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Testing. Advising. Assuring.

Title:

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

Notified Body No:

0833

Product Name:

Pyroplex 200 Series Pipe Wrap

Report No:

387452

Issue No:

1

Prepared for:

Pyroplex Limited
The Furlong
Droitwich
Worcestershire
WR9 9BG

Date:

10th April 2018

UKAS TESTING
0249

1. Introduction

This classification report defines the classification assigned to the element Pyroplex 200 Series Pipe Wrap 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 Pipe Wrap is defined as a fire resisting penetration sealing system to be used to reinstate the performance of walls and floors.

2.2 Product description

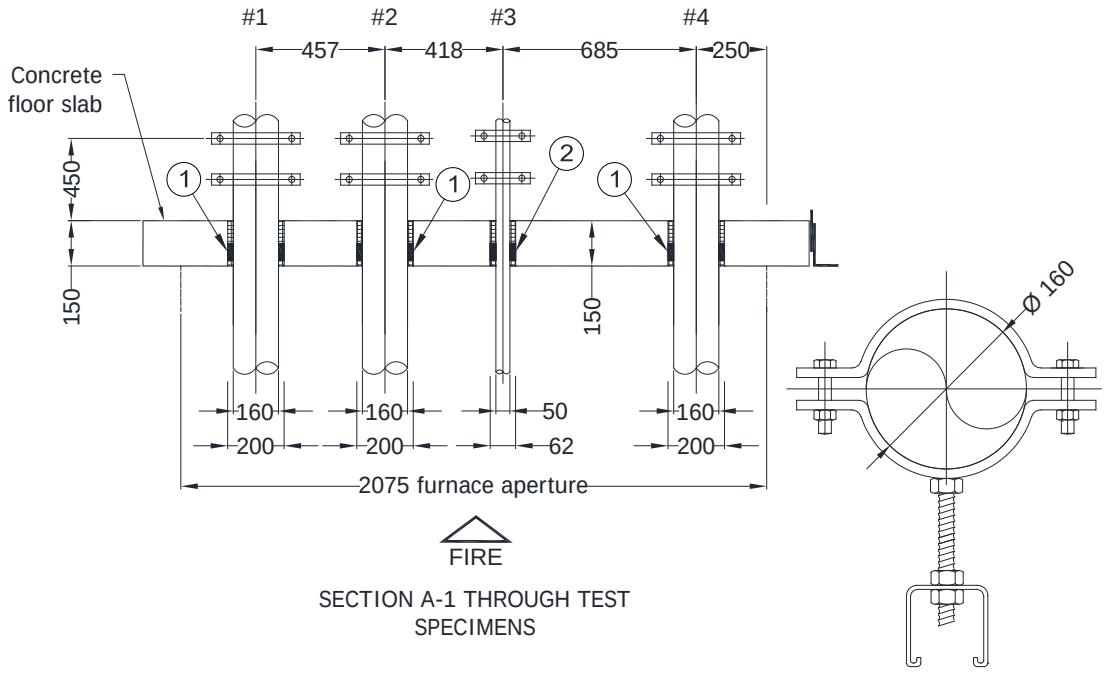
The product, Pyroplex 200 Series Pipe Wrap, is fully described in the test report provided in support of classification detailed in Clause 3.1.

3. Test reports in support of classification

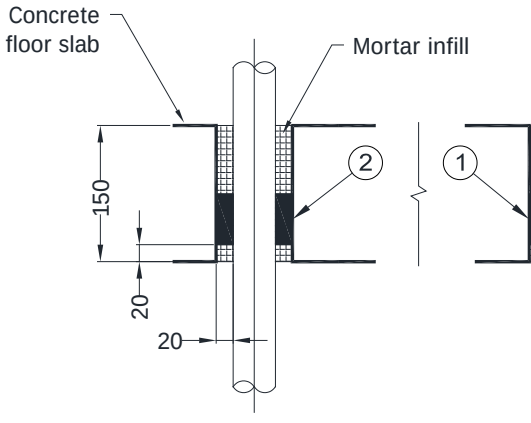
3.1 Summary of test reports

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. 384250	BS EN 1366-3: 2009
		WF Test Report No. 384251	
		WF Test Report No. 394147	

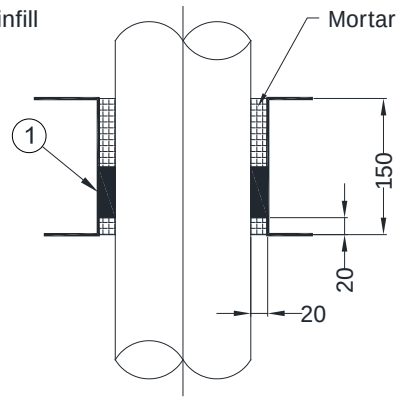
Summary of WF Test Report No. 384250



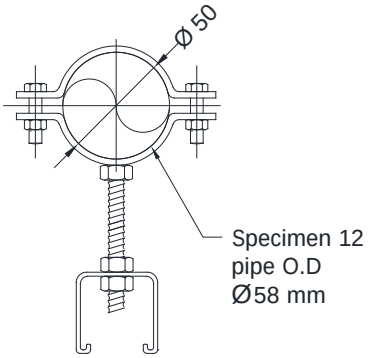
SECTION A-1 THROUGH TEST SPECIMENS



TYPICAL SECTION TROUGH SPECIMENS 3

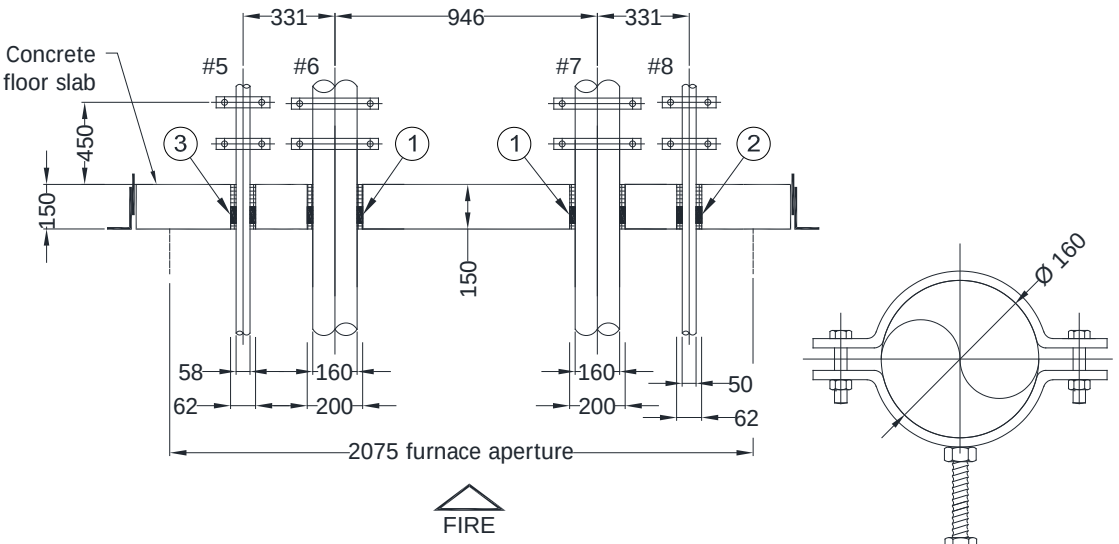


TYPICAL SECTION TROUGH SPECIMENS 1, 2, & 4

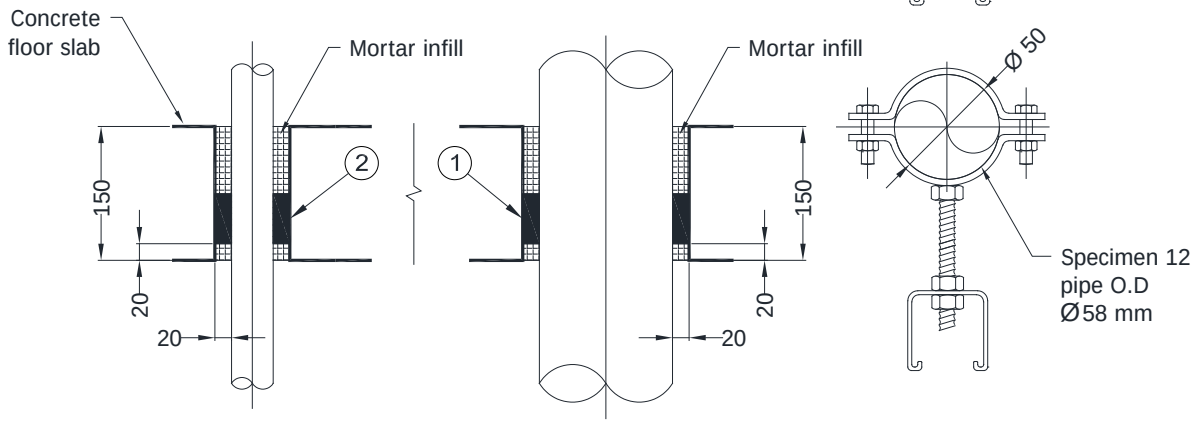


ALL SERVICES FIXED TO RESTRAINT FRAME WITH PIPE CLIPS AND UNISTRUT

Summary of WF Test Report No. 384250



SECTION A-2 THROUGH TEST SPECIMENS



TYPICAL SECTION TROUGH SPECIMENS 5 & 8

TYPICAL SECTION TROUGH SPECIMENS 6 & 7

ALL SERVICES FIXED TO RESTRAINT FRAME WITH PIPE CLIPS AND UNISTRUT

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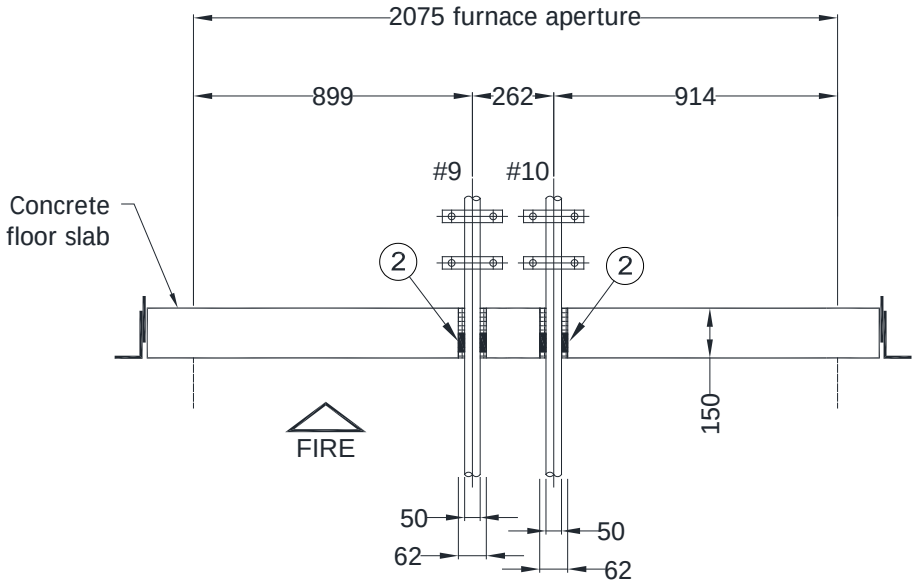
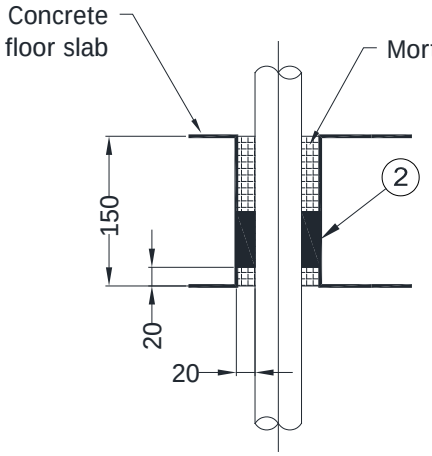
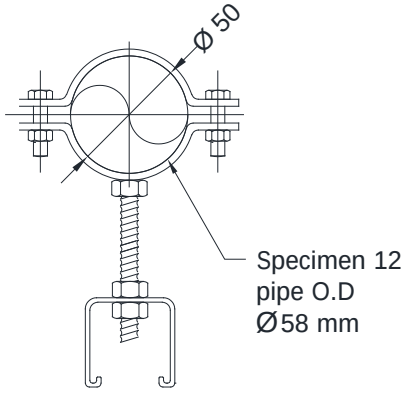
Summary of WF Test Report No. 384250



