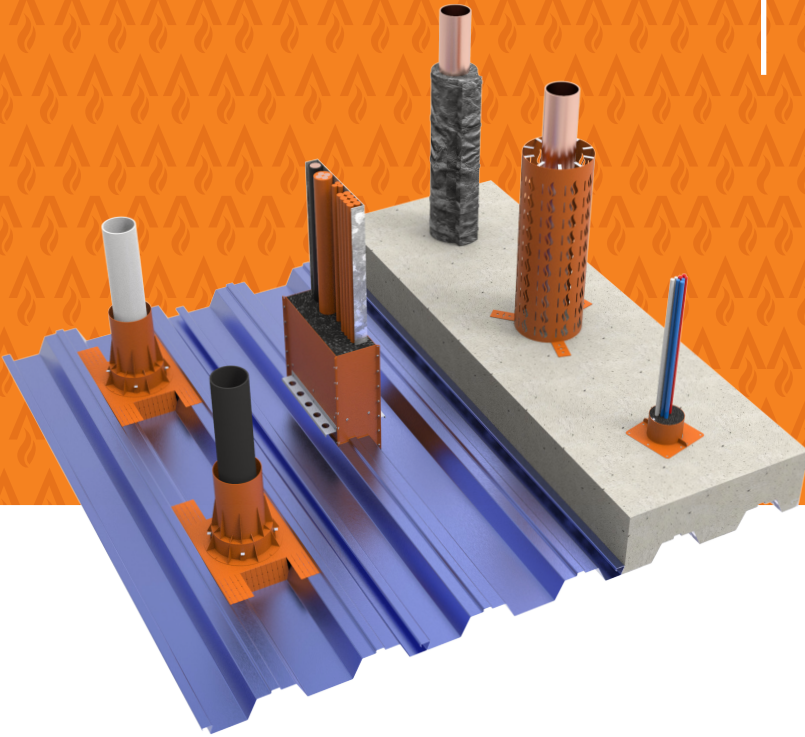


# STEEL DECK FLOOR SYSTEMS



Steel deck floors like Bondek and Fielders KF70® are a steel formwork solution ideal for composite concrete slabs that offers a lightweight steel profile capable of large spans with reduced concrete cost.

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 these types of floors.



## SYSTEMS

- FyreBOX** MINI
- FyreBOX** MAXI
- FyreBOX** CAST-IN
- Fyre COLLAR** MIXED SERVICES
- Fyre COLLAR** CAST-IN
- Fyre COLLAR** CONDUIT
- Fyre COLLAR** PREMIUM RETROFIT
- FyreBOARD** MAXILITE
- FyreSET**
- FyreBATT**
- FyreFLEX**
- FyrePLUG**
- FyrePEX** HP
- TWRAP**
- UniGUARD**
- BLADERUNNER**

## APPLICATIONS

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

## TRADES



# TABLE OF CONTENTS

Click  
page title to go to  
Page



	Page	
Overview	1	
Compliance (NCC)	3	
FRL Tables FRL Tables: KF70 <sup>®</sup> deck profile	5	
FyrePLATE	6	
INSTALLATION: High collars- With FyrePLATE	7	
FRL Tables	FRL Tables: FyreBOX Cast In	8
	FRL Tables: Cast In Services	9
	FRL Tables: Copper and Steel Pipes	10
	FRL Tables: Electrical (Copper Core) & Data cables	11
	FRL Tables: AL core cables	12
	FRL Tables: Oversized Openings – Metal pipes	13
	FRL Tables: Oversized openings – Electrical (copper core)/Data	14
Technical Drawings	15	

# COMPLIANCE (NCC)



## COMPLIANCE WITH THE NATIONAL CONSTRUCTION CODE (NCC)

Formerly known as BCA

Before we look at service penetrations through these steel deck floors, let's look at the compliance of the Steel deck floor systems. To comply with the National Construction Code the floor systems must have an FRL assigned using one of the methods that are included in NCC2022 specification 1. Which calls upon AS2327 that directs all penetrations to be designed in accordance with AS1530.4. The following systems presented below are tested in accordance with AS1530.4 – 2014, which can be used to comply in 1 of 2 ways:

1. Based on AS1530.4 Fire test on Steel Deck floor systems- AS1530.4 requires floor systems made of Steel deck to be fire-tested to determine the FRL of the specific service penetration as it interfaces with each unique deck profile and concrete fill level. Trafalgar Fire is committed to innovation within the passive fire industry and as such have physically fire tested new products and existing technologies, specifically designed to maintain the FRL of service penetrations through steel deck floor systems. These systems include innovative sheet metal adaptor plates for cast-in fire collars as well as FyreBATT solutions.



## COMPLIANCE (NCC)



## COMPLIANCE WITH THE NATIONAL CONSTRUCTION CODE (NCC)

2. Based on AS3600 design- All concrete structures that are designed to AS3600 where engineers must consider acoustic, thermal, and structural properties when designing the concrete structure. Although the steel deck floor system is composite structure, for the most part they are still made of concrete. As long as the concrete slab for the steel deck system is constructed or can be evaluated in accordance with AS3600, the same fire test approvals for concrete floor penetration systems can be applied to the steel deck floor systems when the passive fire materials don't overlap or interface with the steel deck. For example, sealants, boards, and batts can be installed on the topside of the concrete slab.

For passive fire protection, the table below summarises the fire insulation performance (heat transfer) for a bare concrete slab of a given thickness. Slabs are often made thicker than required for fire rating purposes for other considerations like structural or acoustic properties.

**FIRE RESISTANCE PERIODS (FRPs)  
FOR INSULATION FOR SLABS**

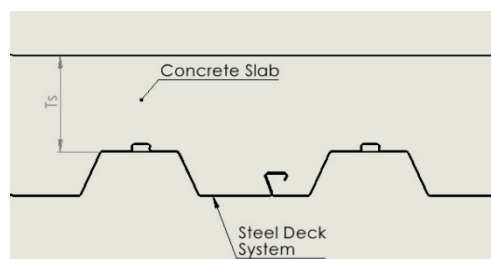
FRP for insulation min	Effective thickness mm
30	60
60	80
90	100
120	120
180	150
240	175

Table 5.5.1 AS3600-2018

There are other factors that govern the fire design for structural adequacy such as concrete cover to the reinforcement that should be considered and designed as per AS3600.

