AludecoR

FireWall A2

Fireproof ACPs*

#BeatTheFire

*Aludecor Firewall A2 has fireproof properties close to metals.

The kindle

Fire touched our lives a million years ago and has shaped the way mankind evolved. Through the journey of evolution, it has also posed as the reason of many a disaster. In a way, it has the power to sustain life, and also to take it.

Burning issue

With the tides of time and the waves of development, mankind's aspirations grew tall and buildings grew taller. And to safeguard the rise from the clutches of fire, fire-retardant ACPs play a huge part.

It's time to #BeatTheFire

Welcome a new dawn of fire safety with India's 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.

Why choose A2 ?

It can effectively protect high-rises beyond 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.

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

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

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

Negligible heat released

Zero smoke released

Zero spread of flames

Zero flaming droplets

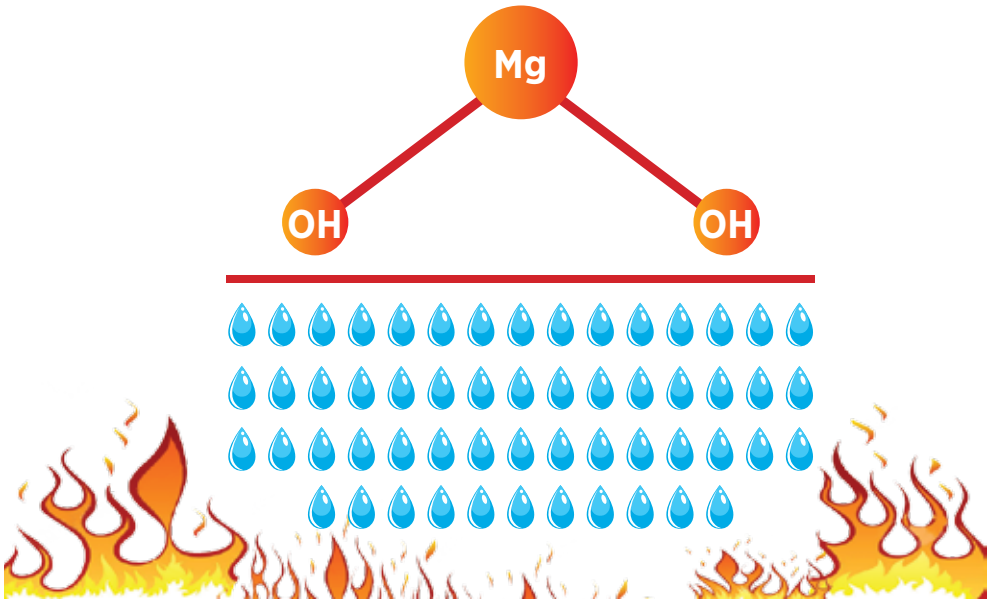
In-house quality checks

The core secret

FireWall A2 is 90% halogen-free, inorganic 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 Aludecor's 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.



Heated MDH releases water molecules that lower the temparature

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

Product certifications and reports

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

Aludecor is the first company of Indian origin to have received the factory production certificate (FPC) for class A2 from Exova Warringtonfire (UK), the premier testing institute in the world.

FPC vs 1a

An FPC which underscores the validity of the production process followed in a factory is considered much more important and relevant compared to a simple test report received from testing organisations. The issue of an FPC involves thorough checking and testing at the factory concerned. In FPC both the product and the process employed to manufacture it are tested by agencies like Exova which have fire-testing labs.

The 1a certification for an Indian plant implies that a company is using the same category of machinery, not necessarily the same machinery, capable of producing a similar product. The product itself is not tested.

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.

Tested at **Exova Warringtonfire, UK**

The all-important baby step

Aludecor is equipped with Baby Line, a miniature version of an ACP Lamination Line, for trial production of the Aludecor mineral core.

The mineral core produced in this Baby Line is subjected to rigorous tests, and only on clearing them, is the particular batch sent for final production.

