

Title:

Classification of Fire
Resistance Performance
In Accordance With
EN 13501-2: 2007

Notified Body No:

0833

Product Name:

Pyroplex 200 Series SL

Report No:

412471

Issue No:

2

Prepared for:

Pyroplex Limited

The Furlong
Droitwich
Worcestershire
WR9 9BG

Date:

15th May 2019



1. Introduction

This classification report defines the classification assigned to the element Pyroplex 200 Series SL in accordance with the procedures given in BS EN 13501-2: 2007.

2. Details of classified product

2.1 General

The element Pyroplex 200 Series SL is defined as a fire resisting penetration sealing system to be used to reinstate the performance of walls and floors.

2.2 Product description

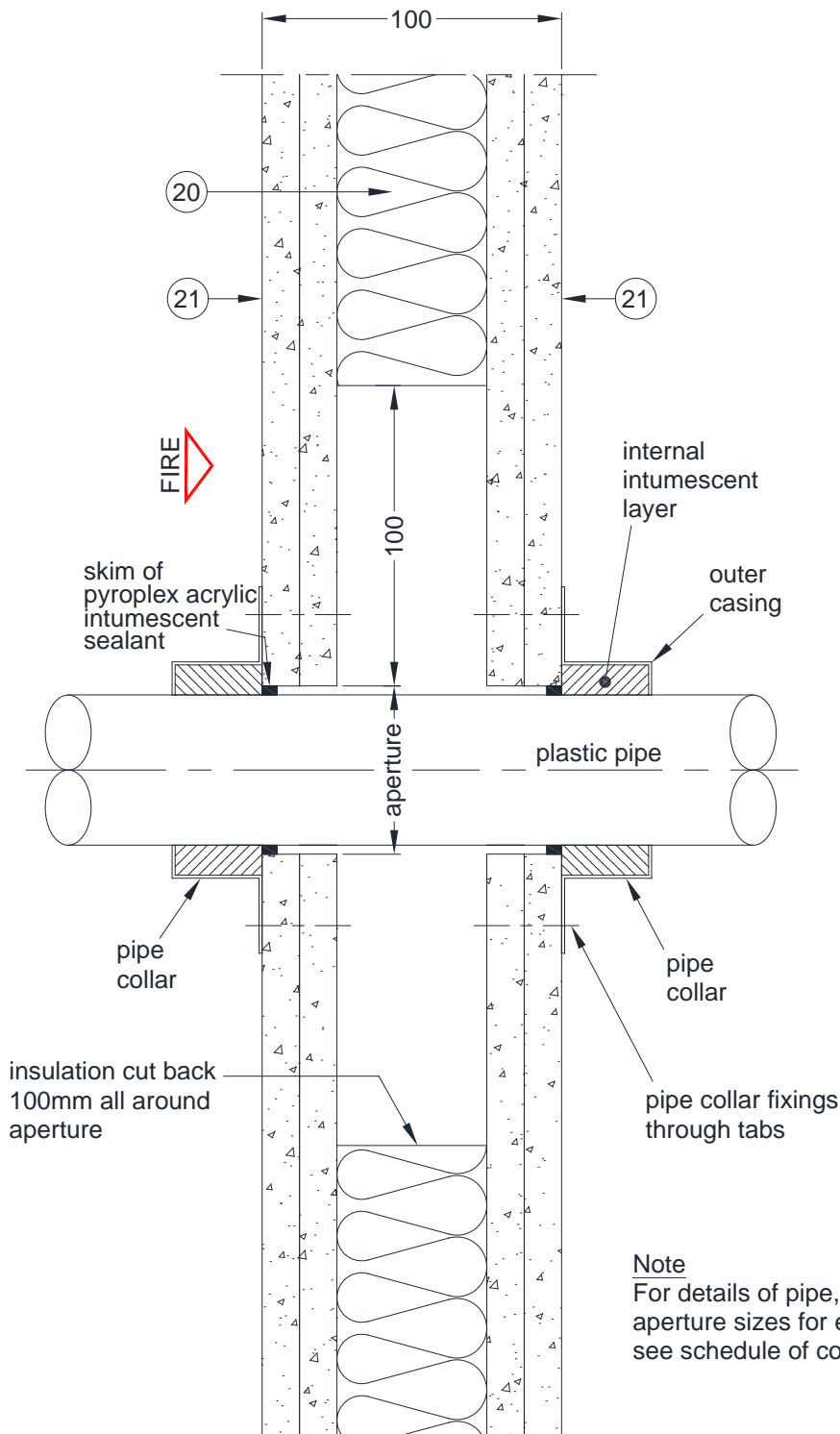
The product, Pyroplex 200 Series SL, is fully described in the test report provided in support of classification detailed in Clause 3.1.

3. Test reports in support of classification

3.1 Summary of test reports

Name of laboratory	Name of sponsor	Test report no.	Test method
Warrington Fire Research Centre - Notified Body No. 0833	Pyroplex Ltd	WF Test Report No. 406886	BS EN 1366-3: 2009
		WF Test Report No. 406887	
		WF Test Report No. 406888	

Summary of WF Test Report No. 406886



TYPICAL SECTION THROUGH PIPE PENETRATION SPECIMENS 'A' TO 'R'

Schedule of Components

(Refer to Figures 1 to 4)

(All values are nominal unless stated otherwise)

(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
1. Specimen 'A'	
Aperture size in partition	: 162 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 160 mm outside diameter x 6.2 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC160s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 15 mm thick x 45 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 6 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
2. Specimen 'B'	
Aperture size in partition	: 162 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 160 mm outside diameter x 14.6 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC160s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 15 mm thick x 45 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 6 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
3. Specimen 'C'	
Aperture size in partition	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 110 mm outside diameter x 2.7 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.

