

**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**



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

to

Emerge Metal Industry L.L.C

*P.O. Box 1269, Plot no. R-288-290, Al Ghail Industrial Area,
Ras Al Khaimah, United Arab Emirates*

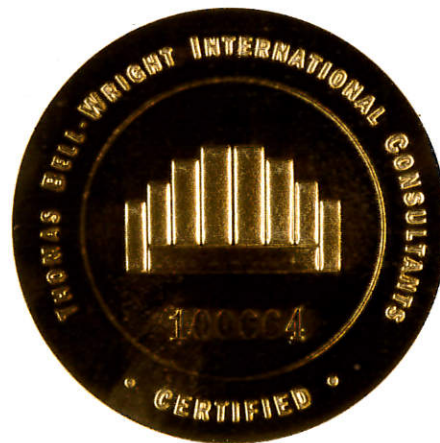
for

“Emerge U.K. FR Plus”

**4 mm thick Aluminium Composite Material
Exterior Wall Cladding System
Test Method: NFPA 285-2019 Edition
(System Designation: A214B61-4)**

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, Cladding, Curtain Walls, Building Materials, Products, and Assemblies*

In witness whereof, this Certificate is issued this 22nd day of September 2019



Sandy Dweik

Sandy Dweik
Chief Executive Officer

Nicholas Purcell

Nicholas Purcell
Director of Certification

Certificate Number: TBW0300526

Initial registration: September 22, 2019

Issued: September 22, 2019

Expiration: September 21, 2022

File Name: TG074 Emerge Metal Industry LLC (NFPA 285 FR-Plus)

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 Fire Compliance 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 4 821 5777, Email: certification@bell-wright.com. Web: www.bell-wright.com F 19 Scheme Certificate Issue 5 Dec 2016

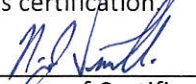
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“Emerge U.K. FR Plus” 4 mm thick Aluminium Composite Material Exterior Wall Cladding System (System Designation: A214B61-4)

- A. Certification is given for “Emerge U.K. FR Plus” 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, Cladding, Curtain Walls, Building Materials, Products and Assemblies which includes pre-test sampling, evidence of performance (under ref. TBWIC Test Report No. TE107-2 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, a method of fixing and condition of such component which was subjected to the fire test shall be duplicated when installed on the site. The design and components of the exterior wall cladding assembly are not intended to be substituted, eliminated or interchanged unless recognized and approved by this certification.

***NFPA 285 2019 Edition**

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Director of Certification
Nicholas Purcell

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- C.6. The method used to seal the gap on the joints between the panels, along with the components used were evaluated and certified as part of the exterior wall cladding for fire propagation characteristics only. Physical performance such as (but not limited to) resistance to weathering, resistance to impact/movement, adhesion, mechanical resistance and stability, or thermal properties are not considered.
- C.7. The method and materials used on the window aperture flashing shall be as tested. No variations allowed.
- C.8. The test (and Certification) do not address the following:
- Air and Water Permeability
 - Measurement of heat transmission
 - Classification or definition of material as non-combustible
 - Any Resistance to Fire rating
 - The toxicity level of smoke developed during combustion
 - Effect of aggravated flame spread behaviour of an assembly resulting from the proximity of combustible materials.
 - Effects of combustible accessories installed or fixed on the surface of exterior cladding material such as laminates, banners, signage and alike.
 - Effects of radiation from nearby fires

