FyreFLOOR

Lightweight floor for modular and pre-fabricated construction
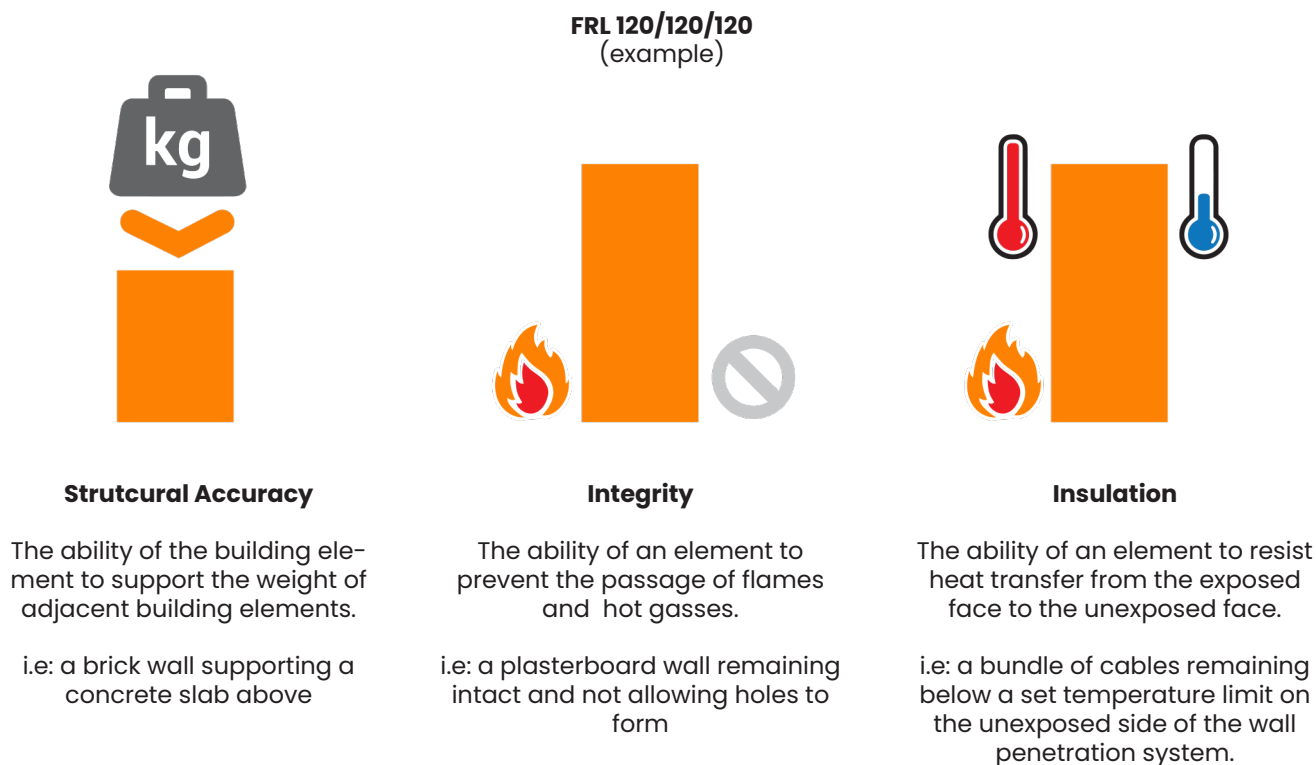
Service Penetrations

ACOUSTIC **RATED**

LOAD BEARING

2 WAY FIRE PROTECTION

NCC 2022 READY

WHAT IS AN FRL?
Fire Rating - How is fire performance measured?

An FRL (fire resistance level) is a handy way of summarising the performance of a building element. It consists of 3 numbers, all given in minutes.

FRL 120/120/120
(example)

Strutcural Accuracy

The ability of the building element to support the weight of adjacent building elements.

i.e: a brick wall supporting a concrete slab above

Integrity

The ability of an element to prevent the passage of flames and hot gasses.

i.e: a plasterboard wall remaining intact and not allowing holes to form

Insulation

The ability of an element to resist heat transfer from the exposed face to the unexposed face.

i.e: a bundle of cables remaining below a set temperature limit on the unexposed side of the wall penetration system.

