

Classification report according to EN 13501-2: 2007

Report No. 12CA17274/02

File No. NC12846



Title:

Classification of Fire
Resistance Performance
In accordance with
EN 13501-2: 2007 + A1: 2009

Sponsor:

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And

Cablofil a group brand Legrand
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Notified body No.:

0843

Product Name:

EZ-PATH Series 44+

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1. Introduction

This classification report defines the classification assigned to the element EZ- PATH Series 44+, in accordance with the procedures given in EN 13501-2 : 2007 + A1 : 2009

2. Details of classification product

2.1 General

The elements EZ-PATH Series 44+ are defined as fire resisting penetration sealing systems to be used to reinstate the performance of floors and / or walls.

2.2 Product description

The elements EZ-PATH Series 44+ are 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 sponsors	Test and Date	Test method
Cambridge Fire Research Ltd	Specified Technologies Inc and Cablofil a group brand Legrand	CFR 1201251, 25/01/2012	BS EN 1366-3:2009 Annex C.3
Cambridge Fire Research Ltd	Specified Technologies Inc and Cablofil a group brand Legrand	CFR 1201261, 26/01/2012	BS EN 1366-3:2009 Annex C.3
Cambridge Fire Research Ltd	Specified Technologies Inc and Cablofil a group brand Legrand	CFR 1201262, 26/01/2012	BS EN 1366-3:2009 Annex C.3



Cable Description

Cable A1	Small sheathed cable	NYJ-J, 5 x 1.5 mm ² x 13 mm diameter
Cable A2	Small sheathed cable	H07RN-F, 5 x 1.5 mm ² x 12.5 mm diameter
Cable A3	Small sheathed cable	N2XH-J, 5 x 1.5 mm ² x 11 mm diameter
Cable B	Small sheathed cable	NYO-O, 1 x 95 mm ² x 19 mm diameter
Cable C1	Medium sheathed cable	NYCWY, 4 x 95 mm ² x 43 mm diameter
Cable C2	Medium sheathed cable	H07RN-F, 4 x 95 mm ² x 49 mm diameter
Cable C3	Medium sheathed cable	N2XH-J, 4 x 95 mm ² x 36 mm diameter
Cable E	Medium sheathed cable	NYO-O, 1 x 185 mm ² x 25 mm diameter
Cable D1	Large sheathed cable	NYCWY, 4 x 185 mm ² x 57 mm diameter
Cable D2	Large sheathed cable	H07RN-F, 4 x 185 mm ² x 73 mm diameter
Cable D3	Large sheathed cable	N2XH-J, 4 x 185 mm ² x 50 mm diameter
Cable F	Telecommunication cable	A-2YFL-2Y , 20 x 2 x 0.6mm ² x 16.5mm diameter

Item CFR 1201251, 25/01/2012

1. Floor assembly

Material and construction	Floor assembly consists of 150 mm thick thermalite blocks (autoclaved aerated concrete) adhered to each other using silicone sealant incorporating apertures for the test specimens. The thermalite blocks were supported from above using a steel frame.
Apertures	The floor incorporates three apertures referenced A, C & D of various sizes and configurations

2. Specimen A1 – A4

Aperture size	150 mm x 440 mm
Penetrating services A1	None
Penetrating services A2	3 No. A1, 3 No. A2, 3 No. A3, 1 No. B
Penetrating services A3	1 No. B
Penetrating services A4	EZ-Path is filled with 100% of data cables 21 No. F
Firestop device	4No. EZ-PATH Series 44+ Pathway devices are interlocked to form a module and installed into a 150 mm x 440 mm aperture, held centrally in place using a floor grid with fibreglass gaskets to the top surface of the floor and incorporating an interlocking intumescent collar installed to the bottom edge of the module. A 100 mm wide graphite based intumescent paper 1.5 mm thick with a self-adhesive coating on one side is affixed vertically around the module flush with the top edge with 2No. bands of 3.6 mm wide x 1.3 mm thick plastic cable ties affixed nominally between 20 mm and 35 mm from the floor grid.



