

FyreBox™ Cast-In



TECHNICAL GUIDE

FyreBox™ Cast-In System

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THANK YOU

Thank you for purchasing or enquiring about the **FyreBox™ Cast-In**. We manufacture our products to the highest quality standards, and we appreciate your supporting an Australian manufactured product from an Australian owned company. If you have any feedback or questions relating to the product or it's designed purposes, please contact us on +61 2 9524 4040 or info@bossfire.com.

PUBLICATION VERSION

This document may be superseded by newer versions. If you are unsure whether this document is a current publication, please contact us to confirm. **AU:** 1300 502 677 **NZ:** 0800 502 677 **Int:** +61 2 9524 4040 **Email:** info@bossfire.com

INTRODUCTION

The **FyreBox™ Cast-In** is a multi-service cable and pipe transit device designed for firestopping bundled services through fire-rated concrete floor slabs. Engineered specifically for new construction, it is installed before the concrete pour, saving time, space, and eliminating the need for messy, costly concrete coring. By pre-planning the passive fire protection, the design eliminates compliance risks in shaft and riser applications.

WHY CAST-IN TO THE SLAB?

- Pre-planning avoids compliance risks
- Saves time in construction
- Improved scheduling of trades
- Saves space by allowing mixed services to pass through one opening
- Avoids costly concrete core hole drilling

KEY FEATURES

- Specifically engineered to allow for all slab thicknesses with “off the shelf” extension sleeve.
- Unique brush system provides fast & easy installation of services
- Space to allow building movement in seismic areas
- Future proofing benefits to add services later
- FRL's up to 4hrs (-/240/240)
- Approved to AS1530.4-2014 & AS4072.1-2005
- Tallest opening size of any transit device on the market
- Makes AS 1851-2012 periodic maintenance inspections simple and reliable
- Large variety of electrical, plumbing & HVAC services certified



IMPORTANT INFORMATION

Fire separation is a critical part of life safety in building design and must be treated carefully. Follow the steps below to help ensure your installation is carried out correctly and compliantly.

1. Select the FyreBox™ for installation into configurations pursuant to Branz FC12925 Issue 12 (Approved Applications) or “as tested” applications, which include fire rated walls, concrete slabs & ceiling / floors.
2. Penetrations in fire rated barriers can weaken the fire integrity of a building element. Therefore, you must always minimise the size of apertures, and select the smallest size FyreBox™ Cast-In available that your installation and configuration requires.
3. Always read and understand the appropriate certification, Branz FC12925 Issue 12, supplied with this Technical Guide and how it relates to your specific application. If you did not receive a copy of this report, please contact BOSS Fire® to request a copy. If you do not understand it, then please contact BOSS Fire® for technical clarification on the details below.
4. Ensure the Approved Applications detailed in Branz FC12925 Issue 12 is applicable to your construction details or for further details on ‘as-tested’ systems contact BOSS Fire® on the details below.
5. The FyreBox™ Cast-In must be installed in accordance with the manufacturer’s specifications & certification or be subject of a Performance Solution. Performance Solution – (defined by the National Construction Code 2022 – Volume 1) means a method of complying with the Performance Requirements other than by a Deemed-to-Satisfy Solution. Refer to section Part A2G2 of NCC Volume 1 for more information.
6. This Technical Guide must be read in conjunction with the product test or assessment reports. Always read and understand these documents carefully.
7. Always check your relevant Building Regulations, local laws and AS/NZS Standards to properly understand your obligations.
8. Ensure you have an accredited Certifier or 3rd party compliance inspector to check your proposed system before installation. Pre-approval can help to save significant costs and delays and avoid non-compliance.
9. The user must not modify the FyreBox™ Cast-In in anyway other than methods outlined in this guide by the manufacturer.



NOTE: This guide will undergo periodic updates, and it is important to ensure you are reviewing the most recent version during installation. For further updates, please visit the BOSS Fire® website (bossfire.com) or contact us on the details provided below.

If you don’t understand anything contained in this guide and would like clarification, please contact BOSS Fire® on the details below.

