



**ramaply**<sup>®</sup>  
मज़बूती बेमिसाल, चले सालों साल

**VACUUM PRESSURE IMPREGNATION TECHNOLOGY**  
Mfd. By  
**VPI**  
TECHNOLOGY

Doors

Shuttering Ply

Calibrated Ply

Marine Plywood

Automotive Grade Ply

Block Board

मज़बूती बेमिसाल, चले सालों साल



# Be a part of our life

We strongly believe in our motto of 'Serving Society Through Industry', we ride high on quality and our impeccable service. Starting in 1964, we have moved from one step to the other. Armed with more than 50 years of experience we have enriched ourselves to produce the best quality plywood, board, film face shuttering ply, flush doors, door frames, timber trading, steel on a pan India level. With over 500crores annual turnover, Rama Group boasts of certifications of the highest order in every area. With experienced people we at Rama Group pride ourselves in the knowledge of forestry, sawing, seasoning, plywood and door manufacturing.



## Rama Boards LLP

Rama Boards LLP, Satna, established in 1996, has manufacturing units known for producing international quality plywood, blockboard, shuttering ply, flush doors, and various types of automotive plywood. We are proud to be the market leaders in shuttering ply, blockboards and flush doors.

## Rama Panels Pvt. Ltd.

Rama Panels Pvt. Ltd. Rudrapur, established in 2007, is spread across fifteen acres of land, has ultra modern & hi-tech plant & machinery. All products manufactured are BIS certified.

## Rama Power & Steel Pvt. Ltd.

Rama Power & Steel Pvt. Ltd. manufacturing unit based in Raipur has launched its own TMT-500 Bars in the market to provide the best product & Service with the name of "RAMA TMT".

# Taking life ahead

## Vision

We have a strong belief in integrity and hard work. Our vision is to be a global player in the interior infrastructure industry by producing an incredible range of world-class products, while supporting every life we touch from within.

## Mission

Our dynamic organization is constantly committed to our mission of creating an organization where innovation takes the lead with a pool of talented individuals who take pride in being a leader. We are continuously fuelling the spirit of producing best quality products at affordable prices which will help in winning the trust of our customers.



# Our edge: Giving more to life



**VPI Technology:** VPI (Vacuum Pressure Impregnation) is an incorporated and advanced technology for wood treatment. The purpose of the Vacuum Pressure treatment is to force preservative chemicals deep into the cellular structure of the wood for assuring complete protection against Fungus, Insects, Termite and Pests. The preservative chemical acts as a barrier between the wood and biological deterioration agents so that the service life of wood can be substantially increased. For Vacuum Pressure Impregnation process, moisture of wood reduced before the application of the chemicals. In case of round logs treatments, logs are debarked by using various equipments so the chemical passes into the porous wood. VPI technology ensures the high durability of products. A technology that allows the active and proactive ingredients to better penetrate the wood fibers ensuring superior protection against Fungus and other pathogens. As a result of VPI, it is possible to enjoy the warmth and beauty of areas covered and decorated with wood for a long time.



**It is our Value...**

**It is in our processes...**

**It is in our products.**

**SDS is imbibed as value by our entire Ramaply Family.**

**Strength:** Every product we manufacture is made with an extraordinary core veneer hand-picked from seasoned wood, by our qualified team of experts, which allows the product to bear great load yet stand tall.

**Durability:** Our products go through rigorous hot and cold pressing procedure which elongates the life of our plywood. The product is treated with anti termite and anti powder chemical by VPI technology (Vacuum Pressure Impregnation) at different stages to guarantee the quality and durability.

**Safety:** We ensure all our products are safe to be used in all manners. No harmful chemicals are used during manufacturing and no harmful fumes are emitted by our products. Due to consistent quality checks all products are guaranteed for quality. All products are exceptionally strong.

Together, based on our three foundations of Strength, Durability and Safety; we have built a strong reputation globally. The company makes every possible effort to ensure that all individuals of the Ramaply family imbibe these values and offer their clients a unique mix of products of unmatched quality. The company's devotion and consistent hard work has given its stance a new meaning:

**मज़बूती बेमिसाल, चले सालों साल ।**



# Supporting life through Infrastructure

Touching lives is not a simple task. It needs infrastructure of the highest order to produce plywood that will support life through infrastructure / Handling Facilities / Auto loader and uploader in all machines.

We are the proud owners of two well established state-of-the-art factories in Satna and Rudrapur. Spread across acres of land, our facility is equipped with the most modern machinery in order to sustain the quality standards.

