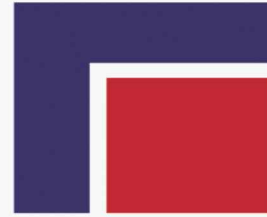


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WORKS ADDRESS: Plot no: 61 (D.M. 532-125), Block: Saih Shuaib 3 (532) Dubai Industrial Park, PO box: 18984 Dubai- United Arab Emirates.

AESTHETIC METAL INSULATION
PANEL MANUFACTURING LLC DUBAI



MANUFACTURED BY AESTHETIC METAL IN DUBAI/UAE

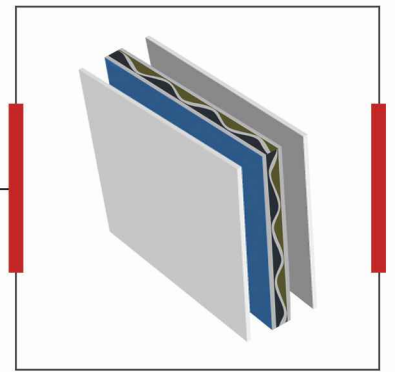
For sales and inquiry

+971 4 329 8900
info@alstronguae.com
www.alstronguae.com

Standards & Certificates:



DESIGNED BY



**Armour
Fire Resistant
Metal Composite
Panels (MCP)**

**FIRE
RESISTANT**
— A2 Grade —

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always looks new
A2



ARMOUR
Series

ALSTRONG™
always looks new



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METAL INSULATION
PANEL MANUFACTURING
LLC DUBAI

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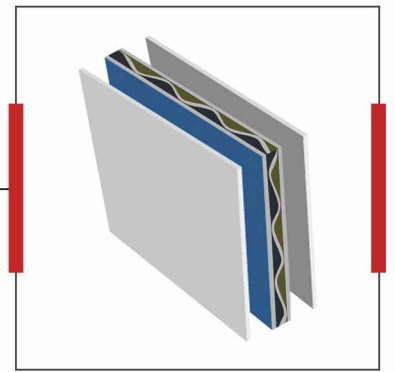
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FIRE
RESISTANT
A2 Grade



Armour
Fire Resistant
Metal Composite
Panels (MCP)



ALSTRONG™
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A2



ARMOUR
Series

ABOUT US

Established in the year 2001, Alstrong was the first company to manufacture Aluminum Composite Panels (ACP) in India. The company is ISO 9001: 2015 certified and the product is accredited as a green product by State Pollution Control Board of Jammu & Kashmir. Over 16 years, it has made its mark as a forerunner in the industry and has retained its position as a leading player in the market with impeccable ACP product, quality and immense customer satisfaction.

Alstrong has a state-of-the-art manufacturing plant located in Jammu, equipped with latest technology, 5 manufacturing lines, a coil coating plant and an advance instrumental laboratory for continuous quality monitoring of raw materials and the finished ACP. The control processes of the plant are highly visible and integrated through SAP. As a result, the ACP that is produced fulfills the international quality standards, is highly durable and is naturally a preferred choice of leading architects, corporates, PMCs, interior designers, builders, contractors, fabricators and others. Alstrong team is also engaged in pro-active research and development initiatives to ensure that each product is continuously evolved to meet the emergent needs of its customers.

Alstrong has established its new plant with two new manufacturing lines for Class A2, ACP (Aluminum Composite Panels) and MCP (Metal Composite Panels) in Dubai, UAE to cater Middle eastern, AFRICAN and EUROPEAN market. The total installed capacity of Dubai plant is 3 million square meter per annum.

Alstrong has created new benchmarks by introducing mineral core FR-ACP (Fire Resistant ACP), and unlimited shade options through its modern coil coating facility. Alstrong now has the largest ACP production capacity of over 8 million square meter per year. Alstrong is a part of the prestigious Worlds Window Group, an assemblage of progressive companies engaged in diverse businesses. The portfolio of business activities includes manufacturing, infrastructure, logistics, trading and freight forwarding. The operations of various companies of WWG are spread across the globe through its offices in India and 22 other countries. The group employs 2500 employees across the world and has a turnover of approximately USD 1 Billion.





