Use the Correct Fire Proof ACP Building Materials Limit the Damage to Human Lives & the Structure

Egypt AFRICA®

ALUMINUM COMPOSITE PANEL

EGYPTAFRICA.NET

DESCRIPTION OF FIREPROOF ALUMINUM COMPOSITE PANEL

AUTHENTIC FR MATERIAL MINIMISES **fiRE RISKS**

FR is an innovative Fire Rated ACP composed of 2 layers of aluminium sheets and fire retardant core (non-combustible mineral core). It is a solution for the projects that require good fire retardant performance. Egypt Africa Fireproof Aluminum Composite Panel is available in all options skin and panel specifications, thickness, width, and length. PVDF, PE, Brushed, Mirror, and other patterns are all available to be produced as Fire Retardant Panel.

CONTENT

ABOUT US

Egypt Africa is desevedly the largest Cladding Factory in the middle east & Africa. We offer aluminum corrugated core panels in the highest grade A2-FR. They are blessed with the unique feature to withstand high temperatures and extreme weather conditions.

A2-FR grade Aluminum Corrugated Composite Panel (ACCP) is increasingly being installed in medical labs, showrooms, chemical factories, plants, commercial buildings or industrial spaces where the likelihood of a fire occurrence is high.

WHY CHOOSE A2 - B1 PLUS?

15 meters, industrial and public buildings, airports, hospitals, hotels, tunnels and underground stations. It releases a negligible amount of heat and doesn't contribute to flame spread at all. No toxic gases or smoke and flaming droplets are produced, it ensures negligible damage to property, hassle-free evacuation, and zero chance of casualty.

IT'S TIME TO BEAT THE FIRE

Welcome a new dawn of fire safety with Egypt Africa first A2 grade. It has fireproof properties similar to metals. A2 is the highest available grade of fire-retardant ACP in the world made with more than %90 inorganic mineral content.

THE CORE SECRET

FireWall is a non-halogenated FR material that produces water vapour when it heats up. It does not produce toxic gases like the halogenated materials.

Magnesium hydroxide (MDH) is the non-halogenated material that is mixed with PE to form the core of F1 FR products. MDH has a better fire-resistance performance than aluminium trihydrate (ATH), the other non-halogenated material, owing to higher decomposition temperature. Furthermore MDH is more environment-friendly than other similar materials.

MDH delays the PE transformation from solid to plastic (the point of ignition) up to 360°C, by releasing water molecules and bringing down the temperature continuously.

For high-rises beyond 15 meters Africa Bond A2 is a better and safer material compared to other fire-retardant ACPs.

Africa Bond A2 releases negligible heat, no smoke and produces zero flaming droplets.

While FireWall resists fire, Africa Bond A2, owing to its %90 mineral content, completely stops it from spreading.

