



**THOMAS BELL-WRIGHT
INTERNATIONAL CONSULTANTS**

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

to

Alucopanel Middle East LLC

PO Box 18022, National Industries Park, Dubai, UAE.

for

**"Alucopanel® USA FR-A2"
Aluminium Composite Material
Ventilated Facade System**

Test Method: BS 8414-1:2015/ BR 135 Third Edition

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 2nd day of November 2016



Thomas F. Bell-Wright
Certification Director

Suresh Kumar
Quality Manager

Certificate number: TBW140c
Initial registration: November 2, 2016
File Name: QF080 Alucopanel® Middle East LLC FR-A2-BS 8414

Schedule number: TBW140s
Issued: November 2, 2016

Seal Number: 100124
Expiration: November 1, 2019
Save Date: 11/2/16 11:30 AM

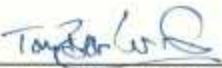
Revised certificate, identified as certificate number TBW###-X, supersedes previous versions from the issue date above.
This certificate and schedules are held in force by regular Factory inspections by Thomas Bell-Wright International Consultants (TBWIC). Refer to
www.tbwcert.com or contact TBWIC Fire 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 4 333 2692, Email: fire@bell-wright.com, Web: www.bell-wright.com

"Alucopanel® USA FR-A2" 4.0 mm thick Aluminium Composite Material Ventilated Façade System

- A. Certification is given for "Alucopanel® USA FR-A2" 4.0 mm thick Aluminium Composite Material "Alucopanel® USA FR-A2" Ventilated Façade System which has successfully met the requirements for fire propagation characteristics of non-load-bearing external wall cladding system when tested against the requirements of BS 8414 part 1 and evaluated according to performance criteria and classification method of BR 135 Third Edition Annex A, subject to the limitations below. Readers of this document should be familiar with fire test method for Fire Performance of External Cladding System Part 1: Fire test method for non-load-bearing external cladding systems applied to the masonry face of a building 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: BRE Test Report No. P100759-1000 Issue 2 & BRE Global Assessment Classification Report P100759-001 Issue 2), Technical Verification and Proof of Performance, compliance to Factory Production Control requirements and surveillance & Re-certification Inspection/ Audits.
- C. Limitations:
- C.1.1. This Certification covers the fire performance characteristics of a non-load-bearing exterior wall cladding system when tested against the requirements of BS 8414 part 1 and met the performance criteria set in Annex A of BR 135 Third Edition.
 - C.1.2. This Certification covers the non-load-bearing exterior wall cladding system in its entirety. Individual components that comprise the wall cladding system (on their own) are not covered under this certification.
 - C.1.3. The actual field installations of the non-load-bearing exterior wall cladding system covered under this certification shall include the fire breaks installed vertically and horizontally at specific locations as detailed in the test report and classification report.
 - C.1.4. The design of the non-load-bearing exterior wall cladding 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 installing on the site. The design and components of the non-load-bearing exterior wall cladding assembly are not intended to be substituted, eliminated or interchanged unless recognized and approved by this certification.
 - C.1.5. This certification does not cover mechanical performance of the non-load-bearing exterior wall cladding assembly during the fire exposure including (but not limited to) collapse of the system, detaching of panels or falling of debris that could cause damage to the vicinity where the system is installed.
 - C.1.6. The test (and Certification) do not address the following:
 - (a) Air and Water Permeability
 - (b) Measurement of heat transmission
 - (c) Classification or definition of material as noncombustible
 - (d) Any Resistance to Fire rating
 - (e) Toxicity level of smoke developed during combustion

Certificate number: TBW140c

Page 2 of 7


Director Of Certification
Thomas F. Bell-Wright

Schedule number: TBW140s

Issued: 02 Nov. 2016
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D. Approved Manufacturing Location

Sub lease Plot # TP010105B,
National Industries Park
PO Box 18022
Dubai, United Arab Emirates