Note: Penetrations are not required to have a Structural Adequacy rating and is usually expressed as a dash. For example, a penetration through a 2 hour load bearing wall would be written as -/120/120.

FRL in the up direction (Fire from below)

The FRL ratings are determined by Fire Tests undertaken against AS 1530.4:2014. Section 4 of this standard deals with; FLOORS, ROOFS AND CEILINGS. Once the fire barrier has been tested and assigned an FRL, specific service penetrations can be tested separately via the test methods in section 10 of AS1530.4:2014.

Trafalgar's FyreFLOOR has been tested with a range of common service penetrations such as floor wastes drain pipes, fire collars, sealants, wraps and boards to maintain the FRL of the fire barrier in accordance with the NCC's requirements under clause C4D15.

### FRL in the down direction (Fire from above)

The FRL ratings determined by Fire Tests undertaken against AS 1530.4:2014 only provide scope to test fire exposures from below. Therefore fire exposure of fire from above is not a DtS consideration in the building code, and Performance Solutions are needed to justify the design for service penetrations with fire exposure from above.

Trafalgar's extensive range of passive fire protection systems have been tested both for use in floors and ceilings, but also in wall applications where the fire direction can be from either side. Trafalgar are willing and able to pass on the vast amount of fire test data and knowledge to allow for the appropriate performance solutions to be developed in conjunction with Trafalgar's product range and technical support.

FRL TABLES – FyreFLOOR SERVICE PENETRATIONS
600mm Cavity

Please refer to the full [FyreFLOOR tehcnical manual](#) for construction details of the floor and ceiling system. This table refers to service penetrations. Contact us at technical@tgroup.com.au or call us at 1800 888 714 for more information
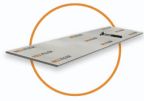
Floor Boards:
2x19mm Trafalgar Inex Board

Ceiling Lining:
Minimum 2x15mm Trafalgar Corex Board

Application	Service Specification	System	FRL	Test Report
PVC Floor Waste	100mm PVC	[BladeRUNNER](#)	-/120/90 +60 RISF	
Threaded Rod	M10 Steel Rod	[FyreFLEX Sealant](#) and [TWrap](#) (150mm above ceiling)	-/120/120 +60 RISF	
Paircoil with associated cable	Pair coils up to 3/8" and 5/8" with FR insulation up to 19mm & 25mm PVC drain	[FyreBOARD Maxilite](#) & [FyreCOLLAR Premium Retrofit Collar](#)	-/120/120 +60 RISF	
Communications & Data cables	300mm Cable Tray with up to 20 x CAT6, 10 x TPS, 7 x 3C+E (19mm OD)	[FyreBOARD Maxilite](#) and [TWrap](#)	-/120/120 +60 RISF	FT1883
	Up to 10x fire TPS cables		-/120/120 +60 RISF	
Conduits	PVC 25mm rigid conduit	[FyreBOARD Maxilite](#) & [FyreCOLLAR Premium Retrofit Collar](#)	-/120/120 +60 RISF	
Sprinkler Head	NB15 Steel Pipe with Commercial grade sprinkler	[FyreFLEX Sealant](#) and 300mm [TWrap](#)	-/120/120 +45 RISF	

FRL TABLES - COREX CEILINGS SERVICE PENETRATIONS

The FyreBOX Maxi and SuperSTOPPER Mini systems are tested and approved for use in various ceilings including Corex board and plasterboard ceilings that meet the requirements listed. Penetrations MUST be lined with 60mm Maxilite board as shown in the installation drawings in the [Trafalgar Corex Ceiling Manual.](#)