Trafalgar Fire have tested a range of systems to AS1530.4:2014 and/or assessed in accordance with AS4072.1 to ensure the FRL of the concrete floor is maintained. Please refer to the Trafalgar concrete floor slab penetration manual here for more details.



Thickness Steel Deck Concrete Slab = Thickness Standard Concrete Slab (as per report)

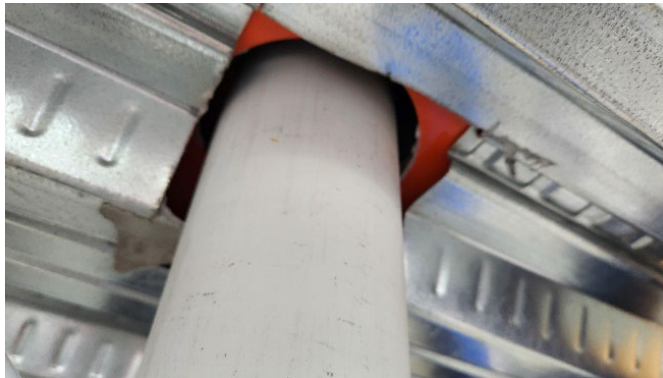


Thickness Steel Deck Concrete Slab = Thickness from above the steel ribs.

The Trafalgar Fire systems in this document have been fire tested and approved specifically for use in KingFloor 70 Steel deck floor systems, providing full compliance with the NCC. Refer to [www.tfire.com.au](http://www.tfire.com.au) for a full list of test reports and product technical manuals.

# FRL TABLES KF70® DECK PROFILE

Applications	Trade Icons	Applications	FRL	Report Reference
uPVC Pipe		FyreCOLLAR High Cast In with FyrePLATE adaptor	-/180/180	FRT220258 R1.2
		Or FyreCOLLAR Low Cast In with FyrePLATE adaptor		
HDPE Pipe		FyreCOLLAR Premium Retrofit + FyreBATT*	-/180/180	
		FyreCOLLAR High Cast In with FyrePLATE adaptor	-/180/180	



# STEEL DECK

# ADAPTOR PLATE

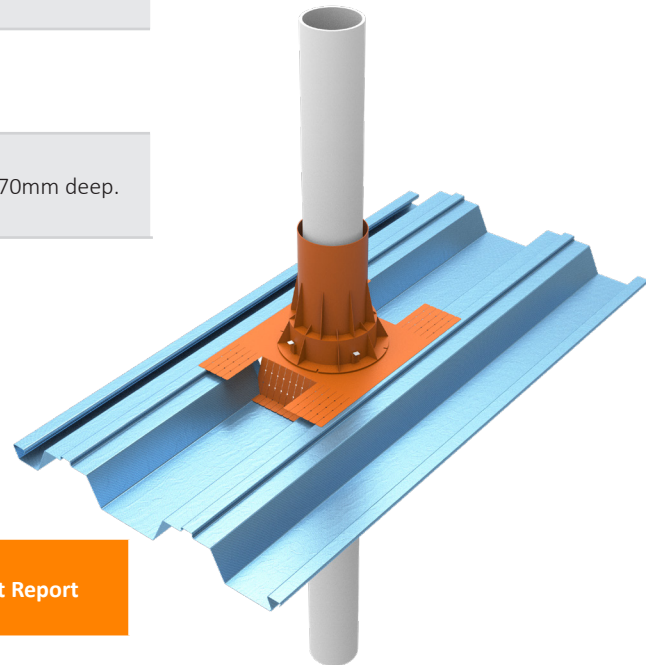


Traditionally, cast-in collars are nailed down to the formwork before the slab is poured, this can cause issues for permanent metal deck systems such as **Bondek, Truedek, Kingflor, etc.** There isn't enough flat space to mount a collar, and the location of the required service may fall on a tricky spot on the deck.

For these situations Trafalgar have a fire tested solution; the **FyrePLATE** is an adaptor for the FyreCOLLAR Cast-in High top system that will suit any steel deck system with a profile up to 70mm deep, and can locate the service in any required position in the deck.

### Approval Specifications

Approved Collars	FyreCOLLAR Cast-in High Top
Approved Services	<ul style="list-style-type: none"> <li>PVC pipes up to 100mm</li> <li>HDPE Pipes 100mm</li> </ul>
Approved Steel Deck Types	Any deck with a profile up to 70mm deep.

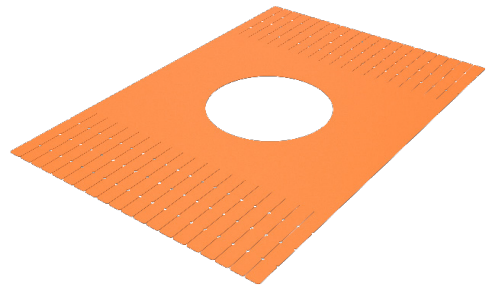


## FIRE RESISTANCE LEVELS

Service Types	Specification	Fire Rating	Test Report
PVC	Up to 100mm	-/180/180	FRT 220258
	40mm	-/180/180	
Up to 100mm HDPE	100mm	-/180/180	

# INSTALLATION- STEEL FORMWORK

## HIGH COLLARS- WITH FyrePLATE

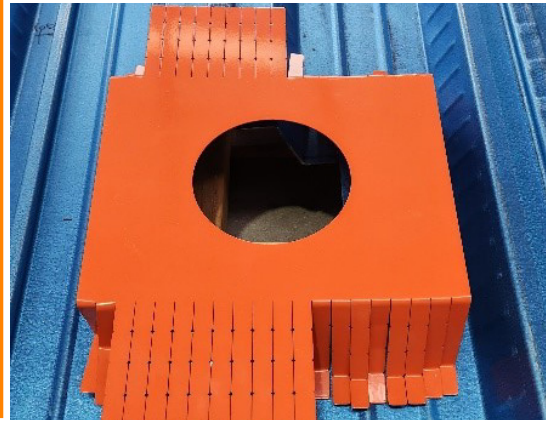


### PREPARE



Locate required service positioning and cut a square hole in the deck with 140-150mm sides.

