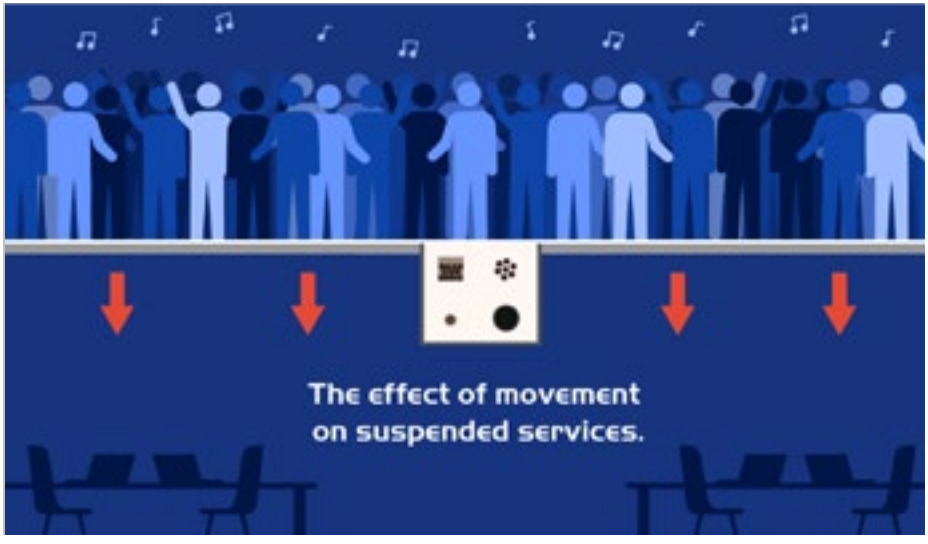
Nullifire
Smart Protection

FZ400

Building & Service movement: Fire Stopping Solutions

TREMCO



BUILDING AND SERVICE MOVEMENT

All buildings are subject to movement from a variety of different sources. Building occupation and vacation, considered live loads, weather such as high wind and snow accumulation, along with seismic activity, can be considered as potential inducers of movement. All of these are consideration points during the building design process.

Principle designers are in charge of all design work alongside, architects and structural engineers. Building movement will be incorporated into the design, enabling the building to accommodate all anticipated load requirements.

Movement joints exist in walls and floors, cladding, roofs and structural beams. These movement stresses can be subsequently transferred to other elements throughout the building, thus requiring wall deflection heads, movement joints in floors and the movement of critical building services.

The movement of critical building services is typically caused by live loads on a single area of the structure causing the floor level to deflect downwards and the ceiling height on the floor below to decrease. Assuming the critical building services are attached to underside of the soffits, if the soffits moves, the service moves. The service is very likely to pass through walls beneath the designed deflection area. This movement type has the potential to apply undesired stress to services and any constructed fire seal around the service.

THE CHALLENGE

Our Technical experts sought to provide an engineered solution to accommodate such movement. We also needed to create a method of testing such a product, to enable the representation of real life application, to ensure compliance where no test standard currently exists to evidence this requirement.

WHAT COULD PROVIDE MOVEMENT CONSISTENTLY AND PROVIDE UP TO 120 MINS FIRE RATING?

We needed a product with high flexibility and outstanding fire qualities. Able to compress and return by up to 50% keeping stability of seals in both small and large openings.

THE INNOVATION

Our patented GXT technology (Graphite eXpansion Technology) - graphite impregnated open cell foam is a highly expansive char forming material when exposed to heat. This would provide both flexibility and excellent fire stopping properties. In addition, wrapping the GXT in a water resistant film would provide a cold smoke seal.

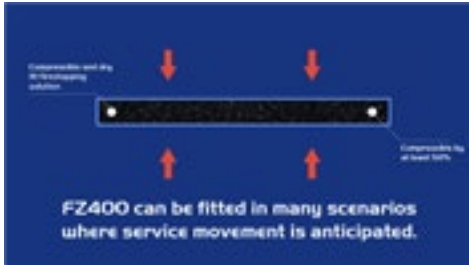
THE PIONEERING 'MOVEMENT TESTED' SOLUTION - FZ400

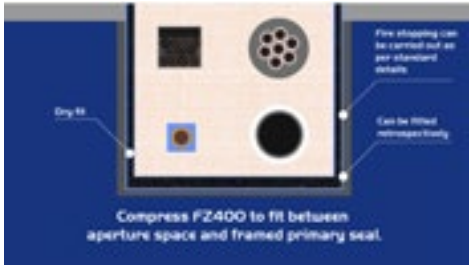
Introducing FZ400, using GXT Technology, can accommodate any potential movement providing the necessary continual relief of fatigue on fire stopping seals.

Under deflection, once fitted around the seal, FZ400 compresses to accommodate such movement, protecting the integrity of the service penetration keeping the fire seal and compartmentation intact.

FEATURES

- Tested to EN-1366-3/4 - and achieved up to 2 hours fire rating after cyclic movement
- Easy to install - dry fit, easy to cut and handle, compressible and lightweight
- Zero fibre migration
- Creates a seal that permits movement
- Can be also fitted retrospectively
- Nullifire Patented GXT Technology with excellent fire stopping properties
- Tested as a linear gap joint – superseding FJ400





Preinsertion and insertion of FZ400 in larger seal (Up to EI120, service dependant)

THE MOVEMENT TEST

FZ400 was been tested to EN-1366-3/4 - and achieved up to 2 hours fire rating, Nullifire's Research team, alongside Warrington Fire, developed The "Movement test" – the ability to test replicative movement within a lab setting and under laboratory conditions. This enabled the practical testing of full wall movement prior to subjecting the same wall to the required EN fire testing conditions.

This "first of its kind" test was designed to move the wall up and down to replicate ceiling deflection and evidence how we had removed any pressure from being applied to the reinstated compartment seals and service penetrations included.

FZ400 is easily installed manually to ensure enough compression to fit the needs of each project. Compressed and fitted around the 3 sides of the seal in the wall that have been fire stopped with other Nullifire products.

Over a 2 hour period the wall was moved up and down by 30mm over 50 times. The wall was then placed on a furnace to see what effect the movement may have had on the fire stopping penetration seal.

Results were excellent showing that after movement and fire, the service penetration was intact achieving up to 2 hours fire rating.

"Architects and Main Contractor clients demand data driven solutions so the development and success of this test will be well received in the Construction Industry."

Hannah Eyres, Technical Manager at Nullifire

Nullifire has been supplying Fire Stopping and Intumescent Coatings to the construction industry for over 50 years. Our pedigree lies in our extensive knowledge and technical expertise to develop best in class Fire Stopping products

FZ400 should be used in conjunction with other Nullifire Firestopping products

For more information on FZ400 test please contact us on firestoppinghelp@tremcocpg.com

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