<u>Item</u>	<u>Description</u>
3. Specimen 'C' - continued	
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
4. Specimen 'D'	
Aperture size in partition	: 162 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 160 mm outside diameter x 9.5 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC160s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 15 mm thick x 45 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 6 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
5. Specimen 'E'	
Aperture size in partition	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 110 mm outside diameter x 4.2 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
6. Specimen 'F'	
Aperture size in partition	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 110 mm outside diameter x 10 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.

<u>Item</u>	<u>Description</u>
6. Specimen 'F' - continued	
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
7. Specimen 'G'	
Aperture size in partition	: 162 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 160 mm outside diameter x 4 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC160s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 15 mm thick x 45 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 6 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
8. Specimen 'H'	
Aperture size in partition	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 110 mm outside diameter x 6.6 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
9. Specimen 'I'	
Aperture size in partition	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 50 mm outside diameter x 2.4 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.

<u>Item</u>	<u>Description</u>
9. Specimen 'I' - continued	
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 3 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
10. Specimen 'J'	
Aperture size in partition	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 50 mm outside diameter x 3.7 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 3 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
11. Specimen 'K'	
Aperture size in partition	: 162 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 160 mm outside diameter x 21.9 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC160s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 15 mm thick x 45 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 6 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
12. Specimen 'L'	
Aperture size in partition	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 110 mm outside diameter x 2.7 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.

<u>Item</u>	<u>Description</u>
12. Specimen 'L' - continued	
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
13. Specimen 'M'	
Aperture size in partition	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 50 mm outside diameter x 2 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 3 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
14. Specimen 'N'	
Aperture size in partition	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 50 mm outside diameter x 6.9 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 3 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
15. Specimen 'O'	
Aperture size in partition	: 162 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 160 mm outside diameter x 4 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC160s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 15 mm thick x 45 mm wide.

<u>Item</u>	<u>Description</u>
15. Specimen 'O' - continued	
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 6 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
16. Specimen 'P'	
Aperture size in partition	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 110 mm outside diameter x 15.1 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
17. Specimen 'Q'	
Aperture size in partition	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 50 mm outside diameter x 3 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 3 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
18. Specimen 'R'	
Aperture size in partition	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 50 mm outside diameter x 4.6 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.

<u>Item</u>	<u>Description</u>
18. Specimen 'R' - continued	
Quantity	: Collar fitted at both faces of the partition
Fixing method	: Outer casing formed with 3 no. tabs for fixing to the partition surround using a single 'Fischer HM 6x65s' fixing through each tab.
Details of Partition wall (supplied by Warringtonfire) – items 19 to 21	
19. Framework	
Material	: Steel
Reference	
i. vertical studs	: Speedline SPS50, 50 mm standard stud
ii. top and bottom track	: Speedline SPT52, 52 mm standard track
Overall section size	
i. vertical studs	: 50 mm wide x 34 mm deep x 0.6 mm thick
ii. top and bottom track	: 52 mm wide x 24 mm deep x 0.6 mm thick channel
Stud centres	: 600 mm
Fixing method	
i. top and bottom track	: Fixed to masonry surround using 5 no. anchor bolts at 300 mm centres along each track.
ii. vertical studs	: Friction fit within top and bottom track. Both vertical perimeter edges were not fixed to the masonry surround, but were kept as free edges and the gaps between these perimeter edges and the masonry were sealed with ceramic fibre insulation.
20. Insulation	
Manufacturer	: Rockwool Insulation
Reference	: Prorox SL920UK
Thickness	: 50 mm
Location	: Friction fitted within all voids between framework members. The insulation was cut back 100 mm from all partition apertures.
21. Cladding board	
Reference	: Gyproc Fireline
Material	: Gypsum plasterboard
Thickness	: 2 no. layers, each 12.5 mm thick, at each face of the framework.
Fixing method	: Fixed to the framework members with drywall screws at 300 mm centres, 25 mm long screws (first layer) and 42 mm long screws (second layer). All board joints were staggered with respect to the adjacent board layer, and also to the layers on the opposite face.

Additional installation notes

- i. length of pipes : All pipes extend 500 mm from unexposed face of the partition wall, and extend 650 mm from exposed face.
- ii. pipe supports : All pipes were fixed to a support frame fabricated from proprietary steel channels of section size 41 mm x 41 mm x 2.5 mm thick, using a pipe clamp at 260 mm and at 400 mm from the unexposed face of the partition wall, and similarly supported at 400 mm and at 600 mm from the exposed face of the partition.
- iii. pipes : Open end of all pipes were plugged with ceramic fibre at the unexposed face.
- iv. mastic seal to each face : Skim of Pyroplex Acrylic Intumescent Sealant applied to each Specimen's annular gap to both faces

