Technical Data Sheet

Pyrocoustic Sealant

UIC of product-type: PYROC

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FSi DEVELOP MANUFACTURE PROTECT

FIRE STOPPING & COMPARTMENTATION SYSTEMS

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APPROVED
CF517

ETA 13-1069
ETA 13-1070
CE-1121-CPR-JA5009

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ASFP

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Product Overview

Technical Description of the Product

Pyrocoustic Sealant is an acrylic based sealant used to reinstate the fire resistance performance of wall and floor constructions where they have been provided with apertures for the penetrations of multiple services, also to form linear gap seals where gaps are present within the wall and floor constructions and linear joints where wall and floor constructions abutt.

Pyrocoustic Sealant has slight intumescent properties that cause it to swell upon heating.

The Pyrocoustic Sealant is supplied in liquid form contained within 310ml, 600ml foils or in 5kg, 10kg, 20kg or 25 kg pails. The sealant is either gunned or trowelled into the aperture in or between the separating element/elements to a specific depth utilising various backing materials.

Intended Use

The specific elements of construction for the system Pyrocoustic Sealant are as follows:

- Fire resistance testing to EN 1366-3 EI 120, EN 1366-4 EI 240 and BS 476 300mins.
- Fire resistance testing to ASTM-E 1966, UL 2079.
- CAN/UL 115-11 - ULus & ULc Listed.
- Resistance to Fire Classification EN 13501-2.
- Reaction to Fire Classification EN 13501-1
- VOC Tested - ASTM D2369-10, LEED 2009-EQ041 SCAQMD.
- Acoustic Isolation to EN 10140 to 48dB.
- Air Permeability testing to EN 1026 to 600Pa - 100Pa 0.0/0.0 $m^3/h/m^2$.

Key Product Points

- Mechanical Adhesion, Tensile testing & Shore Hardness to ISO 9046:2005, ISO 8339:2005 & ISO 7619-1:2011.
- Fire resistance tested in flexible walls, rigid walls and floors.
- Tested in Linear Joints up to 50mm wide.
- Tested in large service openings up to 490 x 150mm.
- Tested with Metallic Pipes, Cables, Cable Bunches, Cable Trays and Cable Ladders.
- Causes no known effects to plastic pipes, plastic cables, sheathing or metallic components.
- For use in low movement joints, remains flexible.
- Halogen free, resists fungi and vermin.
- Certifire 3rd Party Certification CF 517.
- Shelf Life 18 months.

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Description	Result	Test Standards
Packaging	310ml cartridges 25 per box, 600ml foils, 5kg, 10kg, 20kg, 25kg pails	
Colour	White, Grey or Brown (other colours by request)	
Slump	5mm after 1hr in 30mm joints	
Shrinkage	Approximately 12%	
Cure Rate	3mm per day at 50% relative humidity 23°C	
Specific Gravity	1.56 - 1.66 g/cm^3	ISO 2811-1:2011
Application temperature	+5°C to +40°C	
Tack Free	30 mins at 23°C, 50% RH	
Water Resistance	Good when fully cured	
U.V. Resistance	Good	
Joint Movement	Remains flexible	EN 1366-4:2006 + A1:2010
VOC % Nonaqueous volatiles (105°C)	3.6	LEED
Acoustic	Up to $R_w(C;C_{tr})$:63(-2;-7) dB	EN ISO 10140-2:2010
BREEAM International	Compliant	GN22: BREEAM Recognised Schemes for VOC Emissions from Building Products
Expected Shelf Life	18 Months unopened	Stored in accordance with packaging instructions

Backing Material

Mineral wool (min. 80kg/m³) or PE backing rod where required can be use as backing materials, though the Pyrocoustic Sealant should be installed correctly to achieve the performance needed.

Key Installation Points

Pyrocoustic Sealant to be used installing FSi Stopseal Batts.

For good adhesion the surfaces of the building elements shall be free of any dust or grease and may need to be primed on good clean, virgin concrete & masonary, no priming required.

Ensure that the aperture and services in question are tested with Pyrocoustic Sealant and the site conditions are within the application specification. An annular space needs to be present around the service to apply sufficient installation depth.

All services and apertures need to be clean and clear of all dust and loose particles. The aperture temperature needs to at 5°C or above at time of installation.

Upon installation make sure that you install the Pyrocoustic Sealant around all services needed.

Once compacted, smooth off the Pyrocoustic Sealant to produce a professional finish.

