

# DROP IN FIRE COLLARS



Allproof Drop In Fire Collars (DIFC'S) provide a simple and effective passive fire rating option for thin concrete floors or trapezoidal steel tray concrete floors. These composite floors feature profile changes on the underside of the slab and make it difficult to fire rate with a conventional fire collar fixed to the underside of a floor slab.

## INSTALLATION INSTRUCTIONS:

1. Core drill hole to specified diameter to suit pipe size.
2. Install drop in fire collar fixing with two metal pin anchors. (Floor waste installs require the tabs to be recessed into the slab).
3. Ensure collar on underside of slab is exposed no greater than 80mm and recessed in slab no more than 5mm.
4. Insert pipework through collar.
5. Seal gaps between concrete/collar and collar/pipe with a minimum 5mm depth of Allproof MAS310 or Bostik Fireban One fire rated sealant.
6. Allproof recommends any thermal or acoustic lagging maintains a 50mm separation to the fire collar.

## SUITABLE FOR FITTING WITHIN:

- Thin concrete floors (minimum 70mm)
- Trapezoidal steel tray concrete floors (composite floors)
- Cross laminated timber floors

## FEATURES:

- Installed and fixed from top side of slab
- Can be retrofit around pipe
- Made from Galvanised steel



## COMPOSITE FLOOR AND FLAT SLAB ASSESSMENTS:

Allproof DIFCs have been tested and assessed to provide a passive fire protection system for composite floor and flat slab penetrations on a range of plumbing services. The assessment found that Allproof DIFCs FRL is equal to the FRL of composite floor with tray profiles on the underside of the slab ranging from 0mm to 210mm.

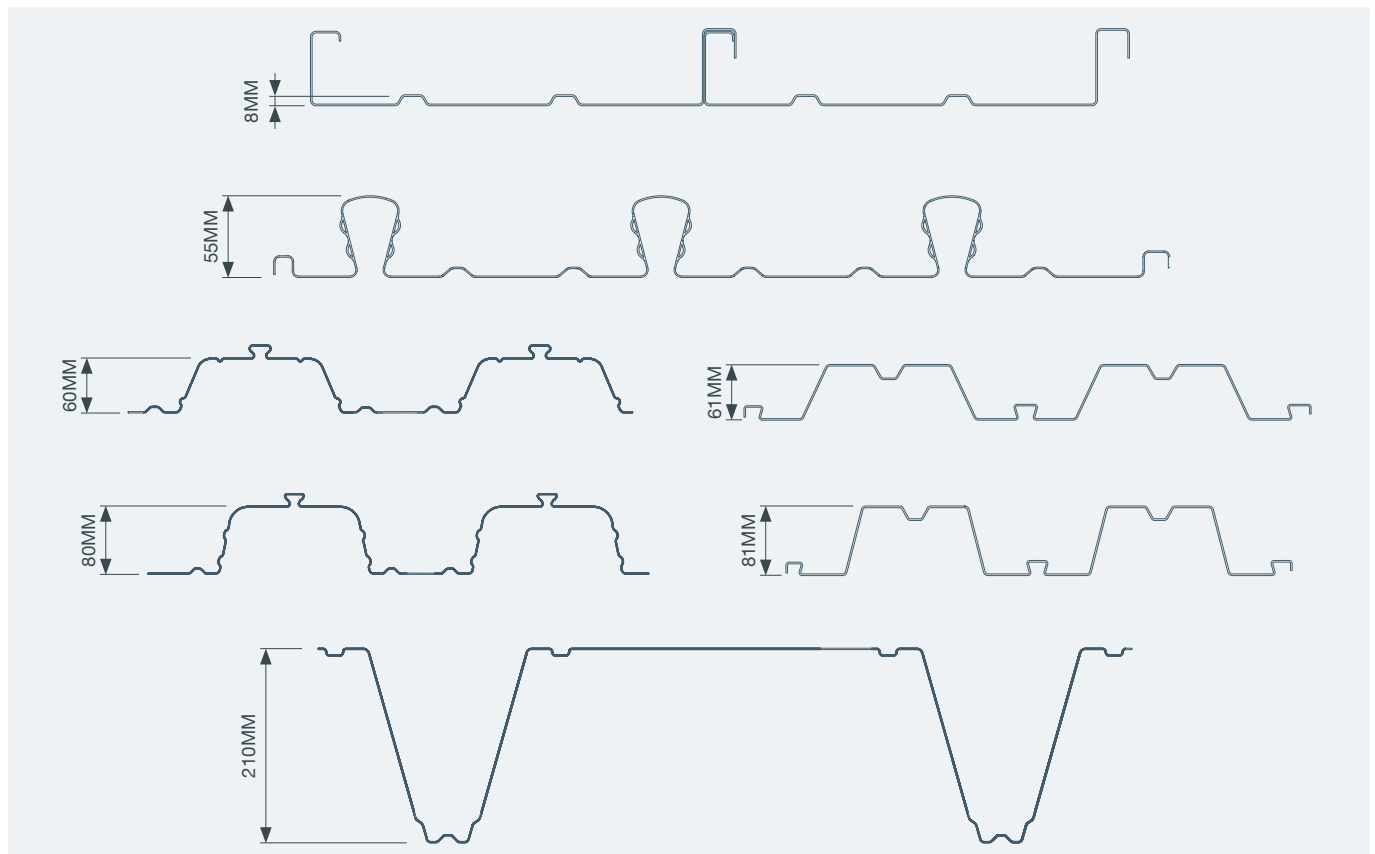
Tray and concrete slab FRL's are variable by adjusting the minimum depth at the shallowest section of the profile, refer to tray suppliers documentation for further information. Allproof DIFC's have been assessed to provide an FRL for a minimum depth of 70mm and minimum depth of 100mm at the shallowest section of the profile.

Reference assessment numbers 12424-03, 13920-01 and 12424-002 for stack and floor waste results.

PIPE MATERIAL	PIPE SIZES (MM)	DIFC PRODUCT	MIN DEPTH (MM)	FRL
PVC Stack	40, 50, 65, 80, 100 & 150	40, 50, 65, 80, 100 & 150	70	-/60/60
			100	-/120/120
PVC Stack (Socket Connection)	40, 50, 65, 80 & 100	40, 50, 65, 80 & 100	70	-/60/60
			100	-/120/120
PVC FWG	80 & 100	80 & 100	70	-/60/60
			100	-/120/120
HDPE Stack	40, 50, 80, 100 & 150	40, 50, 80, 100 & 150	70	-/60/60
			100	-/120/120
HDPE FWG	100	100	70	-/60/60
			100	-/120/120
D-Blue	50, 75, 100 & 150	50, 80, 100 & 150	70	-/60/60
			100	-/120/120
PP-R SDR9	32, 40, 110 & 125	32, 40, 100 & 125	70	-/60/60
			100	-/120/120
PP-R SDR11	32 & 40	32 & 40	70	-/60/60
			100	-/120/120

Socket Connection: Pipe socket connection located within aperture of DIFC.  
Penetration Hole Sizes: See "DIFC COLLAR DIMENSIONS" on page 48.

## ASSESSED COMPOSITE FLOOR TRAY PROFILES



## COMPOSITE FLOOR TEST RESULTS:

Tests that fall outside the assessments for Allproof DIFC's.