Test Results

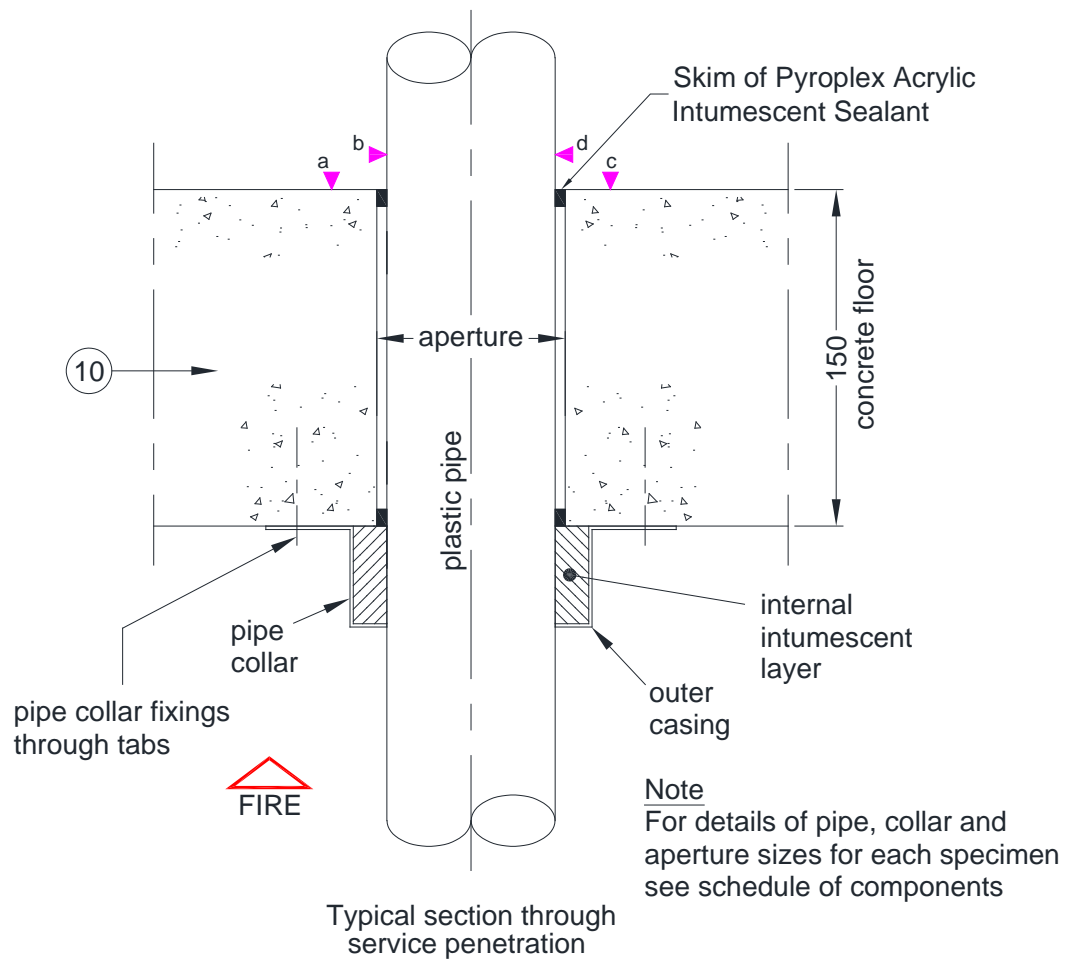
Specimen	Integrity (minutes)			Insulation (minutes)
	Cotton Pad	Sustained Flame	Gap Gauge	
A	135*	135*	135*	134
B	135*	135*	135*	121
C	135*	135*	135*	105
D	135*	135*	135*	133
E	135*	135*	135*	107
F	135*	135*	135*	111
G	135*	135*	135*	116
H	135*	135*	135*	119
I	135*	135*	135*	125
J	135*	135*	135*	129
K	135*	135*	135*	95
L	135*	135*	135*	74
M	135*	135*	135*	135*
N	135*	135*	135*	135*
O	135*	135*	135*	135*
P	135*	135*	135*	111
Q	135*	135*	135*	135*
R	135*	135*	135*	135*

* The test duration. The test was discontinued after a period of 135 minutes.

Date of Test

6th December 2018

Summary of WF Test Report No. 406887



▼ Positions of thermocouples

Specimen	Thermocouple numbers			
	a	b	c	d
'A'	26	27		
'B'	28	29		
'C'	30	31		
'D'	18	19	20	21
'E'	22	23		
'F'	24	25		
'G'	10	11	12	13
'H'	14	15		
'I'	16	17		

TYPICAL SECTION VIEW THROUGH SERVICE PENETRATION SPECIMENS 'A' TO 'I'

Schedule of Components

(Refer to Figures 1 to 3)

(All values are nominal unless stated otherwise)

(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
1. Specimen 'A'	
Aperture size in concrete floor	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 110 mm outside diameter x 4.2 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.
2. Specimen 'B'	
Aperture size in concrete floor	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 50 mm outside diameter x 2.4 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 3 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.
3. Specimen 'C'	
Aperture size in concrete floor	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 50 mm outside diameter x 3.7 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick

Quantity	: x 30 mm wide.
Fixing method	: Single collar fitted at exposed face of concrete floor only
	: Outer casing formed with 3 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

4. Specimen 'D'

Aperture size in concrete floor	: 162 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 160 mm outside diameter x 6.2 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC160s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 15 mm thick x 45 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 6 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

5. Specimen 'E'

Aperture size in concrete floor	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 110 mm outside diameter x 10 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

6. Specimen 'F'

Aperture size in concrete floor	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 50 mm outside diameter x 4.6 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick

Quantity	x 30 mm wide.
	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 3 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

<u>Item</u>	<u>Description</u>
7. Specimen 'G'	
Aperture size in concrete floor	: 162 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 160 mm outside diameter x 9.5 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC160s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 15 mm thick x 45 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 6 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.
8. Specimen 'H'	
Aperture size in concrete floor	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polyvinyl chloride (PVCu)
Overall size	: 110 mm outside diameter x 6.6 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.
9. Specimen 'I'	
Aperture size in concrete floor	: 52 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 50 mm outside diameter x 3 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC55s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only

Fixing method : Outer casing formed with 3 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

<u>Item</u>	<u>Description</u>
--------------------	---------------------------

10. Concrete floor

Material	: Autoclaved aerated concrete slab
Thickness	: 150 mm
Density	: 670 kg/m ³

