Egypt AFRICA®
ALUMINUM COMPOSITE PANEL

Egypt Africa

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.

In the unfortunate event of a fire accident, Egypt Africa ACCPs have an aluminum honeycomb core that reduces the intensity and speed of flame spread, consequently minimizing the loss of life and property.

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A2-FR

المواصفات الفنية لمنتج
إيجيبت افريقيا المقاوم للحريق

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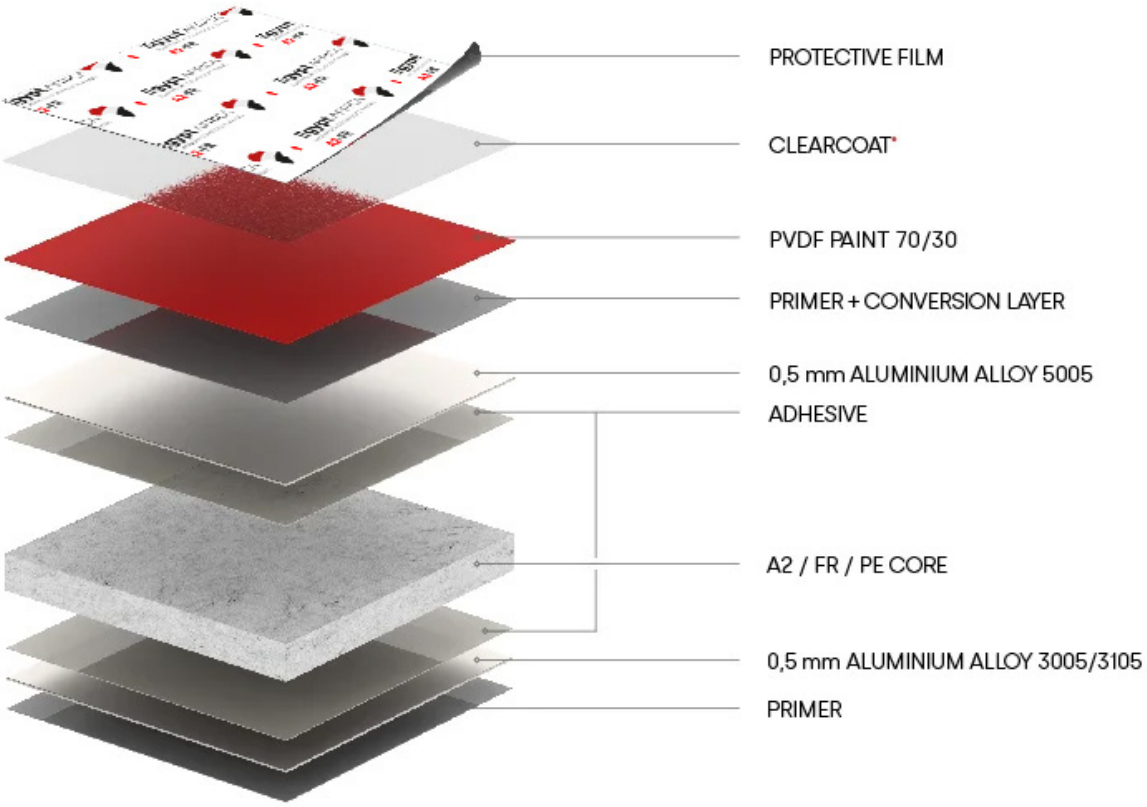
Product Composition

Two sheets of Aluminum Alloy 5005/3003 Series with 0.40 mm thickness on top (Coated with PVDF Paint) & Bottom (Primer coated) are sandwiched with FR minerals as a core material formed in continous co-extrusion process with adhesivrs. The core material is free of voids and air spaces and does not contain foamed insulation materials.

