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THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS

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

to

Alstrong Enterprises India Pvt. Ltd.

25, DSIIDC Shed Scheme 2nd, Okhla Industrial Area, Phase – II,
110020 – New Delhi, India

for

"Alstrong FR-B1"
4 mm thick Aluminium Composite Material
Exterior Wall Cladding System
Test Method: NFPA 285-2019 Edition
(System Designation: A212B61-4)

which, subject to limitations described on the following pages and continued listing on www.tbwcert.com, complies with Product Certification Scheme *SD03 Exterior Wall Assemblies, Curtain Walls, Building Materials, Products & Assemblies*

In witness whereof, this Certificate is issued this 8th day of June 2022

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS
101988
CERTIFIED

Sandy Dweik
Chief Executive Officer

Nicholas Purcell
Director of Certification

Certificate Number: TBW0300836

Initial registration: June 08, 2022 | Issued: June 08, 2022 | Expiration: June 07, 2025
File Name: TE117_CRT_SD03FP_FR-B1_(f) | Issue 1

"Alstrong FR-B1"
4 mm thick Aluminium Composite Material
Exterior Wall Cladding System
(System Designation: A212B61-4)

A. Certification is given for "Alstrong FR-B1" 4 mm thick Aluminium Composite Material Exterior Wall Cladding System which has **successfully met** the requirements for fire propagation characteristics when evaluated against NFPA 285-2019 Edition, subject to the limitations below. Readers of this document should be familiar with Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components 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 this product is not so listed.

B. The product is approved on the basis of TBWIC Product Certification Scheme SD03 for Exterior Wall Assemblies, Curtain Walls, Building Materials, Products & Assemblies, which includes pre-test sampling, evidence of performance (under reference: TBWIC Test Report No. TE143 Rev.0), Technical Verification and Proof of Performance, compliance to Factory Production Control requirements and surveillance & Re-certification Inspection/ Audits.

C. Limitations:

C.1. This Certification covers the fire propagation characteristics of exterior wall assembly when evaluated against the NFPA 285-2019 Edition fire test method. The exterior wall assembly has been evaluated for fire propagation characteristics as specified in the following*:

(a) The ability of the wall assembly to resist flame propagation over the exterior face of the wall assembly*;

(b) The ability of the wall assembly to resist vertical flame propagation within the combustible components from one story to the next*;

(c) The ability of the wall assembly to resist vertical flame propagation over the interior surface of the wall assembly from one story to the next*;

(d) The ability of the wall assembly to resist lateral flame propagation from the compartment of fire origin to adjacent compartments or spaces*.

C.2. This Certification covers the performance of the exterior wall assembly when exposed to fire from an interior room that reaches flashover, breaks exterior windows and exposes the building façade. It is not intended to address the effect of exterior radiation from nearby fires but is relevant to fires that start at the exterior wall assembly*.

C.3. This Certification covers the exterior wall assembly in its entirety. It does not extend to individual components that comprise the exterior wall assembly (on their own).

C.4. The actual field installations of the exterior wall cladding system covered under this certification shall not limit the use of the methods and materials employed to seal the gap between the edge of the floor slab and the interior surface of the test specimen during the test, provided approved sealing methods and materials are used in the field*.

C.5. The design of the exterior wall assembly covered under this certification including the exact specification of the components, method of fixing and condition of such component which was subjected to the fire test shall be duplicated when installing on the site. The design and components of the exterior wall cladding assembly are not permitted to be substituted, eliminated or interchanged unless recognized and approved by this certification.

**NFPA 285 2019 Edition*

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C.6. This Certification does not address the following:

(a) Air and Water Permeability

(b) Measurement of heat transmission

(c) Classification or definition of material as non-combustible

(d) Any Resistance to Fire rating

(e) The toxicity level of smoke developed during combustion

(f) Effect of aggravated flame spread behaviour of an assembly resulting from the proximity of combustible materials.

(g) Effects of combustible accessories installed or fixed on the surface of exterior cladding material such as laminates, banners, signage and alike.