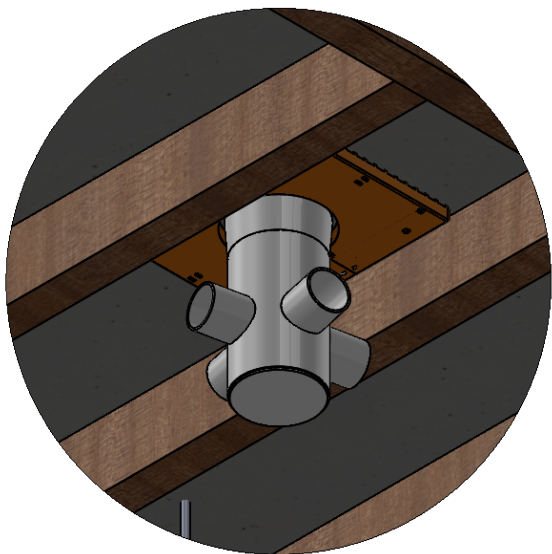| Steel Framed Corex Ceiling Construction		
Ceiling facing thickness	FRL	RISF
Min. 2x 12.5mm	-/45/45	-
Min. 2x 15mm	-/60/60	-
Min. 2x 25mm	-/120/120	-

The FRL's listed below against service penetrations are are limited to the FRL and RISF rating of the ceiling system they are installed into.
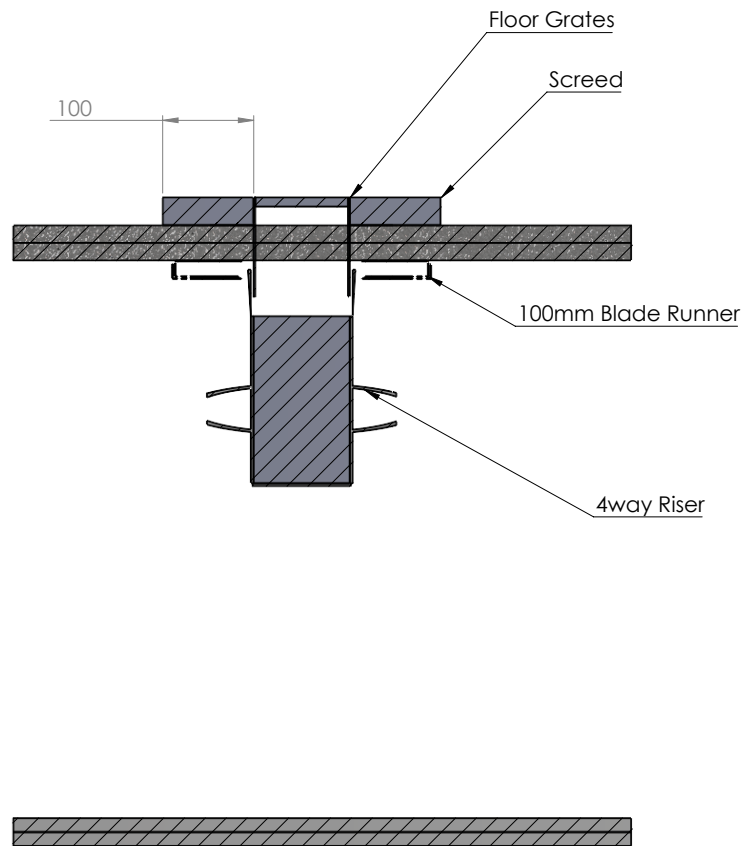
Service Type	Service Specification		FRL *	TWrap Length (mm)
Plastic Pipes	PEX pipes	Up to 32mm OD	-/120/120	300
	PEX-Al-PEX pipes	Up to 32mm OD	-/120/120	300
	PVC pipes	Up to 80mm OD	-/120/120	300
Bare Metal Pipes	Copper pipes	Up to 42mm OD	-/120/120	300
		Up to 100mm OD	-/120/120	600
	Steel pipes	up to 50mm OD	-/120/120	300
		Up to 100mm OD	-/120/120	600
Metal Pipes Insulated**	Copper pipes	Up to 50mm OD with FR insulation	-/120/120	300
	Stainless Steel pipes	Up to 50mm OD with EPS of PE insulation and rockwool	-/120/120	300
	Pair Coils	Up to 9.5 & 19mm with 20mm FR insulation (OR 13mm PE) with 10mm OD cable	-/120/120	300
Power Cables - Aluminium Core***	4x Core AL cables	Up to 4x 240mm2 + optional 90mm2	-/90/90	300
	Single core AL cables	Up to 1x 400mm2	-/90/90	300
Power Cables - Copper Core	TPS cables	Up to 10x per bundle	-/120/120	300
	3x Core cables	19mm OD 3C + E	-/120/120	300
	AS1530.4 Appendix D cable sets on cable trays	Applies to all copper core power cables and cable trays up to 1000mm wide	-/120/120	600
Comms Cables	AS1530.4 Appendix D cable sets on cable trays	Copper core comms cables and cable trays up to 1000mm wide	-/120/120	450
	Fibre Optic cables	NBN grade cable	-/120/120	300
	CAT6	Up to 150x per bundle	-/120/120	300
Conduits	uPVC Conduits Rigid or Flexible	Up to 32mm OD (with or without cables)	-/120/120	300

