

**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**

In accordance with UKAS accreditation to ISO/IEC 17065
Certification is Hereby Granted

to

Siderise Insulation Limited

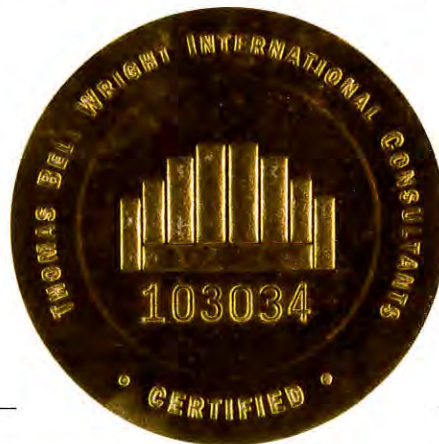
*Forge Industrial Estate, Maesteg, Bridgend,
CF34 0AH, Wales, United Kingdom*

for

**Siderise Perimeter Fire Barrier
System for Exterior Curtain Walling
Comprising Siderise "CW-FS120" Perimeter Barrier Firestop,
Siderise "CW-SI75" Curtain Wall Spandrel Insulation and Siderise "CW-FB"
Curtain Wall Fire Board as Mullion Covers
Test Method: ASTM E2307-20
(System Designation: CJ-B-S-00957-1)**

Which, subject to limitations described on the following pages and continued
listing on www.tbwcert.com, complies with Product Certification Scheme
SD06 Fire-Resistive Joints & Perimeter Fire Barrier Materials and Assemblies

In witness whereof, this Certificate is issued this 4th day of September 2023



Sandy Dweik

Sandy Dweik
Chief Executive Officer

Nicholas Purcell

Nicholas Purcell
Director of Certification

Certificate Number: TBW0600957

Initial registration: September 4, 2023

Issued: September 4, 2023

Expiration: September 3, 2026

File Name: WF007_CRT_SD06RF_CWJSys_Issue1_(f)

Issue 1

This certificate and schedules are held in force by regular Factory Inspections by Thomas Bell-Wright International Consultants (TBWIC). Refer to www.tbwcert.com or contact TBWIC Certification Division to validate the current status of Certification. This certificate remains the property of Thomas Bell-Wright International Consultants, PO Box 26385, Dubai, UAE. Tel: +971 4 8215777, Email: certification@bell-wright.com

Web: www.bell-wright.com

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F 19b Scheme Certificate Issue 1 Issued June 2021

**Siderise Perimeter Fire Barrier
System for Exterior Curtain Walling**
Comprising Siderise “CW-FS120” Perimeter Barrier Firestop,
Siderise “CW-SI75” Curtain Wall Spandrel Insulation and Siderise “CW-FB”
Curtain Wall Fire Board as Mullion Covers

- A. Certification is given for the Siderise Perimeter Fire Barrier System for Exterior Curtain Walling, installed in accordance with the manufacturer’s installation instructions and subject to the limitations herein, for Fire Resistance performance to test standard ASTM E2307-20 - “Standard test method for determining fire resistance of perimeter fire barriers using intermediate-scale, multi-story test apparatus”. The summary of the scope of this Certification is listed in Table 1 below.

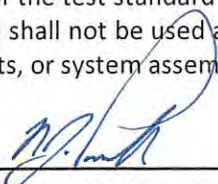
Table 1. Summary of the scope of certification

System Designation: CJ-B-S-00957-1					
System Details			Fire Test Performance		
Reference	Key Components	Max. Allowable Gap	Rating#	Result	Report reference
Siderise Perimeter Fire Barrier System For Exterior Curtain Walling	Siderise “CW-FS120” Perimeter Barrier Firestop, Siderise “CW-SI75” Curtain Wall Spandrel Insulation and Siderise “CW-FB” Curtain Wall Fire Board	100 mm	“F” Rating	Up to 202 Minutes	WJ020-1 (Rev.01)
			“T” Rating	Up to 163 Minutes	
Manufacturer: Siderise Insulation Limited, United Kingdom					

