FIRE
RETARDANT
STAINRESISTANT
SCRATCH
RESISTANT
WATER PROOF
UNIFORM COLOR
PET GUARD
HIGH IMPACT

ADDRESS

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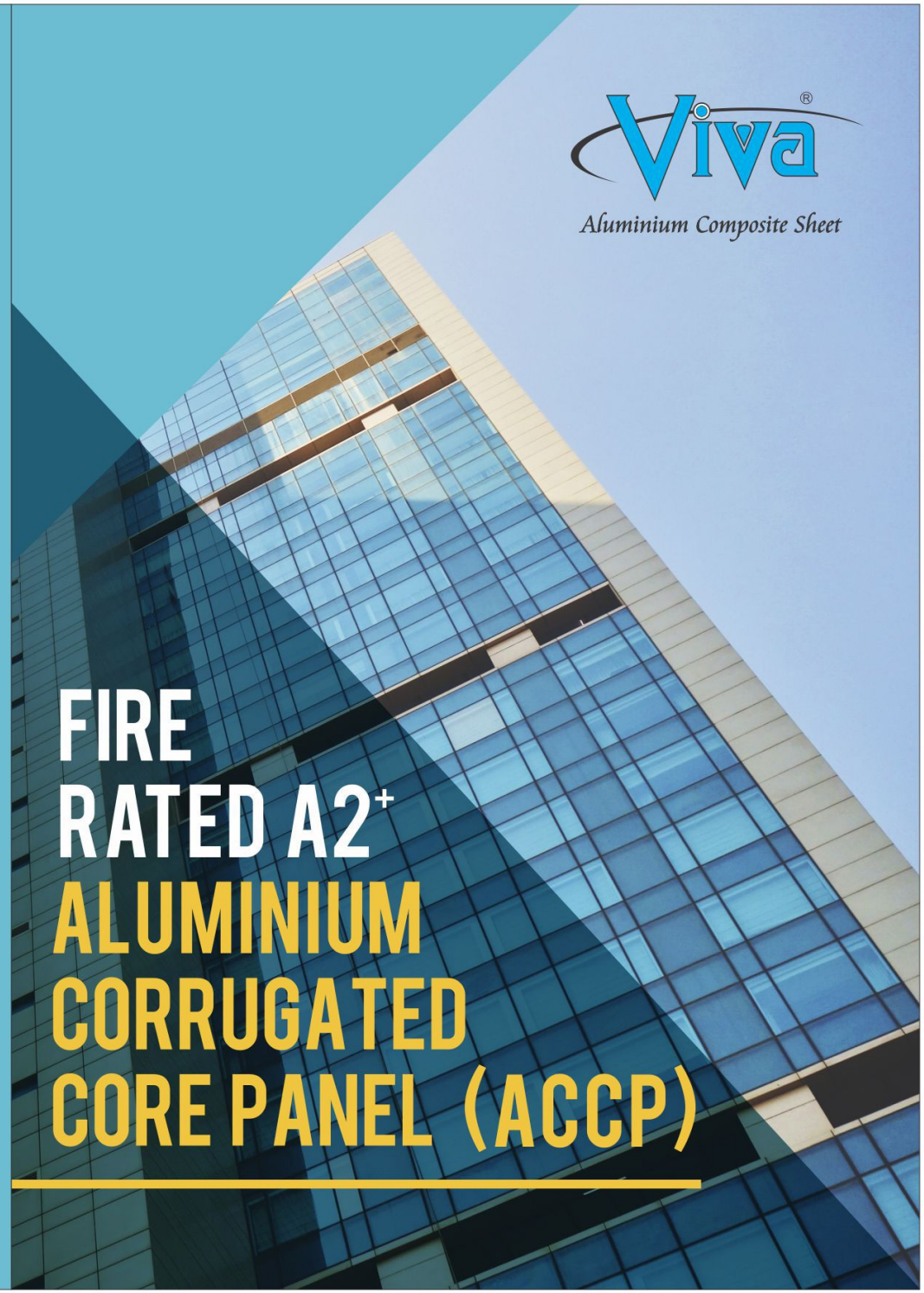
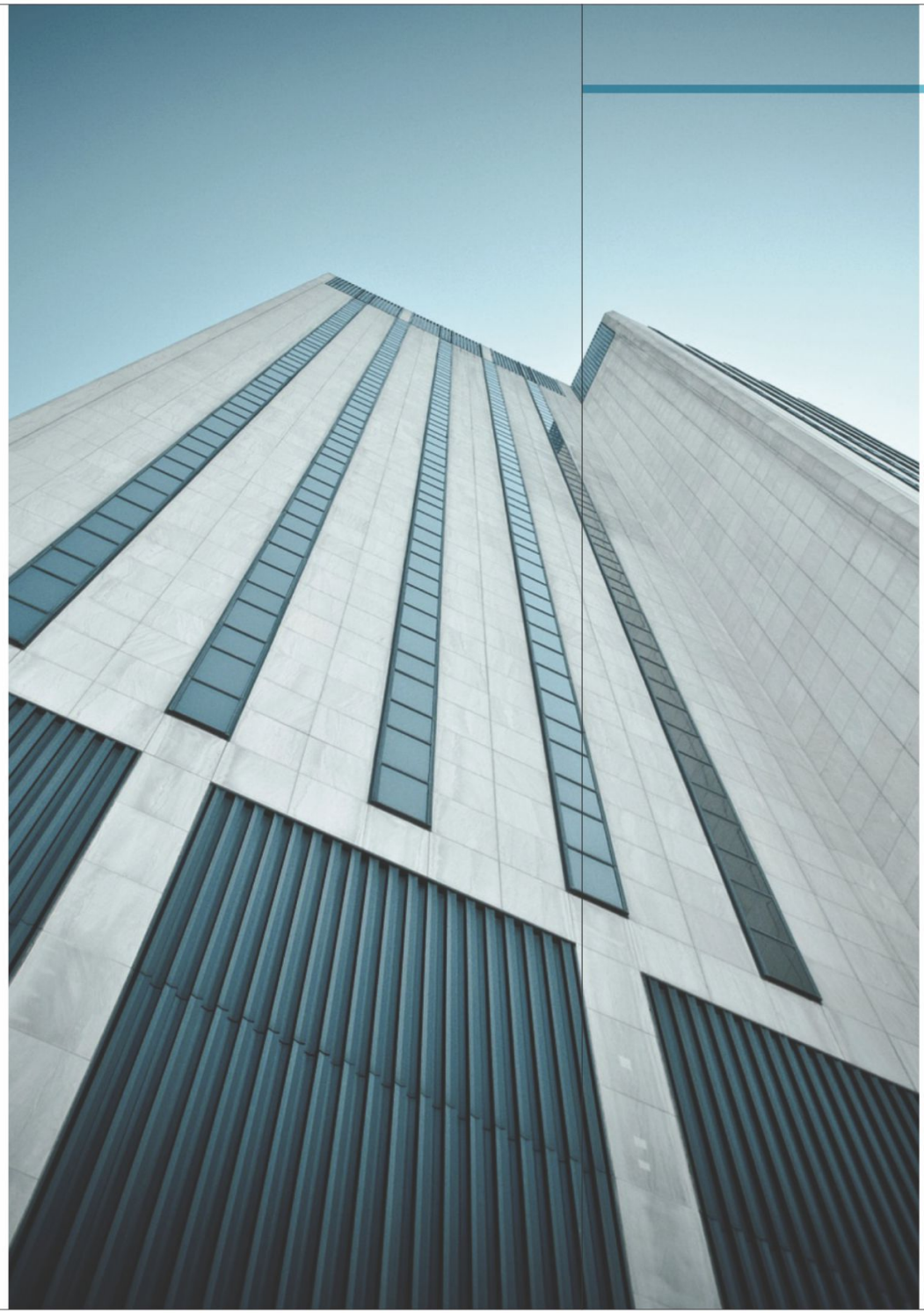
Viva®