Additional installation notes

- | | |
|------------------------------|---|
| i. length of pipes | : All pipes extend 500 mm from unexposed face of the concrete floor, and extend 600 mm from exposed face. |
| ii. pipe supports | : All pipes were fixed to a support frame fabricated from proprietary steel channels of section size 41 mm x 41 mm x 2.5 mm thick, using a pipe clamp at 300 mm and at 450 mm from the unexposed face of the concrete floor only. |
| iii. pipes | : Open end of all pipes were plugged with ceramic fibre at the unexposed face. |
| iv. mastic seal to each face | : Skim of Pyroplex Acrylic Intumescent Sealant applied to each Specimen's annular gap to both faces |

Test Results

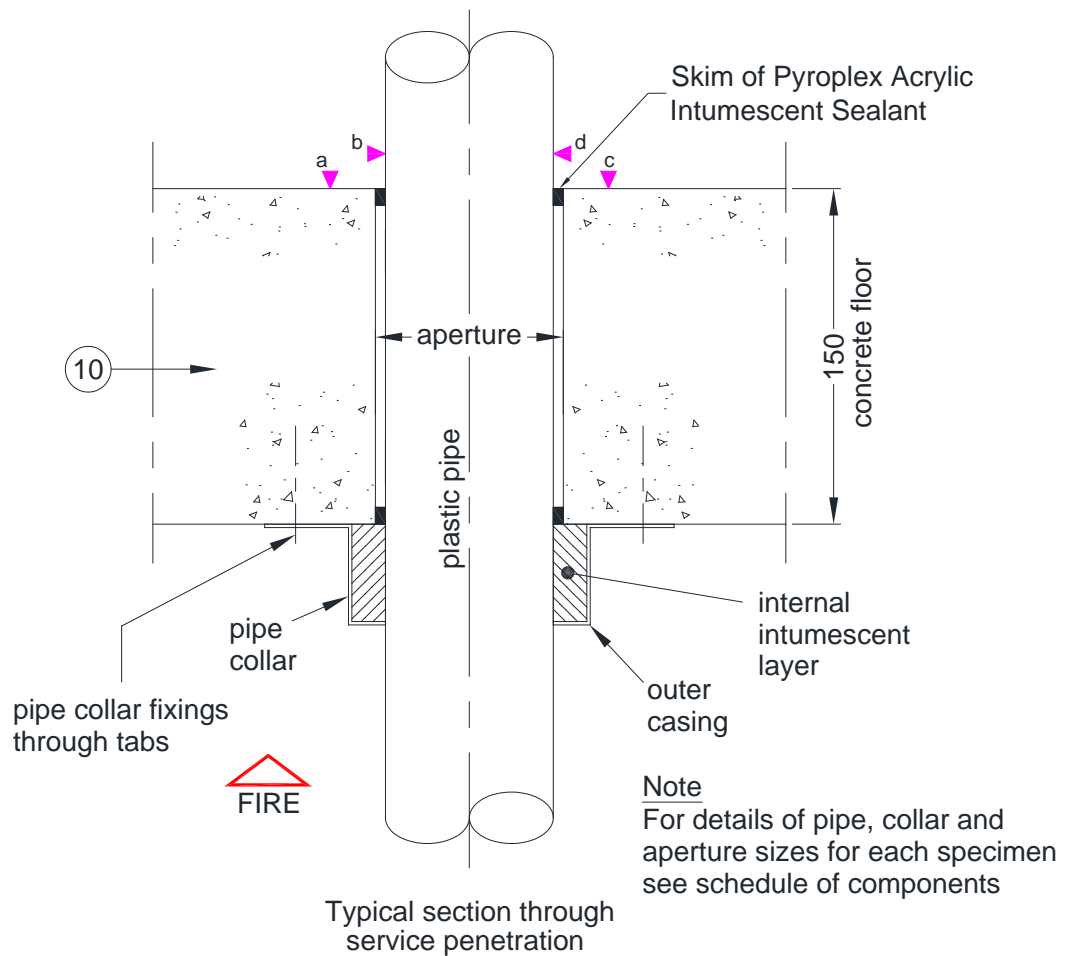
Specimen	Integrity (minutes)			Insulation (minutes)
	Cotton pad	Sustained flaming	Gap gauge	
A	135*	135*	135*	135*
B	135*	135*	135*	135*
C	135*	135*	135*	135*
D	135*	135*	135*	135*
E	135*	135*	135*	135*
F	135*	135*	135*	135*
G	135*	135*	135*	135*
H	135*	135*	135*	135*
I	135*	135*	135*	135*

*The test duration. The test was discontinued after a period of 135 minutes.

Date of Test

4th December 2018

Summary of WF Test Report No. 406888



▼ Positions of thermocouples

Specimen	Thermocouple numbers			
	a	b	c	d
'A'	30	31		
'B'	32	33		
'C'	34	35		
'D'	20	21	22	23
'E'	24	25		
'F'	26	27	28	29
'G'	10	11	12	13
'H'	14	15		
'I'	16	17	18	19

TYPICAL SECTION VIEW THROUGH SERVICE PENETRATION SPECIMENS 'A' TO 'I'

Schedule of Components

(Refer to Figures 1 to 3)

(All values are nominal unless stated otherwise)

(All other details are as stated by the sponsor)

<u>Item</u>	<u>Description</u>
1. Specimen 'A'	
Aperture size in concrete floor	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 110 mm outside diameter x 2.7 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.
2. Specimen 'B'	
Aperture size in concrete floor	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polypropylene (PP)
Overall size	: 110 mm outside diameter x 15.1 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter x 30 mm long.
ii. internal intumescent layer	: Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	: Single collar fitted at exposed face of concrete floor only
Fixing method	: Outer casing formed with 5 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.
3. Specimen 'C'	
Aperture size in concrete floor	: 112 mm diameter hole
Details of plastic pipe	
Material	: Polyethylene (PE)
Overall size	: 110 mm outside diameter x 2.7 mm thick wall
Details of fire resistant pipe collar	
Manufacturer	: Pyroplex Limited
Reference	: Pyroplex 200 Series SL PPC110s
Material	:
i. outer casing	: Zintec steel, 0.7 mm thick x 135 mm outer diameter

- x
30 mm long.
- ii. internal intumescent layer : Single graphite based layer, approx 10 mm thick
x 30 mm wide.