## Our units use machinery of international standards. Some of them are:

### In-house Intermediate products manufacturing facilities

- Full Fledged veneering unit
- Impregnation plant for phenolic film
- Saw mills unit
- Complete block board unit
- Glue kettle and glue mixture
- Auto block board core composer

### Seasoning Treatment Processing Facilities

- Mechanical roller jet driers
- Computerized and auto controlled seasoning chambers
- Vacuum Pressure Impregnation plant
- Tender sing machines

### Panel processing facilities and Machines

- CNC Router
- Panel Saw
- High Speed Router
- Hand Cutter Machine
- Jig Saw Machine
- Hand Router Machine

### Pressing & Assemble

- Heavy cold presses (pre-presses)
- Many Types of modern hot presses
- Glue spreaders
- Auto core – composer

### Finishing & Marking

- Auto controlled chain D.D. Saw
- Auto controlled segmented wide belt sanding machine
- Auto controlled wide belt calibrator
- Domino printing machine

### State of art, well equipped, most-modern lab and all testing facilities

### Handling Facilities

- Auto loader and unloader in all machine
- Many other latest handling equipments like fork lift, scissor lift, cranes etc.

### Utilities

- Latest and auto controlled steam boilers and thermic fluid heaters
- Cooling Towers
- Compressor etc.

# Our Team:

## Dedicated efforts to support life

'Hard work beats talent, when talent does not work hard'

We at Ramaply believe in this. That is why our team consists of

- Highly qualified professionals
- Well experienced professionals
- People who have been with Ramaply for more than 10 years





# Supporting life through Research & Development

We understand constant innovation and development is the way to make things better. Hence we have an in-house lab with A-line testing instruments to support this belief. Our very experienced Quality Assurance Team is in place to ensure all products are of the highest quality. Samples of all finished products, intermediate products and raw materials are drawn at every stage for testing which promotes ultimate Quality Assurance.

We are proud that all our products are **BIS** certified and are also tested by renowned labs. We have outstanding **TQM standards** and hence we are **ISO 9001** certified. Apart from this we are **FSC** certified under **CIRT (Central Institute of Road Transport)**, **IPRITI** and **Green Building**.

We take quality to be the foremost important element in all our products. Hence, all our efforts are dedicated towards producing outstanding Quality in everything we do.

# Doors

## IS: 2202 (Part 1)

Ready to use RAMA 100 % water proof flush doors can be mounted easily with minimum efforts to beautify your dream home. Doors are manufactured under strict quality control systems that fully comply with ISI specifications . The chemically impregnated battens & frames do not permit any attack of micro- organisms. Wider hardwood frames are sandwiched between PF glued veneers which are pressed under high pressure at controlled temperature. Battens are tightly filled in frames to make a very sturdy & perfect flush Door. It can be used ideally for both Internal & External uses.

### Types of Doors

#### **RAMA Flush Door IS: 2202 (Pt-I)**

Flush Doors available with external or internal lipping, louvers, vision panel, Double Leaf, Groove cutting as per requirement.

#### **RAMA Fire Retardant Door**

Available in 30/60/120 minute Fire Retardant property

#### **Moulded Panel Doors IS : 15380**

HDF skin in (2,3, 4, 6 & 8 panels)

#### **Core Material Options**

Solid timber core, Re-constituted wood core, tublar core, honey comb core.

#### **Face Material Options**

Available in Commercial, Teak, Natural, Recon & other Decorative Veneer, Designer Laminate, Door Skin Laminates etc as per requirement.





## Features :



**High Screw Holding Capacity & Super Strong**  
RAMA Doors is manufactured with single selected species of matured Hardwood for frames, battens & cross bands to make RAMA flush Doors **Super Strong** & Higher Screw Holding Capacity( 150- 200% higher screw holding value than specified in IS 2202).



**Borer & Termite Protected**  
Frames and fillers used in RAMA doors are treated with permanent type of preservative treatment through **Vacuum Pressure Impregnation Technology**. Strong anti termite & borer chemicals are also mixed with glue to make complete door resistant to Borer, termite and other wood destroying organisms.



**Seasoned by Auto Computerised Kiln**  
Frames & fillers of RAMA doors are uniformly dried & sterilised in Auto Controlled Imported Kiln seasoning chamber as per IS: 1141 (1993) specification which results into **free from** Warpage and Twisting.



**100% Boiling Water Proof**  
RAMA doors bonded with in house manufactured undiluted & un-extended rich Phenol Formaldehyde conforming to IS: 848 (1974). This sustains doors under most severe climatic conditions.



**Zero Gap Block Board Construction**  
RAMA doors are manufactured by Automatic Block Board composer machine to make zero gap.



**Free from Corrugation and Unevenness**  
RAMA Flush doors are calibrated in Calibration machine which results into free from **Corrugation , unevenness surface & uniform thickness**.



**Warp Free & Dimensionally Stable**  
RAMA doors are prepressed in Cold press machine before hot press and then given a special treatment after coming out from Hot press to relieve external stresses to make RAMA flush door Dimensionally stable & warp free.