Total Thick 4mm	Aluminium Thick	Kg/m²
FR-A2	0.4 mm	8.5 / kg
FR-A2	0.5 mm	9.2 / kg



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Product Composition

Product	Total Panel Thick (mm)	Components Thickness (mm)			Aluminium Grade	Core Mterial
		Top Alum Skin	Core FR	Bottom Alum Skin		
Egypt Africa A2-FR	4 5 6	PVDF Coated 0.40 mm 0.50 mm	3.0 3.20 mm	Polyester Coated 0.40 mm 0.40 mm	Alloy 5005/3003 series	Mineral filled Inorganic Noncombustible materials

Product Dimension

Egypt Africa A2 FR is available in various dimension however, standard panel size is 4mm * 1250mm * 5800mm other custom sizes can be prouduced upon request.

Dimension	Unit	Standard	Non Standard
Width	mm	1250	1275/1500/1000mm
Length	mm	5800	2440mm, 3660mm and 4200mm Any length Available
Thickness	mm	4	4,5 and 6

Tolerences

Dimensional / Standard Size (Rounded).
Thickness: +0.20 mm
Width: +2.0 mm
Length: +2.0 mm Squareness: 5 mm Maximum

Name	Unit	Thickness	
		4 mm	6 mm
Density	g/cm^3	1.95	1.75
Weight	Kg/m^2	8.5	10.50

Comparison with other building materials

Physical Properties	Egypt Africa A2-FR	AL	FE	S.Steel	Concrete	Glass	Acrylic Sheet	Gypsum
Specific Gravity	1.75-1.95	2.71	7.9	7.9	0	2.5	1.2	0.86
Thermal Conductivity W/m K	0.44-0.47	210	45	17	1.62	1	0	0.04

Comparison of weight & rigidity

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Self & Flash Ignition Temperature

Egypt Africa A2 - FR is having self & flash ignition temperature of 550°C

Vibration Damping

Egypt Africa A2 - FR has best vibration damping effect that absorb mechanical energy arises out of vibration to convert it into thermal energy.

Bending Limit

Egypt Africa A2 - FR can be bent in a Press Break or 3-roll bending machine. Normally the smallest radius that can be applied to bend the panel without wrinkles at the radial surface of panel is termed as the bend radius. In 3 roll machine, the bending diameter depends on the roll diameter, length and type of machine.

Smallest bending radius (Parallel in Press Break Machine)

Thickness	Egypt Africa A2-FR
4mm	100mm
6mm	120mm

Thermal Conductivity

Compared to solid materials Egypt Africa A2-FR has a lower thermal conductivity the tavle below shows the thermal conductivity comparison of different materials.

Material	Thermal Conductivity (WI m K)
4mm Egypt Africa A2-FR	0.45
Solid Aluminium	205
Steel	50.2
Polyurethane	0.02
Glass Wood	0.04
Brick	0.28
Concrete	0.80
Gypsum Board	0.13
Air at 0°C	0.024

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U Value

Thermal Properties of Egypt Africa, U Value

Panel Thickness	Thermal Resistance 1/L.R (m2k/w)	Heat Transmitance Coefficient U value (W/m2k)
3mm	0.0069	565
4mm	0.0103	554
6mm	0.0172	534

Thermal Conductivity Egypt Africa The Core is the determining Component
Core Matenal L.0.29w/mk Aluminium L.200W/mk

Coating Finishes

Aluminum Coil Alloy (5005/3003 Series) coated with KYNAR 500 based Polyvinylidene Fluoride PVDF utilizing with minimum (%70 resin) Cooperate with (Becker`s) French Coating.

PVDF Coating system offers two or three layer coating depending on color selection such as Metalic colors and Normal RAL Colors. Metallic Colors are normally Two (2) coat system consisting Primer & Polyvinlidene fluoride color in confoemance with the following general requirments of AAMA 620.

Nano-PVDF Aluminium Composite Panel

Egypt Africa Nano-PvDF aluminum composite panel is anti-grafiti abd seld-cleaning. It is composed of core sandwiched between two 0.5mm aluminium skins. Coming with hydrophobic and lyophobic surface, the Nano-Pvdf ACP features good water and dirt resisteance. The protected object saysclean much longer and can be easily cleaned with pure water. Egypt Africa ACP has high water repellence and the dirt in its surface can be easily cleaned away by a heavy rain.