D. System Configuration

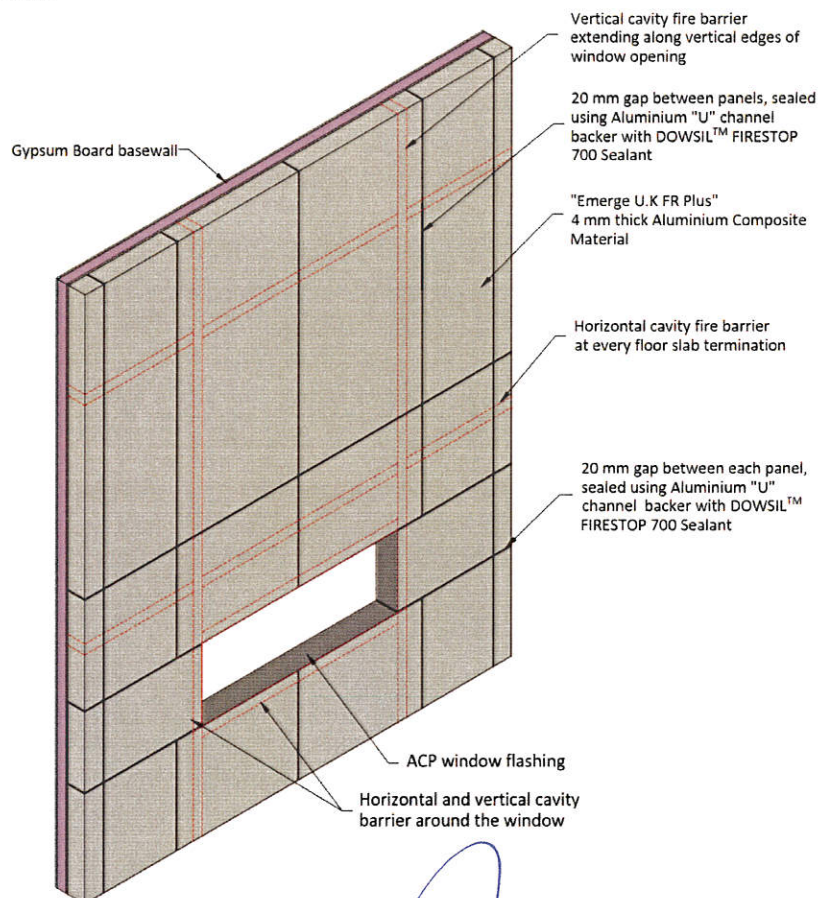
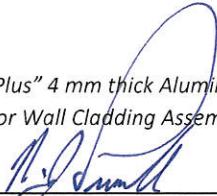


Figure 1. "Emerge U.K. FR Plus" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly

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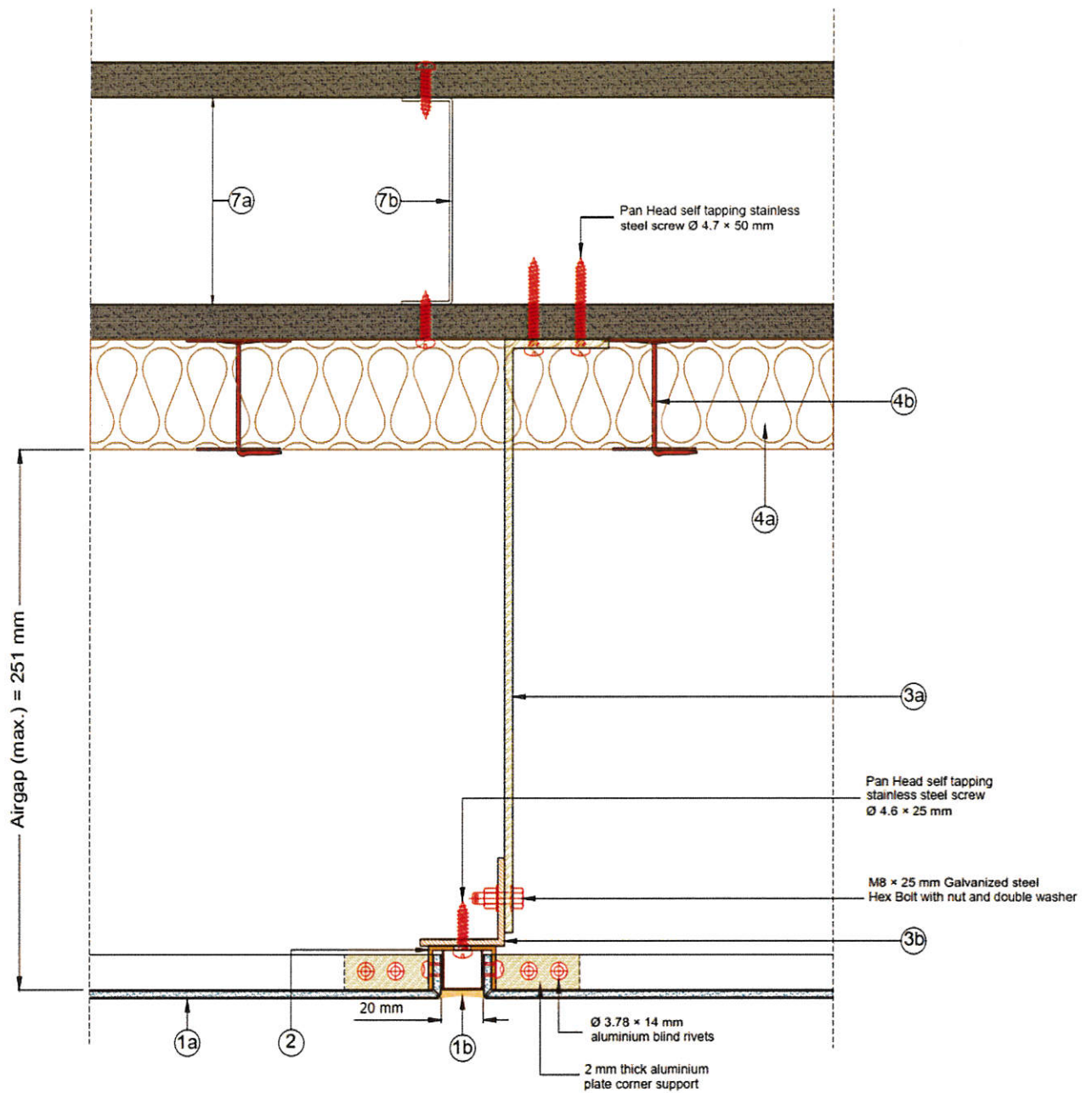