(h) Effects of radiation from nearby fires

D. System Configuration

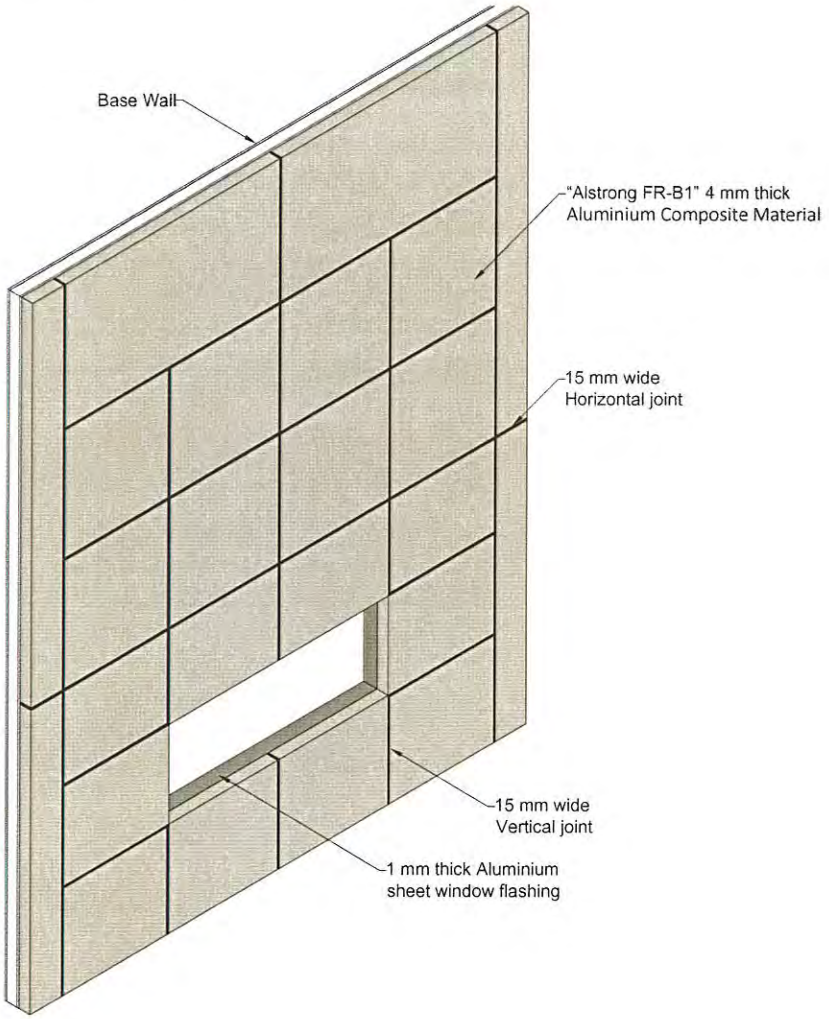

Figure 1. *"Alstrong FR-B1" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly*

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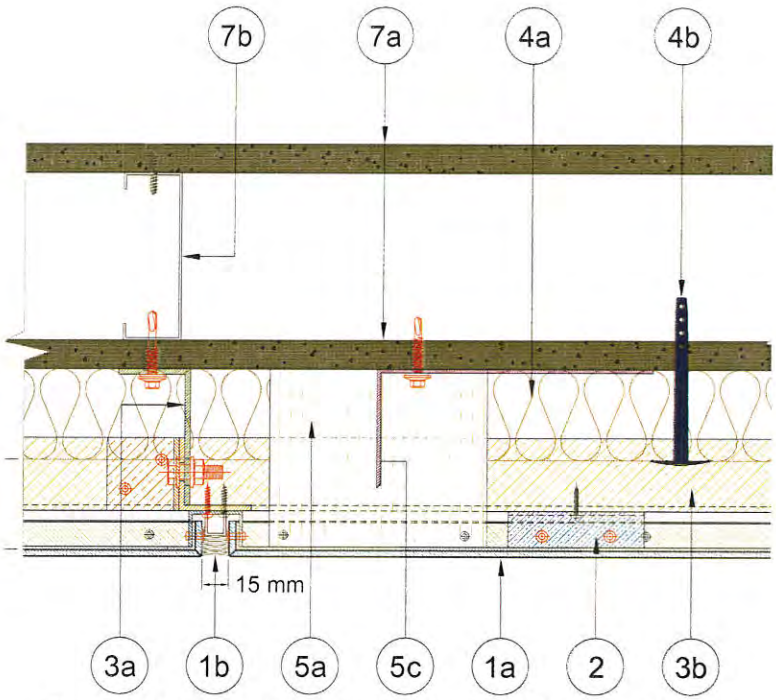