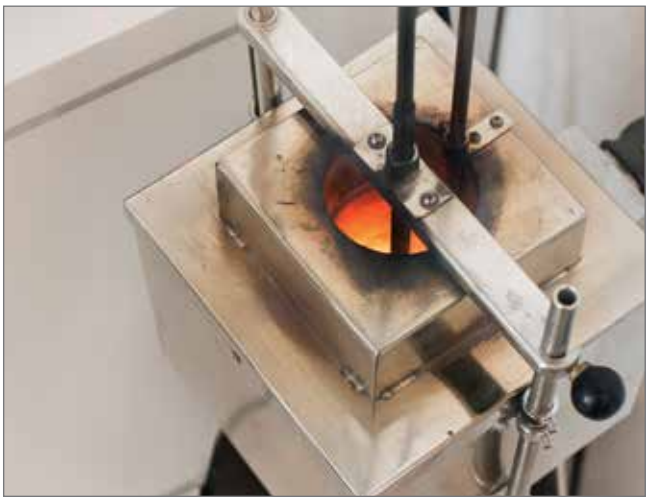
Quality check at the in-house FR Lab

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.

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.

BOMB calorimeter

Checks reaction to fire tests for products through determination of the gross heat of combustion (calorific value) in accordance with EN 13501-1 and In compliance with ISO 1716:2010

Drum Peel Test

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

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 Singapore 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 EN13501-1 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 EN13501-1. 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.

Product specifications

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
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^{o})	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	$37.8^{o}C$, 24 hrs		No Pick Up
	iii Boiling Water	$100^{o}C$, 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 ($38^{o}C$ 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

Explore Aludecor Systems

Aludecor Male Female Rainscreen System

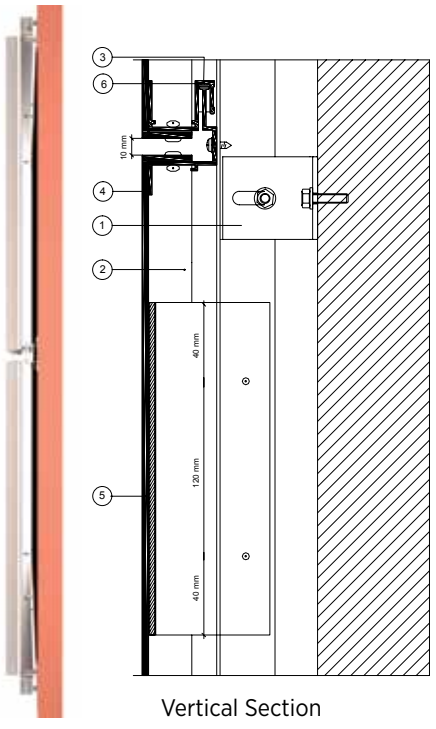
What is the system?

The Aludecor Male Female Rainscreen System (MFR) for assembling the composite panels on ventilated facades comprises Male and Female 6063-T6 aluminium alloy profiles. The system has two profiles over which the shaped trays are fixed.

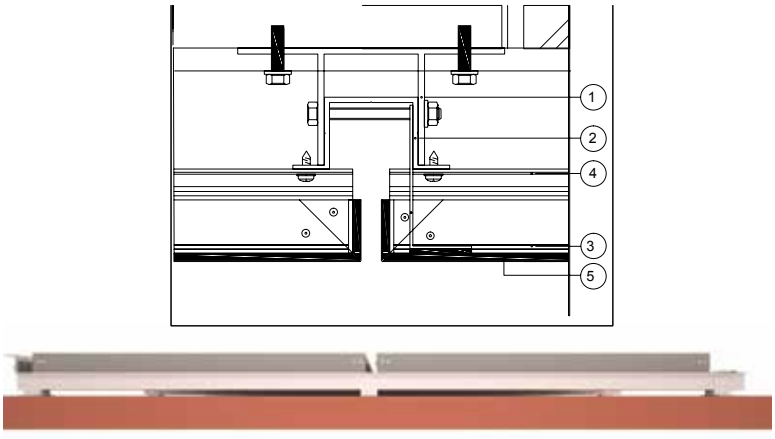
It is a concealed fixing system that is versatile and can be assembled quickly. Furthermore it has been studied especially in order to develop ventilated facades for Aludecor's composite panels with horizontal adjustment. The substructure is made entirely of 6063 T6 aluminium profiles. It comprises fixings in a double T-shape with different lengths in order to absorb all irregularities of the facade. In order to avoid vibrations in the Aludecor panels, the male/female profiles have the neoprene protection gasket.

