QUICK REFERENCE GUIDE
HVAC Systems

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HVAC Systems

BOSS PASSIVE FIRE

Contact: 1300 502 677 | bossfire.com.au | info@bossfire.com.au
Head Office: Unit 1, 16 Atkinson Rd Taren Point NSW 2229 Australia

Contents

Thankyou

Thankyou for purchasing or enquiring about the BOSS Fire Products. We manufacture our products to the highest quality standards, and we appreciate your supporting an Australian Owned company. If you have any feedback or questions relating to the product or it's designed purposes, please contact us on 1300 502 677 or +61 2 9531 8591 or info@bossfire.com.au.

Publication Version

This document may be superseded by newer versions. If you are unsure of whether or not this document is a current publication, please call us on 1300 502 677 or +61 2 9531 8591 or info@bossfire.com.au to confirm.

Introduction

This Quick Reference Guide is a document developed as a first reference for users to be able to determine if BOSS Products might be suitable for their firestopping building application in various wall, floor or ceiling substrates.

This document must be read in conjunction with the appropriate Technical Data Sheets, Safety Data Sheets and relevant Test or Assessment report relative to the listed system. You must follow adhere to the items outlined in the Important Information section outlined below before specifying, installing or certifying any BOSS Fire products or systems.

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. Always read and understand the appropriate certification relevant to the listed system contained in this guide. Test and Assessment reports are available at bossfire.com.au. If you cannot access a copy of a particular 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 contained therein.
2. Ensure the Approved Applications detailed in the Test and/or Assessment report is applicable to your construction details or for further details on 'as-tested' systems contact BOSS Fire® on the details below.
3. All BOSS Products must be installed in accordance with the manufacturer's specifications & certification or be subject of a Performance Solution.
4. This Quick Reference Guide must be read in conjunction with the product test or assessment reports. Always read and understand these documents carefully.
5. Always check your relevant Building Regulations, local laws and AS/NZS Standards to properly understand your obligations.
6. 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.
7. NOTE: This guide will be updated from time to time, and you must ensure they are reviewing the most recent version at the time of installation. Please visit the BOSS Fire® website (bossfire.com.au) to check for further updates or contact us on the below details.
8. If you don't understand anything contained in this guide and would like clarification, contact BOSS Fire® on the details below.

Contact Details

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FireMastic-HPE™

FireMastic-HPE™ - Introduction

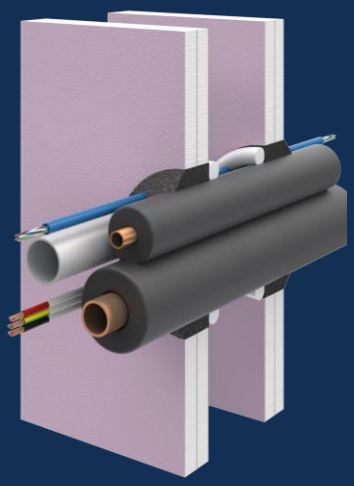
FireMastic-HPE™ is a graphite-based, High Pressure Exerting Fire Rated sealant used to reinstate the fire resistance performance of wall, floor & ceiling systems. Under heat, FireMastic-HPE™ will expand up to 40 times its volume and exerts pressure to the surrounding substrates leading to closure of the penetration. The integrity and insulation are then maintained by the stability of the remaining product char.

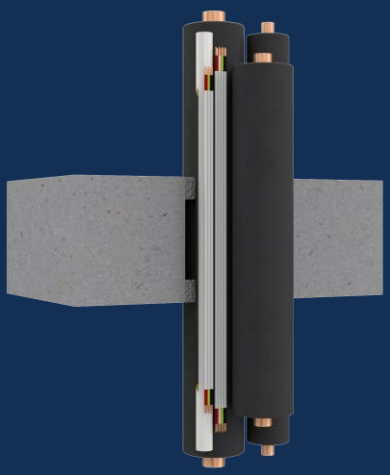
APPLICATIONS

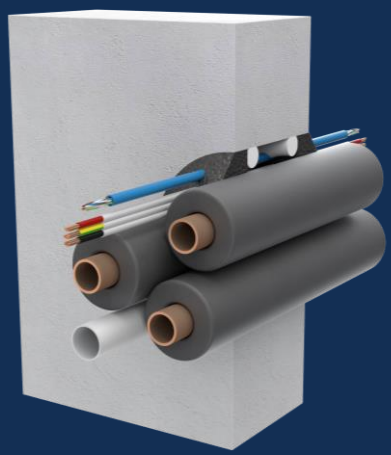
- Use for a variety of different services:
  - Lagged Copper Pipes
  - A/C Paircoil Bundles
  - Condensate Drains
  - Electrical Cable Bundles
    - Power Cables
    - Data & Control Cables
- Use for a variety of substrates:
  - Fire Rated Wall Systems
  - Concrete Floor Slabs
  - Ceiling Floor Systems

KEY BENEFITS

- Long life and Paintable
- Fire Rating up to FRL -/240/240
- Easy gunning & tooling
- Ultra-low VOC
- Packaging made from recycled materials







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BOSS FyreBox™

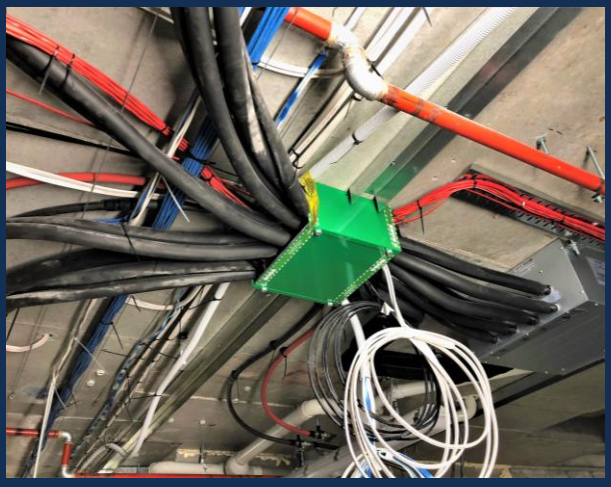
BOSS FyreBox™ - Introduction

The BOSS FyreBox™ is revolutionising firestopping methods for large bundles of mixed services. Designed to allow large bundles of pipes and cables to all pass through one single fire rated enclosure, the BOSS FyreBox™ is the only tested and proven method of firestopping multiple services with such simplicity of installation and ease of compliance. It is commonly used for apartment entry configurations above entry doors to apartments and sole occupancy units. The BOSS FyreBox™ is also suited for service risers, shafts, plant areas and data rooms in a variety of residential, commercial, and industrial buildings.

Take the risk out of your install and ensure compliance every time by choosing the **FyreBox™** the most efficient and price effective system for multi bundled services.

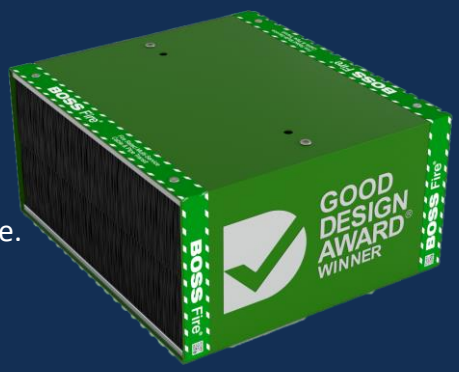
APPLICATIONS

- Lagged Copper Pipes
- Air Conditioning Lagged Copper Pipes / Paircoil
- Lagged & Unlagged PE-RT or PE-RT Kelox Pipes
- Power Cables
- Mains Cables
- uPVC Conduits & Condensate Drains
- Data / Comms Cables – NBN, CAT6, CAT5E, CAT7
- Coax Cables – CATV / MATV / SMATV
- Security, LAN, Fig 8, Fibre Optic, EWIS & Speaker
- Can be mixed with other trades services to reduce space & budget:
    - Steel Sprinkler Pipes
    - Copper Gas / Water Pipes
    - uPVC & cPVC Pipes
    - PEX & PEX-AL Water & Gas Pipes



KEY BENEFITS

- Up to 4hr Fire Rating
- Up to Rw50 acoustic performance
- Approved for walls, floors & ceiling systems.
- Wide variety of services and mixed service combinations.
- Saves up to 90% of labour costs.
- Makes AS1851 periodic maintenance inspections simple and reliable.
- Future proofing - Services can be easily added after installation.
- Tested & approved to AS1530.4:2014 and AS4072.1-2005.
- Eliminates compliance risks.
- Large variety of electrical, plumbing & HVAC services certified.
- Drastically lowers total cost of apartment firestopping.



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P40-MAK Wrap

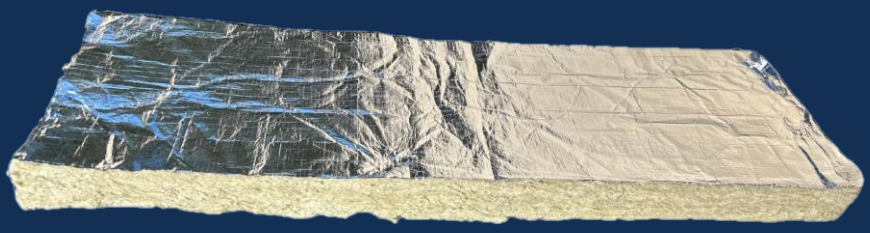
BOSS P40-MAK Wrap – Introduction

The **BOSS P40-MAK Wrap** is designed to provide a simple and effective method for increasing the insulation rating of thermally conductive service penetrations through fire walls and floors.

It consists of medium density mineral fibre insulation, lined on one face with reinforced aluminium foil backing. When used in conjunction with other high performance penetration seals, BOSS P40-MAK Wrap will increase the insulation rating of the installed system up to 240 minutes. BOSS P40-MAK Wrap is lightweight, easy to handle and simple to install.

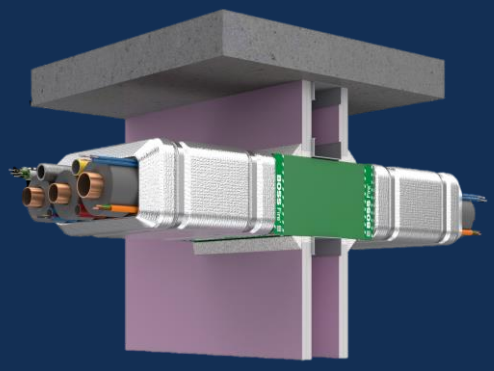
APPLICATIONS

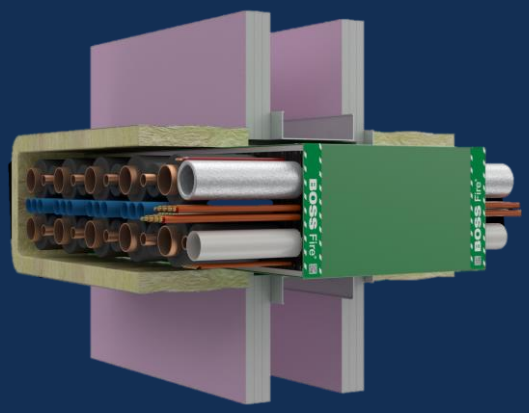
- Steel, Copper & Iron Pipes
- Insulated Steel, Copper & Iron Pipes
- Mains Power Cables
- TPS & Orange Circular Power Cables
- Data & Comms Cables
- Cable Trays



KEY BENEFITS

- Provides excellent insulation to services penetrating fire walls and doors.
- Lightweight, flexible, and easy to install.
- Provides up to 4hrs insulation with a single layer.
- Cost effective wrapping system.
- Foil backing increases strength and covers exposed fibres.
- Approved to multiple international standards, including AS1540.4:2014 and AS4072.1-2005.





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MaxiCollars™

BOSS MaxiCollars™ – Introduction

BOSS MaxiCollars™ set new standards in the use of retrofit fire rated pipe collars. With a unique design and advanced intumescent technology, MaxiCollars™ provide one of the highest expansion rates available on pipe collars, providing a high-performance fire protection. Coupled with a unique profile of only 30mm or 40mm depth, MaxiCollars™ are the best choice for tight fitting areas or closely installed pipes.

PRODUCT APPLICATIONS

- Applicable walls, floors & ceilings:
  - Fire Rated Plasterboard
  - Concrete & Masonry Walls
  - Concrete floor slabs
  - BOSS Batt
  - AAC / Hebel
  - Speedpanel, Supapanel & Pronto Panel
  - Comflor floor slabs
  - Cross Laminated Timber

- Approved services include:
  - Lagged Steel, Copper & Iron Pipes with Thermobreak® Pipe Insulation
  - uPVC Pipes, Conduits & Condensate Drains
  - A/C Paircoil Bundles

KEY BENEFITS

- Wide range of FRL approvals
- Only 30mm / 40mm deep allows use in tight areas
- Advanced technology intumescent – High expansion rate
- Approvals for walls floors & ceilings.
- Approved to AS1530.4:2014 & AS4072.1-2005
- Cost effective
- Only three tabs for fixing offering labour savings over other collars.