Penetration supports	The cables are supported at a distance of 400 mm from the upper face of the floor.
3. Specimen C1 – C4	150 mm x 440 mm
Aperture size	The EZ-path is filled with 100% of power cables:
Penetrating services C1	12 No. A1, 12 No. A2, 12 No. A3, 4 No. B
Penetrating services C2	None
Penetrating services C3	1 No. D1, 1 No. D3
Penetrating services C4	1 No. D2
Firestop device	4No. EZ-PATH Series 44+ Pathway devices are interlocked to form a module and installed into a 150 mm x 440 mm aperture, held centrally in place using a floor grid with fibreglass gaskets to the top surface of the floor and incorporating an interlocking intumescent collar installed to the bottom edge of the module. A 100 mm wide graphite based intumescent paper 1.5mm thick with a self-adhesive coating on one side is affixed vertically around the module flush with the top edge with 2No. bands of 3.6 mmwide x 1.3mm thick plastic cable ties affixed nominally between 20 mm and 35 mm from the floor grid.
Penetration supports	The cables are supported at a distance of 400 mm from the upper face of the floor
4. Specimen D	
Aperture size	152 mm diameter
Penetrating services	None
Firestop device	1No. EZ-PATH Series 44+ Pathway device installed into a \varnothing 152 mm aperture, held centrally in place using a floor grid with fibreglass gaskets to the top surface of the floor and intumescent foam wedges between the floor and the device. A 100 wide graphite based intumescent paper 1.5 mm thick with a self-adhesive coating on one side is affixed vertically around the module flush with the top edge with 2No. bands of 3.6 mm wide x 1.3mm thick plastic cable ties affixed nominally between 20 mm and 35 mm from the floor grid.



Item CFR 1201261, 26/01/2012

1. Wall assembly

Material construction Wall assembly consists of a standard flexible wall supporting construction in accordance with EN1366-3:2009. This comprised 70 mm steel stud and track, clad on both sides with 2No. layers of 15 mm British Gypsum FireLine board each side and filled with 60 mm thick 100 kg/m³ mineral wool insulation.

Apertures Penetrations of various sizes and configurations were created. The penetrations were cut in the boards and insulation (but not the track). Each penetration was positioned such that each specimen would be at least 200 mm from each other and the internal surfaces of the furnace.

2. Specimen A1 – A5

Aperture size 120 mm x 515 mm

Penetrating services A1 None
Penetrating services A2 3 No. A1, 3 No. A2, 3 No. A3, 1 No. B
Penetrating services A3 1 No. B
Penetrating services A4 1 No. D2
Penetrating services A5 1 No. D1, 1 No. D3

Firestop devices 5No. EZ-PATH Series 44+ Pathway devices are interlocked to form a module and installed into a 120 mm high x 515 mm wide aperture, held centrally in place using a five gang wall plate, with a SpecSeal SSWRED2 gasket positioned on the inside, on both sides of the supporting construction. A graphite based intumescent paper 1.5mm thick x 60 mm deep with a self-adhesive coating on one side is affixed around the module.

Penetration supports A wire mesh cable tray is supported on the service support construction, on both sides of the supporting construction abutting the ends of the Pathway module. A 300 mm deep intumescent paper adhered to the inside edges of the wire mesh cable tray and a 300 mm deep galvanised steel lid is positioned on top of each cable tray.



3. Specimen B1 – B5

Aperture size	120 mm x 515 mm
Penetrating services B1	1 No. C2, 1 No. C3, 1 No. E
Penetrating services B2	1 No. C1, 1 No. C3, 1 No. E
Penetrating services B3	1 No. C1, 1 No. C2, 1 No. E
Penetrating services B4	EZ-Path is filled with 100% of data cables 21 No. F
Penetrating services B5	1 No. E
Firestop devices	5No. EZ-PATH Series 44+ Pathway devices are interlocked to form a module and installed into a 120 mm high x 515 mm wide aperture, held centrally in place using a five gang wall plate, with a SpecSeal SSWRED2 gasket positioned on the inside, on both sides of the supporting construction. A graphite based intumescent paper 1.5 mm thick x 60 mm deep with a self-adhesive coating on one side is affixed around the module.
Penetration supports	A wire mesh cable tray is supported on the service support construction, on both sides of the supporting construction abutting the ends of the Pathway module. A 300 mm deep intumescent paper adhered to the inside edges of the wire mesh cable tray and a 300 mm deep galvanised steel lid is positioned on top of each cable tray.

