Nullifire
Smart Protection

Guidance Note

Essential Factors to Consider When Starting Building Design

Contents

Tremco CPG UK passive fire protection solutions offers a unique combination of products and services.

Nullifire intumescent coatings and fire stopping products provide specifiers, developers, builders, contractors and installers with a complete solution to all passive fire stopping requirements at all stages of the construction progamme.

Coordinating Services

When designing a building there are many aspects that need thorough consideration. Services are one of those, within this document are some of the key considerations when designing out and planning service penetrations through designated fire compartments and the rules that need to be applied.

In order that a suitable tested detail can be applied to every seal, these key considerations should be established in the first instance. In turn this contributes to simplifying the actual building process.

Nullifire

Acoustic Information

For optimal acoustic performance, the following sound insulation values are achieved with Nullifire products

The Nullifire acoustic reports are available upon request from our Fire Stopping Technical Team for review, analysis and interpretation by a qualified and responsible acoustician.

- 2 layers of Intubatt (140kg/m2) : 57dB
- 2 layers of Intubatt (180kg/m2) : 59dB
- 1 layer of Intubatt (140kg/m2) : 36dB

Other product performances include:

- FF197: 62 dB
- FS702: 55 dB
- FS719: 66 dB
- FJ400: 63 dB
- FS703: 66 dB
- FR230: 52 dB
- FS709: 64 dB

The products are tested at a third party testing lab and may not reflect the exact construction build up, the largest acoustic performing element would be the compartment substrates and this may limit the performance of the fire stopping seal.

Spacing of Apertures

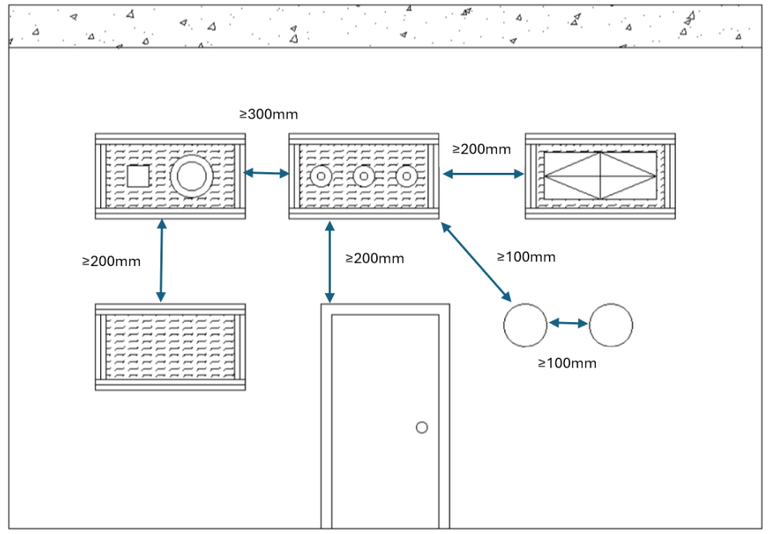
Aperture spacing guidance is given by the wall manufacturers guidelines and best practice documents. These are usually readily available online or from the manufacturers themselves.

Under the fire stopping standards, 100mm spacing minimum is required between elements, this can be reduced however if there is tested evidence.

Apertures can be core drilled openings, framed and lined openings, doors, ducts and dampers and other services to name a few.

Some of the key distances to consider include :

- BWIC – BWIC (to the same testing standard) horizontally 300mm, vertically 200mm
- BWIC - BWIC (different testing standard) 200mm
- BWIC – Door 200mm
- Core drilled opening – Core drilled opening – 100mm
- BWIC – Core drilled opening – 100mm



Referenced figures taken from BG Best practice Guidance BPG001-4.0. Images shown are for illustration purposes only and are not drawn to scale.