**Lock Rail**  
Rama Flush Doors are provided with extra lock rail in the centre to hold the lock properly.

**THESE INGREDIENTS IN RAMA DOORS MAKE IT LIFE LONG DURABLE, SUPER STRONG & GIVE SMOOTH SURFACE FINISH.**

## Technical Specifications (IS 2202)

**Important Properties (As per IS: 2202 v/s test results of our products generally obtained)**

S. No.	Prescribed Tests	ISI requirement	Observed Value
1.	General Flatness Twisting Cupping Warping	Should not exceed 6.0 mm	3 mm 3 mm 3 mm
2.	Flexure Test	The residual deflection shall not be more than 1/10 of the max. deflection.	The residual deflection 0.65mm
		The deflection at max. load shall not be more than 1/30 of the length and 1/15 of width.	The deflection at maximum load 46.43mm
3.	Edge Loading Test	The deflection at maximum load shall not be more than 5mm. On removal of loads the residual deflection shall not be more than 0.5mm.	The deflection at maximum load 2.8mm On removal of loads the residual deflection 0.13mm
4.	Slamming Test	There shall be no any visible damage in any part of the door	No visible damage in any part of the door
5.	Varying Humidity Test	There shall not be any visible warping, twisting or delamination. The general Planeness shall not be more than 1.0mm	No warping, twisting or delamination. General planeness 0.64mm
6	Knife Test	Bond shall show minimum pass standard, poor or excellent	Excellent
7.	Glue Adhesion Test	Bond shall show minimum pass standard, poor or excellent	Excellent
8.	End Immersion Test	Door shutters shall be no delamination at the end of the test	No delamination at the end of the test
9.	Screw withdrawal resistance Test	The required load to withdraw the screw completely shall not be less than 1000N	2770 N
10	Moisture Test	-	15%

# Plywood

## (BWR & MR grade plywood)

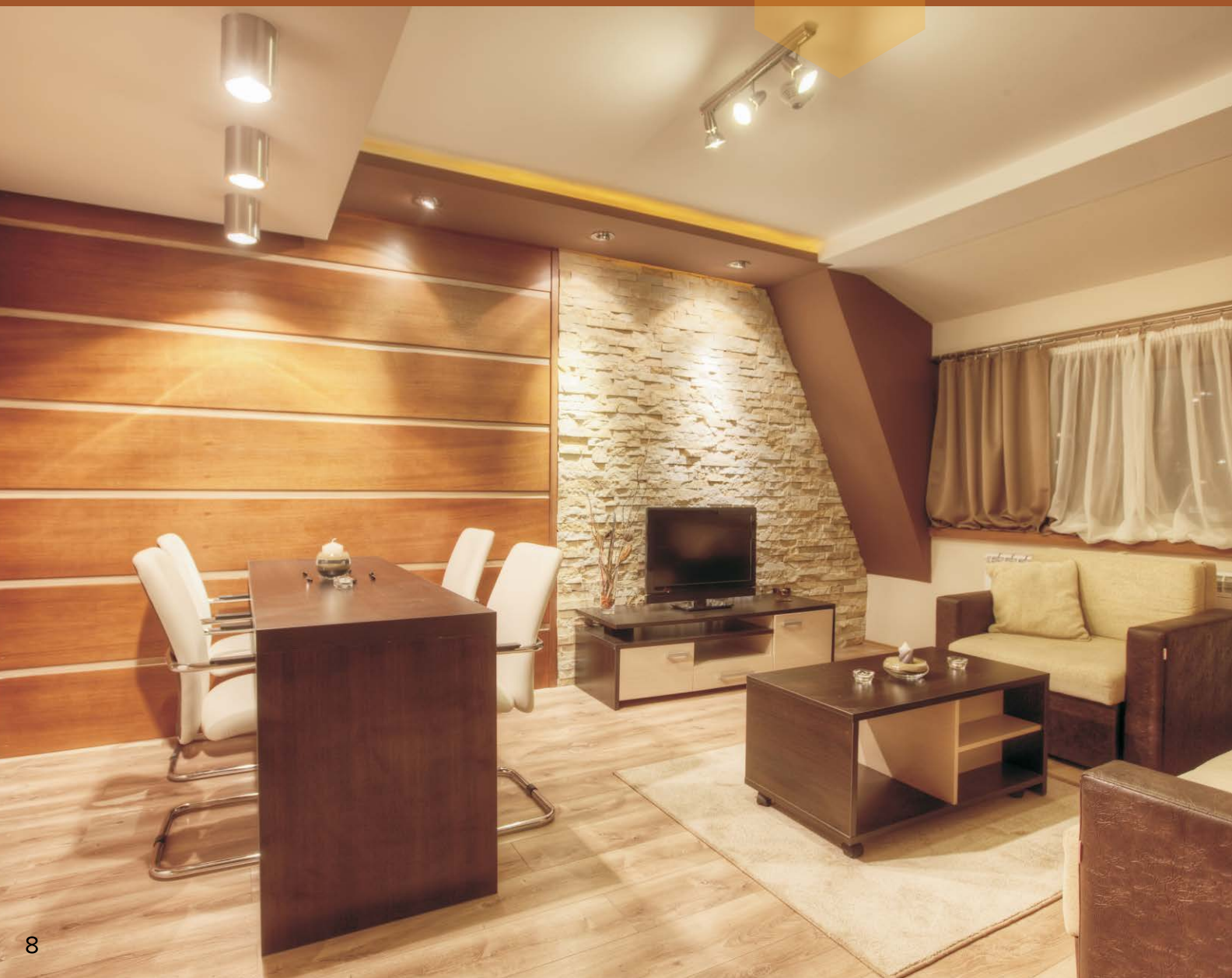
### IS: 303

Likely every individual dreams & plans for his/her dream home where they can enjoy their experiences of life & decorate in a memorable way which can be clubbed & shared together for life.

