



Pragati

361° RE-ENGINEERED SOLUTIONS



Composite Panels Unlimited

BACKGROUND

PRAGATI Group of Industries Started in 1967 in a rented area under a small tin shed with a single band saw machine. From these humble beginnings, Pragati has grown to become a leading manufacturer of industrial timber products. Since 1997, we have been a Government of India recognized Export House. Our values of Customer Focus, Integrity, Leadership,



CERTIFICATIONS

PRAGATI is an ISO-9001 : 2000 certified company with IS : 303 (MR/BWR Grade Ply), IS : 710 (Marine Ply), IS : 3513 (Compreg Ply) and IS : 4990 (Shuttering Ply) certification and continue to use standards consistently throughout our manufacturing process.

Above all, Pragati is the only company in India manufacturing according to IS : 3513 standards.



PRODUCTS RANGE

PRAGATI's product range is continuously expanding to meet the needs of multiple industries :

TRANSPORTATION (ships, trains, buses) - Trucks Flooring Plywood, Sound Insulating Plywood, Chequered Ply, Shipping Ply, Prelam Ply, Honeycomb Panels. PRe-Fabricated Toilet Systems. PVC and Corecell Foams. Sound and Thermal Insulation Foams, Sound Insulating Paints.



INDUSTRIAL CONSTRUCTION - Shuttering Plywood, Industrial Flooring Plywood, Metal Ply

INTERIOR CONSTRUCTION - Marine Plywood, Fire Retardant Chokat, Prelam Ply, LVL Door.

PRODUCTS RANGE

ENERGY - Foam for Windmill Blads, Transformer Plywood, Sound Insulating

Foam for Generators.

T

ELECOMMUNICATIONS - Cable Drums.

OTHER INDUSTRIES - Pattern Die Plywood, Container Flooring Plywood, Sports

Ply, Textiles Ply.



EXCEPTIONAL DESIGN & MANUFACTURING

As the demand for our products continue to grow we have continued to invest heavily in research and development, automated and larger capacity machines, training of workforce and customer support.

The manufacturing plants are equipped with the latest high tonnage presses, peeling machines, seasoning chambers, dryers, boilers, resin impregnation plants, vacuum impregnation plant, resin manufacturing plant, film manufacturing plant and automated cable drum manufacturing plant. Our presses are capable of pressure up to 3500 tonnes and can manufacture plywood, laminated and other composites ranging from a size of 5' x 3' to 11' x 6'

RESEARCH & DEVELOPMENT

Research and Development consists of an on-site laboratory, which maintains stringent quality control and inspection procedures and is also instrumental in the development of new products. Above all, we manufacture to ISO 9001 : 2000 standards. All our products have been developed in close co-operation with our customers.

All our plywood products are fully tested by Forest Research Institute (FRI) in Dehradun and Indian Plywood Research & Training (IPRTI) in Bangalore.



ENVIRONMENT

PRAGATI is an eco-friendly company and committed to preserving the environment and observing the principles of sustainable development. We manufacture Plywood and other timber products only from plantation timber. This timber is grown by local farmer on a rotation basis and sustains their livelihood. In addition, our manufacturing plants have implemented stringent pollution controls

DISTTIBUTOR NETWORK





GREENCON INDUSTRIES PVT. LTD.

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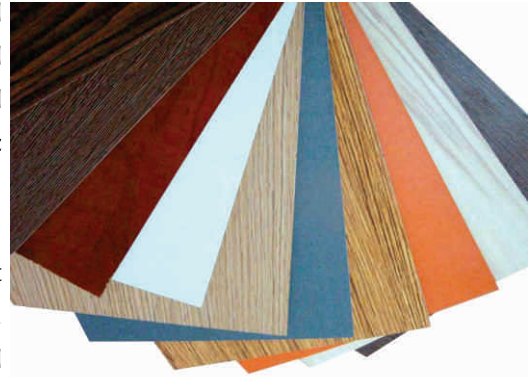
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PRAGATI PRE-LAMINATED PLY

Pragati offers, for the first time in India, prelaminated plywood (pre-lam) that combines the qualities of prelaminated particleboard and good quality densified plywood. Selected tropical hardwood veneers are peeled and assembled under specific temperature and pressure.