APPROVED APPLICATIONS

The FyreBox™ is suitable for a wide variety of buildings where multiple services need to pass through a fire rated wall, concrete floor slab or ceiling/ floor system. Typical projects include apartments, aged care, hotels & student accommodation for Sole Occupancy Unit entries, services cupboards or shafts and risers in high rise buildings. The FyreBox™ can also be used in industrial & commercial buildings such as factories, data centres, hospitals, and retail facilities. Typical bundles of services include:

- Steel & cPVC Sprinkler Pipes
- Copper Gas / Water Pipes
- uPVC DWV Pipes
- PEX & PEX-AL Water & Gas Pipes (Lagged & Unlagged)
- Air Conditioning / Paircoil Pipes
- Lagged & Unlagged PE-RT or PE-RT Kelox Pipes
- HDPE, PP & PP-R Pipes
- Copper, Steel, Stainless Steel & Ferrous Metal Pipes (Lagged & Unlagged)
- TPS Power Cables
- Orange Circular Mains & Sub Mains Cables
- uPVC Conduits
- Data / Comms Cables – NBN, CAT6, CAT5E, CAT7
- Coax Cables – CATV / MATV / SMATV
- Security, LAN, Fig 8, Fibre Optic, EWIS & Speaker Cables
- Aluminium Core Cables



For detailed approval information on the fire certification including service sizes, approved substrates and tested systems refer to Tables 1-5 on pages 9-13 of this guide.

TRADITIONAL PASSIVE FIRESTOPPING VS FYREBOX™ CAST-IN

The FyreBox™ has an extensive range of certified services tested and approved, that simply “pass through” the product.

By “casting in” the product at the time of the concrete pour, it removes unnecessary risk of improper product selection using traditional methods. There is no need to core individual penetrations for each service which is a costly and messy process. There is major labour savings compared with the traditional methods such as pillows, batts, sealants and collars.

The FyreBox™ allows you to group various electrical, plumbing and HVAC+R services, all through one easy to use product. The unique BrushSeal™ allows services to be passed through the FyreBox™ at any time during construction or after a project has been completed future proofing the building.

One simple system and the reduction of individual penetrations adds simplicity for maintenance contractors and building managers across the life of the project.

HOW DOES IT WORK IN A FIRE?

- The FyreBox™ Cast-In Features advanced, high pressure intumescent material around the internal perimeter of the metal chassis.
- Intumescent expands during a fire to seal voids around metallics & closes gaps left by melting combustibles.
- Forms a dense char for a high-performance fire seal.
- Includes the innovative BOSS Fire® BrushSeal™ for easier installation and compliance.
- Delivers industry-leading fire protection standards of up to 4hrs



FyreBox™ 300mm shown right, after successfully passing a 120 minute AS 1530.4:2014 Fire Resistance test at Warringtonfire, Australia. The images show the intumescent seals inside the FyreBox™ expand and completely seal around the services passing through.

CONCRETE SLAB ELEMENT REQUIREMENTS



To achieve the desired FRL, the system must be constructed in accordance with BRANZ FC12925 Issue 12 or exactly as per an 'as-tested' or assessed system. You must read and understand BRANZ FC12925 Issue 12 or applicable Test Report supplied with this Technical Guide. If you did not receive a copy of this report, please contact BOSS Fire to request a copy. If you do not understand it, please contact BOSS Fire® on 1300 502 677 or info@bossfire.com.au. Note: The overall system is subject to the lowest performing element within the system.

All relevant concrete slabs pursuant to BRANZ FC12925 Issue 12, (Approved Elements) must also have the same or greater established FRL as the FyreBox™ Cast-In via a test or assessment in accordance with AS 1530.4:2014 or AS 4072.1-2005 to achieve the FRL's outlined in Tables 1-5 on pages 9-13.

Concrete Floor Slabs include:

- Concrete floor slabs minimum 70mm thick for 60min (1hr) fire ratings.
- Concrete floor slabs minimum 100mm thick for 90min (1.5hr) fire ratings.
- Concrete floor slabs minimum 120mm thick for 120min (2hr) fire ratings.
- Concrete floor slabs minimum 150mm thick for 180min (3hr) fire ratings.
- Concrete floor slabs minimum 180mm thick for 240min (4hr) fire ratings.

THERMAL WRAP - BOSS P40-MAK WRAP™ OR BOSS THERMAL DEFENCE WRAP

The performance of the FRLs outlined in Tables 1-5 on page 8-12 offer two options; one with wrapped services using P40-MAK Wrap™ and the alternative wrap known as Thermal Defence Wrap.