Linear Joint Seals - Walls

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Substrates

The walls shall be a minimum of **100mm thick**. Drywalls shall comprise a minimum of 2 layers of 'Type F' Gypsum board on both faces, with minimum 50mm studs. Masonary / Concrete walls shall have a minimum density for concrete or brick of 780kg/m³ and for aerated concrete blocks of 600kg/m³. All walls shall have at least the same fire resistance as that required for the sealing system.

Service support requirements

Services should be rigidly supported via steel angles, hangers or channels, not further than 400mm from the surface of the sealing system on both faces of wall and top face of floor unless specified otherwise in the performance data.

RIGID WALL

Wall Installations :- Double Sided Seals

	Configuration	Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Wall Constructions (min 250mm thick)	Autoclaved aerated concrete to autoclaved aerated concrete.	20	10	Polyethylene 30mm diameter.	300	300
	Autoclaved aerated concrete to autoclaved aerated concrete.	30	15	Polyethylene 40mm diameter.	300	210
	Autoclaved aerated concrete to autoclaved aerated concrete.	40	20	Polyethylene 50mm diameter.	300	210
	Autoclaved aerated concrete to autoclaved aerated concrete.	50	25	Polyethylene 60mm diameter.	300	210
	Brick to Autoclaved aerated concrete.	15	10	Polyethylene 20mm diameter.	240	0
	Brick to Autoclaved aerated concrete.	25	10	Polyethylene 30mm diameter.	240	30
	Steel to aerated blockwork.	30	15	Polyethylene 40mm diameter.	300	90
	Steel to aerated blockwork.	50	25	Ethafoam 50mm diameter.	60	30
	Hardwood to aerated blockwork.	50	25	Ethafoam 50mm diameter.	60	60
	Softwood to aerated blockwork.	25	12	Ethafoam 30mm diameter.	30	30

Linear Joint Seals - Walls

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RIGID WALL

Wall Installations :- Single Sided Seals - Sealant installed to either side of wall						
	Configuration	Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Wall Constructions (min 100mm thick)	Autoclaved aerated concrete to autoclaved aerated concrete.	50	25	Polyethylene 50mm diameter.	120	60
	Autoclaved aerated concrete to autoclaved aerated concrete.	20	10	Polyethylene 20mm diameter.	120	45
	Autoclaved aerated concrete to softwood.	50	50	Polyethylene 50mm diameter.	45	45
	Autoclaved aerated concrete to softwood.	20	10	Polyethylene 20mm diameter.	30	20
	Autoclaved aerated concrete to steel.	50	50	Polyethylene 50mm diameter.	45	30
	Autoclaved aerated concrete to steel.	20	10	Polyethylene 20mm diameter.	120	20

Wall Installations :- Single Sided Seals						
	Configuration	Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Wall Constructions (min 100mm thick)	Autoclaved aerated concrete to autoclaved aerated concrete.	50	25	Polyethylene 50mm diameter.	120	60
	Autoclaved aerated concrete to autoclaved aerated concrete.	40	20	Polyethylene 40mm diameter.	120	30
	Autoclaved aerated concrete to autoclaved aerated concrete.	30	15	Polyethylene 30mm diameter.	120	30
	Autoclaved aerated concrete to autoclaved aerated concrete.	20	10	Polyethylene 20mm diameter.	120	30
	Autoclaved aerated concrete to softwood.	50	25	Polyethylene 50mm diameter.	45	30
	Autoclaved aerated concrete to softwood.	40	20	Polyethylene 40mm diameter.	30	15
	Autoclaved aerated concrete to softwood.	30	15	Polyethylene 30mm diameter.	30	15
	Autoclaved aerated concrete to softwood.	20	10	Polyethylene 20mm diameter.	30	15
	Autoclaved aerated concrete to steel.	50	25	Polyethylene 50mm diameter.	45	30
	Autoclaved aerated concrete to steel.	40	20	Polyethylene 40mm diameter.	45	30
	Autoclaved aerated concrete to steel.	30	15	Polyethylene 30mm diameter.	45	30
	Autoclaved aerated concrete to steel.	20	10	Polyethylene 20mm diameter.	120	15

Linear Joint Seals - Walls

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RIGID WALL

Wall Installations :- Double Sided Seals						
	Configuration	Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Wall Constructions (min 120mm thick)	Drywall to autoclaved aerated concrete.	20	12.5 (both faces)	Polyethylene 20mm diameter.	120	120
Wall Constructions (min 100mm thick)	Autoclaved aerated concrete to autoclaved aerated concrete.	20	12.5 (both faces)	Polyethylene 20mm diameter.	120	120