Sound fundamentals, outstanding quality, anticipating the curve of demand and staying one step ahead of expectations is what drives us on a daily basis at Alstrong.

We use **leading-edge manufacturing technologies** to create products that are at par with the best in the world. Our specially designed, state-of-the-art FR grade ACPs/MCPs are built to resist fire. Another example of our commitment to innovative products that address specific requirements.

Our strong emphasis on R & D and intrinsic quality control at every step ensure innovative products that are engineered to uphold our motto of ***always looks new.***

Underscoring this perpetually strong saga of product quality, choice and performance are our state-of-the-art manufacturing plants and a laboratory equipped with modern analytical machines like DSC, AAS, FTIR that keep an eagle eye on uncompromising quality standards. Best practices are a norm at our ISO 9001: 2015 & Indian Green Building Council certified plant. Seamless production efficiency and delivery timelines are ensured through our integrated SAP system.

Alstrong can turnaround any order with **custom created panel** within 10 days of brief, radically shortening a process that takes others anywhere from 3-4 months. Once approved, we can start production immediately for the quantity that's required for the project. The design remains available for any future projects, in the specification and quantity that may be needed.

Coil Coating Integration. Having our own coil coating unit helps us control every aspect of the production process; and to respond to the needs of architects, builders & designers much faster.