4. Specimen K

Aperture size	152 mm diameter
Penetrating services	None
Firestop device	1No. EZ-PATH Series 44+ Pathway device installed into a Ø152 mm aperture, held centrally in place using a single gang plate, with a SpecSeal SSWRED2 gasket positioned on the inside, on both sides of the supporting construction. A graphite based intumescent paper 1.5 mm thick x 60 mm deep with a self-adhesive coating on one side is affixed around the module.

5. Specimen L

Aperture size	152 mm diameter
Penetrating services	The EZ-path is filled with 100% of power cables: 12 No. A1, 12 No. A2, 12 No. A3, 4 No. B
Firestop device	1No. EZ-PATH Series 44+ Pathway device installed into a Ø152 mm aperture, held centrally in place using a single gang plate, with a SpecSeal SSWRED2 gasket positioned on the inside, on both sides of the supporting construction. A graphite based intumescent paper 1.5mm thick x 60 mm



deep with a self-adhesive coating on one side is affixed around the module.

Penetration supports

The cables are supported at a distance of 400 mm from each side of the wall

CFR 1201262, 26/01/2012

1. Wall assembly

Material construction

Wall assembly consists of a 150 mm thick standard lightweight rigid wall supporting construction in accordance with EN1366-3:2009.

Apertures

Penetrations of various sizes and configurations were created. The apertures were positioned such that each would be at least 200 mm from each other and not less than 200 mm from the internal surfaces of the furnace.

2. Specimen E

Aperture size

152 mm diameter

Penetrating services

None

Firestop device

1No. EZ-PATH Series 44+ Pathway device installed into a \varnothing 152 mm aperture, held centrally in place using a single gang plate, with a SpecSeal SSWRED2 gasket positioned on the inside, on both sides of the supporting construction. A graphite based intumescent paper 1.5 mm thick x 65 mm deep with a self-adhesive coating on one side is affixed around the module and secured with a band of 3.6 mm wide x 1.3 mm thick plastic cable ties.

3. Specimen F1 – F5

Aperture size

120 mm x 515 mm

Penetrating services F1

None

Penetrating services F2

3 No. A1, 3 No. A2, 3 No. A3, 1 No. B

Penetrating services F3

1 No. B

Penetrating services F4

1 No. D2

Penetrating services F5

1 No. D1, 1 No. D3

Firestop device

5No. EZ-PATH Series 44+ Pathway devices are interlocked to form a module and installed into a 120 mm high x 515 mm wide aperture, held centrally in place using a five gang wall plate, with a SpecSeal SSWRED2 gasket positioned on the inside, on both sides of the supporting construction. A graphite based intumescent paper 1.5 mm thick x 65 mm deep with a self-adhesive coating on one side is affixed around the module and secured with a band of 3.6 mm wide x 1.3 mm thick plastic cable ties.



Penetration supports

The cables are supported at a distance of 400 mm from both sides of the wall.

4. Specimen H

Aperture size

152 mm diameter

Penetrating services

The EZ-path is filled with 100% of power cables:
12 No. A1, 12 No. A2, 12 No. A3, 4 No. B

Firestop device

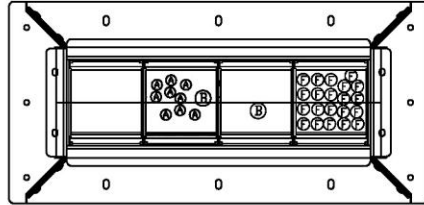
1No. EZ-PATH Series 44+ Pathway device installed into a \varnothing 152 mm aperture, held centrally in place using a single gang plate, with a SpecSeal SSWRED2 gasket positioned on the inside, on both sides of the supporting construction. A graphite based intumescent paper 1.5 mm thick x 65 mm deep with a self-adhesive coating on one side is affixed around the module and secured with a band of 3.6mm wide x 1.3mm thick plastic cable ties.