Maximum Aperture Sizes

Aperture should be constructed in line with the wall manufacturers guidelines

Rigid and Flexible Walls ≥75mm (single skin)

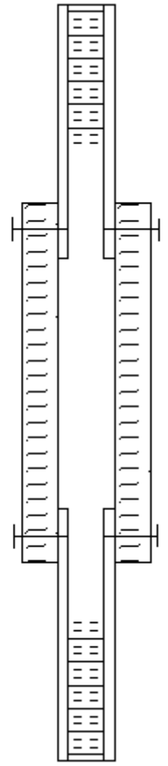
Flexible walls are constructed from 50mm C stud and 1x 12.5mm plasterboard layer to either side of the wall. This also covers rigid walls of a minimum 75mm thick

Single Compression fitted FB750

2-3mm of compression required, FS702 to all edges and abutments

1.9m2 : 2000x950 mm

Maximum Aperture Sizes



Pattress fitted FB750

No compression required, FS702 to all edges and abutments

2.73m2 : 2600x1050 mm

Rigid and Flexible Walls – 100mm minimum (double skin)

Single Compression fitted FB750

2-3mm of compression required, FS702 to all edges and abutments

1.9m2 : 2000x950 mm

Maximum Aperture Sizes

Double Compression fitted FB750

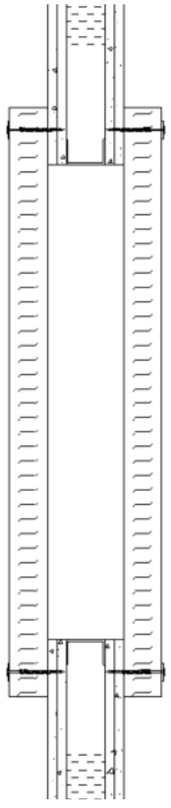
2-3mm of compression required, FS702 to all edges and abutments

6.76m2 : 2600x2600 mm

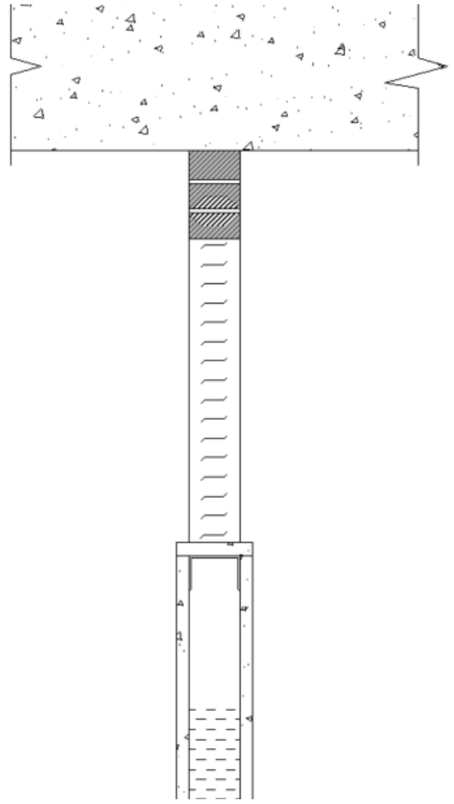
Pattress fitted FB750

No compression required, FS702 to all edges and abutments

2.73m2 : 2600x1050 mm



Maximum Aperture Sizes



Rigid and Flexible Walls – Movement Seals

Flexible walls constructed from 50mm C stud and 1x 12.5mm plasterboard layer to either side of the wall. This also covers rigid walls of a minimum 75mm thick

2-3mm of compression required to a minimum of 2 sides, FS702 to all edges and abutments

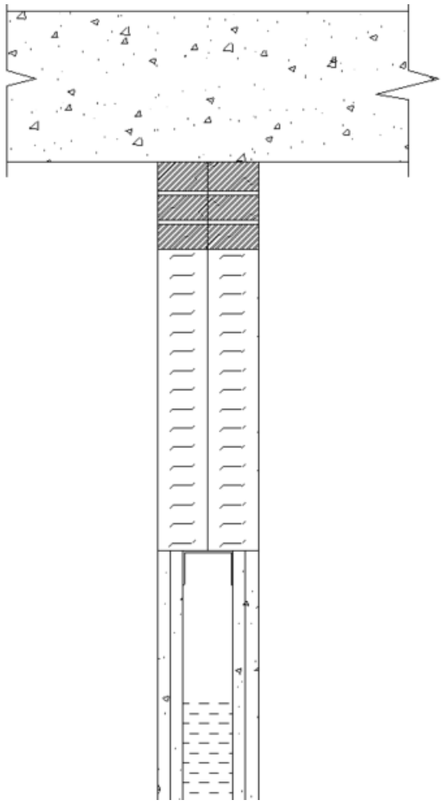
0.102m2 : 204x500mm

Maximum Aperture Sizes

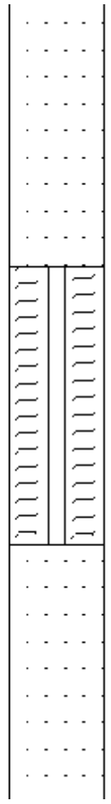
Flexible walls constructed from 50mm C stud and 2x 12.5mm plasterboard layer to either side of the wall. This also covers rigid walls of a minimum 100mm thick