The **BOSS P40-MAK Wrap™** and **BOSS Thermal Defence Wrap** are both supplied in pre-cut lengths 300mm or 600mm wide. For concrete slabs, the wrap must cover any of the exposed green FyreBox™ Cast-In on the top side of the concrete slab and encircle the bundled services from the top of the FyreBox™ Cast-In for at least 300mm for up to 2hr applications, or 550mm for 3 & 4hr applications.

APPROVED SERVICES IN FYREBOX™ CAST-IN

Only services pursuant to BRANZ FC12925 Issue 12 (Approved Services) can pass through the FyreBox™ Cast-In. Each variation of service is subject to a different Fire resistance Level (FRL) performance. Tables 1-5 note the different performance relating to each service type in the FyreBox™ Cast-In with the P40-MAK Wrap™ or BOSS Thermal Defence Wrap. Note, not all services are approved for use with the Thermal Defence Wrap.

A wide range of configurations containing various quantities and combinations of the Approved Services, can pass through the FyreBox™ Cast-In.

SERVICES SPACING REQUIREMENTS

BRANZ FC12925 Issue 12 specifies that the Approved Services may be in any combination and number in the FyreBox™, provided that the internal Intumescent Sachets and BrushSeals™ are not removed or damaged.

Further to this, Australian Standards AS 5601-2004 for Gas Installations, and AS 3500-2003 for Plumbing & Drainage, contain requirements for separation of various services. Some general examples of spacing are provided below:

There shall be at least 25mm separation between any consumer gas piping and any above ground:

- Metal electrical conduit
- Electrical wire or cable not in a conduit
- Electrical earthing electrode

At least 25mm shall be maintained between any above ground water service and any of the following:

- Electrical or telecommunications conduits
- Electrical or telecommunications wires or cables
- Consumer gas pipes
- Sanitary plumbing and drainage
- Storm water drainage
- Other above-ground water services
- Any other services



You must consult with your certifying authority, local building authorities and all relevant trade Australian Standards to confirm your spacing requirements.

TABLE 1. FYREBOX™ CAST-IN – FRL/FRR - 60MIN FLOOR SLAB (1HR)

Concrete Slab elements with an established FRL of 60/60/60 or -/60/60.	Service Penetration	FRL - With P40-MAK Wrap™, 300mm	FRL - With Thermal Defence Wrap, 300mm
Concrete Floor Slabs Minimum 70mm Thick	Non-Combustible Pipes		
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/60/60	-/60/60
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/60/60	-/60/60
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 13mm OD with minimum 13mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/60/60	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 32mm OD with minimum 19mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/60/60	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 50.8mm OD with minimum 25mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/60/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/60/60	-
	Steel Sprinkler Pipe, Steel & Stainless-Steel pipes up to 60.3mm OD	-/60/60	-/60/60
	Combustible Pipes		
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/60/60	-/60/60
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/60/60	-/60/60
	uPVC Pipe & Conduit up to 55.8mm OD	-/60/60	-/60/60
	cPVC Pipe up to 60.3mm OD	-/60/60	-/60/60
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/60/60	-/60/60
	HDPE pipe up to 32mm	-/60/60	-/60/60
	PP and PP-R pipes up to 50mm	-/60/60	-/60/60
	Electrical Cables		
	*Appendix D1 Power Cables (except 630mm ²) Including TPS Power Cables Orange Circular Mains & Sub Mains Cables	-/60/60	-/60/60
	Multi Core Power Cables: Individual conductor up to 16mm ² . Total Maximum cross-sectional area not greater than 48mm ² per cable. (Including TPS Power Cables Orange Circular Mains & Sub Mains Cables)	-/60/60	-/60/60
	*Appendix D2 Data / Comms Cables also including: CAT5, CAT5E, CAT6, CAT7, COAX, MATV, SMATV, CATV, Fig 8, Fire Alarm, EWIS, LAN, Security, NBN, Fibre Optic & speaker cables.	-/60/60	-/60/60
	Cables with Aluminium core 185mm ² or less	-/60/60	-/60/60

*Please refer to AS 1530.4:2014 Appendix D. The cables referenced are a standard set of power and communications cables that represent the various cable types available within Australia and New Zealand.