Penetration supports

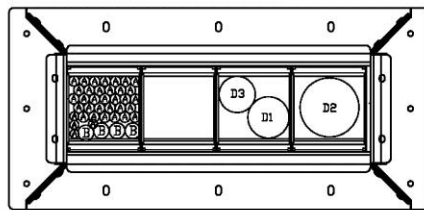
The cables are supported at a distance of 400 mm from both sides of the wall.



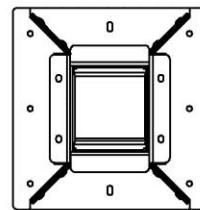
Single Unit up to 4 in Series of EZ Path Series 44+ Penetration Seals in Rigid Floors



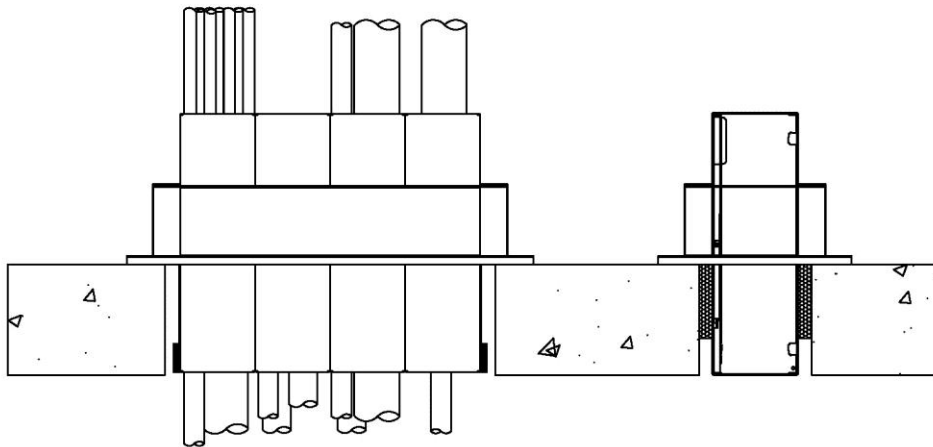
A1 A2 A3 A4



C1 C2 C3 C4

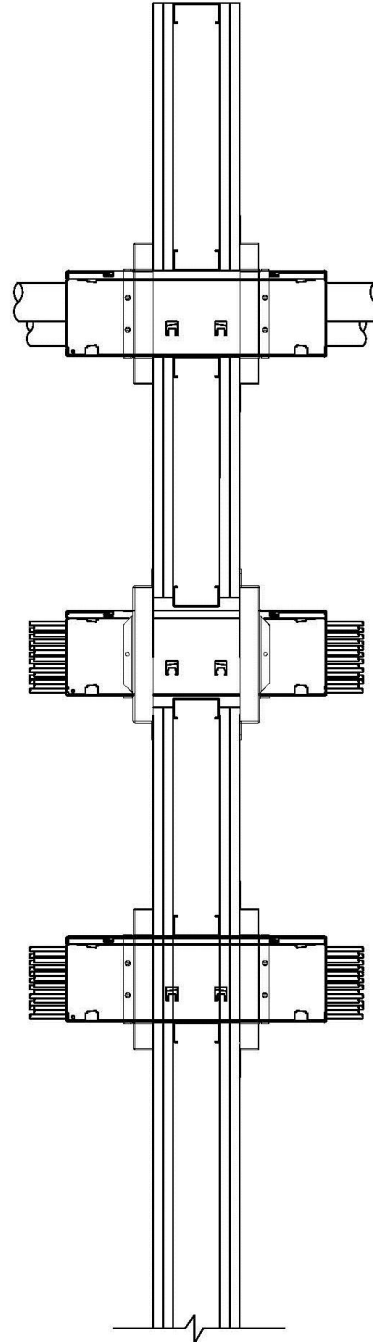
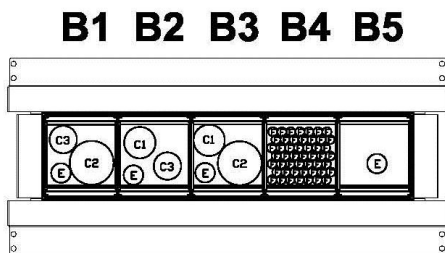
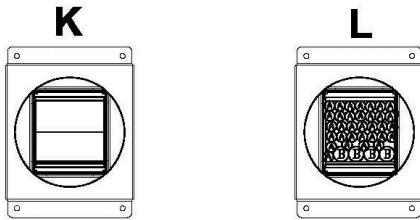
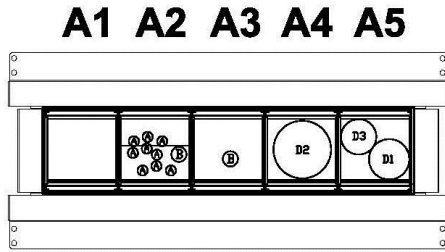