NOMINAL PIPE SIZE (MM)	MIN SLAB DEPTH (MM)	NOMINAL PIPE WALL THICKNESS (MM)	PRODUCT CODE	PENETRATION HOLE SIZE (MM)	FLOOR FRL	REPORT NUMBER
OTHER PLASTIC PIPE						
20 PPR SDR 7.4	70	2.8	DIFC32	57	-/120/60	146205
25 PPR SDR 7.4	70	3.5	DIFC32	57	-/120/60	146205
16 PEX	70	2.2	DIFC32	57	-/120/120	143281-002
20 PEX	70	2.4	DIFC32	57	-/120/60	146205
25 PEX	70	3.5	DIFC32	57	-/120/60	143281-002
15 PB	70	1.6	DIFC32	57	-/120/90	143281-002
20 PB	70	2.5	DIFC32	57	-/120/60	146205
28 PB	70	3.5	DIFC32	57	-/120/120	143281-002
25 PEX/AL/PE	70	2.5	DIFC32	57	-/120/60	143281-002

Tested on a composite concrete floor with 70mm minimum thickness and 130mm maximum thickness. Profile change of 60mm.

## COMPOSITE FLOOR WASTE TEST RESULTS:

Floor waste tests that fall outside the assessments for Allproof DIFC's.

NOMINAL PIPE SIZE (MM)	MIN SLAB DEPTH (MM)	NOMINAL PIPE WALL THICKNESS (MM)	PRODUCT CODE	PENETRATION HOLE SIZE (MM)	FLOOR FRL	REPORT NUMBER
PVC PLASTIC PIPE						
50	70		DIFC50	86	-/120/60	146205

Tested on a composite concrete floor with 70mm minimum thickness and 130mm maximum thickness. Profile change of 60mm.

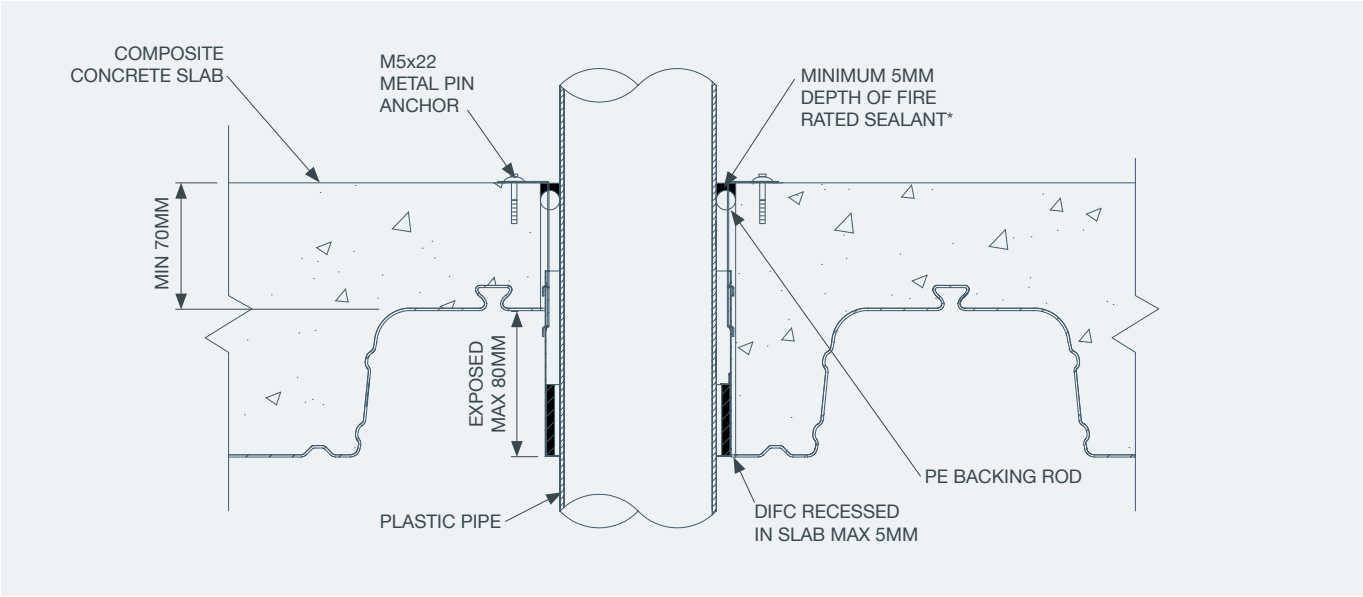
## FLAT SLAB TEST RESULTS:

NOMINAL PIPE SIZE (MM)	SLAB DEPTH (MM)	NOMINAL PIPE WALL THICKNESS (MM)	FIRE PROTECTION PRODUCT	PENETRATION HOLE SIZE (MM)	FLOOR FRL	REPORT NUMBER
HDPE PIPE						
90	150	3.5	DIFC100	142	-180/120	149096
125	150	4.9	DIFC125	162	-/180/180	149096

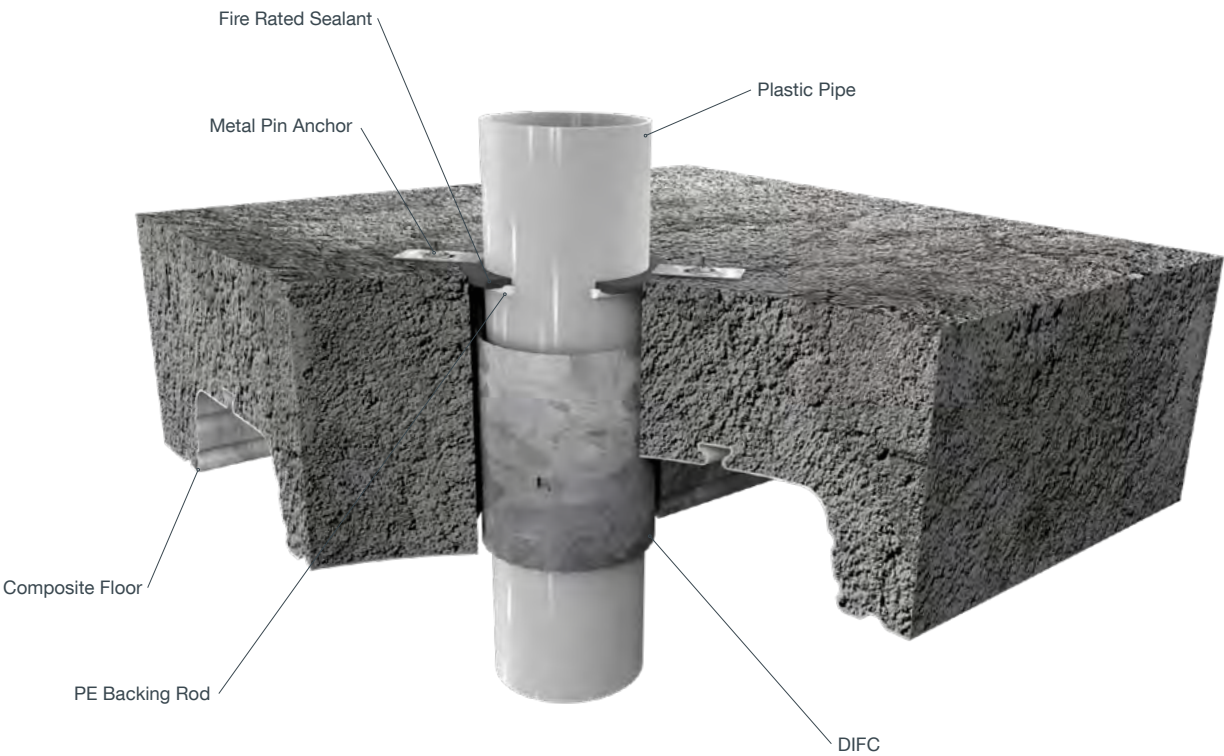
## FLOOR WASTE FLAT SLAB TEST RESULTS:

