

MCRMA PUBLISHES NEW GUIDANCE FOR CAVITY BARRIERS IN VENTILATED RAINSCREEN FAÇADES

Most modern buildings contain a multitude of concealed cavities and voids within or passing through walls, floors, ceilings and roofs. Effective fire stopping and cavity barriers are essential elements of fire protection to restrict the spread of smoke or flames, and to maintain compartmentation.

The Metal Cladding and Roofing Manufacturers Association (MCRMA) has published a new guidance document *GD36 Cavity barriers for ventilated rainscreen facades* which considers the key questions about cavity barriers and offers guidance for their correct specification. The document explains the difference between a fire stop and a cavity barrier; examines the regulations for the various parts of the UK and gives installation recommendations.

The role of fire stops and cavity barriers in building construction are often confused. For fire stopping, Approved Document B defines a fire stop as “a seal provided to close an imperfection of fit or design tolerance between elements or components, to restrict the spread of fire and smoke”.

Fire stopping needs to attain the same fire resistance performance as the structural elements and seal the junction of compartment walls and floors to maintain the integrity of the compartment. Fire stopping also seals around penetrations and services. Fire stopping is fundamental to compartmentation.

Perimeter seals or fire stops are required to maintain the fire resistance of compartment walls and floors at detail areas where imperfection of fit or design tolerance may mean fire and smoke could otherwise penetrate through the compartment if not sealed.

Cavity barriers are defined in Approved Document B as “a construction within a concealed cavity other than a smoke curtain, to perform either of the following functions: to close a cavity to stop smoke or flame entering or to restrict the movement of smoke or flame within a cavity.

By their function, ventilated rainscreen systems create a concealed space (cavity) that can, in the event of a fire, provide a route for the passage for flames, hot gases, and smoke to move, unseen, between separate compartments of a building.

The generally accepted method of inhibiting the fire spread within such a concealed cavity is the use of cavity barriers. These will be positioned on the line of any compartment wall or floor so that they sub-divide the building both horizontally and vertically into specific compartments in line with Building Regulations, the fire strategy plan for the building, or specific requirements of warranty providers or insurers. Cavity barriers will also close off penetrations through the façade such as windows, doors, and openings.

It must be noted that the minimum requirements for the performance of cavity barriers can vary depending on which part of the UK they are being used. In addition to the guidance set out by the various country-specific technical guidance documents, warranty providers will have additional requirements regarding the performance and placement of the cavity barriers.

However, it is generally accepted that fire stopping products should meet the same requirements of resistance as the adjacent compartment elements, wherever practicable. Attaching a 60-minute cavity barrier to a supporting inner leaf with a lower fire resistance than the cavity barrier itself is not recommended.

There are two types of cavity barriers which are typically used in ventilated rainscreen facades: firstly, vertical closed state cavity barriers and horizontal open state cavity barriers.



Image shows closed state vertical cavity barriers on the jamb of an opening and horizontal open state on the head and cill.

Vertical closed state cavity barriers are cavity barriers that fully fill the void from the outer surface of the inner leaf to the inner surface of the outer leaf. They are typically used to provide vertical compartmentation of the external facade cavity in a ventilated rainscreen and are generally installed prior to the installation of a horizontal open state cavity barrier.

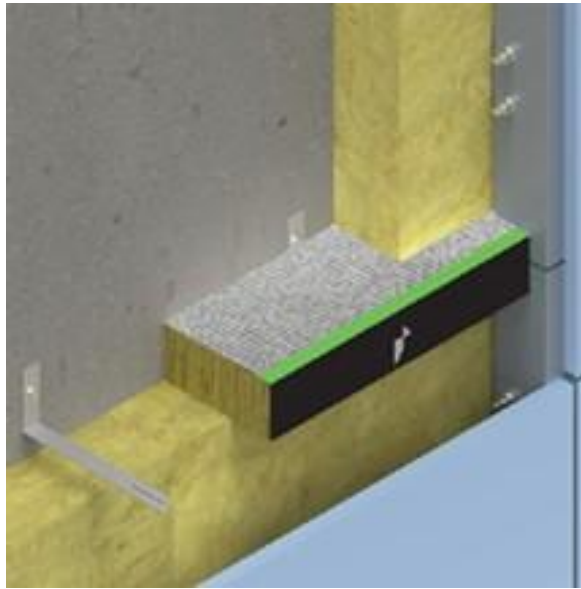


Image shows the vertical closed state cavity barrier extending to the full width of the cavity with the horizontal open state set back to allow for ventilation of the cavity.

Horizontal open state cavity barriers are delivered to site pre-cut to size to suit the width of the cavity less the air gap size. They have an intumescent front face which allows an air gap to be maintained (when in the open state) to facilitate airflow for ventilation.

Open state cavity barriers are supplied with a continuously factory bonded reactive intumescent strip on the leading edge and will normally come with a weather resistant coating. An intumescent strip is a material that is designed to activate at a critical temperature and expand to close off the purposely designed air gap to slow the fire propagating for a specified length of time, normally 30, 60, 90, or 120 minutes, depending on the specified product's integrity and insulation performance.

The manufacturer of the passive fire protection products is best placed to provide detailed guidance and advice as well as making recommendations for product specification if informed of the project specifics in advance.

MCRMA member companies provide a wide range of building envelope solutions for metal-based roofing and cladding products and services, and they can advise on the suitability and performance of materials, systems, and assemblies.

This article was written for MCRMA by Chris Hall, external affairs director, Siderise Insulation Limited

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