Aluminium Composite Sheet



FIRE RATED A2+ ALUMINIUM CORRUGATED CORE PANEL (ACCP)

ABOUT US



Viva has been a prestigious and revered name in the ACP industry for many years now, due to our consistent ability to provide excellent results. Viva is known for its keen eye for anticipating industry requirements well in advance and creating products that satisfy these demands in real-time. Our products are defined by high-quality that is emphasized by state-of-the-art design. The high-quality is maintained thoroughly by our team's razor-sharp approach to Research and Development and we have created products that live up to our firm belief of building the future, with elegance.

Viva ACP has been synonymous with quality that never fails to amaze. Viva has established its brand as the preferred and spreads it networks throughout India having dealers/distributors and own offices cum warehouses in Mumbai, Delhi, Ahmedabad, Hyderabad, Pune, Udaipur, Raipur, Bengaluru, Kochi, Chennai, Kolkata, Surat, Bhubaneshwar etc. for expeditious deliveries. Product excellence is not the end of the story with international quality and interest; we ensure that our products are not only well designed but also successfully installed offering high-performance standards. With Viva, our customers get the best quality at economical prices, a variety of choice and the satisfaction of a job well done.

Viva Now an ISO 9001:2015, ISO 14001:2015 & CE Cer tified Company was set up in 2003 at Mumbai in Maharashtra. Our Manufacturing Facilities are located at Umbergaon in Gujarat that features a perfect harmony of proficient men and world-class machines. The Manufacturing facility has a state-of-the-art quality machine and has an integrated infrastructure and a talented pool of professionals operates it.

Under the action of solar radiation, the air in the passageway rises in temperature and flows upwards, taking the heat away and having the performance of insulating against the heat.

In a cold area, the sealing of the upper and lower end of the corrugated passageway in sunlight in the daytime helps store heat energy and reduce the running of the indoor heating, performing the function of heat insulation.

The remainder of corrugated sheets in engineering can be recovered by 100%, being environmentally-friendly and pollution free.

VIVA A2^{+} FR Aluminium corrugated panel is a kind of sandwich panel made from aluminium corrugated core bonded with two aluminium sheets. These panels are manufactured from high-quality 3003H16-H24 aluminium alloy or 5000 Series on demand. The aluminium sheet and corrugated core are bonded together by hot/cold lamination machines.

The corrugated core bonded with two skins can replace the aluminium composite panels as a new cladding material with its good properties of lightweight, high strength, super flatness, weather resistance and fireproof.

Aluminium Corrugated Panel (ACCP) used for exterior claddings are always coated with PVDF which is weather resistant and can be durable for more than 10 years in outdoor condition. Any RAL & Pantone colours and special grains can be made on the aluminium skin to achieve the beautify of your building. The core sheets of the aluminium corrugated panel are of the water ripple shape, which forms an air passageway between the front skin and back skin, that is, a hollow system, so that the sheet is among the best products for heat insulation.

SPECIFICATIONS

VIVA A2$^+$ FR Aluminum Corrugated Core Panel is not only strong but also aesthetically pleasing. VIVA A2$^+$ FR Aluminum Corrugated Core Panel 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 colours, texture and patterns, VIVA A2$^+$ FR Aluminum Corrugated Core Panel adds a touch of elegance to every installed surface. The sheets can be customized for your design and colour requirements. What's more, new shade development and old shade matching facility is also available.

EASY
Installation

EXCELLENT
sound proofing

LOW THERMAL
expansion coefficient

FIREPROOF
A2$^+$ grade

GOOD FLATNESS
& smoothness

LIGHTWEIGHT
40% lighter than traditional mineral core panel

APPLICATIONS

- Exterior Cladding
- Shopping Mall
- Commercial Building
- Canopy
- Shipping
- Power Plant
- Metro
- Schools
- Airport
- Railway Station