TABLE 2. FYREBOX™ CAST-IN – FRL/FRR - 90MIN FLOOR SLAB (1.5HR)

Concrete Slab elements with an established FRL of 90/90/90 or -/90/90.	Service Penetration	FRL - With P40-MAK Wrap™, 300mm	FRL - With Thermal Defence Wrap, 300mm
Concrete Floor Slabs Minimum 100mm Thick	Non-Combustible Pipes		
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/90/90	-/90/90
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/90/90	-/90/90
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 13mm OD with minimum 13mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/90/90	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 32mm OD with minimum 19mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/90/90	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 50.8mm OD with minimum 25mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/90/90	-
	Copper Pipe up to 50.8mm OD uninsulated	-/90/90	-
	Steel Sprinkler Pipe, Steel & Stainless-Steel pipes up to 60.3mm OD	-/90/90	-/90/90
	Combustible Pipes		
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/90/90	-/90/90
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/90/90	-/90/90
	uPVC Pipe & Conduit up to 55.8mm OD	-/90/90	-/90/90
	cPVC Pipe up to 60.3mm OD	-/90/90	-/90/90
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/90/90	-/90/90
	HDPE pipe up to 32mm	-/90/90	-/90/90
	PP and PP-R pipes up to 50mm	-/90/90	-/90/90
	Electrical Cables		
	*Appendix D1 Power Cables (except 630mm ²) Including TPS Power Cables Orange Circular Mains & Sub Mains Cables	-/90/90	-/90/90
	Multi Core Power Cables: Individual conductor up to 16mm ² . Total Maximum cross-sectional area not greater than 48mm ² per cable. (Including TPS Power Cables Orange Circular Mains & Sub Mains Cables)	-/90/90	-/90/90
	*Appendix D2 Data / Comms Cables also including: CAT5, CAT5E, CAT6, CAT7, COAX, MATV, SMATV, CATV, Fig 8, Fire Alarm, EWIS, LAN, Security, NBN, Fibre Optic & speaker cables.	-/90/90	-/90/90
	Cables with Aluminium core 185mm ² or less	-/90/90	-/90/90

*Please refer to AS 1530.4:2014 Appendix D. The cables referenced are a standard set of power and communications cables that represent the various cable types available within Australia and New Zealand.

TABLE 3. FYREBOX™ CAST-IN – FRL/FRR - 120MIN FLOOR SLAB (2HR)

Concrete Slab elements with an established FRL of 120/120/120 or -/120/120	Service Penetration	FRL - With P40-MAK Wrap™, 300mm	FRL - With Thermal Defence Wrap, 300mm
Concrete Floor Slabs Minimum 120mm Thick	Non-Combustible Pipes		
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/120/120	-/120/120
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/120/120	-/120/120
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 13mm OD with minimum 13mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/120/120	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 32mm OD with minimum 19mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/120/120	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 50.8mm OD with minimum 25mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/120/120	-
	Copper Pipe up to 50.8mm OD uninsulated	-/120/120	-
	Steel Sprinkler Pipe, Steel & Stainless-Steel pipes up to 60.3mm OD	-/120/120	-/120/120
	Combustible Pipes		
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/120/120	-/120/120
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/120/120	-/120/120
	uPVC Pipe & Conduit up to 55.8mm OD	-/120/120	-/120/120
	cPVC Pipe up to 60.3mm OD	-/120/120	-/120/120
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/120/120	-/120/120
	HDPE pipe up to 32mm	-/120/120	-/120/120
	PP and PP-R pipes up to 50mm	-/120/120	-/120/120
	Electrical Cables		
	*Appendix D1 Power Cables (except 630mm ²) Including TPS Power Cables Orange Circular Mains & Sub Mains Cables	-/120/120	-/120/120
	Multi Core Power Cables: Individual conductor up to 16mm ² . Total Maximum cross-sectional area not greater than 48mm ² per cable. (Including TPS Power Cables Orange Circular Mains & Sub Mains Cables)	-/120/120	-/120/120
	*Appendix D2 Data / Comms Cables also including: CAT5, CAT5E, CAT6, CAT7, COAX, MATV, SMATV, CATV, Fig 8, Fire Alarm, EWIS, LAN, Security, NBN, Fibre Optic & speaker cables.	-/120/120	-/120/120
	Cables with Aluminium core 185mm ² or less	-/120/120	-/120/120

*Please refer to AS 1530.4:2014 Appendix D. The cables referenced are a standard set of power and communications cables that represent the various cable types available within Australia and New Zealand.