Moreover each veneer is coated with Phenolic Resins, hot pressed with heating and cooling process in high tonnage presses. further it is prelaminated with melamine resin impregnated decorative paper to give a smooth finish similar to that of pre-lam particleboard.



ADVANTAGES OF PRE-LAM PLY

Due to high thermosetting pressure and heat, pre-lam ply attains uniformity, stability and weather resistance. it has excellent screw holding properties and can be easily drilled at one point multiple time thereby eliminating the disadvantage of pre-lam particleboard. 4 mm pre-lam ply specially manufactured for buses, trucks and train interiors is flexible and can be bent to a complete circle. The specialised melamine coating gives the product excellent scratch resistant properties.

USER OF PRE-LAM PLY

- Furniture
- Partition Frames
- Bus Body Interiors
- Train Interiors
- Truck Interiors





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TECHNICAL PROPERTIS PRELAM PLYWOOD

Properties	Ref. Standard	Value
Moisture Content	IS : 1734 (Part I) 1983	10%
Density (gm/cc)	IS : 1734 (Part I) 1983	0.85
Water Absorption in 24 hrs.	AS : 109 : 63 : Feb-2002	14.55%
Static Bending Strength (kg/cm ²) Along the Grain Across the Grain Compressive Strength (kg/cm ²)	IS : 1734 (Part II) - 1983 IS : 1734 (Part 10) - 1983	588.5 667.54
Perpendicular to grain parallet to Grain Tensile Strength (kg/cm ²) Along the Grain	IS : 1734 (Part-9) - 1983	1736.45 434 659.84
Across the Grain Glue shear Strength (kg) Swelling in boiling water after 8 hrs.	IS : 1734 (part-4) 1983 C-9407	593.33 158.9 13.08%

SIZES

5' X 3' to 11' x 6'

THICKNESS

4MM, 6MM, 9MM,
12MM, 16MM, 19MM



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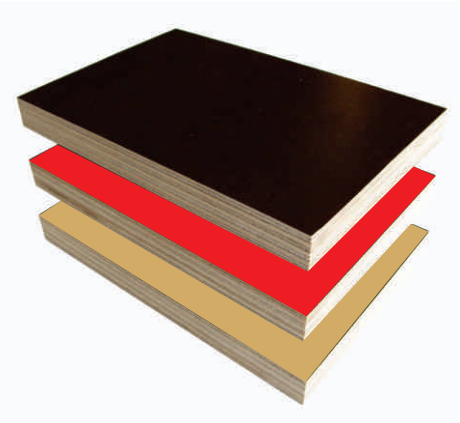
PRAGATI DENSIFIED DC SHUTTERING PLYWOOD

IS : 4990



Pragati manufactures a superior film faced Densified Shuttering plate (FFDSP) capable of a high level of performance for varied uses in the construction industry like building bridges, tunnels, heavy industries power plant, defense structures & other concrete structures.

It is manufactured from selected veneers speeled from hardwood plantation and treated with specially manufactured phenolic resin for longer durability and better performance. The surface of Shuttering plywood is over laid with 180 GSM Phenol impregnated Film. The sides are resealed by acrylic paint to preserve moisture absorption and swelling. The entire process of manufacturing veneers, resins, film and densified plates is completed in-house modern and well-equipped plant with German collaboration. Shuttering Plywood can be supplied in size upto 11' x 5'.