Figure 2. "Emerge U.K. FR Plus" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly horizontal section joint details

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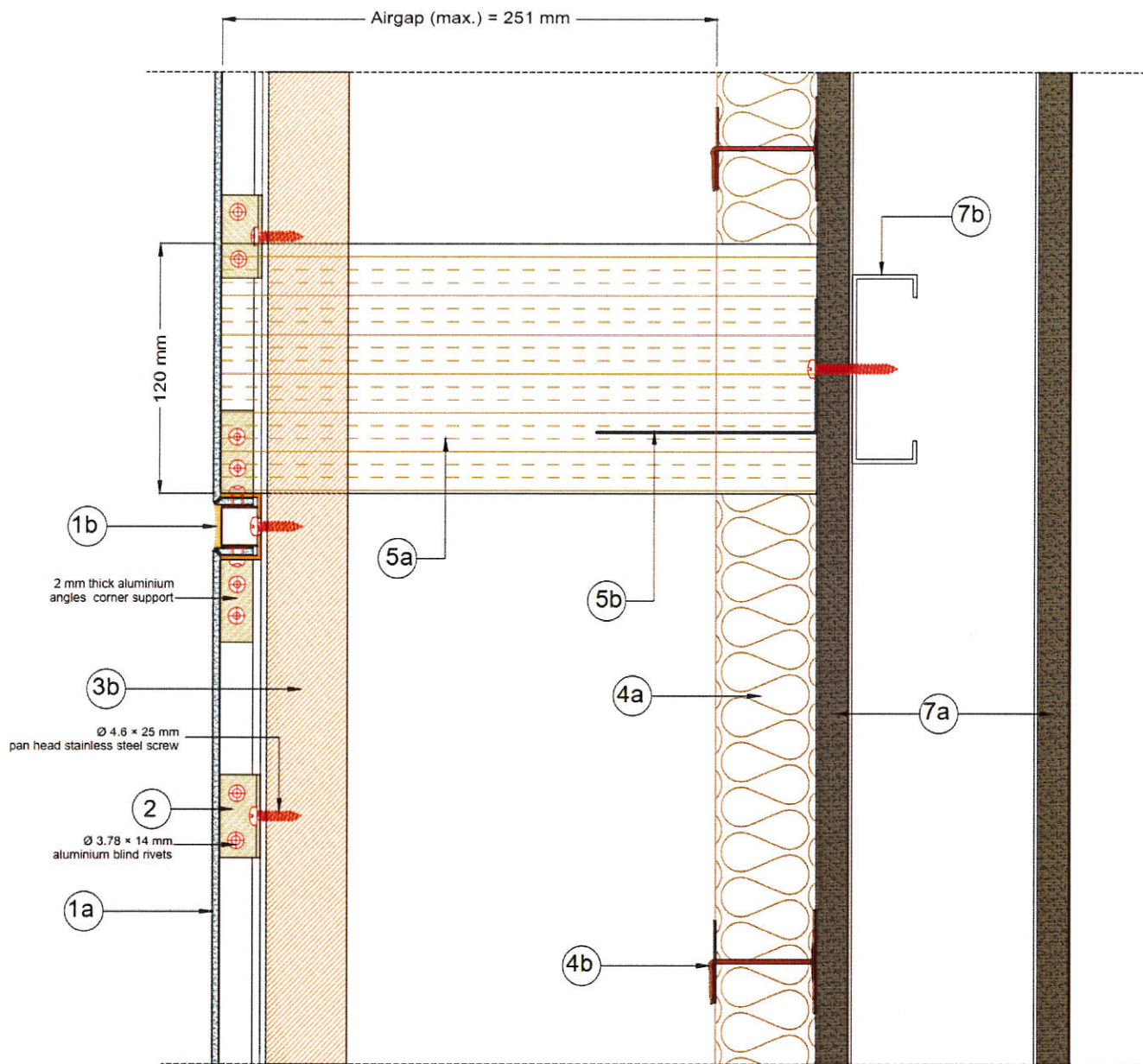