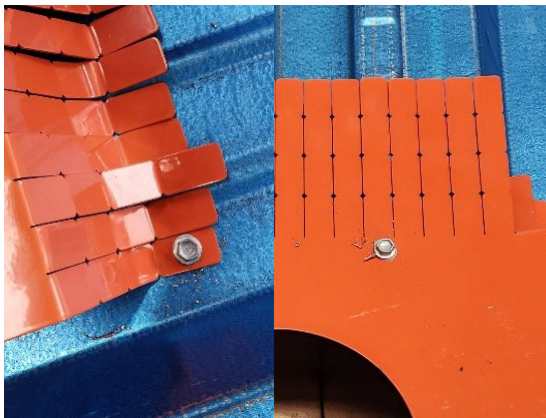
### BEND AND FIT



Bend the FyrePLATE to suit the deck profile and fit it over the cut-out in the deck.

*The FyrePLATE adaptor can be sofit in any location on any steel deck, with a profile up to 70mm tall.*

### FIX



Fix the FyrePLATE to the deck using 4 x tek screws and use reinforced foil tape to cover any gaps >5mm to reduce concrete ingress.

### POUR SLAB



At this stage the system is ready for the concrete to be poured, the pipes can be run through the collar before or after this happens. Follow the installation steps in this manual for installation of the pipe.

FRL TABLES

ALL STEEL DECK PROFILES

Where the slab has yet to be poured, the FyreBOX Cast-in penetration system will provide the quickest and most cost effective systems by casting in a ‘fire rated hole’ that allows for services to pass through a pre-formed, fire rated opening in the floor. Any of the services listed in the below table can be mixed within **ONE FYREBOX**.



Applications	Trade	System + Report Reference	Details	FRL
Cables and cable trays up to 1000mm wide – copper or Aluminium core cables		FyreBOX Cast-in + TWrap  FC10266 table 5	Multiple services may be installed in the same FyreBOX without need for separating individual services.  Stock sizes range from 350x125 up to 1100x125mm  For specific system and FRL details refer to the: <a href="#">FyreBOX Cast in Technical Manual</a>	-/120/120
Pair coils and chilled/hot water pipes with thermal laggings + associated power/ data cables				
PVC, Copper, steel, PEX or PEX-AL-PEX pipes				
Sprinkler pipes and fire cables				

FyreBOX Cast- In







FRL BASED ON MINIMUM 150MM THICK CONCRETE

CAST-IN SERVICES

Where the slab has yet to be poured, the below solutions are the quickest and most cost effective systems to treat the following services.

Applications	Trade	System + Report Reference	Details	FRL
PVC/uPVC up to 100mm		FyreCOLLAR Cast-in High Top OR FyreCOLLAR Cast-in Low Top FCO3475 Table 10/11	For specific system and FRL details refer to the: <a href="#">FyreCOLLAR Cast In Technical Manual</a>	Up to -/240/240
HDPE up to 100mm				
Floor Waste Pipes: •PVC (100mm) •HDPE (100mm) •Rehua Raupiano Plus PP (100mm) •DBLue (100mm)		FyreCOLLAR Floor Waste FCO3475 Table 15	For specific system and FRL details refer to the:  <a href="#">FyreCOLLAR Floor Waste Technical Manual</a>	
Copper/Steel Pipe Up to DN100		FyreCOLLAR Cast-in High Top + Uniguard/TWrap FCO3475 Table 12	For specific system and FRL details refer to the: <a href="#">FyreCOLLAR Cast In Technical Manual</a>	Up to -/240/120
Air Conditioning Bundles (Up to 2x paircoils)		FyreCOLLAR Cast-in High Top + TWrap FCO3475 Table 14	For specific system and FRL details refer to the: <a href="#">FyreCOLLAR Cast In Technical Manual</a>	-/180/90 (Wrap Free System) -/180/120

FyreCOLLAR Cast- In High



FyreCOLLAR Cast- In Low

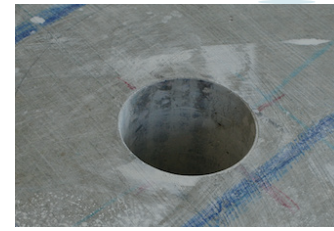


FyreCOLLAR Cast- In Floor Waste



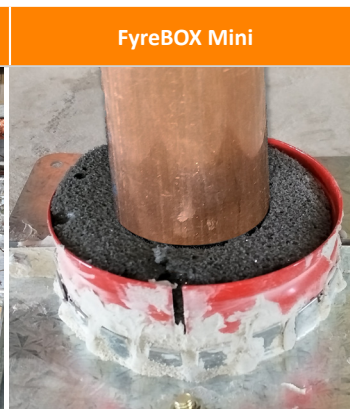
FRL BASED ON MINIMUM 150MM THICK CONCRETE

# COPPER/STEEL PIPES



Where the correct sized core hole can be made in anticipation of services, the following systems may be used.

