Siderise CW-FS Firestop and CW-CB Cavity Barrier

Factory engineered stone wool passive fire solutions for compartmentation in curtain wall and architectural façade systems

Application

Siderise CW-FS firestop & CW-CB cavity barrier systems offer an extensive range of solutions for fire-stopping, horizontal perimeter seals, and
acoustic barrier requirements in all curtain wall applications. CW systems may also be used in firestop and cavity barrier applic
façade systems such as precast concrete cladding, composite & architectural cladding panels.

The primary function of the CW system is to maintain continuity of fire resistance by sealing the void between the compartment floors or walls and the external curtain wall both horizontally and vertically.

CW systems' unique product construction also provides the ability to accommodate movement for the life of the building.

CCPI assessed status

CW-FS Perimeter Barriers and Firestops for Curtain Walling products have been assessed under the CCPI scheme.

Assessment Number: 000800009/0925

CCPI
ASSESSED PRODUCT INFORMATION
000800009/0925
CW-FS Perimeter Barriers and Firestops for Curtain Walling

Product Description

Siderise CW systems are manufactured using a unique method that provides resilient lateral compression. This facilitates installation, ensuring the requisite tight fit and enhancing the fire integrity of the product.

Throughout the range, the materials comprise a one-piece product with a pre-compressed non-combustible stone wool core. The products also have integral aluminium foil facings to provide an overall Class A1 rating (to BS EN 13501-1:2018 “Fire classification of construction products and building elements.”).

The systems can offer tested fire resistance options ranging from 30 mins to 3 hours (3 hours to BS EN 1364-4:2014 “Fire resistance tests for non-loadbearing elements.” only) and can accommodate void widths up to 400mm. In addition to providing an effective seal against the passage of fire, the products are also acoustically absorptive.

Standard Systems

The materials can be either supplied as pre-cut units to suit a specified void size or in sheet form for cutting on-site.

Standard sheet products are supplied 1200 x 1200 mm which may prove beneficial when the actual void size is not known or where it varies significantly. Please note that when ordered in sheet form, the requisite quantity of fixing brackets needs to be purchased separately.

Pre-cut strips are available in 1mm increments of width to suit the cavity size to provide a tight compressive fit within the void - Please see Tables 2-4 regarding fit type. Each pre-cut CW unit is supplied with appropriate fixing brackets as part of the system.

The standard fixing brackets are supplied in galvanized mild steel in a flat form for folding on-site. Brackets are also available in stainless steel.

All hole positions are to be drilled to suit the varying site conditions. Different size brackets are available according to the cavity size – please see Tables 2-4.

All fixing brackets are to be mechanically secured to the substructure with suitable non-combustible fixings.

Fire Performance

Reaction to fire

Siderise CW-FS firestop & CW-CB cavity barrier systems have third-
party certification with Intertek and are classified as A1 to BS EN 13501-1:2018. Please see Table 1 for further information.

Table 1: Reaction to Fire Performance

Properties	Value
Classification	A1 to BS EN 13501-1: 2018
Certificate No.	WHI-09/02-22-000001-03 (UK) WHI20-32944302 (US)
Thickness Range	50-175mm*
Substrates	Mechanically fixed to gypsum or any other A1 or A2-s1, d0 substrate
Joints	With or without joints

**Please note that the thickness declared here refers to reaction to fire testing (supported by certificates - WHI-09/02-22-000001-03 (UK) & WHI20-32944302 (US)) carried out on the base material from which* CW-FS & CW-CB *are manufactured and so covers a wider range than the thicknesses used for* CW-FS & CW-CB *resistance to fire testing shown in Tables 2,3 & 4.*

Resistance to fire

Siderise CW-FS firestop & CW-CB cavity barrier systems have been proven to maintain their integrity (E) and insulation (I) requirements when tested, in horizontal and vertical applications to BS EN 1366-4:2006+A1:2010. The Siderise CW-FS systems have also been tested to BS EN 1364-4:2014 as a horizontal perimeter seal for curtain wall applications. See Table 2-4 for the full range of fire resistance performance and details of its third-party certification, where applicable.

The primary route to compliance for testing horizontal perimeter seals in combination with curtain wall facades is BS EN 1364-4:2014. "Type A" curtain wall systems outlined in the standard, or non-fire rated curtain wall systems, are the most common curtain wall type in the UK. When specifying the CW-FS firestop to be installed to non-fire rated curtain walling, our CW-FB Fireboard product should be used to provide protection to the spandrel zone. The fire resistance performance for this arrangement is outlined in Table 2 and we have a range of standard details for this arrangement on our website.