SECTION A-3 THROUGH TEST SPECIMENS

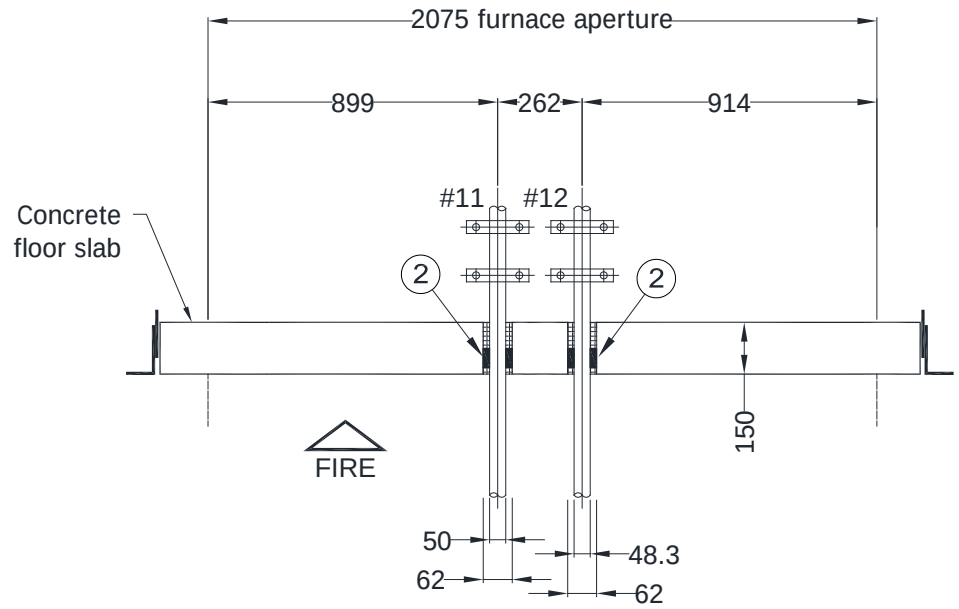


TYPICAL SECTION TROUGH SPECIMENS 9 & 10

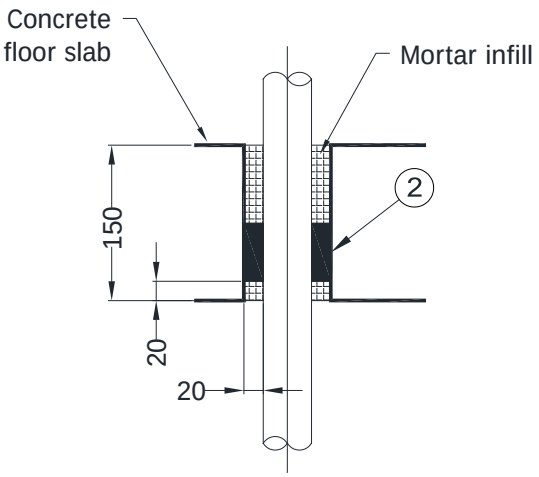


ALL SERVICES FIXED TO RESTRAINT FRAME WITH PIPE CLIPS AND UNISTRUT

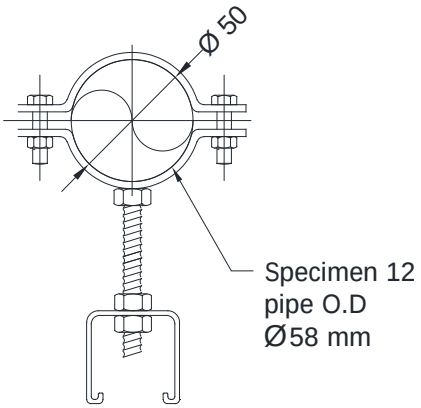
Summary of WF Test Report No. 384250



SECTION A-4 THROUGH TEST SPECIMENS

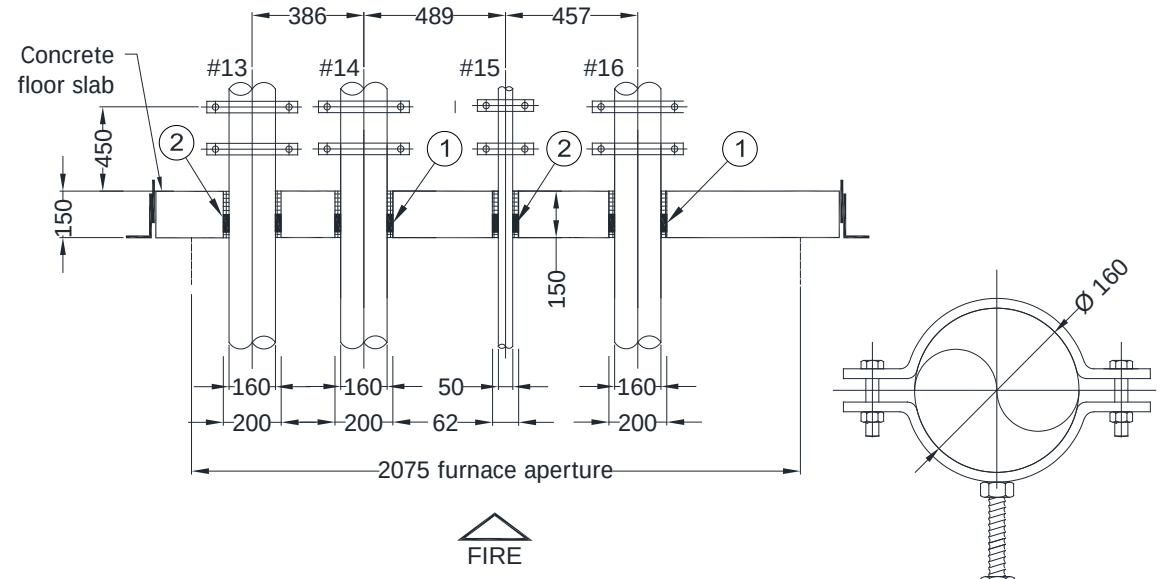


TYPICAL SECTION TROUGH SPECIMENS 11 & 12

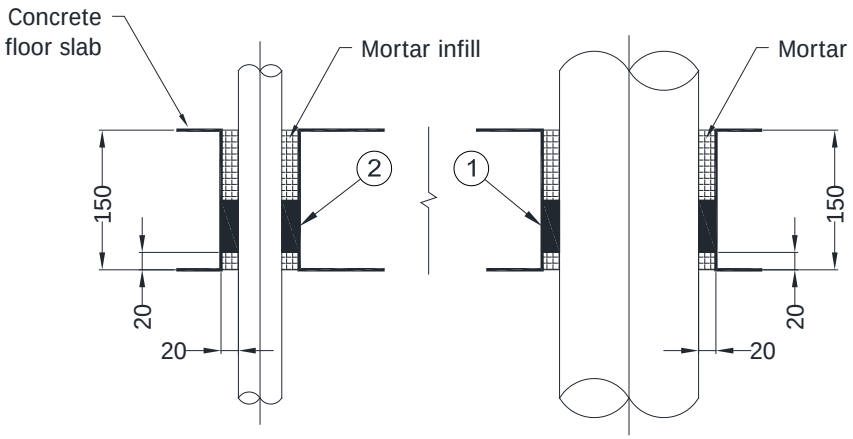


ALL SERVICES FIXED TO RESTRAINT FRAME WITH PIPE CLIPS AND UNISTRUT

Summary of WF Test Report No. 384250

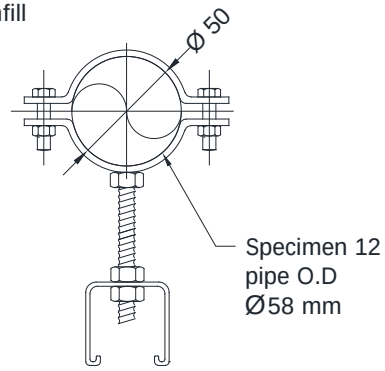


SECTION A-5 THROUGH TEST SPECIMENS



TYPICAL SECTION TROUGH SPECIMENS 13 & 16

TYPICAL SECTION TROUGH SPECIMENS 14 & 15



ALL SERVICES FIXED TO RESTRAINT FRAME WITH PIPE CLIPS AND UNISTRUT

Item		Description
1. Pyroplex Wrap		
Manufacturer	:	Pyroplex® Fire Containment
Reference	:	Pyroplex® 200 series wrap PPW160-2
Material	:	Graphite based intumescent wrap contained within a PVC sheath
Overall size	:	1 off 60 mm wide strip 4.5 mm thick 1 off 60 mm wide strip 9.5 mm thick
Fixing method	:	Wrapped around pipe and friction fitted into aperture 20 mm away from exposed face then infilled with mortar
2. Pyroplex Wrap		
Manufacturer	:	Pyroplex® Fire Containment
Reference	:	Pyroplex® 200 series wrap PPW50-2
Material	:	Graphite based intumescent wrap contained within a PVC sheath
Overall size	:	1 off 60 mm wide strip 4.5 mm thick
Fixing method	:	Wrapped around pipe and friction fitted into aperture 20 mm away from exposed face then infilled with mortar
3. Pyroplex Wrap		
Manufacturer	:	Pyroplex® Fire Containment
Reference	:	Pyroplex® 200 series wrap PPW55-2
Material	:	Graphite based intumescent wrap contained within a PVC sheath
Overall size	:	1 off 60 mm wide strip 4.5 mm thick
Fixing method	:	Wrapped around pipe and friction fitted into aperture 20 mm away from exposed face then infilled with mortar
Specimen 1		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	HDPE
Overall size	:	⌀ 160 mm cut into 1200mm lengths 4.9 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted 20 mm away from exposed face aperture then infilled with mortar

Item		Description
Specimen 2		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVC-U
Overall size	:	⌀ 160 mm cut into 1200mm lengths 6.2 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 2) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 3		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	HDPE
Overall size	:	⌀ 50 mm cut into 1200mm lengths 3 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item x) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 4		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PP
Overall size	:	⌀ 160 mm cut into 1200mm lengths 9.1 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted 20 mm away from exposed face aperture then infilled with mortar ▪
Specimen 5		
Manufacturer	:	Wavin AS Astolan
Material	:	PP DIN4102-B2
Overall size	:	⌀ 58 mm cut into 1200mm lengths 4 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW55-2 (item 3) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 6		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	HDPE
Overall size	:	⌀ 160 mm cut into 1200mm lengths 9.5 mm wall thickness
Aperture size	:	⌀ 200 mm aperture