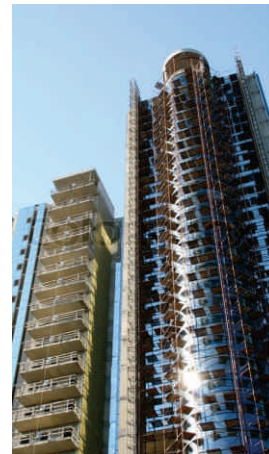


ADVANTAGES OF SHUTTERING PLYWOOD

Pragati FFDSP has 30% more layers of veneers resulting in superior nailing, screw holding properties and load bearing capacity. The product has 300% more retention of resin than ISI grade shuttering and is therefore a better product than ISSI grade plywood. using pragati shuttering Plywood results in substantial cost saving since it can be used up to 40 times for shuttering applications. it improves construction speed and reduces manpower requirements. It is the ideal framework material for precast, concrete molds since it is free from dents, non-corrosive and imparts an evenly fine finish on the concrete surface. This result in additional cost saving since no replastering or finishing is required.

USES OF SHUTTERING PLYWOOD

- In construction business for wall, columns, slabs, beams etc.
- in chemical factories packing.
- Truck body Manufacturing





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TECHNICAL PROPERTIES SHUTTERING PLYWOOD

Properties	Ref. Standard	Value
Density (gm/cc)	IS : 4990 : 1993	0.96
Tensile Strength (N/mm ²) Along the grain Across the grain		85 49
Cross Breaking strength Along the grain Across the grain	IS : 4990 : 1993	102 67
Glue Shear Strength Dry State Along the grain Across the grain Wet State Along the grain Across the grain	IS : 1734 Part 4	15 140 140 130

Modulus of Elasticity (N/mm ²)	LOAD (KG)	ELASTICITY
200 mm span	470	10669
300 mm span	155	11875
400 mm span	70	12712
500 mm span	40	14188



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PRAGATI MR / BWR

IS : 303



Pragati manufactures a Moisture Resistant (MR) and Boiling Water Resistant (BWR) plywood for use in high quality furniture, partitions, paneling, doors and window panels, bathrooms and kitchen panels, pragati MR / BWR conforms to IS : 303 standards.

Pragati MR / BWR is manufactured from veneers of tropical hardwood plantation timber and treated with in-house manufactured phenolic resins for longer durability and better performance. The plywood is chemically treated at each glue line and is ideal for use in termites and moisture prone areas. To protect against duplication, a special strip of beech has been implanted into the face veneers.



Pragati BWR plywood has been approved by ASRTU (All India State Road Transport Undertaking) and is currently used by majority of the large bus body manufacturers.

ADVANTAGES OF MR / BWR PLY

Unlike other MR / BWR plywood available in the market, Pragati ply is made from a single species of plantation hardwood timber. The plywood can withstand severe climatic and weather conditions and is durable even when used in vulnerable areas. Special chemical additives prevent delamination and protect the plywood from micro organisms.

USER OF MR / BWR PLY

- Furniture
- Partitions
- Kitchen Cabinets
- Bus Body
- Shuttering



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TECHNICAL PROPERTIES (BWR GRADE PLYWOOD)

Properties	Ref. Standard	Value
Density	IS : 1734 (Part-1) 1983	0.65 gm/cc
Glue Shear Strength (Dry State)	IS : 1734 (Part-4) 1983	180 kg.
Glue Shear Strength (After 8 hrs. Boiling)	IS : 1734 (Part-6) 1983	135 kg.
Glue Shear Strength (Mycological)	IS : 1734 (Part-7) 1983	130 kg.

TECHNICAL PROPERTIES (MR GRADE PLYWOOD)

Properties	Ref. Standard	Value
Density	IS : 1734 (Part-1) 1983	0.60-0.65 gm/cc
Glue Shear Strength (Dry State)	IS : 1734 (Part-4) 1983	150 kg.
Glue Shear Strength (After 3 hrs. boiling)	IS : 1734 (Part-6) 1983	120 kg.
Glue Shear Strength (Mycological)	IS : 1734 (Part-7) 1983	120 kg.
Screw Holding Strength		above 250 gm /cc ² normal to face.
Sum of Tensile Strength		Around 620 kg / cm ²

SIZES (IN MTRS.)