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FireMastic-300™

BOSS FireMastic-300™ – Introduction

BOSS **FireMastic-300™** intumescent fire-rated & acoustic acrylic sealant is a one-part acrylic emulsion that is designed to resist the passage of fire, smoke, and sound. **FireMastic-300™** will intumesce and form a char when exposed to the heat of a fire, which will prevent the passage of fire and smoke for up to 5 hours in both integrity and insulation. In normal use it will also maintain the sound reduction index of a structure.

FireMastic-300's superior acoustic properties mean it offers up to a 65dB sound reduction, making it ideal for high performance acoustic installation. FireMastic-300™ is water based, non-sag, fire rated acrylic sealant. It is specifically designed for interior joints with up to 40% movement (+/- 20% either direction) of the original joint width, and non-combustible service penetrations.

PRODUCT APPLICATIONS

- Sealing the perimeter of intumescent dampers
- Fire Stopping around various services:
  - Steel & Copper Pipes
  - Power & Data Cables
  - Cable Bundles
  - Cable Trays
- Sealant in conjunction with a variety of BOSS Passive Fire Products like FyreBox™ & MaxiCollars™.
- Sealing of low movement construction joints
- Areas requiring acoustic barriers or sound reduction

KEY BENEFITS

- Industry leading 5-hour fire rating (FRL -/300/300)
- Highly cost-effective solution
- High Intumescent Content
- Up to 65dB sound reduction
- 60mm Steel Pipes – 1 & 2hrs without a wrap.
- Suitable for Linear Gaps, Penetration Seals & Dampers
- Approved in a large variety of substrates; FR Plasterboard, Concrete, AAC, Hebel, Speedpanel, Korok, Timber, CLT, AFS, Dincel, solid and hollow masonry.
- Paintable – Internal Use

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PenoPatch™

BOSS PenoPatch™ – Introduction

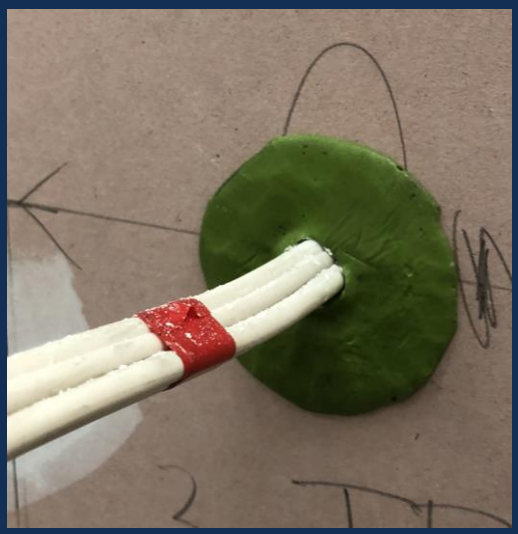
BOSS PenoPatch™ is a low cost, simple method of sealing blank openings, individual cables, small bundles of cables, pipes and conduits in a range of 1hr fire walls. Made with a fire-resistant advanced formula putty with a strong bonding capability, the **BOSS PenoPatch™** simply presses onto the wall around the service and instantly provides up to a 60 minute fire rating.

BOSS PenoPatch™ has been tested and approved to AS1530.4-2014 & AS4072.1-2005. Under fire conditions the product maintains its bond to the substrate. The integrity and insulation are maintained by the stability of the remaining product char.

PRODUCT APPLICATIONS

- Use in a variety of applications:
  - Up to 16mm Dia. Pipes including:
  - Combustible pipes
  - Combustible Conduits
  - PEX Pipe
  - Steel & Copper Pipes
- Data Cables
- Power Cables such as TPS
- Small Cable Bundles
- Blank Openings
- Retrofit applications
- New builds
- One sided systems

KEY BENEFITS



- Low Cost
- Fast 30 second installation
- Fire Rated up to 60 mins or FRL -/60/60
- Simple to identify, audit & certify
- Versatile range of applications
- No Mess – No Clean Up
- Ease of Certification
- Suitable for new builds and retrofit applications

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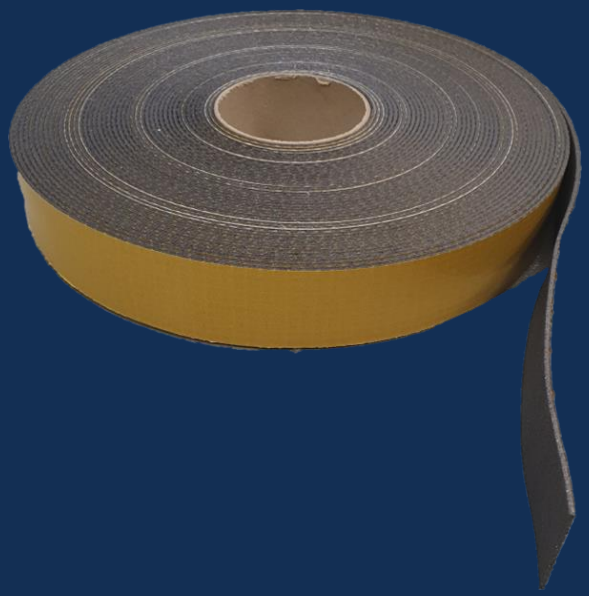
UniWrap®

BOSS UniWrap® – Introduction

UniWrap® is designed and tested to seal service penetration apertures containing plastic and metallic pipes with insulation, using thermoplastic composites based on graphite intumescent technology. Developed to provide a high-volume expansion and pressure seal during a fire, UniWrap® is approved in a wide variety of substrates.

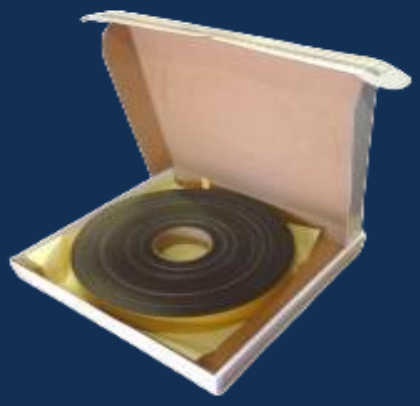
PRODUCT APPLICATIONS

- Lagged Steel, Steel Copper & Iron Pipes with Thermobreak Lagging
- uPVC Pipes
- Used in a variety of substrates including:
  - FR Plasterboard Walls
  - Concrete & Masonry walls
  - BOSS Batt
  - AAC / Hebel
  - Speedpanel
  - Pronto Panel
  - Supapanel
  - Concrete floor slabs



KEY BENEFITS

- Universal length for versatility and ease of installation.
- Contains innovative high temp mesh for directional expansion.
- Can be used on plastic/PVC pipes as well as insulated or lagged metal pipes.
- High performance through high expansion rate.
- Halogen free, contains no asbestos, ceramic, or mineral fibres.
- Cost effective.
- Carry one product, not a different product for each size pipe.



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BOSS Batts

BOSS Batts – Introduction

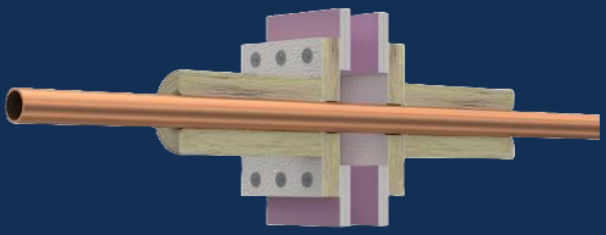
BOSS Batts consist of high-density mineral fibre batt with an ablative fire-resistant coating which can be used in conjunction with other high performance BOSS fire protection products to provide excellent integrity, thermal and acoustic insulation. The BOSS Batts prevent the passage of fire between compartment walls and floors whilst still allowing the insulation of services. BOSS Batts offer undoubtedly a cost-effective and simplest solution to cavity barriers, sealing wall and floor penetrations for up to FRL -/240/180.

PRODUCT APPLICATIONS

- Lagged Steel, Steel Copper & Iron Pipes with Thermobreak Lagging
- uPVC Pipes
- Electrical penetrations
- Used in a variety of substrates including:
    - FR Plasterboard Walls
    - Concrete & Masonry walls
    - BOSS Batt
    - AAC / Hebel
    - Speedpanel
    - Pronto Panel
    - Supapanel
    - Concrete floor slabs

KEY BENEFITS

- Suitable to fill oversized apertures
- Low cost & highly efficient method of fire stopping
- Provides up to a -/240/180 FRL
- Long life and easy storage
- Suitable for large openings in floor and walls
- Easily retrofitted around existing services
- Approved in conjunction with a wide range of plumbing, electrical and HVAC services
- Up to Rw50 sound reduction
- Used in conjunction with many other firestopping products



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Thermal Defence Wrap

BOSS Thermal Defence Wrap – Introduction

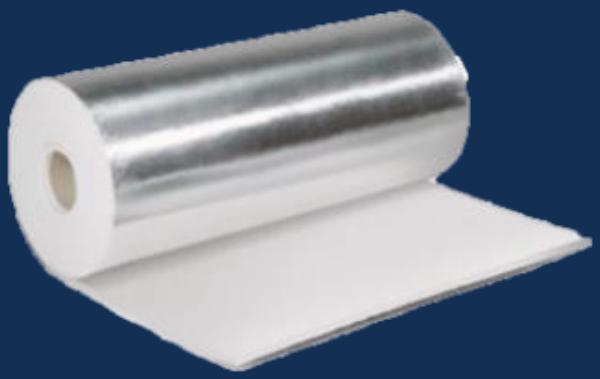
BOSS Thermal Defence System is designed for maintaining compartmentalisation where services, such as cables and metal pipes, penetrate fire rated walls and floors offering up to 2 hours insulation.

BOSS proven passive products provide excellent protection, both in maintaining the integrity of the fire rated seal and also in insulating the service.

PRODUCT APPLICATIONS

BOSS Thermal Defence Wrap can be used to insulate:

- Power Cables
- Telecommunications Cables
- Cable trays
- Steel Copper & Iron Pipes
- Lagged Steel, Copper & Iron Pipes with Thermobreak® Lagging



BOSS Thermal Defence Wrap is suitable for use in any building which has single or multiple services penetrating fire rated compartment walls and floors. Typical building projects include:

- Retail stores and shopping centres
  Residential apartments
- Commercial buildings
- Power stations / substations
- Factories / industrial applications
- Office fit-outs

KEY BENEFITS

- Provides excellent insulation to services off the penetration seal
- Ultra-thin wrap, ideal for tight spaces
- Speed and ease of installation
- Easy to wrap, shape and cut
- High level of insulation, high temperature stability
- Approved to AS1530.4: 2014 & AS4072.1-2005

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Table 1. FireMastic-HPE™ - Flexible and Rigid walls – Electrical – Power cables

Service type	Service details	Sealant details	Wall details	FRL	Ref.
Power cable bundle	Bundle of 8 × 2.5 mm², 3 Core TPS cables	Sealant to depth of plasterboard in 10 mm annular gap finished flush	90 mm thick – 1 layer of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 90 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/60/60	CSIRO FSP 1791
Power cable bundle	8 × 2.5 mm² 3 core power cables.	Sealant to depth of plasterboard in max. 60 mm aperture finished flush		-/60/60	WF FAS 190335
Power cable bundle	Up to 22 × 2.5 mm² 2C+E power cables.	Sealant to depth of plasterboard in 90 mm aperture finished flush	116 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 116 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/120/60	WF FAS 190335
Power cable bundle	• 10 × small sheathed (PVC/PVC) 5 mm x 1.5 mm², • 10 × small sheathed (EPR/PO) 5 mm × 1.5 mm², • 10 × small sheathed (XLPE/EVA) 5 mm × 1.5 mm², • 2 × small sheathed (PVC/PVC) 1 mm × 95 mm², Up to 63 mm HDPE pipe.	Sealant to depth of plasterboard applied in the voids around the cables and pipe in a maximum aperture of 300 mm wide x 100 mm high.		-/120/120	WF FAS 190335
Power cable bundle	Up to 4 × 0.75 mm² TPS (fire alarm) power cables.	Sealant 25 mm deep in 30 mm aperture finished flush	116 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry	-/120/120	WF FAS 190335
Power cable bundle	Up to 6 × 2.5 mm² 2C+E power cables.	Sealant 25 mm deep in 57 mm aperture finished flush		-/120/120	WF FAS 190335
Power cable bundle	Up to 1 × 16 mm² 2C+E power cables.	Sealant 25 mm deep in 40 mm aperture finished flush		-/120/120	WF FAS 190335
Power cable bundle	16 mm² 2C+E power cables.	Sealant to depth of plasterboard in 24 mm aperture finished flush	118 mm thick - 1 layer of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 118 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/60/60	PF 23029
Power cable bundle	16 mm² 2C+E power cables.	Sealant to depth of plasterboard in Max 3 mm annular gap with additional 15 mm × 15 mm fillet both sides		-/60/60	PF 23031
Power cable bundle	4 × 2.5 mm² 2C+E TPS cable bundle.	Sealant to depth of plasterboard in 4.5-6mm annular gap with additional 15 mm × 15 mm fillet both sides		-/60/60	PF 23029
Power cable bundle	1- way installation. 4 × 2.5 mm² 2C+E TPS cable bundle.	Sealant to depth of plasterboard in Max 4 mm annular gap finished flush to penetrated side		-/60/60	PF 23030