Item

Description

3. Specimen 'C' - continued

- Quantity : Single collar fitted at exposed face of concrete floor only
- Fixing method : Outer casing formed with 5 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

4. Specimen 'D'

- Aperture size in concrete floor : 162 mm diameter hole
- Details of plastic pipe**
- Material : Polypropylene (PP)
- Overall size : 160 mm outside diameter x 21.9 mm thick wall
- Details of fire resistant pipe collar**
- Manufacturer : Pyroplex Limited
- Reference : Pyroplex 200 Series SL PPC160s
- Material :
- i. outer casing : Zintec steel, 0.7 mm thick x 195 mm outer diameter
x
45 mm long.
- ii. internal intumescent layer : Single graphite based layer, approx 15 mm thick
x 45 mm wide.
- Quantity : Single collar fitted at exposed face of concrete floor only
- Fixing method : Outer casing formed with 6 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

5. Specimen 'E'

- Aperture size in concrete floor : 52 mm diameter hole
- Details of plastic pipe**
- Material : Polypropylene (PP)
- Overall size : 50 mm outside diameter x 6.9 mm thick wall
- Details of fire resistant pipe collar**
- Manufacturer : Pyroplex Limited
- Reference : Pyroplex 200 Series SL PPC55s
- Material :
- i. outer casing : Zintec steel, 0.7 mm thick x 75 mm outer diameter x
30 mm long.
- ii. internal intumescent layer : Single graphite based layer, approx 10 mm thick
x 30 mm wide.
- Quantity : Single collar fitted at exposed face of concrete floor only
- Fixing method : Outer casing formed with 3 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

6. Specimen 'F'

- Aperture size in concrete floor : 162 mm diameter hole
- Details of plastic pipe**
- Material : Polyethylene (PE)
- Overall size : 160 mm outside diameter x 14.6 mm thick wall
- Details of fire resistant pipe collar**

Manufacturer	:	Pyroplex Limited
Reference	:	Pyroplex 200 Series SL PPC160s
Material	:	
i. outer casing	:	Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	:	Single graphite based layer, approx 15 mm thick x 45 mm wide.

<u>Item</u>	<u>Description</u>
-------------	--------------------

6. Specimen 'F' - continued

Quantity	:	Single collar fitted at exposed face of concrete floor only
Fixing method	:	Outer casing formed with 6 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

7. Specimen 'G'

Aperture size in concrete floor	:	162 mm diameter hole
Details of plastic pipe		
Material	:	Polypropylene (PP)
Overall size	:	160 mm outside diameter x 4 mm thick wall
Details of fire resistant pipe collar		
Manufacturer	:	Pyroplex Limited
Reference	:	Pyroplex 200 Series SL PPC160s
Material	:	
i. outer casing	:	Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.
ii. internal intumescent layer	:	Single graphite based layer, approx 15 mm thick x 45 mm wide.
Quantity	:	Single collar fitted at exposed face of concrete floor only
Fixing method	:	Outer casing formed with 6 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

8. Specimen 'H'

Aperture size in concrete floor	:	52 mm diameter hole
Details of plastic pipe		
Material	:	Polypropylene (PP)
Overall size	:	50 mm outside diameter x 2 mm thick wall
Details of fire resistant pipe collar		
Manufacturer	:	Pyroplex Limited
Reference	:	Pyroplex 200 Series SL PPC55s
Material	:	
i. outer casing	:	Zintec steel, 0.7 mm thick x 75 mm outer diameter x 30 mm long.
ii. internal intumescent layer	:	Single graphite based layer, approx 10 mm thick x 30 mm wide.
Quantity	:	Single collar fitted at exposed face of concrete floor only
Fixing method	:	Outer casing formed with 3 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

9. Specimen 'I'

Aperture size in concrete floor : 162 mm diameter hole

Details of plastic pipe

Material : Polyethylene (PE)

Overall size : 160 mm outside diameter x 4 mm thick wall

Details of fire resistant pipe collar

Manufacturer : Pyroplex Limited

Reference : Pyroplex 200 Series SL PPC160s

Material :

i. outer casing : Zintec steel, 0.7 mm thick x 195 mm outer diameter x 45 mm long.

ii. internal intumescent layer : Single graphite based layer, approx 15 mm thick x 45 mm wide.

Item

Description

9. Specimen 'I' - continued

Quantity : Single collar fitted at exposed face of concrete floor only

Fixing method : Outer casing formed with 6 no. tabs for fixing to the concrete floor using a single M8x65 sleeve anchor bolt through each tab.

10. Concrete floor

Material : Autoclaved aerated concrete slab

Thickness : 150 mm

Density : 670 kg/m³

Additional installation notes

- i. length of pipes : All pipes extend 500 mm from unexposed face of the concrete floor, and extend 600 mm from exposed face.
- ii. pipe supports : All pipes were fixed to a support frame fabricated from proprietary steel channels of section size 41 mm x 41 mm x 2.5 mm thick, using a pipe clamp at 300 mm and at 450 mm from the unexposed face of the concrete floor only.
- iii. pipes : Open end of all pipes were plugged with ceramic fibre at the unexposed face.
- iv. mastic seal to each face : Skim of Pyroplex Acrylic Intumescent Sealant applied to each Specimen's annular gap to both faces

Test Results

Specimen	Integrity (minutes)			Insulation (minutes)
	Cotton pad	Sustained flaming	Gap gauge	
A	135*	135*	135*	135*
B	135*	135*	135*	135*
C	135*	135*	135*	135*
D	110	110	110	110
E	135*	135*	135*	135*
F	135*	135*	135*	135*
G	135*	135*	135*	135*
H	135*	135*	135*	135*
I	135*	135*	135*	135*

*The test duration. The test was discontinued after a period of 135 minutes.

