Siderise CW-FS Firestop and CW-CB Cavity Barrier

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

Application

Siderise CW-FS firestop and CW-CB Cavity Barrier (Fireblock) 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 fireblocking applications in conjunction with weathertight façade systems such as precast concrete cladding, composite and 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' product construction also provides the ability to accommodate movement for the products expected service lifespan of 60 years.

Product Description

Siderise CW systems are manufactured using a method that provides resilient lateral compression. This facilitates installation, ensuring a 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 aluminum foil facings and have achieved an overall reaction to fire of Class A rating to ASTM E84-21a: Standard Test Method for Surface Burning Characteristics of Building Materials, achieving a Flame Spread Index of 10 and Smoke Developed Index of 15.

The systems can offer tested fire resistance options ranging up to 3 hours (To ASTM E2307-19 "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus") and accommodate void widths up to 7.87 inches [200mm]. 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 47.24 x 45.28 inches [1200 x 1150mm] 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 necessary quantity of fixing brackets needs to be purchased separately.

Pre-cut strips are available in 0.04 inches [1mm] increments of width to suit the cavity size to provide a tight compressive fit within the void-Please see Tables 2-3 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 2-3. All fixing brackets are to be mechanically secured to the substructure with suitable non-combustible fixings.

Fire Performance

ASTM E2307

ASTM E2307 is the primary route to compliance for testing horizontal perimeter seals in combination with curtain wall facades. Siderise CW-FS firestops have been proven to maintain their flame (F) and temperature(T) requirements when tested in horizontal applications to ASTM E2307, as shown in our third-party certification listings within the website download section.

When specifying CW-FS firestop for use in non-fire rated curtain walling, we recommend that our CW-SI and CW-FB are considered to provide protection to the spandrel zone. CW-FS, CW-SI (Curtain Wall Spandrel Insulation), and CW-FB (Curtain Wall Fireboard; specifically used for mullion protection in these tests), have been jointly tested in conjunction with non-fire rated aluminum curtain wall assemblies to ASTM E2307 and ASTM E2874 to provide fire resistance performance for the critical spandrel zone.

These tests are third-party certified with UL Solutions, Intertek, ICC-ES, and Thomas Bell-Wright International Consultants. All certifications referenced here can be accessed through our online technical resources page under Third-party certification.

On this basis, and to reflect the tested arrangement, Siderise recommends that CW-SI is applied to the curtain wall in line with the CW-SI Installation Instructions wherever the CW-FS Firestop is being used in a horizontal orientation to the rear of a curtain wall. CW-FB should be applied for mullion protection.

However, in instances where the project does not intend to utilize the CW-SI or CW-FB, we suggest consulting with the “Authority having Jurisdiction” to ensure they accept the proposed application.

BS EN1366-4

Siderise CW-FS systems have proven to maintain their integrity (E) and insulation (I) requirements when tested, in horizontal non-curtain wall and vertical applications to BS EN 1366-4:2006+A1:2010. See Tables 2 and 3 for the full range of fire resistance performance and details of its third-party certification, where applicable.

For any voids not covered by Tables 2-3, please contact natech@siderise.com for advice on these options.

Third-party Certification

ASTM E2307

Certification has been achieved, based on proven fire performance for horizontal applications to ASTM E2307, with UL Solutions, Intertek, ICC-ES and Thomas Bell-Wright International Consultants.

EN –1366-4

IFCC certification to BS EN 1366-4:2006+A1:2010 for horizontal and vertical applications has also been attained(Tables 2 and 3). For further details on all third-party certifications, the certificates can be downloaded from our online technical resources or from the certification body.

Table 1 below details the fire resistance ratings achieved by the Siderise spandrel-protected curtain walling system, which incorporates CW-FS as a perimeter barrier firestop, CW-SI for spandrel insulation, and CW-FB as a mullion cover, when tested to ASTM E2307.