2.44 x 1.22 2.44 X 0.92
2.14 X 1.22 2.14 X 0.92
1.84 X 1.22 1.84 X 0.92

THICKNESS

4MM, 6MM, 9MM, 12MM,
16MM, 19MM, 25MM, 43MM



361° RE-ENGINEERED SOLUTIONS

PRAGATI LAMINATED VENEER LUMBER (LVL)

“A HOMOGENOUS DIMENSIONALL STABLE BUILDING MATERIAL”

Laminated Veneer Lumber is an engineered, layered composite of wood veneers and adhesive, and an alternative to sawn solid wood. It combines the best of modern process technology with the aesthetic beauty of natural timber. LVL improves the strenght of wood by dispering the weakness from defects (e.g. a knot) over a greater area. In effect, it increases the stength of the weakest part of a length of wood.

Laminated veneer Lumber is made up by laying parallel laminations of veneer, glued and processed together to from a material of thickness silmilar to sawn timber but with greater unifromity. Each veneer is chemically impregnated in a vacuum impregnation chamber with chemicals to enable it to fight attacks by microorganisms.



ADVANTAGES OF LAMINATED VENEER LUMBER

Doors Manufactured using Pragati LVL conforms to IS : 4020 - 1994 standards. LVL is environment friendly since it is made from Non-Conventional plantation Timber grown outside the forest system. Pressure impregnation with chemicals make it termite & other insect proof. LVL is solid, highly predictable and uniformly engineered wood product that is sawn to consistent sizes and is virtually free from wrping & splitting. It has high bending, shear strength and strength to width ratio. It is strong, durable and stable substitute for conventional wood for buildings, frurniture and general wood works. It has properties better than wood since it has eliminated all defects like knots, sloped grains and splits found in plantation wood.

COST SAVING APPLICATION

- Door Frames
- Chokat
- Lad Bearing Walls, Beams, Headers
- Window Frames
- Terrace



TECHNICAL PROPERTIES LAMINATED VENEER LUMBER

Properties	Ref. Standard	Value
Density	IS : 1708 (part(2) 1986	0.80
Moisture Content & Bolatile content	IS : 1708 (part-1) 1986	9%
Water absorption in 2 hrs.	IS : 14616 : 1999	1.56%
modulus of Rupture (N/mm ²)	IS : 1708 (part-6) 1986	98
Modulus of Elasticity (N/mm ²)	IS : 1708 (part-6) 1986	9000
Compressive Strength (N/mm ²)		
Parallet to laminate	IS : 1708 (part-8) 1986	45
Perpendicular to laminate	IS : 1708 (part-9) 1986	160
Horizontal Shear (N/mm ²)		
Parallet to grain	IS : 1708 (part-I) 1986	8
Perpendicular to grain	IS : 1708 (part-II) 1986	12
Tensile Strength		
Parallet to grain (N/mm ²)	IS : 1708 (part-12) 1986	60
Screw Holding Power	IS : 1708 (part-15) 1986	
Edge (N) Min		2500
Face (N) Min		3000

SIZES (IN MTRS.)

Length upto 10ft
Width upto 2 ft

THICKNESS

35mm, 60mm



361° RE-ENGINEERED SOLUTIONS

PRAGATI MR / BWR

IS : 710



Pragati offers an extra ordinary ply for customers who never compromise on quality in their interior furnishing. This extra-ordinary plywood offers extra layers of ply, extra layers of glue, extra strength and extra durability. Special in house manufactured resin is impregnated on the veneer to guarantee against delamination.

Finally, it is treated in a vacuum pressure impregnation plant, using specified quality of chemicals to make it resistant towards all micro-organisms.