*Applies only when installed underneath a load bearing non combustible floor   **With or without heat trace cable   ***Aluminium cable bundles spaced 50mm apart when installed on cable tray
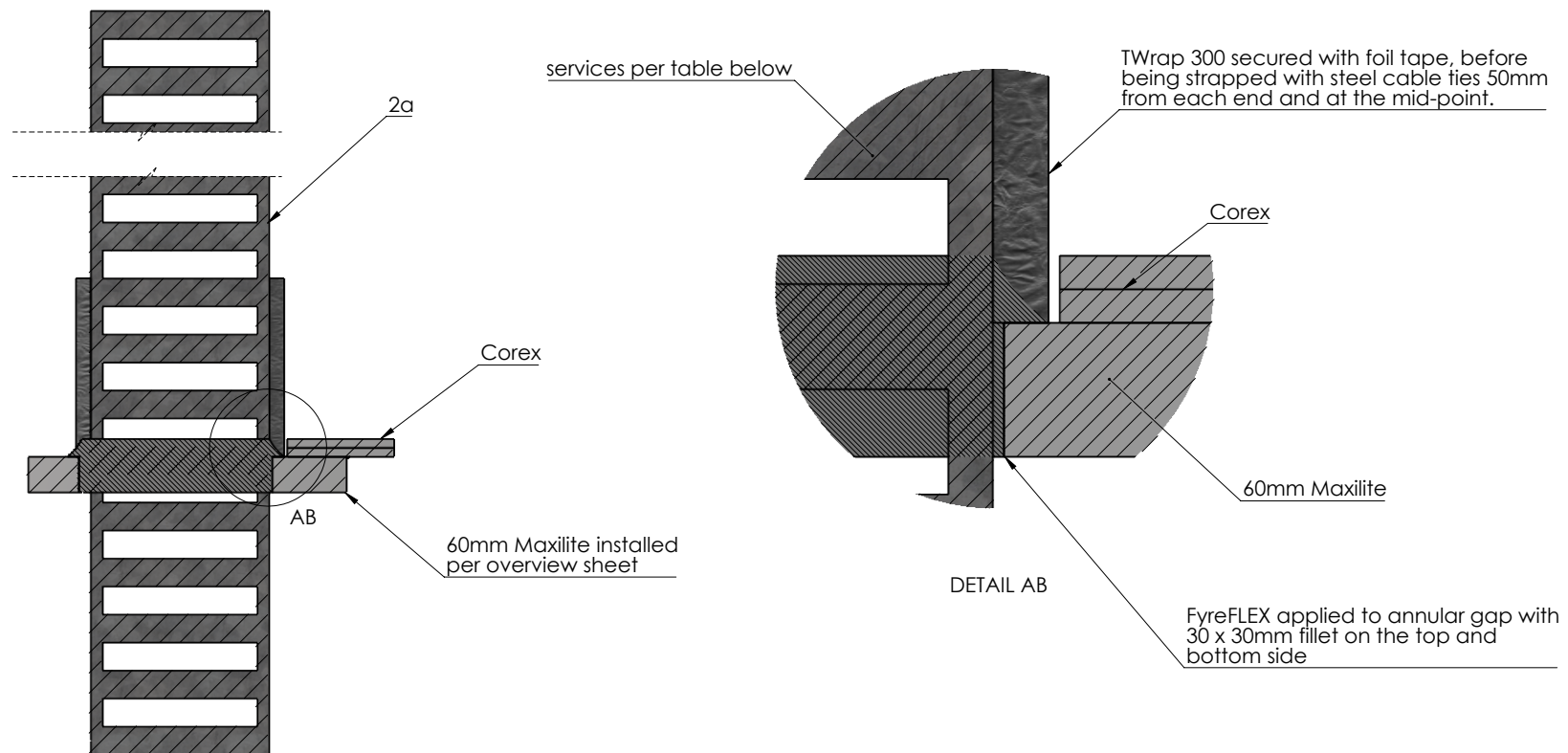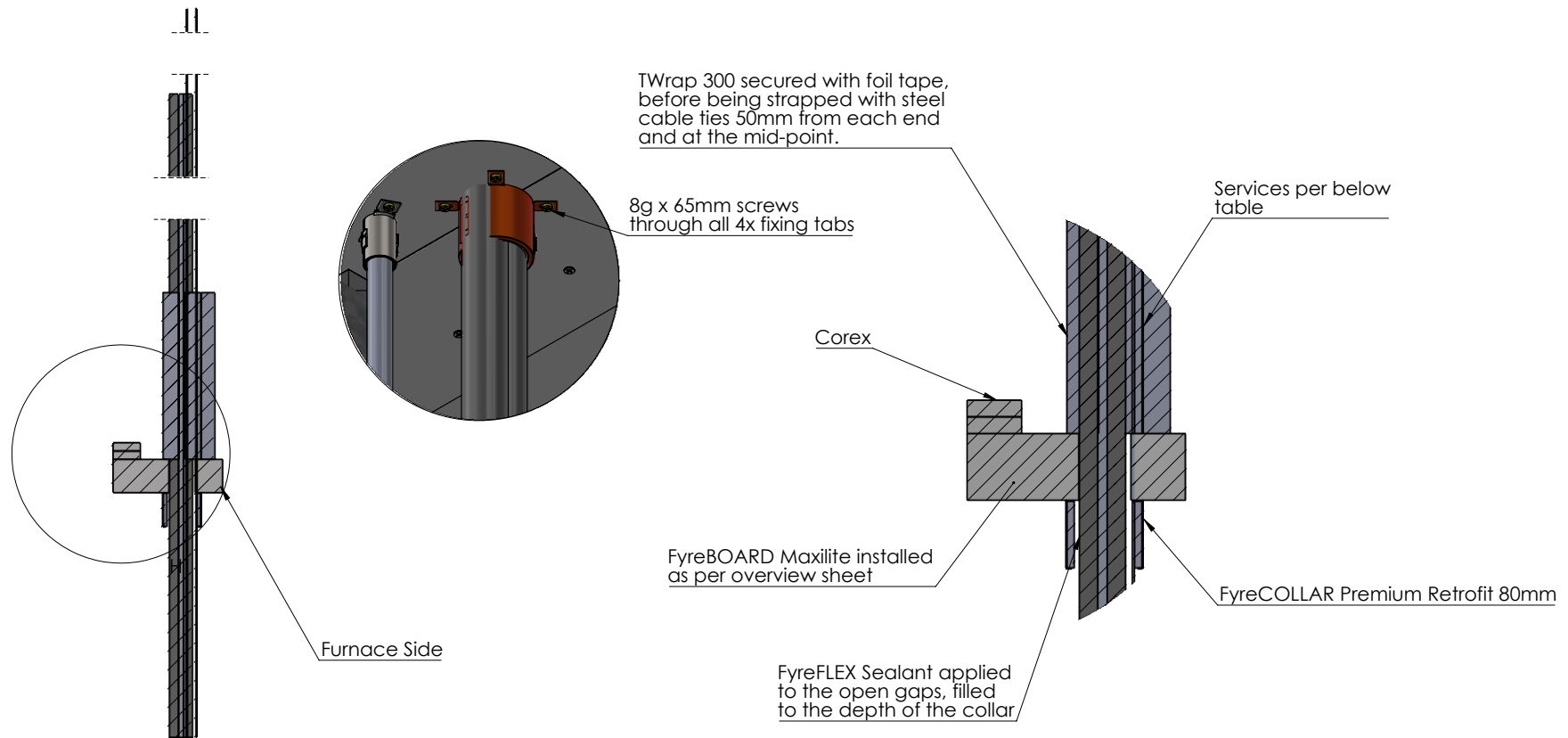
TECHNICAL DRAWINGS