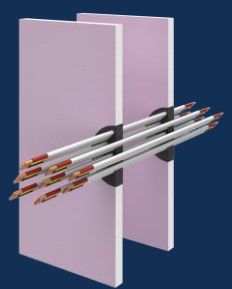

Table 2. FireMastic-HPE™ - Rigid walls – Electrical – Power cables

Service type	Service details	Sealant details	Wall details	FRL	Ref.
Power cable bundle	Bundle of 22 × TPS cables - 2C+E 2.5 mm²	25 mm deep in annular gap finished flush both sides	75 mm thick Hebel PowerPanel OR Other rigid walls, including: • AAC • Speedpanel/Korok • Concrete/Masonry	-/120/60	WF FRT 180473
Power (Conduit)	• Up to 32 mm conduit (WT1.9 mm) Up to 8 × 2.5 mm² 2C+E TPS power cable inside the 32 mm conduit	20 mm deep in annular gap finished flush both sides		-/90/90	WF FAS 190335
Power cable bundle	Up to 22 × 2.5 mm² 2C+E power cables.	Full depth of wall in annular gap finished flush both sides.	101 mm thick - 75 mm thick Hebel PowerPanel with additional layer of 13 mm plasterboard on each side OR Other rigid walls, including: • AAC • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 101 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/120/120	WF FAS 190335

Table 3. FireMastic-HPE™ – CLT walls –Electrical – Power cables

Service type	Service details	Sealant details	Wall details	FRL	Ref.
Power cable bundle	• 32 mm conduit – 1.9 mm thick • Up to 8 × 2.5 mm² 2C+E cable TPS cables inside 32 mm conduit	20 mm deep in annular gap both sides finished flush	130 mm thick CLT	-/90/90	WF FAS 190335
Power cable bundle	Up to 16 mm² 3C+E cable	20 mm deep in annular gap both sides finished flush		-/90/90	WF FAS 190335
Power cable bundle	40 mm aperture incorporating the following cables: • Up to 2 CAT6 cables • Up to 2 RG6 Coax cables • Security cable • 1 × Fig 8 cable	20 mm deep in annular gap both sides finished flush		-/90/90	WF FAS 190335

Table 4. FireMastic-HPE™ - AAC and Concrete floors – Electrical – Power cables

Service type	Service details	Sealant details	Floor details	FRL – With 600 mm P40-MAK Wrap	FRL – Without P40-MAK Wrap	Ref.
Power cable bundle	Aperture 500 mm wide × 130 mm high incorporating a 500 mm wide steel cable tray supporting the following cables: • A1 - Bundle of up to 10 × 5C × 1.5 mm² PVC/PVC cables – Ø14 mm • A2 - Bundle of up to 10 × 5C × 1.5 mm² EPR/PO cables – Ø11.2 mm – Ø14.4mm • A3 - Bundle of up to 10 × 5C × 1.5 mm² XLPE/EVA cables – Ø13 mm • B - Bundle of up to 2 × 1C × 1.5 mm² PVC/PVC cables – Ø18 mm – Ø21 mm • C1 - 4C × 95 mm² PVC/PVC cable – Ø40 mm – Ø47 mm • C2 - 4C × 95 mm² EPR/PO cable – Ø48.4 mm – Ø61 mm • C3 - 4C × 95 mm² XLPE/EVA cable – Ø42 mm	HPE 25 mm deep to both faces, with a 300 mm 'coatback' of FireMastic 300 along the cables to the top side of the system.	100 mm - 2 layers of 50 mm BOSS Batt OR 150 mm thick AAC floor OR Min 120 mm concrete slab	-/120/120	-/120/60	WF FAS 190335
Power cable bundle	Aperture 200 mm wide × 200 mm high incorporating the following cables: • C1 - 4C × 95 mm² PVC/PVC cable – Ø40 mm – Ø47 mm • C2 - 4C × 95 mm² EPR/PO cable – Ø48.4 mm – Ø61 mm • C3 - 4C × 95 mm² XLPE/EVA cable – Ø42 mm	25 mm deep finished flush with the upper face of the floor, including a 100 mm deep infill of friction fitted stonewool insulation.	150 mm thick - AAC or concrete floor	-/180/120	-/180/30	WF FAS 190335
Power cable bundle	Aperture 200 mm wide × 200 mm high incorporating the following cables: • D1 - 4C × 185 mm² PVC/PVC cable – Ø52 mm • D2 - 4C × 185 mm² EPR/PO cable – Ø64 mm – Ø80 mm • D3 - 4C × 185 mm² XLPE/EVA cable – Ø58 mm	25 mm deep finished flush with the upper face of the floor, including a 100 mm deep infill of friction fitted stonewool insulation.	150 mm thick - AAC or concrete floor	-/120/120	-/120/30	WF FAS 190335
Power cable bundle	Aperture 200 mm wide × 200 mm high incorporating the following cables: • A1 - Bundle of up to 10 × 5C × 1.5 mm² PVC/PVC cables – Ø14 mm • A2 - Bundle of up to 10 × 5C × 1.5 mm² EPR/PO cables – Ø11.2 mm – Ø14.4mm • A3 - Bundle of up to 10 × 5C × 1.5 mm² XLPE/EVA cables – Ø13 mm	25 mm deep finished flush with the upper face of the floor, including a 100 mm deep infill of friction fitted stonewool insulation.	150 mm thick - AAC or concrete floor	-/180/120	-/180/30	WF FAS 190335
Data	Aperture 200 mm wide × 200 mm high incorporating the following cables: • F – 20 × 2 (20 pair) × 0.6 mm²	25 mm deep finished flush on both sides, including a 100 mm deep infill of friction fitted stonewool insulation.	150 mm thick - AAC or concrete floor	-/240/120	-/240/45	WF FAS 190335
Power cable bundle	Aperture 200 mm wide × 200 mm high incorporating the following cables: • G1 - 1C × 95 mm² non-sheathed PVC/- cable – Ø14.1 mm – Ø17.1 mm • G2 - 1C × 185 mm² non-sheathed PVC/- cable – Ø19.3 mm – Ø23.3 mm	25 mm deep finished flush on both sides, including a 100 mm deep infill of friction fitted stonewool insulation.	150 mm thick - AAC or concrete floor	-/180/120	-/180/-	WF FAS 190335
Power cable bundle	Aperture 50 mm wide × 50 mm high incorporating the following cables: • E - 1C × 185 mm² PVC/- cable – Ø23 mm – Ø27 mm	25 mm deep finished flush on both sides, including a 100 mm deep infill of friction fitted stonewool insulation.	150 mm thick - AAC or concrete floor	-/240/120	-/240/-	WF FAS 190335

Table 4 Continued. FireMastic-HPE™ – AAC and Concrete floors –Electrical – Power cables

Service type	Service details	Sealant details	Floor details	FRL – With 600 mm P40-MAK Wrap	FRL – Without P40-MAK Wrap	Ref.
Power cable bundle in conduit	60 mm diameter PE pipe filled with the following cables: • A1 - Bundle of up to 3 × 5C × 1.5 mm² PVC/PVC cables – Ø14 mm • A2 - Bundle of up to 3 × 5C × 1.5 mm² EPR/PO cables – Ø11.2 mm – Ø14.4mm • A3 - Bundle of up to 3 × 5C × 1.5 mm² XLPE/EVA cables – Ø13 mm • B - 1 × 1C × 1.5 mm² PVC/PVC cables – Ø18 mm – Ø21 mm	25 mm deep in 20 mm annular gap finished flush on both sides, including a 100 mm deep infill of friction fitted stonewool insulation.	150 mm thick - AAC or concrete floor	-/120/120	-/120/90	WF FAS 190335
Cable tray	Aperture 200 mm wide × 200 mm high incorporating a perforated cable tray	25 mm deep finished flush on both sides, including a 100 mm deep infill of friction fitted stonewool insulation.	150 mm thick - AAC or concrete floor	-/120/120	-/120/30	WF FAS 190335

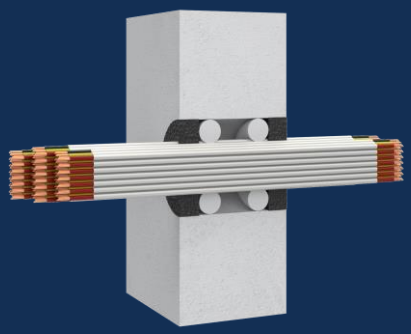

Table 5. FireMastic-HPE™ - 150 mm Concrete floors – Electrical – Power cables

Service type	Service details	Sealant details	Floor details	FRL	Ref.
Power cable bundle	Up to 6 × 2.5 mm² TPS cable in maximum 30 mm aperture	25 mm deep – Both sides with backing rod finished flush.	150 mm thick concrete floor	-/240/240	WF FAS 190335
Comms cable bundle	50 mm aperture incorporating the following cables: • Up to 4 RG6 Coax cables • Up to 4 CAT6 cables • Up to 2 Fire alarm cables • Security cable	25 mm deep – Both sides with backing rod finished flush.	150 mm thick concrete floor	-/240/240	WF FAS 190335

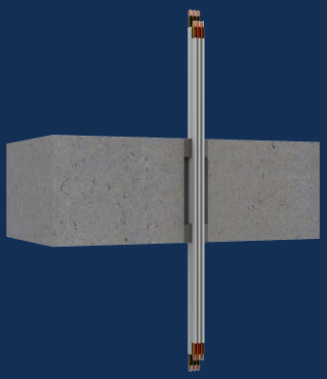

Table 6. FireMastic-HPE™ – Flexible and Rigid walls –Electrical – Comms / Data Cables

Service type	Service details	Sealant size	Wall details	FRL	Ref.
Data and communication	• Up to 2 × RG6 coax cables, • Up to 2 × CAT6 cables, Up to 2 × 4 core security cables (7/0.20 mm).	20 mm deep in 40 mm aperture finished flush	116 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 116 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/120/120	WF FAS 190335
Communication cable bundle	2 × CAT6, 2 × COAX, 1 × security cable bundle.	Sealant to depth of plasterboard with Max 5.5 mm annular gap finished flush both sides	118 mm thick - 1 layer of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 118 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/60/60	PF 23029
Communication cable bundle	2 × CAT6, 2 × COAX, 1 × security cable bundle.	Sealant to depth of plasterboard with Max 6 mm annular gap with additional 15 mm × 15 mm fillet both sides		-/60/60	PF 23029
Communication cable bundle	1-way installation. 2 × CAT6, 2 × COAX, 1 × security cable bundle.	Sealant to depth of plasterboard in Max 7.5 mm annular gap finished flush on penetrated side		-/60/60	PF 23030

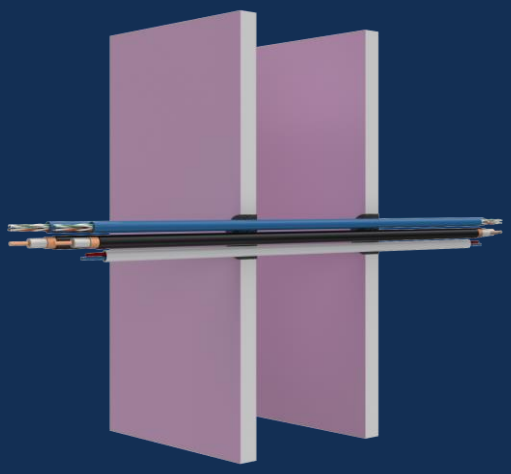

Table 7. FireMastic-HPE™ – Flexible and Rigid walls –uPVC pipes

Service type	Service details	Sealant size	Wall details	FRL	Ref.
uPVC	Up to 20 mm	15 mm × 15 mm fillet both sides	116 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 116 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/120/120	WF FAS 190335
uPVC	Up to 20 mm	Sealant to depth of plasterboard in 20 mm annular gap with additional 20 mm × 20 mm fillet both sides		-/120/120	WF FAS 190335
uPVC	Up to 32 mm	Sealant 25 mm deep in 20 mm annular gap with additional 20 mm × 20 mm fillet both sides	116 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry	-/120/120	WF FAS 190335
uPVC	25 mm	Sealant to depth of plasterboard in 6 mm annular gap with additional 15 mm × 15 mm fillet both sides	118 mm thick - 1 layer of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 118 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/60/60	PF 23029
uPVC	1-way installation Up to 43 mm	Sealant to depth of plasterboard in 20 mm annular gap finished flush both sides		-/90/90	WF FAS 190335
uPVC	Up to 40 mm	Sealant to depth of plasterboard in 20 mm annular gap finished flush both sides	144 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 144 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/120/120	WF FAS 190335
uPVC	Up to 50 mm	Sealant to depth of plasterboard in 20 mm annular gap finished flush both sides		-/120/120	WF FAS 190335