D



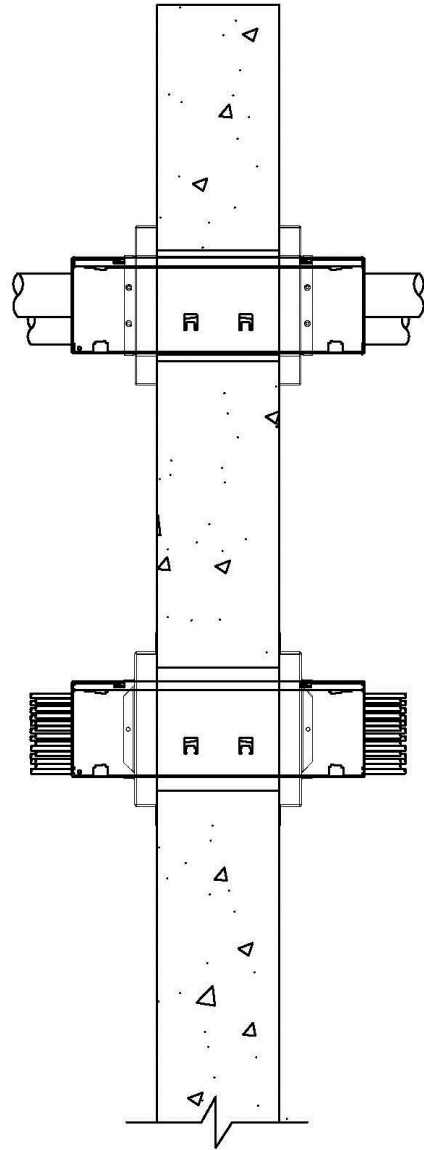
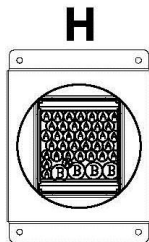
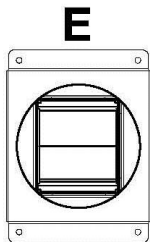
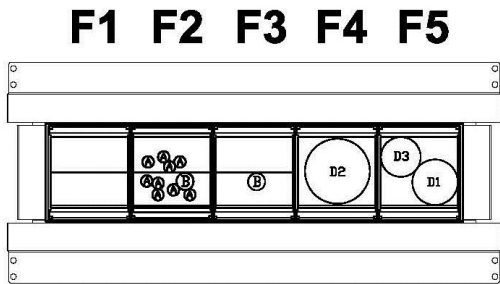


Single Unit up to 5 in Series of EZ Path Series 44+ Penetration Seals in Flexible Walls





Single Unit up to 5 in Series of EZ Path Series 44+ Penetration Seals in Rigid Walls





3.2 Results

Summary of report No.:CFR1201251

A fire resistance test generally in accordance with BS EN 1366-3: 2009 Annex C.3, on penetrations installed in an aerated concrete floor slab supporting construction.