Item		Description
Specimen 6 (cont'd)		
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 7		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVC-U
Overall size	:	⌀ 160 mm cut into 1200mm lengths 9.5 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 8		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PP
Overall size	:	⌀ 50 mm cut into 1200mm lengths 2 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 9		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PP
Overall size	:	⌀ 50mm cut into 1200mm lengths 4.6 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 10		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVC-U
Overall size	:	⌀ 50 mm cut into 1200mm lengths 3.7 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted 20 mm away from exposed face aperture then infilled with mortar

Item		Description
Specimen 11		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	HDPE
Overall size	:	⌀ 50 mm cut into 1200mm lengths 4.6 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 12		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVC-U
Overall size	:	⌀ 48.3 mm cut into 1200mm lengths 5.1 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 13		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PP
Overall size	:	⌀ 160 mm cut into 1200 mm lengths 4.9 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 14		
Manufacturer	:	Rehau
Material	:	PP-MD DIN4102-B2 Raupiano plus acoustic pipe
Overall size	:	⌀ 160 mm cut into 1200mm lengths 4.3 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 15		
Manufacturer	:	Rehau
Material	:	PP-MD DIN4102-B2 Raupiano plus acoustic pipe
Overall size	:	⌀ 50 mm cut into 1200 mm lengths 2 mm wall thickness
Aperture size	:	⌀ 62 mm aperture

Item		Description
Specimen 15 (cont'd)		
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted 20 mm away from exposed face aperture then infilled with mortar
Specimen 16		
Manufacturer	:	Wavin AS Astolan
Material	:	PP DIN4102-B2
Overall size	:	⌀ 160 mm cut into 1200mm lengths 5.3 mm wall thickness
Aperture size	:	⌀ 200 aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted 20 mm away from exposed face aperture then infilled with mortar
Additional Information		
Pipe supports	:	Supplied and installed by **Exova Warrington Fire**

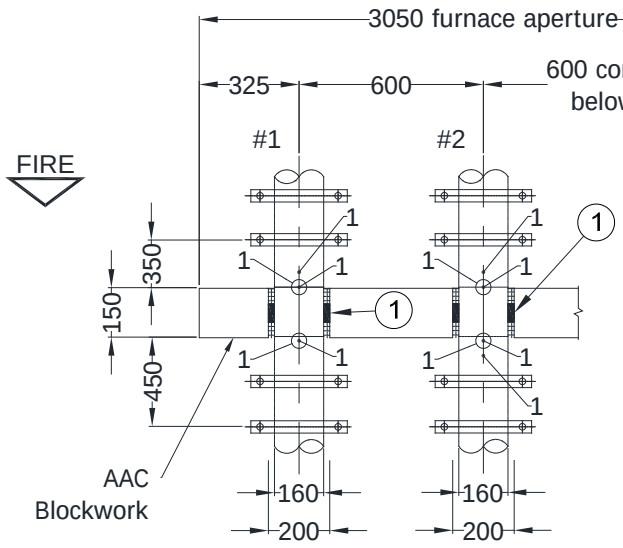
Specimen	Integrity (minutes)			Insulation (minutes)
	Cotton pad	Sustained flaming	Gap gauge	
1	141*	141*	141*	141*
2	107	107	108#	107
3	141*	141*	141*	141*
4	138	138	140#	126
5	141*	141*	141*	141*
6	122	122	124#	122
7	126	126	128#	126
8	141*	141*	141*	141*
9	141*	141*	141*	141*
10	141*	141*	141*	141*
11	141*	141*	141*	141*
12	141*	141*	141*	141*
13	141*	141*	141*	141*
14	141*	141*	141*	141*
15	141*	141*	141*	141*
16	109	109	110#	107

*The test duration. The test was discontinued after a period of 141 minutes.

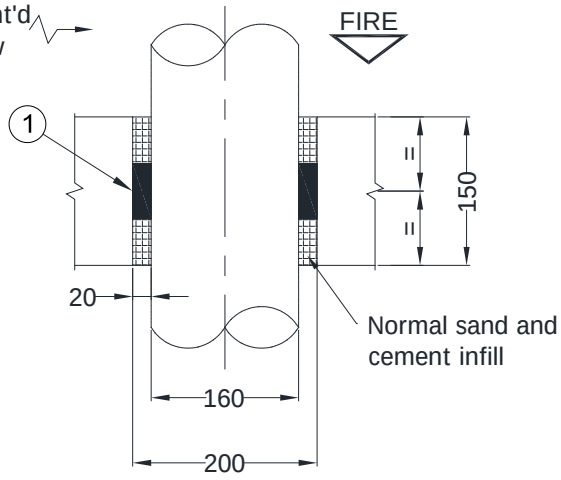
Specimen blanked off to allow test to continue.