Similarly furniture also plays an important role in beautifying the home. We at RAMAPLY are the best sources in beautifying; strengthening & giving a new look to your furniture. Our edges i.e. SDS (Strong Durable & Safe) are the best examples which can be seen in RAMAPLY products. Since each & every plywood is passed through strict Quality checks at each stage and our special chemical treatment by VPI technology ensures lifelong durability of our products.

#### **RAMAPLY Comes in Two Grades:**

1. Rama Ply MR Grade Plywood
2. Rama Ply BWR Grade Plywood



## Features :



### Superior Bonding

- a. **MR Grade:**
  - i. Ramaply MR Grade ply is bonded with superior quality of resin to resist ply for 12hrs WWR (Warm Water Resistant) against 3hrs as per BIS.
- b. **BWR Grade:**
  - i. Ramaply BWR grade ply bonded with undiluted & unextended phenol formaldehyde resin which resists ply for 72Hrs boiling against 8hrs as per BIS.



**Twin Press Technology:** Rama Ply MR & BWR grade ply is manufactured by Twin Press Technology which results into:

- a. Warp free
- b. Super strong bonding
- c. Zero surface core gap.



### Structurally Strong

Selected species of matured timber is used for core veneer to make Rama MR & BWR Grade Ply Structurally strong.



### Borer & Termite Resistance

Each core veneer layer of Ramaply is treated with combination of various toxicant chemicals by VPI technology to make Ramaply resistant to Borer, Termite & other micro organisms.



**Superior Screw/Nail holding capacity:** Ramaply MR & BWR grade ply is manufactured from selected single species 100% dryer dried hard core veneers which gives ply superior nail / screw holding capacity.



### All Weather Proof

Ramaply manufactured with single species core veneers, bonded with enriched resin, pressed under high pressure & controlled temperature, balanced construction, chemical treatment etc makes Ramaply. All weather proof, dimensionally stable, Durable & long lasting.

**Thickness: 4, 6, 8/9, 12, 15/16, 18/19, 25mm or as per requirement.**

**Sizes: 8X4, 8X3, 7X4, 7X3, 6X4, 6X3 or as per requirement.**

## Technical Specifications (IS 303)

### Important Properties (As per IS: 303 v/s test results of our products generally obtained)

S.No.	Prescribed Tests	Grade BWR		Grade MR	
		ISI requirements	Observed Value	ISI requirements	Observed Value
1.	Dimensions <ul style="list-style-type: none"> <li>• Length</li> <li>• Width</li> <li>• Thickness</li> <li>• Edge straightness</li> <li>• Squareness</li> </ul>	+6mm / - 0 mm +3mm / - 0 mm $\geq 6\text{mm} \pm 5\%$ $< 6\text{mm} \pm 10\%$ < 0.2% < 0.2%	Within limit Within limit Within limit 0.11% 0.12%	+6mm / - 0 mm +3mm / - 0 mm $\geq 6\text{mm} \pm 5\%$ $< 6\text{mm} \pm 10\%$ < 0.2% < 0.2%	Within limit Within limit Within limit 0.14% 0.12%
2.	Moisture Content	5 - 15%	8%	5 - 15%	7%
3.	Glue adhesion <ul style="list-style-type: none"> <li>• Water resistance test</li> <li>• Mychological</li> <li>• Static bending strength</li> </ul> a. Modulus of elasticity <ul style="list-style-type: none"> <li>Along the grain (Avg.)</li> <li>Across the grain (Avg.)</li> </ul> b. Modulus of rupture <ul style="list-style-type: none"> <li>Along the grain (Avg.)</li> <li>Across the grain (Avg.)</li> </ul>	Pass standard 3 cycles of 8 hrs boiling & 16 hrs drying -	Excellent Withstand -	Pass standard 3 cycles of 3 hrs at 60° C in water & 8 hrs drying at 65° C Pass standard	Excellent Withstand Excellent

# Marine Plywood

## BWP Grade IS: 710

It's tough and it's durable. Exceeding all specifications of BIS, it is genuine marine plywood and has even been certified by the Bureau of Indian Standards. It is manufactured with selected pieces of core and face veneers. The veneers are bonded with phenol formaldehyde BWP grade resin under high temperature and pressure.

With further chemical treatment with water soluble fixed type preservatives under VPI technology which ensures protection against borers and termites. This specific stress relieving process is also useful in checking anti-warp properties of plywood, which makes it safe in both excessively wet or dry conditions.