NOMINAL PIPE SIZE (MM)	SLAB DEPTH (MM)	NOMINAL PIPE WALL THICKNESS (MM)	FIRE PROTECTION PRODUCT	PENETRATION HOLE SIZE (MM)	FLOOR FRL	REPORT NUMBER
PVC PLASTIC PIPE						
80	70	2.9	DIFC80	112	-/120/120	10471
100	70	3.2	DIFC100	142	-/120/90	10471

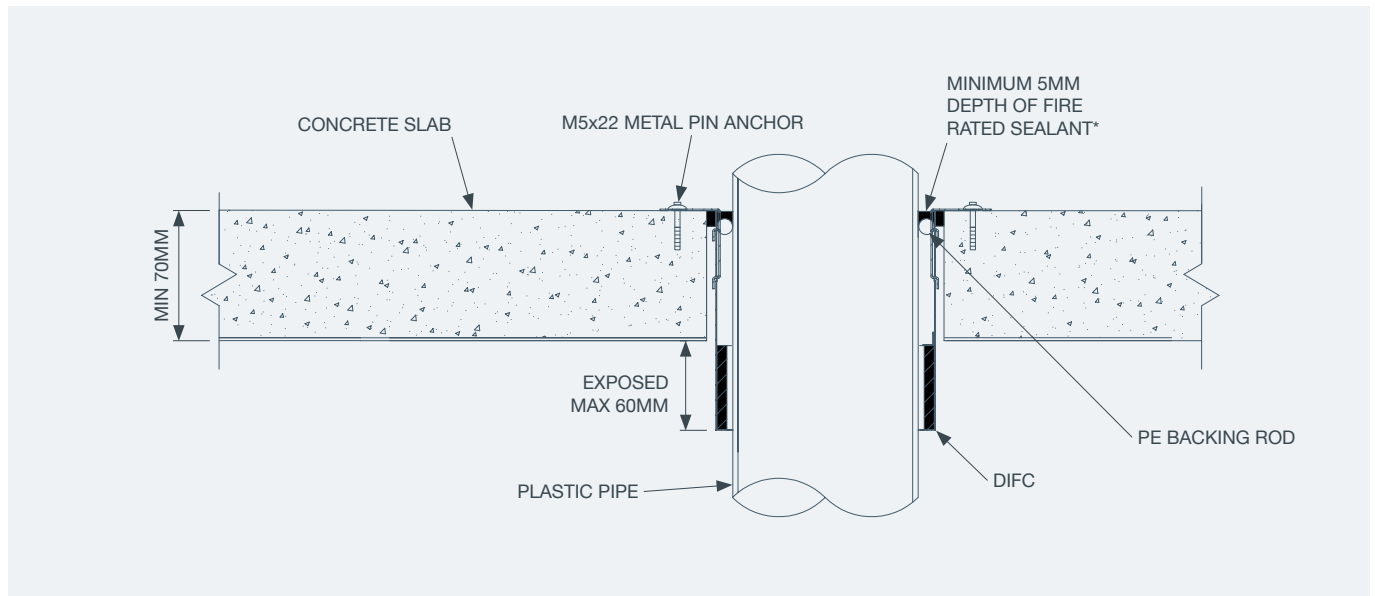
COMPOSITE FLOOR INSTALLATION DETAILS:



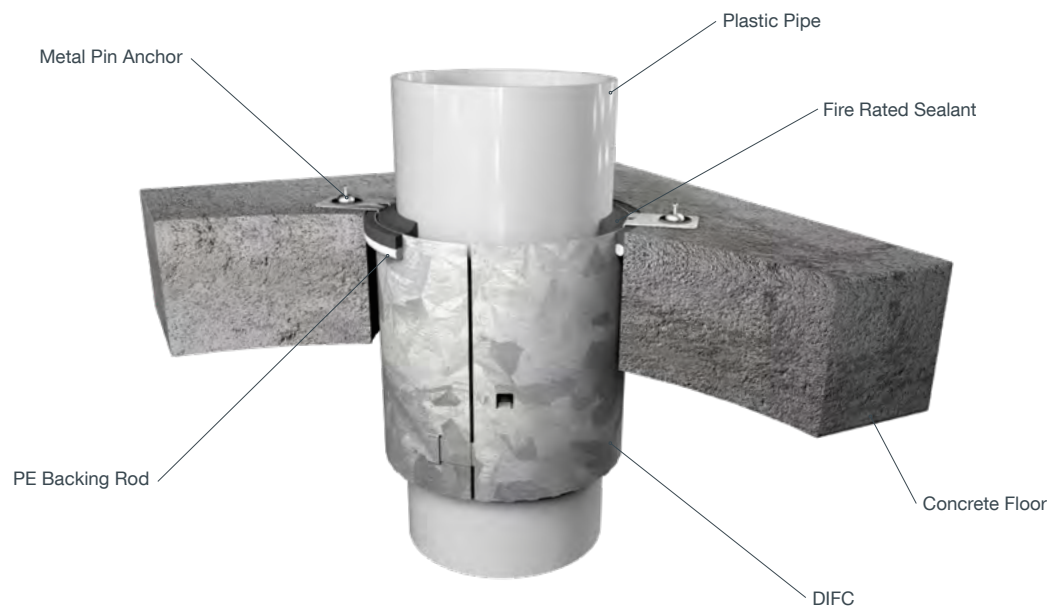
\* 15mm minimum depth of fire rated sealant for the DIFC150.