Benefits of Egypt Africa Nano PVDF composite panel

- Excellent easy-cleaning
- Anti Bacterial surface.
- Pollution Resistance.
- Oil resistance
- Good Friction Resistance

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Color

Generaly, we are manufacturing Egypt AfricaA2-FR with various option s for color coating. Basically we have two different types of colors such as Solid & Metallic finishes. Custom color can be developed if required by client / Consultant / Architect / Project Engineer.

Panel Core

Egypt Africa A2-FR Mineral Filled Core A2 is a fire safe material passed modatory requirements of relevant internationally acceptable standards and is best suitable for external and internal uses.

Panel Strength

Egypt Africa A2-FR used for the external cladding must stand the wind load. This wind load will cause deflection of the panels and if the deflection is small, the panel will not deform.

The permanent deformayion of the panel is calculated by %0.2 yield stress divided by the saftey factor. In the calculation, we are assuming that the total strength of the panel is the strength of the aluminum skins. If the calculated %2 proof stress is greater than the permissible, normally the panel is strengthened by giving additional siffeners. The other factors affecting the strngth of the panel are:

1. Panel thickness, width and length.
2. Supporting conditions.
3. Wind load.

We are using the Aluminum Alooy 5005/3003 series for Egypt Africa A2-FR, Aluminum skins %2 proof strees is 152 MPa and suitable where the wind speed is 50 m/sec.

Joining Holes / Bolts & Nuts

In the installation work, other important factors are the strength of the joining holes and the rivets. Normally the distance from the Hole center to the panel edge should be 2 imes larger than hole diameter and to prevent the galvanic corroison of the panels use only Aluminum or stainless steel rivets, Bolts nuts etc. if we are using dissimilar metals lay a coating to prevent the galvanic corrsion.

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Resistance to natural forces

Lighting

If a lighting strikes, Egypt Africa the electricity will be discharged to the earth through the substructure. Since the panel is connected to the earth the sub structure.

Strength of Substructure

The sub-structure where we are installing the panels shuld take the wind load and the panels. The strength of the substructure depends on the material and section of the structure, anchoring intervals of sub structure and wind pressure. The maximum deflection on the sub structure must be smaller than supporting intervals %0.5

Product warranty

Egypt Africa A2-FR Aluminum Composite panels manufactured by Egypt Africa Group. Will be warranted for a period of 20 Years from the date of supply, as per our standard product warranty policy. Formal Warranty documentation will be issued i the name of Orient and will be endorsed by the regional agents or the company itself.

Table one below explains the types of ACP panels available and details their uses.

Panel Type	Fire rating	Use	Note
PE is a light composite material consisting of two aluminium cover made of polyethylene.	Flammable	This type of panel is restricted in its use to signage, low rise developments, factories and warehousese.	**Restricted Use:** Type C Construction Only
FR Panes. The designation FR refer to "Fire Resistant" and as with A2 panels it has been tasted to EN 13501:B-s1,d0.	B-s1,d0 Difficult to ignite	This type of panel may be used on high rise buildings. It must be attached to a fire rated wall. Although not strictly referred to as Non-combustible it has a very low spread of flame indices and will not contribute to the spread of flame.	**ACCEPTABLE FOR USE ON HIGH RISE CONSTRUCTION**
A2, This type of panel gets its name from a specific fire test (EN 13501:A2-s1,d0.	A2-s1,d0 Classified as Non-combusitble	This type of panel may be used on high rise buildings. It must be attached to a fire rated wall.	**ACCEPTABLE FOR USE ON HIGH RISE CONSTRUCTION**
Aluminum-Core Composite Panel are classified as A1 or noncombustible.	A1 Non-combusitble		

Figure 1 Fire rating and use of ACP's shade variation of those indicated in "European classification of building products 2016"

**Colours shown in above figure 1,*

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ACP - Aluminum Composite Panel / FR - Fire Rated

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