ADVANTAGES OF MARINE PLY

Due to extra veneers in this plywood, chemical impregnation and extra strength, our ply can compete with any marine ply manufactured in India and overseas. It is fire-retardant, eco-friendly and cost effective. The special property of this product is anti-warp and anti delamination in adverse conditions.

NO. OF PLYS

6 MM	7 PLY
9 MM	9 PLY
12 MM	11 PLY
19 MM	15 PLY

USE OF MARINE PLY

- Furniture
- Shuttering
- Boat building
- Bus body building
- Computer rooms
- Partition





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TECHNICAL PROPERTIES MARINE PLY

Properties	Ref. Standard	Value
Moisture Content	IS : 1734 (Part I) 1983	10%
Density (gm/cc)	IS : 1734 (Part I) 1983	0.85
Water absorption in 24 hrs.	AS : 109 : 65 : Feb-2002	14.55%
Static Bending Strength (kg/cm ²) Along the Grain Across the Grain	IS : 1734 (Part-10)-1983	588.5 667.54
Compressive Strength (kg/cm ²) Perpendicular to grain parallel to Grain	IS : 1734 (Part-10)-1983	1736.45 434
Tensile Strength (kg/cm ²) Along the Grain Across the Grain	IS : 1734 (Part-9)-1983	659.84 593.33
Glue Shear Strength (kg)	IS : 1734 (Part 4) 1983	158.9
Swelling in Boiling water after 8 hrs.	C-9407	13.08%

SIZES (IN MTRS.)

2.44 x 1.22 2.44 X 0.92
2.14 X 1.22 2.14 X 0.92
1.84 X 1.22 1.84 X 0.92

THICKNESS

4MM, 6MM, 9MM, 12MM,
16MM, 19MM, 25MM, 43MM



361 RE-ENGINEERED SOLUTIONS

PRAGATI DENSIFIED WOODEN CHEQUERED FLOOR BOARDS

IS : 3513



Pragati Densified Chequered Floor are manufactured using eco-friendly local plantation timber, under strict quality control with German collaboration. The product provides a friction-resistant, anti-skid chequered surface, which is bonded with superior grade phenolic resin. It is a medium-density compreg plywood, which possesses excellent strength, durability and all weather resistance.

Pragati Densified Chequered Floor Boards are available in Resin Impregnated, Film Face and Metal cladded variants. A sound-absorbing floor board, which reduces the noise level by 21 DB, can also be provided. Each type of floorboard can be supplied up to a size of 3.2 meters x 1.75 meters per sheet

The ply conforms to IS : 3513 Part - II (Medium Density) and is used by the majority of state transport corporations in India.



ADVANTAGES OF CHEQUERED FLOOR BOARDS

Pragati Densified Chequered Floor Boards are treated on both sides with thermosetting phenolic resins and micro - organism resistant chemicals. This treatment protects the board from chips, cracks, warps, twists, termite, fungus, rot and abrasive action of water, sand and extreme weather conditions.

using our large floor boards can reduce the time and labour in laying bus and truck floors. It requires no pre/post treatment at the work-site thereby cutting down costs considerably. Easy cutting, routing, screwing, grooving gives pragati Densified Chequered Floor Boards and edge over aluminium and steel floor boards.

Overall, Pragati Densified chequered Floor Boards are an ideal blend of low weight, high strength, and high resistance to abrasion and extreme weather.