FIRE FACADE

IT'S NOT ONLY STRONG BUT ALSO AESTHETICALLY PLEASING

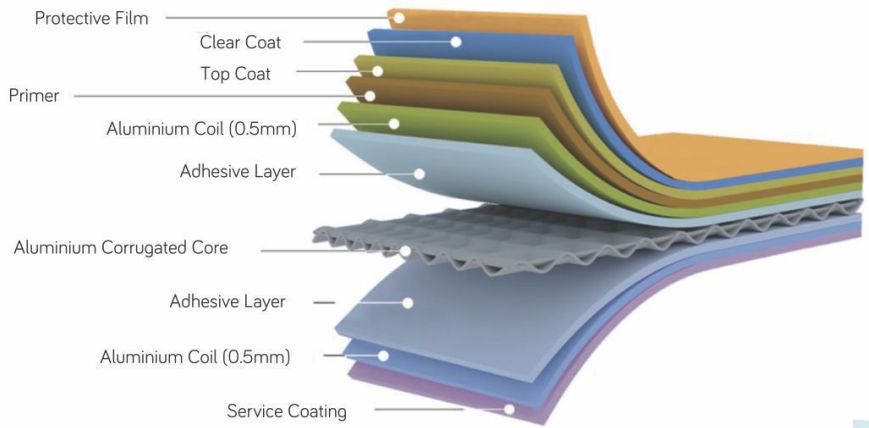
VIVA A2$^+$ FR Aluminum was designed to address the fire safety requirements of architectural projects while still giving an ultra-modern look to the buildings.

Available in a wide range of colours, textures and patterns. VIVAts A2$^+$ FR Aluminum adds a touch of elegance to every installed surface. The panels can be customized for your design and colour requirements. We even provide new development and old shade matching facility.

BEFRIENDING A GREENER PLANET

The VIVA A2$^+$ FR Aluminum is composed of corrugated metal core sandwiched between aluminium sheets. This helps in conserving valuable resources of nature and make Viva A2$^+$ FR Aluminum an environment-friendly products.

The testimony to the nature-friendly Viva A2$^+$ FR Aluminum lies in its acceptability for all green building projects. Viva A2$^+$ FR Aluminum is eco-friendly and fully recyclable.



FEATURES

AESTHETIC
- Excellent flatness
- Uniform colour
- Washable
- Stain resistant
- A wide range of texture & colour

COMFORT
- Highly adaptable
- Customized colour
- Sound & thermal resistant
- Termite proof
- Fungus proof
- Waterproof

SAFETY
- Environmental friendly
- BFT guard
- High impact

ECONOMICAL
- 10-year warranty
- Reduces labour cost
- Low maintenance
- Long durability

TOUGH COGESIVE BOND
- 180° peeling resistance
- 2-3 times more than aluminium honeycomb panels

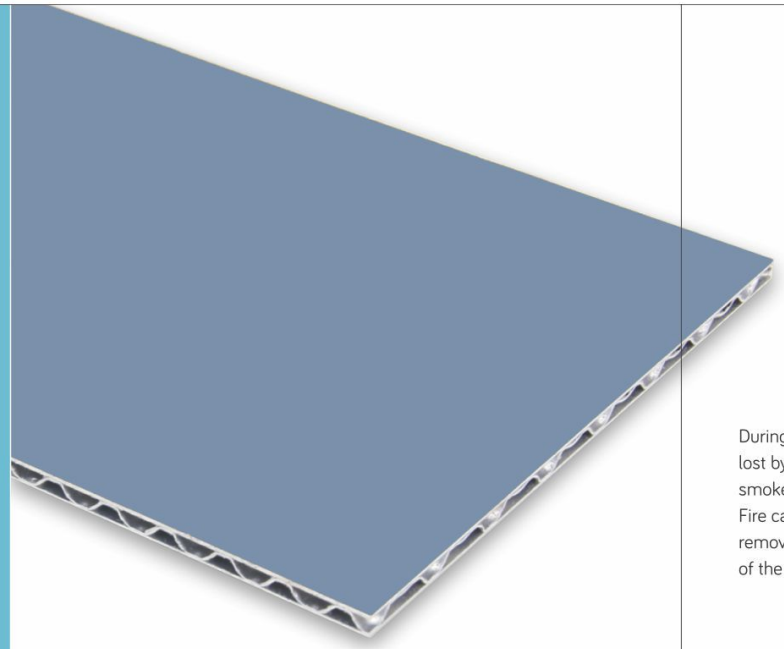
SOUND INSULATION
- Sound transmission loss is 40dB
- It is 25-28dB more than the solid aluminium sheet

HEAT INSULTION & ENERGY SAVING

CONVENIENT INSTALLATION
- Safe installation method

EASY HANDLING
- Lightweight (4 kg /m²)
- Easy to transport & install

FIREPROOF PROPERTY
- A2+ Fire Rating



FUEL HEAT OXYGEN

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

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 trio.