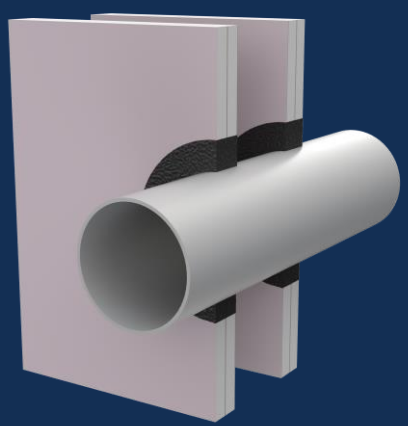

Table 8. FireMastic-HPE™ – Rigid walls –uPVC pipes

Service type	Service details	Sealant size	Wall details	FRL	Ref.
uPVC	Up to 20 mm	Surface seal only both sides	75 mm thick Hebel PowerPanel OR Other rigid walls, including: • AAC • Speedpanel/Korok • Concrete/Masonry	-/120/120	WF FAS 190335
uPVC	Up to 25 mm	25mm deep in annular gap with additional 20 mm × 20 mm fillet both sides		-/120/120	WF FAS 190335
uPVC	40 mm	10 mm deep in annular gap with additional 25 mm × 25 mm fillet both sides		-/120/90	WF FRT 180473 WF FAS 190335
uPVC	30 40 mm	10mm deep in annular gap with additional 25 mm × 25 mm fillet both sides	101 mm thick - 75 mm thick Hebel PowerPanel with additional layer of 13 mm plasterboard on each side OR Other rigid walls, including: • AAC • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 101 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/120/120	WF FAS 190335

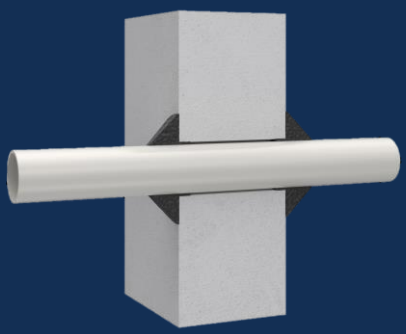

Table 9. FireMastic-HPE™ – Flexible and Rigid walls –PVC pipes

Service type	Service details	Sealant size	Wall details	FRL	Ref.
PVC	Up to 40 × 1.9 mm	Sealant to depth of plasterboard in 20 mm annular gap with additional 10 mm × 10 mm fillet both sides	100 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 100 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/120/120	WF FAS 190335
PVC	Up to 125 × 9.2 mm	Sealant to depth of plasterboard in 20 mm annular gap with additional 10 mm × 10 mm fillet both sides		-/60/60	WF FAS 190335
PVC	Up to 125 × 1.8 mm	Sealant to depth of plasterboard in 20 mm annular gap with additional 10 mm × 10 mm fillet both sides		-/30/30	WF FAS 190335
PVC	1-way installation Up to 40 × 1.9 mm	Sealant to depth of plasterboard with additional 10 mm × 10 mm fillet both sides		-/120/120	WF FAS 190335
PVC	1-way installation 43 mm	Sealant to depth of plasterboard in 88 mm aperture finished flush	118 mm thick - 1 layer of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 118 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/90/90	WF FAS 190335
PVC	1-way installation 43 mm	Sealant to depth of plasterboard in 90 mm aperture finished flush	156 mm – 2 layers of 13mm plasterboard both sides, with additional baffle of 13 mm plasterboard both sides and 12 mm plywood fixed to steel angles inside cavity to penetrated side	-/120/120	WF FAS 190335

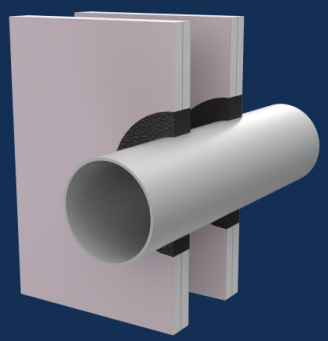

Table 10. FireMastic-HPE™ – Flexible and Rigid walls –HVAC Bundles

Service type	Service details	Sealant size	Wall details	FRL	Ref.
Pair coil / uPVC drain / Cable bundle	1-way installation 6.35mm/9.52mm insulated copper pipes with non-rated lagging, 1.5mm² 2C+E TPS power cable, 16mm PVC flexible outlet pipe.	Sealed to depth of plasterboard in 80 mm aperture finished flush on penetrated side	90 mm thick – 1 layer of 13mm plasterboard both sides. Second layer of plasterboard 150 mm x 150 mm over penetration	-/60/60	CSIRO FSP 1791
Pair coil / uPVC drain / Cable bundle	1-way installation 6.35 mm / 9.52 mm insulated copper pipes with non-rated lagging, 1.5 mm2 2C+E TPS power cable and a 16 mm PVC flexible outlet pipe.	Sealed to depth of plasterboard in 80 mm aperture finished flush on penetrated side	90 mm thick – 1 layer of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 90 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/60/60	CSIRO FSP 1791
Power cables / Pair coil	1-way installation • Up to 6.35 mm / 9.52 mm insulated copper pipes with non-rated lagging, • Up to 1.5 mm² 2C+E TPS power cable Up to 16 mm PVC flexible outlet pipe.	Sealed to depth of plasterboard in annular gap finished flush on penetrated side		-/60/60	WF FAS 190335
Copper insulated	• Up to 9.5mm OD copper pipes with up to 35.5mm OD lagging Up to 15.8mm OD Copper Pipes with up to 41.1mm OD lagging,	Sealed to depth of plasterboard in annular gap with additional 10 mm × 10 mm fillet both sides	116 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 116 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/90/90	WF FAS 190335
Power cables / Pair coil	• Polyaire© insulated copper pipe, • Up to 1.5 mm² 2C+E TPS power cable, • Up to 16 mm PVC flexible outlet pipe.	Sealed to depth of plasterboard in annular gap finished flush on both sides		-/60/60	WF FAS 190335
Power cables / Pair coil and conduit	• Up to 10 mm / 15 mm insulated copper pipes with non-rated lagging, • Up to 2.5 mm² 2C+E TPS power cable, • Up to 1.5 mm² 2C data cable. • Up to 20 mm uPVC conduit	Sealed to depth of plasterboard in annular gap finished flush on both sides		-/60/60	WF FAS 190335
Power cables / Pair coil	• Up to 3/8"" × 5/8"" pair coil with 9 mm thick non fire-retardant lagging • Up to 2.5 mm² 2C+E TPS power cable	Sealed 26 mm deep in annular gap with additional 20 mm × 20 mm fillet both sides	116 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry	-/120/120	WF FAS 190335
Power cables / Data & comms cables / Plastic pipes & Conduits / Pair coil	• 1 × 15.5 mm + 9.5 mm pair coil with 19 mm + 17.5 mm insulation, • 1 × TPS cable, • 1 × Instrolex® control cable, • 1 × 20 mm uPVC condensate drain.	Sealed to depth of plasterboard in Max 6.5 mm annular gap with additional 15 mm × 15 mm fillet both sides	118 mm thick - 1 layer of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 118 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/60/60	PF 23031

Table 11. FireMastic-HPE™ – Rigid walls –HVAC Bundles

Service type	Service details	Sealant size	Wall details	FRL	Ref.
Power cables / Data & comms cables / Plastic pipes & conduits / Lagged and unlagged steel & copper pipes / Pair coil	• Up to 1 x 3/8" × 3/4" pair coil with 19 mm thick FR lagging • Up to 1 × 2.5 mm² 3C+E TPS power cable • Up to 1 × Cat6 cable • Up to 1 × 20 mm uPVC condensate pipe (WT 1.4 mm).	20 mm deep in annular gap with additional 25 mm × 25 mm fillet both sides	75 mm thick Hebel PowerPanel OR Other rigid walls, including: • AAC • Speedpanel/Korok • Concrete/Masonry	-/120/120	WF FAS 190335
Power cables / Data & comms cables / Plastic pipes & conduits / Lagged and unlagged steel & copper pipes / Pair coil	• Up to 1 × 3/8" × 5/8" pair coil with 13 mm thick FR lagging • Up to 1 × 2.5 mm² 3C+E TPS power cable • Up to 1 × Cat6 cable • Up to 1 × 20 mm uPVC condensate pipe (WT 1.4 mm).	20 mm deep in annular gap with additional 25 mm × 25 mm fillet both sides		-/120/120	WF FAS 190335
Power cables / Data & comms cables / Plastic pipes & conduits / Lagged and unlagged steel & copper pipes / Pair coil	• Up to 1 × 3/8" × 3/4" pair coil with 19 mm thick FR lagging • Up to 1 × 3/8" × 5/8" pair coil with 13 mm thick FR lagging • Up to 1 × 32 mm type B copper pipe (WT 1.2 mm) with 25 mm thick lagging	20 mm deep in annular gap with additional 25 mm × 25 mm fillet both sides		-/120/120	WF FAS 190335
Power cables / Data & comms cables / Plastic pipes & conduits / Pair coil	• Up to 1 × 3/8" × 5/8" pair coil with 9 mm thick FR lagging • Up to 2 × 2.5 mm² 3C+E TPS power cable • Up to 2 × Cat6 cable • Up to 1 × 20 mm uPVC condensate pipe (WT 1.4 mm)	25 mm deep in annular gap with additional 20 mm × 20 mm fillet both sides		-/120/120	WF FAS 190335
Power cables / Data & comms cables / Plastic pipes & conduits / Pair coil	• Up to 1 × 3/8" × 5/8" pair coil with 19 mm thick FR lagging • Up to 1 × 2.5 mm² 3C+E TPS power cable • Up to 1 × Cat6 cable • Up to 1 × 20 mm uPVC condensate pipe (WT 1.4 mm)	20 mm deep in annular gap with additional 25 mm × 25 mm fillet both sides		-/120/120	WF FAS 190335

Table 12. FireMastic-HPE™ – CLT walls – HVAC Bundles

Service type	Service details	Sealant details	Wall details	FRL	Ref.
Power cables / Data & comms cables / Plastic pipes & conduits / Pair coil	• Up to 3/8" × 3/4" paircoil with 19 mm thick FR lagging – 1.4 mm / 2.8 wall thickness • Up to 20 mm condensation drainpipe – 1.8 mm wall thickness • Up to 2.5 mm² 3C+E TPS cable • Instrolex control cable	20 mm deep in annular gap in maximum 121 mm aperture, finished flush on both sides.	130 mm thick CLT	-/90/90	WF FAS 190335

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Table 13. FireMastic-HPE™ – Concrete floors – HVAC Bundles

Service type	Service details	Sealant details	Floor details	FRL	Ref.
HVAC	• Up to 1 1/8" (28.6 mm) copper pipe with 25 mm thick E-Flex ST lagging – 1.2 mm wall thickness • Up to 7/8" (22 mm) copper pipe with 25 mm thick E-Flex ST lagging – 1.6 mm wall thickness • Up to DN 18 copper pipe with 19 mm lagging – 1.3 mm wall thickness • Up to 20 mm condensation drainpipe – 1.5 mm wall thickness • Up to 2.5 mm^2 3C+E TPS cable • Fire alarm cable • Instrolex control cable	25 mm deep in annular gap in maximum 150 mm aperture, finished flush on both sides.	150 mm thick concrete floor	-/240/120	WF FAS 190335
Insulated copper pipe	• Up to 3/8" × 3/4" Paircoil with 19 mm thick FR lagging – 1.4 mm / 2.8 wall thickness • Up to 2.5 mm^2 3C+E TPS cable • Up to 1 × Cat6 cable • Instrolex control cable • Up to 2.5 mm^2 2C+E TPS cable • Up to 20 mm condensation drainpipe – 1.5 mm wall thickness	25 mm deep to backing rods in annular gap in maximum 100 mm aperture, finished flush on both sides.	150 mm thick concrete floor	-/240/240	WF FAS 190335

