

Introduction

Technical guidance notes serve to validate and elaborate on the proven fire stop systems offered by FSi Limited. These notes offer valuable advice to specifiers, designers, and installers, focusing on specific applications, configurations, and aspects relating to fire stopping systems and materials. The document provides guidance on practical and effective recommendations, aiding in the selection of fire stopping materials for a project. Furthermore, this insightful advice is instrumental for building owners and individuals responsible for the installation and maintenance of fire stopping systems.

The purpose of this document is to address the specific scenario on projects where there is a requirement to fire stop from the head of wall to the underside of the roof construction where the fire performance is unknown/unproven.

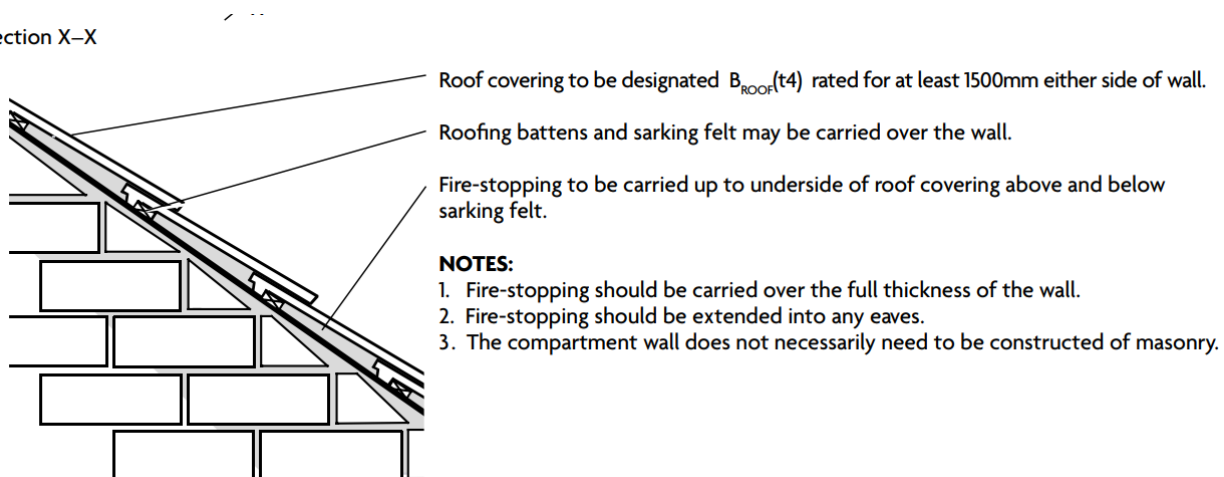
FSi Promat Guidance

This specific scenario is not something that can be directly tested to any harmonized European test standard and so typically a system is proposed utilizing both interpolated test evidence from the BS EN 1366-3 and 4 test standards, but also guidance contained within the Approved document.

Approved Document B requires there to be a fire stop to be applied to the void above any roof sarking to the underside of the tiled roof which is typically a part of the roofing contractors' responsibilities.

Annexure A

Section X-X



If this is something that is either overlooked at building design or was not a consideration when the building was constructed there are solutions that FSi Promat can propose to prevent the spread of fire between compartments and indeed buildings. Any systems proposed in these should be carefully considered taking into consideration several factors including but not limited to,