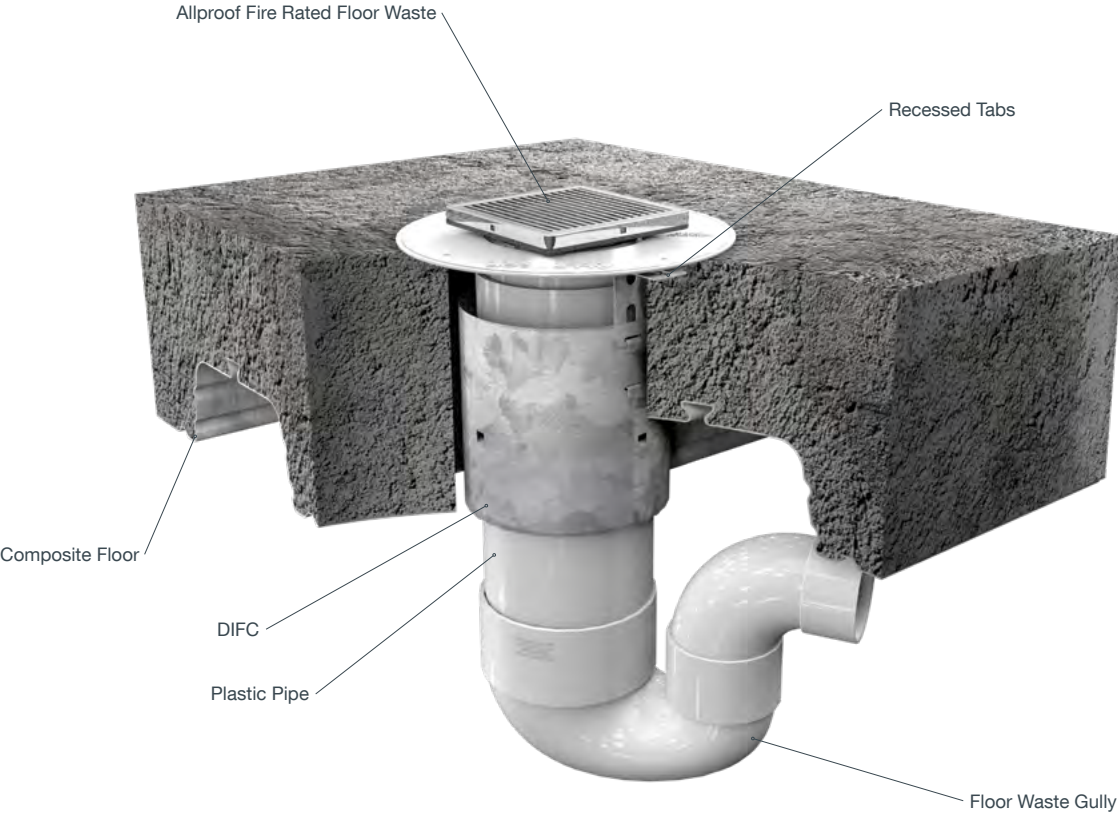
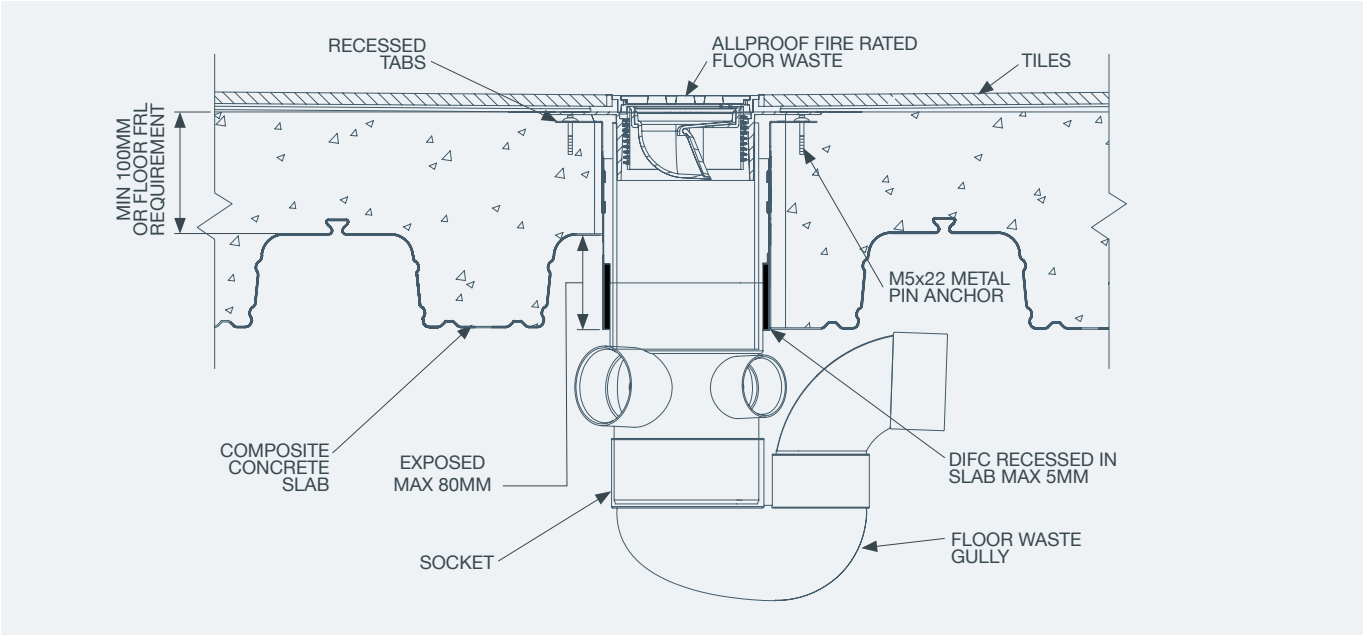
## FLAT SLAB INSTALLATION DETAILS:



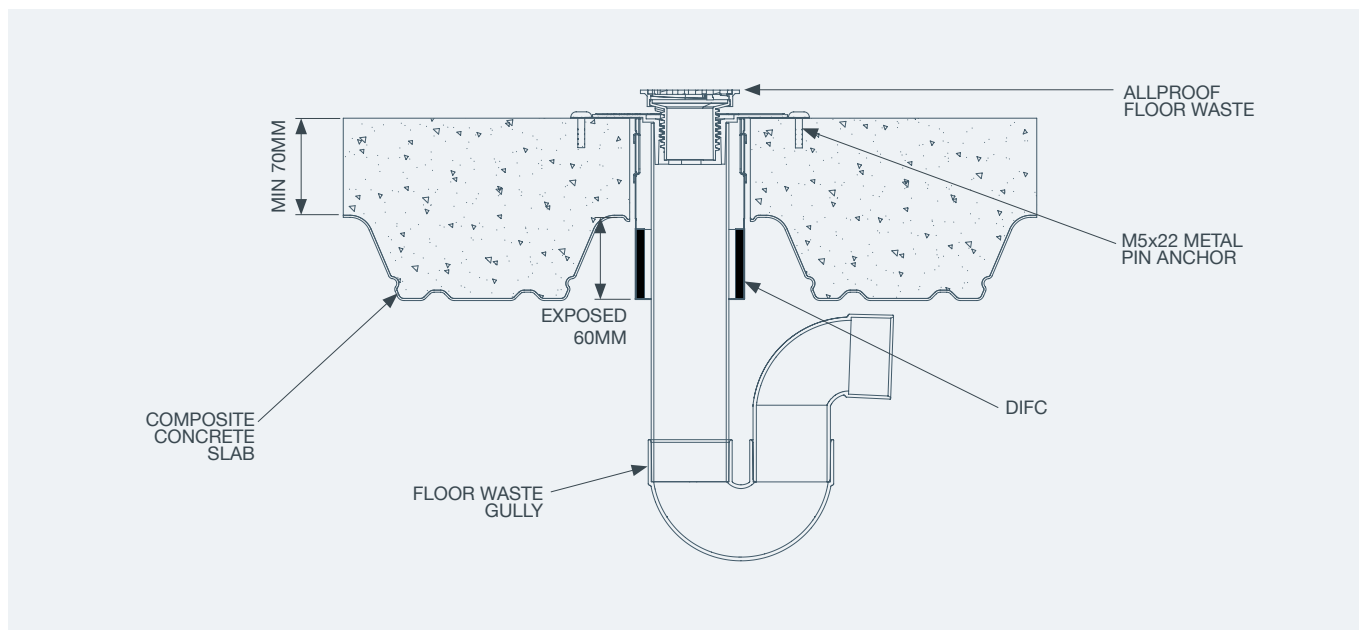
\* 15mm minimum depth of fire rated sealant for the DIFC150.