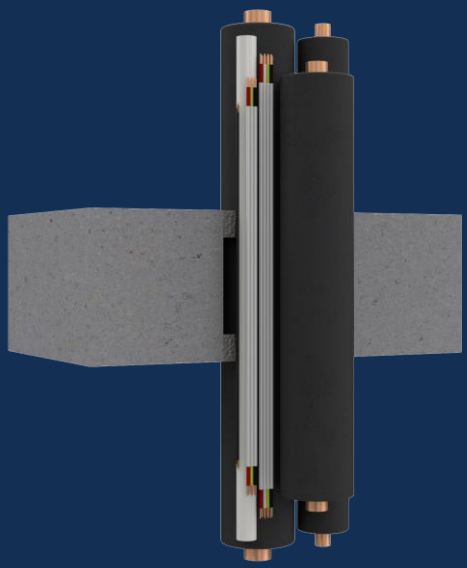


Table 14. FireMastic-HPE™ – Flexible and Rigid walls – Metal Pipes

Service type	Service details	Sealant size	Wall details	FRL	Ref.
Copper	Up to 159 mm	32 mm glass wool insulation around pipe min. 1000 mm on both sides with sealant to a depth of 25 mm in annular gap finished flush both sides.	100 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 100 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/120/120	WF FAS 190335
Copper	Up to 159 mm	32 mm Armaflex® insulation around pipe min. 1000 mm on both sides with sealant to a depth of 25 mm in annular gap finished with additional 10 mm x 10 mm fillet both sides.		-/120/120	WF FAS 190335
Uponor water valves	1-way installation Up to 52 mm	Sealed to depth of plasterboard in annular gap finished flush on penetrated side.		-/120/120	WF FAS 190335
Steel	40 mm	Sealant to a depth of plasterboard in Max 8.5 mm annular gap with additional 30 mm × 30 mm fillet both sides	118 mm thick - 1 layer of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 118 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/60/60	PF 23031
Steel	Up to 324 mm	75 mm insulation installed around pipe 300 mm on exposed face and 400 mm on non-exposed face with sealant to a depth of plasterboard in 5 mm annular gap finished flush both sides.	130 mm thick - 2 layers of 13 mm plasterboard both sides OR 75 mm thick rigid walls, including: • AAC/Hebel • Speedpanel/Korok • Concrete/Masonry **NOTE:** Walls less than 118 mm must contain localised thickening using FR Plasterboard or BOSS Batts.	-/90/90	WF FAS 190335
Copper	Up to 15 mm	13 mm Armaflex® insulation around pipe 580 mm each side with sealant to a depth of 25 mm in annular gap finished flush both sides.		-/120/120	WF FAS 190335
Copper	Up to 25 mm	25 mm stone wool insulation around pipe 400 mm on each side with sealant to a depth of 16 mm in annular gap with additional 35 mm × 35 mm fillet both sides.		-/120/120	WF FAS 190335
Copper	Up to 60 mm	32 mm Armaflex® insulation around pipe min. 600 mm on both sides. Additional wrapping with P40 MAK Wrap extending 600 mm on both sides, with sealant to a depth of 25 mm finished flush both sides.		-/120/120	WF FAS 190335
Copper	Up to 100 mm	50 mm stone wool insulation around pipe min. 600 mm on both sides with sealant to a depth of 16 mm in annular gap with additional 35 mm × 35 mm fillet both sides.		-/120/120	WF FAS 190335

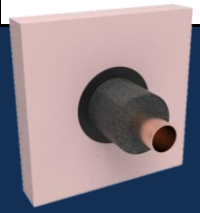
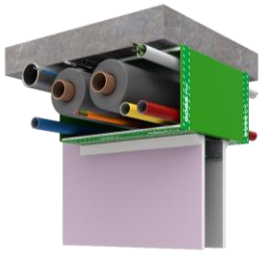


Table 15. FireMastic-HPE™ – Concrete Floors – Metal Pipes

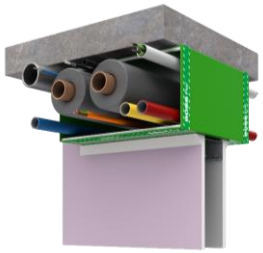
Service type	Service details	Sealant details	Floor details	FRL	Ref.
Insulated copper pipe	Up to Ø25 mm with 25 mm thick insulation	16 mm deep in 10 mm annular gap with 10 mm × 10 mm fillet to both sides	125 mm thick concrete floor	-/120/120	WF FAS 190335
Insulated copper pipe	Ø25 mm – Ø100 mm with 25 mm – 50 mm thick insulation	16 mm deep in 10 mm annular gap with 10 mm × 10 mm fillet to both sides	125 mm thick concrete floor	-/120/90	WF FAS 190335
Insulated copper pipe	Up to Ø100 mm with 50 mm thick insulation	16 mm deep in 10 mm annular gap with 10 mm × 10 mm fillet to both sides	125 mm thick concrete floor	-/120/90	WF FAS 190335
Insulated copper pipe	Ø100 mm – Ø200 mm with 32 mm thick insulation	25 mm deep in 20 mm annular gap on top side only, finished flush, backed with stonewool insulation	125 mm thick concrete floor	-/60/30	WF FAS 190335

Table 16. BOSS FyreBox™ installed into Wall Systems with a 60-minute Fire Rating

Wall elements with an established FRL of 60/60/60 or -/60/60.	Service Penetration	FRL - With P40-MAK Wrap, 300mm	FRL - Without P40-MAK Wrap	FRL - With Thermal Defence Wrap, 300mm
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Walls (Minimum 100mm Thick and minimum 130mm Thick for CLT): • Steel or Timber Framed Fire Rated Plasterboard Lined Walls • Blank Infill Panel of BOSS Batt • Concrete • Solid or Hollow Masonry • AAC & Hebel • Speedpanel, Korok & Supapanel • Pronto Panel • Dincel • AFS • Shaftliner / Shaftwall • Partiwall / Party Wall • IntRwall • Barrierline • INEX Wall Systems • AlphaPanel Wall Systems • CLT **Where wall is less than 100mm it may be increased by locally applied lining:** • Fire Rated Plasterboard • BOSS Batts Refer item 5. Page 31 for more information. 	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/60/60	-/60/60	-/60/60
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/60/60	-/60/60	-/60/60
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/60/60	-/60/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/60/60	-/60/60	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/60/60	-/60/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/60/60	-/60/-	
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/60/60	-/60/60	-/60/60
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/60/60	-/60/60	-/60/60
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/60/60	-/60/-	-/60/60
	uPVC Pipe & Conduit up to 56mm OD	-/60/60	-/60/60	-/60/60
	cPVC Pipe up to 60.3mm OD	-/60/60	-/60/60	-/60/60
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/60/60	-/60/-	-/60/60
	HDPE pipe up to 32mm	-/60/60	-/60/-	-/60/60
	PP and PP-R pipes up to 50mm	-/60/60	-/60/-	-/60/60
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/60/60	-/60/60	-/60/60
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/60/60	-/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	-/60/60
	Cables with Aluminium core 185mm² or less	-/60/60	-/60/30	-/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 17. BOSS FyreBox™ installed into Wall Systems with a 90-minute Fire Rating

Wall elements with an established FRL of 90/90/90 or -/90/90.	Service Penetration	FRL - With P40-MAK Wrap, 300mm	FRL - Without P40-MAK Wrap	FRL - With Thermal Defence Wrap, 300mm
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Walls (Minimum 100mm Thick and minimum 130mm Thick for CLT): • Steel or Timber Framed Fire Rated Plasterboard Lined Walls • Blank Infill Panel of BOSS Batt • Concrete • Solid or Hollow Masonry • AAC & Hebel • Speedpanel, Korok & Supapanel • Pronto Panel • Dincel • AFS • Shaftliner / Shaftwall • Partiwall / Party Wall • IntRwall • Barrierline • INEX Wall Systems • AlphaPanel Wall Systems • CLT **Where wall is less than 100mm it may be increased by locally applied lining:** • Fire Rated Plasterboard • BOSS Batts Refer item 5. Page 31 for more information. 	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/90/90	-/90/90	-/90/90
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/90/90	-/90/90	-/90/90
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/90/90	-/90/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/90/90	-/90/90	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/90/90	-/90/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/90/90	-/90/-	
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/90/90	-/90/90	-/90/90
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/90/90	-/90/90	-/90/90
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/90/90	-/90/-	-/90/90
	uPVC Pipe & Conduit up to 56mm OD	-/90/90	-/90/90	-/90/90
	cPVC Pipe up to 60.3mm OD	-/90/90	-/90/90	-/90/90
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/90/90	-/90/-	-/90/90
	HDPE pipe up to 32mm	-/90/90	-/90/-	-/90/90
	PP and PP-R pipes up to 50mm	-/90/90	-/90/-	-/90/90
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/90/90	-/90/60	-/90/90
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/90/90	-/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	-/90/90
	Cables with Aluminium core 185mm² or less	-/90/90	-/90/30	-/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 18. BOSS FyreBox™ installed into Wall Systems with a 120-minute Fire Rating

Wall elements with an established FRL of 120/120/120 or -/120/120.	Service Penetration	FRL - With P40-MAK Wrap, 300mm	FRL - Without P40-MAK Wrap	FRL - With Thermal Defence Wrap, 300mm
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Walls (Minimum 100mm Thick): • Steel or Timber Framed Fire Rated Plasterboard Lined Walls • Blank Infill Panel of BOSS Batt • Concrete • Solid or Hollow Masonry • AAC & Hebel • Speedpanel, Korok & Supapanel • Pronto Panel • Dincel • AFS • Shaftliner / Shaftwall • Partiwall / Party Wall • IntRwall • Barrierline • INEX Wall Systems • AlphaPanel Wall Systems **Where wall is less than 100mm it may be increased by locally applied lining:** • Fire Rated Plasterboard • BOSS Batts Refer item 5. Page 31 for more information. 	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/120/120	-/120/120	-/120/120
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/120/120	-/120/90	-/120/90
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/120/120	-/120/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/120/120	-/120/120	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/120/120	-/120/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/120/120	-/120/-	-
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/120/120	-/120/120	-/120/120
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/120/120	-/120/90	-/120/90
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/120/120	-/120/-	-/120/90
	uPVC Pipe & Conduit up to 56mm OD	-/120/120	-/120/120	-/120/120
	cPVC Pipe up to 60.3mm OD	-/120/120	-/120/120	-/120/120
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/120/120	-/120/-	-/120/90
	HDPE pipe up to 32mm	-/120/120	-/120/-	-/120/90
	PP and PP-R pipes up to 50mm	-/120/120	-/120/-	-/120/90
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/120/120	-/120/60	-/120/90
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/120/120	-/120/90	-/120/90
	*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.	-/120/120	-/120/90	-/120/90
	Cables with Aluminium core 185mm² or less	-/120/120	-/120/30	-/120/90

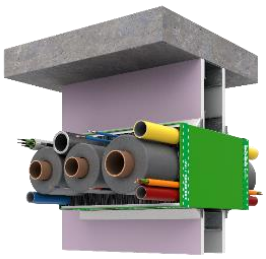
**Please refer to AS 1530.4:2014 Appendix D. The cables referenced are a standard set of power and communications cables that represent the various cable types available within Australia and New Zealand.*

Table 19. BOSS FyreBox™ installed into Wall Systems with a 180-minute Fire Rating

Wall elements with an established FRL of 180/180/180 or -/180/180.	Service Penetration	FRL - With P40-MAK Wrap, 300mm	FRL - Without P40-MAK Wrap	FRL - With Thermal Defence Wrap, 300mm
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Walls (Minimum 188mm Thick): • Steel or Timber Framed Fire Rated Plasterboard Lined Walls • Blank Infill Panel of BOSS Batt • Concrete • Solid or Hollow Masonry • AAC & Hebel • Speedpanel, Korok & Supapanel • Pronto Panel • Dincel • AFS • Shaftliner / Shaftwall • Partiwall / Party Wall • IntRwall • Barrierline • INEX Wall Systems • AlphaPanel Wall Systems **Where wall is less than 100mm it may be increased by locally applied lining:** • Fire Rated Plasterboard • BOSS Batts Refer item 5. Page 31 for more information. 	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/180/180	-/180/180	-/180/180
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/180/180	-/180/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/180/180	-/180/120	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/180/180	-/180/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/180/180	-/180/-	-
	Steel Sprinkler Pipe, Steel & Stainless-Steel pipes up to 60.3mm OD	-/180/180	-/180/120	-/180/120
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/180/180	-/180/90	-/180/90
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/180/180	-/180/-	-/180/90
	uPVC Pipe & Conduit up to 56mm OD	-/180/180	-/180/120	-/180/120
	cPVC Pipe up to 60.3mm OD	-/180/180	-/180/120	-/180/120
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/180/180	NA	-/180/90
	HDPE pipe up to 32mm	-/180/180	-/180/-	-/180/90
	PP and PP-R pipes up to 50mm	-/180/180	-/180/-	-/180/90
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/180/180	-/180/60	-/180/90
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/180/180	-/180/90	-/180/90
	*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.	-/180/180	-/180/90	-/180/90
	Cables with Aluminium core 185mm² or less	-/180/180	-/180/30	-/180/90