FLEXIBLE AND RIGID WALL

Sealing of Drywall Head & Flexible Wall To Rigid Wall - Double Sided Seals						
Product Name		Pyrocoustic Sealant				
	Configuration	Max. Joint Width (mm)	Minimum Seal Depth (mm)	Seal Orientation	Integrity (mins)	Insulation (mins)
Wall Constructions (min 120mm thick)	Gypsum plasterboard + steel head track/Rigid floor.	20	25 (both faces)	Horizontal	120	120
	Gypsum plasterboard + steel vertical edged tracks/Rigid floor.	20	25 (both faces)	Vertical	120	120

Linear Joint Seals - Floors

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Substrates

The floors shall be a minimum of **150mm thic**k. Masonary / Concrete floors shall have a minimum density for concrete or brick of 780kg/m³ and for aerated concrete blocks of 600kg/m³. All floors shall have at least the same fire rating as that required for the sealing system.

Service support requirements

Services should be rigidly supported via steel angles, hangers or channels, not further than 400mm from the surface of the sealing system on both faces of wall and top side of the floor unless specified otherwise in the performance data.

RIGID FLOOR

Floor Installations :- Single Sided Seals						
	Configuration	Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Floor Constructions (min 150mm thick)	Autoclaved aerated concrete to autoclaved aerated concrete.	50	25	Polyethylene 50mm diameter.	240	90
	Autoclaved aerated concrete to autoclaved aerated concrete.	40	20	Polyethylene 40mm diameter.	240	45
	Autoclaved aerated concrete to autoclaved aerated concrete.	30	15	Polyethylene 30mm diameter.	240	45
	Autoclaved aerated concrete to autoclaved aerated concrete.	20	10	Polyethylene 20mm diameter.	240	45
	Autoclaved aerated concrete to softwood.	50	25	Polyethylene 50mm diameter.	45	45
	Autoclaved aerated concrete to softwood.	40	20	Polyethylene 40mm diameter.	30	30
	Autoclaved aerated concrete to softwood.	30	15	Polyethylene 30mm diameter.	30	30
	Autoclaved aerated concrete to softwood.	20	10	Polyethylene 20mm diameter.	30	30
	Autoclaved aerated concrete to steel.	50	25	Polyethylene 50mm diameter.	240	90
	Autoclaved aerated concrete to steel.	40	20	Polyethylene 40mm diameter.	240	30
	Autoclaved aerated concrete to steel.	30	15	Polyethylene 30mm diameter.	240	30
	Autoclaved aerated concrete to steel.	20	10	Polyethylene 20mm diameter.	240	30

Linear Joint Seals - Floors

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RIGID FLOOR

Floor Installations :- Single Sided Seals - Seal installed flush with upper face of the floor						
	Configuration	Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Floor Constructions (min 150mm thick)	Autoclaved aerated concrete to autoclaved aerated concrete.	50	25	Polyethylene 50mm diameter.	240	90
	Autoclaved aerated concrete to autoclaved aerated concrete.	20	10	Polyethylene 20mm diameter.	240	45
	Autoclaved aerated concrete to softwood.	50	50	Polyethylene 50mm diameter.	45	45
	Autoclaved aerated concrete to softwood.	20	10	Polyethylene 20mm diameter.	30	30
	Autoclaved aerated concrete to steel.	50	50	Polyethylene 50mm diameter.	240	90
	Autoclaved aerated concrete to steel.	20	10	Polyethylene 20mm diameter.	120	120

Floor Installations :- Double Sided Seals						
	Configuration	Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Floor Constructions (min 150mm thick)	Aerated concrete to aerated concrete.	20	10	Polyethylene 30mm diameter.	300	120
	Aerated concrete to aerated concrete.	30	15	Polyethylene 40mm diameter.	300	60
	Aerated concrete to aerated concrete.	40	20	Polyethylene 50mm diameter.	300	60
	Aerated concrete to aerated concrete.	50	25	Polyethylene 60mm diameter.	300	210
	Softwood to aerated concrete.	25	12	Ethafoam 30mm diameter.	30	30
	Hardwood to aerated concrete.	50	25	Ethafoam 50mm diameter.	30	30
	Steel to aerated concrete.	50	25	Ethafoam 50mm diameter.	60	60

Movement

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Substrates

The walls shall be a minimum of **150mm thick**. Drywalls shall comprise a minimum of 2 layers of 'Type F' Gypsum board on both faces, with minimum 50mm studs. Masonary / Concrete walls shall have a minimum density for concrete or brick of 780kg/m³ and for aerated concrete blocks of 600kg/m³. All walls shall have at least the same fire resistance as that required for the sealing system.