Floor Grates

Screed

100

100mm Blade Runner

4way Riser

DETAIL AQ

Drawing Name: Spec. 1 - Floor Waste				Test Standard: AS1530.4	Codes:	Revision:		Date:	No.:	NOTICE:
Project Title: RP11 Test Drawing				Fire resistance level:	Drawn By: SM					NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)
Drawing No. : 1	Sheet: 1 of 6	Date: 15/02/2024	Scale: NTS	Based on Report No.:	Checked By: JH	☐ STANDARD DRAWING ☐ PROJECT DRAWING				Trafalgar Head Office: PO BOX 545 Chester Hill NSW 2162 T: 1800 888 714 F: 1800 201 500 E: technical@tgroup.com.au W: www.tfire.com.au

TRAFALGAR FIRE

2a

Corex

60mm Maxilite installed
per overview sheet

AB

services per table below

TWrap 300 secured with foil tape, before
being strapped with steel cable ties 50mm
from each end and at the mid-point.

Corex

60mm Maxilite

DETAIL AB

FyreFLEX applied to annular gap with
30 x 30mm fillet on the top and
bottom side

Specimen	Opening (mm)	Fire Stopping	Services
2a	325x50mm	60mm Maxilite, FyreFLEX Sealant, & TWrap	300mm Cable Tray - 20 x CAT6, 10 x TPS, 8 x 12mm OD 3C+E Power

Drawing Name: Spec. 2a - Cable Tray

Project Title: RP11 Test Drawing

Drawing No. : 2	Sheet: 2 of 6	Date: 15/02/2024	Scale: NTS

Test Standard: AS1530.4

Codes:

Fire resistance level:

Drawn By: SM

Based on Report No.:

Checked By: JH

Revision:

Date:

No.: NOTICE:

NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)

☐ STANDARD DRAWING
☐ PROJECT DRAWING

TWrap 300 secured with foil tape, before being strapped with steel cable ties 50mm from each end and at the mid-point.

8g x 65mm screws through all 4x fixing tabs

Services per below table

Corex

FyreCOLLAR Premium Retrofit 80mm

FyreBOARD Maxilite installed as per overview sheet

Furnace Side

FyreFLEX Sealant applied to the open gaps, filled to the depth of the collar

Specimen	Opening (mm)	Fire Stopping	Services
2b	85mm	60mm Maxilite, FyreCOLLAR Premium Retrofit, & TWrap	9 & 19mm paircoil with 19mm FR insulation, 25mm PVC drain, 2 x cables(CAT6 + TPS)

Drawing Name: Spec. 2b - Paircoil

Project Title: RP11 Test Drawing

Drawing No. : 3	**Sheet:** 3 of 6	**Date:** 15/02/2024	**Scale:** NTS

Test Standard: AS1530.4	**Codes:**	**Revision:**	**Date:**	**No.:**	**NOTICE:**

Fire resistance level:

Drawn By: SM

Based on Report No.:

Checked By: JH

☐ STANDARD DRAWING
☐ PROJECT DRAWING

NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)