**GURJAN  
CORE  
ENRICHED**



## Features :



**108 hrs. Boiling Water Proof against 72 hrs. (as per BIS)**  
Rama Marine ply – 710 is in house manufactures undiluted unextended PF (Phenol Formaldehyde) resin to make ply 108 hrs. BWP.



**Anti Warp**  
Selected core veneer is processed by tenderizing technology ply is pre pressed by cold press to make Rama Marine ply anti warp.



**Borer & Termite Proof**  
Rama Marine ply is treated with anti termite and anti borer chemical by VPI (Vacuum Pressure Impregnation) Technology to make Borer & Termite Proof and high load bearing capacity.



**Weather Proof**  
Rama Marine ply is 100% all weather proof which stands all conditions even at adverse & rough weather.



**Super Strong**  
100% selected hardwood species of core veneer and face veneer is used to make Rama Marine ply super strong.



**Extra Densified**  
Rama Marine ply is first pre pressed and then hot pressed under high pressure at controlled temperature to make extra densified.



**High Dimensionally Stable**  
Gapless and balanced Construction make RAMA Marine ply high dimensionally stable.



**Durable**  
RAMA Marine ply is life long durable.



**Super Smooth**  
Thick face veneer is used to make Rama Marine ply super smooth.



**Excellent Nail/Screw Holding capacity**  
RAMA Marine ply has high nail/ screw holding capacity due to high Density & Hardwood Core Veneers.

Thickness: 4, 6, 9, 12, 16 and 19 mm    Sizes: 8x4, 8x3, 7x4, 7x3, 6x4, 6x3 ft.

Also available in MR Grade IS:303

## Technical Specifications (BWP IS:710)

### Important Properties (As per IS: 710 v/s test results of our products generally obtained)

S. No.	Description	As per BIS	Our Test Results
1	Moisture Content (%)	5-15	6 - 10
2	Glue Adhesion in Dry State a) Glue Shear Strength (N) b) Adhesion of Plies (N)	Avg : 1350 Excellent/Pass/Poor	1560 Excellent
3	Water Resistant test (After 72 hrs. boiling) a) Glue Shear Strength (N) b) Adhesion of Plies (N)	Avg : 1000 Excellent/Pass/Poor	1280 Excellent
4	Tensile Strength (N/MM <sup>2</sup> ) a) Parallel to the grain direction b) Perpendicular to the grain direction c) Sum of both the directions	Min : 42 Min : 25 Min : 84.5	57 38 95
5	Mycological Test (N/MM <sup>2</sup> ) a) Glue Shear Strength b) Adhesion of Plies	Avg : 1000 Test pieces shall show no appreciable sign of separation at the edges	1204 No sign of edges separation
6	Static Bending Test (N/MM <sup>2</sup> ) a) Modulus of Rapture - along the grain Avg. - across the grain Avg. b) Modulus of Elasticity - along the grain Avg. - across the grain Avg.	50 30 Min 7500 Min 4000	65 40 8805 5570
7	Retention of preservative (Kg/m <sup>3</sup> )	Min 12	15

# Block Board

**(BWP Core Composed & MR Grade) IS: 1659**

Rama Block Board MR Grade & BWP Grade is manufactured in accordance to IS: 1659. It has many salient feature as mentioned below. It has a density of more than 0.60 gm/cc and is eco friendly.

Rama Block Board is carpenter friendly and durable under every tool. It can withstand various climatic conditions. It is ideal for application in cup-board, shelves, shutters, partition and load bearing horizontal panel application.

**100%  
New Zealand  
Pine  
Block Board**



## Features :



### Seasoned by Auto Computerized Kiln

The Wooden battens of Rama Board are uniformly seasoned by automatic computerized seasoning kiln plant and maintained moisture between 6% to 8% uniformly even at inner most portion.



### Anti Warp

Rama Block Board is manufactured by pre-press technology to make Rama Block Board anti warp and super bonded.



### Structurally Stronger & High Load Bearing Capacity

Selected species of matured timber is used for block board battens and core veneer to make Rama Block Board structurally strong and having High Load Bearing capacity.



### Durable

Rama Block Board is durable for longer life.



### Super Bonded

Rama BWP Grade Block Board is bonded by undiluted and unexetant PF resin and Rama MR Grade block board is bonded by MUF resin and pressed under high pressure at controlled temperature to make Rama Block Board Super bonded.



### Excellent Screw Holding Capacity

Rama Block Board has excellent screw holding capacity by using matured & selected timber.



### Super Smooth Surface

Thick face veneer, uniform thickness and uniform seasoned block board battens are used to make super smooth surface of Rama Block Board.



### Borer & Termite Protected

Rama Block Board is chemically treated by VPI (vacuum pressure impregnation) technology to make Rama Board Borer & Termite Protected.

Thickness: 19mm, 25mm or as per requirement.