Figure 2. *"Alstrong FR-B1" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly horizontal section details*

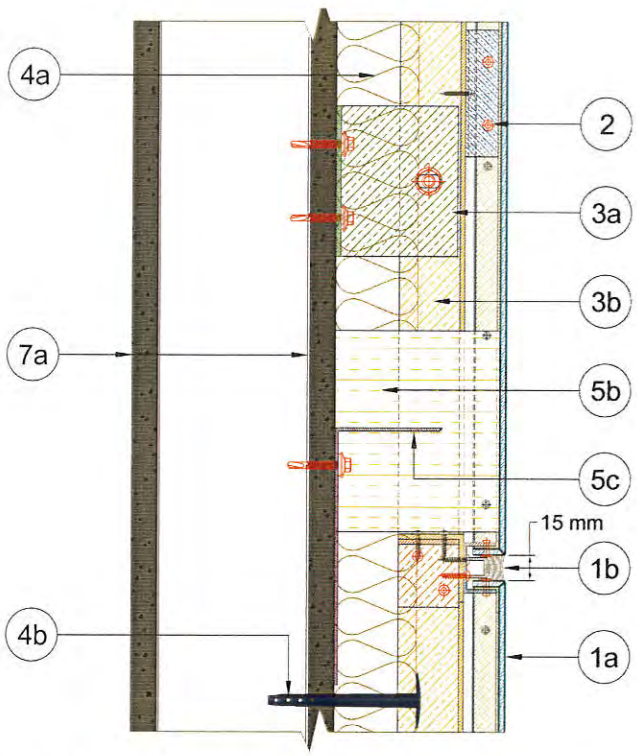

Figure 3. *"Alstrong FR-B1" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly vertical section joint details*

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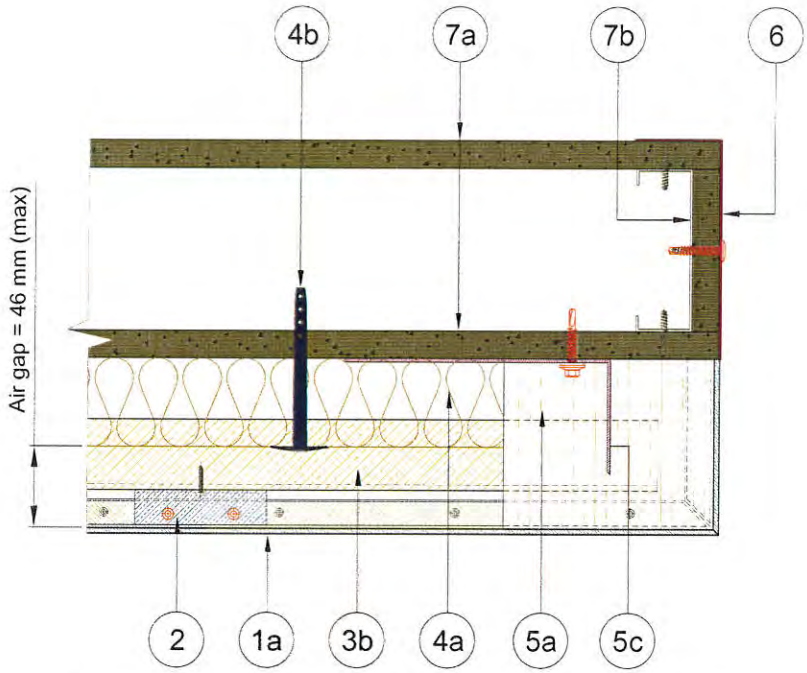

***Figure 4**. "Alstrong FR-B1" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly horizontal window section details*