2-3mm of compression required to a minimum of 2 sides, FS702 to all edges and abutments

0.37m2: 740x500mm



Maximum Aperture Sizes



White Wall Seals

Double Compression fitted FB750

2-3mm of compression required, FS702 to all edges and abutments

1.417m2 : 1300x1090 mm

Intucompound Floor Seals

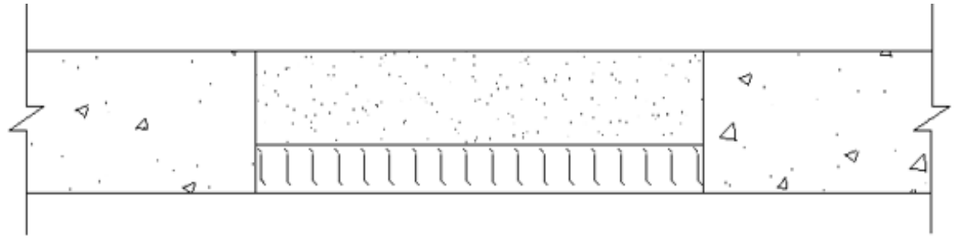
Apertures should be constructed in a solid AAC/concrete floor in accordance with the floor manufacturers recommendations and guidelines. FR230 Intucompound should not pass through a movement seal
FR230 Intucompound is a high strength, load bearing floor solution and is tested to provide a safe load bearing platform for up to 2.5kN/m2 when correctly installed in accordance with our guidance.
Is a high-quality gypsum-based mortar containing our traceable Optifire + technology.
Tested for up to 4 hours fire resistance and can be used in openings up to 1.2m2 without any framework.
Load capable after only 50 hours post application and includes testing to a multitude of services within the available certification.
Is framework required ...?

Area	Back to back angle centres*
Up to 1.21m2	No support required
Over 1.21m2	400mm

Maximum Aperture Sizes

Intucompound Floor Seals

Maximum span is 2m



* 50 x 50mm galvanised angle frame- back to back

Installation requires a shutter to be installed so that the FR230 can then be poured on top. This shutter can be FI140 or alternatively FB750 Intubatt, other substrates such as steel are tested to be used as shuttering

A minimum of 100mm thickness of FR230 Intucompound should be poured and installed into a floor slab on a minimum of 100mm thick.

Tested to European requirements for drop body and drop tool testing. Serviceability testing carried out to EOTA TR001