Date of Test 20th June 2017

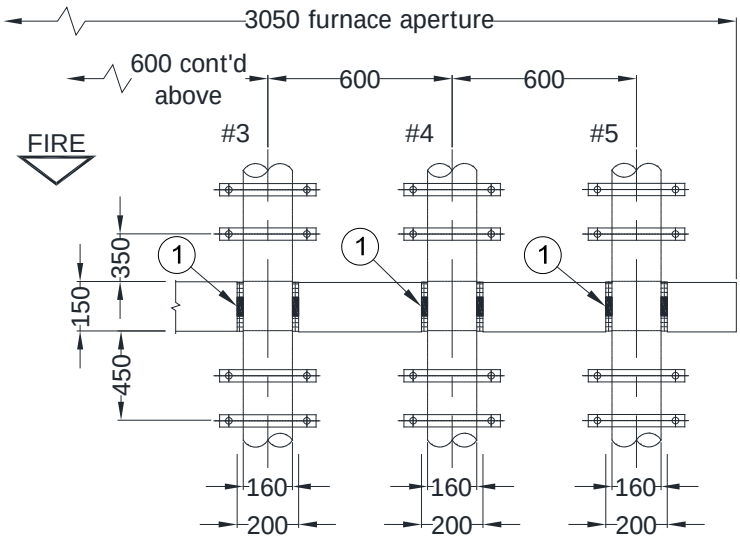
Summary of WF Test Report No. 384251



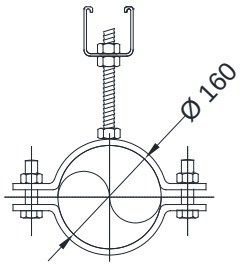
HORIZONTAL SECTION A-1



TYPICAL SECTION TROUGH
SPECIMENS 1, 2, 3, 4, 5,
14, 15 & 16

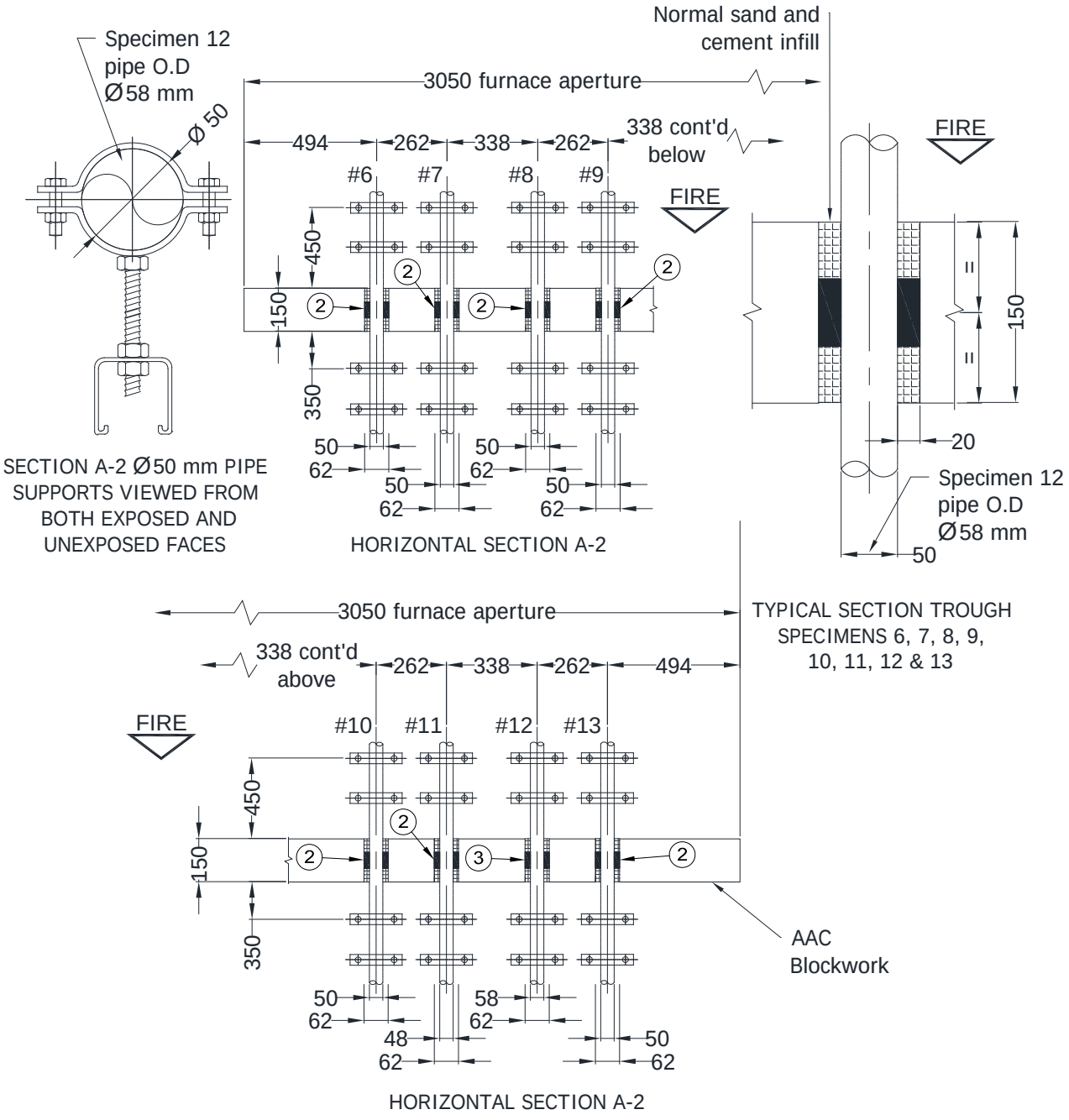


HORIZONTAL SECTION A-1

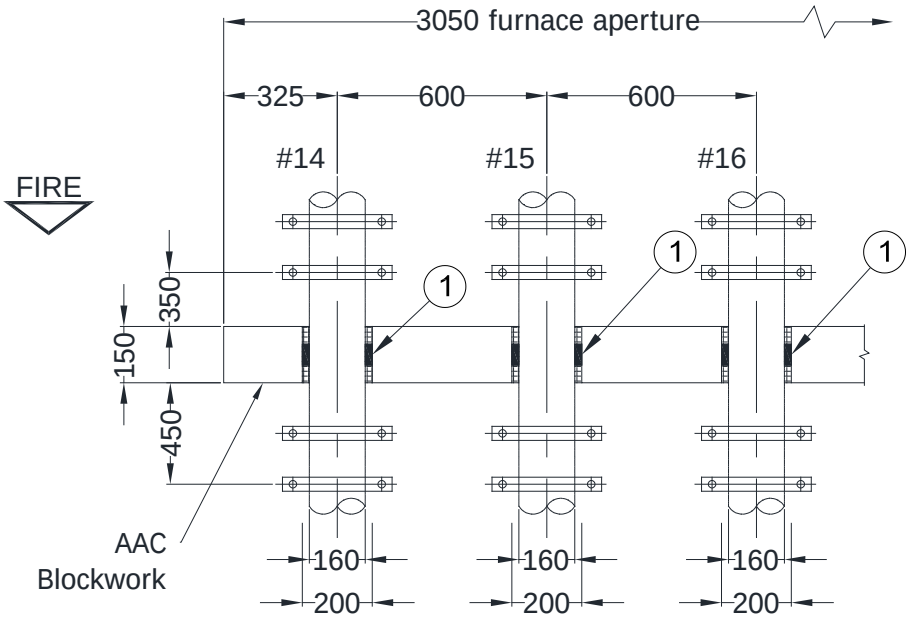


SECTION A-1 Ø160 mm PIPE
SUPPORTS VIEWED FROM
BOTH EXPOSED AND
UNEXPOSED FACES

Summary of WF Test Report No. 384251



Summary of WF Test Report No. 384251



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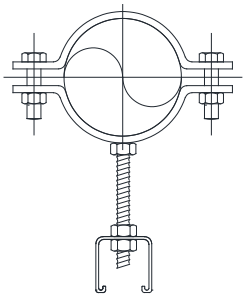
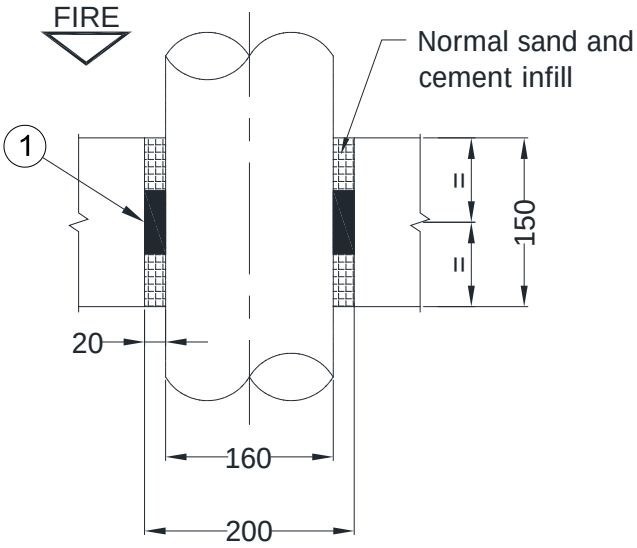


SECTION A-3 Ø160 mm PIPE SUPPORTS VIEWED FROM BOTH EXPOSED AND UNEXPOSED FACES



TYPICAL SECTION TROUGH SPECIMENS 1, 2, 3, 4, 5, 14, 15 & 16

Item		Description
1. Pyroplex Wrap		
Manufacturer	:	Pyroplex® Fire Containment
Reference	:	Pyroplex® 200 series wrap PPW160-2
Material	:	Graphite based intumescent wrap contained within a PVC sheath
Overall size	:	1 off 60 mm wide strip 4.5 mm thick 1 off 60 mm wide strip 9.5 mm thick Combined thickness of 14 mm
Fixing method	:	Wrapped around pipe and friction fitted into aperture at mid-depth then infilled with mortar
2. Pyroplex Wrap		
Manufacturer	:	Pyroplex® Fire Containment
Reference	:	Pyroplex® 200 series wrap PPW50-2
Material	:	Graphite based intumescent wrap contained within a PVC sheath
Overall size	:	1 off 60 mm wide strip 4.5 mm thick
Fixing method	:	Wrapped around pipe and friction fitted into aperture at mid-depth then infilled with mortar
3. Pyroplex Wrap		
Manufacturer	:	Pyroplex® Fire Containment
Reference	:	Pyroplex® 200 series wrap PPW55-2
Material	:	Graphite based intumescent wrap contained within a PVC sheath
Overall size	:	1 off 60 mm wide strip 4.5 mm thick
Fixing method	:	Wrapped around pipe and friction fitted into aperture at mid-depth of the aperture then infilled with mortar
Specimen 1		
Supplier	:	Supplied by **Exova Warrington Fire**
Material	:	HDPE
Overall size	:	⌀ 160 mm cut into 1200mm lengths 4.9 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted at mid depth of wall then infilled with mortar

Item		Description
Specimen 2		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	HDPE
Overall size	:	⌀ 160 mm cut into 1200mm lengths 9.5 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted at mid depth of wall then infilled with mortar
Specimen 3		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PP
Overall size	:	⌀ 160 mm cut into 1200mm lengths 4.9 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted at mid depth of wall then infilled with mortar
Specimen 4		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PP
Overall size	:	⌀ 160 mm cut into 1200mm lengths 9.1 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted at mid depth of wall then infilled with mortar
Specimen 5		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVC-U
Overall size	:	⌀ 160 mm cut into 1200mm lengths 9.5 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted at mid depth of wall then infilled with mortar
Specimen 6		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	HDPE
Overall size	:	⌀ 50 mm cut into 1200mm lengths 3 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted at mid depth of wall then infilled with mortar

Item		Description
Specimen 7		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	HDPE
Overall size	:	⌀ 50 mm cut into 1200mm lengths 4.6 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted at mid depth of wall then infilled with mortar
Specimen 8		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PP
Overall size	:	⌀ 50 mm cut into 1200mm lengths 2 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted at mid depth of wall then infilled with mortar
Specimen 9		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PP
Overall size	:	⌀ 50mm cut into 1200mm lengths 4.6 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted at mid depth of wall then infilled with mortar
Specimen 10		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVC-U
Overall size	:	⌀ 50 mm cut into 1200mm lengths 3.7 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted at mid depth of wall then infilled with mortar
Specimen 11		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVC-U
Overall size	:	⌀ 48.3 mm cut into 1200mm lengths 5.1 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted at mid depth of wall then infilled with mortar

Item		Description
Specimen 12		
Manufacturer	:	Wavin AS Astolan
Material	:	PP DIN4102-B2
Overall size	:	⌀ 58 mm cut into 1200mm lengths 4 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW55-2 (item 3) fitted at mid depth of wall then infilled with mortar
Specimen 13		
Manufacturer	:	Rehau
Material	:	PP-MD DIN4102-B2 Raupiano plus acoustic pipe
Overall size	:	⌀ 50 mm cut into 1200mm lengths 2 mm wall thickness
Aperture size	:	⌀ 62 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW50-2 (item 2) fitted at mid depth of wall then infilled with mortar
Specimen 14		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVC-U
Overall size	:	⌀ 160 mm cut into 1200mm lengths 6.2 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted at mid depth of wall then infilled with mortar
Specimen 15		
Manufacturer	:	Rehau
Material	:	PP-MD DIN4102-B2 Raupiano plus acoustic pipe
Overall size	:	⌀ 160 mm cut into 1200mm lengths 4.3 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted at mid depth of wall then infilled with mortar
Specimen 16		
Manufacturer	:	Wavin AS Astolan
Material	:	PP DIN4102-B2
Overall size	:	⌀ 160 mm cut into 1200mm lengths 5.3 mm wall thickness
Aperture size	:	⌀ 200 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 450 mm and 350 from the both the exposed face and unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW160-2 (item 1) fitted 20 mm away from exposed face aperture then infilled with mortar

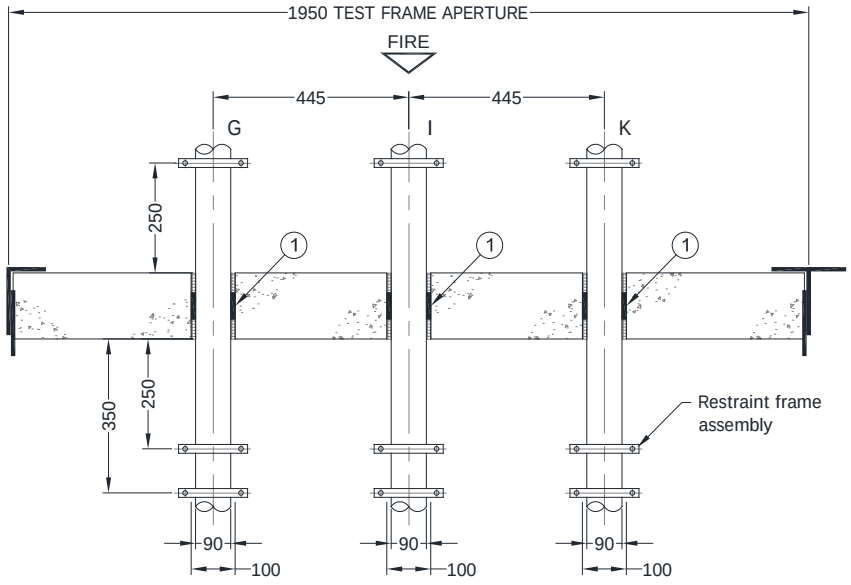
Item		**Description**
Masonry Wall		
Material	:	Autoclaved aerated concrete blocks
Density	:	760 kg/m^3
Thickness	:	150 mm
Bedding material	:	Ordinary sand/cement mortar mix (3:1 ratio)
Additional Information on services		
Mortar	:	Ordinary sand/cement mortar mix (3:1 ratio)
Penetration supporting construction	:	The penetrating services are fixed to a support frame fabricated from proprietary steel channels of section size 41 mm by 41 mm by 2.5 mm thick. The support frame is fixed to the wall furnace specimen restraint frame, independent of the drywall assembly. Fixings for the pipe penetrations are propriety steel pipe clamps, 25 mm wide. The pipe clamps are attached to stands of steel threaded rod which are fixed to the horizontal cross channels with nuts and washers.
Pipe end plugs	:	Pipes were plugged on unexposed face with an alkali-silicate fibre plugs

Specimen	**Integrity (minutes)**			**Insulation (minutes)**
	Cotton pad	**Sustained flames**	**Gap Gauge**	
1	150*	150*	150*	150*
2	150*	150*	150*	150*
3	150*	150*	150*	150*
4	150*	150*	150*	150*
5	150*	150*	150*	150*
6	150*	150*	150*	150*
7	150*	150*	150*	150*
8	150*	150*	150*	150*
9	150*	150*	150*	150*
10	150*	150*	150*	150*
11	150*	150*	150*	150*
12	150*	150*	150*	150*
13	150*	150*	150*	150*
14	150*	150*	150*	150*
15	134	134	137#	134
16	150*	150*	150*	65

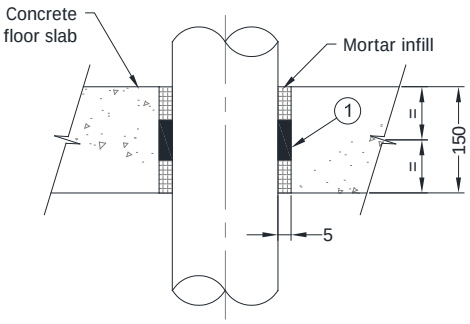
*The test duration. The test was discontinued after a period of 150 minutes.
#Specimen blanked off