**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 20. BOSS FyreBox™ installed into Wall Systems with a 240-minute Fire Rating

Wall elements with an established FRL of 240/240/240 or -/240/240.	Service Penetration	FRL - With P40-MAK Wrap, 540mm	FRL - Without P40-MAK Wrap	FRL - With Thermal Defence Wrap, 550mm
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Walls (Minimum 188mm Thick): • Steel or Timber Framed Fire Rated Plasterboard Lined Walls • Blank Infill Panel of BOSS Batt • Concrete • Solid or Hollow Masonry • AAC & Hebel • Speedpanel, Korok & Supapanel • Pronto Panel • Dincel • AFS • Shaftliner / Shaftwall • Partiwall / Party Wall • IntRwall • Barrierline • INEX Wall Systems • AlphaPanel Wall Systems **Where wall is less than 100mm it may be increased by locally applied lining:** • Fire Rated Plasterboard • BOSS Batts Refer item 5. Page 31 for more information. 	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/240/240	-/240/240	-/240/240
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/240/240	-/240/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/240/240	-/240/120	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/240/240	-/240/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/240/240	-/240/-	-
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/240/240	-/240/120	-/240/120
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/240/240	-/240/90	-/240/90
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/240/240	-/240/-	-/240/90
	uPVC Pipe & Conduit up to 56mm OD	-/240/240	-/240/120	-/240/120
	cPVC Pipe up to 60.3mm OD	-/240/240	-/240/120	-/240/120
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/240/240	NA	-/240/90
	HDPE pipe up to 32mm	-/240/240	-/240/-	-/240/90
	PP and PP-R pipes up to 50mm	-/240/240	-/240/-	-/240/90
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/240/240	-/240/60	-/240/90
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/240/240	-/240/90	-/240/90
	*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.	-/240/240	-/240/90	-/240/90
	Cables with Aluminium core 185mm² or less	-/240/240	-/240/30	-/240/90

**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 21. BOSS FyreBox™ installed into Concrete Slab & Floor / Ceiling Systems with a 60-minute Fire Rating

Concrete Slab & Floor / Ceiling elements with an established FRL of 60/60/60 or -/60/60.	Service Penetration	FRL - With P40-MAK Wrap, 300mm	FRL - Without P40-MAK Wrap	FRL - With Thermal Defence Wrap, 300mm
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Floors: • Concrete Floor Slabs Minimum 70mm Thick **Fire Rated Ceiling / Floor Systems** • Consisting of fire rated plasterboard and timber floor structure minimum 235mm thick.	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/60/60	-/60/60	-/60/60
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/60/60	-/60/60	-/60/60
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/60/60	-/60/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/60/60	-/60/60	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/60/60	-/60/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/60/60	-/60/-	-
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/60/60	-/60/-	-/60/60
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/60/60	-/60/60	-/60/60
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/60/60	-/60/-	-/60/60
	uPVC Pipe & Conduit up to 56mm OD	-/60/60	-/60/60	-/60/60
	cPVC Pipe up to 60.3mm OD	-/60/60	-/60/60	-/60/60
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/60/60	-/60/-	-/60/60
	HDPE pipe up to 32mm	-/60/60	-/60/-	-/60/60
	PP and PP-R pipes up to 50mm	-/60/60	-/60/-	-/60/60
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/60/60	-/60/60	-/60/60
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/60/60	-/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	-/60/60
	Cables with Aluminium core 185mm² or less	-/60/60	-/60/30	-/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 22. BOSS FyreBox™ installed into Concrete Slab & Floor / Ceiling Systems with a 90-minute Fire Rating

Concrete Slab & Floor / Ceiling elements with an established FRL of 90/90/90 or -/90/90.	Service Penetration	FRL - With P40-MAK Wrap, 300mm	FRL - Without P40-MAK Wrap	FRL - With Thermal Defence Wrap, 300mm
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Floors: • Concrete Floor Slabs Minimum 70mm Thick **Fire Rated Ceiling / Floor Systems** • Consisting of fire rated plasterboard and timber floor structure minimum 235mm thick.	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/90/90	-/90/90	-/90/90
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/90/90	-/90/90	-/90/90
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/90/90	-/90/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/90/90	-/90/90	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/90/90	-/90/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/90/90	-/90/-	-
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/90/90	-/90/-	-/90/90
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/90/90	-/90/90	-/90/90
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/90/90	-/90/-	-/90/90
	uPVC Pipe & Conduit up to 56mm OD	-/90/90	-/90/90	-/90/90
	cPVC Pipe up to 60.3mm OD	-/90/90	-/90/90	-/90/90
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/90/90	-/90/-	-/90/90
	HDPE pipe up to 32mm	-/90/90	-/90/-	-/90/90
	PP and PP-R pipes up to 50mm	-/90/90	-/90/-	-/90/90
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/90/90	-/90/60	-/90/90
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/90/90	-/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	-/90/90
	Cables with Aluminium core 185mm² or less	-/90/90	-/90/30	-/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 23. BOSS FyreBox™ installed into Concrete Slab & Floor / Ceiling Systems with a 120-minute Fire Rating

Concrete Slab & Floor / Ceiling elements with an established FRL of 120/120/120 or -/120/120.	**Service Penetration**	**FRL - With P40-MAK Wrap, 300mm**	**FRL - Without P40-MAK Wrap**	**FRL - With Thermal Defence Wrap, 300mm**
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Floors: • Concrete Floor Slabs Minimum 70mm Thick **Fire Rated Ceiling / Floor Systems** • Consisting of fire rated plasterboard and timber floor structure minimum 235mm thick.	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes with 19 mm insulation	-/120/120	-/120/120	-/120/120
	Paircoil - up to 13/19mm insulated copper Pipes with 9 mm and 13 mm insulation	-/120/120	-/120/90	-/120/90
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/120/120	-/120/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/120/120	-/120/120	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/120/120	-/120/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/120/120	-/120/-	-
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/120/120	-/120/-	-/120/120
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 25mm Dia. with or without lagging.	-/120/120	-/120/90	-/120/120
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/120/120	-/120/-	-/120/120
	uPVC Pipe & Conduit up to 56mm OD	-/120/120	-/120/120	-/120/120
	cPVC Pipe up to 60.3mm OD	-/120/120	-/120/120	-/120/120
	PE-RT Pipe or PE-RT Kelox pipe up to 32mm OD with or without lagging	-/120/120	-/120/-	-/120/120
	HDPE pipe up to 32mm	-/120/120	-/120/-	-/120/120
	PP and PP-R pipes up to 50mm	-/120/120	-/120/-	-/120/120
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/120/120	-/120/60	-/120/120
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/120/120	-/120/90	-/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	-/120/90	-/120/120
	Cables with Aluminium core 185mm² or less	-/120/120	-/120/30	-/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 24. BOSS FyreBox™ installed into Concrete Slab & Floor / Ceiling Systems with a 180-minute Fire Rating

Concrete Slab & Floor / Ceiling elements with an established FRL of 180/180/180 or -/180/180.	**Service Penetration**	**FRL - With P40-MAK Wrap, 300mm**	**FRL - Without P40-MAK Wrap**	**FRL - With Thermal Defence Wrap, 300mm**
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Floors: • Concrete Floor Slabs Minimum 150mm Thick **Fire Rated Ceiling / Floor Systems** • Consisting of a system with an established FRL/FRR.	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes	-/180/180	-/180/180	-/180/180
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/180/180	-/180/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/180/180	-/180/120	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/180/180	-/180/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/180/180	-/180/-	-
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/180/180	-/180/120	-/180/180
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/180/180	-/180/180	-/180/180
	uPVC Pipe & Conduit up to 56mm OD	-/180/180	-/180/120	-/180/180
	uPVC Pipe & Conduit up to 25mm OD	-/180/180	-/180/180	-/180/180
	cPVC Pipe up to 60.3mm OD	-/180/180	-/180/120	-/180/180
	HDPE pipe up to 32mm	-/180/180	-/180/-	-/180/180
	PP and PP-R pipes up to 50mm	-/180/180	-/180/-	-/180/180
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/180/180	-/180/60	-/180/180
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/180/180	-/180/90	-/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	-/180/90	-/180/180
	Cables with Aluminium core 185mm² or less	-/180/180	-/180/30	-/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 25. BOSS FyreBox™ installed into Concrete Slab & Floor / Ceiling Systems with a 240-minute Fire Rating

Concrete Slab & Floor / Ceiling elements with an established FRL of 240/240/240 or -/240/240.	**Service Penetration**	**FRL - With P40-MAK Wrap, 540mm**	**FRL - Without P40-MAK Wrap**	**FRL - With Thermal Defence Wrap, 550mm**
It is considered that any combination or number of Approved Services in the BOSS FyreBox™, will achieve an FRL in accordance with the least performing Approved Element / Service listed below, provided that the FyreBox™ is not overfilled to a point where the metal chassis bends, flexes, or bows. The internal Intumescent Sachets & BrushSeals™ must not be removed or damaged. See Reference 'Report BRANZ FC12925 Issue 10' for details of all referenced systems.				
Floors: • Concrete Floor Slabs Minimum 150mm Thick **Fire Rated Ceiling / Floor Systems** • Consisting of a system with an established FRL/FRR.	**Metal Pipes**			
	Paircoil - up to 13/19mm insulated copper Pipes	-/240/240	-/240/240	-/240/240
	Copper Pipe up to 25mm 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/240/240	-/240/60	-
	Copper Pipe up to 32mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI≤5.	-/240/240	-/240/120	-
	Copper Pipe up to 50.8mm OD with minimum 19mm thick 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/m³ to 75kg/m³ and complying with AS 1530.3, SFI=0 and SDI⩽5.	-/240/240	-/240/60	-
	Copper Pipe up to 50.8mm OD uninsulated	-/240/240	-/240/-	-
	Steel Sprinkler Pipe, Steel & Stainless Steel pipes up to 60.3mm OD	-/240/240	-/240/120	-/240/240
	Combustible Pipes			
	PEX & PEX-AL-PEX Pipes up to 20mm Dia. with or without lagging.	-/240/240	-/240/240	-/240/240
	PEX & PEX-AL-PEX Pipes up to 32mm Dia. with or without lagging.	-/240/240	-/240/-	-/240/240
	uPVC Pipe & Conduit up to 56mm OD	-/240/240	-/240/120	-/240/240
	uPVC Pipe & Conduit up to 25mm OD	-/240/240	-/240/240	-/240/240
	cPVC Pipe up to 60.3mm OD	-/240/240	-/240/120	-/240/240
	HDPE pipe up to 32mm	-/240/240	-/240/-	-/240/240
	PP and PP-R pipes up to 50mm	-/240/240	-/240/-	-/240/240
	Electrical Cables			
	*Appendix D1 Power Cables (except 630mm²)	-/240/240	-/240/60	-/240/240
	Multi Core Power Cables: Individual conductor up to 16mm². Total Maximum cross-sectional area not greater than 48mm² per cable.	-/240/240	-/240/90	-/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	-/240/90	-/240/240
	Cables with Aluminium core 185mm² or less	-/240/240	-/240/30	-/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.*