Within BS EN 1364-4:2014, there are a number of "Configurations" that can be used depending on the primary element being tested. Configuration 5, which is used to assess the perimeter seal in application and focuses on the ability of containing the fire inside the compartment, utilises higher temperatures and pressures. All Siderise BS EN 1364-4:2014 testing is carried out in accordance with Configuration 5.

While existing test data is unlikely to replicate specific project details, Siderise have tested to BS EN 1364-4:2014 with a number of different curtain wall systems with CW-FB Fireboard in both single and double-layer arrangements.

On this basis, and to reflect the tested arrangement, Siderise recommends that the CW-FB is applied to the curtain wall in line with the CW-FB Installation Instructions wherever the CW-FS Firestop is being used in a horizontal orientation to the rear of a curtain wall. However, in instances where the project does not intend to utilize the CW-FB, we suggest consulting with the Supervising Authorities to ensure they accept the proposed application.

BS EN 1364-4:2014 testing has been undertaken on a curtain wall system incorporating CW-FS120 in accordance with EAD 350141-00-1106, including horizontal movement cycling to 500 times (±10% of void width) pre-test (UL Test

4789510602-1, Oct 2021).

Following the route set out in the EAD for horizontal movement cycling pre-test followed by testing to BS EN 1364-4:2014 is the most demanding and relevant way of assessing the performance of firestops for commercially available 'Type A' curtain walls.

CW-FS has also been tested in isolation to BS EN 1366-4:2006+A1:2010 "Fire resistance tests for service installations - Linear joint seal" in both horizontal and vertical orientations.

Approved Document B (England & Wales versions)

Approved Document B for England (2019 edition) & Wales (2006 edition) gives classification to BS EN 13501-2:2023 as the primary route to compliance via BS EN 1364-4 testing for perimeter seals/fire stops in curtain wall systems in a horizontal orientation.

BS EN 1366-4:2006+A1:2010 testing is also available for Siderise CW in isolation of the curtain wall, where Siderise CW-FS is tested between two leaves of concrete. This standard is applicable to firestops tested for curtain wall applications in a vertical orientation. BS EN 1366-4:2006+A1:2010 is also applicable for non-curtain wall applications in both horizontal and vertical orientations.

For any voids not covered by Tables 2-4, please contact technical.services@siderise.com for advice on these options.

Third-party Certification

CE Marking (Cert No. 2531-CPR-CXO10200) has been achieved based on ETA 21/0297 in accordance with EAD 350141-00-1106, which can also be downloaded from our online technical resources.

Certifire certification (CF 563) has been achieved, based on proven fire performance, for horizontal applications to BS EN 1364-4:2014 (Table 2), and horizontal and vertical applications to BS EN 1366-4:2006+A1:2010 (Table 3 & 4).

'Certifire certification and any product label is only applicable to the specific scope and field of application as defined within the current and valid Certifire certificate number CF563. Any additional details, amendments or additions to the product, or any use outside the scope or field of application, outside of that stated within certificate number CF563 has not been reviewed or approved by Warringtonfire.'

IFC certification (IFCC 1763) has also been achieved, based on proven fire performance for horizontal and vertical applications to BS EN 1366-4:2006+A1:2010 (Tables 3 &4).

Intertek certification (WHI19-32944301) has also been achieved, based on proven fire performance for horizontal applications to BS EN 1364-4:2014(Table 2).

For further details on all Third-party Certification, the certificates can be downloaded from our online technical resources or from the certification body.

Table 2: Fire Resistance to EN 1364-4:2014 (Horizontal Orientation for Curtain Walls)

Product Ref.	Void Width (mm)	Thickness (mm)	Compression (min.)	Integrity (Mins)	Insulation (mins)	Product Length (mm)	Bracket Requirement	Third-party Certification
CW-FS120	20 - 150	120	+10%	120	120	1200	2no.B65/110 600mm centres	Certifire CF 563, Intertek WHI19032944301
	151 - 250	120	+10%	120	120	1200	2no.B195 600mm centres	Certifire CF 563, Intertek WHI19032944301
CW-FS180	20 - 150	150	+10%	180	180	1200	2no.B65/110 600mm centres	Certifire CF 563, Intertek WHI19032944301
	151 - 250	150	+10%	180	180	1200	2no.B195 600mm centres	Certifire CF 563, Intertek WHI19032944301

All fixing brackets are to be mechanically fixed to the structure. Please see the installation instructions.