Results: (Minutes) EZ-PATH Series 44+			
Specimen :	A	C	D
Test duration :	134	134	134
Integrity Cotton Pad :	134	134	134
Integrity Sustained flaming :	134	134	134
Integrity Gap gauge :	134	134	134
Insulation :	134	105	134

Summary of report No.:CFR1201261

A fire resistance test generally in accordance with BS EN 1366-3: 2009 Annex C.3, on penetrations installed in a standard flexible wall supporting construction.

Results: (Minutes) EZ-PATH Series 44+				
Specimen :	A	B	K	L
Test duration :	133	133	133	133
Integrity Cotton Pad :	133	133	133	133
Integrity Sustained flaming :	133	133	133	133
Integrity Gap gauge :	133	133	133	133
Insulation :	127	126	125	133



Summary of report No.:CFR1201262

A fire resistance test generally in accordance with BS EN 1366-3: 2009 Annex C.3, on penetrations installed in a lightweight rigid wall supporting construction.

Results: (Minutes) EZ-PATH Series 44+			
Specimen :	E	F	H
Test duration :	196	196	196
Integrity Cotton Pad :	196	196	196
Integrity Sustained flaming :	196	196	196
Integrity Gap gauge :	196	196	196
Insulation :	196	120	155



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 elements, product name EZ-PATH Series 44+ are 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
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Single Unit up to 4 in Series of EZ Path Series 44+ Penetration Seals in Rigid Floors 150 mm thick (min.)	
Services	Classification
Blank (un-penetrated) Modules	EI 120
Group 1*: Small sheathed cables (cables to max Ø21mm)	
Group 4*: Cable bundle, telecommunication cables (single bundles of maximum 21 no. cables)	

Single Unit up to 5 in Series of EZ Path Series 44+ Penetration Seals in Flexible Walls	
Services	Classification
Blank (un-penetrated) Modules	EI 180
Group 1*: Small sheathed cables (cables to max Ø21mm)	EI 120
Group 2*: medium sheathed cables (cables to max Ø50mm)	
Group 3*: Large sheathed cables (cables to max Ø80mm)	
Group 4*: Cable bundle, telecommunication cables (single bundles of maximum 21 no. cables)	



Single Unit to up 5 in Series EZ Path Series 44+ Penetration Seals in Rigid Walls 150 mm thick (min.)	
Services	Classification
Blank (un-penetrated) Modules	EI 180
Group 1*: Small sheathed cables (cables to max Ø21mm)	EI 120
Group 2*: medium sheathed cables (cables to max Ø50mm)	
Group 3*: Large sheathed cables (cables to max Ø80mm)	
Group 4*: Cable bundle, telecommunication cables (single bundles of maximum 21 no. cables)	

* Cable tray cover with intumescent paper to be installed. For service penetrations of Ø21 mm or less, the use of cable trays and cover is optional. See STI instruction installation for more details. Groups as defined in EN 1366-3: 2009.



4.3 Field of Application

This classification is valid for the following end use applications (as defined in EN1366-3: 2009, referencing the following appropriate clauses of EN1366-3: 2009).

13.1 Orientation

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

13.2 Supporting construction

13.2.1 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.

13.2.2 Flexible wall constructions

13.2.2.1 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:

- 1) the construction is classified in accordance with EN 13501-2;
- 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;
- 3) 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);
- 4) the number of board layers and the overall board layer thickness is equal or greater than that tested when no aperture framing is used
- 5) 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 minimum 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.

13.2.2.2 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.



13.2.2.3 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.

13.2.2.4 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.

13.3 Services

13.3.1 The direct field of application rules apply to the nominal dimensions of services.

13.3.2 For the field of direct application for cable penetration seals including small conduits see A.3, B.2, C.1.2 and C.2.3.

13.4 Service support construction

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

13.5 Seal size and distances

13.5.1 The test results obtained using standard wall and floor configurations for penetration seals are valid for any penetration seal 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 Annexes A & B) used in the test and a blank penetration seal of the maximum seal size desired was tested in addition.