Date of Test

5th December 2018

Field Of Direct Application (from EN 1366-3: 2009):**Orientation**

Test results are only applicable to the orientation in which the penetration seals were tested, i.e. in a wall or floor.

Supporting construction**Rigid floor and wall constructions**

Test results obtained with rigid standard supporting constructions may be applied to concrete or masonry separating elements of a thickness and density equal to or greater than that of the supporting construction used in the test. This rule does not apply to pipe closure devices positioned within the supporting construction in case of higher thickness of the supporting construction unless the length of the seal is increased by an equal amount and the distance from the surface of the supporting construction remains the same on both sides.

Flexible wall constructions

Test results obtained with the standard flexible wall constructions according to 7.2.2.1.2 cover all flexible wall constructions of the same fire resistance classification provided,

- The construction is classified in accordance with EN 13501-2;
- The construction has an overall thickness not less than the minimum thickness of the range given in Table 3 for the standard flexible wall used in the test. This rule does not apply to pipe closure devices positioned within the supporting construction unless the length of the seal is increased by an equal amount and the distance from the surface of the supporting construction remains the same on both sides;
- In the case of penetration seals installed within the wall and where a flexible wall with insulation was used in the test an aperture framing shall be used in practice. The aperture frame and aperture lining shall be made from studs and boards of the same specification as those used in the wall in practice. The thickness of the aperture lining shall be minimum 12,5 mm. This rule does not apply in the case where the insulation was removed around the penetration seal(s) (see 7.2.2.1.2);
- The number of board layers and the overall board layer thickness is equal or greater than that tested when no aperture framing is used;
- Flexible wall constructions with timber studs are constructed with at least the same number of layers as given in Table 3, no part of the penetration seal is closer than 100 mm to a stud, the cavity is closed between the penetration seal and the stud, and 100 mm of insulation of class A1 or A2 according to EN 13501-1 is provided within the cavity between the penetration seal and the stud.

An aperture framing is considered as being part of the penetration seal. Tests without an aperture framing cover applications with aperture framing but not vice versa.

The standard flexible wall construction does not cover sandwich panel constructions and flexible walls where the lining does not cover the studs on both sides. Penetrations in such constructions shall be tested on a case by case basis.

Test results obtained with flexible supporting walls may be applied to concrete or masonry elements of an overall thickness equal to or greater than that of the element used in the tests. This rule does not apply to pipe closure devices positioned within the supporting construction unless the length of the seal is increased by an equal amount and the distance from the surface of the supporting construction remains the same on both sides.

Service support construction

The standard cable ladders/trays as defined in Annex A cover metal trays with a melting point higher than the furnace temperature at the classification time, e.g. stainless steel, galvanised steel. For all other ladders/trays (e.g. plastic, aluminium) separate evidence is necessary.

Steel ladders/trays with organic coatings are covered by the standard ladders/trays if their overall classification is minimum A2 according to EN 13501-1.

The distance from the surface of the separating element to the nearest support position for services shall be as tested or less.

Seal size and distances

The test results obtained using standard wall and floor configurations for penetration systems are valid for any penetration size (in terms of linear dimensions) equal to or smaller than that tested, provided the total amount of cross sections of the services (including insulation) does not exceed 60 % of the penetration area, the working clearances are not smaller than the minimum working clearances (as defined in Annex A, B, E and F) used in the test and a blank penetration seal of the maximum seal size desired was tested in addition.

A blank penetration seal test may be omitted for mortar seals, seals made from rigid boards and mineral wool boards of a density of minimum 150 kg/m³ and for single service penetration seals.

For floor constructions, results from tests with a penetration seal length of minimum 1 000 mm apply to any length as long as the perimeter length to seal area ratio is not smaller than that of the test specimen.

The distance between a single service and the seal edge (annular space, e.g. a1 according to Figures B.7 and E.2) shall remain within the tested range.

Field Of Direct Application- Plastic pipes:**General**

Results from a multiple penetration seal may be extended to a single penetration seal of the same type but not vice versa.

Seal size**Pipe closure devices**

The maximum pipe closure device size within a design group determined according to E.2.2.1 covers smaller sizes of this design group.

If the thickness of the active component of the pipe closure device is changed (length remains constant) the maximum pipe closure device sizes from the design groups comprising the smallest and the largest pipe closure device sizes cover the size range / design groups in between provided the thickness of their active components is higher than the calculated value from the straight line that connects the maximum and minimum size in a thickness - pipe diameter diagram (see Figure E.8). This interpolation is only permissible if the inner diameter of the smallest pipe closure device included in the test is greater than or equal to 40 mm. NOTE: For further details see H.4.7.2

Pipe end configuration

Test results obtained from tests with "plastic pipes" having both ends uncapped (see Table 2, test condition "U/U") are valid for all other test conditions of Table 2. Test results obtained from tests where a flue gas recovery system was used are valid for pipe end conditions U/C and C/C.

Table E.1 – Field of application rules for pipe end configuration

	Tested				
		U/U	C/U	U/C	C/C
Covered	U/U	Y	N	N	N
	C/U	Y	Y	N	N
	U/C	Y	Y	Y	N
	C/C	Y	Y	Y	Y

Y = acceptable, N = not acceptable

Pipe and insulation material

The pipe and/or insulation material range permitted is the range covered by the test including the critical pipe approach results where applicable.