As per Clause 14.2 of ASTM E2307-20

- B. Readers of this document should be familiar with Resistance to Fire testing and the requirements of ISO/IEC 17065:2012. The Certification will be listed on www.tbwcert.com while it remains current. This Certification is not valid if it is not so listed.
- C. The product is approved on the basis of TBWIC Product Certification Scheme SD06 for Fire-Resistive Joints & Perimeter Fire Barrier Materials and Assemblies (Issue 4), which includes pre-test sampling, evidence of performance (as reference(s) in Table 1), Technical Verification and Proof of Performance, compliance to Factory Production Control requirements and surveillance & Re-certification Inspection/ Audits.
- D. Limitations:
- D.1. This certification results from the fire test conducted on the system constructed of specific materials and assembled in a particular manner within a standard supporting construction. Substitution of the tested components, deviation from components’ specification or the methods of assembly/application could adversely affect the fire resistance performance and is not permitted.
- D.2. The response of the material to heat and flame was measured under controlled conditions in accordance with the requirements of the test standard covered under this certification. The results described in the respective report(s) shall not be used as the sole criteria for fire-hazard or fire-risk assessment of the materials, products, or system assemblies under actual fire conditions.

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- D.3. Dynamic movement capabilities/rating of the perimeter firestop system are not covered by this certification.
- D.4. This certification covers the performance of the overall system assembly. The individual components comprising the system are not covered as independent or standalone materials.
- D.5. The minimum tested separation distance between the spandrel transoms was 1018 mm on centre. The bottom transom was situated 558 mm below the floor underside.
- D.6. Changes to the components' composition, physical and chemical specification are prohibited unless otherwise recognised and approved by this Certification.
- D.7. The elements of the perimeter fire barrier assembly shall continue to be functional, firmly secured and maintained appropriately (in accordance with the manufacturer's installation instructions) to ensure the continued fire performance of the system over its useful service life.
- D.8. It is recommended that the installation of the fire-resistant assembly be inspected and reviewed by a qualified Third Party for compliance and conformance with the listed system configuration.
- D.9. Installation guidance in the manufacturer's document "Siderise CW Quick Ref Instruction ver.2.01, dated February 2023" shall be reviewed in conjunction with specific system configuration details stated hereunder.