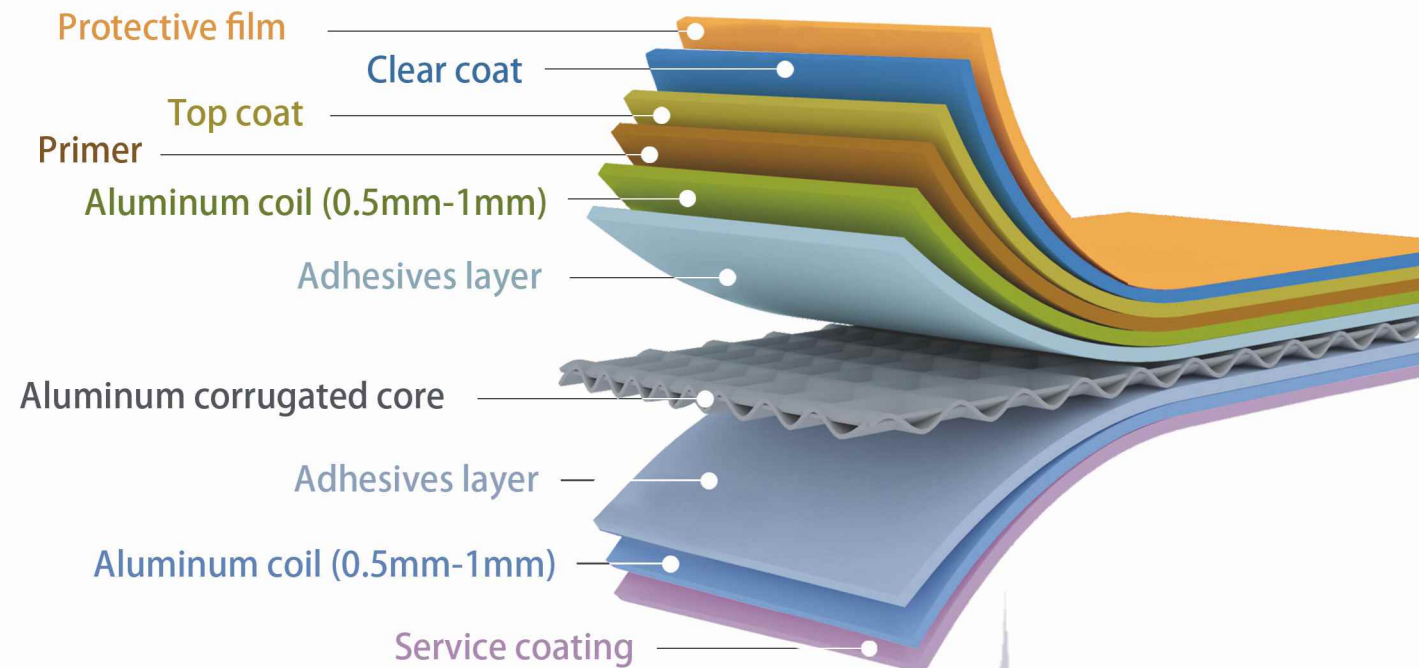
ARMOUR CONSTRUCTION

Alstrong Armour is not only strong but also aesthetically pleasing

Alstrong Armour was designed to address the fire safety requirements of architectural projects while still giving an ultra modern look to the buildings. Available in a wide range of colors, textures and patterns, Alstrong's Armour adds a touch of elegance to every installed surface. **Armour MCP sheets can be customized for your design and color requirements.** What's more, new shade development and old shade matching facility is also available.

Befriending a Greener Planet

Armour MCP is composed of corrugated metal core sandwiched between aluminum sheets. This helps in conserving valuable resources of the nature and makes Alstrong Armour MCP an environment friendly product. The testimony to the nature friendly Alstrong Armour lies in its acceptability for all green building projects. Alstrong Armour is eco-friendly and fully recyclable.



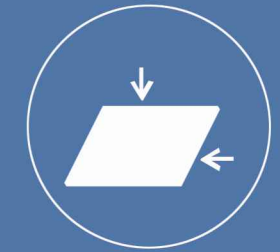
SPECIFICATIONS



Easy
installation



Eco-friendly
MCP



Good flatness
& smoothness



Excellent
sound proofing



Fire resistant
A2 grade



Lightweight
40% lighter than traditional
mineral core panel

APPLICATIONS

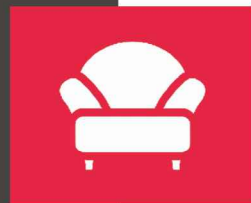
- Curtain walls
- Interior wall, ceiling, partition
- Bulkheads of carriage, shipping, railways and aerobats
- Interior application
- Billboard, sign panels
- External walls

ARMOUR FEATURES



AESTHETIC

- Excellent flatness
- Scratch resistant
- Uniform color
- Stain resistant
- Water proof



COMFORT

- Lightweight & rigid
- Highly adaptable
- Washable
- Customized color
- Sound resistant



