

LABSS INFORMATION PAPER INFOP32 - 2021 Version 4 – August 2022

Building (Scotland) Regulations 2004
Sections 2 Fire, Section 3 Environment, Section 6 Energy

Use of open state (intumescent) cavity barriers**CONTEXT - SECTION 2 FIRE**

This information note relates purely to the provision of the cavity barrier function as outlined in mandatory standard 2.4.

Verifiers must always be mindful of the more onerous guidance in respect of fire barriers when considering junctions between compartment and separating wall, floor, and roof elements. Reference, in this regard, should be made to '[LABSS INFORMATION PAPER INFOP37 - Version 1 – August 2022 - D 2.2.10 and ND 2.2.7 Junctions](#)'.

SECTION 3 ENVIRONMENT:

Any consideration of where and what type of cavity barriers should be installed must take due cognisance of the guidance contained in Section 3 Environment when considering Mandatory Standards 3.10 Precipitation and to an extent 3.15 Condensation risk.

SECTION 6 ENERGY:

Any consideration of where and what type of cavity barriers should be installed must also take due cognisance of the guidance contained in Section 6 Energy when considering the likelihood of cold bridging through an element. Non-repeating thermal bridging at the junctions of building elements and around openings in the building envelope form part of the calculation of energy performance.

PERFORMANCE OF CAVITY BARRIER:

Section 2 Fire prescribes a need to restrict the spread of smoke and fire. There has been a recognition in more recent times that the spread of cold smoke is 'not considered to be a major concern', as referenced within Clause 2.4.1 - Cavity barriers, to both the Domestic and Non-Domestic Technical Handbooks, when referring to the use of open state cavity barriers.

Therefore, the use of open state cavity barriers, wherever there is a prescribed need, is a recognised method of meeting Mandatory Standard 2.4.

In every case there is a need for a cavity barrier to meet certain fire related performance levels. For cavity barriers installed under Mandatory Standard 2.4 - Cavities, where they are NOT in association with a compartment or separating element as defined by Standards 2.1, 2.2 or in association with the protection of an escape route as defined in Standard 2.9, the cavity barrier must provide a fire performance level of **short duration for integrity only**, from the underside for horizontal barriers and from both sides for vertical barriers.

Section 3 Environment requires that due diligence is given to the risk of damage to the structure of a building, when installing external wall cladding, from water penetration either from precipitation or from condensation. One of the primary protections against this happening is to provide an unrestricted cavity between the cladding and the main structure, to allow a free flow of air, usually from bottom to top, to ventilate and drain this cavity. Care should be taken to ensure that horizontal barriers do not block cavity ventilation. The use of open state (intumescent) cavity barriers allows this design and installation aim to be met.

However, what is less clear is the permitted use of open state barriers in other locations, specifically at the junction between the wall and roof elements. There is clearly a need to provide a cavity barrier between the external wall cavity and the roof cavity.

On balance, there is nothing to stop the use of open state (intumescent) barriers in such locations provided the roof ventilation needs for the roof cavity and the through ventilation needs of any external wall cavity are met and that the performance levels to provide the fire resistance needs are confirmed.

Note, the intent of the functional standards will be met where the open state barrier is appropriately tested/certified and installed within the barriers field of application’.

SUMMARY:

1. Every cavity barrier attracts a fire resistance performance and confirmation of such performance levels must be confirmed when specifying open state (intumescent) barriers.
2. Provided the performance levels can be confirmed then the current guidance within the Mandatory Standards would allow the installation of open state cavity barriers **in any location within the external wall element** provided they are designed to be suitable for their location, including at the junction between the external wall cavity and the roof cavity, and which meet the performance levels on fire resistance. This recognises the references in *“Clause 2.4.1 In an external wall, open state intumescent cavity barriers may be used to inhibit fire and smoke spread and seal the cavity. It is recognised that smoke will spread beyond the cavity barrier at the incipient and early fire growth phases prior to the intumescent material reacting to heat but this is not considered to be a major concern as the cavity is ventilated to atmosphere”.*
3. Any consideration of where and what type of cavity barrier should be installed must also take due cognisance of the guidance contained in Section 3 Environment when considering Mandatory Standard 3.10 Precipitation and to an extent 3.15 Condensation. In particular, the cavity barrier installed between the roof cavity and the external wall cavity must ensure that the ventilation needs for both are not compromised. This recognises the statements in *“Clause 2.4.1 Sealing cavities can sometimes create difficulties, especially where construction techniques rely on through ventilation of the cavity (see Section 3 Environment) or where the detailing should take into account the effect of thermal bridging (see Section 6 Energy).*
4. Any consideration of where and what type of cavity barriers should be installed must also take due cognisance of the guidance contained in Section 6 Energy when considering the likelihood of cold bridging through any element. Non-repeating thermal bridging at the junctions of building elements and around openings in the building envelope form part of the calculation of energy performance.