THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS

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

to

International Development Company Metal Industries – Sole Proprietorship L.L.C.

Plot No. 424, Mafraq Industrial Area, Al Mafraq,
P.O. Box 2621, Abu Dhabi, United Arab Emirates

for

"ALUCLAD A2"
4 mm thick Aluminium Composite Material
Exterior Wall Cladding System
Test Method: NFPA 285-2019 Edition
(System Designation: A114B61-4)

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 30th day of November 2021

THOMAS BELL-WRIGHT INTERNATIONAL CONSULTANTS
10119
CERTIFIED

Sandy Dweik
Chief Executive Officer

Nicholas Purcell
Director of Certification

Certificate Number: TBW0300795

Initial registration: November 30, 2021 Issued: November 30, 2021 Expiration: November 29, 2024
File Name: VI017_CRT_SD03FP_Issue1_(f) Issue 1

"ALUCLAD A2"
4 mm thick Aluminium Composite Material Exterior Wall Cladding System
(System Designation: A114B61-4)

A. Certification is given for "ALUCLAD A2" 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 the 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 report reference UL016 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 recognised and approved by this certification.

** NFPA 285-2019 Edition*

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Seal number: 101519

Issued: 30 Nov. 2021
Valid to: 29 Nov. 2024

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

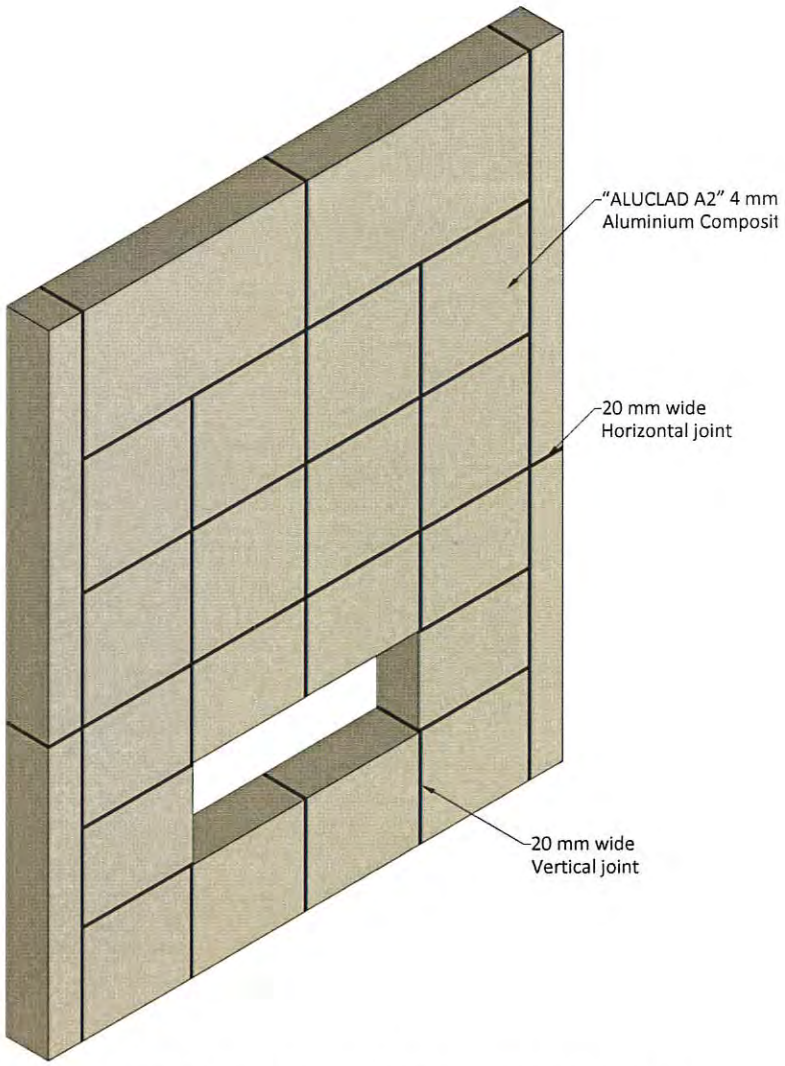

Figure 1. *"ALUCLAD A2" 4 mm thick Aluminium Composite Material Exterior Wall Cladding System*