Service support requirements

Services should be rigidly supported via steel angles, hangers or channels, not further than 400mm from the surface of the sealing system on both faces of wall and top face of floor unless specified otherwise in the performance data.

RIGID WALL

Wall Construction							
Configuration		Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing material	Integrity (mins)	Insulation (mins)	Movement %
Wall Constructions (min 150mm thick)	autoclaved aerated concrete.	60*	20 (both faces)	Polyethylene 20mm & 50mm diameter.	240	120	25 shear 8.3 Lateral
		60*	5 (either face)	75mm deep, compressed 15%, stonewool 60kg/m³.	240	60	25 Shear 12.5 Lateral
*Pre movement							

Substrates

The floors shall be a minimum of **150mm thic**k. Masonary / Concrete floors shall have a minimum density for concrete or brick of 780kg/m³ and for aerated concrete blocks of 600kg/m³. All floors shall have at least the same fire rating as that required for the sealing system.

Service support requirements

Services should be rigidly supported via steel angles, hangers or channels, not further than 400mm from the surface of the sealing system on both faces of wall and top side of the floor unless specified otherwise in the performance data.

RIGID FLOOR

Floor Constructions							
Configuration		Max. Joint Width (mm)	Minimum Seal Depth (mm)	Backing material	Integrity (mins)	Insulation (mins)	Movement %
Floor Constructions (min 150mm thick)	autoclaved aerated concrete.	60*	20 (both faces)	Polyethylene 20mm & 50mm diameter.	180	60	16 Lateral
		60*	5 (upper face)	100mm deep, compressed 15%, stonewool 60kg/m³.	240	240	25 Lateral
*Pre movement							

Penetration Seals

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Substrates

The walls shall be a minimum of **100mm - 150mm thick**. Drywalls shall comprise a minimum of 2 layers of 'Type F' Gypsum board on both faces, with
minimum 50mm studs. Masonary / Concrete walls shall have a minimum density for concrete or brick of 780kg/m³ and for aerated concrete blocks of 600kg/m³. All walls shall have at least the same fire resistance as that required for the sealing system.

Service support requirements

Services should be rigidly supported via steel angles, hangers or channels, not further than 400mm from the surface of the sealing system on both faces of wall and top face of floor unless specified otherwise in the performance data.

Terminology

Fire performance in accordance with EN1366-3, EN1366-4, Classification 13501-2:2007 + A1:2009, ETAG-026, Air Permeability EN1026, Sound EN10140. Fire resistance classes are: E = Integrity, the product can withstand the fire from the non-fire side, I =Insulation, the product can withstand the temperature travelling down the service, U/U = Uncapped inside and outside the furnace, U/C = Uncapped inside and Capped outside the furnace, C/U = Capped inside and Uncapped outside the furnace.

FLEXIBLE AND RIGID WALL

Wall Installations: Double Sided Seals

	Configuration	Cut Out (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Flexible or Rigid wall Constructions **(min 150mm thick)**	Cables ≤ to 21mm.	490mm long x 100mm high	25 (both faces)	70mm x 80kg/m³ stone wool.	120	90
	Perforated Cable Tray 450mm x 50mm.	490mm long x 100mm high	25 (both faces)	70mm x 80kg/m³ stone wool.	120	90
	Cables > 21 - 50mm.	200mm long x 100mm high	25 (both faces)	N/A	90	60

Sealing of Drywall Head & Flexible Wall To Rigid Wall - Double Sided Seals

	Configuration	Annular Seal Width (mm)	Minimum Seal Depth (mm)	Backing Material	Integrity (mins)	Insulation (mins)
Flexible or Rigid wall Constructions **(min 150mm thick)**	Copper/Steel pipe 15mm dia. & 0.8 - 7.4mm wall thickness.	10	25 (both faces)	N/A	120	20
	Copper/Steel pipe 40mm dia. & 0.8 - 14.2mm wall thickness.	10	25 (both faces)	N/A	120	15
	Copper/Steel pipe 15mm dia. & 0.8 - 14.2mm wall thickness.	10	25 (both faces)	N/A	120	0
	Copper/Steel pipe 15mm dia. & 0.8 - 14.2mm wall thickness with Thermal Defence Wrap 30mm long to the unexposed face.	10	25 (both faces)	N/A	120	90
	Copper/Steel pipe 15mm dia. & 0.8 - 14.2mm wall thickness with Thermal Defence Wrap 30mm long to the unexposed face.	10	25 (both faces)	N/A	120	20