Applications	Trade	System + Report Reference	Details	FRL
Copper/Steel Pipes up to NB 150		FyreFLEX Sealant + TWrap FCO 1579 Table 6	For specific system and FRL details refer to the: <a href="#">FyreFLEX® and TWRAP for Plumbers Technical Manual</a> <a href="#">TWRAP™ Technical Manual</a>	Up to -/180/180
Copper/Steel Pipes up to DN150		Uniguard + FyreFLEX Sealant FRT 200257 Table 3	For specific system and FRL details refer to the: <a href="#">UniGUARD Technical Manual</a>	-/180/120
Copper/Steel Pipes up to DN100	   	FyreBOX Mini + TWrap FC10266 Table 4	Multiple services may be installed in the same FyreBOX where separation may not be achievable. For specific system and FRL details refer to the: <a href="#">FyreBOX Maxi/Mini Technical Manual</a>	-/120/120



FRL BASED ON MINIMUM 150MM THICK CONCRETE

# ELECTRICAL (COPPER CORE) & DATA CABLES



Where the correct sized core hole can be made in anticipation of services, the following systems may be used.

Applications	Trade	System + Report Reference	Details	FRL
Cables and Cable Trays (AS1530.4 Appendix D1 Power Cables)		FyreFLEX Sealant + TWrap FCO 1579 Table 13 & 14	For specific system and FRL details refer to the: <a href="#">FyreFLEX® and TWRAP for Electricians Technical Manual</a>	-/180/180
Small Cable Bundles (Up to 30x in a bundle): • Cat 6 Data Cables 2.5mm <sup>2</sup> • Firesense Cables 2.5mm <sup>2</sup> • TPS 2.5mm <sup>2</sup>		FyreFLEX Sealant FCO 1579 Table 13		-/120/120 (Wrap Free System)
Power cables and cable trays (AS1530.4 Appendix D1 Power Cables)	 	FyreBOX Mini + FyreFLEX Sealant + TWrap FC10266 Table 4	Multiple services may be installed in the same FyreBOX where separation may not be achievable.  For specific system and FRL details refer to the: <a href="#">FyreBOX Maxi/Mini Technical Manual</a>	-/120/120
Data cables and cable trays (AS1530.4 Appendix D2 Comms Cables)	 			-/120/120



Click here to go back to Contents

FRL BASED ON MINIMUM 150MM THICK CONCRETE

# AL CORE CABLES



In the Fire Stopping column, click on the system names to to learn more!



Fire Barrier	Barrier Type	Tested Services	Fire Stopping	Aperture Size	FRL	Test Report
Floors	Concrete	Up to a 450mm cable tray with 8 x 16mm <sup>2</sup> 4C+E, 8 x 240mm <sup>2</sup> 1C, 2 x 120mm <sup>2</sup> 1C AI and 1 x 400mm <sup>2</sup> single core	<a href="#">FyreBOX &amp; TWrap 300</a>	570x145mm	-/180/120	FRT 220259
		1 x 16mm <sup>2</sup> single core Al Cable, or Bundle of 4 x 16mm <sup>2</sup> 4C&E	<a href="#">FyrePEX Sealant and TWrap 450mm on the top side</a>	100mm	-/180/180	FRT 210260
		3 x 240mm <sup>2</sup> , 1 x 210mm <sup>2</sup> Single Core Al Cables		100mm	-/180/120	





FRL BASED ON MINIMUM 150MM THICK CONCRETE

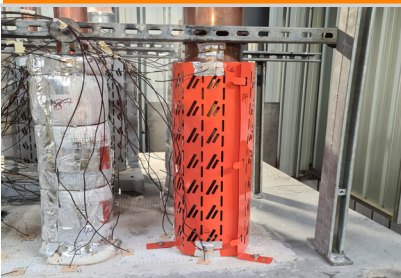
# OVERSIZED OPENINGS – METAL PIPES



Where openings have been made in anticipation of services coming through but have been made too large, the following systems can be applied

Applications	Trade	System + Report Reference	Details	FRL
Copper/Steel Pipes up to 100mm	 	FyreBATT + FyreFLEX Sealant + TWrap FAS 210023 Table 5	2 Layers of FyreBATT must be used For specific system and FRL details refer to the: <a href="#">FyreBATT Technical Manual</a>	Up to -/240/120
Copper/Steel Pipes up to 150mm		FyreBATT + FyreFLEX Sealant + Uniguard FAS 210023 Table 5		-/180/180
Copper/Steel Pipes up to 150mm		FyreBOARD Maxilite + FyreFLEX Sealant + TWrap FCO2586 Table 8	Min. 60mm Maxilite must be used for all penetrations. Some larger penetrations require an additional 30mm.  For specific system and FRL details refer to the: <a href="#">FyreBOARD Maxilite Technical Manual</a>	-/120/120
Copper Pipes up to 50mm		FyreBOARD Maxilite + FyreBOX Maxi/Mini + FyreFLEX Sealant + TWrap FC10266 Table 14		
Steel Pipes up to 60mm		FyrePLUG Pillows + Fyreflex Sealant + TWrap FAS200048 Table	For specific system and FRL details refer to the: <a href="#">FyrePLUG Pillow Technical Manual</a>	-/180/120
Copper/Steel Pipes up to 100mm		FyreSET Mortar + FyreFLEX Sealant + TWrap FRT 200256 Table 2 Or FRT 200118 for steel larger than 100mm	For specific system and FRL details refer to the: <a href="#">FyreSET Mortar Technical Manual</a>	-/120/120 (-/240/240 for steel up to 100mm)

UniGUARD and TWRAP + FyreBATT



TWRAP + FyrePLUG+ FyreFLEX



FyreBOARD Maxilite



FRL BASED ON MINIMUM 150MM THICK CONCRETE



# OVERSIZED OPENINGS – ELECTRICAL (COPPER CORE)/DATA

Where openings have been made in anticipation of services coming through but have been made too large, the following systems can be applied