3 Elements are required in proper combination before ignition & combustion can take place

HEAT
to start and continue Combustion

AIR
to supply oxygen

FIRE
to burn

TABLE

Building Class Material		Designation
Class A	$A2^+$	Non-combustible Material
	A2	
Class B	B1	Not Easily Flammable
	B2	Flammable

Viva Rated $A2^+$

FIRE RETARDANT

ADVANTAGES OF ACCP A2+

SR. NO.	PROPERTIES	ACP-NORMAL	ACP-FR B1	ACP-FR A2	ACP-FR A2+
01	Thickness	4 mm	4 mm	4 mm	4 mm
02	Weight	5.5 kg/m²	7.5 kg/m²	8 kg/m²	4 kg/m² (Light weight compare to Normal ACP, FR B1 & FR A2 ACP)
03	Core Material	LDPE (Flammable)	up to 70% mineral (Not easily flammable)	up to 90% mineral (Non-combustibles)	100% Aluminium corrugated core (Non - combustible)
04	Fire Rating/Class	B2	B1	A2	A2+ (During fire it doesn't release smoke & droplets like stone, tiles)
05	Bonding Strength	Min. 10 N/mm	Min. 8 N/mm	Min. 7 N/mm	Min. 10 N/mm (High bond strength)
06	Application	Exterior/ Interior	Exterior/ Interior	Exterior/ Interior	Exterior/ Interior
07	Paint (Coating)	PVDF	PVDF	PVDF	PVDF
08	Installation Cost	Rs. 2100/Sq. Mt.	Rs. 2700/Sq. Mt.	Rs. 3200/Sq. Mt.	Rs. 1600/Sq. Mt. (Installation cost less due to light weight and also less installation time)
09	Warranty	10 Years	10 Years	10 Years	10 Years
10	Resale Value	Nil	Nil	Nil	30% (Complete Aluminium so it can be sold in scrap)
11	Selling Price	Rs. 120/Sq. Ft.	Rs. 160/Sq. Ft.	Rs. 200/Sq. Ft.	Rs. 210/Sq. Ft.
12	Effective Cost	Rs. 120	Rs. 160	Rs. 200	Rs. 147 (Lesser than FR B1)

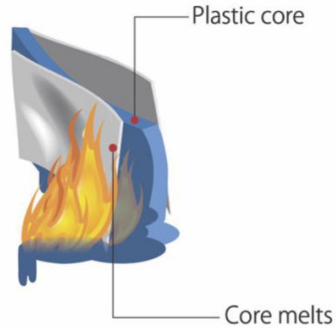
Note: Advantages highlighted in Green

FACADES THAT DON'T CATCH FIRE

ORDINARY CLADDING MATERIAL

WOOD, HPL, WPC PANELS CATHC FIRE

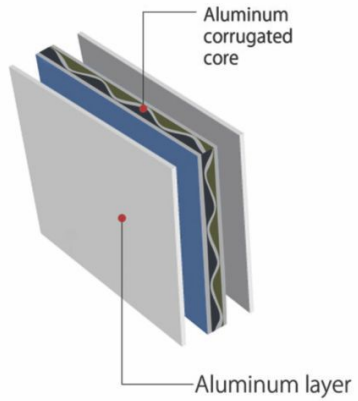
Wood, HPL, WPC panels are made with Aluminum cutter layers and inner core Layer with plastic, which burns easily.



VIVA A2+ FR ALUMINUM

VIVA ALUMINIUM PANELS DON'T CATCH FIRE

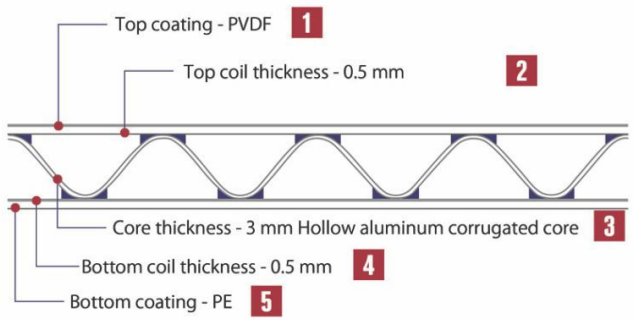
VIVA A2+ FR Aluminum panels are made with aluminum outer layer & corrugated aluminum internal layers which doesnt burn due to no presence of fuels.