Figure 3. "Emerge U.K. FR Plus" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly vertical section joint details

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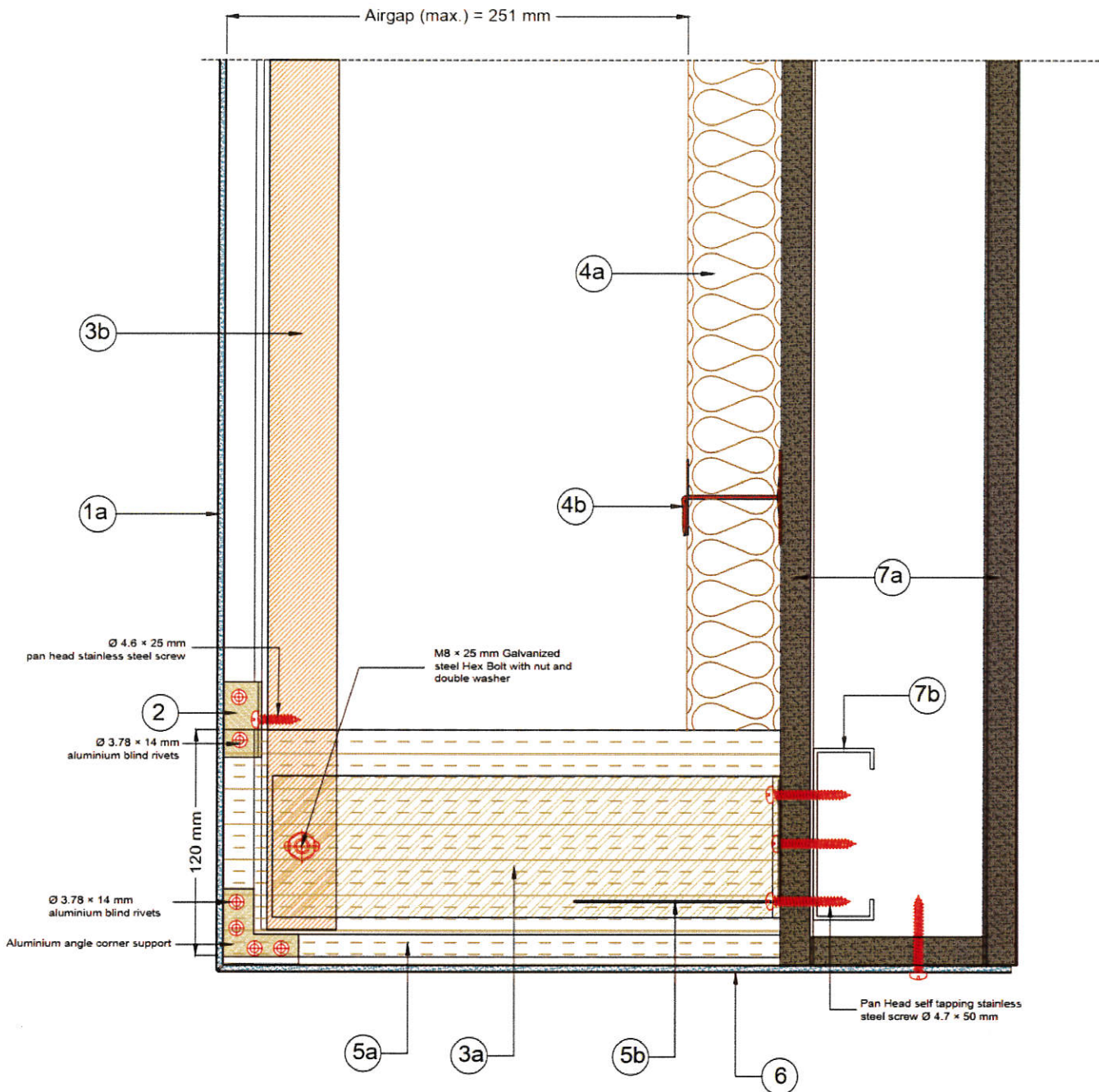