TRAFALGAR FIRE

7

8g x 65mm screws through all fixing tabs

60mm Maxilite

FyreCOLLAR Conduit 25mm
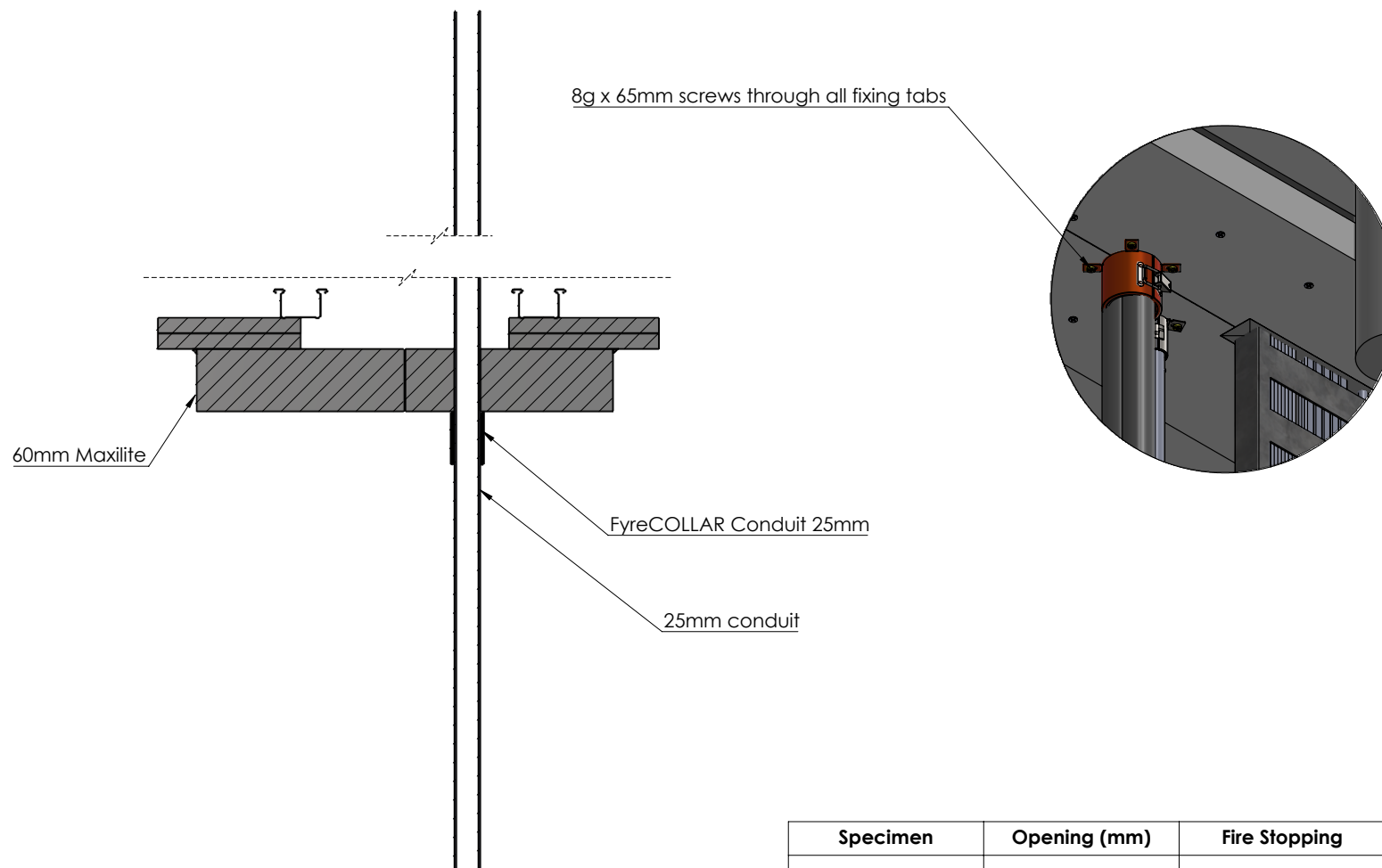
25mm conduit

Note: Maxilite fixed through Corex into steel ceiling members with 10g x 100mm screws

Specimen	Opening (mm)	Fire Stopping	Services
2c	25mm	60mm Maxilite, FyreCOLLAR Conduit	25mm Conduit

Drawing Name: Spec. 2c

Project Title: RP11 Test Drawing

Drawing No. : 4	**Sheet:** 4 of 6	**Date:** 15/02/2024	**Scale:** NTS

Test Standard: AS1530.4

Fire resistance level:

Based on Report No.:

Codes:

Drawn By: SM

Checked By: JH

Revision: **Date:** **No.:** **NOTICE:**

NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)
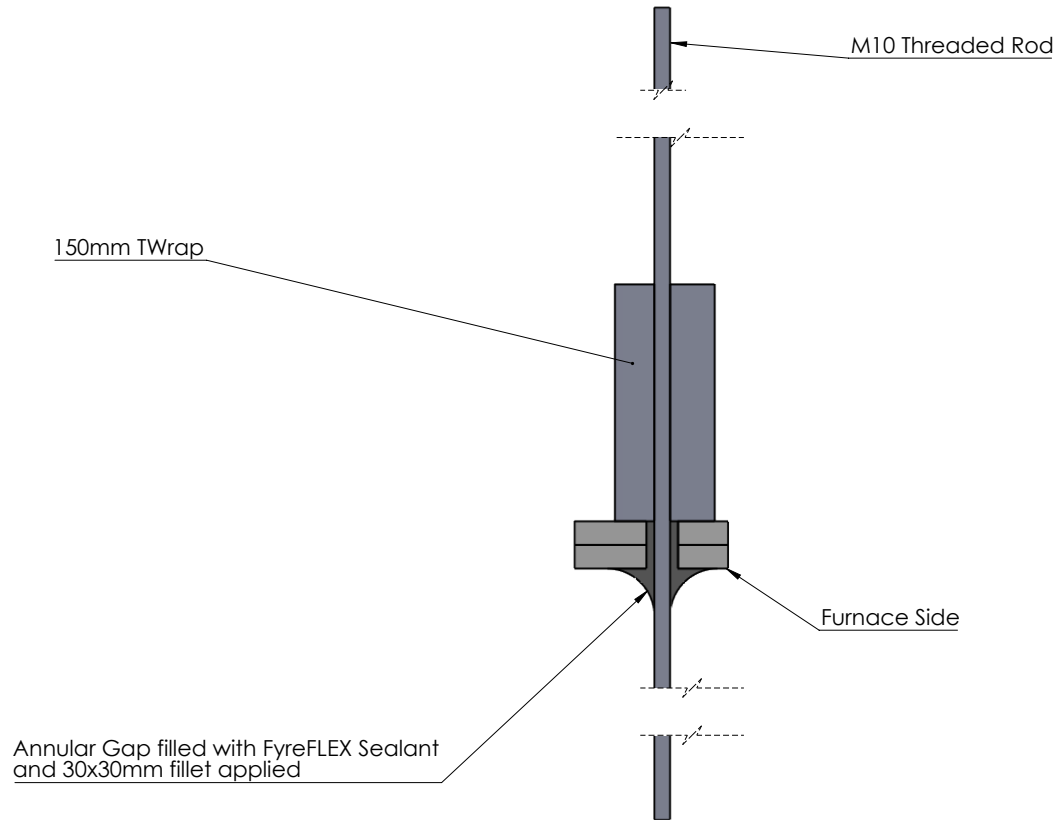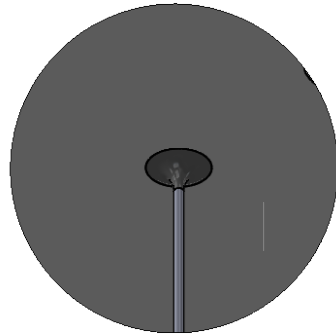
☐ STANDARD DRAWING
☐ PROJECT DRAWING

TRAFALGAR FIRE

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10g x100mm screws 50mm from the edges

8g x 65mm screws

100mm PVC

60mm Maxilite

100mm Retrofit FyreCOLLAR

100mm Overlap

Annular Gap filled with FyreFLEX Sealant

Drawing Name: Spec. 4 - PVC Pipe				Test Standard: AS1530.4	Codes:	Revision:		Date:	No.:	NOTICE:
Project Title: RP11 Test Drawing				Fire resistance level:	Drawn By: SM					NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)
Drawing No. : 5	**Sheet:** 5 of 6	**Date:** 15/02/2024	**Scale:** NTS	Based on Report No.:	Checked By: JH	☐ STANDARD DRAWING ☐ PROJECT DRAWING				Trafalgar Head Office: PO BOX 545 Chester Hill NSW 2162 T: 1800 888 714 F: 1800 201 500 E: technical@tgroup.com.au W: www.tfire.com.au

M10 Threaded Rod

150mm TWrap

Furnace Side

Annular Gap filled with FyreFLEX Sealant
and 30x30mm fillet applied

Drawing Name: Spec. 5 - Threaded Rod				**Test Standard:** AS1530.4	**Codes:**	**Revision:**	**Date:**	**No.:**	**NOTICE:**
Project Title: RP11 Test Drawing				**Fire resistance level:**	**Drawn By:** SM				
Drawing No. : 6	**Sheet:** 6 of 6	**Date:** 15/02/2024	**Scale:** NTS	**Based on Report No.:**	**Checked By:** JH	☐ STANDARD DRAWING ☐ PROJECT DRAWING			

NOTE: ALL DIMENSIONS ARE IN MILLIMETRES (mm)

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