E. System Configuration

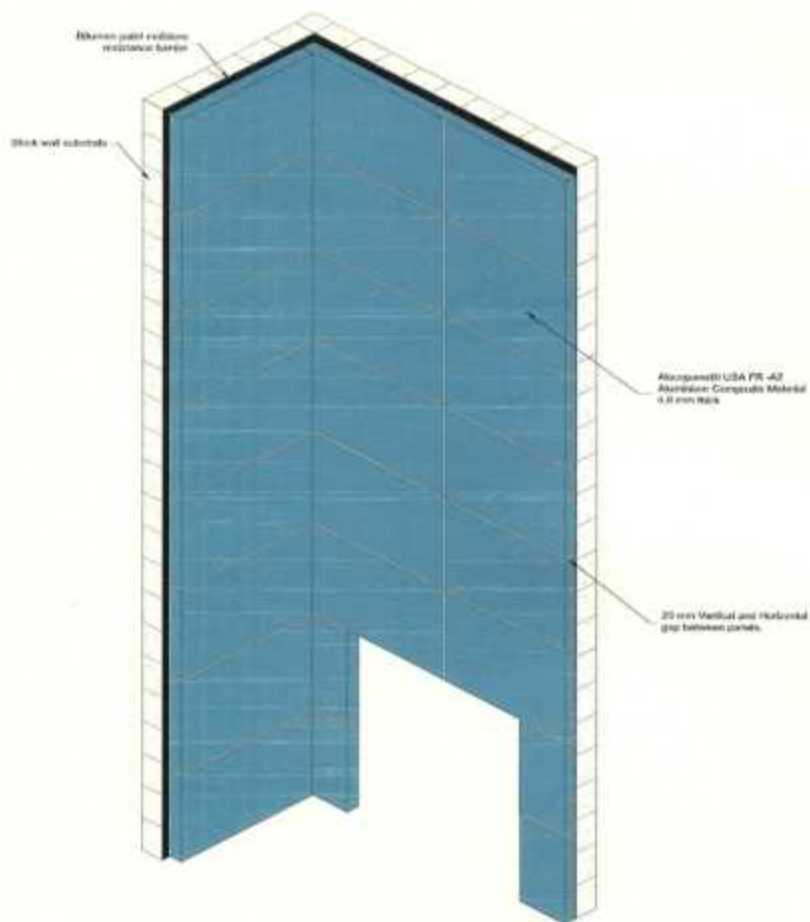


Figure 1. Alucopanel® U.S.A. FR-A2 non-load-bearing exterior wall cladding assembly

Certificate number: TBW140c

Page 3 of 7

Director Of Certification
Thomas F. Bell-Wright

Schedule number: TBW140s

Issued: 02 Nov. 2016
Valid to: 01 Nov. 2019

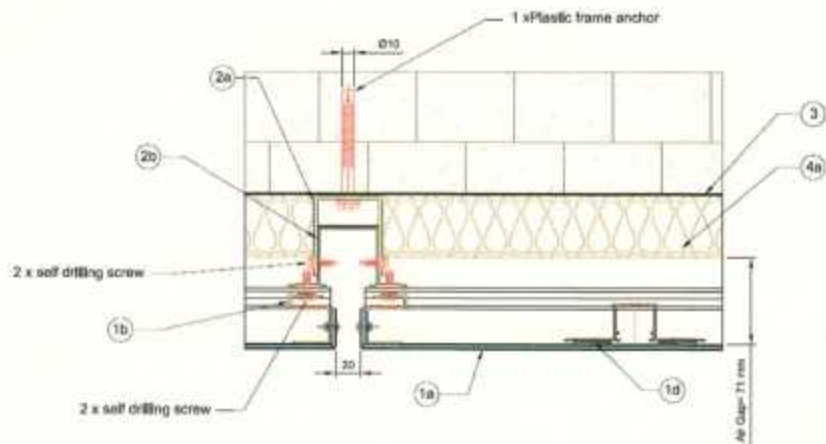


Figure 2. "Alucopanel" U.S.A. FR-A2 non-load-bearing exterior wall cladding assembly horizontal section details

