

### Introduction



Rainscreen cladding systems typically incorporate a minimum 25mm<sup>(1)</sup> continuous ventilated air space. The inclusion of this cavity ensures that any rain penetration can drain freely within the façade construction.

To accommodate this design feature, together with the essential but conflicting requirement to install cavity fire barriers, Lamatherm have developed a purpose-made solution.

The Lamatherm CW-RS system includes products for both horizontal and vertical situations: CW-RSH & CW-RSV.

Both products comprise of a non-combustible rock mineral wool lamella core, faced on exposed surfaces with a Class 'O' fire rated reinforced aluminium foil.

The horizontal CW-RSH cavity fire barrier has an integral intumescent edge strip. This fully closes the ventilated air gap in the event of a fire.

Lamatherm CW-RS has been tested by Warrington Fire Research Centre (WFRC). In their opinion the product represents a practical fire cavity barrier solution for this particularly demanding condition.

### Advantages

- Tested utilising the principles of BS 476, Part 20 & BS EN 366-4:2006
- Provides up to 60 minutes fire integrity and insulation
- Suitable for both Horizontal and Vertical applications
- Provides a smoke & fire seal
- Allows continuous ventilation & drainage behind the cladding
- Economical and easy to install
- Suitable for use in cavities widths up to 425mm wide
- Supplied pre-cut in strips to suit specific void dimensions.
- Quality assured to BS EN ISO 9001

### Fire Performance

Lamatherm CW-RSH has been successfully tested and assessed for up to 60 minutes (fire integrity and insulation) using the general principles of BS 476, Part 20:1987 and BS EN 1366-4:2006.

When adopting the fire resistance testing procedure of BS 476 Part 20, technical failure of integrity & insulation would

deemed to have occurred at the start of the test due to flame passage through the open void. However, following the rapid expansion of the intumescent layer, the gap becomes fully sealed and the product achieved the integrity & insulation criteria. **Test Report ref: 157714**

The design and manufacture of the Lamatherm CW-RSV range is based on proven fire performance to BS 476; Part 20: 1987. Based on multiple tests, each material option has been formally

assessed by The Loss Prevention Council to meet the relevant performance rating given. **Test Report ref: LPC 87020**

Warrington Fire Research Centre (WFRC) have considered the Lamatherm rainscreen system and expressed the opinion that it is a practical cavity fire barrier solution for this application.

For specific fire ratings and void sizes please refer to tables 1-3 or contact our technical department for further advise.

**Table 1: Fire Performance & Product Thickness**

Product Code	Application	Fire Rating (mins)	Thickness (mm)
CW-RSH30	Horizontal	30 / 30	75
CW-RSH60	Horizontal	60 / 60	90
CW-RSV30	Vertical	30 / 30	75
CW-RSV60	Vertical	60 / 60	90
CW-RSV120	Vertical	120 / 120	120

<sup>(1)</sup> dimension may alter with specific design criteria

## Standards & Approvals

Lamatherm CW-RS Cavity Barriers satisfy the requirements of the Building Regulations 2000, Approved Document B (2006 edition), Appendix A, Table A1, item 10 (Volume1) & item15 (Volume 2).

Additionally, they meet in principle the higher minimum fire resistance standard (30/30) for cavity barriers outlined in the LPC *Design Guide for the Fire Protection of Buildings*.

Lamatherm CW-RS Cavity Barriers may also be used as fire stops to maintain the fire resistance of compartment floors and walls. However, such requirements would be uncommon. Rainscreen claddings are generally external to the structural building envelope. The need to maintain the fire resistance of compartment elements would not normally extend beyond the inner structural wall interface.

Rainscreen cladding systems, however, do form large continuous hidden cavities and consequently normally require the inclusion of cavity barriers.

Our technical section would be pleased to advise in more depth on individual project requirements.

## Product Description

### General

**CW-RSH & CW-RSV** cavity barriers consist of a non-combustible rock mineral wool lamella core material, reinforced on two faces with a Class 'O' rated aluminium foil. The construction offers an excellent resistance to the passage of both smoke and fire.

The exposed leading edge is also sealed with aluminium foil. Whilst the base material is water repellent & non-hydroscopic, this predominantly enclosed arrangement affords an added degree weather protection to the core material.

The barriers are secured with dedicated metal support brackets as detailed under installation.

### Horizontal Cavity Barrier

Lamatherm CW-RSH incorporates a continuous bonded intumescent strip to the leading edge. In the event of exposure to fire, this expands and fully seals the designed ventilation gap formed at the time of installation between barrier and the rear of the cladding

### Vertical Cavity Barrier

For vertical barriers within rainscreen systems, it is generally acceptable to fully fill the void. Our **Lamatherm CW-RSV** product is specifically intended for use in this manner. As a full fill barrier system, the integral intumescent strip is not required. The front edge is finished as standard in a plain aluminium foil.

Alternatively, the product is optionally available with a factory applied DPC pre-bonded to this surface.

## Installation CW-RSH (Horizontal)

Lamatherm CW-RSH is installed within the cavity formed between the rainscreen façade and the inner structural wall, using the appropriate Lamatherm support brackets (see table 2).

To prevent fire flanking to the rear of the fire stop, any thermal insulation fitted to the outer face of the structural wall, must be completely cut away to accommodate the thickness of CW-RSH product.

The CW-RSH is fitted with the plain mineral fibre edge against the structural wall. A 25mm<sup>(1)</sup> clear cavity void should be left between the front edge of the cavity barrier and the rear surface of the rainscreen façade.