E. System details

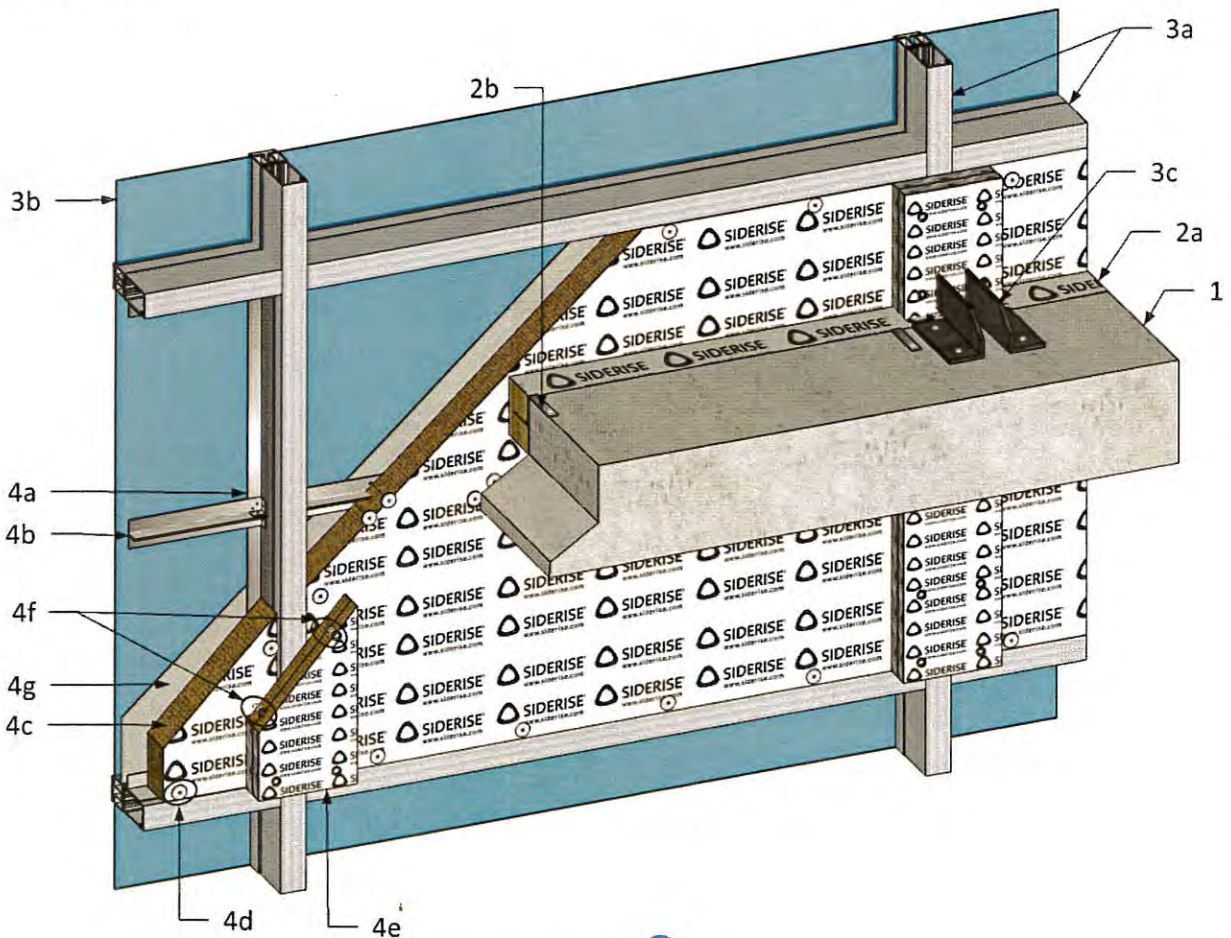


Figure 1: System details – spandrel area

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1. Floor Assembly

Steel reinforced normal-weight concrete, density 2200-2600 kg/m³, with a Fire Resistance rating equal to or greater than the ratings stated in Table 1. The underside of the floor assembly shall be protected with 424 mm wide x 25 mm thick ceramic blanket (Nominal density: 128 kg/m³) fixed around the perimeter edge of the floor slab.

2. Perimeter Fire Barrier System

2a. Perimeter Fire Barrier

Material: Pre-compressed stonewool lamella with integral foil facing on top and bottom sides

Reference: "Siderise CW-FS120" Perimeter Barrier Firestop

Dimension: 120 x 120 x 1200 mm (Width x thickness x section length)

Application: Sections of perimeter fire barrier shall be cut to oversize width, which are then compressed by a minimum of 20% of the joint width and tightly packed into the perimeter safing slot. Fixing brackets (Item 2b) shall be used for securing the barrier in position. Butt joints shall be firmly sealed and secured using Siderise "RFT 120" aluminium jointing tape 120 mm wide applied to the unexposed side.

2b. Fixing Bracket

Description: Galvanised steel bracket with factory-cut notches

Reference: "B65/110"

Dimension: 220 x 25 x 1 mm (total length x width x thickness)

Application: The bracket shall be bent into "Z" shape with one leg fixed to the floor edge, while the longer leg shall impale Item 2a at mid-thickness and penetrate at least 75% of its installed width. The brackets shall be located at 300 mm from ends and spaced at 600 mm centres (maximum) and secured to the slab using steel M6.3 x 45 mm slotted-hex head concrete screws.

3. Stick Curtain Wall Assembly

3a. Framing – Mullion and Transom Profiles

Framing shall be composed of hollow extruded transom and mullion profiles, minimum 52 x 100 x 2.2 mm (width x depth x wall thickness), rigidly reinforced at T junctions using suitable connector profiles and brackets as per the instructions of the curtain wall manufacturer. Joints of successive modules of the framing shall be reinforced with a stiff rectangular hollow steel section sleeve, encased within the hollow cavity of the mullion, having 4 mm wall thickness (minimum) and extending 400 mm into the mullions on either side of the joint.

3b. Curtain Wall Glazing

Double Glazed Unit composed of 6 mm thick tempered glass panes with 20 mm air interlayer. The glazing panes shall be secured to the framing using EPDM rubber gaskets and aluminium pressure plates as per the instructions of the curtain wall manufacturer.

