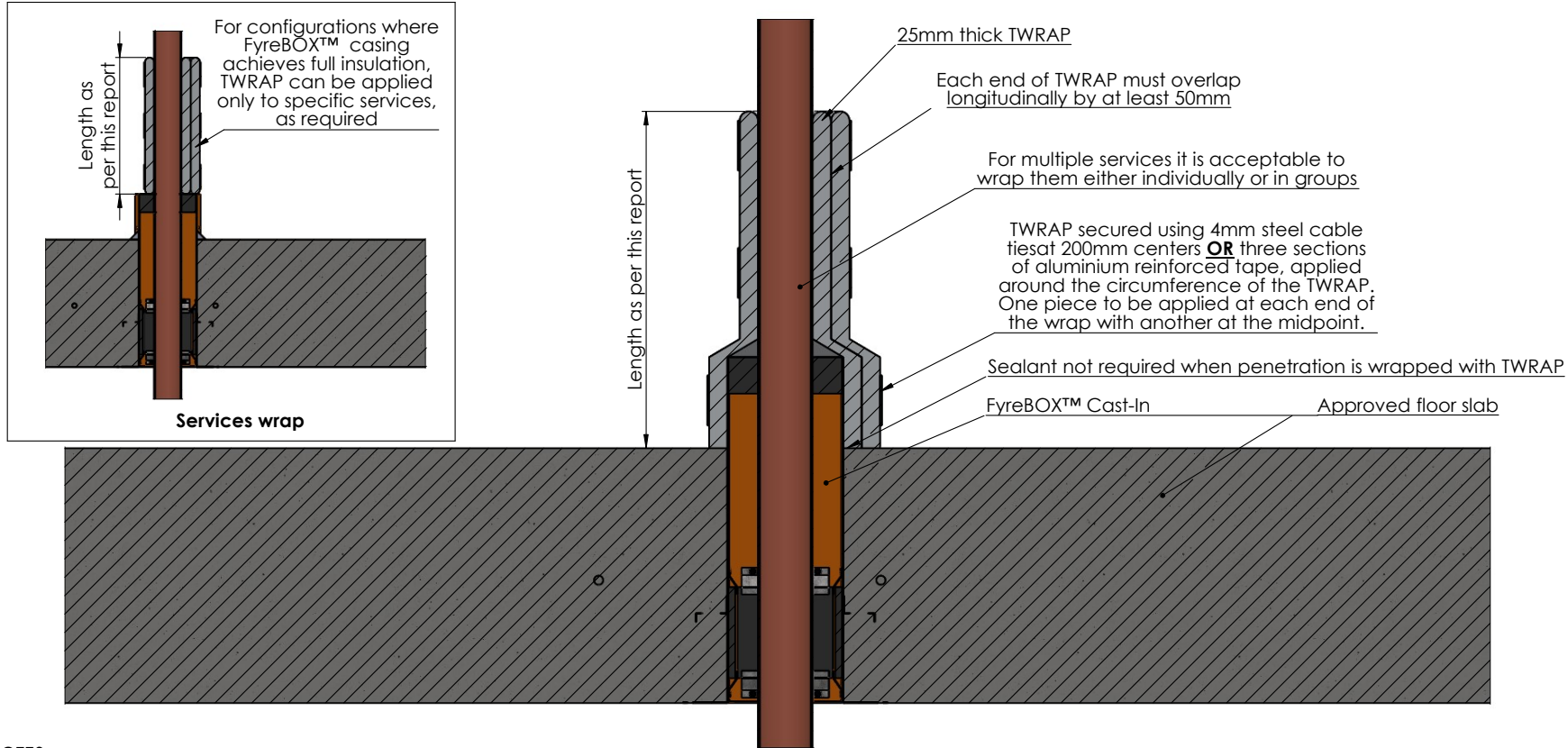
## Bondek Slabs (and/or similar with ribbed formwork)



<b>Drawing Name:</b> Bondek				<b>Test Standard:</b> AS1530.4	<b>Codes:</b>	<b>Revision:</b>	<b>Date:</b>	<b>No.:</b>	<b>NOTICE:</b>
<b>Project Title:</b> FyreBOX™ Cast-In - Generic Install				<b>Fire resistance level:</b>	<b>Drawn By:</b> JC				<small>NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)</small>
<b>Drawing No. :</b> 4	<b>Sheet:</b> 4 of 5	<b>Date:</b> 27/05/2020	<b>Scale:</b> NTS	<b>Based on Report No.:</b>	<b>Checked By:</b> CT	<input type="checkbox"/> STANDARD DRAWING			
						<input type="checkbox"/> PROJECT DRAWING			

## TWRAP - Fire Rated Floors

Where the FyreBOX™ and/or services do not achieve full insulation, TWRAP can be applied in order to increase this insulation rating up to -/XXX/120.