SAFETY

- Fire resistant
- High impact
- BFT guard
- Environment friendly



ECONOMICAL

- Reduce labour cost
- Low maintenance
- Long durability
- Easy installation

ADDITIONAL FEATURES



TOUGH COHESIVE BOND

- 180° peeling resistance
- 2-3 times more than aluminum honeycomb panel's



SOUND INSULATION

- Sound Transmission Loss STL is 25dB
- STL more than solid Aluminum sheet



CONVENIENT INSTALLATION

- Safe installation method



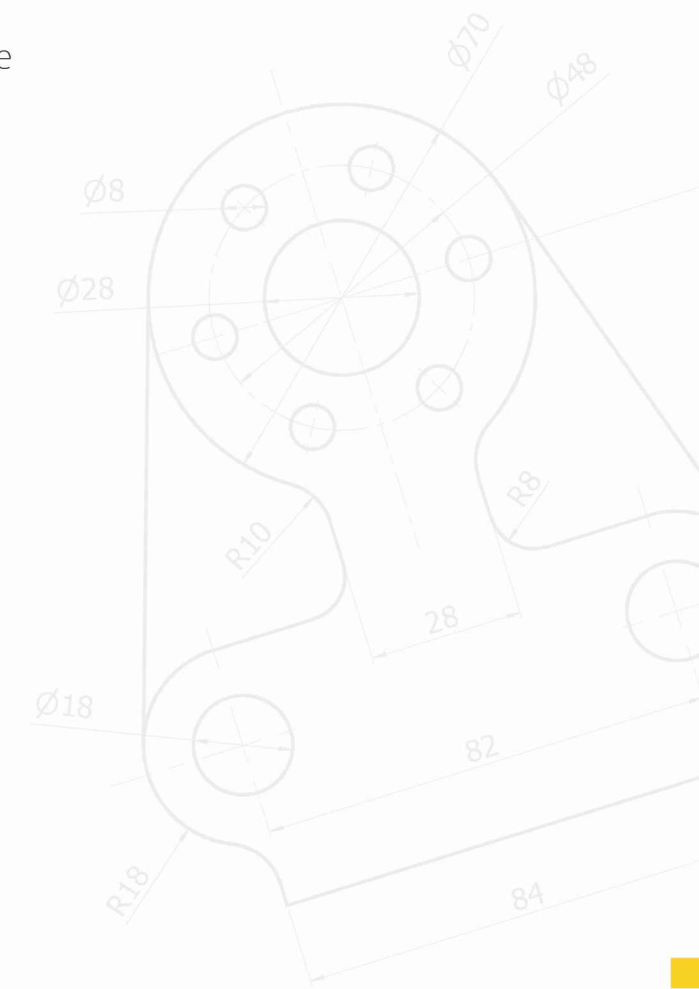
FIRE RESISTANT PROPERTY

- Fire resistant property is classified "A2 grade"



EASY HANDLING

- 40% lighter than comparable fire rated panels.
- Easy to transport & install.





FIRE RESISTANT

Fire Behaviour - A2

FIRE TEST TO BUILDING MATERIAL - CLASSIFICATION

Building materials fire behaviour has been classified into the following categories in accordance with the global standard.