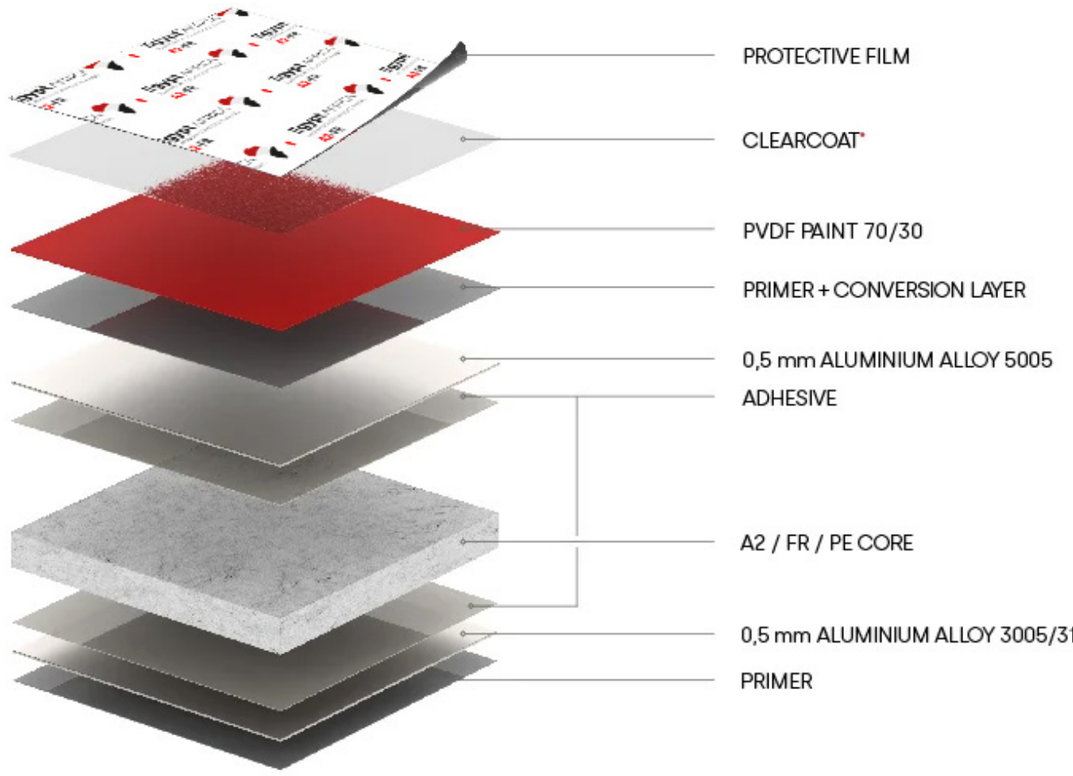
Negligible heat released

Negligible smoke released

Zero spread of flames

Zero flaming droplets

In-house quality checks



Basic chemical reaction of the FireWall Core

Core details	Polyethylene	Magnesium hydroxide (MDH)	Aluminium trihydrate (ATH)
Chemical reaction	$CH_2+O_2 = Co_2+ H_2O$	$Mg(OH)_2 = MgO + H_2O$	$2Al(OH)_3 = Al_2O_3 + 3H_2O$
Decomposition temperature	90°C to 110°C	310°C to 360°C	190°C to 240°C
Status	Heat generation	Heat absorption	Heat absorption

APPLICATIONS

- Exterior Wall of Building & Curtain Wall
- Refitting or Renovating Of Old Building Exterior Wall
- The Balcony, Equipment Unit & Interior Compartments
- Panel, Logo Plate & Display Platform
- The Interior Wall Decoration Panel, Ceiling & Advertising Board
- Industrial Usage & Cold Car Body etc.

PRODUCT CERTIFICATIONS & REPORTS

Egypt Africa is the first Egyptian brand to indigenously develop and manufacture fire-retardant A2 core (patent for composition has been applied for). The feature has been designed particularly for Africa conditions.

Egypt Africa is the first company of Africa origin to have received the factory production certificate (FPC) for class A2