Images are for illustrative purposes only

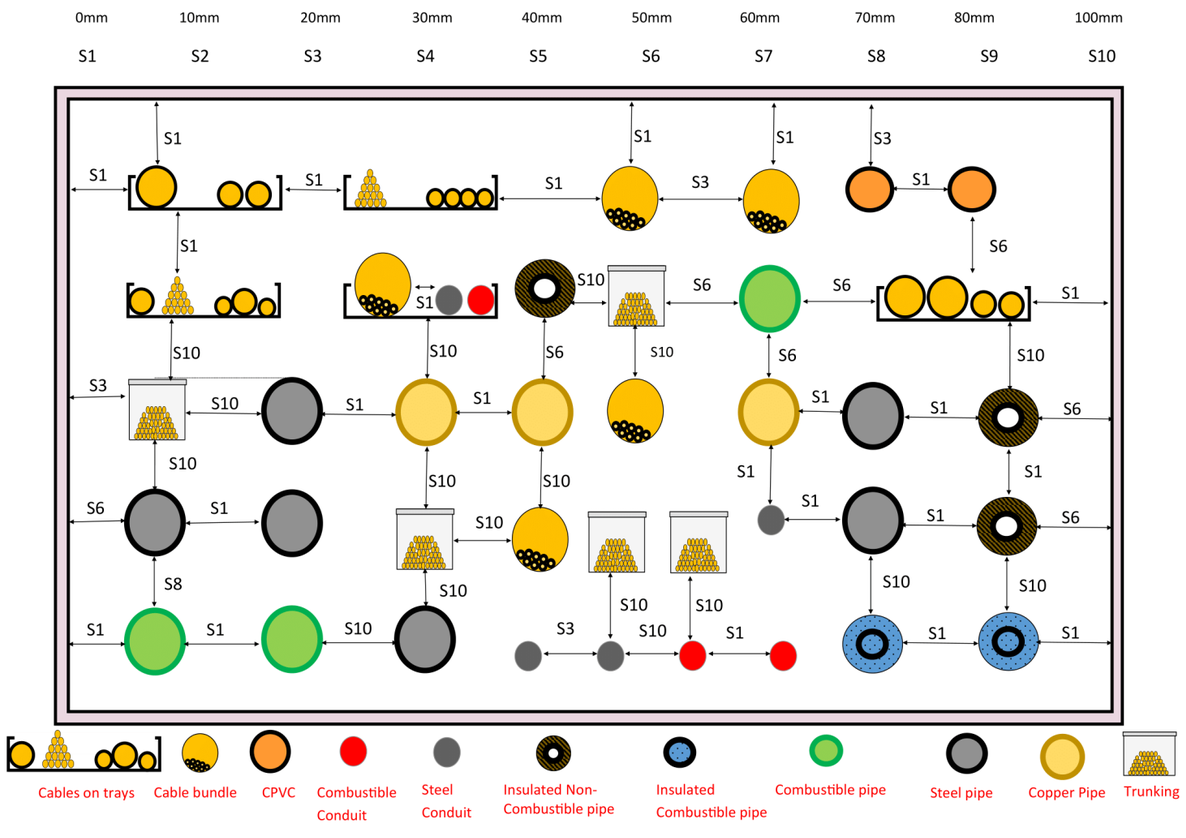
Service Spacing

Service Spacing Requirements:

Spacing of services can be a complex process where MANY considerations take place. Nullifire are constantly testing to improve our product offering, including spacing options. However it is a intricate process and as such we would recommend consulting NTN62*

Please also always consider what can be practically installed on site as service spacing may be small, however in some instances this is not practical for the installer.

The below imagine is our latest guidance on service spacing.



Service Supports

Our tested applications will state the distance of the first service support must be ≤250mm.

Within the testing standard EN 1366-3- Fire resistance tests for service installations, it provides 3 options for service supports:

- Without service support
- Standard service support construction
- Full scale representation as in practice. A load may be applied to simulate practical conditions

As Nullifire we employ points 1 and 3 when fire testing

Services should be supported in line with the installer/ service manufacturers recommendations. Any deviation in this may result in warranty or liability changes. We are not qualified to interfere with service manufacturers specific design.

That said, the ASFP released the following statement:

“There is often a conflict between the centres covered by the fire test/assessment/ certification evidence and the centres

required by service providers which may be different. Often the services are installed before the walls are built and therefore it is inevitable that in some cases, the supports will not fall inside the scope of test/assessment/certification evidence provided by the installer/manufacturer of the penetration seals.