Sizes: 8X4, 8X3, 7X4, 7X3, 6X4, 6X3 or as per requirement.

OST and BST Block Boards are also available.

## Technical Specifications (BWP Core Composed & MR Grade) IS: 1659

### Important Properties (As per IS: 1659 v/s test results of our products generally obtained)

S. No.	Prescribed Tests	Grade BWP		Grade MR	
		ISI requirements	Observed Value	ISI requirements	Observed Value
1.	Moisture content (%)	5 - 15	8 - 10	5 - 15	8 - 10
2	Resistance to water	No Delamination after 72 hrs boiling	Excellent bonding after 72 hrs boiling		
3	Dimentional changes caused by humidity	No more than $\pm 1$ mm	Within Specified Limit		
4	Adhesion of plies	Minimum	Excellent	Minimum	Excellent
5	Mycological test	No appreciable sign of separation at edges	No separation at edges	Minimum	Excellent
6	Modulus of Rupture (Avg.)	50 N/mm <sup>2</sup>	64 N/mm <sup>2</sup>	40 N/mm <sup>2</sup>	52 N/mm <sup>2</sup>
7	Modulus of Elasticity (Avg.)	5000 N/mm <sup>2</sup>	6400 N/mm <sup>2</sup>	4000 N/mm <sup>2</sup>	4800 N/mm <sup>2</sup>
8	Spot Test	Treated Preservative	Treated		
9	Screw Holding Strength (Kg)	80	7200		
10	Nail Holding Strength (Kgs)	50	7100		

# BWP Grade Fire Retardant Marine Ply

## IS: 710 & 15061 /5509

### Types of Fire Retardant Ply

- BWP Marine Grade Fire Retardant Ply710 & 15061
- BWP Marine Grade Fire Retardant Ply 710 & 5509
- BWP Marine Grade Fire Retardant Ply 710, 15601 & 5509

Quality of Rama FR ply is certified by following reputed institutes –ARAI,ICAT, CIRT & BIS situated in India & Ministry of Belgium has awarded ECE R118 certifications to use RAMA Plywood in European countries buses. Volvo, Tata, Eicher, Mahindra, Daimler have been using the RAMA FR Plywood since 5-7 years with greatest quality satisfaction.

Apart from the features of BWP Grade Marine Ply 710, Rama FR Ply has many more following Advance features:-

### Features :



#### Non hygroscopic in nature

It does not corrode the hardware elements like nails, screws over a period of fitted in buses.



#### Treated by V.P.I Technology

Before pressing all Veneers are treated by FR chemical through VPI Technology (Vacuum Pressure Impregnation Technology) and then after hot pressing, Ply is again treated by FR NON –LEACHABLE Chemicals.



#### Customized design and dimensions availability

As per floor design of coaches.



#### Easy to cut

It is Carpenter friendly without compromising strength.



#### Excellent surface for Lamination

Super adhesion property of surface veneer makes RAMA FR ply excellent for lamination.



**Application :- Exterior & Interior application for vehicle bodies, Furniture, Kitchen cabinets etc.**

**Sizes:- standard 2.44 \* 1.22 meter (8x4 Ft) or as per customer's requirement.**

**Thickness :- 4, 6, 9, 12, 16, 19, 25 mm or as per customer's requirement.**

S. No.	Description	As per BIS	Our Results- For 12mm thick
1	Flammability Test	Time taken for second ignition shall not be less than 30min.	52 Minutes
2	Flame Penetration test	Time taken for flame penetration of plywood will be 15t/6 minutes where t is thickness	56 Minutes
3	Rate of Burning	Time taken to loss of weight from 30% to 70% shall not be less than 20 minutes	48 Minutes
4	Horizontal Rate of Burning	considered satisfactory if taking the worst test results into account, the horizontal burning rate is not more than 100 mm / min	Flame extinguishes before reaching the first measuring point
5	Vertical rate of burning	considered satisfactory if taking the worst test results into account, the vertical burning rate is not more than 100 mm / min	The fire existing before the marking thread



# Teak Plywood

## IS: 1328

Teak Decorative Ramaply is the best choice for those looking for better and inexpensive option for enhancing interiors compared to ordinary plywood. Added to the advantage of being durable and maintenance-free, it contains a natural oil for resisting fungal growth. The ideal mix of strength and beauty makes this Rama Teak ply a favorable buy for long-lasting interiors.

Teak Plywood are manufactured by using extra thickness teak veneer on plywood made of superior quality wood. These plywood veneers are bonded with melamine formaldehyde resin / phenol formaldehyde resin for better bonding, shine and stain free surfaces.

Teak Veneers are natural veneers made of 100% Burma Teak. They conform to IS 1328 and are termite resistant. They are available in both Horizontal & Vertical grain and in One Sided Teak (OST) and Both Sided Teak (BST) grades. It is CE certified eco friendly and conforms to E1 Standards for Emission.

Natural Teak Veneers are ideal for Panel inserts in Panel doors and windows as well as in domestic and office areas and in all other interior applications.