Façade deflection should be taken into consideration with respect to installation compression, please see 'Movement Characteristics'.

Table 3: Fire Resistance to BS EN 1366-4:2006+A1:2010(Horizontal Orientation For Non-Curtain Wall Applications)

Product Ref	Void Width (mm)	Thickness (mm)	Compression (min.)	Integrity (Mins)	Insulation (mins)	Product Length (mm)	Bracket Requirement	Third-party Certification
CW-CB30	20 - 50	75	+10%	90	30	1200	None.	IFCC 1763
	51 - 150	75	+10mm	90	30	1200	2no.B65/110 600mm centres	IFCC 1763
	151 - 250	75	+10mm	90	30	1200	2no.B195 600mm centres	IFCC 1763
CW-CB30X	251 - 400	90	+10mm	90	30	1200	2no.B355 600mm centres	IFCC 1763
CW-FS60	20 - 50	100	+10%	90	60	1200	None.	IFCC 1763
	51 - 150	100	+10mm	90	60	1200	2no.B65/110 600mm centres	IFCC 1763
	151 - 250	100	+10mm	90	60	1200	2no.B195 600mm centres	IFCC 1763
CW-FS60X	251 - 400	120	+10mm	90	60	1200	2no.B355 600mm centres	IFCC 1763
CW-FS120	20 - 50	120	+10%	120	120	1200	None.	IFCC 1763
	51 - 150	120	+10mm	120	120	1200	2no.B65/110 600mm centres	IFCC 1763
	151 - 250	120	+10mm	120	120	1200	2no.B195 600mm centres	IFCC 1763
CW-FS120X	251 - 400	150	+10mm	120	120	1200	2no.B355 600mm centres	IFCC 1763

All fixing brackets are to be mechanically fixed to the structure. Please see the installation instructions.

Façade deflection should be taken into consideration with respect to installation compression, please see ‘Movement Characteristics’.

Whilst the CW range has been tested in general accordance with BS EN 1366-4:2006+A1:2010 in narrow void widths 20-50mm without mechanical fixings and brackets, we note that some supervising authorities may require a form of mechanical fixing. We recommend engaging with the project supervising authorities prior to installation to ensure all their requirements are met.

Table 4: Fire Resistance to BS EN 1366-4:2006+A1:2010(Vertical Orientation)*

Product Ref	Void Width (mm)	Thickness (mm)	Compression (min.)	Integrity (Mins)	Insulation (mins)	Product Length (mm)	Bracket Requirement	Third-party Certification
CW-CB30	20 - 50	75	+10%	90	30	1200	None.	IFCC 1763
	51 - 150	75	+10mm	90	30	1200	2no.B65/110 600mm centres	IFCC 1763
	151 - 250	75	+10mm	90	30	1200	2no.B195 600mm centres	IFCC 1763
CW-CB30X	251 - 400	90	+10mm	90	30	1200	2no.B355 600mm centres	IFCC 1763
CW-FS60	20 - 50	100	+10%	90	60	1200	None.	IFCC 1763
	51 - 150	100	+10mm	90	60	1200	2no.B65/110 600mm centres	IFCC 1763
	151 - 250	100	+10mm	90	60	1200	2no.B195 600mm centres	IFCC 1763
CW-FS60X	251 - 400	120	+10mm	90	60	1200	2no.B355 600mm centres	IFCC 1763
CW-FS120	20 - 50	120	+10%	120	120	1200	None.	IFCC 1763
	51 - 150	120	+10mm	120	120	1200	2no.B65/110 600mm centres	IFCC 1763
	151 - 250	120	+10mm	120	120	1200	2no.B195 600mm centres	IFCC 1763
CW-FS120X	251 - 400	150	+10mm	120	120	1200	2no.B355 600mm centres	IFCC 1763

* For vertical firestop applications to the end of a flexible wall (e.g. stud partitions), please consult technical.services@siderise.com for advice on appropriate product selection and application.

All fixing brackets are to be mechanically fixed to the structure. Please see the installation instructions.

Façade deflection should be taken into consideration with respect to installation compression, please see 'Movement Characteristics'.

Acoustic Performance

Additionally, the CW-FS range of barriers are acoustically absorptive.