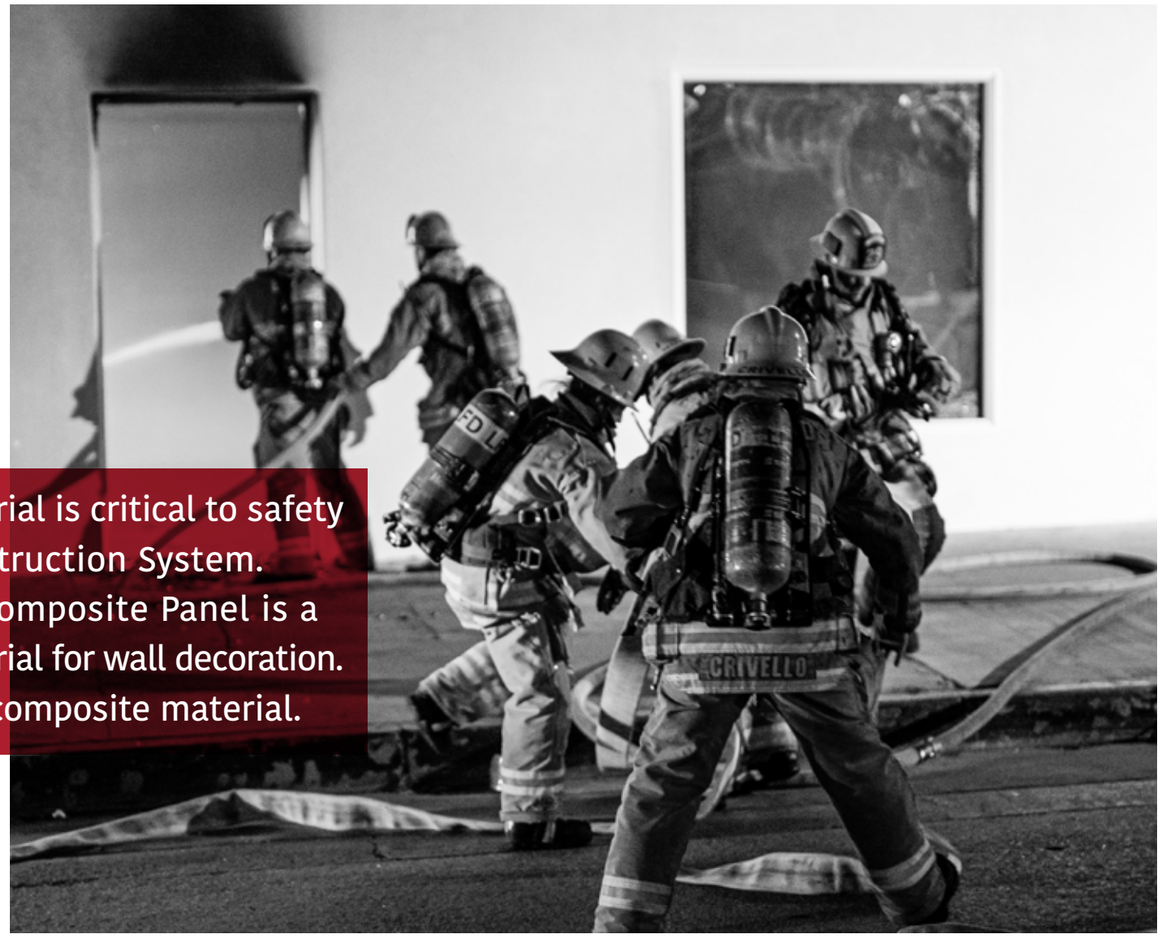
OUR PRODUCTION CAPACITY

Two palletizing units having a total production capacity of 5000MT per annum. The 3 lamination lines are dedicated to the production of fire-retardant materials. At the in-house fire-testing lab, along with other tests the ISO 1716 test for class A2 is conducted. It is this test where the total calorific value, or the energy or heat released to be combusted, can be measured.

A MAJOR STEP TO ARREST fiRE CASUALTIES

Fire-retardant (FR) materials have become an important ingredient in modern construction. With more and more skyscrapers towering towards the skies in bustling cities, fire protection has taken centre stage across the world.

Using genuine FR material is critical to safety in the Fire Rated Construction System. Fireproof Aluminum Composite Panel is a slap-up fire safety material for wall decoration. It is a new type metal composite material.



PRODUCT PROPERTIES

Our extensive range of products includes PVDF coating, Nano coating aluminum composite panels, polyster coating aluminum composite panels, mirror finish aluminum composite panels, wood grain aluminum composite panels, and more. These products are available in various specifications (thickness: 6-2 mm, width: 1250-1240mm), and are built for long-term use in all weather conditions. Additionally, they are stylish and very easy to install as any interior or exterior surface.

Having the advantages of eing thin, coming in a variety of colors, having good impact resistance, good thermal insulation, and superior workability, our aluminum composite panels are satisfying the needs of architects, designers, builders, and general consumers in Africa and in Kingdom of Saudi Arabia and GCC countries

ACP LINE PROCESS

Screw Feeder: Feeds the Plastic granules to the extruder.