TABLE 4. FYREBOX™ CAST-IN – FRL/FRR - 180MIN FLOOR SLAB (3HR)

Concrete Slab elements with an established FRL of 180/180/180 or -/180/180	Service Penetration	FRL - With P40-MAK Wrap™, 550mm	FRL - With Thermal Defence Wrap, 550mm
Concrete Floor Slabs Minimum 150mm Thick	Non-Combustible Pipes		
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/180/180	-/180/180
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/180/180	-/180/180
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 13mm OD with minimum 13mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/180/180	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 32mm OD with minimum 19mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/180/180	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 50.8mm OD with minimum 25mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/180/180	-
	Copper Pipe up to 50.8mm OD uninsulated	-/180/180	-
	Steel Sprinkler Pipe, Steel & Stainless-Steel pipes up to 60.3mm OD	-/180/180	-/180/180
	Combustible Pipes		
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/180/180	-/180/180
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/180/180	-/180/180
	uPVC Pipe & Conduit up to 55.8mm OD	-/180/180	-/180/180
	cPVC Pipe up to 60.3mm OD	-/180/180	-/180/180
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/180/180	-/180/180
	HDPE pipe up to 32mm	-/180/180	-/180/180
	PP and PP-R pipes up to 50mm	-/180/180	-/180/180
	Electrical Cables		
	*Appendix D1 Power Cables (except 630mm ²) Including TPS Power Cables Orange Circular Mains & Sub Mains Cables	-/180/180	-/180/180
	Multi Core Power Cables: Individual conductor up to 16mm ² . Total Maximum cross-sectional area not greater than 48mm ² per cable. (Including TPS Power Cables Orange Circular Mains & Sub Mains Cables)	-/180/180	-/180/180
	*Appendix D2 Data / Comms Cables also including: CAT5, CAT5E, CAT6, CAT7, COAX, MATV, SMATV, CATV, Fig 8, Fire Alarm, EWIS, LAN, Security, NBN, Fibre Optic & speaker cables.	-/180/180	-/180/180
	Cables with Aluminium core 185mm ² or less	-/180/180	-/180/180

*Please refer to AS 1530.4:2014 Appendix D. The cables referenced are a standard set of power and communications cables that represent the various cable types available within Australia and New Zealand.

TABLE 5. FYREBOX™ CAST-IN – FRL/FRR - 240MIN FLOOR SLAB (4HR)

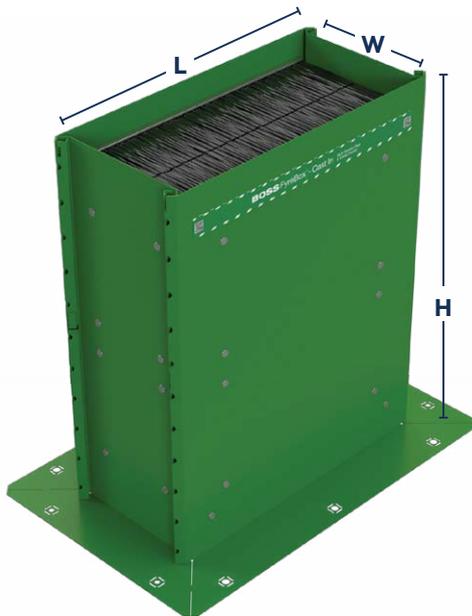
Concrete Slab elements with an established FRL of 240/240/240 or -/240/240.	Service Penetration	FRL - With P40-MAK Wrap™, 550mm	FRL - With Thermal Defence Wrap, 550mm
Concrete Floor Slabs Minimum 180mm Thick	Non-Combustible Pipes		
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/240/240	-/240/240
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/240/240	-/240/240
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 13mm OD with minimum 13mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/240/240	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 32mm OD with minimum 19mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/240/240	-
	Copper Pipe, steel, stainless steel & ferrous metal pipes up to 50.8mm OD with minimum 25mm thick non-combustible lagging to AS 1530.1 or Armaflex FRV, K-Flex lagging or Thermobreak Lagging or similar elastomeric foam rubber such as nitrile, neoprene, or cross-linked polyolefin with density from 25kg/m ³ to 75kg/m ³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/240/240	-
	Copper Pipe up to 50.8mm OD uninsulated	-/240/240	-
	Steel Sprinkler Pipe, Steel & Stainless-Steel pipes up to 60.3mm OD	-/240/240	-/240/240
	Combustible Pipes		
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/240/240	-/240/240
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/240/240	-/240/240
	uPVC Pipe & Conduit up to 55.8mm OD	-/240/240	-/240/240
	cPVC Pipe up to 60.3mm OD	-/240/240	-/240/240
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/240/240	-/240/240
	HDPE pipe up to 32mm	-/240/240	-/240/240
	PP and PP-R pipes up to 50mm	-/240/240	-/240/240
	Electrical Cables		
	*Appendix D1 Power Cables (except 630mm ²) Including TPS Power Cables Orange Circular Mains & Sub Mains Cables	-/240/240	-/240/240
	Multi Core Power Cables: Individual conductor up to 16mm ² . Total Maximum cross-sectional area not greater than 48mm ² per cable. (Including TPS Power Cables Orange Circular Mains & Sub Mains Cables)	-/240/240	-/240/240
	*Appendix D2 Data / Comms Cables also including: CAT5, CAT5E, CAT6, CAT7, COAX, MATV, SMATV, CATV, Fig 8, Fire Alarm, EWIS, LAN, Security, NBN, Fibre Optic & speaker cables.	-/240/240	-/240/240
	Cables with Aluminium core 185mm ² or less	-/240/240	-/240/240