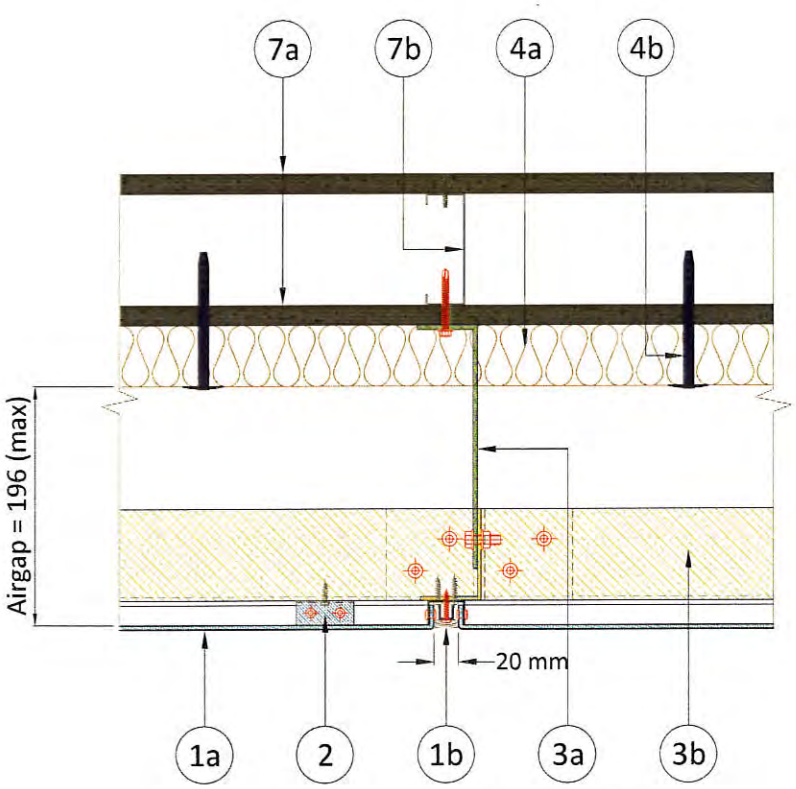

Figure 2. *Horizontal section – joint details*

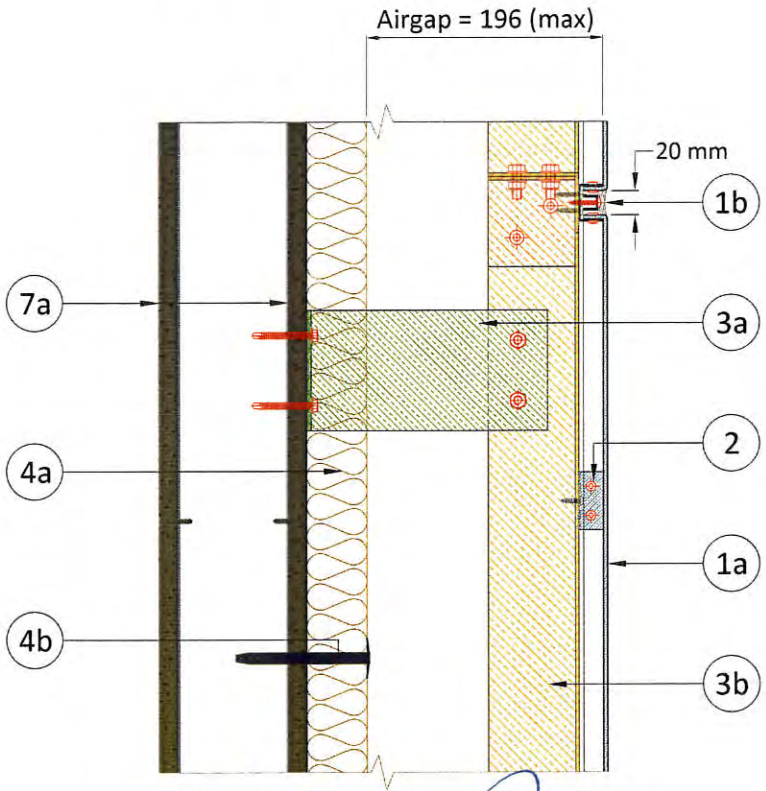

Figure 3. *Vertical section – joint details*

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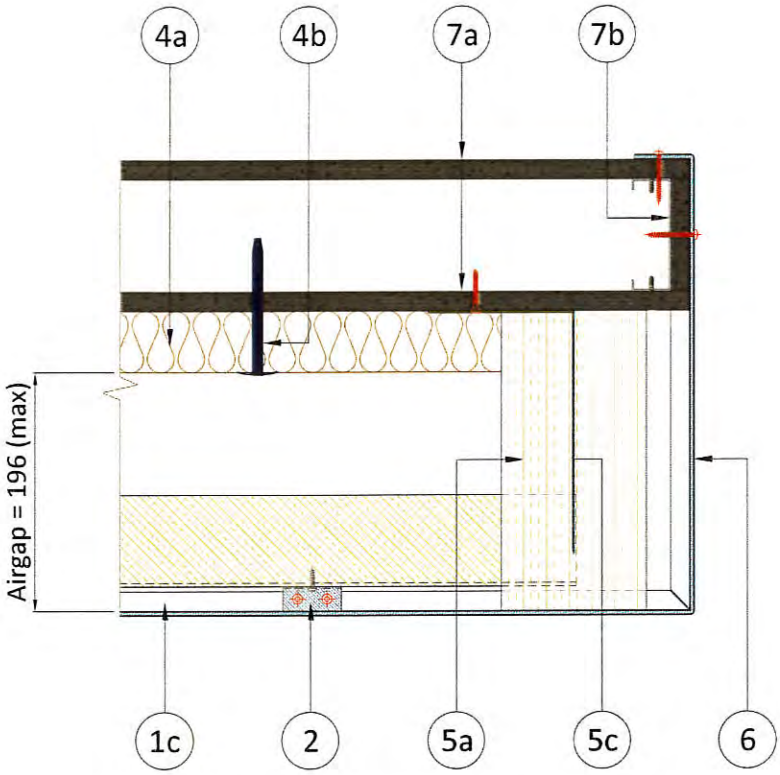

Figure 4. *Horizontal section – window details*

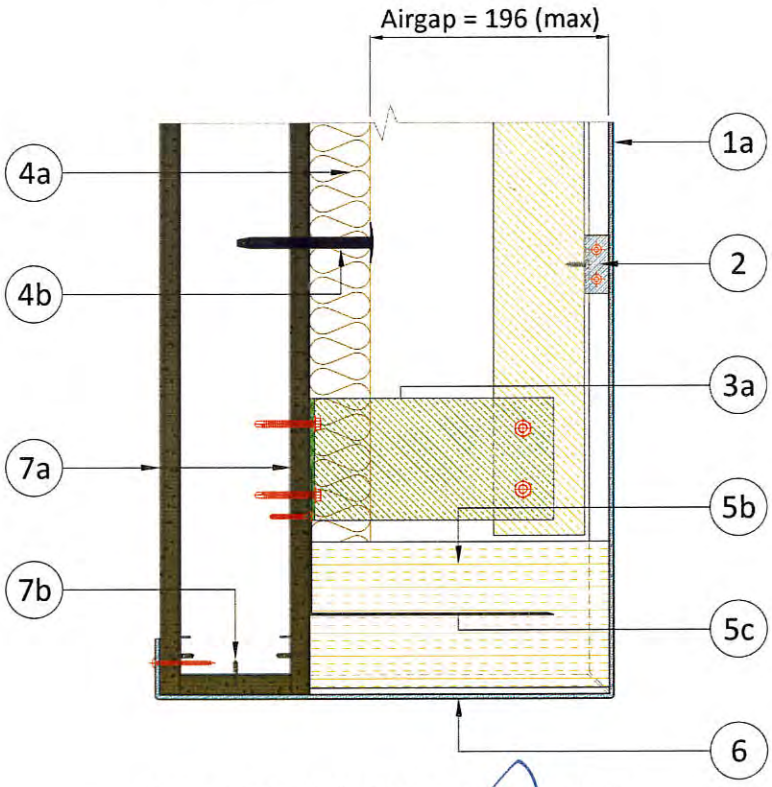

Figure 5. *Vertical section – window details*

1. Cladding Element

1a. Aluminium Composite Panel

"Tray profile" Aluminium Composite Panel with 20 mm deep flanges. The details of the ACP are as follows:

Table 1. *Aluminium Composite Panel Details*

Reference	"ALUCLAD A2"
Weight Per Unit Area	7.5 - 8.5 kg/m²
Panel Thickness	4 ± 0.2 mm
Top Skin (Exterior Facing)	0.5 mm thick (minimum) Aluminium Alloy 3003-H16, Polyvinylidene Fluoride (PVDF) coating, 26 microns (maximum) coating thickness
Bottom Skin (Interior Facing)	0.5 mm thick (minimum) Aluminium Alloy 3003-H16, Polyester (PE) coating, 6 microns (maximum) coating thickness
Adhesive	Material: "Maleic Anhydride Modified Polyethylene" Nominal Thickness: 80 microns Nominal Density: 932 kg/m³
Core	Material: "Mineral-filled Core" Reference: "ALUBOTEC" Density: 1.75 - 1.98 g/cm³
Maximum Panel Width	1940 mm
Minimum Panel Width	280 mm
Maximum Panel Height	3128 mm
Minimum Panel Height	727 mm

1b. Panel Joint Seal

A maximum gap of 20 mm, maintained between the panel joints, shall be fitted with a 12 × 12 × 1.3 mm (web × flange × thickness) Aluminium (Alloy 6063-T6) U-channel, fixed with Ø4 × 25 mm self-tapping pan head screws and capped with "DOWSIL™ FIRESTOP 700" Silicone-based sealant, applied at a nominal depth of 5 to 8 mm, extruded smoothly and flush with the exterior surface of the ACP cladding.