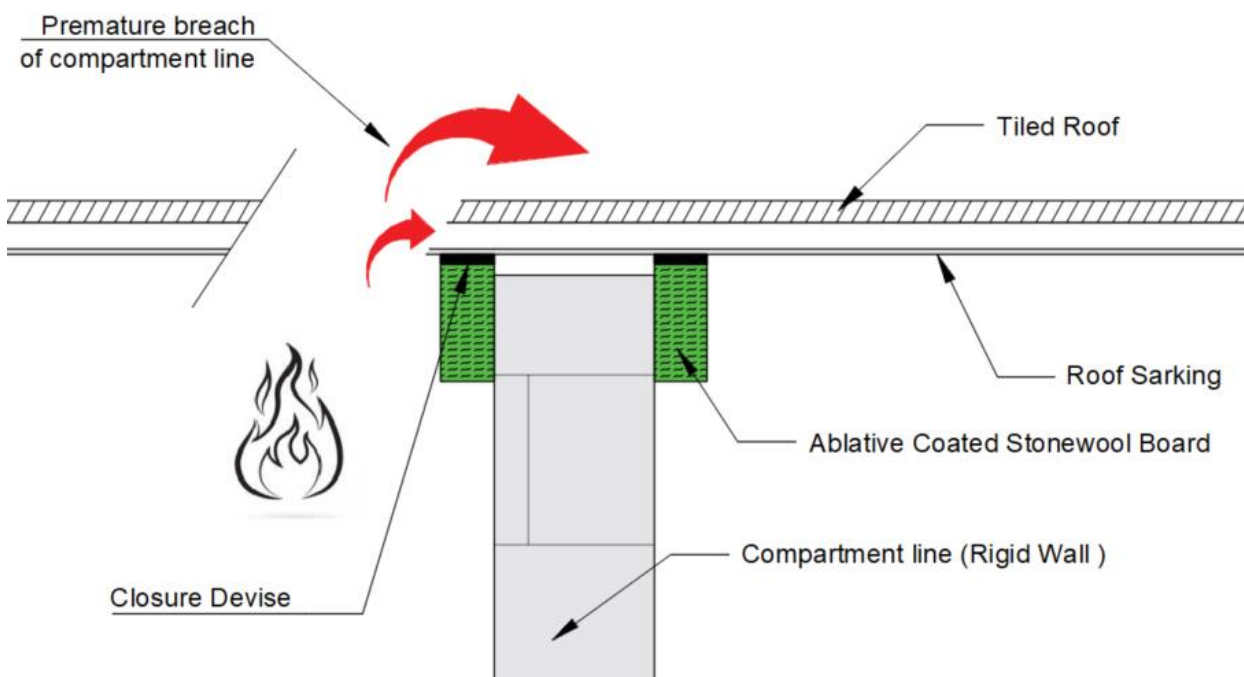
- The expected exposure of the seal to fire.
- Potential for fire spread to adjacent buildings.
- Fire strategies and compartments lines.
- Fire load.
- Fire rating of linings.
- Fire resistance of existing substrate.
- Occupancy of the building.
- Building height.

Considerations where no Protected zone is applied.

The consequence of installing a firestopping system with no protected zone exposes the compartment line, resulting from a premature failure of the roof and sarking. The risks here are well documented where fire and cold smoke can potentially breach fire lines spreading through roof spaces unchecked as well as the boundary effect to nearby buildings. Moreover, the potential for a local distortion within the fire line may occur compromising the integrity of the firestopping system installed.