ASPECTS OF VIVA A2+ FR ALUMINUM PANEL

PANEL DIMENSIONS	
Standard Sizes	1220 mm x 2440 mm 1220 mm x 3050 mm 1220 mm x 3660 mm
Panel Thickness	3 mm, 4 mm, 5 mm & 6 mm
Skin Thickness	0.50 mm

PANEL COMPOSITION



PRODUCT TOLERANCE

WIDTH	LENGTH	THICKNESS	SKIN
0.2 mm	0.4 mm	0.2 mm	0.03 mm

FABRICATION METHOD

- CUTTING
- ROUTING
- DRILLING
- *ROLLING
  *Rolling radius 1000 mm.
- FOLDING
- GUILLOTINING
- SLITTING

**WE SHAPE OUR BUILDINGS.
AFTERWARDS,
OUR BUILDINGS SHAPE US.**

–WINSTON CHURC HILL

TECHNICAL DETAILS OF VIVA 7 STAR, FR RATED A2+, ALUMINIUM CORRUGATED CORE PANEL (3D), 4 MM THICKNESS.

A PHYSICAL PROPERTIES OF VIVA 4 MM, ALUMINIUM CORRUGATED CORE PANEL

Sr. No.	Test Parameters	Test Method	Specifications	Results
1	Panel Thickness	Measured	4 mm (±.2 mm)	4 mm
2	Panel Density	ASTM D 1505	1 g/cm^3	1 g/cm^3
3	Panel weight	Measured	4 kg/m^2 (± 5%)	4 kg /m^2
4	Tensile strength	ASTM D 638	40 MPa	51.1 MPa
5	Yield strength	ASTM D 638	35 MPa	45.3 MPa
6	Elongation	ASTM D 638	> 6.0%	10 %
7	Peel test	ASTM D 903	Min 7.0 N/mm	11 N/mm
8	Flexure Strength	ASTM D790	95 MPa	110 MPa
9	Flexural Modulus	ASTM D790	>14000 MPa	16000 MPa
10	Punch Shear Test	ASTM D732	18 MPa	22 MPa
11	Water Absorption Test	ASTM D 570	1%	0.4%

B PROPERTIES OF ALU MINIUM COIL

1	Coil thickness	Measured	0.5 mm (±.03 mm)	0.52 mm
2	Tensile strength	ASTM E8	150 MPa	176 MPa
3	Yield strength	ASTM E8	130 MPa	165 MPa
4	Elongation	ASTM E8	>2 %	6.0%
5	Modulus of Elasticity	ASTM E8	>50000 N/mm^2	70000 N/mm^2
6	Punch shear test	ASTM D 732	18.0 N/mm^2	19.0 N/mm^2

C SURFACE PROTECTIVE FILM

1	Thickness of surface protective film	Visual	>50 micron	80 micron
2	Shelf life of film	Visual	45 days	45 days

D SOUND PROPERTIES

1	Sound Transmission Loss	ASTM E 90	24 dB	25 dB
2	Sound Abortion Factor	ISO 354	0.05 dB	0.05 dB

E FIRE PROPERTIES

1	Fire Classification	EN 13501-1	A2+	A2+

F COATING PROPERTIES

1	Coating Thickness	ASTM D 7091	24 µm (± 2 µm)	26 µm
2	Coating type	Chemical	PVDF	PVDF, KYNAR 500, Pass.
3	Cross hatch adhesion test	ASTM D 3359	5B	5B
4	Taber Abrasion Test CS-17 wheels, 1 kg load, 1000 cycle	ASTM D 4060	Less than 45 mg /1000 (weight loss)	25 mg weight loss
5	Pencil Hardness Test	ASTM D 3363	B/H	H
6	Gloss at 60 Degree	ASTM D 523	< 40	36
7	Impact Test (Front & Reverse)	ASTM D2794	27 J, Pass	27 J, Pass
8	T Bend	ASTM D 4145	T Pass	Pass
9	Adhesion in boiling water (120 degree, 30 min.)	ASTM D 3359	Pass	Pass
10	Gloss Retention	ASTM 523 or ECCA T2	Minimum 60 % (10 Years)	90
11	Colour Retention	ASTM D 2244 or ECCA T3	7 Units (Max.) over 4000 Hrs.	4.5 (Delta E Change)
12	Chalking Resistance	ASTM D 4214 or ECCA T14	Max. rating 8 Units after 4000 Hrs.	No Chalking
13	Salt Spray Test 3000 Hrs.	ISO 9227	No cracks blister	Pass
14	Humidity Test 3000 Hrs.	ASTM D2247	No cracks blister	Pass