Furthermore, the foil facings and the additional sealing of joints with Siderise foil tape all serve to provide improved airtightness.

Sound reduction between floors

The installation of the CW systems within an external curtain wall cavity can increase the floor-to-floor attenuation.

The acoustic flanking performance of a curtain wall detail will depend on the specifics of the construction. When incorporated between mass lines that close the slab-edge void, such as the Siderise AB10 overlay and CVB/C-10 cavity barrier, the CW-FS range can provide an absorptive layer which can increase the overall acoustic performance of the detail.

Table 5 confirms the laboratory tested values for Weighted Sound Reduction Index (dB Rw) in accordance with BS EN ISO 10140-2:2021; Acoustics-Laboratory measurement of sound insulation of building elements, Part 2: Measurement of airborne sound insulation.

Table 5: CW Acoustic Performance - Weighted Sound Reduction Index

Product Type	Thickness (mm)	Rw (dB)	C:Ctr
CW-CB30	75	21	(-1;-2)
CW-CB30X	90	21	(-1;-2)
CW-FS60	100	21	(-1;-2)
CW-FS60X	120	23	(-1;-3)
CW-FS120	120	23	(-1;-3)
CW-FS120X	150	23	(-1;-3)
CW-FS180	150	23	(-1;-3)

Siderise offers a range of complementary acoustic mass overlay materials which can further enhance the overall acoustic performance of the construction.

The Siderise AB10 is a flexible acoustic membrane for use as a mass-barrier above Siderise CW-FS fire stops in curtain walls. Using this acoustic upgrade offers an improvement to the acoustic performance of the firestop. Incorporating mass barriers such as the Siderise AB10 into slab-edge details can assist with controlling floor-to-floor sound transmission.

Siderise AB10 is quick to install and is suitable for use in all curtain walls. The product is thin, flexible, and is designed to accommodate façade movement, unlike traditional mass-barrier materials such as steel or plasterboard.

As the AB10 is sold as an acoustic upgrade for our CW-FS firestops, we have not tested its standalone performance. However, for the purposes of assessment by project acoustic consultants, the Weighted Sound Reduction index (dB

Rw) of the mass barrier layer alone is presented below (Table 6).

Table 6: AB acoustic performance - Weighted Sound Reduction Index

Product Type	Product Surface Mass (kg/m^2)	Rw (dB)
AB10	10	28

Table 7: CW-FS, CW-AB and CVB/C acoustic performance

Product Type	21 - 30dB Rw	21 - 30dB Rw + Ctr	36 - 50dB Rw	36 - 50dB Rw + Ctr	50dB Rw	50dB Rw + Ctr
CW-FS60	23	21				
CW-FS120	25	23				
CW-FS120 +AB10 Overlay			37	32		
CW-FS120 + AB10 Overlay + CVB/C10 below					51	45
CW-FS120 + 2mm Steel Plate Overlay + CVB/C10/75 below					53	45

The table above illustrates typical acoustic performance of CW-FS, CW-AB and CVB/C products when used in an arrangement, please see our website for individual product information and standard details. Please note that the values presented in the above table refer to the standalone performance of Siderise products only. For full system performance requirements given as a $D_{nT,w}$ or $D_{n,f,w}$ value, Contact our façades technical team at technical.services@siderise.com for performance guidance.

Thermal Performance

Thermal conductivity: λ = 0.038 W/m.K +/-5% (tested foil to foil) to BS EN 12667: 2001

Technical Specification

Siderise Perimeter Barriers Fire stops for Curtain Walling and Weathertight Façade Systems

Table 8: Product Properties

Properties	Value
Form Supplied	Sheets : 1200mm x 1200mm (UK and EU); 1200mm x 1150mm (RoW): Thickness is denoted by the rating Pre-cut strips: 1200mm x (void width + compression) x thickness, please see tables 2-4
Colour	Solid, green-brown exposed edges with silver aluminium top and bottom facings
Finish	Aluminium Foil
Density	Nominal 75 kg/m^3
Thermal Conductivity	λ = 0.038 W/m.K ±5% (tested foil to foil) to BS EN 12667: 2001
Void Width	20mm to 400mm (see Table 2-4)
Fungi Resistance	When tested to ASTM C1338-19 no fungal growth was observed after 28 days
Water Vapour Absorption	5% by weight to ASTM C1104-19 (with foil facing removed). This meets the standard specification for 'Mineral Fibre Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing' ASTM C C665-17, clause 7.5
Reaction to fire	Class 'A1' to BS EN 13501-1:2018 (see Table 1)
Resistance to fire	30 to 180 minutes(see tables 2-4)