Applications	Trade Icons	System + Report Reference	Details	FRL
Cables and cable trays (AS1530.4 Appendix D1 Power Cables)		FyreBATT + FyreFLEX Sealant + TWrap FAS 210023 Table 5	2 Layers of FyreBATT must be used For specific system and FRL details refer to the: <a href="#">FyreBATT Technical Manual</a>	-/120/120
Cables and cable trays (AS1530.4 Appendix D2 Comms cables)				-/180/120
Cables and cable trays (Small Cable Bundle (15x TPS + 1x fibre optic NBN cable))				-/180/120
Cables and cable trays (AS1530.4 Appendix D1 Power cables)		FyreBOARD Maxilite + FyreFLEX Sealant + TWrap FCO2586 Table 10	Min. 60mm Maxilite must be used for all penetrations. For specific system and FRL details refer to the: <a href="#">FyreBOARD Maxilite Penetrations Systems Technical Manual</a>	-/120/120
		FyreBOARD Maxilite + FyreFLEX Sealant + TWrap FAS 200048 Table 2		-/240/240 with 90mm Maxilite board
Cables and cable trays (AS1530.4 Appendix D1 Power cables And AS1530.4 Appendix D2 Comms cables)		FyreBOARD Maxilite + FyreFLEX Sealant + FyreBOX Maxi/Mini + TWrap FC10266 Table 14	-/120/120	
Cables and cable trays (AS1530.4 Appendix D1 Power cables and AS1530.4 Appendix D2 Comms cables)		FyrePLUG Pillows + Fyre-flex Sealant + TWrap FAS200048 Table 2	For specific system and FRL details refer to the: <a href="#">FyrePLUG Pillow Technical Manual</a>	-/120/120
	FyrePLUG Pillows + Fyre-flex Sealant FAS200048 Table 2	-/180/180 (Wrap Free System)		

Note: Continued over page

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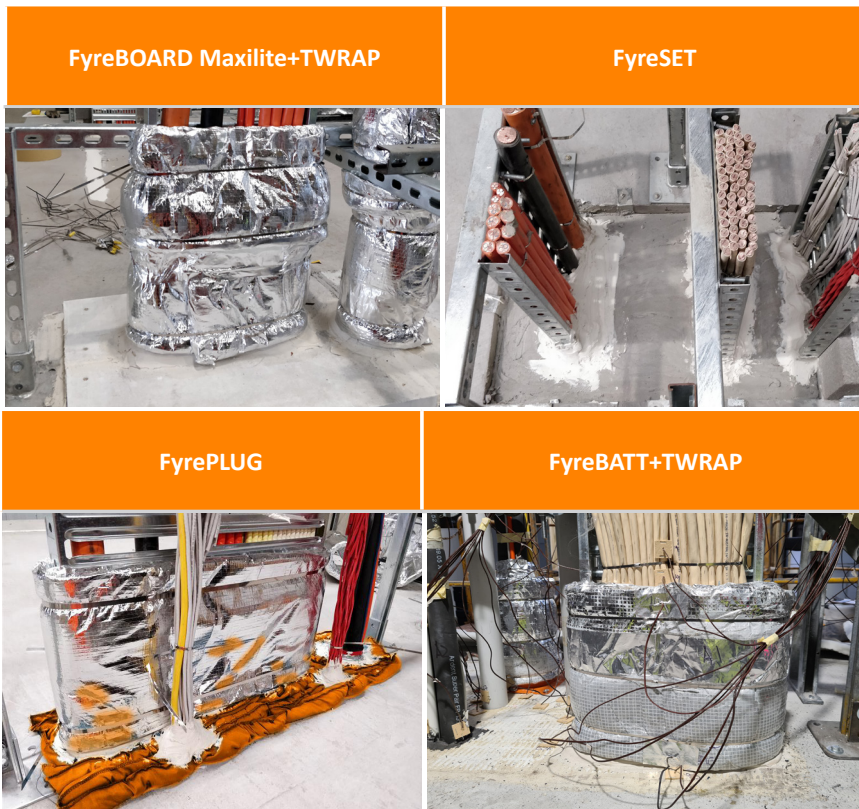