BUILDING CLASS MATERIAL

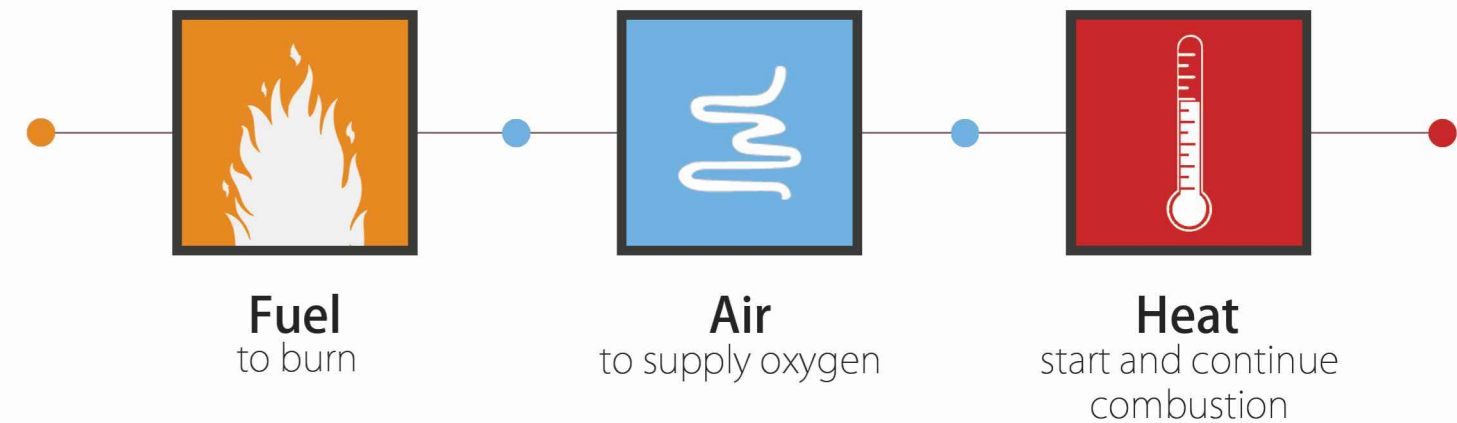
DESIGNATION

CLASS A	A1	NON-COMBUSTIBLE MATERIAL
	A2	
CLASS B	B1	NOT EASILY FLAMMABLE
	B2	FLAMMABLE
	B3	EASILY FLAMMABLE

Alstrong Armour - Rated A2

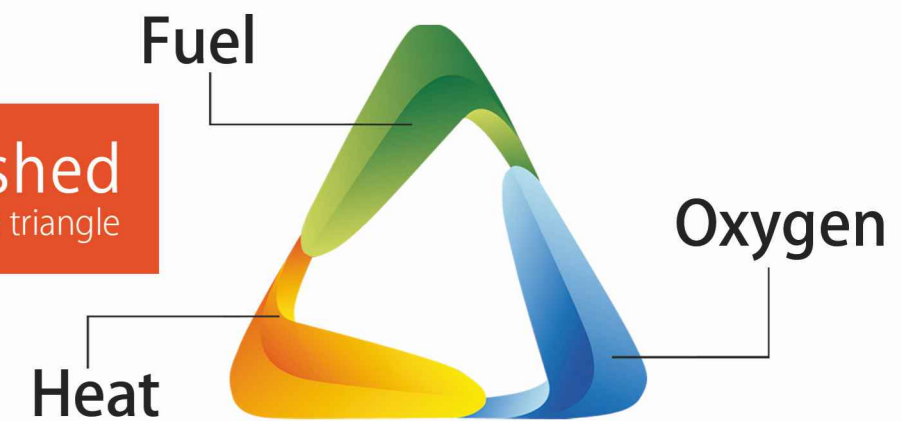
3 Elements are required

in proper combination before Ignition & combustion can take place:



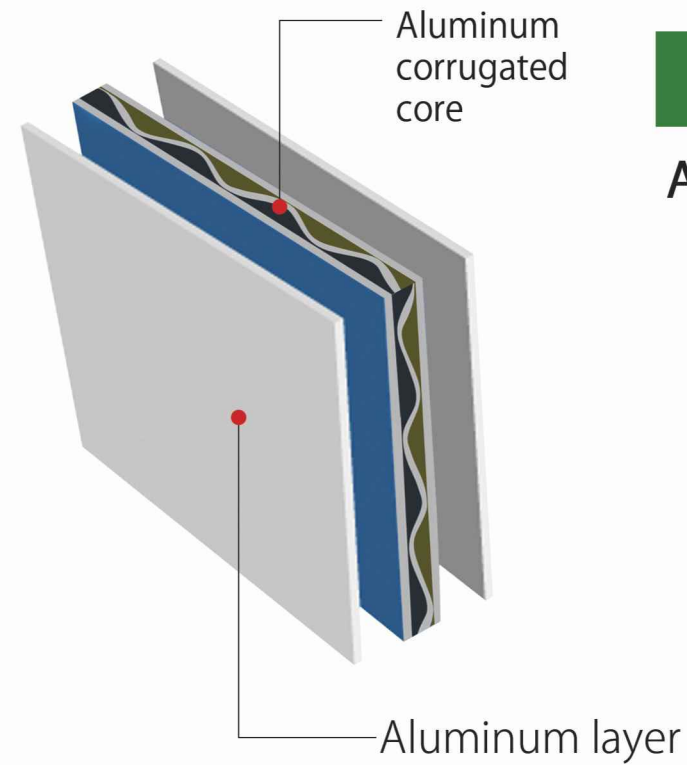
During a fire, precious lives are lost by **breathing in poisonous smoke** rather than from fire.