USES OF CHEQUERED FLOOR BOARDS

- Bus Flooring
- Factory Flooring
- Laboratories Flooring
- Truck Flooring
- Flooring for cold storage hall
ship, trains



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TECHNICAL PROPERTIES OF CHEQUERED (SILVER / GOLD)

Properties	Ref. Standard	Value
Density (gm/cc)	IS : 1708 (Part-2) 1986	1.1
Moisture Content & Volatile Content	IS : 1708 (Part-1) 1986	9
Water absorption in 24 hrs.	AS : 109 : 63 : Feb.: 2003	3%
Cross Breaking Strength (kg/cm ²) Along the Grain Across the Grain	IS : 1998 () : 1962	1300 650
Tensile Strength (kg/cm ²) Along the Grain Across the Grain	IS : 1734 (Part-9) 1983	900 700
Compressive Strength	AS : 109 : 63 Feb : 2002	Pass the test
Izod Impact Test (kg/cm ²) Parallet to laminate Perpendicular to laminate	IS : 1998 : 1962	65 40
Swelling in boiling water after 8 hrs.	AS : 109 : 63 Feb. 2002	10%

TECHNICAL PROPERTIES OF ALUMINIUM CHEQUERED

Properties	Ref. Standard	Value
Density (gm/cc)	IS : 1708 (Part-2) 1986	1.25
Moisture Content & Volatile Content	IS : 1708 (Part-1) 1986	8
Water absorption in 24 hrs.	AS : 109 : 63 : Feb.: 2003	2.5%
Cross Breaking Strength (kg/cm ²) Along the Grain Across the Gain	IS : 1998 : 1962	1500 1400
Tensile Strength (kg/cm ²) Perpendicular to laminate parallet to laminate	IS : 1734 (part-9) 1983	1983 990 935
Izode Impact Strength (kg/cm ²) Perpendicular to laminate parllet to lmainate	IS : 1998 : 1962	80 82
Glue Shear Strength Between Aluminium Sheet&plywood (N Min) Along the Grain Across the Grain	AS : 1734 (Part-4) 1983	2400 2400



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IS : 35 13



PRAGATI LONG LIFE DENSIFIED FLOORING FOR TRUCK BODY

Using sophisticated processes, Pragati manufactures an extraordinary long life densified flooring for trucks. The product provides a friction-resistant anti-skid surface, bonded with superior grade adhesive making it a high density plywood, which possesses excellent strength, durability and all weather resistance.



Pragati densified Flooring is manufactured from veneers peeled from eco-friendly plantation timber and carefully seasoned to the required 6% moisture content. The veneers are rotary cut, smooth and free from knot and splinters. Two layers of metal wire mesh reinforcements are added into the veneers and then impregnated with thermosetting adhesives conforming to IS : 848 : 1974. The veneers are finally densified under controlled conditions of high temperature and pressure.

ADVANTAGES OF DENSIFIED FLOORING

Due to its high density and metal wire mesh reinforcements, pragati Densified Flooring is superior to metal sheets and salwood currently used as truck floorings. pragati Densified Flooring is 40% harder than Indian salwood. Densified flooring does not show any wear and tear on the surface even in the rough and tough truck industry. The impregnation of thermosetting adhesives and high density, make the product extremely resistant against the abrasive action of mud, water, sand and extreme weather conditions. pragati Densified Flooring also provides cost reduction due to its long life. It is available as per size requirements thereby reducing the number of joints and the time and labour in laying the floors. Due to its high strength to weight ratio, the floorboard also saves fuel and wear and tear on truck tyres.

USES OF DENSIFIED FLOORING

- Truck Flooring
- Container Flooring
- Trailer Flooring
- Flooring of make shift houses



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TECHNICAL PROPERTIES DINSIFIED FLOORING FOR TRUCK BODY

Properties	Ref. Standard	Value
Density	0.9 gm/cc	1.00 gm/cc
Compressive Strength Flate Wise Edge Wise	1041 kg/cm ² 627.67 kg/cm ²	1811.37 kg/cm ² 700 kg/cm ²
Static Bending Strength Along with Grain Across the Grain	1750 kg/cm ² 300 kg/cm ²	1800 kg/cm ² 900 kg/cm ²
Impact Strength Edge Wise	30.10 kg/cm ²	35.16 kg/cm ²
Hardness (H scale Rockwell)	45	55
Water absorption in 24 hrs.	15%	6%
Hardness (H scale Rockwell)	19%	10%