Adjacent lengths of CW-RSH should be tightly abutted to prevent gaps. The top surface of the joint should be sealed with Lamatherm RFT 120/45 foil tape.

### CW-RSH support Brackets:

A range of support brackets for CW-RSH horizontal cavity barriers are available for cavity widths of up to 425mm (see table 2 for appropriate type and fixing centres).

Lengths of the barrier are secured with these dedicated 'split' fixing brackets, which are impaled through the product at mid thickness.

The brackets are drilled on site and secured to the inner structural wall using non-combustible steel anchors or screws (see fig 1).

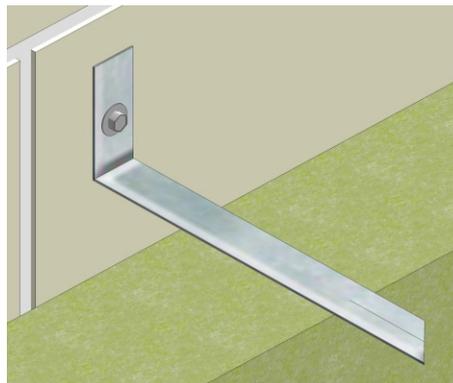


Fig 1

To facilitate bracket penetration, a small horizontal cut should be made in the face intumescent strip coinciding with the bracket's exit point. The protruding split ends should be trimmed to 10-20mm and counter-folded to retain the product (see fig 2).

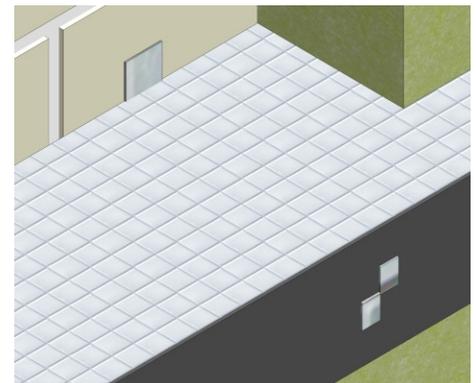


Fig 2

### Notes:

**For cut lengths a minimum of 2 brackets per length must be employed.**

**When using RS 450 and RS 550 brackets for larger voids, pre-fitting the brackets to the product is recommended prior to fixing to the wall.**

Table 2: CW-RSH Brackets & Fixing Centres

Bracket Reference	Max Void Size (mm)	Max Product Width (mm)	Product Thickness (mm)	Bracket Centres (mm)
RSH350	250	225	75	600
RSH350	250	225	90	400
RSH450	325	300	75 & 90	400
RSH550	425	400	75 & 90	400

<sup>(1)</sup> dimension may alter with specific design criteria

## Installation CW-RSV (Vertical)

Lamatherm CW-RSV is installed within the cavity formed between the rainscreen façade and the inner structural wall, using the appropriate Lamatherm support brackets (see table 3).

The CW-RSV is fitted vertically under compression, completely filling the void. The product is installed with the plain mineral fibre edge positioned against the structural wall.

To prevent fire flanking to the rear of the fire stop, any thermal insulation fitted to the outer face of the structural wall, must be completely cut away to accommodate the thickness of CW-RSV product.

Adjoining lengths of CW-RSV should be tightly abutted to prevent gaps. Joints should be sealed with Lamatherm RFT 120/45 foil tape.

Courtesy of the unique internal 'lamella' construction, facade deflection can be accommodated, even at the mid position of the panel system.

### CW-RSV support Brackets:

A range of support brackets for CW-RSV vertical cavity barriers are available for cavity widths of up to 400mm (see table 3 for appropriate type).

Lengths of the barrier are supported with these dedicated brackets, which partially impale the product at mid thickness.



Fig 3

The brackets are supplied as standard in 1mm galvanised mild steel in a flat form for site folding. They incorporate pre-notched indents to aid this process.

The brackets are drilled on site and secured to the inner structural wall using non-combustible steel anchors or screws (see figs 3 & 4).



Fig 4

Brackets are installed at 600mm fixing centres (300mm from each end) and should be trimmed, if necessary, to approximately 75% of the cavity width.

#### Note:

**For voids <100mm: measured cavity + 5mm compression required.**

**For voids >100mm: measured cavity + 10mm compression is required.**

Table 3: CW-RSV Brackets & Fixing Centres

Bracket Reference	Min Void Size (mm)	Max Void Size (mm)	Product Thickness (mm)	Bracket Centres (mm)
RSV-B65/110	50	150	ALL	600
RSV-B195	151	240	ALL	600
RSV-B355	241	400	ALL	600

### Dimensions

1200mm long. Supplied pre-cut in width to suit advised void size.

### Thermal Performance

Thermal conductivity 0.039W/m.K

### Health & Safety

Current HSE 'CHIP' Regulations and EU directive 97/69/EC confirm the safety of rock mineral wool.

The fibres are not classified as a possible human carcinogen.

A Material Safety Data Sheet is available upon request.

### Technical Advice

For further information please contact us at the address below.

### Ordering

Lamatherm CW-RS products are manufactured to order on a project basis to suit individual requirements.

*For reasons of normal building tolerances, variations between design dimensions and 'as built' dimensions may occur. We would strongly recommend that actual site dimensions are measured and checked prior to ordering.*

#### CW-RS ordering Procedure:

- Advise project title & location
- Specify required fire rating
- Specify void size / schedule of sizes for each product type
- For each product & size confirm total linear metres required
- Specify bracket type and quantity required
- Specify RFT 120/45 foil tape quantity requirement