G CHEMICAL TEST (CHEMICAL & DROP TEST)

1	1) 10 % HCl, 5 min	ASTM D 1308	Pass	Passes, No blister, creep
	2) 20 % H2SO4,10 hrs.			& no rust observed
	3) 5 % NaOH , 48 hrs.			
	4) 20% HNO3 30 Min			
	5) Engine Oil Resistance			
	6) Solvent Resistance MEK			
2	Oil Resistance 24 Hrs.	AAMA D 2605	Pass	Passes, No blister, creep & no rust observed.
3	Aluminium Alloy Chemical compositions	EN-AW-3003,H 24 By Spectro test	Alloy 3003, H24	Passes, EN- AW- 3003,H 24
	% Mn			1.33
	% Mg			0.6
	% Si			0.55
	% Cu			0.088
	% Fe			0.68
	% Zn			0.10
	% Al			96.652

H THERMAL PROPERTIES TEST

1	Thermal Expansion Test.	ASTM D696	2.4 mm/M/100 degree	2.4 mm/M/100 degree

FIRE TEST REPORT

IIT Bombay
Prof. A. S. Khanna
(Fellow NACE, Fellow ASM, Fellow AvH)

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E-mail : khanna@iitb.ac.in
Chairman - SSPC India
President : Humboldt Academy of Bombay

June 24, 2018

M/s VIVA COMPOSITE PANEL (P) LTD.
Head office – Unit No. 7, New Tejpal Industrial Estate, Andheri Kurla Road, Sakinaka Andheri East, Mumbai – 400072.
Factory – Survey No. 85/8, 85/9, 85/10, 68/1, 70/14 At post – Khattalwada, Manekpur Road, Opp. Poultry Farm, Near Apar Industries Ltd, Tel – Umbergaon, Dist. – Valsad, Station – Sanjan, Gujarat – 396120.

Ref. No. – VIVA/05, your request dated 06/06/ 2018.

Our Job No. - IN/ASK-05/18-19.

Subject - Testing of VIVA 7 Star, Fire Rated A1, Aluminium Corrugated Core Panel (3D), 4 mm thickness, Sample Batch No. –VA102/Silver

Product Details: - 4 mm Thickness, Aluminium Corrugated Core Panel with PVDF Coating.

Please find hereby the test results of Aluminium core panel samples submitted to us.

Sr. No.	Test Parameters	Test Method	Specifications	Results
A	**Physical properties of VIVA 4 mm, Aluminium Corrugated Core Panel**			
1	Panel Thickness	Measured	4 mm (±.2 mm)	4 mm
2	Panel Density	ASTM D 1505	1 g/cm3	1 g/cm^3
3	Panel weight	Measured	4 kg/m^2 (± 5%)	4 kg/m^2
4	Tensile strength	ASTM D 638	40 MPa	51.1 MPa
5	Yield strength	ASTM D 638	35 MPa	45.3 MPa
6	Elongation	ASTM D 638	> 6.0%	10 %
7	Peel test	ASTM D 903	Min 7.0 N/mm	12.5 N/mm
8	Flexure Strength	ASTM D790	95 MPa	110 MPa
9	Flexural Modulus	ASTM D790	>14000 MPa	16000 MPa
10	Punch Shear Test	ASTM D732	18 MPa	22 MPa
11	Water Absorption Test	ASTM D 570	1%	0.4%
B	**Properties of Aluminium Coil :**			
1	Coil thickness	Measured	0.5 mm (±.03 mm)	0.52 mm
2	Tensile strength	ASTM E8	150 MPa	176 MPa
3	Yield strength	ASTM E8	130 MPa	165 MPa
4	Elongation	ASTM E8	>2 %	6.0%
5	Modulus of Elasticity	ASTM E8	>50000 N/mm^2	70000 N/mm^2
6	Punch shear test	ASTM D 732	18.0 N/mm^2	19.0 N/mm^2
C	**Coating Properties**			
1.	Coating Thickness	ASTM D 7091	24 µm (± 2 µm)	26 µm
2.	Coating type	Chemical	PVDF	PVDF, KYNAR 500, Pass.