Fire can be extinguished
by removing any one element of the fire triangle



We are removing the fuel by having only metal core and no burnable plastic core. **Thus, breaking the fire triangle.**

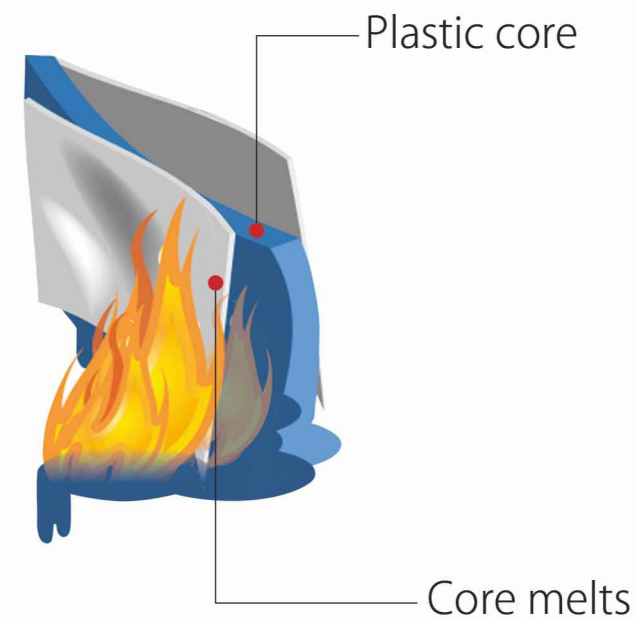
ARMOUR DOESN'T CATCH FIRE



ARMOUR MCP PANELS

ALUMINUM ARMOUR MCP PANELS DOESN'T CATCH FIRE

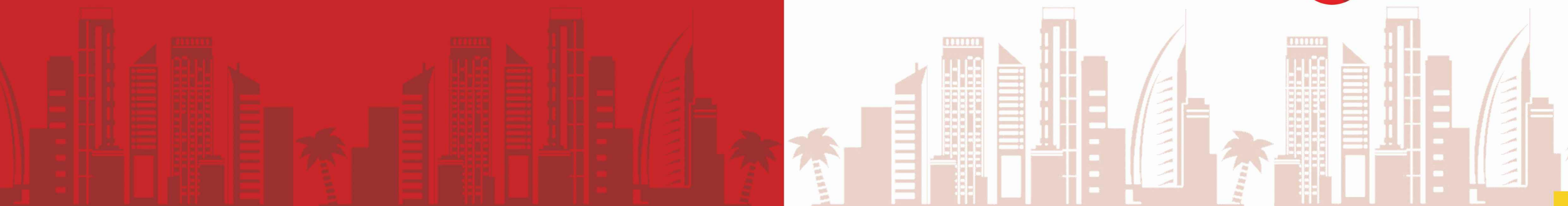
Alstrong ARMOUR MCP panels are made with aluminum outer layer & corrugated aluminum internal layers which doesn't burn due to no presence of fuels.



ORDINARY CLADDING MATERIAL

WOOD, HPL, WPC PANELS CATCH FIRE

Wood, HPL, WPC panels are made with aluminum outer layers and inner core layer with plastic, which burns easily.



ASPECTS OF ARMOUR

PANEL DIMENSIONS

Standard Sizes
1250 mm x 2400 mm
1250 mm x 3200 mm
1250 mm x 4000 mm

Panel Thickness 4 mm, 5 mm & 6 mm

Skin Thickness 0.50 mm to 1 mm

PRODUCT TOLERANCE

Width	Length	Thickness	Skin
± 0.2 mm	± 0.2 mm	± 0.2 mm	± 0.02 mm

PANEL OPTIONS

Length Up to 6000 mm
(On order)

Width Up to 1550 mm
(On order)

Custom colors & grades can be produced
on demand.

FABRICATION METHODS



Cutting



Drilling



Folding



Slitting



Routing



*Rolling

*Rolling radius 1000 mm

(A) Physical properties of **ALSTRONG ARMOUR MCP** panel:

SR. NO.	TEST PARAMETERS	TEST METHODS	UNITS	RESULTS
1	Panel coating thickness	ASTM D 7091	μm	25 - 27 (Two Coat)
2	Panel thickness	Visual	mm	4.00
3	Panel weight	Visual	Kg/m ²	4.1
4	Panel density	ASTM D-1505	g/cm ³	1.0
5	Tensile strength	ASTM E 8	MPa	50.6
6	0.2% proof stress.	ASTM E 8	MPa	45.0
7	% elongation	ASTM E 8	%	9.2
8	Peel strength top side	ASTM D 903	N/mm	8.5
9	Peel strength back side	ASTM D 903	N/mm	6.8
10	Flexure strength	ASTM D 790	MPa	65.5
11	Flexural modulus	ASTM D 790	Mpa	14115
12	Punch shear test	ASTM D 732	N/mm ²	20.5

(B) Physical properties of **ALUMINUM SKIN:**

SR. NO.	TEST PARAMETERS	TEST METHODS	UNITS	RESULTS
1	Skin thickness Top coil thickness Bottom coil thickness	Visual	mm	0.50 0.50
2	Tensile strength Top coil thickness Bottom coil thickness	ASTM E 8	MPa	176.5 175.0
3	Elongation Top coil thickness Bottom coil thickness	ASTM E 8	%	7.65 6.98
4	0.2% proof stress Top coil thickness Bottom coil thickness	ASTM E 8	MPa	170.0 165.5

*Bending of Armour minimum radius require 1000 mm
*All test result are for 0.5 mm coil thickness

(C) Paint finish and test properties:

SR. NO.	TEST PARAMETERS	TEST METHODS	UNITS	RESULTS
1	Lacquering (PVDF)	Chemicals	--	KYNAR 500 PVDF, passes
2	Taber abrasion test CS-17 wheels, 1 kg load, 1000 cycles	ASTM D 4060	mg	23.0
3	Adhesion (cross hatch) dry wet (50° C, 20 min)	ASTM D 3359	B	5B
4	Adhesion (cross hatch)	ASTM D 3359	B	5B
5	Hardness - pencil	ASTM D 3363	B/H	H
6	Water absorption test	ASTM D 570	%	0.6
7	Gloss at 60°	ASTM D 523		35
8	Impact test (front & reverse)	ASTM D 2794	Joules	22J, Passes
9	Bending strength	ASTM D 522		Passes

(D) Acoustical properties

SR. NO.	TEST PARAMETERS	TEST METHODS	UNITS	RESULTS
1	Sound absorption factor	ISO 354		0.05
2	Sound transmission loss	ASTM E90	dB	25

(E) Thermal properties

SR. NO.	TEST PARAMETERS	TEST METHODS	UNITS	RESULTS
1	Thermal resistance	ASTM C 1363	m ² K/W	0.24
2	Linear thermal expansion	ASTM d 696	mm/M/ 100° C	2.4
3	Temperature resistance		°C	(-) 50° C to 80° C

(F) Fire properties

SR. NO.	TEST PARAMETERS	TEST METHODS	UNITS	RESULTS
1	Reaction to fire	EN 13501 -1		A2- s1, d0