*Please refer to AS 1530.4:2014 Appendix D. The cables referenced are a standard set of power and communications cables that represent the various cable types available within Australia and New Zealand.

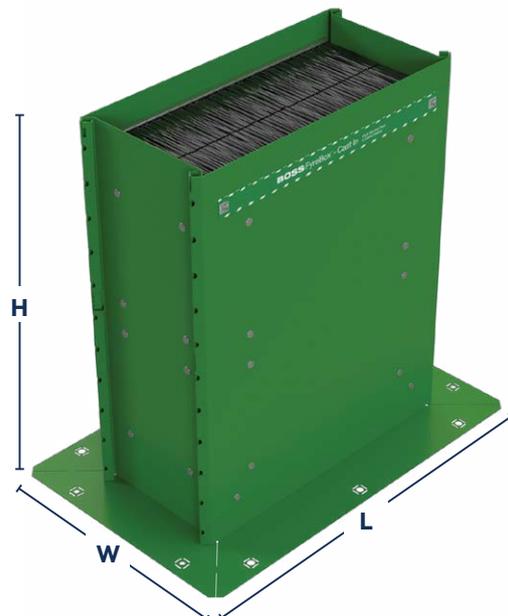
FYREBOX™ CAST-IN SIZE SELECTION

BOSS Fire developed a wide range of standard sizes off the shelf to avoid custom fabrication and costly lead times. Stocked items include:

Product ID	Description	Internal Dimensions (mm)	External Dimensions (mm)
BFBCI-300	FyreBox™ Cast-In 300mm	300 (L) x 150 (W) x 400 (H)	420 (L) x 270 (W) x 400 (H)
BFBCI-450	FyreBox™ Cast-In 450mm	450 (L) x 150 (W) x 400 (H)	570 (L) x 270 (W) x 400 (H)
BFBCI-600	FyreBox™ Cast-In 600mm	600 (L) x 150 (W) x 400 (H)	720 (L) x 270 (W) x 400 (H)
BFBCI-750	FyreBox™ Cast-In 750mm	750 (L) x 150 (W) x 400 (H)	870 (L) x 270 (W) x 400 (H)
BFBCI-900	FyreBox™ Cast-In 900mm	900 (L) x 150 (W) x 400 (H)	1020 (L) x 270 (W) x 400 (H)



Internal Dimensions



External Dimensions

FYREBOX™ CAST-IN EXTENSION SLEEVES

BOSS have specifically engineered an “Extension Sleeve” that is simply slipped into place to extend the height of the FyreBox™ Cast-In in 200mm high increments to adapt to any concrete floor slab thickness.