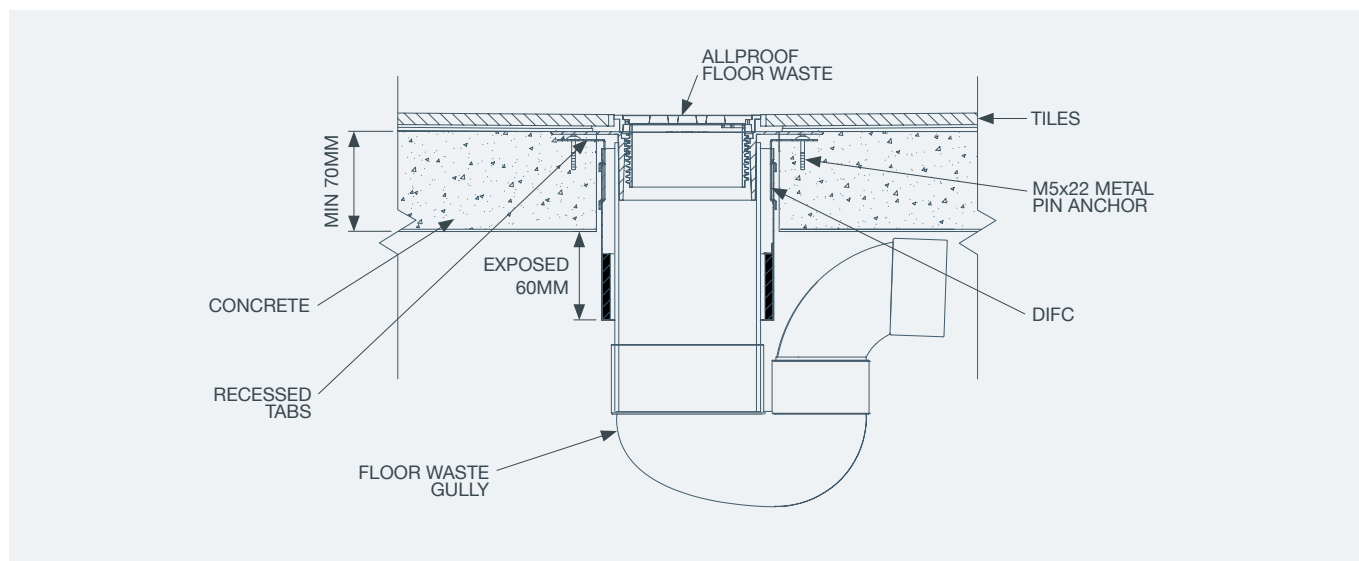
COMPOSITE FLOOR WASTE INSTALLATION DETAILS:



## 50MM COMPOSITE FLOOR WASTE INSTALLATION DETAILS:



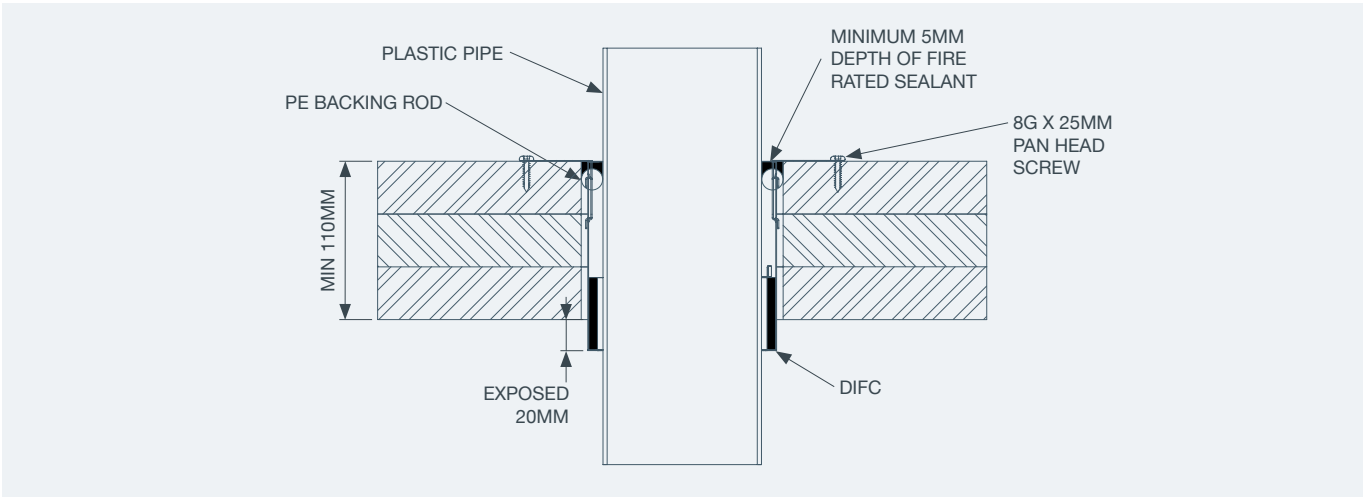
## FLAT SLAB FLOOR WASTE INSTALLATION DETAILS:



CROSS LAMINATED TIMBER (CLT) TEST RESULTS:

NOMINAL PIPE SIZE (MM)	TIMBER DEPTH (MM)	NOMINAL PIPE WALL THICKNESS (MM)	PRODUCT CODE	PENETRATION HOLE SIZE (MM)	FLOOR FRL	REPORT NUMBER
PVC PLASTIC PIPE						
25	110	2.1	DIFC32	57	-/60/60	146208
40	110	2.0	DIFC40	72	-/60/60	146208
50	110	2.2	DIFC50	88	-/60/60	146208
65	110	2.7	DIFC65	102	-/60/60	148131
80	110	2.9	DIFC80	112	-/60/60	148131
100	110	3.2	DIFC100	142	-/60/60	146208
PEX PIPE						
15	110	2.1	DIFC32	57	-/60/60	146208
20	110	2.4	DIFC32	57	-/60/60	146208
25	110	2.9	DIFC32	57	-/60/60	146208
32	110	3.8	DIFC40	72	-/60/60	148131

CROSS LAMINATED TIMBER STACK INSTALLATION DETAILS:



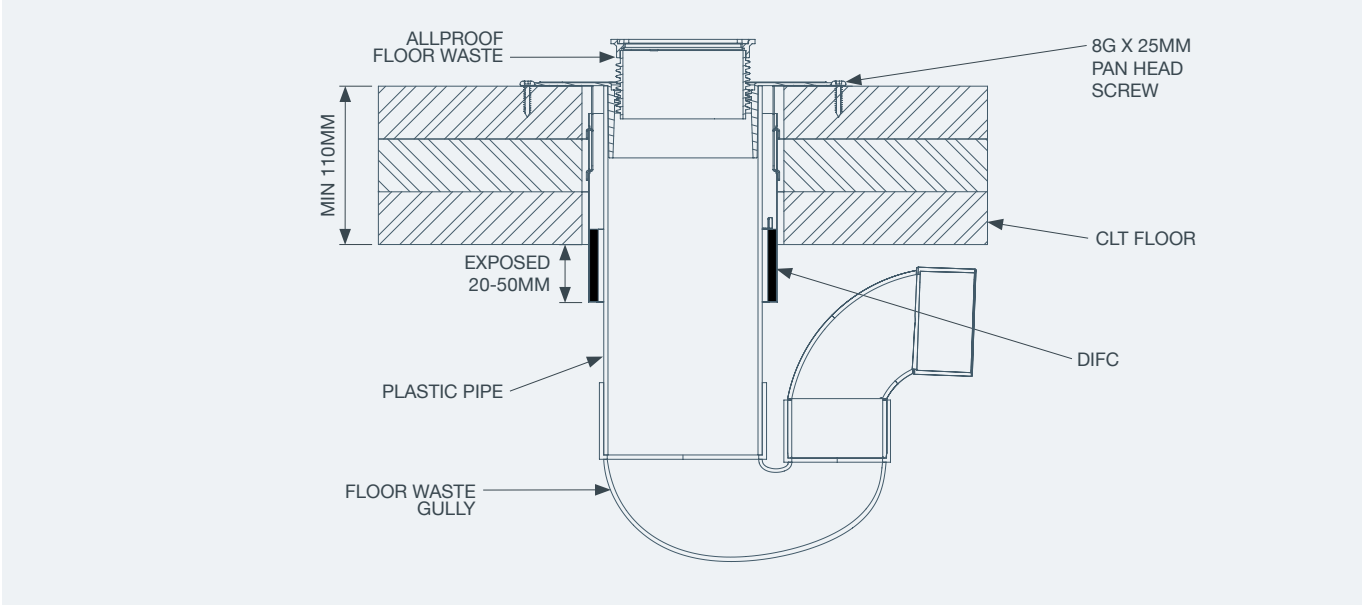


# FLOOR WASTE CROSS LAMINATED TIMBER (CLT) TEST RESULTS:

NOMINAL PIPE SIZE (MM)	TIMBER DEPTH (MM)	NOMINAL PIPE WALL THICKNESS (MM)	PRODUCT CODE	SOCKET	PENETRATION HOLE SIZE (MM)	FLOOR FRL	REPORT NUMBER
PVC PLASTIC PIPE							
50	110	2.2	DIFC50		88	-/60/60	146208
80*	110	2.9	DIFC80		112	-/60/60	148131
100*	110	3.2	DIFC100		142	-/60/-	148131

\*80mm and 100mm DIFC require 50mm exposure on underside of CLT floor.

## CROSS LAMINATED TIMBER STACK INSTALLATION DETAILS:



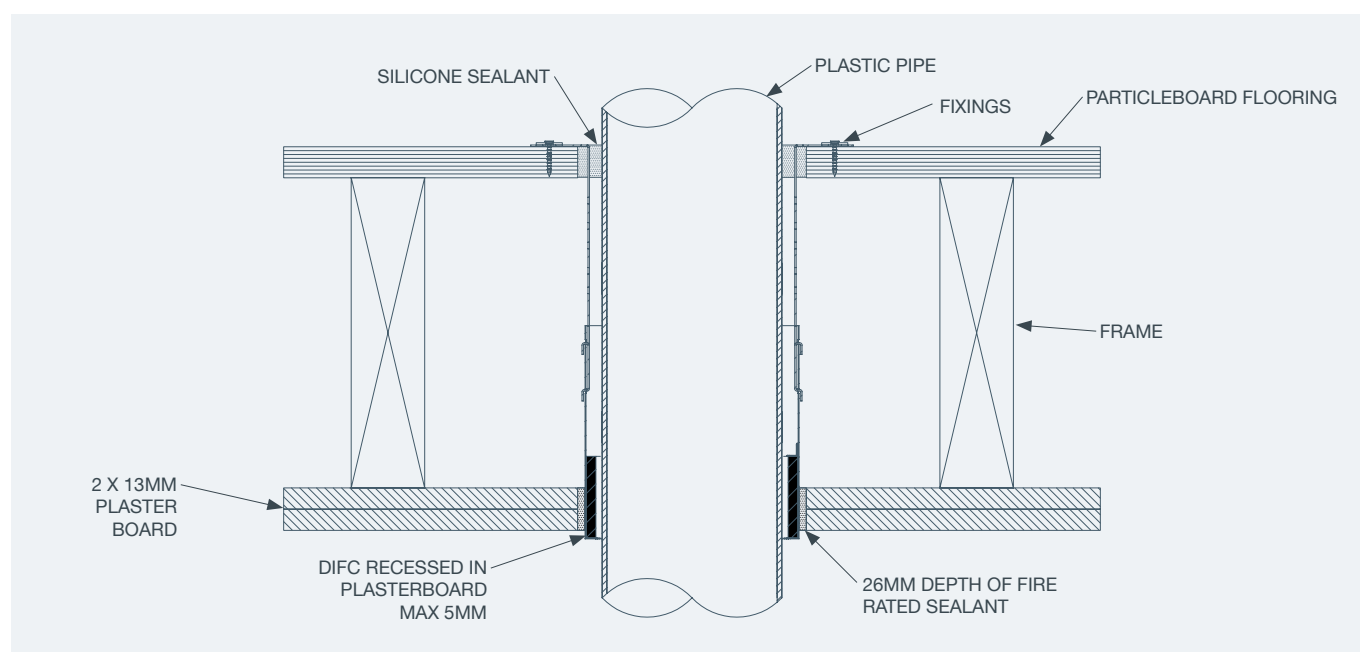
## 2 X 13MM PLASTERBOARD CEILING TEST RESULTS:

NOMINAL PIPE SIZE (MM)	NOMINAL PIPE WALL THICKNESS (MM)	PRODUCT CODE	PENETRATION HOLE SIZE (MM)	PLASTERBOARD WALL FRL	REPORT NUMBER
PVC PLASTIC PIPE					
40	2	DIFC40	78	-/90/90	190268.1
50	2.5	DIFC50	88	-/90/90	190268.1
100	3.5	DIFC100	140	-/90/90	190268.1