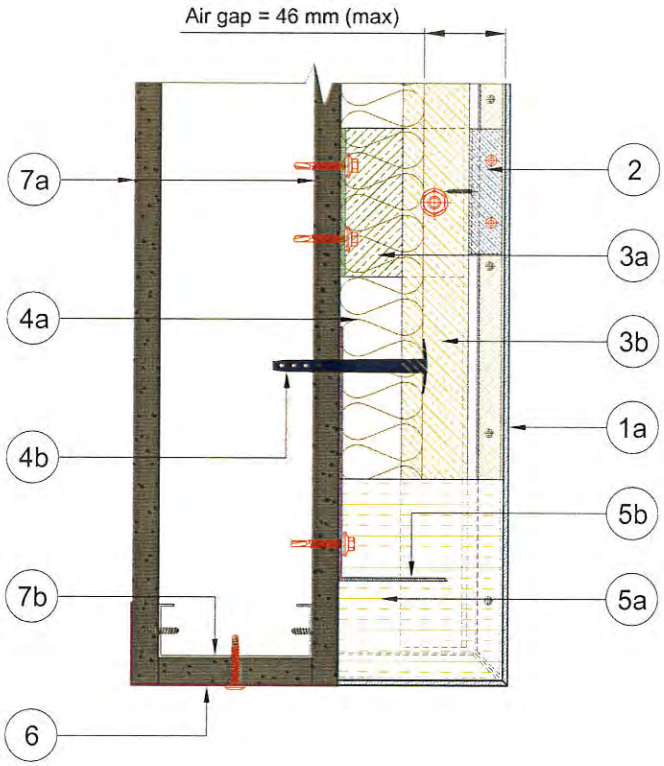

***Figure 5**. "Alstrong FR-B1" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly vertical window section details*

1. Cladding Element

1a. Aluminium Composite Panel

"Tray profile" Aluminium Composite Panel with 20 mm high flanges. The corner bends of the flanges shall be applied with DOWSIL™ FIRESTOP 700 Sealant and reinforced with continuous Aluminium angles (Alloy 6063-T6) 15 × 15 × 1.5 mm (leg × leg × thickness) around the perimeter, fastened to the flanges using Ø4 × 18 mm Aluminium blind rivets. The details of the ACP are as follows:

Table 1. *"Alstrong FR-B1" Panel Details*

Weight per unit area	7.5 kg/m² ± 5%
Top Skin (exterior skin)	0.5 mm thick (minimum), Aluminium Alloy 3003-H24, Polyvinylidene Fluoride (PVDF) finish, 29 microns maximum coating thickness
Bottom Skin (interior skin)	0.5 mm thick (minimum), Aluminium Alloy 3003-H24, Polyester (PE) finish, 7 microns maximum coating thickness
Core	3 mm thick Mineral-filled core Nominal density: 1600 kg/m³
Panel Thickness	4 ± 0.2 mm
Maximum Panel Width	1945 mm
Minimum Panel Width	283 mm
Maximum Panel Height	1118 mm
Minimum Panel Height	737 mm

1b. Panel Joint Seal

A maximum gap of 15 mm shall be maintained between the horizontal and vertical joints of the panel which shall be fitted with a 12 × 12 × 12 × 1.5 mm Aluminium "U" channel (Alloy 6063-T6). Silicone-based sealant DOWSIL™ FIRESTOP 700 shall be applied over the channel at a nominal depth of 7 mm, extruded smoothly and flush with the exterior surface of the ACP cladding.

2. Cladding Fixing

Aluminium angles (Alloy 6063-T6), 20 × 20 × 75 × 2 mm (leg × leg × length × thickness) shall be fixed on flanges of the tray using 2 nos. of Ø4 mm × 18 mm Aluminium blind rivets, within 150 mm from the corner and 350 mm centres nominal spacing. The angles shall be fixed to the runners using Ø4 × 19 mm self-drilling pan head screws.

3. Sub-Frame

3a. Wall Brackets

Aluminium (Alloy 6063-T6) "L" profile brackets, 50 × 75 × 90 × 4 mm (leg × leg × length × thickness), fixed against the base wall using 2 nos. of Ø6 × 50 mm self-drilling hex-head screw with washer. The brackets shall be fixed at a nominal spacing of 955 to 1005 mm horizontally and 535 to 735 mm vertically.

