

StubGuard® Document
No. 1.8

StubGuard®: A thermal & fireproofing housing to add to the unique Sapphire balcony anchor system

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Introduction

The move toward thinner slabs and minimal floor finishes has increased the incidence of details where there is insufficient form for the linear cavity barrier to pass under or over the interruption in the cavity barrier created by balcony support stubs.

Traditionally ad-hoc details have often been proposed requiring site assembling of fire stopping surrounds, but in many cases, these have not been subjected to testing, nor have adequate quality assurance measures been applied.

The Challenge

As leading balcony suppliers, we became aware the industry was looking for solutions evidenced by testing, so we commissioned several fire tests evaluating the effectiveness of a range of possible solutions.

We based these on the test regime for linear cavity seals BS EN 1366-4 and ASFP guidance document TGD17. The specimens were subjected to British Standard fire curve furnace temperatures rising to above 1000°C over 120 minutes and continuously monitored for integrity along with temperature recording above the insulation as shown in Fig. 4 and in the graph below.

The tests indicated a solution which gave the required level of protection, and this was selected for additional development, independent testing, and certification.

The Solution

The Stubguard® comprises CNC cut, dense grade, specially formulated, mineral fibre blocks, designed to fit snugly around the stub or arm – see Figs.1, 2 and 3. They are held together using the pre-fitted self-adhesive foil flaps at the top and bottom of the encasement and are prevented from displacement by the positioning of the adjacent linear barrier once this is fitted.

The Certification Pathway

As there is no specific standard covering the firestopping detail around a balcony support arm, we have opted for certification using the EWCL5 pathway. This is provided by Warringtonfire and based on an independent, 'ad hoc' test utilising the heat and pressure conditions specified in BS EN 1363-1: 2012 and the test regime was based on the standard for linear joint seals – BS EN 1366-4. This was coupled with stringent factory production control and system documentation auditing. Certification has now been gained – approval no. ME5116.

Whilst LABC's are not bound to recognise this certification due to the current regulatory position, Sapphire have taken all the necessary measures it is aware of to ensure that the Stubguard® is a tested, compliant, and certified product and attains to the standards that do exist and which bear on its intended use. We have found in practice, that authorities and consultants usually appreciate this.

Design

Sapphire project managers will size and configure the Stubguard® to an agreed matrix which has been formed as part of the test and certification process. This ensures that varying site design details do not cause 'as built' product to stray outside of the parameters within which it was tested and certified.

To receive its certification, Stubguard® had to be tested in use with specific cavity fire barriers. Accordingly, its certification is valid only when used with the following cavity fire barriers:

Cavity Fire Barrier Products Certified with Sapphire Stubguard®				
Manufacturer	Product name/code	Thickness	Integrity	Insulation
AIM	Fire Barrier Slab	100mm	120mins	120mins
Siderise	XFS 120	120mm	120mins	120mins
Hilti	CP674 Unventilated	75mm	120mins	44mins
Rockwool	SP120	90mm	120mins	60mins

Test Temperature Data

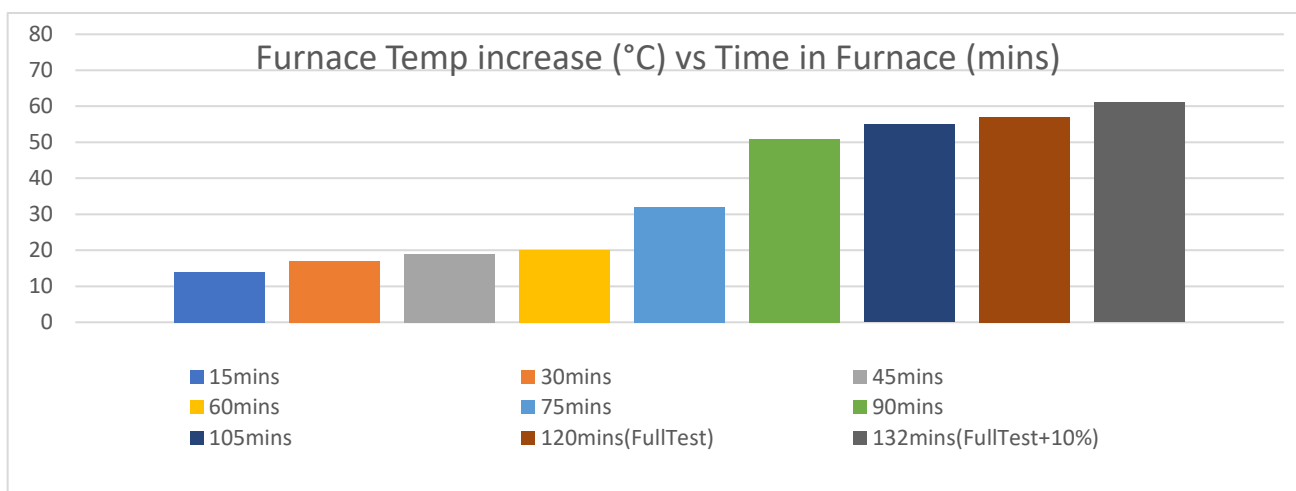


Diagram showing temperature rise at top of Stubguard®. Permissible temperature at 120 minutes = 198°C

Stubguard® benefits:

- Supplied in depth increments of 50mm and can be accurately cut to give a tight fit across the available cavity
- Extremely quick to fit
- Installation guide supplied with Stubguard® units
- Provides a robust solution for minimising heat loss in this critical area
- The tough reinforced foil covering to the sides provides an easy surface for the adhesion of a waterproof membrane
- The adhesive flaps pull the two halves of the housing together and reduce the risk of installer inconsistencies
- The housing is tailored to the specific project design dimensions of the stub or arm
- Tested, and certified solution
- Protection for the anchor thermal break as evidenced in our Stubguard® test at Warringtonfire – 27th February 2020

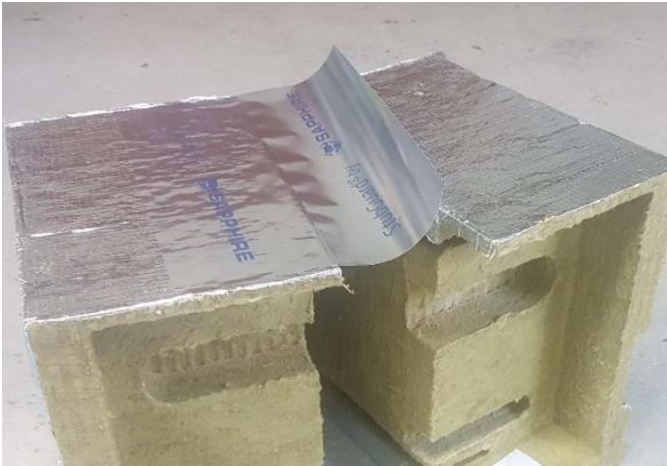


Fig 1 Detail of typical Stubguard® pre-installation



Fig 2 Stubguard® testing at Warringtonfire. Note sensors monitoring top surface temp.



Fig 3 Stubguard® being fitted prior to cavity fire barrier fitting (Foil to front face may be omitted without affecting fire performance)



Fig 4 Stubguard® with cavity fire barrier fitted to each side



Fig 5 Stubguard® fitted for testing at Warringtonfire

Frequently Asked Questions

Q – What is the lead time for the Stubguard®?

A – Depending on quantity, normal lead times are around 8-10 weeks from point of order which matches our anchor sets. A phased delivery to site can also be accommodated. Please call to discuss if this lead time is a problem.

Q – What is the installation process for the Stubguard®?

A – Sapphire do not carry out installation of the Stubguard®. It is the responsibility of the purchaser to ensure these are installed by a competent person and with robust quality procedures in place. In our experience, typically, main contractors/developers who purchase the units will free issue them to their fire-stopping contractor who would install them onto the balcony stub brackets just ahead of the main cavity barriers and fire-stopping being installed to the façade. This will ensure complete continuity in the fire barrier at the slab edge.

Q – How are they designed?

A – The Stubguard® is not really 'designed' in the true sense of the word as this work has already been done and certified during development. However, typically, the Sapphire contract manager will size and configure it based on the arm size, plate size and cavity width using the parameter guide from our certification matrix and offer this to site for sign-off. Once sign-off is achieved he will progress it through the production phase and arrange for delivery.

Q – We are using a branded fire-stopping solution right across our project. Is this compatible?

A – This product has been developed and tested alongside of proprietary cavity barriers from other premium suppliers to the industry with results shown in this document. To ensure that the product is covered by EWCL5 certification, you will need to use one of these manufacturers products we have tested with - see the list above. The purchaser is responsible to seek advice and a final decision on suitability from their consultants or a LABC Officer.

Q – What are the standards governing penetrations through fire separating elements?

A – You will find relevant guidance in **Approved Document B, Vol 2 of the Building Regulations**. In brief:

Section 8 – this relates to compartmentation of areas in a building

Section 9 – this relates to concealed spaces (or cavities) and explains the way in which cavity barriers should be used to maintain a compartment in or across a cavity

Section 10 – this relates to protection of openings and firestopping. The StubGuard™ is performing a firestopping duty to stop the passage of fire past a penetration through the 'fire-separating element' – the cavity barrier

Please note again: the purchaser is responsible to seek further guidance as required from their consultants or a LABC Officer.

Q – Does the Stubguard® need to be mechanically fixed to the steel stub or floor slab?

A – Generally there is no requirement for fire-stopping to be mechanically fixed. If installed correctly, the Stubguard® is normally adequately held in place by its ‘wrap around’ shape being held together with the adhesive foil tabs in the first place. Further to this, it is assumed the cavity barriers will compress it from each side and the floor slab edge and back of the façade will compress it at either end. This complies with the requirement to ‘prevent displacement’ (Approved Document B, Vol 2, Section 10.18).

NOTE: Cavity barriers **do** need to be fixed (Approved Document B, Vol 2, Section 9.14 and 9.15).

Q – Who takes responsibility for the use of the Stubguard®?

A – Whilst Sapphire are willing to share knowledge gained through the numerous tests we have carried out, the responsibility for the suitability of use of the Stubguard® on a project rests with the project fire officer or LABC Officer due to the integration of the other fire stopping products and the fact that Sapphire have no control over the adjacent surfaces or control over the installation.

Q – How much does the Stubguard® cost?

A – Our sales team will be pleased to give you a price for the free issue of Stubguard® products on your project on application. sales@sapphire.eu.com or call us on - 0344 88 00 553.



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