The spacer is fixed to the vertical parameter using special mechanical wedges that are recommended in each case by the fixing suppliers. These double T spacers receive the omega shaped vertical mullions.

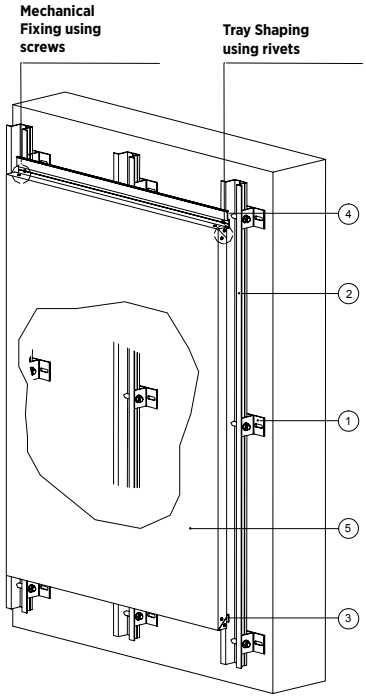
The trays are fixed to the vertical mullions using extruded profiles made from aluminium alloy 6063 T6.



Vertical Section



Horizontal Section



SL	DESIGNATION
1	Double T profile bracket - ALPL/P/210
2	Aluminium Profile - ALPL/P/211
3	Aluminium Profile - ALPL/P/311
4	Aluminium Profile - ALPL/P/312
5	Tray made from Aludecor Aluminium Composite Panel
6	Neoprene gasket every 500 mm max

Aludecor Hanging Rainscreen System

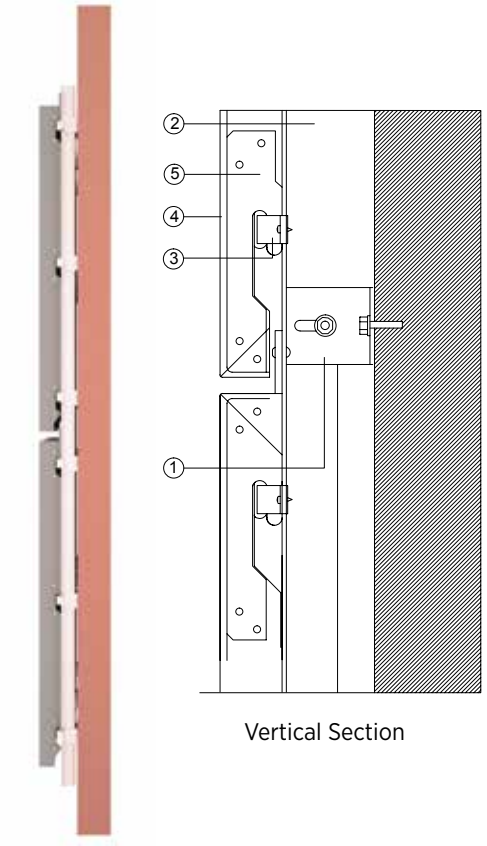
What is HR?

The Aludecor Hanging Rainscreen System (HR) is a concealed fixing mechanism that is versatile and can be assembled quickly. The tray modules here can be both horizontal and vertical. Aludecor HR complies with all of the requirements to carry out the most revolutionary claddings.

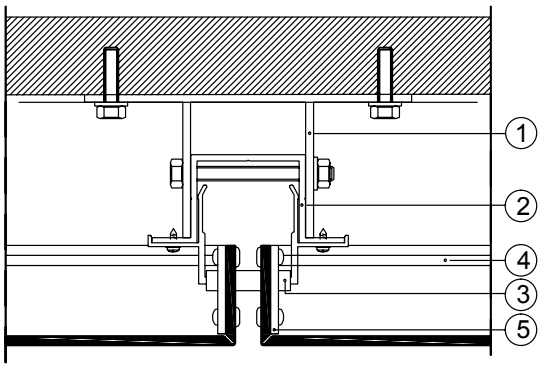
All of the sub-structure is made with an aluminium 6063 T6 profile and formed by double T fixings which have different lengths in order to absorb any irregularities in the facade.

