TECHNICAL DETAILS FOR PRIME BOND RANGE OF PRODUCTS (FOR EXTERIOR APPLICATION ONLY)

PRIME BOND consists of a polyethylene core and two aluminium skins (each 0.50 mm/ 0.25mm thick). It is primarily used to clad the exteriors of newly constructed buildings and for renovation applications.

PRIME BOND panels are the first of their kind to be manufactured in India, using a continuous Aluminium Panel manufacturing plant with an online laminator which uses a catalytic fusion process for bonding. PRIME BOND's key component, the PVDF coated aluminium (skin) is directly imported. The PVDF coated aluminium is manufactured by ELF AUTOCHEM. The KYNAR 500 PVDF coating on the top has a minimum thickness of 25 microns. PRIME BOND has excellent durability and is resistant to extreme weather conditions and industrial pollution.

STRENGTH OF THE COMPANY

Production Capacity (monthly)	77418 sq.mtr
Distributor network (All India & Nepal)	55
Aluminium fabricator network (All India & Nepal)	600
Sales team strength (All India)	100

(I) PHYSICAL PROPERTIES

ITEM	STANDARAD	**REMARKS**
Panel Thickness	4 mm	1.5 mm, 2 mm & 3 mm are available on request.
Aluminium Skin Thickness	0.5 mm	Thicknesses between 0.25 mm to 0.5 mm are available.
Core	The core is an extruded thermoplastic known as Low Density Polyethylene (LDPE)	The thermoplastic core in PRIME BOND panel is low density polyethylene (LDPE), which belongs to hydrocarbon plastic family which is non-toxic in nature. The final result of the complete combustion of LDPE is carbon dioxide (CO_2) and water (H_2O).
Panel Width	1220 mm	
Panel Length	2440 mm	Can be made to customer's requirement.
Panel Weight	5.5 kg/m^2	
Surface finish	Exterior surface of the coil is coated with PVDF and the interior face coil is coated with polyester.	

II. MECHANICAL PROPERTIES

PRIME BOND is a light weight but rigid material. It is resistant to blows, shocks and high wind velocities and has high buckling and fatigue strength. The mechanical properties of PRIME BOND are as follows (for Panel thickness – 3mm & 4mm, skin thickness 0.25 & 0.50 mm respectively)

ITEM	UNIT	TEST RESULT		STANDARDS
		3 mm	4 mm	
Specific Gravity	gm/cc	1.38	1.52	
Tensile Strength	kg/mm^2	4.5	6.2	ASTM E-8
Yield Strength	kg/mm^2	4.0	5.9	ASTM E-8
Flexural Rigidity	$X10kg.mm^2$	7.3	14.0	ASTM C-393 (20cm span)
Elongation:				
Horizontal Elongation at breaking point	%	12%	14%	ASTM E-8
Vertical Elongation at breaking point	%	11%	13%	ASTM E-8
Punching shear Resistance				
Maximum Load	kg	1380	1650	ASTM D-732
Shear Resistance	kg/mm^2	2.9	2.6	

BOND INTEGRITY

ITEM	UNIT	3 MM	4 MM	REMARKS
Vertical Pull	kg/cm^2	120	120	ASTM C-297
Drum Peel	mm N/mm	150	150	ASTM D-1781
Flatwise Shear	kg/cm^2	88.5	86.1	ASTM C-273

DENT (IMPACT) TEST BY DU-PONT METHOD

Steel Ball Weight	Height (mm)	Dent Depth (mm)	
		3mm	4 mm
0.30	300	0.74	0.56
0.30	500	1.17	0.81
0.50	300	1.18	0.88
0.50	500	1.64	1.36
1.00	300	1.97	1.71
1.00	500	2.60	2.29

III- ACOUSTIC PROPERTIES

SOUND TRANSMISSION

Panel Thickness (Frequency range)		Sound Transmission Loss (STL)	Standard
125 to 5000 Hz	3mm 4mm	25db 26db	ASTM E 413

Sound Transmission Loss, TL (db), vs Frequency (Hz) on 4mm Aluminium Composite Panel

Frequency Hz	TL
100	14
125	14
160	16
200	17
250	18
315	19
400	21
500	23
630	24
800	26
1000	28
1250	29
1600	30
2000	32
2500	32
3150	31
4000	28
5000	26

IV – FIRE BEHAVIOUR PROPERTIES

PRIME BOND is produced with two strong sheets of noncombustible aluminium with a LDPE core. The PRIME BOND panel has passed a fire resistance test; the result is as follows:

A.P. HANDLES- UND VERTIEBS GESELLSCHAFT mbh (Germany based testing body) has conducted a fire test on PRIME BOND panels, results are

Ignitibility	Index 0	Class “A”
Heat Evolved	Index 0	Class “A”
Flame Spread	Index 0	Class “A”

V -- THERMAL ISULATION PROPERTIES

Panel Thickness	Thermal resistance	Thermal conductivity
4mm	5026mb°C/kcal)	0.19(kcal/mh°c)

Thermal Expansion:

Panel Thickness	Co-efficient of Thermal expansion	Standard
4mm	26X10	ASTM D-696

Dimensional Tolerance

Width	:	± 2.0 mm
Length	:	± 4.0 mm
Thickness	:	± 0.2 mm
Bow	:	Maximum 0.5% of the length and/or width
Square ness	:	Maximum 5.0 mm
Surface Defect	:	The surface shall not have any regulation such as roughness, bucking and imperfections with our specifications of visual inspection.
Thermal expansion	:	1.2 mm/m/50°C

VI - SURFACE PROPERTIES

The surface coating properties of PRIME BOND, 4mm panel with PVDF coating are as follows:

Dry Film Property	Test method	Criteria
Color Retention	ASTM D2244-93	Max 5 units after 4000hrs
Gloss Retention	ASTM D523-89	70% after 4000 hrs
Chalking	ASTM D404-89	Max 8 units after 4000hrs
Salt Spray	ASTM D-B117-90 NCCA 11-2	Blisters -10 Scribe -8 3000hrs.-aluminium, 35°C
Humidity –Thermal	ASTM D2246-65	No blister No cracking 10 cycles :24 hrs X 100% RH. 37.8°C: 2 hrs X 18°C 4 hrs X 24°C
Humidity	ASTM D2247-94	No change 3000 hrs.-aluminium, 35°C
Condensing Humidity (Cleveland)	ASTM D4585-87	None to very few #8 blisters 100%RH X 54.4°C, 2500 hrs.
Pencil Hardness	ASTM D-3363-92a	2 H
Adhesion: Dry Wet Boiling Water	ASTM D 3359, method 8	 No change No change after 37.8°C, 24 hrs No change after 100°C, 20 min
Impact resistance	NCCA 11-5	No picking off after reverse impact cross-hatch test
Abrasion resistance	ASTM D 968-93	Resisting 20 liters of falling sand 20 liters as the criterion of AAMA 70 liters/mil as the actual value