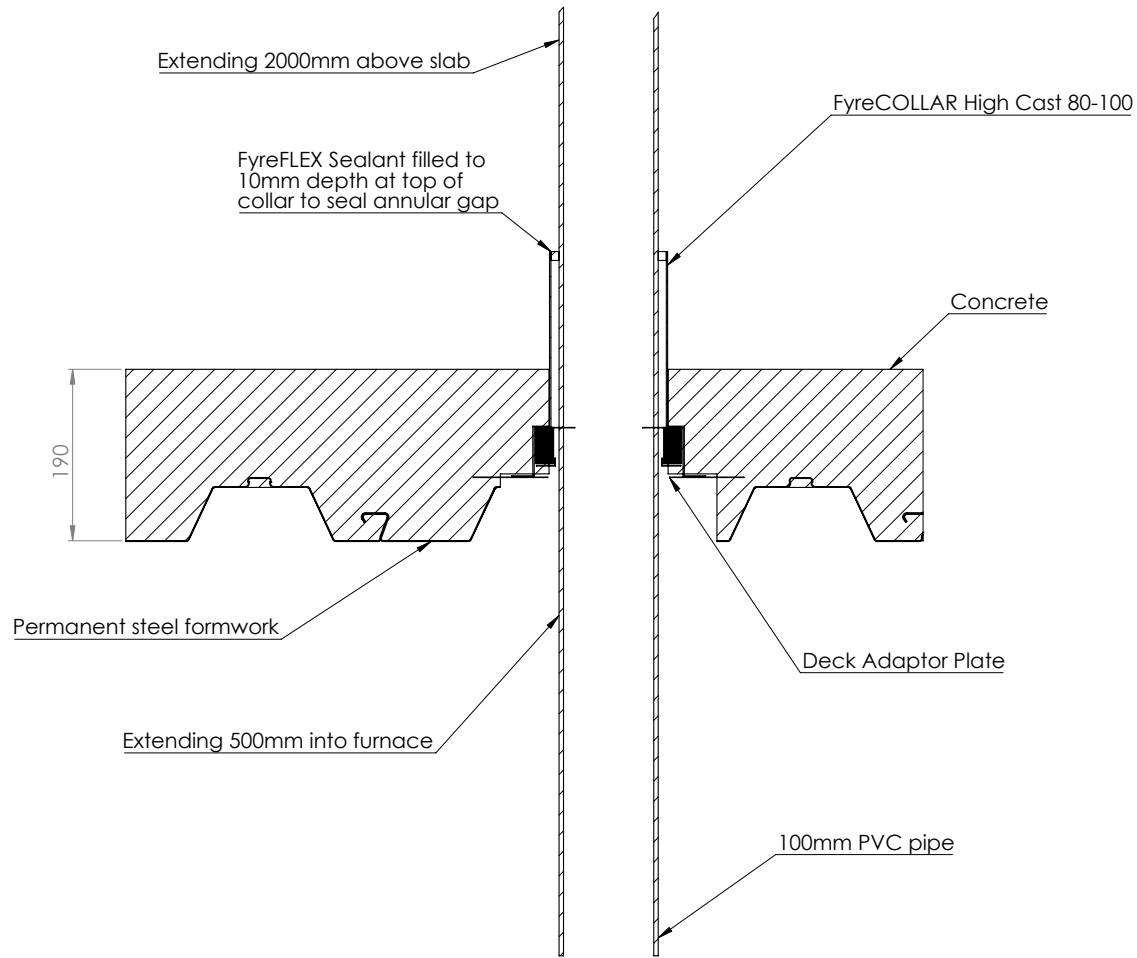
FRL BASED ON MINIMUM 150MM THICK CONCRETE


# OVERSIZED OPENINGS – ELECTRICAL (COPPER CORE)/DATA

Where openings have been made in anticipation of services coming through but have been made too large, the following systems can be applied

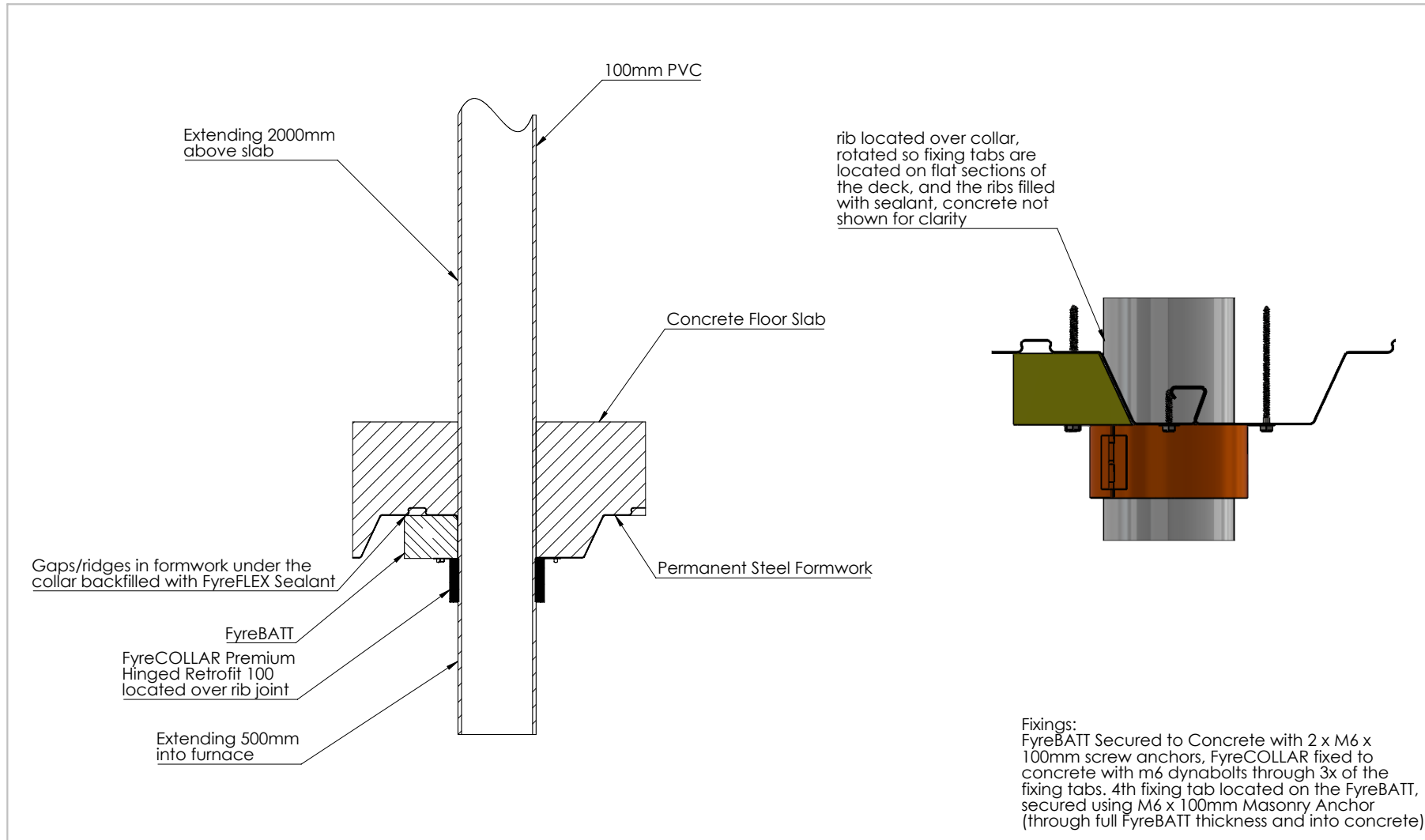
Applications	Trade Icons	System + Report Reference	Details	FRL
Cables and cable trays (AS1530.4 Appendix D1 Cables and AS1530.4 Appendix D2 cables)		FyreSET Mortar + FyreFLEX Sealant + TWrap FRT 200256 Table 1	For specific system and FRL details refer to the: <a href="#">FyreSET Mortar Technical Manual</a>	-/240/120 with cable tray -/240/180 without cable tray
Small Cable Bundle (10x Cat6, 10x TPS, 10x Fire alarm cables)		FyreSET Mortar FRT 200256 Table 1		-/240/180 (Wrap Free System)