Fixing: 6G x 32mm Plasterboard screws

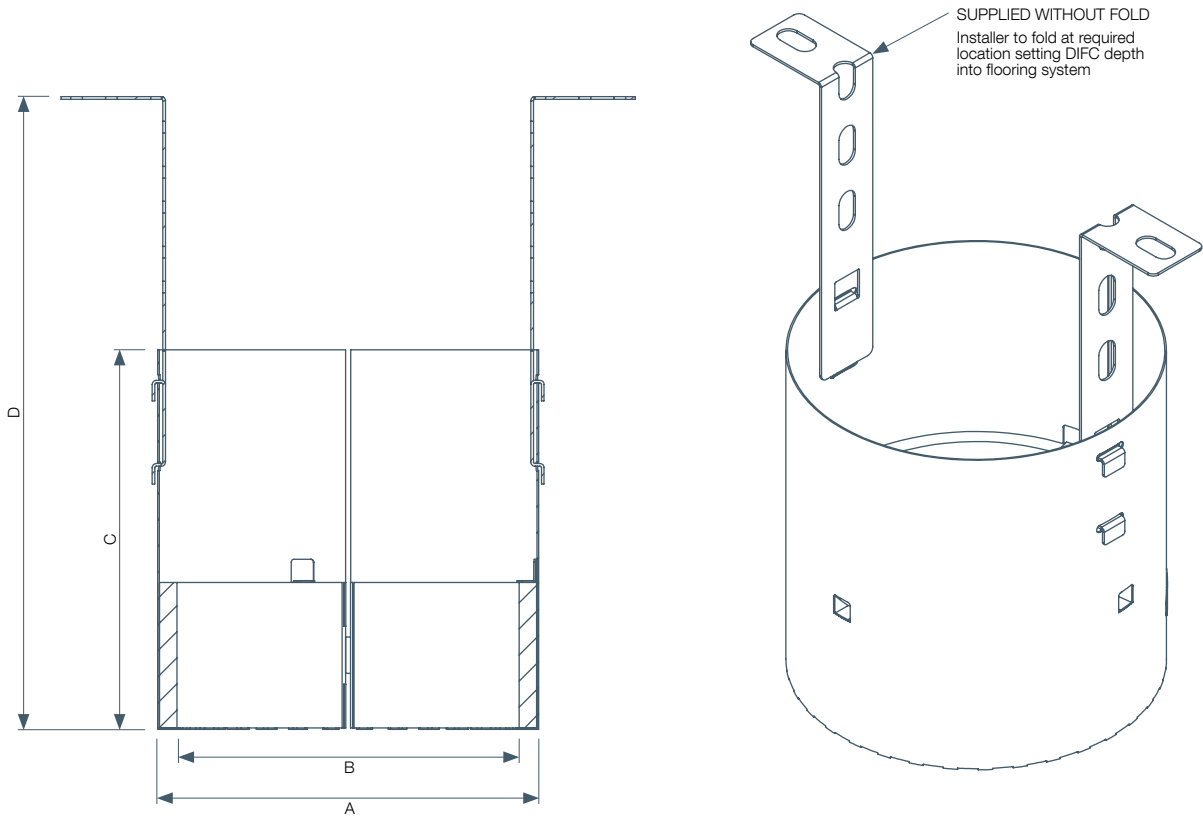
Tested using a 190mm deep timber framing with two layers of 13mm fire rated plasterboard on the exposed side of the frame and 19mm particleboard flooring on the unexposed side of the frame. A total floor-ceiling thickness of 235mm. DIFCs fixed using 6Gx32mm plasterboard screws with M6x16 washers into the particleboard flooring on the unexposed side - not fixed into framing or studs. DIFCs extended 5mm from face of the ceiling on the exposed side. Fire rated sealant is applied in the space between the DIFC and plasterboard at a depth of 26mm on the exposed face and silicone sealant between the pipe and particleboard flooring on the unexposed face.

## PLASTERBOARD CEILING INSTALLATION DETAILS:



DIFC COLLAR DIMENSIONS:

CODE	CONCRETE PENETRATION HOLE SIZE (MM)	OUTER DIAMETER (A)	INNER DIAMETER (B)	CYLINDER LENGTH (C)	MIN - MAX DEPTH (D)
DIFC32 X210	57	48	35	130	130 - 210
DIFC40 X210	72	66	53	130	130 - 210
DIFC50 X210	86	79	66	130	130 - 210
DIFC65 X210	102	92	78	130	130 - 210
DIFC80 X210	112	106	92	130	130 - 210
DIFC100 X210	142	131	118	130	130 - 210
DIFC125 X210	162	154	133	130	130 - 210
DIFC150 X210	202	187	161	130	130 - 210



# INTEGRATED DRAINAGE AND PASSIVE FIRE SYSTEMS



# DROP IN FIRE COLLARS



Allproof Drop In Fire Collars (DIFC) provide a simple and effective passive fire rating option for thin concrete floors or trapezoidal steel tray concrete floors. These composite floors feature profile changes on the underside of the slab and make it difficult to fire rate with a conventional fire collar fixed to the underside of a floor slab.

## INSTALLATION INSTRUCTIONS:

1. Core drill hole to specified diameter to suit service size.
2. Install Drop-In Fire Collar fixing with two metal pin anchors. (Floor waste installs require the tabs to be recessed into the slab).
3. Ensure collar on underside of slab is exposed no greater than 80mm and recessed in slab no more than 5mm.
4. Insert service through collar.
5. Seal gaps between concrete/collar and collar/service with a minimum 5mm depth of silicone sealant.

## SUITABLE FOR FITTING WITHIN:

- > Trapezoidal steel tray concrete floors (composite floors)
- > Cross laminated timber floors

## FEATURES:

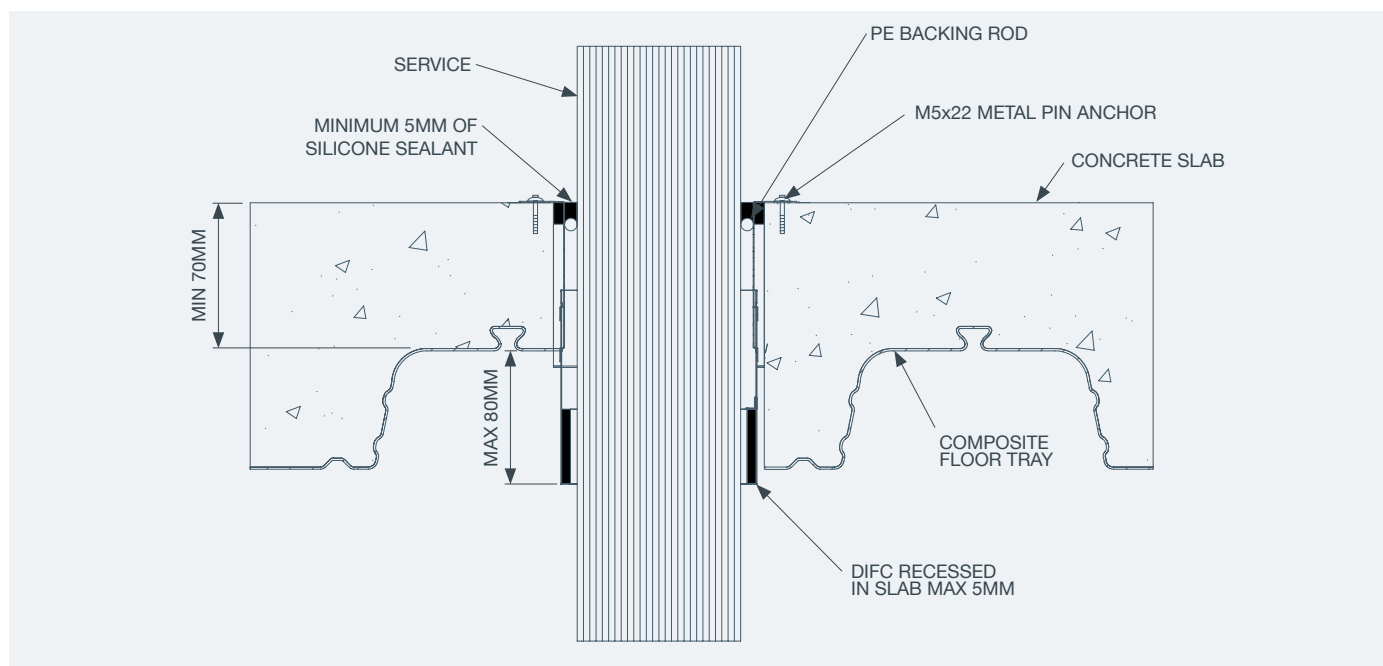
- > Installed and fixed from top side of slab
- > Can be retrofit around pipe
- > Made from Galvanised steel