### Application

- Ornamental styling like railings and fittings
- Home and office furniture - doors and table tops
- Panelling
- Partitions
- Interior decoration in general



## Technical Specifications (IS 1328)

### Important Properties (As per IS: 1328 v/s test results of our products generally obtained)

S. No.	Prescribed Tests	ISI requirement	Observed Value
1	Moisture Content (%)	5 - 15	10 - 12
2	Squareness Test (%)	< 0.2	< 0.1
3	Edge Straightness Test (%)	< 0.2	< 0.1
4	Modulus of Elasticity (Parallel to Face Grain) (N/mm <sup>2</sup> )	4000	5150
5	Modulus of Elasticity (Perpendicular to Face Grain) (N/mm <sup>2</sup> )	2000	3460
6	Modulus of Rupture (Parallel to Face Grain) (N/mm <sup>2</sup> )	30	35
7	Modulus of Rupture (Perpendicular to Face Grain) (N/mm <sup>2</sup> )	15	37
8	Water Absorption (%)	< 1	< 1
9	Adhesion of Plies	Pass Standard	Conforms

# Film Faced Shuttering Plywood

Rama Ply offers various premium quality of shuttering ply, capable of highest level of performance for all types of uses in the construction Industries. Rama Film Faced Shuttering Ply can withstand the corrosive action of cement , water & sunlight. It is preferred by many gigantic construction companies for their prestigious projects in India as well as overseas.

Rama Ply offers many types of shuttering ply for different types of concrete work and as per uses. High Densified Rama Max Shuttering ply is suitable for High Rise Buildings for Mirror Finish & very High Repetitions.

## Types of Film Face Shuttering Plywood

- Compressed Film Face Shuttering Ply (Density 0.6+) – IS 4990
- Densified Film Face Shuttering Ply (Density 0.84) – IS 4990
- Extra Densified Film Face Shuttering Ply (Density 0.95) – IS 3513
- Extra Densified Film Face Shuttering Ply Rama Max (Density 0.95) – IS 3513 (Specially manufactured for very HIGH REPETITION & MIRROR FINISH)
- Extra High Densified Film Face Shuttering Ply (Density 1.06) – IS 3513
- Densified Laminated Veneer Lumbers (LVL)

**Thickness : 9, 12, 15/16, 18/19mm or as per requirement**

**Size : 2440 x 1220 mm or as per requirement**



## Features :



### Higher GSM Phenolic Film

RAMA Shuttering ply is overlaid by high quality thick polymer film on both sides, which virtually fuses into the surface due to high pressure & temperature which in return gives **Higher Repetitions**.



### Mirror Surface Finish

Stainless Steel thick plates grade SS 304 of **Mirror Finish** is used for manufacturing Rama Shuttering Ply to get **Mirror Finish** surface. This results in,  
**a) Smooth & even surface to concrete**  
**b) Zero need of plastering after repeated use**



### High Density

RAMA Shuttering ply is made of 100% hardwood veneers of selected species & pressed under high pressure at controlled temperature to make ply **Super Strong** which-

- **Withstands high degree variation in temperature**
- **Withstands higher mechanical loads hence requires less quantity of framework**
- **Withstands load of wet concrete hence no deflation & bulging on concrete casting.**



### Prepress Technology

RAMA shuttering ply is manufactured by prepress technology to make ply **Warp Free**.



### 100% Boiling Water Proof

Rama Shuttering Ply bonded with in house manufactured undiluted & unextended rich Phenol formaldehyde conforming to IS: 848 (1974) to make ply 100% BWP. All the veneer layers of Shuttering Ply are glued.



### Anti Swelling

Rama Shuttering Ply is manufactured with special resin treatment process where the retention of resin is 300% more than the ordinary ply. All layers of core veneer are first Tenderized and then glued. The Tenderization process of core veneer leads to penetration of glue in pores of core veneers. This process makes Shuttering Ply **resistant to swelling**.



### Excellent Nail / Screw Holding

Rama Shuttering Ply has high nail/ screw holding capacity due to its higher density & hardwood core veneer used.



### Uniform Thickness

Rama Shuttering Ply has uniform thickness in accordance to BIS specification thus resulting in even surface to concrete.