Product ID	Description	Additional Height
BFBCI-300-EX200	FyreBox™ Cast-In 200mm Extension Sleeve – To suit BFBCI-300	200mm
BFBCI-450-EX200	FyreBox™ Cast-In 200mm Extension Sleeve – To suit BFBCI-450	200mm
BFBCI-600-EX200	FyreBox™ Cast-In 200mm Extension Sleeve – To suit BFBCI-600	200mm
BFBCI-750-EX200	FyreBox™ Cast-In 200mm Extension Sleeve – To suit BFBCI-750	200mm
BFBCI-900-EX200	FyreBox™ Cast-In 200mm Extension Sleeve – To suit BFBCI-900	200mm



INSTALLATION GUIDE



1. Position the FyreBox™ Cast-In

- Place the FyreBox™ Cast-In at the intended service penetration location on the slab formwork.
- Secure the FyreBox™ Cast-In with appropriate fixings (e.g., nails or screws) to the formwork. Ensure the fixing has a head no larger than 10mm through the pre-formed flange fixing holes to ensure the fixings break away when formwork is removed.
- Ensure the unit is level and firmly attached before proceeding.



2. Prepare for Concrete Pour

- Ensure the FyreBox™ Cast-In lid is secured to the FyreBox™ using a cable tie or tie wire to ensure the lid stays in place during the concrete pour, preventing any concrete getting inside the FyreBox™ Cast-In.
- Pour concrete to the required slab thickness, ensuring the base flanges of the unit are fully covered. There must be at least 30mm clearance from the top of the slab to the top of the FyreBox™ opening.
- For deeper slabs than 370mm, BOSS offers an “Extension Sleeve” to extend the height of the FyreBox™ Cast-In in 200mm extension increments. (Refer to Extension Sleeve section for more details).
- Allow the concrete to cure as specified in the project requirements.



3. Post-Cure Setup

- Once the concrete slab has cured completely:
- Remove the formwork from underneath the slab.
- Remove and discard the steel cover.

INSTALLATION GUIDE



4. Install Building Services

Run Approved Services (e.g., Electrical, Mechanical, Hydraulic, etc.) through the FyreBox™. Ensure the services are Approved Services in accordance with the systems identified in Tables 1-5 on pages 9-13 and Branz report FC12925.12.

- Ensure all services are compliant with the approved fire testing configurations.



5. Apply BOSS P40-MAK Wrap™ or Thermal Defence Wrap

Determine Requirements:

- The P40-MAK Wrap™ or Thermal Defence Wrap will need to cover the exposed green FyreBox™ Cast-In chassis that is protruding out of the concrete slab, plus extend to cover the protruding services by an additional 300mm or 550mm.
- The desired FRL / FRR of the system will determine the length of the P40-MAK Wrap™ or Thermal Defence Wrap that covers the protruding services:
 - 300mm for FRL/FRR's up to 120minutes
 - 550mm for FRL/FRR's exceeding 120 minutes, up to 240 minutes.



Four-Sided Wrap Process:

The P40-MAK Wrap™ or Thermal Defence Wrap length must extend to cover the exposed FyreBox™ Cast-In and extend to cover the services for 300mm for up to 120minute FRL/FRR's or extend a further 550mm for 240minute FRL/FRR's.

- Place the P40-MAK Wrap™ or Thermal Defence Wrap on the services and wrap all the way around the bundled services, and any exposed FyreBox™ Cast-In, overlapping the previous layer by 90 degrees.
- Use aluminium foil tape to hold the end of the wrap in place prior to ties being fitted.
- Use either metal tie wire (minimum 1mm diameter) or steel cable ties to tightly secure the wrap to the services. Use a minimum of 2 ties nominally 50mm in from each end of the wrap.
- Use aluminium foil tape to cover exposed mineral fibres between the foil backing and the services at the open ends of the wrap for a neat aesthetic finish.
- The P40-MAK Wrap™ or Thermal Defence Wrap is only required on top side of slab.

INSTALLATION GUIDE



Three-Sided Wrap Process:

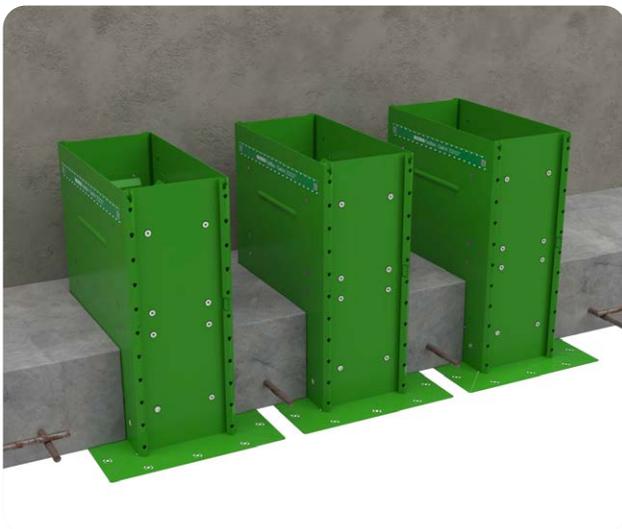
In the event the FyreBox™ Cast-In is hard against an adjacent wall, and the P40-MAK Wrap™ or Thermal Defence Wrap cannot be wrapped around all four sides, the wrap can be fitted to the three exposed faces and be fixed to the wall. The wrap length must extend to cover the exposed FyreBox™ Cast-In and extend to cover the services for 300mm for up to 120minute FRL/FRR's or extend a further 550mm for 240minute FRL/FRR's.