Date of Test 29th June 2017

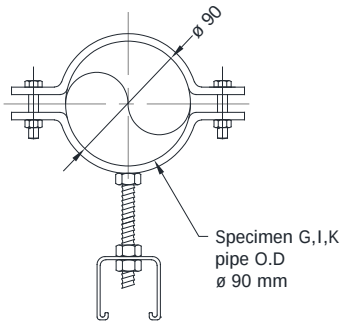
Summary of WF Test Report No. 394147



SECTION A1 THROUGH WALL SPECIMENS G,I,K

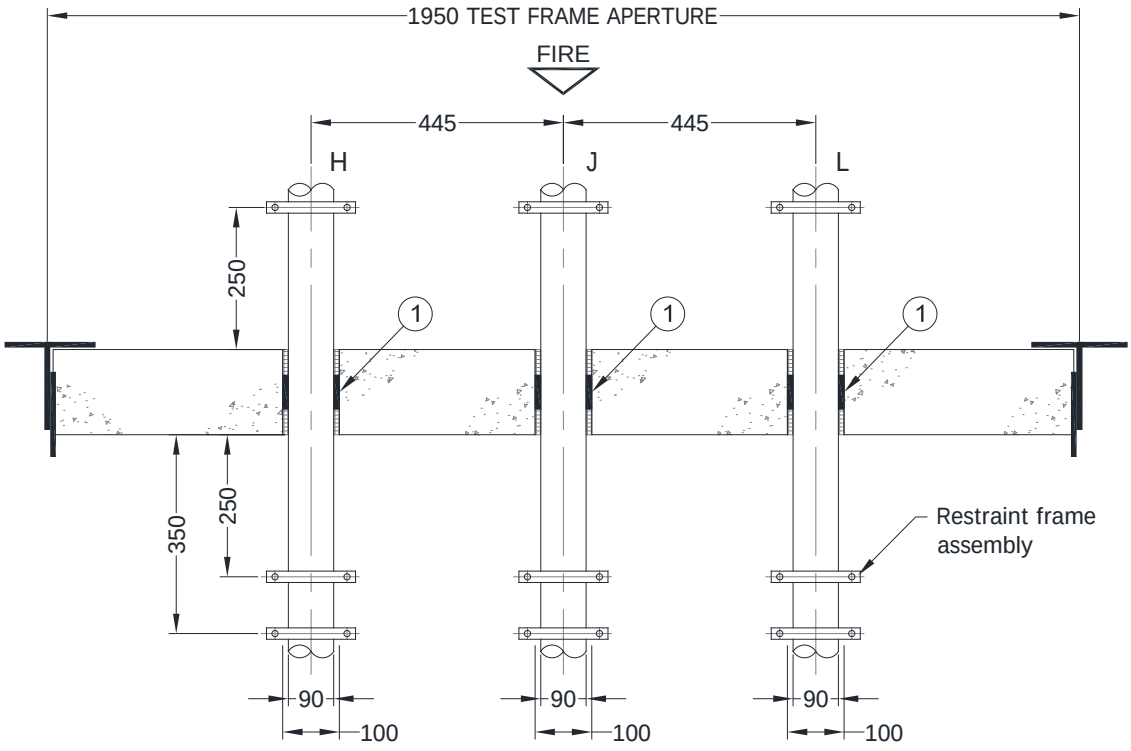


TYPICAL SECTION THROUGH SPECIMENS G,I,K

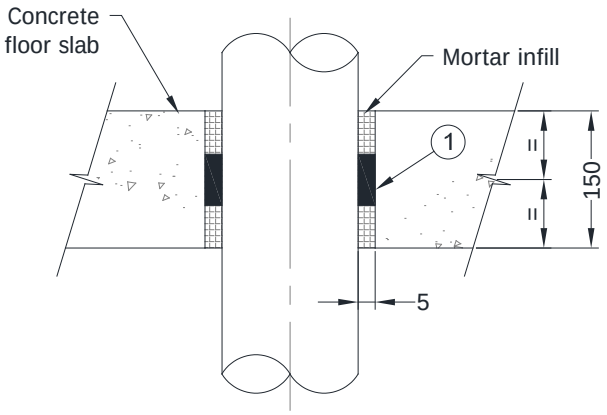


DETAILS RESTRAINT FRAME ASSEMBLY

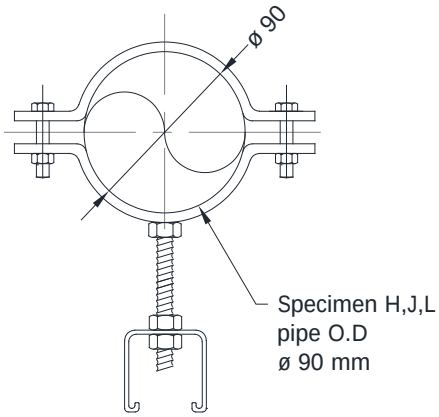
Summary of WF Test Report No. 394147



SECTION A2 THROUGH WALL SPECIMENS H,J,L

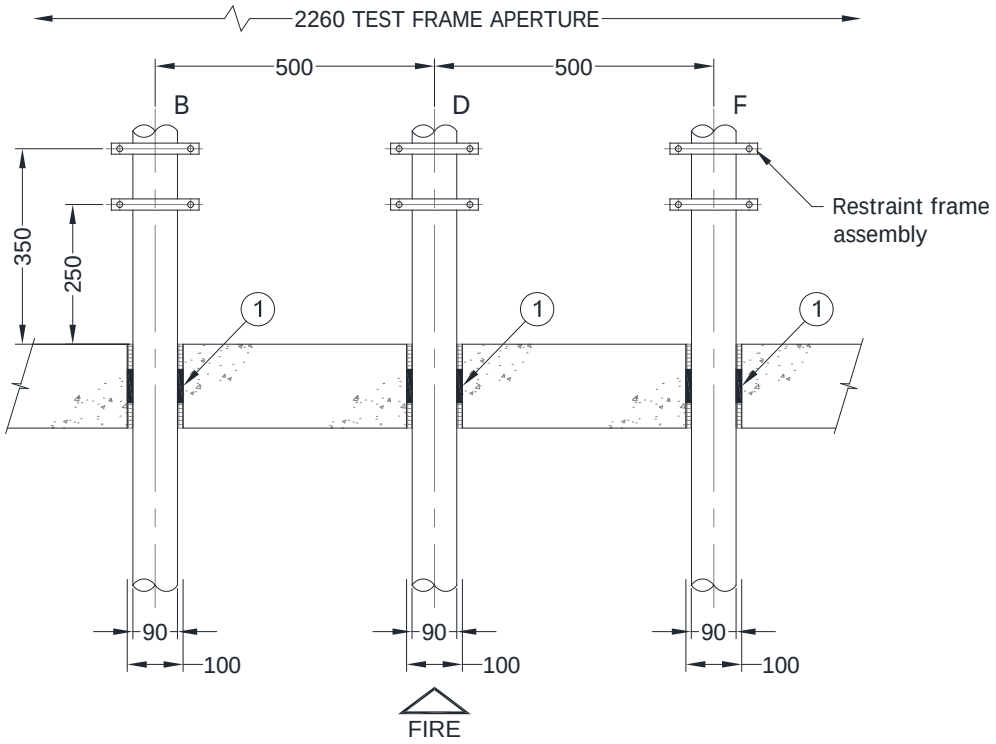


TYPICAL SECTION THROUGH SPECIMENS H,J,L

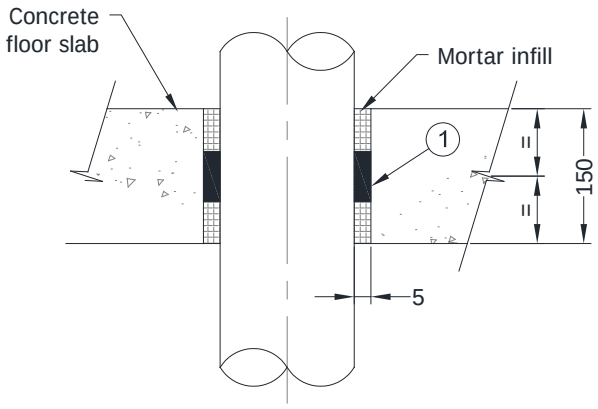


DETAILS RESTRAINT FRAME ASSEMBLY

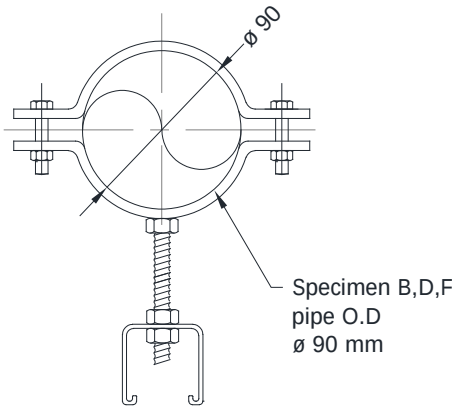
Summary of WF Test Report No. 394147



SECTION A3 THROUGH WALL SPECIMENS B,D,F

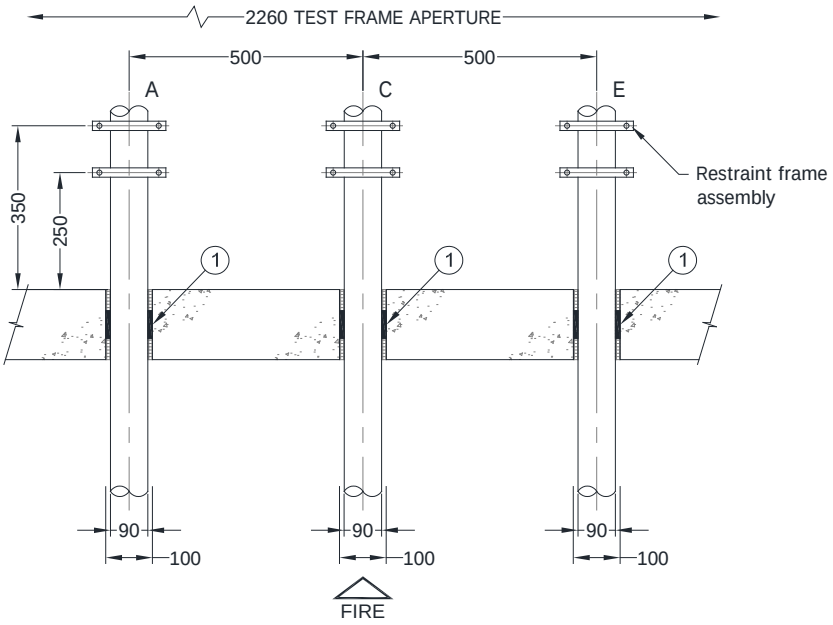


TYPICAL SECTION THROUGH SPECIMENS B,D,F

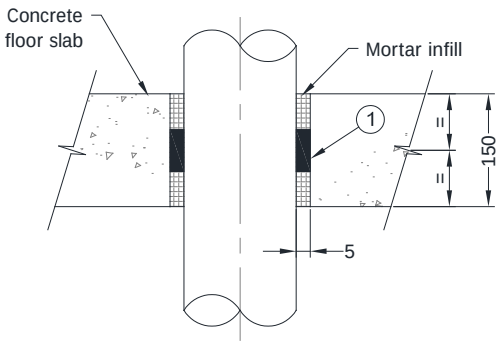


DETAILS RESTRAINT FRAME ASSEMBLY

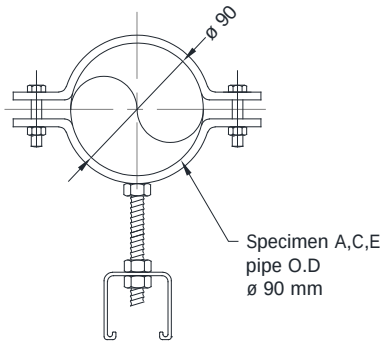
Summary of WF Test Report No. 394147



SECTION A4 THROUGH WALL SPECIMENS A,C,E



TYPICAL SECTION THROUGH SPECIMENS A,C,E



DETAILS RESTRAINT FRAME ASSEMBLY

Item		Description
1. Pyroplex Wrap		
Manufacturer	:	Pyroplex® Fire Containment
Reference	:	Pyroplex® 200 series wrap PPW90-2
Material	:	Graphite based intumescent wrap contained within a PVC sheath
Overall size	:	1 off 60 mm wide strip 4.75 mm (nominal) thick
Fixing method	:	Wrapped around pipe and friction fitted into aperture centrally within exposed face then infilled with mortar
Specimen G		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	AGRU TW B5174 – 1
Material	:	PPH (polypropylene)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 2.8 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face and 250 mm from the exposed face.
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar
Specimen I		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	AGRU 100 W/P Norm EN 12201
Material	:	PE (polyethylene)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 2.8 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face and 250 mm from the exposed face.
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within exposed face aperture then infilled with mortar
Specimen K		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	DYKA KIWA PNG16
Material	:	PVCu (un-plasticized polyvinyl chloride)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 5.4 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face and 250 mm from the exposed face.
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar

Item		Description
Specimen H		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	AGRU 100 TW Norm B5174 – 1
Material	:	PPH (polypropylene) 100 TW
Overall size	:	⌀ 90 mm cut into 1200mm lengths 8.2 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 350 mm and 450 mm from the unexposed face and 250 mm from the exposed face.
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar
Specimen J		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	AGRU 100 W/P Norm EN12201
Material	:	PE (polyethylene)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 8.2 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face and 250 mm from the exposed face.
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar
Specimen L		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	PLIMAT Class 3 BS3505
Material	:	PVCu (un-plasticized polyvinyl chloride)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 4 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face and 250 mm from the exposed face.
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar
Specimen B		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	AGRU 100 W/P Norm EN 12201
Material	:	PE (polyethylene)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 2.8 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar
Specimen D		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	AGRU 100 TW B5174 – 1
Material	:	PPH (polypropylene)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 2.8 mm wall thickness
Aperture size	:	⌀ 100 mm aperture

Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar

Item		**Description**
Specimen F		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Material	:	PVCu (un-plasticized polyvinyl chloride)
Overall size	:	⌀ 90mm cut into 1200mm lengths 3.2 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar
Specimen A		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	AGRU 100 W/P Norm EN 12201
Material	:	PE (polyethylene) 100 W/P Agru
Overall size	:	⌀ 90 mm cut into 1200mm lengths 8.2 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar
Specimen C		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	AGRU 100 TW B5174 – 1
Material	:	PPH (polypropylene)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 8.2 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar
Specimen E		
Manufacturer	:	Supplied by **Exova Warrington Fire**
Reference	:	DYKA KIWA PNG16
Material	:	PVCu (un-plasticized polyvinyl chloride)
Overall size	:	⌀ 90 mm cut into 1200mm lengths 5.4 mm wall thickness
Aperture size	:	⌀ 100 mm aperture
Fixing method	:	Held to restraint frame with pipe clamps fixed to a unistrut frame 250 mm and 350 mm from the unexposed face
Fire Prevention	:	Pyroplex 200 series wrap PPW90-2 (item 1) fitted centrally within the aperture then infilled with mortar

Additional Information

Pipe supports	:	Supplied and installed by **Exova Warrington Fire**

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*
J	135*	135*	135*	135*
K	135*	135*	135*	135*
L	135*	135*	135*	135*

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

Date of Test 23rd January 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.

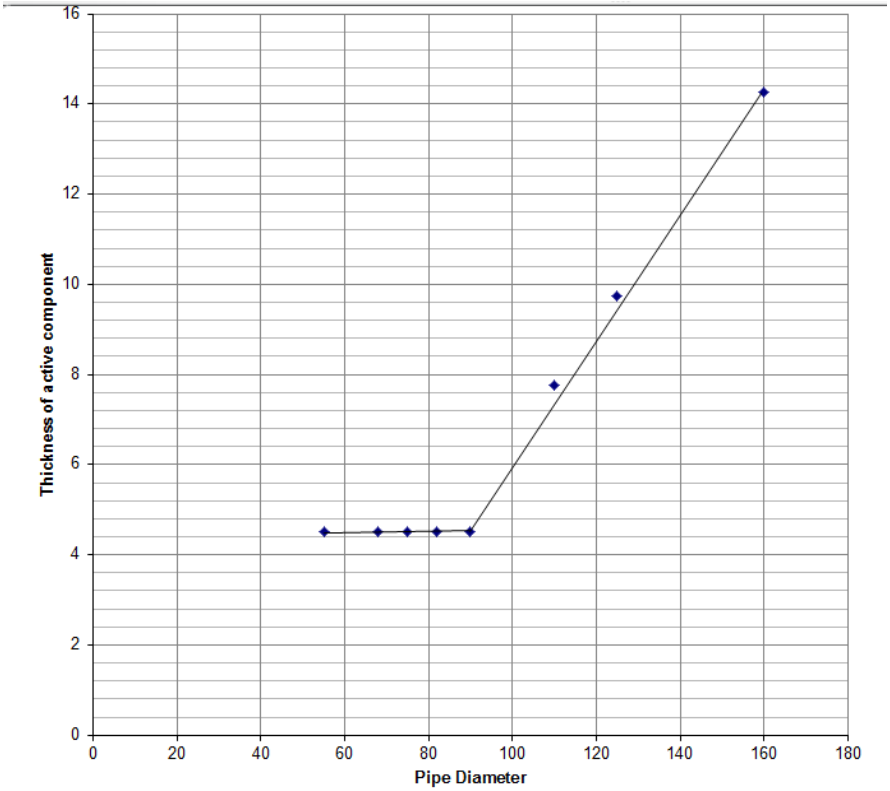
Additional rules for pipes fitted with an insulation

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.



	Active Element Intumescent Insert	
Product Code	Width [mm]	Thickness [mm]
PPW55-2	60.0mm	4.75mm
PPW82-2	60.0mm	4.75mm
PPW110-2	60.0mm	7.50mm
PPW160-2	60.0mm	4.50mm + 9.50mm

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.

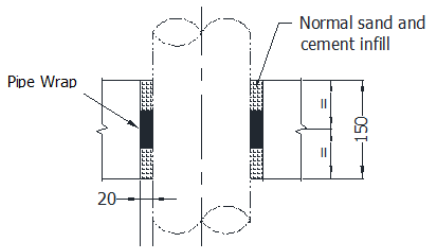
4.2 Classification

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

R	E	I	W		*t*	-	M	C	S	IncSlow	sn	ef	r

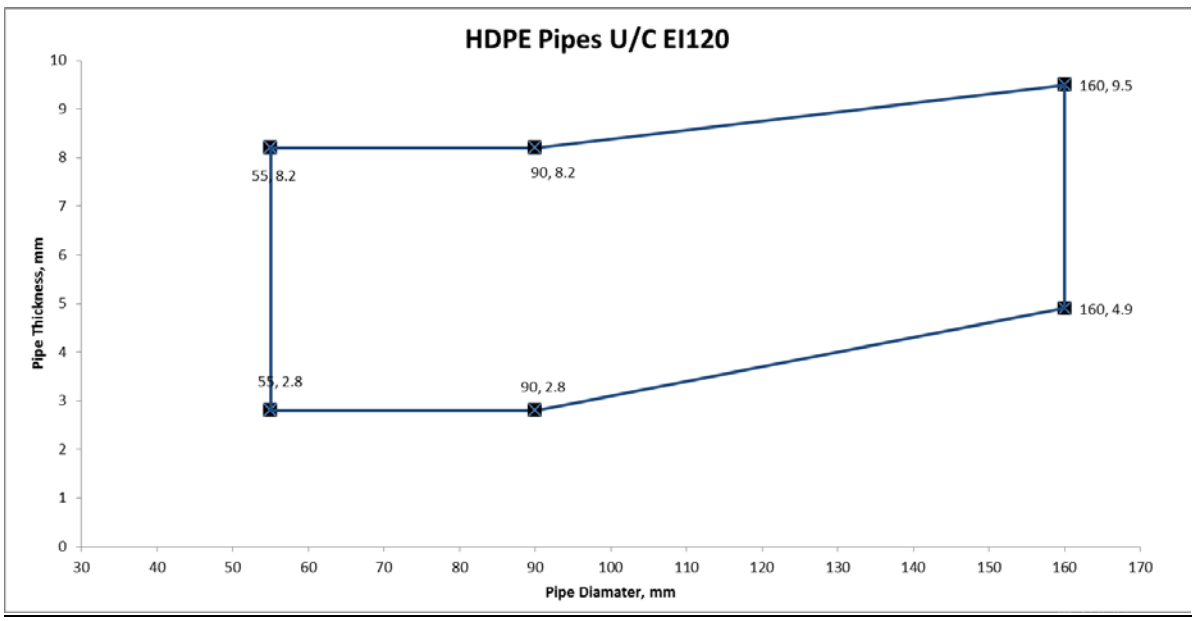
Considering the tests submitted for classification, Pyroplex 200 Series Pipe Wrap provides the following classification for the tested seal type:

HDPE Pipes in Rigid Walls 150mm Thick.
Wrap Centrally Mounted And Sealed With Sand And Cement Mortar

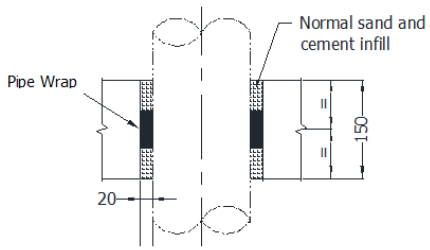


Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Intumescent Specification	FIRE RESISTANCE CLASSIFICATION
HDPE	90	2.8	60mm x 4.75	EI 120 U/C
	90	8.2		
	160	4.9	60mm x 14	
	160	9.5		

Scope of Approval

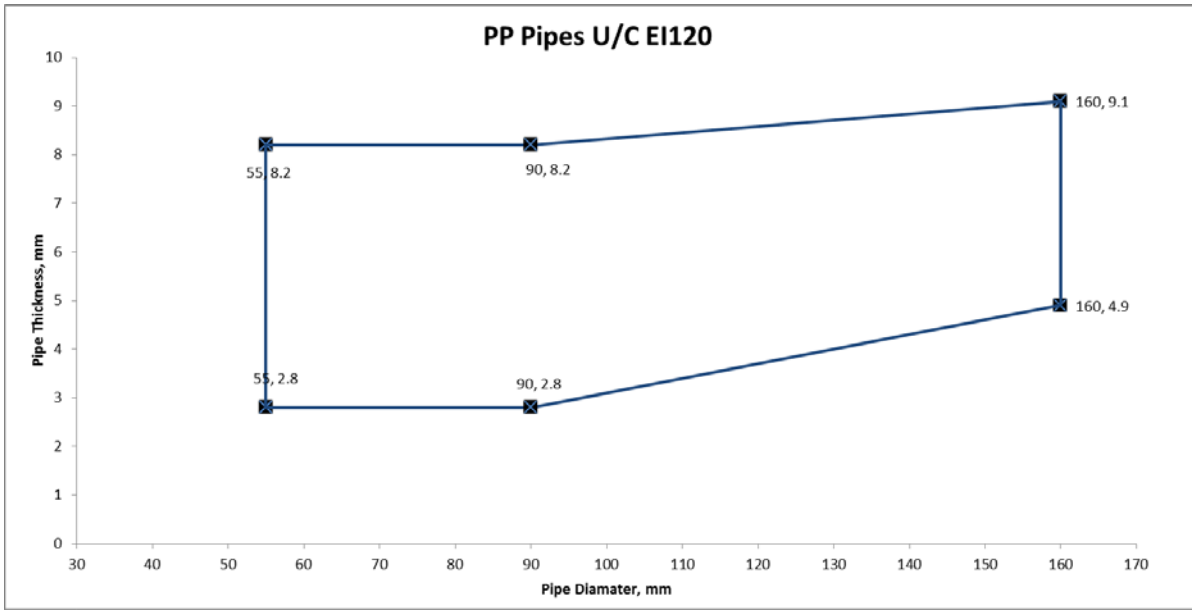


PP Pipes in Rigid Walls 150mm Thick.
Wrap Centrally Mounted And Sealed With Sand And Cement Mortar