Principle behind HR

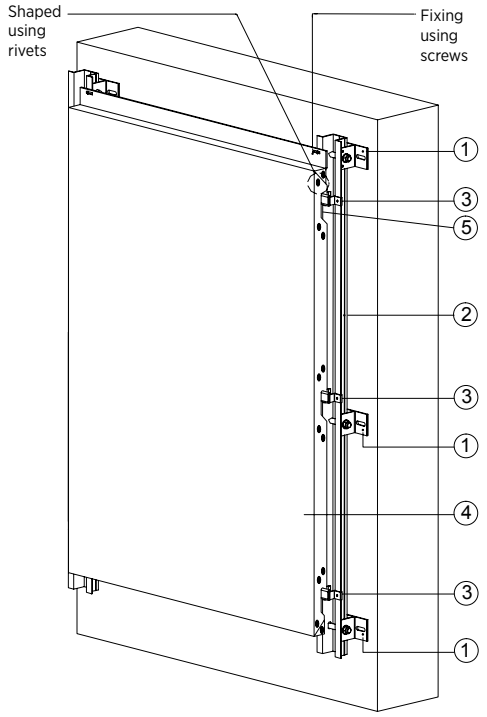
The Aludecor-HR System is based on the back-ventilated facade mechanism.



Vertical Section



Horizontal Section



SL	DESIGNATION
1	Double T profile bracket - ALPL/P/210
2	Aluminium Profile - ALPL/P/211
3	Aluminium Profile - ALPL/P/212
4	Tray made from Aludecor Aluminium Composite Panel
5	Concealed groove reinforcement ALPL/P/214

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AludecoR
Aluminium Composite Panel

Head Office
Kolkata
Suite 52 Floor 5 1 RN Mukherjee Road Kolkata 700001 West Bengal
P +91 33 4027 6600 | F +91 33 2248 8763

Zonal Offices
Kolkata
Suite 517 Floor 5 1 RN Mukherjee Road Kolkata 700001 West Bengal
P +91 33 4027 6600 | F +91 33 2248 8763

New Delhi
Building 41 Floor 3 MM Road Rani Jhansi Road New Delhi 110055
P +91 11 4553 7777 | F +91 11 4553 7799

Mumbai
402 Cello Triumph IB Patel Road Opposite Laghu Udyog
Goregaon (E) Mumbai 400063
P +91 22 2686 6633 | F +91 22 2686 0521

Chennai
150/117 Montieth Road Room 1 Floor 4 Cisons Complex
Next to Alsa Mall Egmore Chennai 600008
P +91 44 4214 8831 | F +91 44 4214 6226

Bengaluru
872 Floor 2 28A Main Road South End Main Road Block 9
Jayanagar Bengaluru 560069
P +91 96632 82211

Nagpur
Plot C 16/17 MIDC Industrial Area Nagpur 440028
P +91 91680 69225

Branch Offices
Ahmedabad
C/510 Floor 5 Dev Aurum Opposite Commerce House
Anandnagar Road Prahlad Nagar Ahmedabad Gujarat 380015
P +91 79 4002 7100 | 4002 7101

Kochi
XV/332A New No XVIII/6 Behind BPCL Petrol Pump Pukkattupady Road Vadacode PO
Mundampalam Kangarapady Ernakulam 682021
P +91 8589 988112

Pune
107 First Floor Gulmohar Centre Point
Opposite Viman Nagar Entrance Off Nagar Road Pune 411014
P +91 20 2553 5220

Hyderabad
SY 12 MBN Reddy Estate Malla Reddy Garden
Plassey Lane Bowenpally Secunderabad Hyderabad
Telangana 500009 | P +91 40 4202 4883

Lucknow
4/91 Vineet Khand Flat 202 Gomti Nagar Lucknow (UP) 226010
P +91 93681 92276 | 78978 87779

Bhubaneswar
Plot 251 Rasulgarh Near Petrol Pump Bhubaneswar 751010
P +91 90620 99039

Works
Haridwar
(Unit 1) Plot 95 | 96 | 97 Sector V IIE Sidcul Ranipur BHEL
Haridwar Uttarakhand 249403
P +91 1334 239 343 | F +91 1334 239 342

(Unit 2) Plot 31A Sector 11 IIE Sidcul Ranipur BHEL
Haridwar Uttarakhand 249403

Toll Free 1800 102 0407 | crm@aludecor.com | enquiry@aludecor.com | aludecor.com
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