

Technical Data Sheet



ALUCOPANEL[®] U.S.A FR A2

EN 13501-1 A2-s1, d0 | ASTM D1929 450 degrees, ASTM E84 Class A



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PRODUCT COMPOSITION

Alucopanel USA FR A2 is composed of two sheets of aluminum alloy 3000 Series with 0.50 mm thickness on Top (Coated with high quality PVDF paint comes in various finishes such as Solid Colors & Metallic colors) & bottom (primer coated) that is sandwiched with mineral filled inorganic ingredients as core material, hence Alucopanel USA FR A2 made with this technology have achieved World's highest reaction to fire standard "Class **A2-s1, d0**" when tested in accordance to **European Standard EN 13501-1**, the product is best suitable for High rise buildings and now **A2** classification is mandatory requirement in UAE for any building any height as per **UAE Fire & Life Safety Code 2016**.

Inorganic ingredients of non-combustible core neither catches fire nor permit propagation of flame and restrict the development of smoke. The core material is bonded with high molecular adhesives, it's free of voids, air spaces and does not contain foamed insulation materials.

THICKNESS:

4 mm
6 mm

PANEL WEIGHT:

7.5 to 8.0 Kgs/m²,
10.5 to 11.0 Kgs/m²

ALUCOPANEL® U.S.A FR A2

COMPOSITION

0.5mm TOP ALUMINUM SHEET

Protective Film
PVDF Coating
Primer
Chromate Treatment

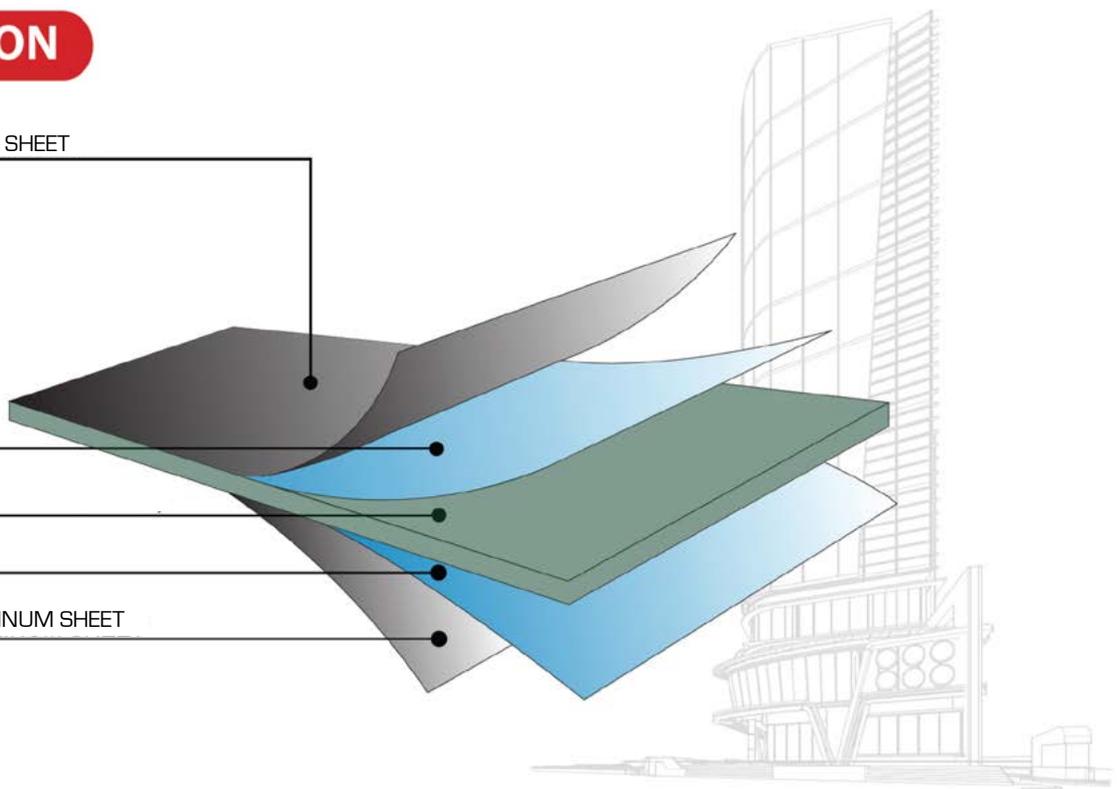
DuPont Adhesive

Mineral filled core (A2)