- Place the wrap around the protruding services and any exposed FyreBox™ Cast-In, ensuring that there is 100mm of excess wrap left at each side to extend past the edges of the FyreBox™ Cast-In and be fixed to the wall using large mud guard washers or flat steel plate to ensure fixings do not pull through. Fixing should be suitable for the wall substrate and be placed at 100mm centres.
- Length of the wrap is as explained on page 20.
- Use aluminium foil tape to hold the end of the wrap in place prior to ties being fitted.
- The wrap is only required on top side of slab.



6. Final Inspection

- Verify all services passing through the FyreBox™ Cast-In are approved.
- Ensure the BOSS P40-MAK Wrap™ or Thermal Defence Wrap is secure and fixed appropriately.
- Where required, add a penetration sticker/label, ensuring all information is accurately reflected in the site register.



7. FyreBox™ Cast-In Spacing

- FyreBox™ Cast-Ins should be separated to ensure that the base flanges do not overlap.

GLOSSARY OF TERMS

For the purposes of this Technical Guide, the below definitions can be employed when referring to specific terminology:

Approved Applications – applications in which the FyreBox™ is configured as outlined in BRANZ FC12925 Issue 12. This assessment report is based on a variety of testing in accordance with AS 1530.4:2014 and then assessed in accordance with AS 4072.1-2005.

Approved Element – refers to the building elements in which the FyreBox™ can be installed into, pursuant to BRANZ FC12925 Issue 12.

Approved Services – refers to services such as pipes & cables pursuant to BRANZ FC12925 Issue 12.

FRL / FRR – Abbreviation for ‘Fire Resistance Level’. When shown as a performance outcome for the FyreBox™ Cast-In, it will be in the form of - / x / x , “x” being shown as a number representing the amount of minutes the service or system has been certified to, in accordance with AS 1530.4:2014 and / or AS 4072.1-2005.

OD – Abbreviation for ‘Outside Diameter’.

Performance Requirement – (as defined by the National Construction Code 2022 – Volume 1) means a requirement which states the level of performance which a Performance Solution or Deemed-to-Satisfy Solution must meet.

Performance Solution – (as defined by the National Construction Code 2022 – Volume 1) means a method of complying with the Performance Requirements other than by a Deemed-to-Satisfy Solution.

HEALTH AND SAFETY

To learn more about the safe handling of FyreBox™ Cast-In, see the Safety Data Sheet available at www.bossfire.com.

LIMITATION

BOSS Fire has provided the technical information within this document in good faith and to the best of their knowledge. While this information was accurate at the time of publication, BOSS Fire reserves the right to update this document if any data emerges concerning a change in the fire resistance or overall performance of the product described. Additionally, BOSS Fire is committed to continuous improvement and product development, therefore, this information may be subject to change without prior notice.

The information contained herein has been developed as a guide only and it does not constitute a guarantee of compliance of all applications. Each project or application may have specific requirements, and therefore the intended use of the product must be thoroughly investigated for its suitability. Ensure that you have read and understood the appropriate certification relative to your needs, and ensure you seek acceptance from the Certifying Authority or compliance inspector before installation. For updates on the range of BOSS Fire® certification, please contact BOSS Technical Services. **AU:** 1300 502 677 **NZ:** 0800 502 677 **Int:** +61 2 9524 4040
Email: info@bossfire.com



Further Information

For additional technical information on the performance of **FyreBox™ Cast-In**, other **BOSS Fire®** products or any other **BOSS Fire®** related information please contact us on:

 **AU:** 1300 502 677  sales@bossfire.com
NZ: 0800 502 677 www.bossfire.com