PE Extrder: Extruder pushes the plastic granules yowards T-Die in the shapes of semi liquid state with the help of heaters.

Screen Change: Set of screen works with hydraulic system and restricts all hard particles.

T-Die: Spreads the plastic into sheet form.

Three roller calender: Forms the sheet, maintain the width & thickness.

Adhesive film Covering: Adhesive film sticks top and bottom and works as bonding agent to the Aluminum coil.

Aluminum Uncoiler: Uncoils the Aluminum top and bottom and sticks to the PE sheet.

Heating Unit: Consist of set of rollers combination of rubberized and steel rollers, steel rollers will be heated by circulating Thermal oil in it which compress and composite panel.

Water Cooling: Consists of set of rollers combination of rubberized and steel rollers, steel rollers will be cooled down by circulating cool water in it.

Industrial Cooler: Cools down the sheet to normal atmospheric temperature.

Protective film covering: A UV protective film sticks on top finished aluminum coil, which protects the sheet Ultra Violets rays.

Longitudinal Trimmer: Maintains the width of the required sheet.

Five rollerflat section: Maintains the sheets flat.

Towing Device: Pulls the sheet and the speed of the following rollers are synchronized with three roller calender unit.

Cutting Machine: Cuts the sheets in required lengths by photo sensor (auto adjusted) or the sheet can be cut manaually by a foot switch.

QUALITY CHECK AT THE IN-HOUSE FR LAB

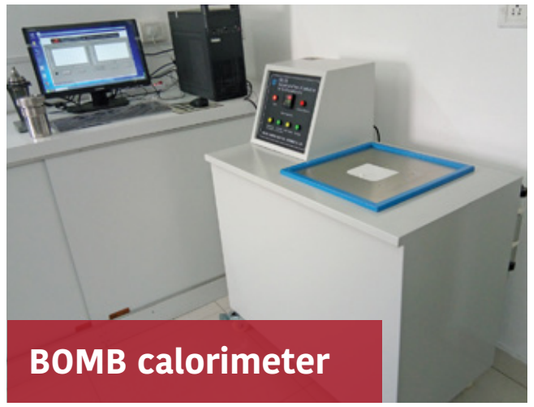
Before going for the final production, each batch of the mineral core produced in the Baby Line is thoroughly tested.

Ignitability Test

Checks the magnitude of ignition in compliance with EN1182.

Non-combustibility Test

Checks at what temperature the material would be set aflame.



BOMB calorimeter

Checks reaction to fire tests for products through determination of the gross heat of combustion.

Drum Peel Test

The Drum Peel Test is done to check the bonding strength.

Limiting Oxygen Index

Checks the minimum oxygen requirement to ignite the material.

Smoke Density Test

Checks if light passes through the smoke produced or not, so that it does not blur human vision.

Various categories that determine the degree of combustibility as well as flammability

Rating	Degree of flammability	Example
A1	%100 non-combustible	Rockwool
A2	%98 non-combustible	Gypsum plaster
B	Difficult to ignite	Some high-end silicones
C	Normal combustibility	Wood
D	Easily ignited or flammable	Polystyrene, paper etc