Table 26. FireMastic-300™ & BOSS Batt – Walls - Electrical – Power Cables

Service Penetration	Element	Substrate	System Description	Seal Size	FRL	Specific Dimensions	Certification Reference
Power Cables							
Power Cable Bundles Appendix D1 Cable Configuration (AS1530.4: 2014)	Walls	Min 100mm Thick: FR Plasterboard/GIB Concrete, Masonry Walls with Build Up to Min 100mm: -Speedpanel or similar	FireMastic-300™ BOSS Batt - 2 x 50mm with Ablative Coating or BOSS Flexi-Batt - 1 x 100mm with Flexi-Coat-MAK Coating	FireMastic-300™ to annular gap. P40-MAK Wrap - 300mm Both Sides	-/120/120	Appendix D1 Electrical Cable Configuration: - 1 x 630mm² Single Core - 1 x 185mm² 3C+E - 3 x 6mm² 3C+E - 8 x 16mm² 3C+E	FAR 4572
Power Cables	Walls	Min 100mm (90min FRL) or 116mm (120min FRL) Thick: -FR Plasterboard / GIB -Concrete -Solid & Hollow Masonry Walls with Build Up to Min 100mm (90min FRL) or 116mm (120min FRL) Thick: -Speedpanel & Korok -AAC / Hebel -Pronto Panel -Supa Panel Build up options - 100mm clearance from perimeter of service: -BOSS Batt -FR Plasterboard	FireMastic-300™ with Thermal Defence Wrap	- 50mm x 50mm fillet both sides - Annular Gap Min 25mm depth both sides Thermal Defence Wrap - 600mm Both Sides	Wall must be minimum 96mm Thick: -/90/90 Or Wall must be minimum 116mm Thick: -/120/120	Cables in general accordance with Appendix D1 as per AS1530.4: 2014 (except 4 x 185mm² and 1 x 630mm²). Cables Include: Up to 2.5mm² 2C+E TPS Power Cable Up to 3 x 6mm² 3C+E Power Cables Up to 8 x 16mm² 3C+E Power Cables	FAS200332 R1.0

The table above only relates to BOSS Fire® solutions relating to the FireMastic-300™ product. For other BOSS Fire® products that offer certified electrical service penetration systems please consult other tables in this guide or the BOSS Fire® website - bossfire.com.au

Table 27. FireMastic-300™ & BOSS Batt – Electrical – Comms / Data Cables – Walls

Service Penetration	Element	Substrate	System Description	Seal Size	FRL	Specific Dimensions	Certification Reference
Comms / Data Cables							
Comms Cable Bundles Appendix D2 Cable Configuration (AS1530.4: 2014)	Walls	Min 100mm Thick: FR Plasterboard/GIB Concrete, Masonry Walls with Build Up to Min 100mm: -Speedpanel or similar	BOSS Batt - 2 x 50mm with Ablative Coating or BOSS Flexi-Batt - 1 x 100mm with Flexi-Coat-MAK Coating	FireMastic-300™ to annular gap. P40-MAK Wrap - 300mm Both Sides	-/120/120	Appendix D2 Telecommunications Cable Configuration - Bundle 60 Cables - Approx. 14mm Dia. Ea.	FTC 842
Comms Cables Appendix D2 Cable Configuration (AS1530.4: 2014)	Walls	Min 100mm (90min FRL) or 116mm (120min FRL) Thick: -FR Plasterboard / GIB -Concrete -Solid & Hollow Masonry Walls with Build Up to Min 100mm (90min FRL) or 116mm (120min FRL) Thick: -Speedpanel & Korok -AAC / Hebel -Pronto Panel -Supa Panel Build up options - 100mm clearance from perimeter of service: -BOSS Batt -FR Plasterboard	FireMastic-300™ with Thermal Defence Wrap	- 50mm x 50mm fillet both sides - Annular Gap Min 25mm depth both sides Thermal Defence Wrap - 600mm Both Sides	Wall must be minimum 96mm Thick: -/90/90 Or Wall must be minimum 116mm Thick: -/120/120	Cables in general accordance with Appendix D2 as per AS1530.4: 2014 Up to 60 x 50 pair, 0.5mm Telecommunications Cables	FAS200332 R1.0

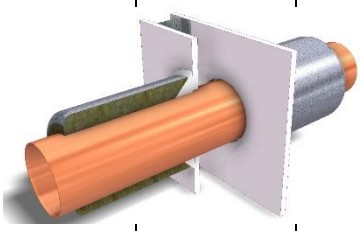
The table above only relates to BOSS Fire® solutions relating to the FireMastic-300™ product. For other BOSS Fire® products that offer certified electrical service penetration systems please consult other tables in this guide or the BOSS Fire® website - bossfire.com.au au

Table 28. FireMastic-300™ & BOSS Batt - Electrical – Power & Comms Cables - Floors

Service Penetration	Element	Substrate	System Description	Seal Size	FRL	Specific Dimensions	Certification Reference
Power Cables							
Power Cables	Floors	Min 150mm Concrete BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FireMastic-300™ with Thermal Defence Wrap - Double wrapped top side only. -First layer must extend 600mm from face of slab. -Second layer must extend 300mm from face of slab.	- 50mm x 50mm fillet top side only. - Annular Gap Max 20mm Min 25mm depth top side	Min 150mm Concrete	Cables for standard configuration EN1366-3: 2009 including: Power Cables: A1 – PVC/PVC 5mm x 1.5mm² - Approx. Dia 14mm A1 – EPR/PO 5mm x 1.5mm² - Approx. Dia 11.2-14.4mm A1 – XLPE/EVA 5mm x 1.5mm² - Approx. Dia 13mm B – PVC/PVC 1mm x 95mm² - Approx. Dia 18-21mm D1 – PVC/PVC 4mm x 185mm² - Approx. Dia 52mm D2 – EPR/PO 4mm x 185mm² - Approx. Dia 64-80mm D3 – XLPE/EVA 4mm x 185mm² - Approx. Dia 58mm	FAS200332 R1.0
Comms / Data Cables							
Telecommunications Cables	Floors	Min 150mm Concrete BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FireMastic-300™ with Thermal Defence Wrap - Double wrapped top side only. -First layer must extend 600mm from face of slab. -Second layer must extend 300mm from face of slab.	- 50mm x 50mm fillet top side only. - Annular Gap Max 20mm Min 25mm depth top side	Min 150mm Concrete	Cables for standard configuration EN1366-3: 2009 including: Telecommunications Cables: G1 – PVC/- 1mm x 95mm² - Approx. Dia 14.1-17.1mm G2 – PVC/- 1mm x 185mm² - Approx. Dia 19.3-23.3mm D3 – XLPE/EVA 4mm x 185mm² - Approx. Dia 58mm	FAS200332 R1.0

Table 29. FireMastic-300™ & BOSS Batt – Non-Insulated Metal Pipes - Walls

Element	Substrate	FRL	Service Type	Service Size	Primary Fire Stopping Element	Secondary Fire Stopping Element	Tertiary Fire Stopping Element	Cert Ref
Walls	Min 96mm Thick: FR Plasterboard/GIB, Concrete, Masonry	-/90/90	Copper / Steel Pipe	19mm Ø	FireMastic-300™ - 50mm x 50mm Fillet	P40-MAK Wrap – 300mm Both Sides	N/A	CSIRO COT 2968
Walls	Min 96mm (90min FRL) or 116mm (120min FRL): -FR Plasterboard / GIB -Shaftwall / Shaftliner -Concrete -Solid & Hollow Masonry -AFS Walls with localised build up to min 96mm (90min FRL) or 116mm (120min FRL): -Speedpanel & Korok -AAC / Hebel -Pronto Panel -Supa Panel Build up options - 100mm clearance from perimeter of service: -BOSS Batt -FR Plasterboard -Calcium Silicate Board -Shaftwall / Shaftliner	Wall must be minimum 96mm Thick: -/90/90 Or Wall must be minimum 116mm Thick: -/120/120	Steel, Copper & Iron Pipes	32mm - 80mm Ø	FireMastic-300™ - 20mm x 20mm Surface Fillet - Annular Gap Min 26mm Depth - Both Sides of wall	P40-MAK Wrap - 300mm Both Sides	BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FAS190346 R1.4
				80mm - 159mm Ø	FireMastic-300™ - 20mm x 20mm Surface Fillet - Annular Gap Min 26mm Depth - Both Sides of wall	P40-MAK Wrap - 600mm Both Sides		
Walls	Min 140mm Thick: -Concrete -Solid & Hollow Masonry -AFS Walls with Build Up to Min 140mm: -Speedpanel & Korok -AAC / Hebel -Pronto Panel -Supa Panel	-/180/120	Steel, Copper & Iron Pipes	32mm - 100mm Ø	FireMastic-300™ - 20mm x 20mm Surface Fillet - Annular Gap Min 26mm Depth - Both Sides of wall *If using pillows: - 20mm Surface Fillet Both Sides - Annular Gap between service filled to full depth.	P40-MAK Wrap - 600mm Both Sides	BOSS FirePillows-240™ Used if needed to fire stop oversize apertures	FAS190346 R1.4



For more non-insulated metal pipes in wall solutions refer to the following page.

Table 30. Cont FireMastic-300™ & BOSS Batt – Non-Insulated Metal Pipes – Walls

Element	Substrate	FRL	Service Type	Service Size	Primary Fire Stopping Element	Secondary Fire Stopping Element	Tertiary Fire Stopping Element	Cert Ref
Walls	Min 100mm Thick: FR Plasterboard/GIB Concrete, Masonry Walls with Build Up to Min 100mm: -Speedpanel or similar	-/120/120	Steel & Copper Pipes	Up to 42mm Ø	BOSS Batt - 2 x 50mm with Ablative Coating or BOSS Flexi-Batt - 1 x 100mm with Flexi-Coat-MAK Coating	P40-MAK Wrap - 300mm Both Sides	FireMastic-300™	FAR 4572
Walls	Min 100mm Thick: FR Plasterboard/GIB Concrete, Masonry Walls with Build Up to Min 100mm: -Speedpanel or similar	-/120/120	Steel Pipes	Up to 60mm Ø	BOSS Batt - 2 x 50mm with Ablative Coating or BOSS Flexi-Batt - 1 x 100mm with Flexi-Coat-MAK Coating	P40-MAK Wrap - 300mm Both Sides	FireMastic-300™	FAR 4572
Walls	Min 100mm Thick: FR Plasterboard/GIB Concrete, Masonry Walls with Build Up to Min 100mm: -Speedpanel or similar	-/120/90	Steel & Copper Pipes	Up to 150mm Ø	BOSS Batt - 2 x 50mm with Ablative Coating or BOSS Flexi-Batt - 1 x 100mm with Flexi-Coat-MAK Coating	P40-MAK Wrap - 600mm Both Sides - Wrapped twice around pipe	FireMastic-300™	FAR 4572
Walls	Min 100mm Thick: FR Plasterboard/GIB Concrete, Masonry Walls with Build Up to Min 100mm: -Speedpanel or similar	-/90/30	Steel Pipes	Up to 220mm Ø	BOSS Batt - 2 x 50mm with Ablative Coating or BOSS Flexi-Batt - 1 x 100mm with Flexi-Coat-MAK Coating	P40-MAK Wrap - 300mm Both Sides	FireMastic-300™	FAR 4572
Walls	Min 100mm (90min FRL) or 116mm (120min FRL) Thick: -FR Plasterboard / GIB -Concrete -Solid & Hollow Masonry Walls with Build Up to Min 100mm (90min FRL) or 116mm (120min FRL) Thick: -Speedpanel & Korok -AAC / Hebel -Pronto Panel -Supa Panel Build up options - 100mm clearance from perimeter of service: -BOSS Batt -FR Plasterboard	Wall must be minimum 96mm Thick: -/90/90 Or Wall must be minimum 116mm Thick: -/120/120	Steel & Iron Pipes	32mm - 113mm Ø	FireMastic-300™ or FireSilicone-EMA™ - 20mm x 20mm fillet both sides - Annular Gap Min 25mm depth both sides	Thermal Defence Wrap - 300mm Both Sides	BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FAS200332 R1.0
				113mm - 159mm Ø		Thermal Defence Wrap - 600mm Both Sides		
			Copper Pipes	32mm - 54mm Ø		Thermal Defence Wrap - 300mm Both Sides		
				54mm - 159mm Ø		Thermal Defence Wrap - 600mm Both Sides		

The table above only relates to BOSS Fire® solutions using the FireMastic-300™ product. For other BOSS Fire® products that offer certified uninsulated & insulated metal pipe penetration systems please refer to previous page of this TDS or consult the BOSS Fire® website - bossfire.com.au

Table 31. FireMastic-300™ & BOSS Batt – Non-Insulated Metal Pipes - Floors

Element	Substrate	FRL	Service Type	Service Size	Primary Fire Stopping Element	Secondary Fire Stopping Element	Tertiary Fire Stopping Element	Cert Ref
Floors	Min 150mm Concrete	-/120/120	Steel, Copper & Iron Pipes	32mm Ø	FireMastic-300™ - 10mm x 10mm Surface Fillet Top Side Only - Annular Gap Min 25mm Depth Both Sides *If using pillows: - 20mm Surface Fillet Both Sides - Annular Gap between service filled to full depth.	P40-MAK Wrap - 300mm Top Side Only	BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FAS190346 R1.4
				32mm - 159mm Ø		P40-MAK Wrap - 600mm Top Side Only		
				32mm - 100mm Ø		P40-MAK Wrap - 600mm Top Side Only - Wrapped twice around pipe	BOSS FirePillows-240™ Used if needed to fire stop oversize apertures	
Floors	Min 130mm Thick Concrete / Comflor® 60	-/120/30	Copper / Steel Pipe	32mm Ø	FireMastic-300™ -10mm x 10mm Fillet + 25mm Deep in Annular Gap	N/A	N/A	SFC FRT180137 d.2
Floors	Min 150mm Concrete	-/120/120	Steel, Copper & Iron Pipes	32mm - 159mm Ø	FireMastic-300™ or FireSilicone-EMA™ - 20mm x 20mm fillet top side only. - Annular Gap Max 20mm Min 25mm depth top side	Thermal Defence Wrap - Double wrapped top side only. -First layer must extend 600mm from face of slab. -Second layer must extend 300mm from face of slab.	BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FAS200332 R1.0