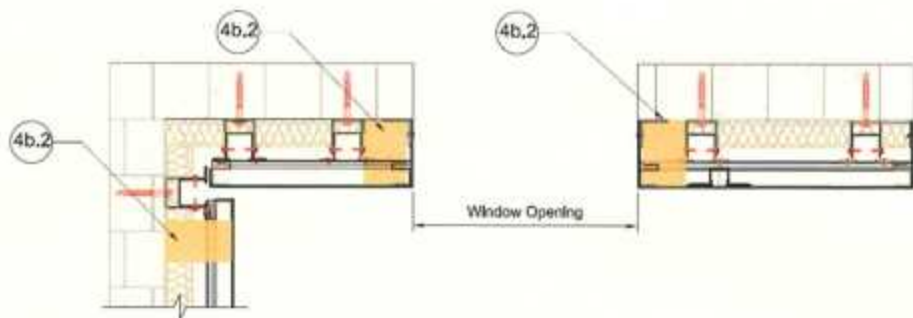


Figure 3. "Alucopanel" U.S.A. FR-A2 non-load-bearing exterior wall cladding assembly Fire break placement

Certificate number: TBW140c

Page 4 of 7


 Director Of Certification
 Thomas F. Bell-Wright

Schedule number: TBW140s

Issued: 02 Nov. 2016
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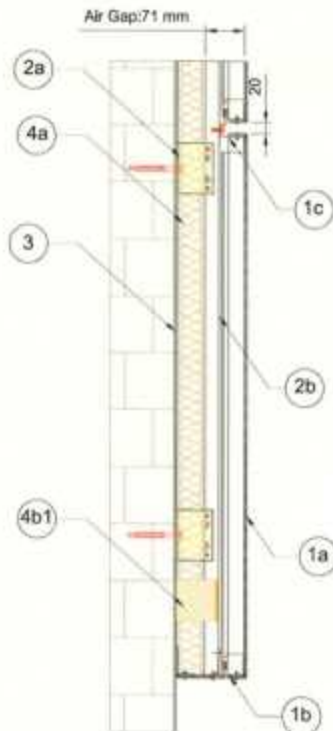


Figure 4. "Alucopanel® U.S.A. FR-A2" non-load-bearing exterior wall cladding vertical section detail

1. Exterior Cladding

1a. Aluminium Composite Panels

Aluminium Composite Panels formed to a "tray profile" with 33 mm deep flange. Nominal 1.8 mm thick aluminium "Z" section profile was fixed to the head of the tray using $\varnothing 4 \times 12$ mm Stainless Steel Blind rivets and "S" section profile was fixed to the bottom using $\varnothing 4 \times 12$ mm Stainless Steel Blind rivets. The panels were fixed to the runners using $\varnothing 6.3 \times 19$ mm Stainless Steel self-drilling screw through the "Z" section on the head and interlocked with the "S" section on the bottom of the tray. "Top Hat" profile stiffeners were fixed vertically on the back of the panel using Acrylic based adhesive (Lord® Adhesive 400 series) and aluminium angles riveted on the edges of the tray.

A gap of 20 mm is maintained between the horizontal and vertical joints of each panel which was kept open.

The panels were 4.0 mm thick "Alucopanel® USA FR-A2" Aluminium Composite Material with 0.5 mm thick PVDF coated Aluminium sheet, Alloy 3105-H16 on the exterior face and 0.5 mm thick Polyester coated (service coat) Aluminium sheet, Alloy 3105-H16 on the interior face.

Certificate number: TBW140c

Page 5 of 7


 Director Of Certification
 Thomas F. Bell-Wright

Schedule number: TBW140s

Issued: 02 Nov. 2016
 Valid to: 01 Nov. 2019

Table 1. "Alucopanel® USA FR-A2" Panel Details

Minimum Weight	7.8 kg/m ²
Core	Flame Retardant natural inorganic mineral filled core
Top Skin (exterior skin)	0.5 mm Thick, Polyvinylidene Fluoride (PVDF) with Polyester primer (0.03 mm PVDF coat + 0.007 mm PE primer) Aluminium Alloy 3105-H16
Bottom Skin (interior skin)	0.5 mm Thick, Primer Coating-Solvent based paint (Polyester (PE) coating 0.007 mm) Aluminium Alloy 3105-H16
Maximum Panel Thickness	4.0 mm
Maximum Panel Width	1404 mm
Maximum Panel Height	1050 mm

Manufacturer: **Alucopanel® Middle East LLC**

Reference: **"Alucopanel® USA FR-A2"**

1b. "S" Profile Aluminium

Fixed on the bottom flanges of the tray using $\varnothing 4 \times 12$ mm stainless steel blind rivets. The aluminium "S" profiles interlock the "Z" profile at the bottom of the tray profile.