3b. Runners

Aluminium angles (Alloy 6063-T6), 40 × 40 × 3 mm (leg × leg × thickness), shall be fixed against the wall brackets using Ø6 × 25 mm self-drilling hex head screw with a washer. The horizontal runners shall be fixed against the vertical runners using Aluminium angles (Alloy 6063-T6), 40 × 40 × 40 × 3 mm, fastened with 2 nos. of Ø5 × 25 mm self-drilling hex head screw with washers.

4. Exterior Insulation

4a. Mineral Wool

A single-layer of mineral wool with Foil Scrim facing on one side, fixed on the substrate using metal insulation board anchors. A maximum airgap of 46 mm shall be maintained between the exterior insulation and the back of the ACP panel. The joints between the slabs shall be sealed using a 120 mm wide Aluminium Foil tape (AIPL ZorroFix).

Reference: "Comfort SA Slab 50"
Manufacturer: KIMMCO ISOVER
Density: 50 kg/m^3
Thickness: 50 ± 2 mm
Dimension: 600 × 1200 mm (width × length)

4b. Insulation Fastener
Reference: "Ultra® 8 × 90"
Manufacturer: ULTRA
Material: Galvanised Steel
Dimensions: Ø8 × 90 mm
Application: 6 nos. fixed per slab

5. Cavity Fire Barrier

5a. Vertical Cavity Fire Barrier

Full-seal width cavity fire barrier shall be mechanically secured to the substrate using a Siderise B65 fixing bracket. The vertical cavity fire barrier shall be installed adjacent to the vertical edges of the window. The barrier shall extend to the full height of the wall assembly.

Material: Pre-compressed Stonewool Lamella with an integral foil facing
Dimension: 110 × 120 mm (width × depth)
Density: 75 kg/m^3 (nominal density)
Reference: Siderise CH120/120
Manufacturer: Siderise Insulation Ltd. UK

5b. Horizontal Cavity Fire Barrier

Full-seal width cavity fire barrier shall be mechanically secured to the substrate using a Siderise B65 fixing bracket. The horizontal cavity fire barrier shall be installed at the window header, 1st floor slab termination, and 340 mm below the 2nd floor slab termination.

Material: Pre-compressed Stonewool Lamella with an integral foil facing
Dimension: 110 × 120 mm (height × depth)
Density: 75 kg/m^3 (nominal density)
Reference: Siderise CH120/120
Manufacturer: Siderise Insulation Ltd. UK

5c. Cavity Barrier bracket

The brackets shall be bent into an "L" shape with a short leg fixed to the base wall using an Ø4.6 × 35 mm self-drilling hex head screw with metal plugs, and long leg penetrating the cavity barrier for support. The fixings shall be located at 450 mm centres.

Material: Galvanised steel
Dimension: 215 × 25 × 1 mm (total length × height × thickness)
Reference: B65
Manufacturer: Siderise Insulation Ltd. UK

5d. Foil Tape

The adjoining edges and terminations of cavity barrier slabs shall be covered using a 120 mm wide foil tape (Siderise RFT 120/45).

6. Window Flashing

The flanges of the panels shall be extended to cover the perimeter around the window opening and bent to overlap on the interior face of the base wall. The flashing shall overlap the interior face by 50 mm and secured to the base wall using Ø4 × 38 mm self-drilling screws with a spacing of 200 mm centres.

7. Substrate

7a. Interior & Exterior Gypsum Board

1220 × 2400 × 15.9 mm (width × length × thickness) Type X gypsum board fixed onto 1.2 mm thick galvanised steel studs and tracks using Ø3.5 mm × 35 mm zinc-coated drywall screws with the long edge along the vertical joints. The board joints were covered with glass fibre multi-purpose self-adhesive plasterboard jointing tape and a jointing compound composed of calcium sulphate-based mineral fillers.

7b. Steel Studs and Tracks

1.2 mm thick galvanised steel (ASTM A653/A653M- Commercial Grade) studs, 92 × 32 × 32 × 9 × 1.2 mm (web × flange × flange × lip × thickness) and tracks, 95 × 25 × 25 × 1.2 mm (web × flange × flange × thickness) welded directly to the test frame.

E. Approved Manufacturing Location

Unit No. 2, SIDCO Industrial Growth Center, Phase II,
Samba, Jammu,
Jammu & Kashmir – 184121,
India