Table 9: Physical Characteristics

Properties	Value
Manufacturer and Product Name	Siderise CW-FS
Product Type	Perimeter Barriers and Firestops for Curtain Walling
Code/Model/Reference/SKU	CW-FS
Description	See 'Product Description' section
Application/Use	See 'Application' section
Material	See Material Data Sheet section 3
Weight	Precut strips - Max Carton Weight 30kg Full individual sheets from 8.3 +/- 0.1 kg to approx. 18.9+/- 0.4 kg (75mm to 150mm thick respectively)
Finish / Colour	Solid, green-brown exposed edges with silver aluminium top and bottom facings
Packaging	Pre-cut strips packaged in cardboard cartons size
Pack Size	Pre-cut strips packaged in cardboard cartons size up to 1230mm x 610mm Full sheets packaged on pallets 1210mm x 1210mm
Unit of Measure	millimetre (mm)
Chemical properties / Safety data sheets	N/A
Size / Dimensions (product & installation spatial requirement)	See Table 8 'Form Supplied'
Shelf Life	N/A Store in dry conditions and protect from mechanical damage.

Movement

Movement Characteristics-Curtain walling and external facade deflection

For curtain walling applications it is imperative that the installed firestop can function effectively with due regard to all designed movement serviceability limits.

Siderise recognises that curtain walling and cladding façade systems will deflect due to:

- Positive wind-load
- Negative wind-load
- Occupational live load

The above are covered by BS EN 13116:2001.

Typically, a project may stipulate that the curtain walling system may have the following allowable deflection limits:

Under the declared wind loads the maximum frontal deflection of the curtain walling framing members shall not exceed L/200 or 15mm, whichever is less; when measured between the points of support or anchorage to the building structure in compliance with BS EN 13116. [Extract from BS EN 13830]

For vertical applications where the façade deflection may be up to 15mm, we recommend that you calculate the design deflection of the external façade system in both positive and negative wind load situations. Then follow Tables 2 to 4 + the additional design deflection of the system if required. Additional material allowances should be included whenever façade deflection is anticipated beyond the product compression requirement. For example, with a maximum expected façade deflection of 15mm:

Void Width + 10% Compression + Facade Deflection
For 180mm void = 180mm +18mm + 15mm = 213mm of CW-CB/ CW-FS
Where the required compression of the firestop is greater than 10%, we suggest trialling the installation on-site to ensure it can be installed, as feasibility will vary depending on the void width.

These factors may inevitably combine to preclude the suitability and therefore the use of certain other systems e.g. high-density material slab products.

However, the CW-FS fire stop systems are remarkably effective for their function within curtain walling as the unique material construction can accept the cyclical negative and positive wind and live loads imposed on the façade.

Environmental

Recyclability

The stone wool core is recyclable.

Third-party verified EPD

Siderise CW Perimeter Barriers and Firestops have an Environmental Product Declaration (HUB-1301) in accordance with BS EN 15804+A2 & ISO 14025 / ISO 21930. Please see EPD in Product Resources or EPD Hub for further information.

60 Year Design life

To confirm long-term durability, CW Perimeter Barriers and Firestops have been put through EOTA TR 024 ‘Type X’ accelerated age testing. This is the harshest category which replicates exposure to rain, UV, high temperatures, and frost and thaw cycles.

When correctly installed in recommended applications, CW Perimeter Barriers and Firestops have an expected service lifespan of 60 years.

Additional Information Available

The following information is available upon request or via download from the website:

- Third-Party Certification
- Declaration of Performance
- Environmental Product Declaration
- Material Data Sheet
- Standard Details
- Installation Instructions
- Installation Video
- NBS Specification Clauses

Technical Support

For technical advice or support please contact: technical.services@siderise.com

For Installation Training or Site Inspections please contact: site.services@siderise.com

For technical advice or support in the Middle East, India or Asia Pacific contact: smetech@siderise.com

Context

The information in this datasheet is believed to be accurate at the date of publication. Siderise has a policy of continuous product improvement and reserves the right to alter or amend the specifications of products without prior notice. Siderise does not accept responsibility for the consequences of using the products described outside of the recommendations within this datasheet. Expert advice should be sought where there is any doubt about the correct specification or installation of Siderise products.

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