Table 1: Fire Resistance to ASTM E2307 (Horizontal Orientation for Curtain Walls)

Perimeter Barrier Firestop	Mullion Covers	Spandrel Insulation	Void Size inches [mm]	Spandrel Height-min inches [mm]	F-Rating (mins)	T-Rating (mins)
CW-FS120*	CW-FB	CW-SI50	5.91 [150]	33.46 [850]	120	45
		CW-SI75	3.94 [100]	38.03 [966]	202	163
		CW-SI75	7.87 [200]	59.06 [1500]	153	83

*4.72 inches [120mm] thick product installed with 20% compression

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

Table 2: Fire Resistance to BS EN 1366-4:2006+A1:2010 (Horizontal Orientation For Non-Curtain Wall Applications)

Product Ref	Void Width inches [mm]	Thickness inches [mm]	Compression (min.)	Integrity (Mins)	Insulation (mins)	Product Length inches [mm]	Bracket Requirement	Third-party Certification
CW-CB30	0.79-1.97 [20-50]	2.95 [75]	+10%	90	30	47.24 [1200]	None.	IFCC 1763
	2.01-5.91 [51-150]	2.95 [75]	+10%	90	30	47.24 [1200]	2no.B65/110 23.62 inches [600mm] centres	IFCC 1763
	5.94-9.84 [151-250]	2.95 [75]	+10%	90	30	47.24 [1200]	2no.B195 23.62 inches [600mm] centres	IFCC 1763
CW-CB30X	9.88-15.75 [251-400]	3.54 [90]	+10%	90	30	47.24 [1200]	2no.B355 23.62 inches [600mm] centres	IFCC 1763
CW-FS60	0.79-1.97 [20-50]	3.94 [100]	+10%	90	60	47.24 [1200]	None.	IFCC 1763
	2.01-5.91 [51-150]	3.94 [100]	+10%	90	60	47.24 [1200]	2no.B65/110 23.62 inches [600mm] centres	IFCC 1763
	5.94-9.84 [151-250]	3.94 [100]	+10%	90	60	47.24 [1200]	2no.B195 23.62 inches [600mm] centres	IFCC 1763
CW-FS60X	9.88-15.75 [251-400]	4.72 [120]	+10%	90	60	47.24 [1200]	2no.B355 23.62 inches [600mm] centres	IFCC 1763
CW-FS120	0.79-1.97 [20-50]	4.72 [120]	+10%	120	120	47.24 [1200]	None.	IFCC 1763
	2.01-5.91 [51-150]	4.72 [120]	+10%	120	120	47.24 [1200]	2no.B65/110 23.62 inches [600mm] centres	IFCC 1763
	5.94-9.84 [151-250]	4.72 [120]	+10%	120	120	47.24 [1200]	2no.B195 23.62 inches [600mm] centres	IFCC 1763
CW-FS120X	9.88-15.75 [251-400]	5.91 [150]	+10%	120	120	47.24 [1200]	2no.B355 23.62 inches [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.

Whilst the CW range has been tested in general accordance with BS EN 1366-4:2006+A1:2010 in narrow void widths 0.79 - 1.97 inches [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 authorities having jurisdiction

prior to installation to ensure all their requirements are met.

Table 3: Fire Resistance to BS EN 1366-4:2006+A1:2010 (Vertical Orientation)*

Product Ref	Void Width inches [mm]	Thickness inches [mm]	Compression (min.)	Integrity (Mins)	Insulation (mins)	Product Length inches [mm]	Bracket Requirement	Third-party Certification
CW-CB30	0.79-1.97 [20-50]	2.95 [75]	+10%	90	30	47.24 [1200]	None.	IFCC 1763
	2.01-5.91 [51-150]	2.95 [75]	+10%	90	30	47.24 [1200]	2no.B65/110 23.62 inches [600mm] centres	IFCC 1763
	5.94-9.84 [151-250]	2.95 [75]	+10%	90	30	47.24 [1200]	2no.B195 23.62 inches [600mm] centres	IFCC 1763
CW-CB30X	9.88-15.75 [251-400]	3.54 [90]	+10%	90	30	47.24 [1200]	2no.B355 23.62 inches [600mm] centres	IFCC 1763
CW-FS60	0.79-1.97 [20-50]	3.94 [100]	+10%	90	60	47.24 [1200]	None.	IFCC 1763
	2.01-5.91 [51-150]	3.94 [100]	+10%	90	60	47.24 [1200]	2no.B65/110 23.62 inches [600mm] centres	IFCC 1763
	5.94-9.84 [151-250]	3.94 [100]	+10%	90	60	47.24 [1200]	2no.B195 23.62 inches [600mm] centres	IFCC 1763
CW-FS60X	9.88-15.75 [251-400]	4.72 [120]	+10%	90	60	47.24 [1200]	2no.B355 23.62 inches [600mm] centres	IFCC 1763
CW-FS120	0.79-1.97 [20-50]	4.72 [120]	+10%	120	120	47.24 [1200]	None.	IFCC 1763
	2.01-5.91 [51-150]	4.72 [120]	+10%	120	120	47.24 [1200]	2no.B65/110 23.62 inches [600mm] centres	IFCC 1763
	5.94-9.84 [151-250]	4.72 [120]	+10%	120	120	47.24 [1200]	2no.B195 23.62 inches [600mm] centres	IFCC 1763
CW-FS120X	9.88-15.75 [251-400]	5.91 [150]	+10%	120	120	47.24 [1200]	2no.B355 23.62 inches [600mm] centres	IFCC 1763

