

TECHNICAL SPECIFICATION

ALUMINUM COMPOSITE PANEL- FR & A2 is composed of a mineral mixed core laminated to aluminium skins on both sides top and bottom.

PRODUCT COMPOSITION:

PRODUCT	ALUMINUM SKIN THICKNESS	CORE
ACP - FR	Top & Bottom – 0.5mm	>70% mineral content
ACP - A2	Top & Bottom – 0.5mm	>90% mineral content

STANDARD SIZES, WEIGHT & TOLERANCES:

DESCRIPTION	UNIT	Dimensions	TOLERANCE
Standard Panel thickness	mm	3,4&6	± 0.2 & ± 0.3mm
Standard Panel Width	mm	1000 (FR only), 1250 & 1500	± 2mm
Standard Panel Length	mm	Any < 6000	± 4mm
Standard Panel Weight - FR	kg/m ²	4mm= ≥ 7.6 , 6mm= ≥ 10.98kg	± 0.2mm
Standard Panel Weight – A2	kg/m ²	4mm= ≥ 8.4 , 6mm= ≥ 11.80kgs	± 0.2mm
Standard Panel Bow	%	In Width or Length	Maximum 0.5%
Square-ness	mm	Diagonal differences	Maximum 5.0 mm

The surface shall be free of any defects or irregularities such as roughness, buckling and other imperfections in accordance with our internal visual inspection standards.

MECHANICAL PROPERTIES OF ALUMINUM (3000 series):

TEST	STANDARD	UNIT	FIRE RETARDANT	NON- COMBUSTIBLE
			4MM (B s1-d0)	4MM (A2 s1-d0)
Tensile strength	ASTM E8	MPa or N/mm ²	175-185	175-185
0.2% Proof stress	ASTM E8	MPa or N/mm ²	152	152
Flexural elasticity	ASTM E8	GPa or kN/mm ²	70	70

TECHNICAL PROPERTIES:

TEST	STANDARD	UNIT	FIRE RETARDANT	NON- COMBUSTIBLE
			4MM (B s1-d0)	4MM (A2 s1-d0)
T-bend test	ASTM D4145	2T	No Cracking	No Cracking
Tensile strength	ASTM E8	MPa or N/mm ²	49	44
0.2% Proof stress	ASTM E8	MPa or N/mm ²	44	41
Elongation	ASTM E8	%	5	4
Elasticity	ASTM C393	Gpa or kN/mm ²	39	38
Rigidity	ASTM C393	kNmm ² /mm	137	135

Peel Strength	ASTM D 1781	N/mm	9	9
Adhesive film bonding strength	N/A	N/A	GRADE 1	GRADE 1

THERMAL PROPERTIES:

TEST	STANDARD	UNIT	FIRE RETARDANT	NON-COMBUSTIBLE
			4MM (B s1-d0)	4MM (A2 s1-d0)
Heat deflection Temperature		°C	≥100	≥100
Thermal expansion	ASTM D 696	at100°C	23.1 x 10 ⁻⁶	19 x 10 ⁻⁶
Thermal conductivity	ASTM C 518	W/m.k	0.45	0.45
Temperature resistance	ASTM D 2485	°C	-20 to +80	-20 to +80

The top surface of the ACP is protected by easy peel-off protective film and can last for 6 months without leaving any marks on the surface, if stored in a shaded and dry space. It is recommended to remove the protective film within 45 days after installation.

SURFACE FINISH PROPERTIES:

COATING LAYERS	PAINT TYPE	COLOR	STANDARD COATING THICKNESS
Primer	PU/PE/ACRYLIC	White/yellow	6μ±1μ
Top coat	HDPE/UDPE/PVDF	As per requirement	20μ±2μ
Clear coat	N/A	As per requirement	15μ±2μ
Anodic	Anodized	As per requirement	depends on specs

The top aluminium skin of ACP has been coated by coating facility known as Bravo-coating while the bottom coil is treated with a service coat before bonding with mineral core.

The topcoat system has good adhesion, UV resistant, other weathering properties and the back-side service coating protect the panels from any possible corrosion.

COATING PERFORMANCE:

TEST	STANDARD	UNIT	FIRE RETARDANT	NON-COMBUSTIBLE
			4MM (B s1-d0)	4MM (A2 s1-d0)
Gloss	ASTM D 523	%	15 to 80*	15 to 80*
Color retention	ASTM D 2244	4000 hours	Max. 5 units	Max. 5 units
Chalk resistance	ASTM D 4214	4000 hours	Max. 8 units	Max. 8 units
Pencil Hardness	ASTM D3363	H	3 H	3 H
Abrasion resistance	ASTM D968	L/μm	5	5
Humidity resistance	ASTM D2247	3000 hours	No Change	No Change
Acid resistance	ASTM D1308	H ₂ SO ₄ , HCL	No Change	No Change
Solvent resistance	>100 MEK double rubs	No Change	No Change	No Change

Boiling resistance	2 hours	@100°C	No Change	No Change
Salt spray resistance	ASTM D B117-90	3000 hrs	No Change	No Change
Impact resistance	ASTM D2794	No Cracks	No Cracking	No Cracking

The ACP also has good fire resistance properties and can be used for interior and exterior applications. Our ACP is tested and certified by 3rd party certification body. Our ACP Sheets specifications meets all the requirements of fire and safety codes in many countries.

FIRE PROPERTIES:

TESTS STANDARDS	CRITERIA	FIRE RETARDANT 4mm (over 70% Mineral content)	NON-COMBUSTIBLE 4mm (over 90% Mineral content)
ASTM E 84	Flame spread index \leq 25 CLASS "A"	✓	✓
	Smoke develop index \leq 450 CLASS "A"		
EN 13501-1 (Core & ACP)	Fire Reaction Classification	B, s1 - d0	A2, s1 - d0
		✓	✓
ASTM D 1929	Ignition \geq 330°C "PASSED"	✓	✓
NFPA 285	Meet the passing criteria "PASSED"	✓	✓

ASTM E 84: – Standard Test Method for Surface Burning Characteristics of Building Materials.

Test Result: Passed – **Class "A"**

EN 13501-1: – Fire classification of construction products and building elements. Classification using test data from reaction to fire tests.

Test Result: Classified as **B, s1-d0 & A2, s1-d0**

ASTM D1929: – Self ignition test

Test Result: Passed – **440 °C**

NFPA 285: – Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load- Bearing Wall Assemblies Containing Combustible Components.

Test Result: The result of the fire performance evaluation conducted on the wall assembly described herein indicate that the test assembly has met the acceptance criteria stated in the standard.

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