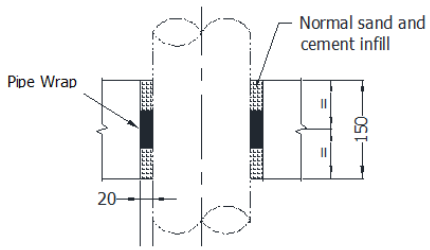


Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Intumescent Specification	FIRE RESISTANCE CLASSIFICATION
PP	90	2.8	60mm x 4.75	EI 120 U/C
	90	8.2		
	160	4.9	60mm x 14	
	160	9.1		

Scope of Approval

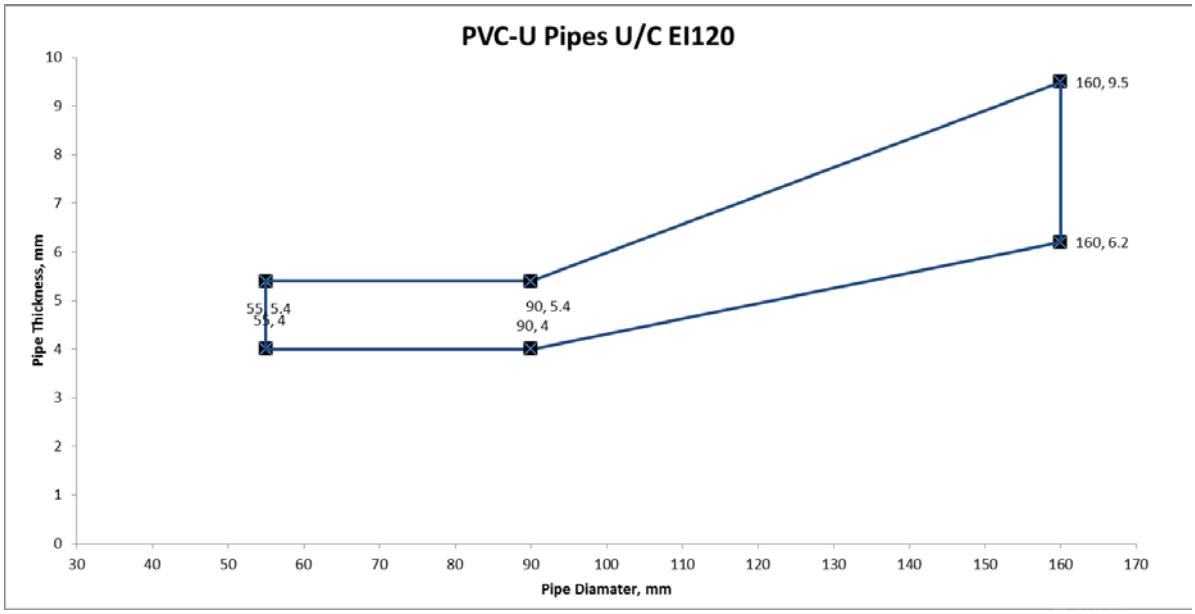


PVC U Pipes in Rigid Walls 150mm Thick.
Wrap Centrally Mounted And Sealed With Sand And Cement Mortar

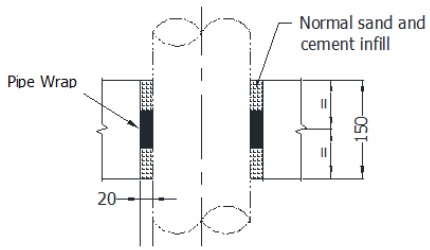


Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Intumescent Specification	FIRE RESISTANCE CLASSIFICATION
PVC U	90	4.0	60mm x 4.75	EI 120 U/C
	90	5.4		
	160	6.2	60mm x 14	
	160	9.5		

Scope of Approval

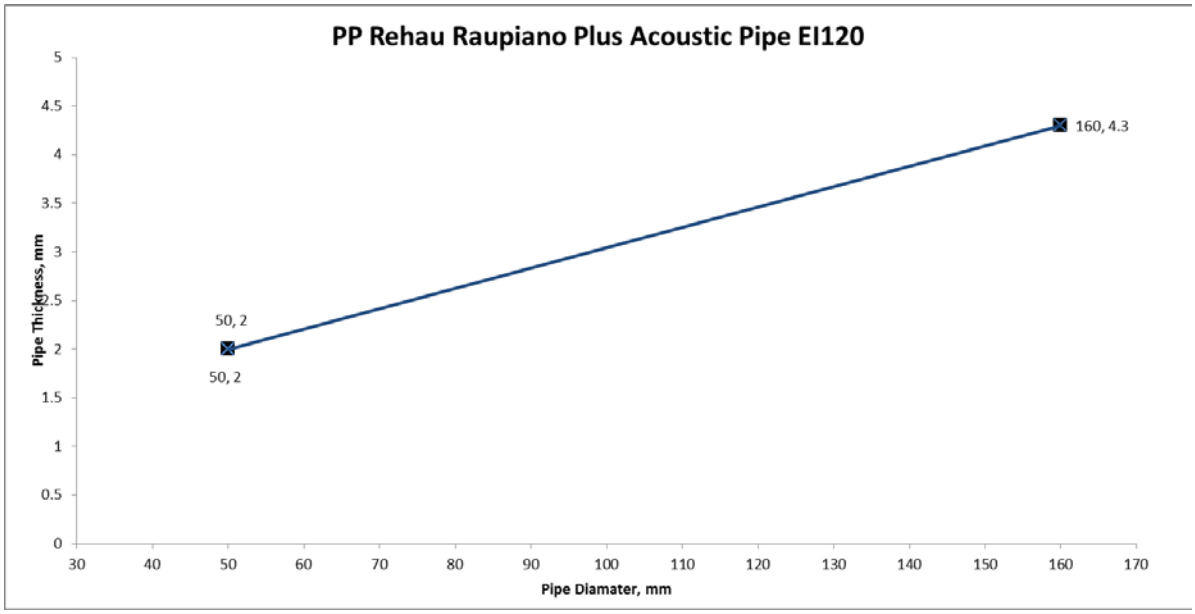


PP Pipes in Rigid Walls 150mm Thick.
Wrap Centrally Mounted And Sealed With Sand And Cement Mortar

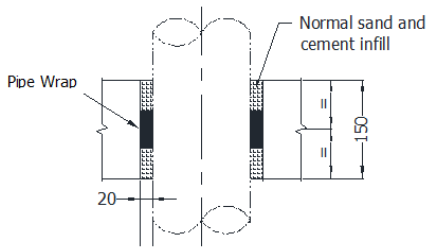


Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Intumescent Specification	FIRE RESISTANCE CLASSIFICATION
PP Rehau Raupiano Plus Acoustic Pipe	50	2	60mm x 4.75	EI 120 U/C
	160	4.3	60mm x 14	
PP Wavin AS Astolan	160	5.3	60mm x 14	E 120 C/U EI 60 C/U

Scope of Approval

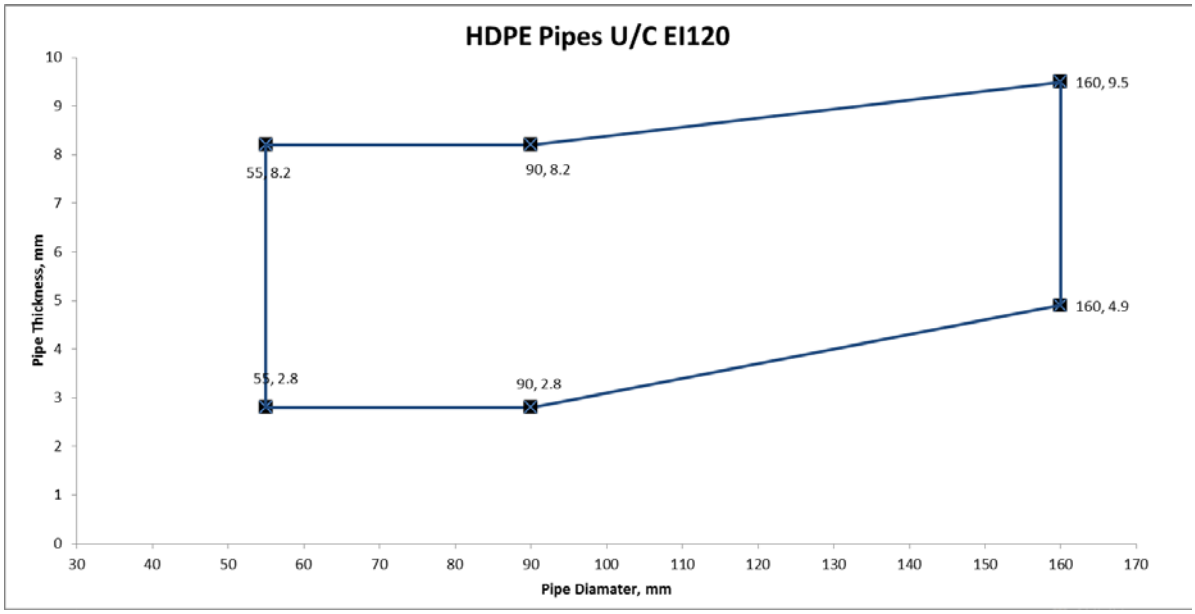


HDPE Pipes in Rigid Floors min 150mm Thick.
Wrap Centrally Mounted And Sealed With Sand And Cement Mortar

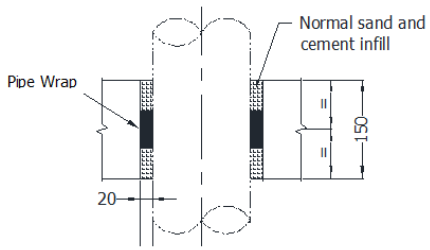


Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Intumescent Specification	FIRE RESISTANCE CLASSIFICATION
HDPE	90	2.8	60mm x 4.75	EI 120 U/C
	90	8.2		
	160	4.9	60mm x 14	
	160	9.5		