* For vertical firestop applications to the end of a flexible wall (e.g., stud partitions), please consult natech@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.

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 4 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 4: CW Acoustic Performance-Weighted Sound Reduction Index

Product Type	Thickness inches [mm]	Rw (dB)	C:Ctr
CW-CB30	2.95 [75]	21	(-1;-2)
CW-CB30X	3.54 [90]	21	(-1;-2)
CW-FS60	3.94 [100]	21	(-1;-2)
CW-FS60X	4.72 [120]	23	(-1;-3)
CW-FS120	4.72 [120]	23	(-1;-3)
CW-FS120X	5.91 [150]	23	(-1;-3)
CW-FS180	5.91 [150]	23	(-1;-3)

Rw is the weighted sound reduction index. It is a laboratory measured value to identify the airborne sound insulation performance of a building element. It is used for internal or external walls, ceilings/floors, windows, doors, or any separating element. The higher the Rw value, the better that element performs in reducing sound transmission. Please note that the values presented in the above table refer to the standalone performance of the Siderise products only.

Acoustic Overlays/Enhancements

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).

The Siderise CVB/C10 is a stone wool cavity barrier incorporating a central polymeric mass barrier layer. It is designed for use as a mass line below horizontal firestopping in curtain walls to improve acoustic performance via the critical slab edge void. Using this acoustic upgrade can offer a significant improvement to the acoustic performance of the firestop. Incorporating mass barriers such as the Siderise CVB/C10 into slab-edge details is often crucial for controlling floor-to-floor sound transmission. Siderise CVB/C10 is suitable for use in all curtain walls. The product is thin and flexible, and is designed to accommodate façade movement, unlike traditional mass-barrier materials such as steel or plasterboard

Table 5: AB acoustic performance-Weighted Sound Reduction Index

Product Ref.	Product Surface Weight (lbs/in² [kg/m²])	Rw (dB)
AB10	0.015 [10]	28

Table 6: 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 + 0.08 inches [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 natech@siderise.com for performance guidance.

Technical Specification

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

Table 7: Product Properties

Properties	Value
Form Supplied	47.24 x 45.28 inches [1200mm x 1150mm]: Thickness is denoted by the rating. Pre-cut strips: 47.24 inches [1200mm] x (void width + compression) x thickness
Color	Solid, green-brown exposed edges with silver aluminum top and bottom facings
Finish	Aluminum Foil
Density	Nominal 4.68lb/ft³ [75kg/m³]
Thermal Conductivity	λ = 0.038 W/m.K ±5% (tested foil to foil) to BS EN 12667: 2001
Void Width	3.94 to 7.87 inches [100 to 200mm] to ASTM E2307 0.79 to 15.75 inches [20mm to 400mm] to EN 1366-6 (see Table 2-3)
Fungi Resistance	When tested to ASTM C1338-19 no fungal growth was observed after 28 days
Water Vapor 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 A to ASTM E84-21a: Flame Spread Index(FSI) – 10, Smoke Developed Index (SDI) – 15
Resistance to fire	120 to 202 minutes to ASTM E2307(See Table 1) 30 to 180 minutes to BS EN1366-4(see Tables 2-3)

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
- Environmental Product Declaration
- Material Data Sheet
- Standard Details

Technical Support

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

For Installation Training or Site Inspections please contact: natech@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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