Annexure B

Section View

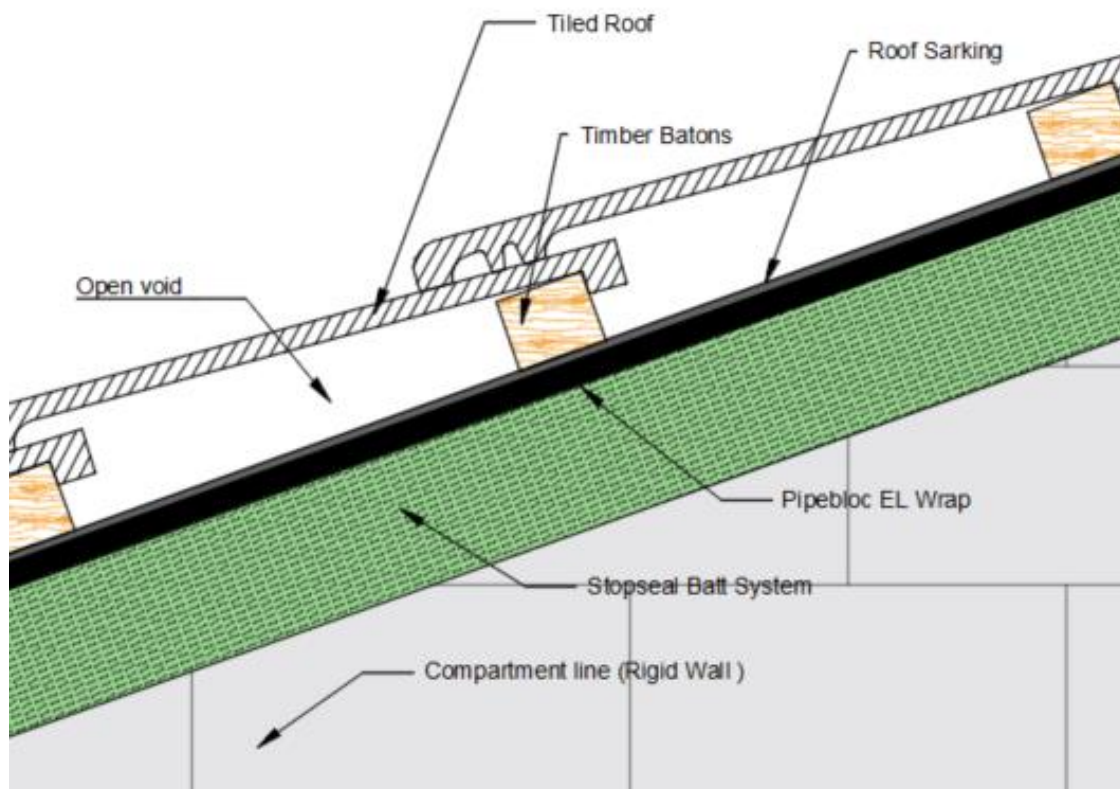


Considerations where no Protected zone is applied.

There are additional risks which are mitigated by a protection zone. Where there is a closure device applied to the head of a firestopping system, (in the case of FSi Promat, Pipebloc EL Wraps are utilized which are graphite strips with intumescent properties which expand in fire conditions with the intention of filling the void that may be present between the sarking and the roof tiles above as shown in Annexure C) there is a known deferment in reaction from the point of fire exposure to when the void is completely closed. This can take up to several minutes, depending on the degree of fire exposure. During this time there will be the opportunity for sustained flaming through this compartment line allowing fire to breach the compartment.