Figure 4. "Emerge U.K. FR Plus" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly vertical section window details

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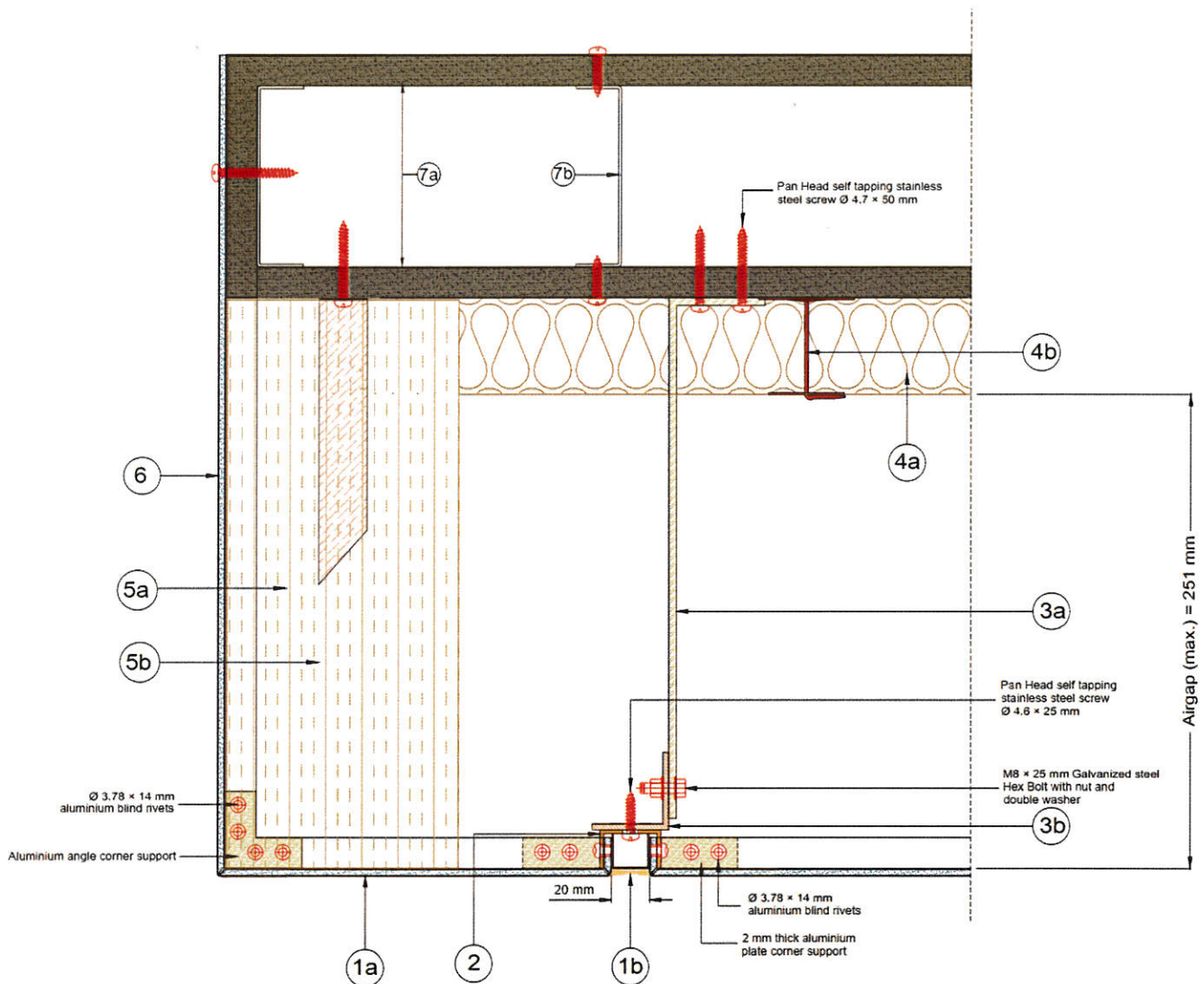