BUILDING CODES FOR VARIOUS COUNTRIES

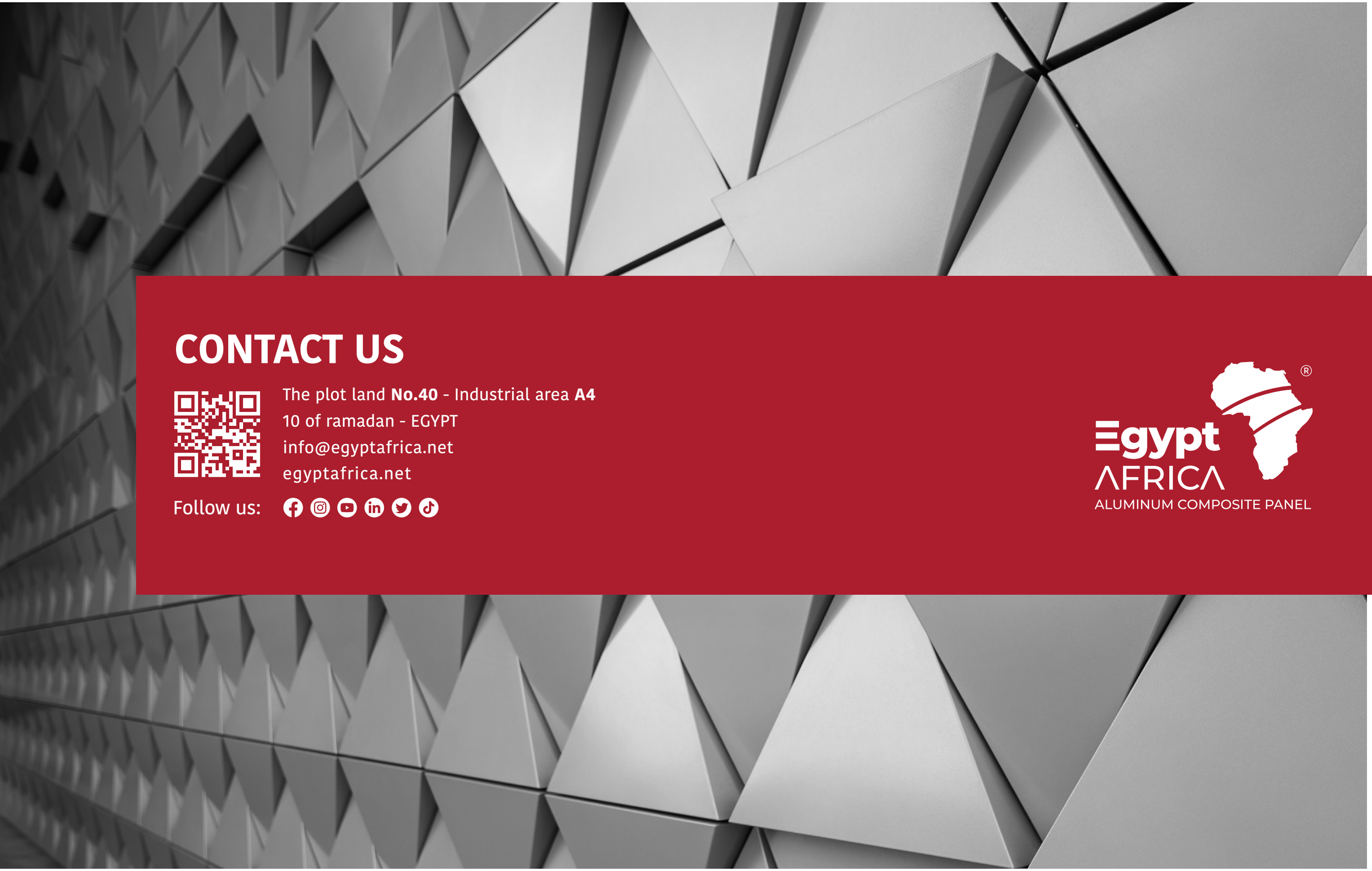
The fire safety norms for different countries have been updated and changed according to the present scenario. The type of buildings in Africa and Midle-east for instance have been categorised into non-sprinkler protected building and sprinkler protected building. In the non-sprinkler protected building it is mandatory for them to use Class A2 according to EN1-13501 in the exit ways such as staircase and passageways.

In UAE also certain changes have been done for the buildings above 15 meters. Any cladding material used should have Class A2 in accordance to EN1-13501. This is not only for the building heights but if the buildings are educational, hospitals, malls, assembly, theme parks or if they have less than 3 meters separation distance from the property line and/or from the adjacent building the same Class A2 material has to be used.