The table above only relates to BOSS Fire® solutions using the FireMastic-300™ product. For other BOSS Fire® products that offer certified non-insulated metal pipe penetration systems please consult the BOSS Fire website - bossfire.com.au

Table 32. MaxiCollar™ & UniWrap® & P40-MAK Wrap - Thermobreak Insulated Metal Pipes

Element	Substrate	FRL	Service Type	Service Size	Primary Fire Stopping Element	Secondary Fire Stopping Element	Tertiary Fire Stopping Element	Cert Ref
Walls	Min 96mm (90min FRL) or 116mm (120min FRL): -FR Plasterboard / GIB -Shaftwall / Shaftliner -Concrete -Solid & Hollow Masonry -AFS Walls with localised build up to min 96mm (90min FRL) or 116mm (120min FRL): -Speedpanel & Korok -AAC / Hebel -Pronto Panel -Supa Panel Build up options - 100mm clearance from perimeter of service: -BOSS Batt -FR Plasterboard -Calcium Silicate Board -Shaftwall / Shaftliner	Wall must be minimum 96mm Thick: -/90/90 Or Wall must be minimum 116mm Thick: -/120/120	Thermobreak Lagged Steel, Copper & Iron Pipes Lagging Thickness: 30 – 50mm	32mm - 80mm Ø	MaxiCollar™ - Fitted Both Sides FireMastic-300™ - Max 5mm wide x Min 5mm depth flush finish - Both Sides	P40-MAK Wrap - 300mm Both Sides	BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FAS190346 R1.5
				80mm - 159mm Ø	MaxiCollar™ - Fitted Both Sides FireMastic-300™ - Max 5mm wide x Min 5mm depth flush finish - Both Sides	P40-MAK Wrap - 600mm Both Sides		
				32mm - 80mm Ø	UniWrap® (Multiple Layers) - Fitted Both Sides FireMastic-300™ - Max 5mm wide x Min 5mm depth flush finish - Both Sides	P40-MAK Wrap - 300mm Both Sides		
				80mm - 159mm Ø	UniWrap® (Multiple Layers) - Fitted Both Sides FireMastic-300™ - Max 5mm wide x Min 5mm depth flush finish - Both Sides	P40-MAK Wrap - 600mm Both Sides		
Floors	Min 150mm Concrete	-/120/120	Thermobreak Lagged Steel, Copper & Iron Pipes Lagging Thickness: 30 – 50mm	32mm Ø	MaxiCollar™ - Fitted Underside Only FireMastic-300™ - 10mm x 10mm fillet on top side only - Annular Gap Max 5mm wide x Min 25mm depth both sides	P40-MAK Wrap - 300mm Top Side Only	BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FAS190346 R1.5
				32mm - 159mm Ø		P40-MAK Wrap - 600mm Top Side Only		
				32mm Ø	UniWrap® (Multiple Layers) - Fitted Top & Bottom Side FireMastic-300™ - 10mm x 10mm fillet on top side only - Annular Gap Max 5mm wide x Min 25mm depth both sides	P40-MAK Wrap - 300mm Top Side Only		
				32mm - 159mm Ø		P40-MAK Wrap - 600mm Top Side Only		

More Thermobreak insulated metal pipes solutions continued on the following page.

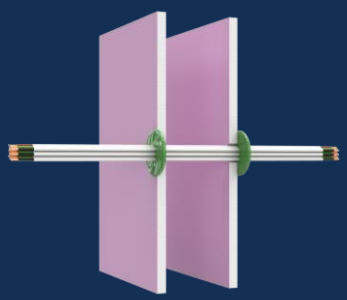
Table 33. UniWrap® & Thermal Defence Wrap - Thermobreak Insulated Metal Pipes

Element	Substrate	FRL	Service Type	Service Size	Primary Fire Stopping Elements	Secondary Fire Stopping Element	Tertiary Fire Stopping Element	Cert Ref
Walls	Min 100mm (90min FRL) or 116mm (120min FRL) Thick: -FR Plasterboard / GIB -Concrete -Solid & Hollow Masonry Walls with Build Up to Min 100mm (90min FRL) or 116mm (120min FRL) Thick: -Speedpanel & Korok -AAC / Hebel -Pronto Panel -Supa Panel Build up options - 100mm clearance from perimeter of service: -BOSS Batt -FR Plasterboard	Wall must be minimum 96mm Thick: -/90/90 Or Wall must be minimum 116mm Thick: -/120/120	Thermobreak Lagged Steel & Iron Pipes Lagging Thickness: 30 – 50mm	32mm - 113mm Ø	UniWrap® (Multiple Layers) - Fitted Both Sides FireMastic-300™ or FireSilicone-EMA™ - 20mm x 20mm fillet both sides - Annular Gap Min 25mm depth both sides	Thermal Defence Wrap - 300mm Both Sides	BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FAS200332 R1.0
				113mm - 159mm Ø		Thermal Defence Wrap - 600mm Both Sides		
			Thermobreak Lagged Copper Pipes Lagging Thickness: 30 – 50mm	32mm - 54mm Ø		Thermal Defence Wrap - 300mm Both Sides		
				54mm - 159mm Ø		Thermal Defence Wrap - 600mm Both Sides		
Floors	Min 150mm Concrete	-/120/120	Thermobreak Lagged Steel, Copper & Iron Pipes Lagging Thickness: 30 – 50mm	32mm - 159mm Ø	UniWrap® (Multiple Layers) - Fitted Both Sides FireMastic-300™ or FireSilicone-EMA™ - 20mm x 20mm fillet top side only. - Annular Gap Max 20mm Min 25mm depth top side	Thermal Defence Wrap - Double wrapped top side only. -First layer must extend 600mm from face of slab. -Second layer must extend 300mm from face of slab.	BOSS Batt - 2 x 50mm Used if needed to fire stop oversize apertures	FAS200332 R1.0

The table above only relates to BOSS Fire® solutions using the FireMastic-300™ product. For other BOSS Fire® products that offer certified insulated metal pipe penetration systems please refer to previous page of this TDS or consult the BOSS Fire® website - bossfire.com.au

Table 34. BOSS PenoPatch™ Electrical – Data & Power Cables

Service type	Service details	Sealing details	Wall details	FRL	Supporting evidence
Power cable bundle	Single PVC / PVC sheathed 1 mm × 185 mm²	BOSS PenoPatch™ 100 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/30/30	WF FAS 190100
Power cable bundle	Bundle of 3 PVC / PVC sheathed 5 mm × 1.5 mm²	BOSS PenoPatch™ 100 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
Power cable bundle	Bundle of 3 EPR / PO sheathed 5 mm × 1.5 mm²	BOSS PenoPatch™ 100 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/30	WF FAS 190100
Power cable bundle	Bundle of 3 EPR / PO sheathed 5 mm × 1.5 mm²	Two BOSS PenoPatch™ 100 mm. One on wall and one wrapped around the cable bundle	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
Power cable bundle	Bundle of 3 XLPE / EVA sheathed 5 mm × 1.5 mm²	BOSS PenoPatch™ 100 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
Data cable bundle	Bundle 5 x CAT6 cables with 5 mm annular gap	BOSS PenoPatch™ 60 mm	118 mm thick - 1 layer of 13 mm plasterboard both sides	-/60/30	WF FAS 190100
Data cable bundle	Bundle of 3 x CAT6 cables in 20 mm aperture	BOSS PenoPatch™ 60 mm	118 mm thick - 1 layer of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
Power cable bundle	Bundle of 3 × 2C+E 2.5 mm² TPS cables	BOSS PenoPatch™ 60 mm	118 mm thick - 1 layer of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
Power cable bundle	Single PVC / PVC sheathed 5 mm × 1.5 mm²	BOSS PenoPatch™ 60 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/30	WF FAS 190100
Power cable bundle	Single PVC / PVC sheathed 5 mm × 1.5 mm²	Two BOSS PenoPatch™ 60 mm. One on wall and one wrapped around the cable	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
Power cable bundle	Single EPR / PO sheathed 5 mm × 1.5 mm²	BOSS PenoPatch™ 60 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/30	WF FAS 190100
Power cable bundle	Single EPR / PO sheathed 5 mm × 1.5 mm²	Two BOSS PenoPatch™ 60 mm. One on wall and one wrapped around the cable	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
Power cable bundle	Single XLPE / EVA sheathed 5 mm × 1.5 mm²	BOSS PenoPatch™ 60 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/120/60	WF FAS 190100
Power cable bundle	Single PVC / PVC sheathed 1 mm × 95 mm²	BOSS PenoPatch™ 60 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/120/30	WF FAS 190100
Power cable bundle	Single PVC / PVC sheathed 1 mm × 95 mm²	Two BOSS PenoPatch™ 60 mm. One on wall and one wrapped around the cable	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/120/60	WF FAS 190100
Power cable bundle	Single PVC / PVC sheathed 1 mm × 185 mm²	BOSS PenoPatch™ 60 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/120/30	WF FAS 190100
Power cable bundle	Single PVC / PVC sheathed 1 mm × 185 mm²	Two BOSS PenoPatch™ 60 mm. One on wall and one wrapped around the cable	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/120/60	WF FAS 190100



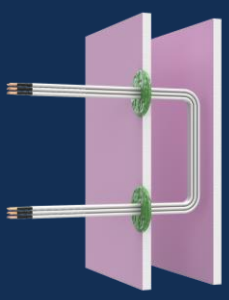


Table 35. BOSS PenoPatch™ Plumbing – uPVC and PEX pipes

Service type	Service details	Sealing details	Wall details	FRL	Supporting evidence
uPVC	Up to 16 mm in 25 mm aperture	BOSS PenoPatch™ 60 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
uPVC	Up to 16 mm in 50 mm aperture	BOSS PenoPatch™ 100 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/60	WF FAS 190100

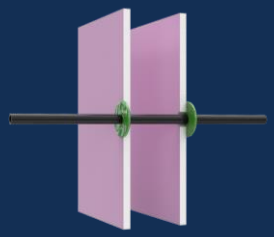


Table 36. BOSS PenoPatch™ Blank or Empty Aperture

Service type	Service details	Sealing details	Wall details	FRL	Supporting evidence
Blank or empty aperture	Apertures up to 20 mm diameter	BOSS PenoPatch™ 60mm	118 mm thick - 1 layer of 13 mm plasterboard both sides	-/60/60	WF FAS 190100
Blank or empty aperture	Apertures up to 25 mm × 25 mm	BOSS PenoPatch™ 60mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/120/60	WF FAS 190100
Blank or empty aperture	Apertures up to 50 mm × 50 mm	BOSS PenoPatch™ 100mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/60	WF FAS 190100

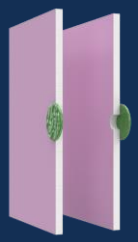
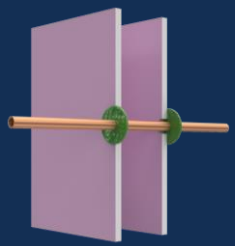


Table 37. BOSS PenoPatch™ Metal Pipes

Service type	Service details	Sealing details	Wall details	FRL	Supporting evidence
Steel or copper pipe	Up to 16 mm in 25 mm × 25 mm aperture	BOSS PenoPatch™ 60 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/120/-	WF FAS 190100
Steel or copper pipe	Up to 16 mm in 50 mm × 50 mm aperture	BOSS PenoPatch™ 100 mm	100 mm thick - 2 layers of 13 mm plasterboard both sides	-/60/-	WF FAS 190100



Health and Safety

To learn more about the safe handling of BOSS fire products, refer to the relevant products Safety Data Sheet available at bossfire.com.au.

Limitation

BOSS Fire has provided the above technical information in good faith and to the best of its knowledge. This information was deemed to be correct at the time of publication. Should any data come to BOSS Fire's attention relating to the fire resistance or performance of the product described BOSS Passive Fire reserve the right to amend this document.

BOSS Fire strive to constantly improve and develop products so this information may change without 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 and/or application may have specific requirements and you must investigate these carefully. 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. +61 2 9531 8591

Further Information

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