Penetration Seals

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FLEXIBLE AND RIGID WALL

Stopseal 50mm Batt in Rigid & Flexible with a minimum wall thickness of 100mm.				
Aperture Size	**Seal Composition**	**Services**	**Capping**	**Classification**
180mm x 180mm Minimum 100mm wall thickness	20mm Depth of Pyrocoustic Sealant both sides of wall using 20mm of stone fibre backing minimum 45kg/m³ both faces.	Electrical cables up to 21mm dia.	N/A	EI 120
		Electrical cables 33mm to 61mm dia.		E 120 , EI 60
		100mm diameter bundle telecommunication cable type "F".		EI 120
		Single cables up to 27mm dia.		E 120 , EI 60
		Steel or Copper Conduits up to 16mm.		E 120 , EI 15
		Plastic conduits up to 16mm.		EI 120

Stopseal 50mm Batt in Rigid & Flexible with a minimum wall thickness of 100mm.			
Aperture Size	**Seal Composition**	**Services**	**Classification**
180mm x 180mm Minimum 100mm wall thickness	20mm Depth of Pyrocoustic Sealant both sides of wall using 20mm of stone fibre backing minimum 45kg/m³ both faces.	Blank Seal.	EI 120

Rigid & Flexible walls with a miniumum thickness of 100mm.				
Aperture Size	**Seal Composition**	**Services**	**Capping**	**Classification**
180mm x 180mm Minimum 100mm wall thickness	20mm depth of Pyrocoustic Sealant applied flush with both faces of the wall and a 20mm deep infill of friction fitted rock wool insulation at a 45kg/m³ density	Electrical cables up to 21mm dia	N/A	EI 120
		Electrical cables 33mm to 61mm dia		E 90, EI 60
		Single Electrical Cable up to 27mm dia		E 120, EI 60
		100mm diameter bundle telecommunication cable type “F”		EI 120
		Not Penetrated (Blank Penetration)		EI 120
		Steel or Copper Conduits up to 16mm		EI 120
		Plastic conduits up to 16mm		E 120, EI 15

Penetration Seals

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FLEXIBLE AND RIGID WALL

Rigid & Flexible walls with a minimum thickness of 100mm				
Aperture Size	**Seal Composition**	**Services**	**Capping**	**Classification**
Annular Space of 10mm Minimum 100mm wall thickness	Annular space filled with Pyrocoustic Sealant flush to each face of the supporting construction to a depth of 25mm.	114mm diameter by 3mm wall thickness mild steel pipe.	C/U	E 120, EI 15
		42mm diameter by 2.8mm wall thickness mild steel pipe.		E 120, EI 45

Rigid & flexible walls with a minimum thickness of 75mm			
Aperture Size (mm)	**Services**	**Seal**	**Classification**
25mmø	21mm Cable (95mm²)	Annular gap around service sealed with Pyrocoustic Sealant at a depth of 12mm. 10mm of 45kg/m² stone wool was used as backing for the sealant	EI 60 - E 90
10mm annular space around service	54mm Copper/ Steel Pipe		E 90
10mm annular space around service	76mm Steel Pipe		E 90
25mmø	15mm steel pipe		EI 90
25mmø	15mm copper/steel pipe		EI 60 - E 90

Extended Scope of Works

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Direct field of application – DiAP and Extended Field of Application- EXAP

DiAP and EXAP rules are an output from European harmonization of fire testing methods, classifications and product standards where applicable. At a national level, experienced persons or fire test organisations have previously provided assessments of expected performance based on expert judgement and opinion, however these rules allow interpretation through the specific EN 1366 test standard.

DiAP and EXAP rules are provided in the EN 1366 and EN 15882 test standards series. They are derived from information obtained from tests carried out in accordance with relevant EN 1366 tests at recognised laboratories in Europe. The test results achieved by a particular design may be directly applied to a limited number of variations without recourse to expert advice, providing the design remains substantially as tested. EXAPs shall be based on primary test evidence to a specific part of the EN 1366 series and may be supplemented by appropriate test evidence generated from other sources, or other relevant historical data. The EXAP rules conside changes in the tested design beyond the scope of direct application and may also consider variations to the tested design.