2. Cladding Fixing

Aluminium angles (Alloy 6063-T6), 16 × 20 × 48 × 1.3 mm (leg × leg × length × thickness) shall be fixed on flanges of the tray using 2 nos. of Ø4 × 18 mm blind rivets, 150 mm from the corners and 350 mm centres nominal spacing. The angles shall be fixed to the runners using Ø4 × 19 mm self-tapping pan head screws.

3. Sub-Frame

3a. Wall Brackets

Aluminium (Alloy 6063-T6) angle brackets, 200 × 50 × 100 × 3.7 mm (leg × leg × length × thickness), fixed against the base wall using 2 nos. of Ø6 × 25 mm self-drilling hex washer head screws. The brackets shall be fixed at a nominal spacing of 955 to 1005 mm horizontally and 616 to 745 mm vertically.

3b. Runners

Aluminium (Alloy 6063-T6) angles, 75 × 50 × 3 mm (leg × leg × thickness), shall be fixed vertically against the wall brackets using Ø6 × 25 mm self-drilling hex washer head screws. Horizontal runners, with spacing according to panel sizes, shall be fixed against the vertical runners using Aluminium (Alloy 6063-T6) angle brackets, 75 × 50 × 75 × 3 mm (leg× leg × width × thickness), fastened with 4 nos. of Ø4 × 19 mm self-tapping countersunk head screws.

4. Exterior Insulation

4a. Mineral Wool

A single layer of mineral wool with Foil Scrim facing on one side, fixed to the base wall using metal insulation fasteners. A maximum air gap of 196 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 95 mm wide "AIPL ZORRO FIX" Aluminium Foil tape.

Reference: "KIMMCO ISOVER Comfort SA Slab FS"
Manufacturer: Saudi International Insulation Manufacturing Co. LLC (SIIMCO)
Nominal Density: 50 kg/m^3
Nominal Thickness: 50 mm
Dimension: 600 × 1200 mm (width × length)

4b. Insulation Fastener

Reference: "Ultra 09110"
Manufacturer: ULTRA
Material: Galvanised Steel
Dimensions: Ø9 × 110 mm
Application: 5 nos. fixed per slab.

5. Cavity Fire Barrier

5a. Vertical Cavity Barrier

A full-seal vertical cavity barrier shall be mechanically secured to the base wall using Siderise B195 G fixing bracket. The vertical cavity fire barrier shall be installed 40 mm from 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: 120 × 256 mm (width × depth)
Nominal Density: 75 kg/m^3
Reference: Siderise CH-CB constructed from CW-FS120
Manufacturer: Siderise Insulation Ltd.-UK

5b. Horizontal Cavity Barrier

A full-seal vertical cavity barrier shall be mechanically secured to the base wall using Siderise B195 G fixing bracket. The horizontal cavity fire barrier shall be installed at the window header and every floor slab termination.

Material: Pre-compressed Stonewool Lamella with an integral foil facing
Dimension: 120 × 256 mm (height × depth)
Nominal Density: 75 kg/m^3
Reference: Siderise CH-CB constructed from CW-FS120
Manufacturer: Siderise Insulation Ltd.-UK

5c. Cavity Barrier bracket

The brackets shall be bent into an "L" shape with the short leg fixed to the base wall using Ø4.6 × 35 mm drywall screw and the long leg impaling the cavity barrier. The fixings shall be located at a nominal distance of 600 mm centres.

Material: Galvanised steel
Dimension: 320 × 25 × 1 mm (total length × height × thickness)
Reference: B195 G
Manufacturer: Siderise Insulation Ltd.-UK

5e. 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 window perimeter shall be covered by extending the flange of the cladding panels and overlapping the interior side by 50 mm. The window flashing shall be fixed to the base wall using Ø4.5 × 35 mm self-tapping pan head screws at a nominal spacing of 152 mm on the window perimeter and a nominal spacing of 150 mm on the interior side of the base wall.

7. Substrate
7a. Interior & Exterior Gypsum Board
1220 × 2400 × 15.9 mm (width × length × thickness) Type X gypsum boards shall be fixed vertically onto 1.2 mm thick galvanised steel studs and tracks using Ø3.5 mm × 35 mm self-tapping screws. The board joints shall be covered with glass fibre multi-purpose self-adhesive plasterboard jointing tape and jointing compound. The screw heads shall also be covered with the jointing compound.

7b. Steel Studs and Tracks
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

Property No. PRP 802817, Plot No. 424,
Mafraq Industrial Area, Al Mafraq,
P.O. Box 2621, Abu Dhabi,
United Arab Emirates