3c. Curtain Wall Fixing Bracket

10 mm thick rigid structural-grade steel brackets, used in pairs, with one leg (base), measuring 230 x 120 mm (width x length), anchored to the floor slab using M8 x 75 mm bolts and the other leg securely fastened to the curtain wall as per the instructions of the curtain wall manufacturer.

4. Spandrel Assembly

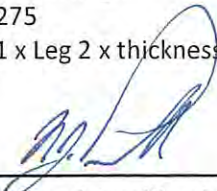
4a. Inner Framing Angle

Description: Galvanised steel "L" section angle

Grade: ASTM A653M, CS Type B, Z275

Dimension: 65 x 50 x 1.8 mm (Leg 1 x Leg 2 x thickness)

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Application: Fastened using M4.3 x 16mm stainless steel self-tapping screws located at 300 mm centres. The angles shall be welded at corner junctions.

4b. Stiffback Angle

Description: Galvanised steel stiffener made from twin-welded "L" section angles

Dimension: 25 x 40 x 1.5 mm (Leg 1 x Leg 2 x thickness) per "L" section

Grade: ASTM A653M, CS Type B, Z275

Application: Fixed at the mid-height of Siderise "CW-SI75" spandrel insulation by securing it to the jambs of the framing angle (Item 4a) through galvanised steel cleats 25 x 20 x 1.5 mm (Leg 1 x Leg 2 x thickness) fastened using 1 stainless steel rivet $\varnothing 3 \times 8$ mm per leg.

4c. Spandrel Insulation

Description: Stone mineral wool board with foil facing on one side

Reference: Siderise "CW-SI75" Curtain Wall Spandrel Insulation

Thickness: 75 mm (-3.2, +6.4 mm)

Density: 128 kg/m³ \pm 10%

Standard Size: 2000 x 1200 (width x length)

Application: Insulation boards shall be cut to size and friction fitted within the spandrel framing using galvanised steel fasteners (Item 4d). A surface slit shall be made to accommodate Item 4b on the non-foil-facing side (exterior).

4d. Insulation Fasteners

Description: Galvanised steel insulation pins

Reference: "Siderise Cupped Head Insulation Pins"

Dimensions: Base - $\varnothing 30 \times 1.5$ mm (Diameter x thickness)

Pin - 75 x 2mm (Length x thickness)

Application: Shall be welded to Item 4a and 4b at 100 mm from the ends and at 300 mm centres.

4e. Mullion Cover

Description: Stone mineral wool board with foil facing on one side

Reference: "Siderise CW-FB" Curtain Wall Fire Board

Thickness: 25 mm (-3.2, +6.4 mm)

Density: 160 kg/m³ \pm 10%

Application: Two layers of minimum 200 mm wide mullion protection covers shall be used to cover the exposed mullion profiles. Siderise "RFT 120" aluminium jointing tape, 120 mm wide, shall be used to protect and seal the cut edges of the board.

4f. Mullion Cover Fasteners

Description: Stainless steel spiral screw

Reference: "Siderise Spiral Fastener"

Dimension: $\varnothing 40 \times 40$ mm and $\varnothing 65 \times 65$ mm

Application: $\varnothing 40 \times 40$ mm and $\varnothing 65 \times 65$ mm shall be used to secure the inner layer and outer layer (Item 4e), respectively.

4g. Galvanised Steel Backpan

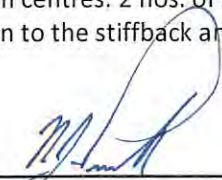
Description: Pre-formed galvanised steel backpan

Grade: ASTM A653M, CS Type B, Z275

Dimension: 1.5 mm thick with 30 mm flanges

Application: The flanges of the backpan shall be fastened to the transom and mullion profiles using stainless steel pan head self-tapping screws of size M4.3 x 16mm at 50 mm from the corner and at 300 mm centres. 2 nos. of stainless-steel rivets, $\varnothing 3 \times 8$ mm, shall be used to secure the backpan to the stiffback angle (Item 4b) at both ends.

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F. Approved Manufacturing Location
Forge Industrial Estate, Maesteg, Bridgend,
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