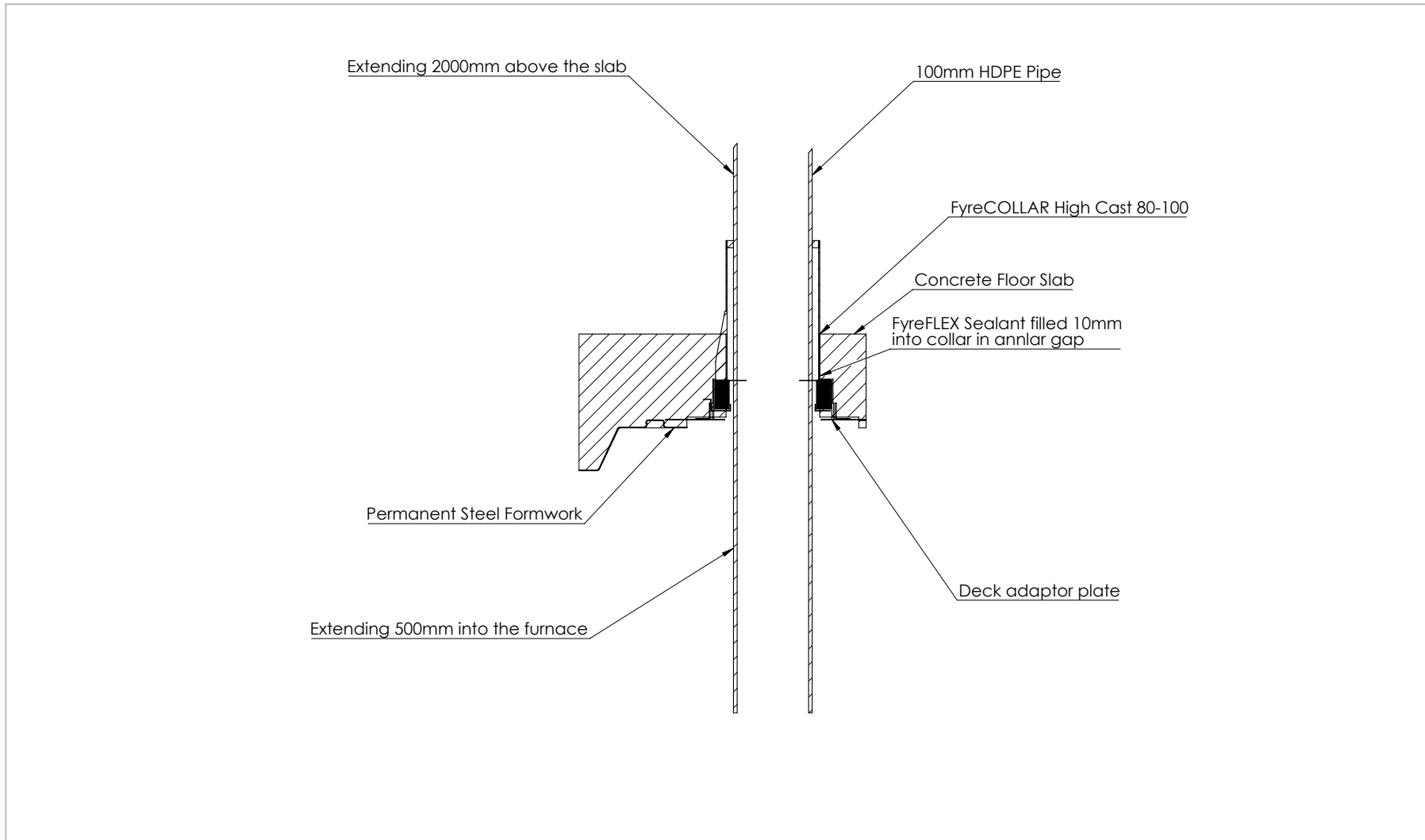



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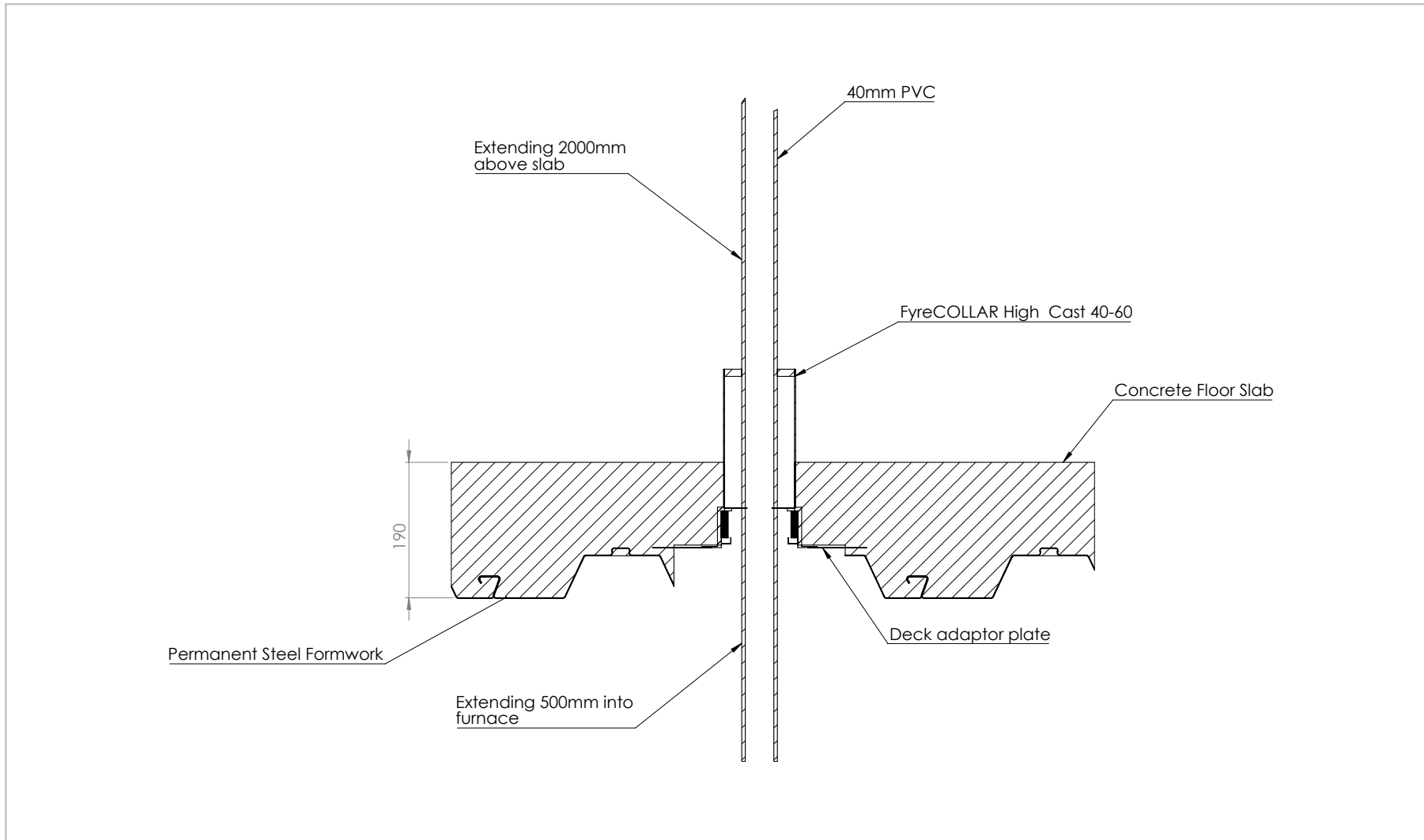