Scope of Approval

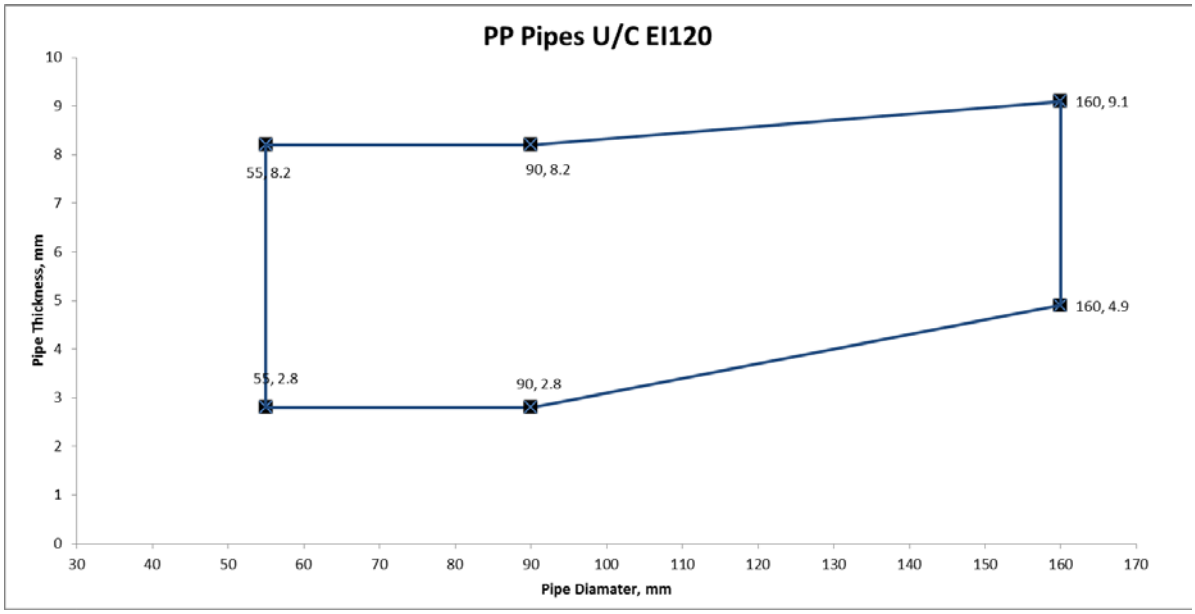


PP Pipes in Rigid Floors min. 150mm Thick.
Wrap Centrally Mounted And Sealed With Sand And Cement Mortar

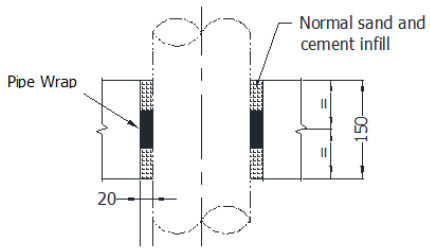


Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Intumescent Specification	FIRE RESISTANCE CLASSIFICATION
PP	90	2.8	60mm x 4.75	EI 120 U/C
	90	8.2		
	160	4.9	60mm x 14	
	160	9.1		

Scope of Approval

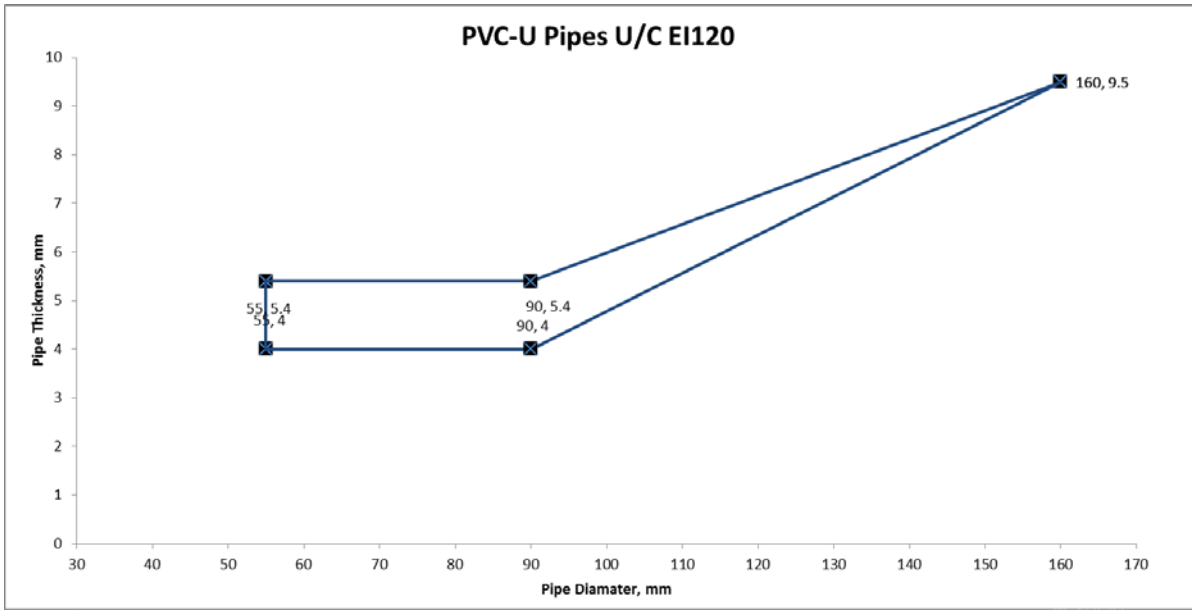


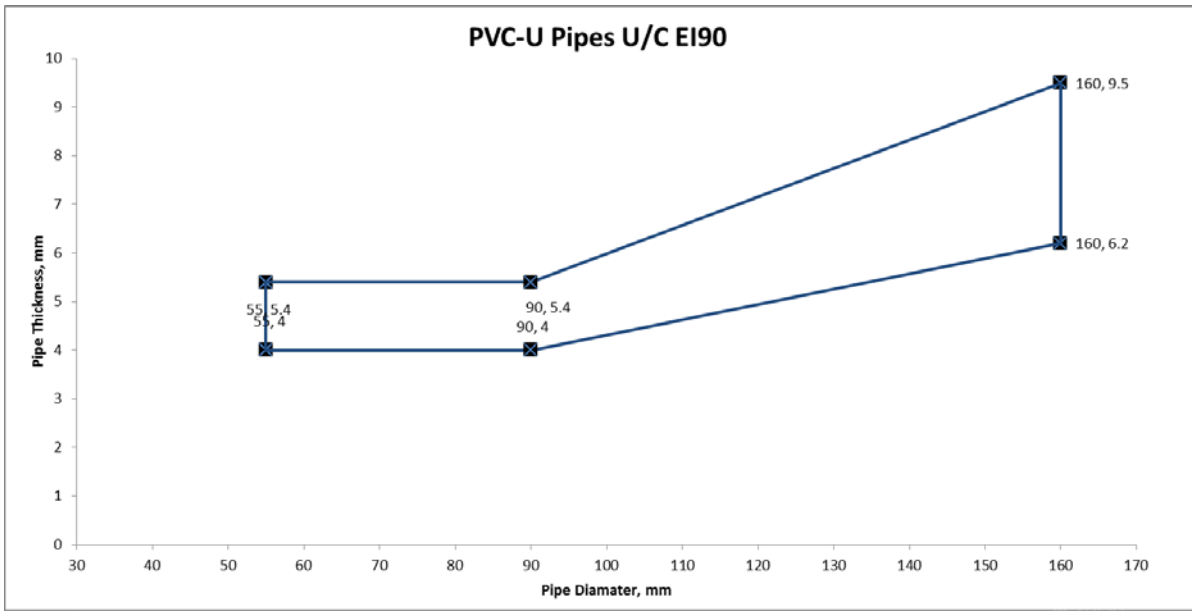
PVC U Pipes in Rigid Floors min.150mm Thick.
Wrap Centrally Mounted And Sealed With Sand And Cement Mortar



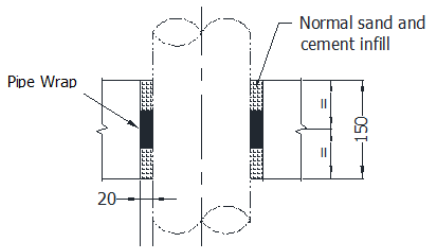
Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Intumescent Specification	FIRE RESISTANCE CLASSIFICATION
PVC U	90	4.0	60mm x 4.75	EI 120 U/C
	90	5.4		
	160	6.2	60mm x 14	
	160	9.5		

Scope of Approval



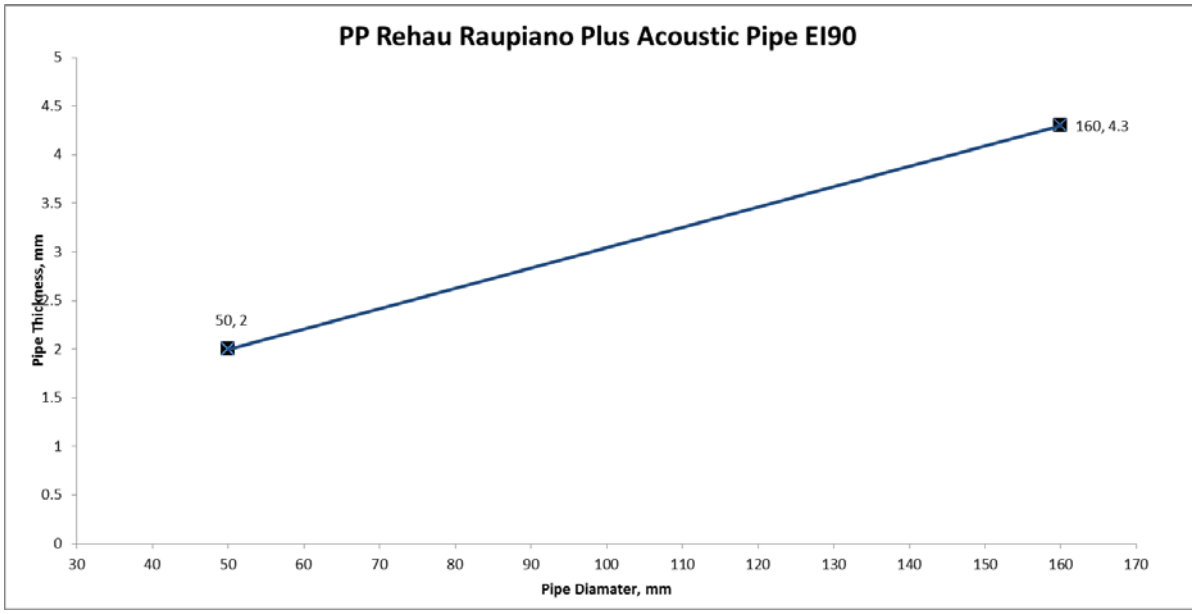

PVC-U Pipes U/C EI90
Pipe Thickness, mm
Pipe Diamater, mm
160, 9.5
160, 6.2
90, 5.4
90, 4
55, 5.4
55, 4
10
9
8
7
6
5
4
3
2
1
0
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170

PP Pipes in Rigid Walls 150mm Thick.
Wrap Centrally Mounted And Sealed With Sand And Cement Mortar



Penetrating Service Item (Tested)	Diameter(mm)	Pipe wall thickn. Range (mm)	Intumescent Specification	FIRE RESISTANCE CLASSIFICATION
PP Rehau Raupiano Plus Acoustic Pipe	50	2	60mm x 4.75	EI 120 U/C
	160	4.3	60mm x 14	
PP Wavin AS Astolan	160	5.3	60mm x 14	EI 90 U/C

Scope of Approval



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
Principle Engineer

APPROVED

Andy Kearns
Technical Manager