Material: Aluminium Alloy 6063-T6

Minimum Thickness: 1.8 mm

1c. "Z" Profile Aluminium

Fixed on head flanges of the tray using $\varnothing 4 \times 12$ mm stainless steel blind rivets. The Panels were fixed to the vertical runners through aluminium "Z" profiles and interlock the "S" profile at the bottom of the tray profile.

Material: Aluminium Alloy 6063-T6

Minimum Thickness: 1.8 mm

1d. "Top Hat" Profile Aluminium Stiffeners

Vertically on the back of the panel using Acrylic based adhesive (Lord® Adhesive 400 series) and aluminium angles riveted on the edges of the tray Material: Aluminium Alloy 6063-T6

Minimum Thickness: 1.6 mm

Certificate number: TBW140c

Page 6 of 7



Director Of Certification
Thomas F. Bell-Wright

Schedule number: TBW140s

Issued: 02 Nov. 2016
Valid to: 01 Nov. 2019

2. Mounting System

2a. Wall Brackets

"U" profile aluminium (Aluminium Alloy 6063-T6) brackets, 65 × 56 × 65 × 3 mm thick fixed to the base wall between 135 to 712 mm horizontally across the width of the base wall and 846 to 1070 mm vertically. The brackets were fixed to the base wall using EJOT® Fassadendübel fixings (SDF-KB-10Hx80-E) into plastic plugs.

2b. Vertical Runners

"Top Hat" profile aluminium (Aluminium Alloy 6063-T6), 50.2 × 50.2 × 50.2 mm, nominal 1.6 mm thick, slotted to the wall brackets and fixed using Ø 4.8 × 19 mm self-drilling stainless steel screw.

3. Base Wall

The basewall is made of blockwork which was Primed with a layer of Nitoproof 110 bitumen at a coverage rate of 3 m²/liter and allowed to cure for more than 2 hrs after which a layer Nitoproof 120 bitumen is applied at the coverage rate 3 m²/liter.

Material: Nitoproof® 110/120 Bituminous waterproof protective coating

Manufacturer: FOSROC

4. Cavity Insulation & Fire Breaks

4a. Mineral Wool

A single layer of 600 (w) × 1200 (l) × 50 mm thick mineral wool with Aluminium foil facing on one side with a nominal density of 75 kg/m³ was fitted between the vertical top rails using metal fixing pins with five fixings per square meter.

Manufacturer: Fujairah Rockwool

Minimum Density: 75 kg/m³

Reference: S2XX Mineral Wool Slabs with Aluminium foil facing

4b.1. Horizontal Fire Breaks

Horizontal fire breaks were formed from Siderise "Open State" horizontal cavity barriers (P/N-RH50/SS/090/30). The barriers incorporate a continuous intumescent strip bonded to the leading edge consist of a non-combustible stone-wool lamella core, with reinforced aluminium foil faces. The cavity barriers were installed, using stainless steel brackets, at horizontal concrete slab positions of 140 mm, 1140 mm and 4140 mm from the top edge of the opening. The barriers were installed as continuous strip across both the main and wing walls.

4b.2. Vertical Fire Breaks

Vertical fire breaks were formed using Siderise vertical cavity barriers (P/N-RV/G/090/30) consisting of a non-combustible stone-wool lamella core, with a reinforced aluminium foil face. The fire breaks were installed to the full height of the system directly adjacent to both sides of the opening and were fitted between the panels of mineral wool insulation secured to the blockwork using galvanized steel barrier pins with two fixings per 1200mm section of the barrier.

Certificate number: TBW140c

Page 7 of 7



Director Of Certification
Thomas F. Bell-Wright

Schedule number: TBW140s

Issued: 02 Nov. 2016

Valid to: 01 Nov. 2019