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						<input type="checkbox"/> PROJECT DRAWING			

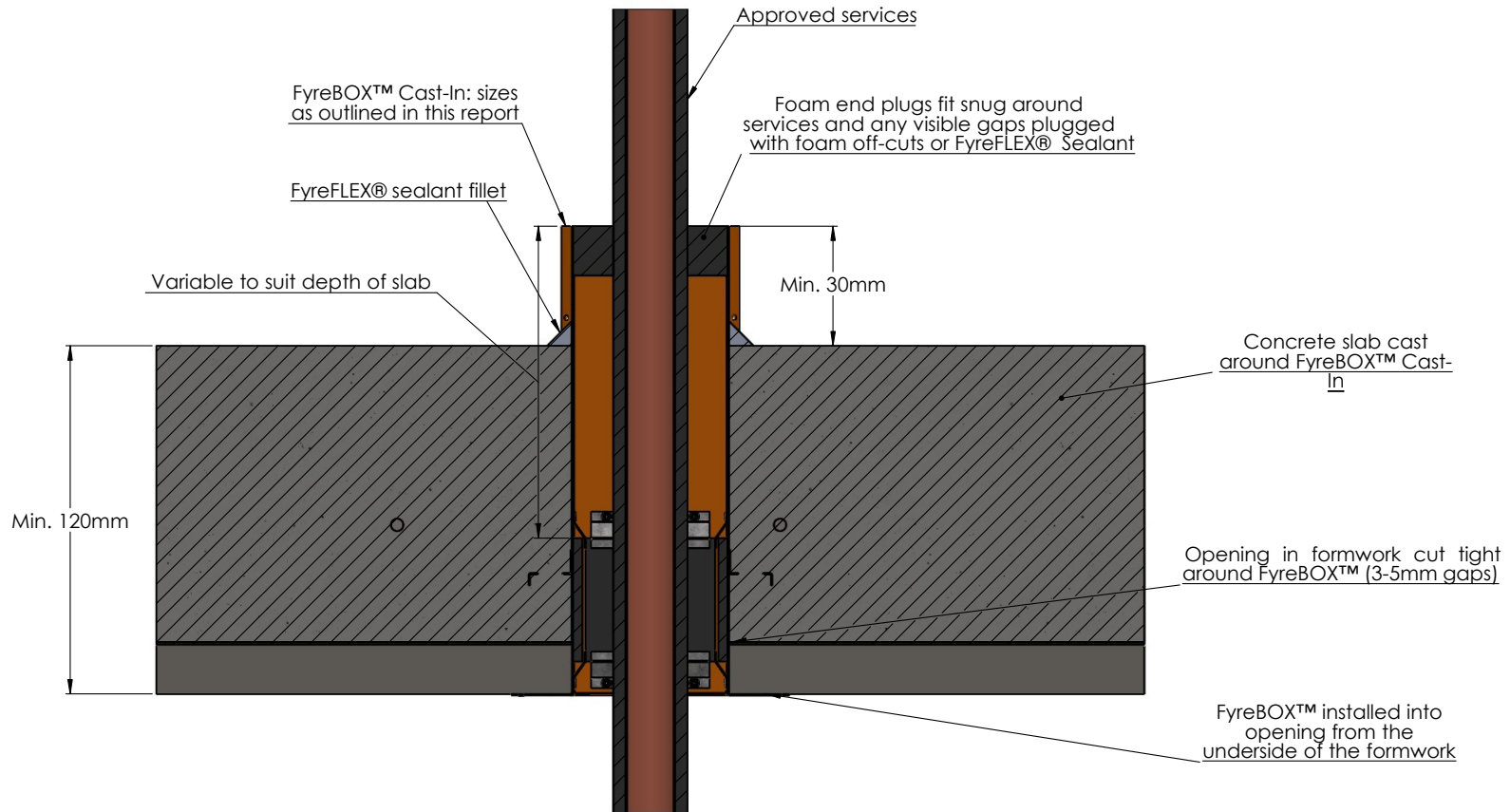



Drawing Name: Specimen 4				Test Standard: AS1530.4	Codes:	Revision:	Date:	No.:	NOTICE:
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						<input type="checkbox"/> PROJECT DRAWING			



Drawing Name: Specimen 2				Test Standard: AS1530.4	Codes:	Revision:	Date:	No.:	NOTICE:
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## 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>
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