Figure 5. "Emerge U.K. FR Plus" 4 mm thick Aluminium Composite Material Exterior Wall Cladding Assembly horizontal window section details

1. Cladding Element

1a. Aluminium Composite Panel

"Tray profile" Aluminium Composite Panel with 20 mm deep flanges. The panel corners were reinforced with "L" shaped aluminium angles (20 x 20 x 20 x 2 mm, leg x leg x width x thickness) using 2 nos. of Ø 3.78 x 14 mm aluminium blind rivets.


The panels were 4 mm thick "Emerge U.K. FR Plus" Aluminium Composite Material with 0.5 mm thick PVDF coated Aluminium facing, Alloy 3003-H16 on the exterior and 0.5 mm thick Polyester coated Aluminium Alloy 3003-H16 interior facing.

Table 1. "Emerge U.K. FR Plus" Panel Details

Weight	8.0 ± 0.5 kg/m ²
Top Skin (exterior skin)	0.5 mm thick, Aluminium Alloy 3003-H16, PVDF finish, 25 ± 3 microns paint thickness

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Bottom Skin (interior skin)	0.5 mm thick, Aluminium Alloy 3003-H16, Polyester Paint (PE) finish, 6 ± 2 microns paint thickness
Panel Thickness	4 ± 0.2 mm
Maximum Panel Height	3040 mm
Maximum Panel Width	1450 mm
Minimum Panel Height	723 mm
Minimum Panel Width	205 mm

1b. Panel Joint Sealing

A gap of 20 mm was maintained between the horizontal and vertical joints of the panel into which $18 \times 18 \times 0.8$ mm aluminium "U" channel (AA 6063-T6) was fitted. DOWSIL™ FIRESTOP 700 Sealant was applied on top of the channel, extruded smoothly at a depth 3 to 5 mm flush with the exterior surface of the ACP cladding.

2. Cladding Fixing

Aluminium angles, fixed on flanges of the tray using 2 nos. of $\varnothing 3.78$ mm \times 14 mm aluminium blind rivets, located within 30 to 100 mm from the panel corner and spaced 210 mm centres (along vertical panel edges) and 634 mm centres (along horizontal panel edges). The angles were fixed to the runners using $\varnothing 4.6 \times 25$ mm stainless steel pan head screw.