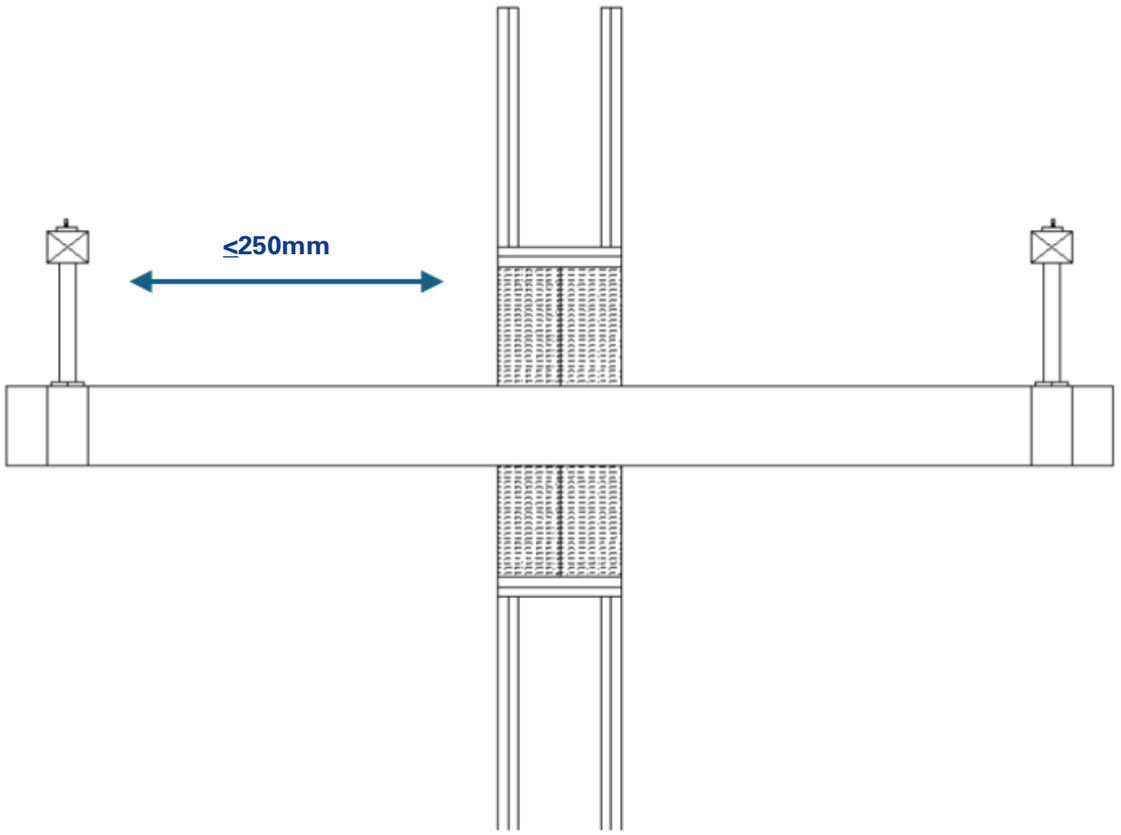
As a fire safety organisation, it has to be the position of the ASFP that the fire performance of any installed seal can only be guaranteed if it is installed exactly as fire tested, assessed or certificated; and this includes the centres of supports for

services. The centres provided by the manufacturer/installer of the penetration seal result from the fire testing methodology and are the only ones proven to work. If the seal is installed with centres outside the scope of application (centres and

tolerances) provided by the evidence, there is a possibility that this will lead to localised distortion of the service which may cause displacement and thus premature failure of the seal.”

Service Supports

This concluded that ultimately the overriding requirement is down to the client or building owner to dictate. Based on the guidance outlined across the industry, it is Nullifire's stance that based on the first service support distance from the seal during the fire test, it shall be a maximum of 250mm from the seal.



Service Materials

Services can be made from many different types of materials, each one is used with the services function in mind. These can be designated as combustible or non-combustible.

A non-combustible service will not combust in a fire scenario however it can distort and undergo other physical changes, generally these services do not require a closing device.

A combustible service will melt in a fire scenario, the point at which these melt will vary depending on the melting point of the specific material. An example of this would be plastic, however the exact type of plastic needs to be identified as they can have a wide range of different melting points which will cause different behaviours during a fire. Example of these can include PVC, HDPE, ABS, PP, PE, PB ....

Further to this the types of service insulation can also fall into the above 2 categories. And as above the precise type of material the insulation is made from needs to be identified. Examples of combustible insulation can include phenolic, nitrile rubber ....

The above information is required in order that a correct tested detail can be applied.

TREMCO
Construction Products Group

Tremco CPG Europe manufactures high performance building materials in order to solve the complex challenges faced by today's construction industry. With over 1,400 employees across Europe, we are committed to being by your side to shape a world where buildings and structures save energy, last longer and exceed sustainability benchmarks.

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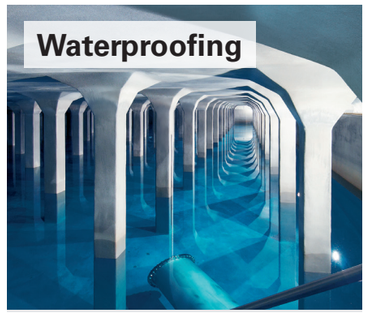

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TREMCO
Construction Products Group

Tremco CPG UK
Coupland Road, Hindley Green
Wigan WN2 4HT, United Kingdom

T. +44 (0)1942 251400
F. +44 (0)1942 251410
firesales@tremcocpg.com
www.nullifire.com

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