Annexure C

Elevation View

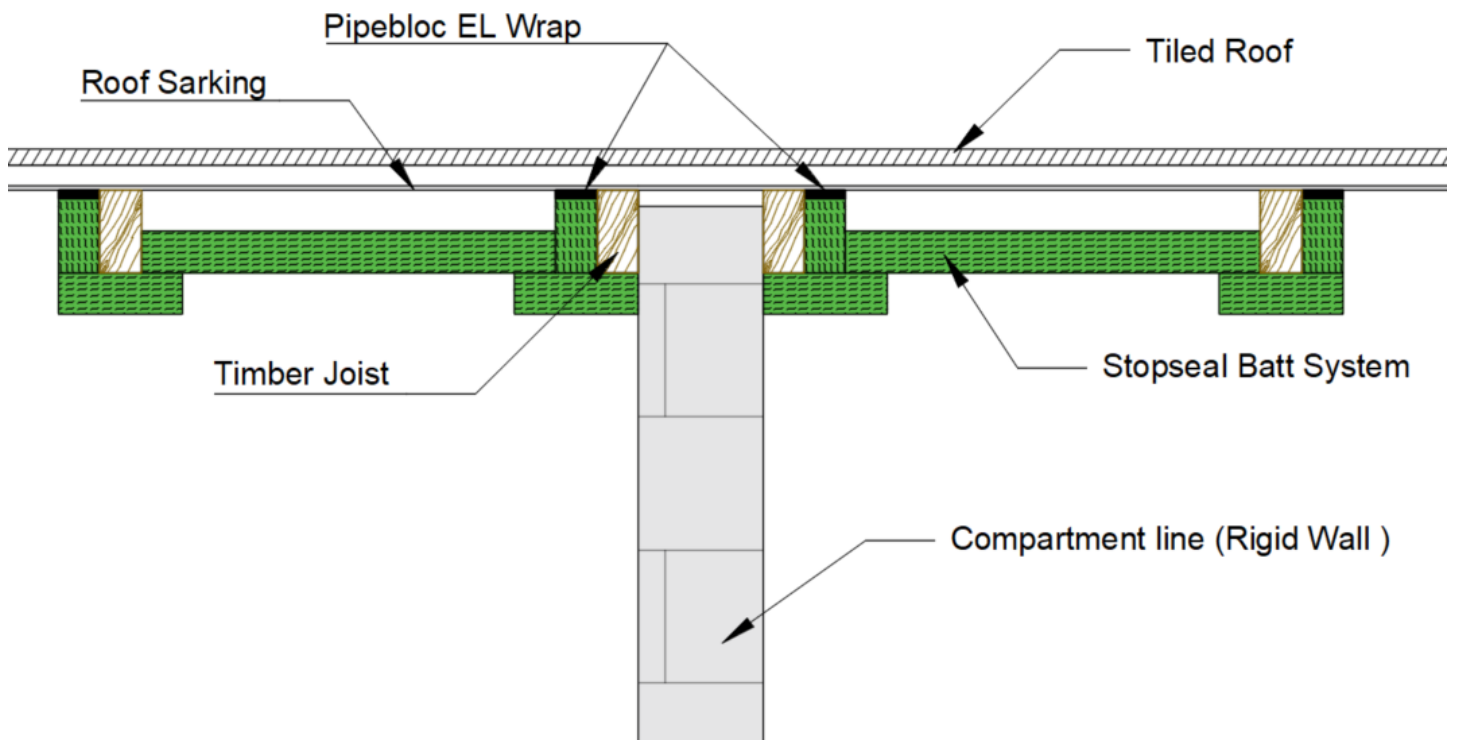


Solution

The Solution offered by FSi Promat ensures not only fire resistance of the compartment line is maintained but also ensures there is a protected zone achieved to both sides of the substrate. Not only does this protected zone prevent any premature compromise of the fire line but also give adequate time for the intumescent to fully activate and fill the open void that is present between the sarking and the roof tiles above. Furthermore, this prevents localized distortion of the elements of the construction also offers protection to the timber support members.

Annexure D

Section View



Additional Consideration

The rate of fire spread through a roof construction is dependent on several factors, predominantly being the ability of the substrate to offer a fire resistance and the fire performance of the materials included with the construction of the substrate.

Fire Performance of Roof Constructions

The European test standard BS EN 13501-5 classify roof systems into five categories depending on the performance of the material. These are Broof, Croof, Droof, Eroof and Froof. Despite the largely harmonised European standard, the testing process includes specific measures to meet the legislative requirements of different countries. As a result, there are four distinct tests with separate classifications to denote which test the system has passed - t1 for Germany, t2 for Scandinavia, t3 for France and t4 for the UK. Test 4 (t4), established to meet the stricter requirements of UK standards, is a two-stage test method incorporating burning brands, wind and supplementary radiant heat measures. As such, specifiers in the UK must ensure the selected system has passed the t4 test.

Fire Performance of Materials

When specifying a roof system, it is important to understand the performance and classification of every element. All building insulation products must be tested and classified in accordance with the European Reaction to Fire classification system, also known as Euroclass (BS EN 13501-1). The system determines a product's reaction-to-fire performance by evaluating the properties of the material in relation to ignition, the speed of flame spread, the amount of heat and smoke produced and its production of flaming droplets or particles. Based on the results of these tests, products are given one of seven ratings from A1 to F, with A1 considered non-combustible. Those with an F rating are either not documented or the performance does not meet the criteria for any of the other classes.

Manufacturers must declare the fire performance classification of all products. In addition to the insulation, it is also important to look at the underlying structure such as the construction of the roof deck. For example, a concrete deck will be more fire resistant than timber, and this will affect the overall performance of the roof in the event of a fire.

FSi Promat are providing this supporting document to offer an opinion in relation to the performance of the Stopseal Batt system and Pipebloc EL Wrap installed to a flexible and rigid wall to the underside of a tiled roof with or without sarking. FSi Promat do not accept any design liability due the untested site conditions in relation to the application however we can offer expert opinion based on industry knowledge and known performance of fire stopping products and systems. It would be the responsibility of the authority having jurisdiction to determine the compliance / appropriateness of system considering all aspects of the site conditions.

As is always the case, the intention of the fire stopping system is to reinstate the fire resisting performance of the substrates it is installed within and as such the fire resisting performance of any proposed or installed system will be limited by the performance of the substrates.

To achieve a fire resistance, the substrates must have been subjected to the relevant fire testing standards to achieve the fire resistance required by the project. The manufacturers must confirm that the substrates have been installed as per their guidelines and parameters and should have been suitably tested to meet the fire resistance required and should not contort or deflect in a manner that compromises the fire stopping system installed. If this cannot be confirmed, then the installation of any fire stopping in these areas may ultimately be of no consequence as a proven fire performance cannot be determined.

All FSi Promat products must be installed as per the principles and instructions as indicated on the relevant technical data sheets and application data sheets.