Test results on pipes made from PVC-U according to EN 1329-1, EN 1453-1 or EN 1452-1 are valid for pipes made from PVC-U according to EN 1329-1, EN 1453-1 and EN 1452-1 as well as pipes made from PVC-C according to EN 1566-1.

Test results on pipes made from PE-HD according to EN 1519-1 or EN 12666-1 are valid for pipes made from PE according to EN 12201, EN 1519-1 and EN 12666-1, for pipes made from ABS according to EN 1455-1 and pipes made from SAN+PVC according to EN 1565-1.

Pipe wall thickness**Pipe closure devices for pipes without insulation**

The range between that tested is covered for a particular size of the pipe closure device. The maximum thickness tested with the maximum size within a design group (see Annex E.2.2.1) of pipe closure device sizes is valid for smaller sizes within the design group. For a design group not included in the test either a linear interpolation between the corner points tested or a step approach as illustrated in Figure E.9 may be used. Where the minimum wall thickness remains the same over several design groups, the design groups representing the maximum and minimum sizes cover the intermediate ones.

Seals other than pipe closure devices

Results of tests conducted as specified in the standard configurations may be interpolated for pipes with diameters between those tested and wall thicknesses between those tested.

Pipe orientation

If a pipe was tested perpendicular to the seal as well as oblique, the result is valid for each angle between a right-angle and the angle tested.

Separations

For multiple penetrations the separations a1 to a3 from a test conducted as specified in the standard configurations may be increased without limitation (see Figure E.1).

Where single pipes penetrate directly through the structural associated construction (masonry walls, flexible walls, concrete floors etc.) the annular space between the pipe and the supporting construction shall remain within the tested range. Separation a2 may be increased.

For seals other than pipe closure devices the results of a test conducted as specified in Option 1 of the standard configurations does not cover 'clusters' of pipes, unless the distances a3 (Figure E.1) or a2 (Figure E.2) are > 100 mm in practice. The results of a test conducted as specified in Option 2 of the standard configurations covers pipes with linear separation.

Additional rules for pipes fitted with an insulation**Pipe closure devices**

In the case where a pipe closure device is used, the maximum pipe closure device size within a design group determined according to E.2.2.1 covers smaller sizes. If the thickness of the active component of the pipe closure device is changed (length remains constant) the maximum pipe closure device sizes from the design groups comprising the smallest and the largest pipe closure device sizes cover the size range / design groups in between provided the thickness of their active components is higher than the calculated value from the straight line that connects the maximum and minimum size in a thickness - pipe diameter diagram (see Figure E.8). In this situation pipe diameter as shown in Figure E.9 equals the sum of the actual pipe diameter and twice the thickness of the insulation.

Tests on non-insulated pipes do not cover insulated pipes.

Tests with sustained insulation cover interrupted insulation but not vice versa. Tests with sustained insulation do not cover interrupted insulation where the pipe closure device is in direct contact with the pipe.

Seals other than pipe closure devices

The thickness of the insulation may be interpolated between tested dimensions.

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 7 of EN 13501-2: 2007.

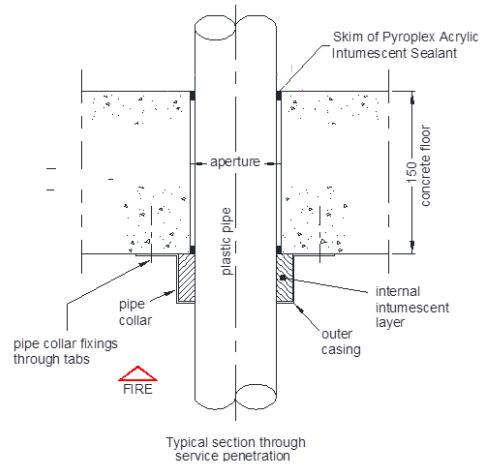
4.2 Classification

The product, Pyroplex 200 Series SL may be classified according to the following combinations of performance parameters and classes as appropriate.

R	E	I	W		<i>t</i>	-	M	C	S	IncSlow	sn	ef	r
---	---	---	---	--	----------	---	---	---	---	---------	----	----	---

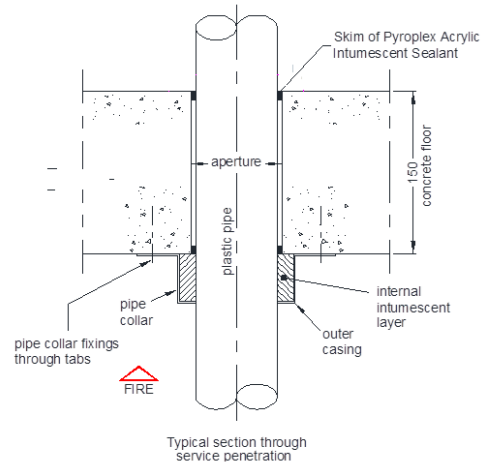
Considering the tests submitted for classification, Pyroplex 200 Series SL provides the following classification for the tested seal type:

uPVC Pipes Rigid Floors 150mm Thick.
Pyroplex 200 Series SL Mounted to the Underisde



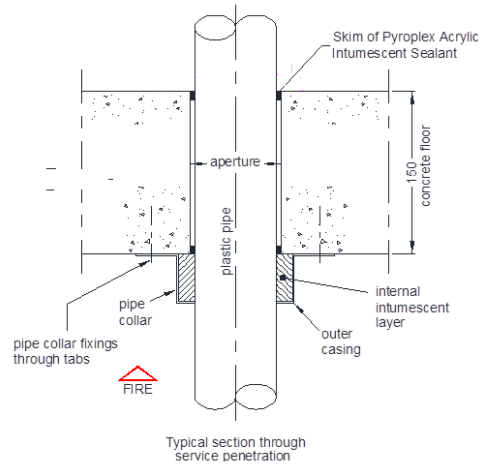
Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
uPVC	50	2.4 - 3.7	52	EI 120 U/C
	75	3.2 – 4.9	75	
	82	3.4 – 5.2	82	
	110	4.2 – 6.6	110	
	160	6.2 – 9.5	160	