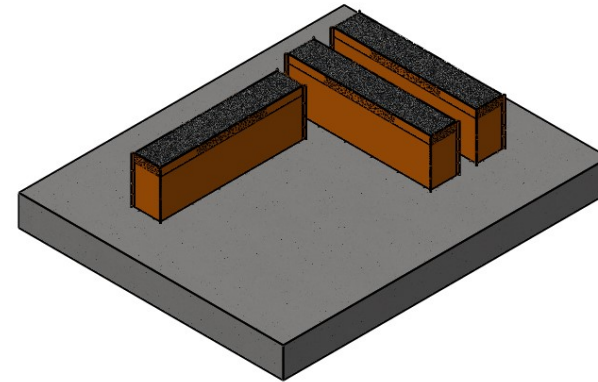
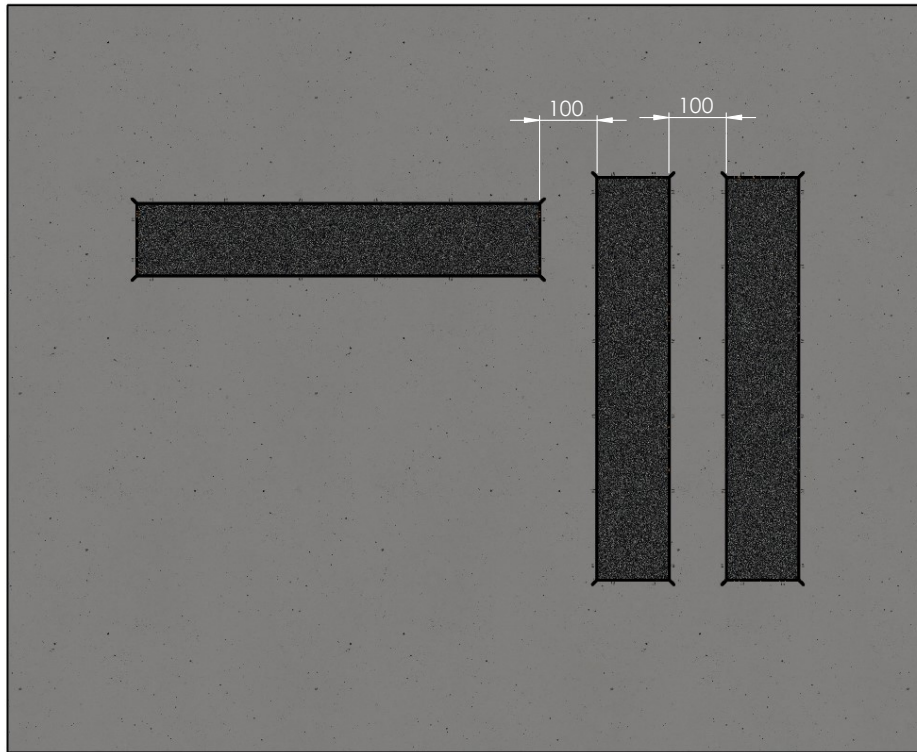
**NOTES:**

- Cable trays require TWRAP infill material to be packed in between cable groupings to the full depth of the cable tray for 300mm away from the FyreBOX™ prior to being wrapped with TWRAP

<b>Drawing Name:</b> TWRAP				<b>Test Standard:</b> AS1530.4	<b>Codes:</b>	<b>Revision:</b>	<b>Date:</b>	<b>No.:</b>	<b>NOTICE:</b>
<b>Project Title:</b> FyreBOX™ Cast-In - Generic Install				<b>Fire resistance level:</b>	<b>Drawn By:</b> JC	<small>NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)</small>			
<b>Drawing No. :</b> 5	<b>Sheet:</b> 5 of 5	<b>Date:</b> 27/05/2020	<b>Scale:</b> NTS	<b>Based on Report No.:</b>	<b>Checked By:</b> CT	<input type="checkbox"/> STANDARD DRAWING <input type="checkbox"/> PROJECT DRAWING			



## FyreBOX™ Cast-In In Close Proximity - Floors



Key	FyreBOX™ Configuration	Minimum Separation Requirement
A	Cast-In to Cast-In (long edges)	100mm between penetrations (Edge of bottom formwork flanges touching)
B	Cast-In to Cast-In (short edges)	100mm between penetrations (Edge of bottom formwork flanges touching)

**NOTES:**

**Barrier must be designed or approved for the openings/spacing required**

<b>Drawing Name:</b> FireBOX™ In Proximity - Floors				<b>Test Standard:</b> AS1530.4	<b>Codes:</b>	<b>Revision:</b>	<b>Date:</b>	<b>No.:</b>	<b>NOTICE:</b>
<b>Project Title:</b> FireBOX™ Install Variations				<b>Fire resistance level:</b>	<b>Drawn By:</b> JC	NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)			
<b>Drawing No. :</b> 2	<b>Sheet:</b> 2 of 9	<b>Date:</b> 27/05/2020	<b>Scale:</b> NTS	<b>Based on Report No.:</b>	<b>Checked By:</b> CT				