*All test result are for 0.5 mm coil thickness



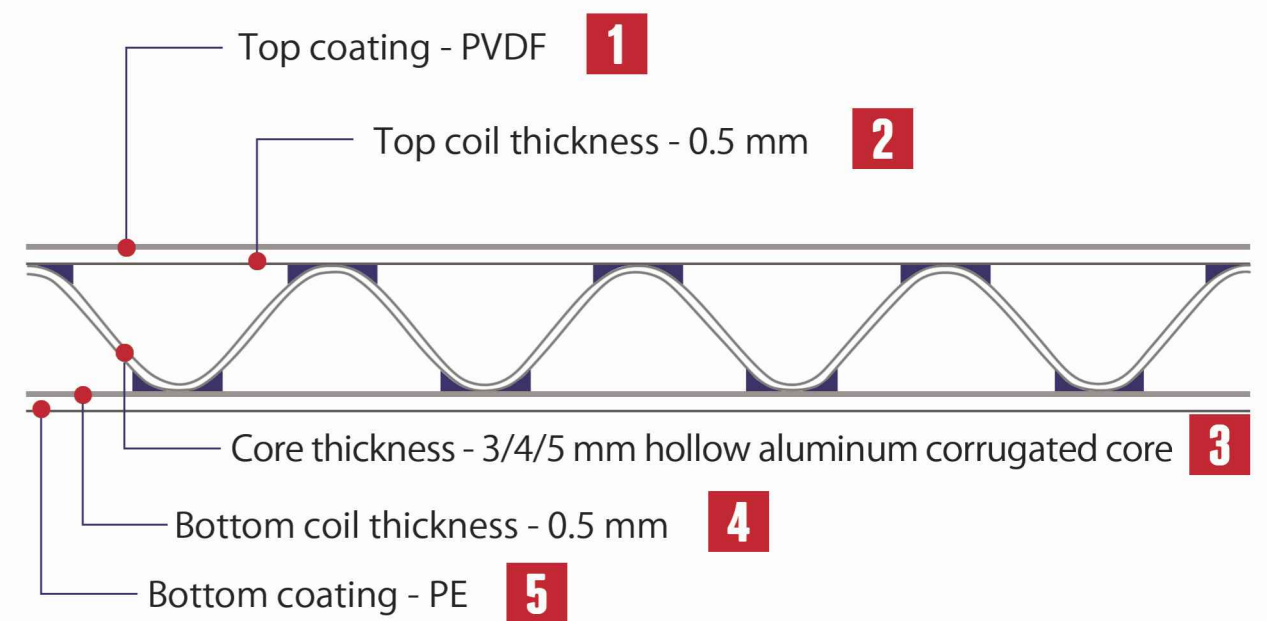
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ARMOUR MCP PANELS



MCP PANELS | COMPOSITION



ARMOUR FIRE TESTING REPORT



PRELIMINARY TEST RESULTS: SF046-3

Test Date: 14th October, 2018

The results of the fire performance evaluation conducted on the wall assembly indicate that the assembly **met** the acceptance criteria stated in the NFPA 285 standard.

Please see below Fire Propagation Analysis Table.

Test Performance Evaluation Summary Table		
Test Requirement	Test Observation	Pass/Fail
Flames emitting from the surface of the exterior face of the test specimen shall not reach a height of 10 ft. or greater above the top of the window opening.	Flames did not reach 10 feet above the window opening.	Pass
Flames emitting from the surface of the exterior face of the test specimen shall not reach a horizontal distance of 5 ft. or greater from the vertical centerline of the window opening.	Flames did not reach a lateral distance of 5 feet from the vertical centerline.	Pass
Flames shall not occur in the second-story test room.	There was No visible flaming in the second story test room.	Pass
Temperatures shall not exceed 1000°F as measured by thermocouples Tc-11 and Tc-14 through Tc-17.	Tc-11 and Tc-14 through Tc-17 did not exceed the 1000°F limit.	Pass
Temperatures in the wall cavity air space shall not exceed 1000°F as measured by thermocouples Tc-18 and Tc-19.	Tc18 and Tc-19 did not exceed the 1000°F limit.	Pass
Temperatures in the wall cavity air space shall not exceed 1000°F as measured by thermocouples Tc-28 and Tc-31 through Tc-40.	Tc-28 and Tc-31 through Tc-40 did not exceed the 1000°F limit.	Pass
Temperatures measured 1 in. (25mm) from the interior surface of the test specimen within the second story test room shall not exceed 500 °F above ambient air temperature of test facility at the start of fire test as measured by Tc-49 through Tc-54.	Tc-49 through Tc-54 did not exceed 500°F limit above the ambient temperature.	Pass

Note: The intent of this summary is to provide identification information for a specimen which has been tested and for which a report of testing will be issued. Full details of the test and the test construction will be found in our report (Test Ref.: SF046-3), in course of preparation. Once that report is issued, the relevance of this document will cease to apply. This summary does not on its own satisfy the requirements of the fire testing standard.

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- ALGERIA
- TUNISIA
- EGYPT
- YEMEN

MENA REGION

Middle East is One of the fastest growing ACP markets in the world.



INDIA



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