THICKNESS

18 mm for light vehicles, 25 mm for medium vehicles, 35 mm for heavy vehicles

SIZE

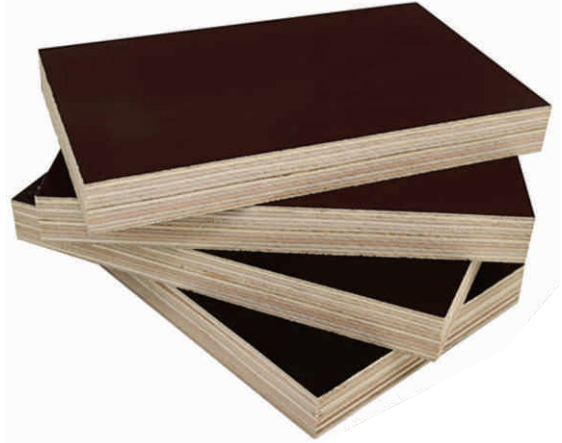
Only Pragati can offer sizes upto 11' x 6' for exacting needs of customers



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PRAGATI DENSIFIED FIRE RETARDANT MARINE PLYWOOD 4-IN-1 PLYWOOD

Pragati Densified fire Retardant Marine Plywood is a unique hardwood ply which exceeds four ISI standards (IS : 710, IS : 303, IS : 3513, IS : 5509), hence the name 4-in-1 plywood. No other plywood manufactured in India can stake this claim. The plywood is manufactured with veneers from hardwood plantation timber and impregnated with a special combination of highly effective fire-retardant chemicals prior to bonding. This provides uniform fire retardant characteristics not only on the surface but, to the very core of each veneer. The plywood is also treated with thermosetting resin and micro organism resistant chemicals. The plywood is finally densified under high pressure and temperature. There is absolutely no comparison between Pragati Densified Fire Retardant Marine Plywood and any other ordinary pressure treatment plywood.



ADVANTAGES OF 4-IN-1 PLYWOOD

Pragati Densified Fire Retardant Marine Plywood is unique and exceptional plywood that provides boiling water resistance for 250 hours. It also provides resistance to ignition surface flammability and flame penetration.

The plywood is treated with thermosetting resins and micro organism resistant chemicals. This treatment protects the board from chips, cracks, warps, twists, termite, fungus, rot and abrasive action of mud, water sand and extreme weather conditions. Further the chemicals impregnated are non-corrosive to aluminium and steel.

USES OF 4-IN-1 PLYWOOD

- Making chokots (35 mm) Door Frames
- Ship/boat building
- Flooring of tempos / Mini Trucks
- Container Flooring
- Walls of cold storage halls
- Alternative to metals particularly for tooling, jigs and moulds.



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COMPARISON BETWEEN 4 ISI STANDARDS WITH 4-IN-1 FIRE RETARDANT PLYWOOD

Properties	4-in-1	IS : 3513	IS : 710	IS : 5509	IS : 303
Density (kg/cm ³)	----	----	----	----	----
Glue Shear Strength (kg)					
Dry State	150	----	135	135	135
Wet State	135	----	100	100	100
Mycological State	130	----	100	100	100
Tensile strength (kg/cm ²)					
Along with grains	600	567	420	----	----
across the grains	300	----	250	----	----
Static bending strength (kg/cm ²)					
Along with grains	650	567	----	----	----
Across the grains	500	----	----	----	----
Compressive Strength	1300	1250	----	----	----
Flammability	30 Mins.	----	----	30 Mins.	----
Retardation of Preservatives (kg/cm ³)	16	----	12	15	----

SIZES (IN MTRS.)

2.44 X 1.22

THICKNESS

4MM, 6MM, 9MM, 12MM,
16MM, 19MM, 25MM, 43MM