DuPont Adhesive

0.5mm BOTTOM ALUMINUM SHEET

Chromate Treatment
Primer
Service Coat



STANDARD COMPOSITION

Product	Total Panel Thick (mm)	Component Thickness (mm)			Aluminum Grade	Core Material
		Top Alum Skin	Core FR	Bottom Alum Skin		
ALUCOPANEL USA FR A2	4	PVDF Coated 0.50 mm	3.0 mm	Polyester Coated 0.50 mm	Alloy AA 3000 series	Mineral filled Inorganic Non-Combustible materials

PRODUCT DIMENSION

Alucopanel USA FR A2 is available in various dimensions however standard panel size is 4 mm X 1250 mm X 3200 mm

Other custom sizes can be produced upon request:

Dimension	Unit	Standard	Non Standard
Width	mm	1250	1000 mm / 1500 mm / 1575 mm
Length	mm	3200	≤ 6000
Thickness	mm	4	3, 5 & 6

TOLERANCES

Dimensional / Standard Size (Rounded)

Thickness: ± 0.20 mm
 Width: ± 2.0 mm
 Length: ± 2.0 mm
 Squareness: 5 mm maximum

PHYSICAL PROPERTIES

Name	Unit	Thickness	
		4 mm	6 mm
Density	g/cm ³	1.95	1.75
Weight	kg/m ²	7.80	10.50

COMPARISON WITH OTHER BUILDING MATERIALS

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

COMPARISON OF WEIGHT & RIGIDITY

ALUCOPANEL USA FR A2 Specific Gravity: 1.9			ALUMINUM Specific Gravity: 2.71			STAINLESS STEEL Specific Gravity: 7.89		
	Thick (mm)	Weight (Kg/m ²)	Thick (mm)	Weight (Kg/m ²)	Weight Ratio %	Thick (mm)	Weight (Kg/m ²)	Weight Ratio %
ALUCOPANEL USA FR A2	4 MM	7.80	3.30	8.9	62	2.4	18.9	29
	6 MM	10.50	4.50	12.2	61	3.2	25.2	29

SELF & FLASH IGNITION TEMPERATURE

Alucopanel USA FR A2 is having self & flash ignition temperature of 450°C that is compliant with UAE Fire & Life Safety Code 2016 that mandates for ACP/MCM to have self & flash ignition temperature of minimum 343°C.

VIBRATION DAMPING

Alucopanel USA FR A2 has best vibration damping effect that absorbs mechanical energy arises out of vibration to convert it into thermal energy

BENDING LIMIT

Alucopanel USA FR A2 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	ALUCOPANEL USA FR A2
4 mm	100 mm
6 mm	120 mm

THERMAL CONDUCTIVITY

Compared to solid materials ALUCOPANEL USA FR A2 has a lower thermal conductivity the table below shows the thermal conductivity comparison of different materials.

MATERIAL	Thermal Conductivity(W/(mK))
4 mm ALUCOPANEL USA FR A2	0.45
Solid Aluminum	205
Steel	50.2
Polyurethane	0.02
Glass Wool	0.04
Brick	0.28
Concrete	0.80
Gypsum Board	0.13
Air at 0°C	0.024

COATING FINISHES

Aluminum Coil Alloy (3000 Series) coated with KYNAR® 500 based Polyvinylidene Fluoride (PVDF utilizing with minimum 70% resin).

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

Color:

Generally we are manufacturing Alucopanel USA FR A2 with various options of 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 STRENGTH

Alucopanel USA FR A2 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 deformation of the panel is calculated by 0.2% yield stress divided by the safety 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 stiffeners. The other factors affecting the strength of the panel are:

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

We are using the Aluminum Alloy 3000 series for Alucopanel USA FR A2, Aluminum skins 2% proof stress is 152 MPa and suitable where the wind speed is 50m/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 times larger than hole diameter. And to prevent the galvanic corrosion 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 corrosion.

STRENGTH OF SUBSTRUCTURE

The sub structure where we are installing the panels should 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 the 0.5% of supporting intervals.

PRODUCT WARRANTY

Alucopanel USA FR A2 Aluminum Composite Panels manufactured by Alucopanel Middle East LLC 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 in the name of Client and will be endorsed by the regional agents or the company itself.