Material: Aluminium Alloy (AA 6063-T6)

Dimension: $20 \times 20 \times 52 \times 2$ mm (leg \times leg \times width \times thickness)

3. Sub-Frame

3a. Wall Brackets

Galvanized steel (JIS G 3302:2010 Grade SGC340 Steel) bracket, $50 \times 270 \times 75 \times 4$ mm (leg \times leg \times width \times thickness) fixed to the substrate using 4 nos. of $\varnothing 4.7 \times 50$ mm stainless steel self-tapping pan head screw. The brackets were fixed at a nominal vertical spacing of 728 mm to 994mm and according to panel width horizontally.

3b. Vertical Runners

Aluminium angles (Alloy 6063 T6) $40 \times 40 \times 3$ mm (leg \times leg \times thickness) fixed against the wall bracket using $M8 \times 25$ mm galvanized steel hex head machine bolt with double washer.

4. Exterior Insulation

4a. Mineral Wool

Single-layer of 50 mm thick mineral wool with FSK facing on one side, fixed on the substrate using metal insulation board anchors. An airgap of 251 mm was maintained between the surface of the exterior insulation and the back of the ACP panel. Self-adhesive 120 mm wide aluminium foil tape ("ticktape") was applied on the slab joints.

Manufacturer: Saudi Rockwool Factory

Minimum Density: 50 kg/m^3

Dimension: 600×1200 mm (width \times length)

Reference: "Saudi Rockwool Façade 250"

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4b. Insulation Fastener

Galvanized steel insulation anchors, Aeroduct IF 250, Ø2.7 × 75 mm with 35 × 35 mm galvanized steel washer. Minimum 5 nos. fixed per insulation slab.

5. Cavity Fire Barrier

5a. Cavity Fire Barrier

Material: Pre-compressed Stonewool Lamella with an integral foil facing

Dimension: 120 × 310 mm (height × depth)

Density: 75 kg/m³ (nominal density)

Reference: Siderise CW-FS120 (Lamatherm)

Manufacturer: Siderise Insulation Ltd., UK

Fixing: One layer of barrier installed horizontally at every floor slab termination; and along the head, sill and at the vertical edges of the window opening. The barrier at the vertical edges of the window opening extends upwards up to the horizontal barrier on the floors above.

5b. Cavity Barrier Support Bracket

Description: Galvanized steel standard fixing bracket

Dimension: 25 × 500 × 1 mm (width × length × thickness)

Reference: B355

Manufacturer: Siderise Insulation Ltd., UK

Fixing: Flat pre-notched fixing bracket bent into "L" shape with short leg fixed to the substrate using Ø4.2 × 35 mm pan head screw and long leg penetrating the cavity barrier. The brackets were fixed at 300 mm from ends and 400 mm centres.

6. Window Flashing

The window flashing was achieved by extending the flange of the panels within the window perimeter to cover the thickness of the wall cladding assembly. The edge of the flashing was fixed to the substrate using Ø4.6 × 25 mm stainless steel self-tapping pan head screws fixed 35 mm from edges and spaced 170 mm to 520 mm around the perimeter.

7. Substrate

7a. Interior & Exterior Gypsum Board

1200 × 3000 × 16 mm (width × length × thickness) Type X gypsum boards (Gypsemna Co. LLC) fixed in horizontal orientation onto 0.9 mm thick galvanized steel studs and tracks using Ø3.5 mm × 35 mm self-drilling screws at 203 mm centres vertically. The board joints were covered with 50 mm wide Gypsemna Joint Tape and Gypsemna Magnum R100 jointing compound. Screw heads were covered with jointing compound.

7b. Steel Studs and Tracks

0.9 mm thick galvanized steel (ASTM A653/A653M- Commercial Grade) studs, 92 × 35.5 × 35.5 × 6 mm (web × flange × flange × lip); and tracks, 95 × 30 × 30 mm (web × flange × flange) welded directly to the test frame.

E. Approved Manufacturing Location

P.O. Box 1269, Plot no. R-288-290,
Al Ghail Industrial Area,
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F. Brand logo



YOUR VISION. ACCOMPLISHED.

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