Direct field of application - DiAP

Fire Stopping systems of this type are often complicated by extensive changes in modern buildings and their influence on the fire hazard should be considered carefully. The fire hazard can be reduced by providing penetration seals at the points where the services pass through fire separating elements (walls/floors).

The impact of fire on a construction or service system can vary considerably. A strict scientific approach to the problem of adequate testing of a sealing system would, therefore, be to design a series of tests each of which corresponds to a specified fire situation and arrangement. However, such an approach would probably fail due to its economic consequences, as tests of this type are very timeconsuming and costly. The method of test described in the EN 1366 series has therefore been designed with the intention of covering a wide range of fire situations in a minimum of tests. To allow a wider field of application, standard configurations are defined on the basis of general experience and historic data wherever possible. As frequently a number of influencing parameters was considered when defining the standard configurations, not all of which may be addressed explicitly in the field of direct application rules (e.g. metalscreen of cables). To allow nevertheless flexibility a modular approach was taken as far as possible so that various combinations of standard configuration elements can be used to fit the needs of the user.

Where a nonstandard configuration was used, the field of application is restricted to what was tested, however the field of direct application rules given in the various parts of the EN 1366 series may be applied, subject to deviating rules given in the annexes of each part. Rules cover supporting construction, orientation, penetrating services, service supports, penetration seal size, distances and overall configurations of penetration seal materials and services to be included.

Extended Field of Application- EXAP

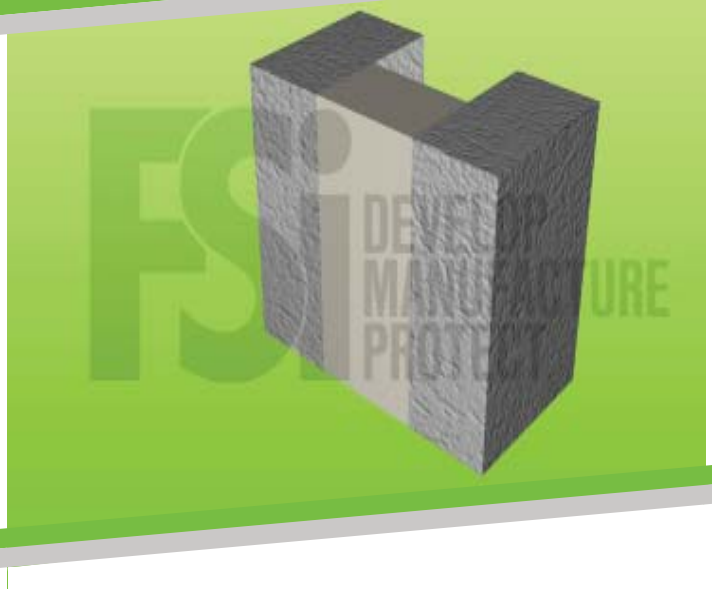
The purpose EXAP document is to provide the principles and guidance for the preparation of extended application documents for penetration sealing systems tested in accordance with the EN 1366 and EN 15882 series. The field of the extended application document is additional to the direct field of application given within the relevant part of EN 1366 and may be applied to or based on a single test, or a number of tests, which provide the relevant information for the formulation of an extended application.

There are a number of practical limitations on the size and design of elements that can be tested by the standard methods of fire resistance test. When these elements are required to be larger, or are of a modified design, there is a necessity to be able to confirm their performance, without the ability of being able to test them. To achieve this, extended application documents for the various elements are used.

Due to the diverse nature of materials and constructions used to seal openings in fire resistant separating elements it has been necessary to separate the extended application principles into generic seal types within the specific EXAP EN 15882 series. Often more than one variation is to be incorporated, should this be the case the overall effect shall be considered. Principles common to all generic seal types are given in the EXAP and rules for each specific generic seal type are given. The Annex provide rules for the application of test results and provides information relating to the extended application of those test results on for service penetrations.

Variables for each seal type, which require consideration included are as follows:

1) Separating element;
2) Type of service;
3) Size of service;
4) Seal size and configuration
5) Material changes (components or formulation) – comparison test approach, reduced test program
6) Orientation
7) Penetration seals at the head of walls (like a linear joint) – consider the issue of movement
8) Penetration seals at slab edges (like a linear joint) – consider the issue of movement
9) Distances of penetration seals to other openings in the separating element e.g. doors



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