PP Pipes Rigid Floors 150mm Thick.
Pyroplex 200 Series SL Mounted to the Underisde



Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
PP	50	2 – 6.9	52	EI 120 U/C
	75	2.3 – 10.3	75	
	82	2.4 – 11.3	82	
	110	2.7 – 15.1	110	
	160	4– 21.9	160	

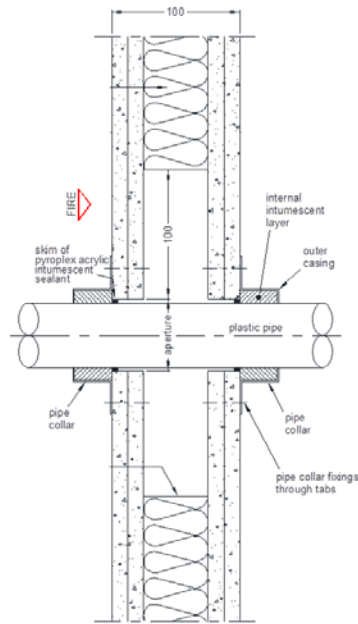
PE Pipes Rigid Floors 150mm Thick.
Pyroplex 200 Series SL Mounted to the Underisde



Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
PE	50	3 – 4.6	52	EI 120 U/C
	75	2.9 – 6.9	75	
	82	2.4 – 11.3	82	
	110	2.8 – 7.5	110	

Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
PE	160	4– 14.6	160	EI 90 U/C

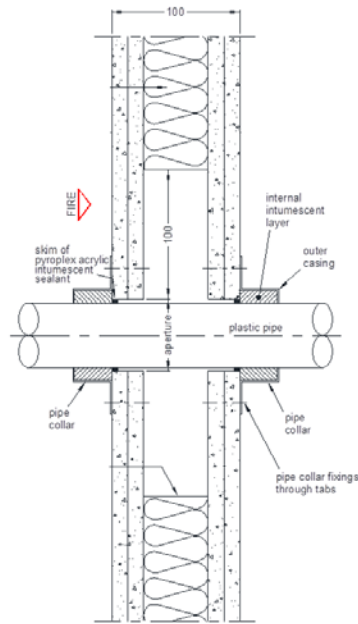
uPVC Pipes Flexible and Rigid Walls min 100mm Thick.
Pyroplex 200 Series SL Mounted to Both Faces



Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thckn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
uPVC	50	2.4 - 3.7	52	E 120 EI 90 U/C
	75	3.2 – 4.9	75	
	82	3.4 – 5.2	82	
	110	4.2 – 6.6	110	
	160	6.2 – 9.5	160	

Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thckn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
uPVC	160	6.2 – 9.5	160	EI 120 U/C

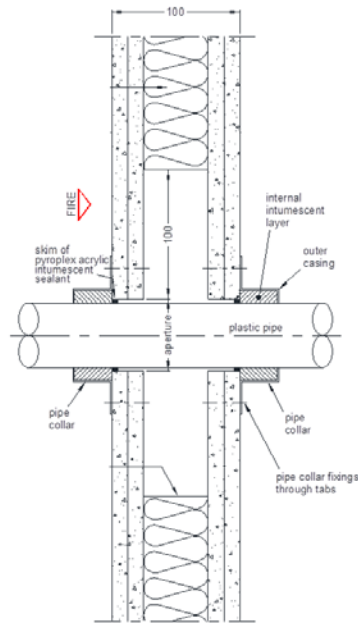
PP Pipes Flexible and Rigid Walls min 100mm Thick.
Pyroplex 200 Series SL Mounted to Both Faces



Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thckn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
PP	50	2 – 6.9	52	E 120 EI 60 U/C
	75	2.3 – 10.3	75	
	82	2.4 – 11.3	82	
	110	2.7 – 15.1	110	
	160	4– 21.9	160	

Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thckn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
PP	160	4– 21.9	160	E 120 EI 90 U/C

PE Pipes Flexible and Rigid Walls min 100mm Thick.
Pyroplex 200 Series SL Mounted to Both Faces



Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
PE	50	3 – 4.6	52	E 120 EI 90 U/C
	75	2.9 – 6.9	75	
	82	2.4 – 11.3	82	
	110	2.8 – 7.5	110	

Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Collar Ref	FIRE RESISTANCE CLASSIFICATION
PE	160	4– 14.6	160	EI 120 U/C

4.3 Field of application

The results of the tests are directly applicable to similar constructions where one or more of the changes listed below each test summary are made and the construction continues to comply with that appropriate design code for its stiffness and stability. Other changes are not permitted.

5. Limitations

This classification document does not represent type approval or certification of the product.

SIGNED



Craig Abbott
Principal Engineer

APPROVED



Rob Wakefield
Senior Engineer

Issue 2: 6th August 2019

This copy has been produced from a .pdf format electronic file that has been provided by **Warringtonfire** to the sponsor of the report and must only be reproduced in full. Extracts or abridgements of reports must not be published without permission of **Warringtonfire**. The pdf copy supplied is the sole authentic version of this document. All pdf versions of this report bear authentic signatures of the responsible **Warringtonfire** staff.

All work and services carried out by Warringtonfire Testing and Certification Limited are subject to, and conducted in accordance with, the Standard Terms and Conditions of Warringtonfire Testing and Certification Limited, which are available at <https://www.element.com/terms/terms-and-conditions> or upon request.