## COMPOSITE FLOOR TEST RESULTS:

DESCRIPTION	SLAB DEPTH (MM)	PRODUCT CODE	PENETRATION HOLE SIZE (MM)	FLOOR FRL*	REPORT NUMBER
<b>CABLES</b>					
1x TPS Cables	70/130	DIFC32	57	-/120/60	146205
7x TPS Cables	70/130	DIFC32	57	-/120/45	146205
60x TPS Cables	70/130	DIFC80	112	-/120/60	143281-002
1x CAT6 Data Cable	70/130	DIFC32	57	-/120/60	146205
10x CAT6 Data Cable	70/130	DIFC32	57	-/120/60	146205
100x CAT6 Data Cables	70/130	DIFC80	112	-/120/60	143281-002
11x Fire Alarm & 11x Fibre Optic Cables	70/130	DIFC50	86	-/120/90	146205
25x Fire Alarm & 25x Fibre Optic Cables	70/130	DIFC50	86	-/120/90	143281-002
1x16mm Mains Cable & 1x 10mm Earth Cable	70/130	DIFC32	57	-/120/45	146205
1x 25mm Mains Cable & 1x 10mm Earth Cable	70/130	DIFC32	57	-/120/30	143281-002
<b>A/C MIXED SERVICES</b>					
1x Pair Coil, 1x TPS Cable & 1x 20mm PVC DWV	70/130	DIFC50	82	-/120/90	143281-002
3x Pair Coil, 6x TPS Cables & 1x 25mm PVC DWV	70/130	DIFC100	142	-/60/45	143281-002

70/130 - Tested on a composite concrete floor with 70mm minimum thickness and 130mm maximum thickness. Profile change of 60mm.  
For installations resulting in an annular gap of 4mm or greater insert PE backing rod prior to silicone sealant.

## COMPOSITE FLOOR INSTALLATION DETAILS:

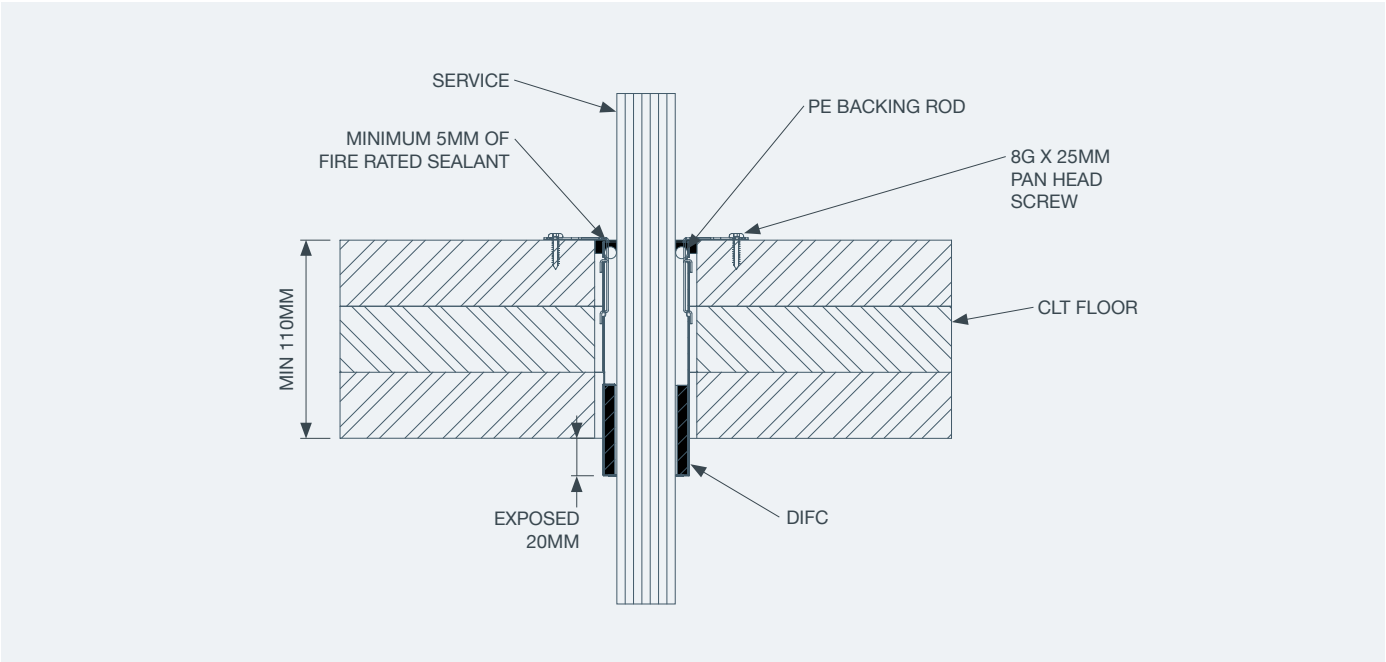


# CROSS LAMINATED TIMBER (CLT) FLOOR TEST RESULTS:

DESCRIPTION	TIMBER DEPTH	PRODUCT CODE	PENETRATION HOLE SIZE (MM)	FLOOR FRL*	REPORT NUMBER
CABLES					
1x TPS Cable	110	DIFC32	57	-/60/60	148131
7x TPS Cables	110	DIFC32	57	-/60/45	146208
1x CAT6 Data Cable	110	DIFC32	57	-/60/60	148131
1 x 16mm Mains Cable & 1x 10mm Earth Cable	110	DIFC32	57	-/60/30	148131
1x 25mm Mains Cable & 1x 10mm Earth Cable	110	DIFC32	57	-/60/45	146208

Fixing: Collars tested using 8G X 25mm Pan Head Screw.  
For installations resulting in an annular gap of 4mm or greater insert PE backing rod prior to fire rated sealant.

## CROSS LAMINATED TIMBER INSTALLATION DETAILS:



# DIFC COLLAR DIMENSIONS:

CODE	OUTER DIAMETER (A)	INNER DIAMETER (B)	CYLINDER LENGTH (C)	MIN - MAX DEPTH (D)
FLOOR DEPTHS UPTO 210MM				
DIFC32 X210	48	35	130	130 - 210
DIFC40 X210	66	53	130	130 - 210
DIFC50 X210	79	66	130	130 - 210
DIFC65 X210	92	78	130	130 - 210
DIFC80 X210	106	92	130	130 - 210
DIFC100 X210	131	118	130	130 - 210
DIFC125 X210	154	133	130	130 - 210
DIFC150 X210	187	161	130	130 - 210