13.5.2 For floor constructions, results from tests with a penetration seal length of minimum 1000 mm apply to any length as long as the perimeter length to seal area ratio is not smaller than that of the tested penetration seal.

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

Standard configuration for large cable penetration seals

A.3.1 Cable type (construction characteristics)

A.3.1.1 The configuration options "Small", "Medium" and "Large" cover all cable types currently and commonly used in building practice in Europe subject to the rules in A.3.2, except tied bundles, waveguides according to 3.23 and non-sheathed cables (wires). Optical fibre cables are covered.

A.3.1.2 Test results achieved using cable group 5, according to Table A.1, are valid for all non-sheathed cables (wires) subject to the rules in A.3.2.



A.3.1.3 Test results achieved using a tied bundle made from F-cables according to Table A.1 are valid for all tied bundles of cables subject to the rules in A.3.2.

A.3.2 Cable size

A.3.2.1 Test results for the configuration option "Large" cover cables to a maximum diameter of 80 mm.

A.3.2.2 Test results for the configuration option "Medium" cover cables to a maximum diameter of 50 mm.

A.3.2.3 Test results for the configuration option "Small" cover cables to a maximum diameter of 21 mm.

A.3.2.4 Results of a tied bundle made from F-cables are valid for tied bundles with a diameter of less than or equal to the bundle tested made from cables of a diameter not greater than 21 mm.

A.3.2.5 Test results for cable G1 are valid for all non-sheathed cables with a diameter equal to or less than 17 mm, test results for cable G2 are valid for all non-sheathed cables with a diameter equal to or less than 24 mm.

A.3.3 Cable support

A.3.3.1 Results obtained from tests where the supports pass through the seal are applicable to those situations where the support does not. The reverse of this situation does not apply.

A.3.3.2 The test results obtained using standard configurations for cable penetration systems are not valid for lidded cable trays/trunkings where the lid passes through the penetration seal (see also E.3).

A.3.4 Service group 6 according to Table A.2

A.3.4.1 Test results achieved using service type H (conduit or tube) according to Table A.2 are valid for all steel conduits and steel tubes up to a diameter of 16 mm.

A.3.4.2 Test results for tubes made from copper cover tubes made from steel but not vice versa.

A.3.4.3 Test results achieved using service type I according to Table A.2 are valid for all plastic conduits and plastic tubes up to a diameter of 16 mm.

A.3.4.4 For rules regarding the pipe end condition see E.1.5.5 for metal conduits or tubes and E.2.7.3 for plastic conduits.

Standard configuration for small cable penetration seals

B.2.1 Tests of rectangular seals cover circular seals of the same area but not vice versa.

B.2.2 The field of direct application rules according to 13.5, A.3.1, A.3.2, A.3.3 and A.3.4 apply.

B.2.3 The test results obtained using standard configurations for cable penetration systems are valid for any penetration size equal to or smaller than that tested, provided the total amount of cross sections of the cables (core and insulation) does not exceed 60 % of the penetration and the working clearances are not smaller than the minimum working clearances (a1, a2, see Figures B.1 to B.7) used in the test.



B.2.4 Results from tests with the specimen combination given in B.1.3 are valid for all distance options and combinations. Results from tests according to option 1 or 2 are also valid for situations represented by option 3 but not vice versa.

Standard configuration and field of direct application for modular systems and cable boxes

C.2 Cable boxes

C.2.3.1 The rules given in A.3.1 to A.3.3 and A.3.4 apply.

C.2.3.2 Test results obtained are valid for all sizes between the maximum and minimum size tested provided a blank seal according to C.2.2.2 was tested with a positive result with respect to the intended classification period.



5. Limitations

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

6. Signatories

Report by:

A handwritten signature in blue ink that reads "S Harms".

S. Harms

Senior Project Engineer
Building Materials and Life Safety

Reviewed by:

A handwritten signature in purple ink that reads "C. W. Miles".

C. W. Miles

Business Development Manager
Building Materials and Life Safety

For and on behalf of Underwriters Laboratories LLC.