Prof. A. S. KHANNA
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Dept. of Met. Engg. & Material Science
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Powai, Mumbai - 400 076.

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Ref. No. – VIVA/4/17, your request dated 04/01/ 2018.

Our Job No. - IN/ASK-65/17-18.

Subject - Testing of VIVA 7 Star, FR Rated A1, Aluminium core Panel (3D), 4 mm thickness, ACP

Sample Batch No. –VA102/Silver

Product Details: - 4 mm, ACP with PVDF Coating.

Please find hereby the test results of ACP samples submitted to us.

Sr. No.	Test Parameters	Test Method	Specifications	Results
1	Gloss Retention 4000 Hrs.	ASTM 523 or ECCA T2	Min 60% (10 years)	71.72
2	Colour Retention 4000 Hrs.	ASTM D 2244 or ECCA T3	5 units (Max.) over 4000 Hrs.	4.5
3	Chalking Resistance 4000 Hrs.	ASTM D 4214 or ECCA T14	Max. rating 8 units after 4000 Hrs.	Pass. (ND Chalking)
4	Salt Spray Test 4000 Hrs.	ISO 9227	No crack blister found	Passes No rusting, film delamination and blistering observed
5	Humidity Test. 4000 Hrs.	ASTM D 2247	No crack blister found	Passes No rusting, film delamination and blistering observed

Test Parameter	Result (Silver)
Installs	**Installs**
Gloss	25.10
Delta E	85.6
After 4000 Hrs.	**After 4000 Hrs.**
Gloss	18.0
Delta E	81.1
% Gloss Change	28.28
Gloss Retention	71.72
Delta E change	4.5

Test results pertain to sample submitted to us.

A.S. Khanna

Prof. A. S. KHANNA
Corrosion Science & Engineering
Dept. of Met. Engg. & Material Science
I.I.T. BOMBAY

3.	Cross hatch adhesion test	ASTM D 3359	5B	5B
4.	Taber Abrasion Test CS-17 wheels, 1 kg load, 1000 cycle	ASTM D 4060	Less than 45 mg/1000 (weight loss)	25 mg weight loss
5.	Pencil Hardness Test	ASTM D 3363	B/H	H
6.	Gloss at 60 Degree	ASTM D 523	< 40	36
7.	Impact Test (Front & Reverse)	ASTM D2794	27 J, Pass	27 J, Pass
8.	T Bend	ASTM D 4145	T Pass	Pass
9.	Adhesion in boiling water (120 degree, 30 min.)	ASTM D 3359	Pass	Pass.
D	**Thermal Properties Test**			
1	Thermal Expansion Test.	ASTM D696	2.4 mm/M/100 degree	2.4 mm/M/100 degree
E	**Chemical Test (Chemical & Drop test)**			
1	1) 10 % HCl, 5 min 2) 20 % H_2SO_4 10 hrs. 3) 5 % NaOH , 48 hrs. 4) 20% HNO_3 30 Min 5) Engine Oil Resistance 6) Solvent Resistance MEK	ASTM D 1308	Pass	Passes, No blister, creep & no rust observed
2	Oil Resistance 24 Hrs.	AAMA D 2605	Pass	Passes, No blister, creep & no rust observed.
3	Aluminium Alloy Chemical compositions % Mn % Mg % Si % Cu % Fe % Zn % Al	EN-AW-3003, H 24 By Spectro test	Alloy 3003, H24	Passes, EN- AW- 3003,H 24 1.33 0.6 0.55 0.088 0.68 0.10 96.652

Test results pertain to sample submitted to us.

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PRESENCE ACROSS INDIA

WE ARE ALSO LOVED IN:

1. UAE
2. Nepal
3. Malaysia
4. Sri Lanka
5. East Africa