Sl #	Description	Standard	Unit	AL 45 Class A2
A	**PRODUCT DETAILS & THICKNESS**		**mm**	**4**
1	Cover sheet thickness		mm	0.5
2	Alloy	ASTM B209 M		AA 5005
3	Core material		Mineral core	
B	**ALLOY DESCRIPTION**	ASTM B209 M		H22/ H24
C	**PHYSICAL PROPERTIES (FOR ACM)**			
1	Weight	ASTM D592	Kg/m^2	8.1
2	Water Absorption	ASTM C272	%	Nill
3	Coefficient Of Thermal Expansion-a	ASTM D696	$^{O}/C$	24.0×10^{-6}
D	**MECHANICAL PROPERTIES**			
	Aluminium Skin			
1	Tensile Strength	ASTM E8	$Mpa(N/mm^2)$	Min. 150
2	Tensile Yeild (0.2% Proof Stress)	ASTM E8	$Mpa(N/mm^2)$	Min. 125
3	Elongation	ASTM E8	%	Min. 3
4	Modulus Of Elasticity	ASTM E8	$Mpa(N/mm^2)$	> 68000
5	Surface Resistivity (Static Charge)	ASTM D257	Ω	1.6×10^{12}
	ALIMINIUM COMPOSITE PANEL			
1	Tensile Strength	ASTM E8	$Mpa(N/mm^2)$	50
2	Tensile Yeild (0.2% Proof Stress)	ASTM E8	$Mpa(N/mm^2)$	45
4	Bond Intergity (Peel Strength)	ASTM D903	N/Mm	9
5	Elongation	ASTM E8	%	5
5	Flexural Strength	ASTM D790	$Mpa(N/mm^2)$	116
6	Flexural Stiffness/Rigidity	ASTM D790	$Mpa(N/mm^2)$	14034
7	Shear Strength	ASTM D732	$Mpa(N/mm^2)$	18
8	Sound Transmission Class	ASTM E 413	dB	26

Sl #	Description	Standard	Unit	AL 45 Class A2
E	**COATING DETAILS**			
1	Coating Type	AAMA 2605	PVDF/Lumiflon resin based Flurocarbon coating	
2	Coating Thickness	AAMA 2605	25-28 µ (For Two Coat) 30-35 µ (For Three Coat)	
3	Gloss (60°)	ASTM D523	%	15-60
4	Formability (T-Bend)	ASTM D1737	T	2T
5	Reverse Impact- Crosshatch	NCCA II-5		No Pick Up
6	Pencil Hardness	ASTM D3363	Min	H
7	Adhesion	ASTM D3359		
	i Dry	METHOD 8		No Pick Up
	ii Wet	37.8°C, 24 hrs		No Pick Up
	iii Boiling Water	100°C, 20 min		No Pick Up
8	Abrasion Resistance	ASTM D968	Liters/Mil	40
9	Chemical Resistance Test	ASTM D543		
	i 10% HCL (1 hrs)		No Visual Change	
	ii 20% H_2SO_4 (72 hrs)		No Visual Change	
	iii 20% NaOH (18 hrs)		No Visual Change	
	iv 3% Detergent Solution (38°C for 72 hrs)		No Visual Change	
	v Mortar Pat Test	AAMA 2605	No Visual Change	
10	Weather-O-Meter Test	ASTM D2244		
	i Gloss retention		70% after 4000 hrs	
	ii Color retention		Max. 5 units after 4000 hrs	
	iii Chalk resistance		Max. 8 units after 4000 hrs	
F	**FIRE PROPERTIES**			
	Reaction to fire	EN13501-1		Class A2 S1 D0

Product Tolerance: Panel width ± 2.0 mm - Panel length: ± 4.0 mm - Panel thickness: ± 0.2 mm - Maximum squareness: 5.0 mm
Maximum bow: %0.5 of width and/or length - Coil thickness: 0.03 mm tolerance



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