## Technical Specifications (IS- 4990 )

### Important Properties (As per IS: 4990 v/s test results of our products generally obtained)

Test	ISI Requirement	Observed Value
<b>Moisture Content</b>	5% - 15%	9%
<b>Modulus of Elasticity</b> Along the grains of Face Veneer	Avg 7500 N/mm <sup>2</sup> Min. Individual 6700 N/mm <sup>2</sup>	8400 N/mm <sup>2</sup> 6910 N/mm <sup>2</sup>
<b>Modulus of Rupture</b> Along the Grains of Face Veneer	Avg. 50 N/mm <sup>2</sup> Min. Individual 45 N/mm <sup>2</sup>	53 N/mm <sup>2</sup> 47 N/mm <sup>2</sup>
<b>Glue Adhesion in Dry State</b> Glue Shear Strength	Avg. 1350 N Min. Individual 1100 N	1430 N 1240 N
<b>Water Resistance Test</b> Glue Shear Strength	Avg. 1000 N Min. Individual 800 N	1240 N 910 N
<b>Tensile Strength</b> Parallel to the grain direction	Should not be less than 32.5 N/mm <sup>2</sup>	38.8 N/mm <sup>2</sup>
Perpendicular to the grain direction	Should not be less than 22.5 N/mm <sup>2</sup>	26.2 N/mm <sup>2</sup>

# Automotive Grade (Transport Sector) Plywood

Ramaply specially made for Automotive (Transport Sector) is most advanced & upgraded, specially when it comes to Quality, Accuracy & Consistency. Ramaply Automotive Grade Ply is pioneer in transport industry.

**Quality & Specifications of Range of RAMA Automotive ply is certified by reputed institutes such as: ARAI , ICAT , CIRT & BIS in India & Ministry of Belgium has awarded ECE R118 certifications to use RAMA Plywood in European countries buses.**

The manufacturing of **RAMA automotive Ply** is highly specialized as it not only requires control of the quality of veneers but also requires tremendous control on the characteristics of resin used. Similarly, the process of the treatment of impregnation of veneers, polymerization of resins in the veneers up to the desired stage and assembly of the same to the predetermined weight and finally compressing requires a lot of control which is supervised by experienced & trained professionals. The on line stringent quality control systems and step by step quality checking at every stage further ensures that each batch manufactured is of highest quality.



## Range of Automotive grade RAMA Plywood for Transport sector:-

### 1. Densified Chequered Ply IS 3513 & IS:710. (Compreg Ply)

It has excellent anti skid chequered surface on one side of plywood. Also available fire retardant densified chequered plywood confirms to IS 5509/IS 15061 as per BUS code specifications duly approved by ARAI. It has inherent fire retardant properties.

### 2. Aluminium composite cladded Ply

It's manufactured in a combination of Plywood & 5 bar aluminum chequered sheet of 0.5 /1/ 1.5mm thickness as per customer's requirement and has excellent bonding between the plywood & aluminum due to bond with Phenol Formaldehyde resin under very high temperature & pressure.

### 3. High Density Ply IS: 3513-Part-3, Type-6 –(JNNURM/Compreg Grade)

Available in density between 0.95 to 1.35 gm/cm<sup>3</sup>. This product is widely used in JNNURM Project buses.

### 4. RAMA Truck Flooring Plywood ( IS:3513 /710)- (With wire mesh)

Reinforced by two layers of metal wire mesh to increase its load bearing capacity & mechanical properties. It's suitable for Truck flooring application & it has square shape chequered pattern on top surface to make it anti skid.

### 5. RAMA Fire Retardant Plywood (IS:710&15061)

(See details in Marine/FR page)

### 6. RAMA Premium Fire Retardant Plywood (IS:710, 5509 &15061)

(See details in Marine/FR page)

### 7. Metal embossed Fire Retardant Plywood

Metal sheet of requisite thickness reinforced in the plywood to increase the load bearing & strength of the plywood.

### 8. Sound Resistant Plywood

Coupled with Cork/Rubber sheet to get the excellent sound resistant results in the plywood.

## Special features of RAMA Automotive (Compreg) Plywood



**100% Boiling Water Proof:** RAMA ply bonded with in house manufactured undiluted & un-extended rich Phenol Formaldehyde confirming to IS: 848 (1974) to make ply 100% Boiling Water Proof.



**High Density :** RAMA ply is made of 100% hardwood veneers of selected species & pressed under high pressure at controlled temperature to make ply **SUPER STRONG** which-

- Withstands high degree variation in temperature.**
- Withstands higher Mechanical loads hence requires less Quantity of framework/Support.**
- Withstands at higher load hence no deflation & bulging while use.**



**Each Layer Glued-Low Swelling:** RAMA ply is manufactured with special resin treatment process with 50% Extra Layers of veneers wherein in each layer the retention of resin is 300% more than the Ordinary Ply. This inturns Minimises Swelling (almost Negligible) even if continuous in rain water.



**Excellent Nail/ Screw holding capacity:** RAMA ply has high nail/ screw holding capacity due to high Density & Selected Hardwood Core Veneers.

**Application :-** Exterior & Interior application for bus body manufacturing, truck flooring, rail coaches etc.

**Sizes:-** standard 2.44 \* 1.22 meter or as per customer's requirement.

**Thickness :-** 9, 12, 15/16, 18/19, 25, 28, 30 mm etc.

Rama automotive ply has won the full confidence (continuously for last few years) of prestigious OEMs like Tata Marcopolo, Tata Motors, Eicher Trucks & Buses, VECV, Volvo, Mahindra, ACG, MSRTC, DTC, JNNURM etc.

# Corporate Clients

## Automotive

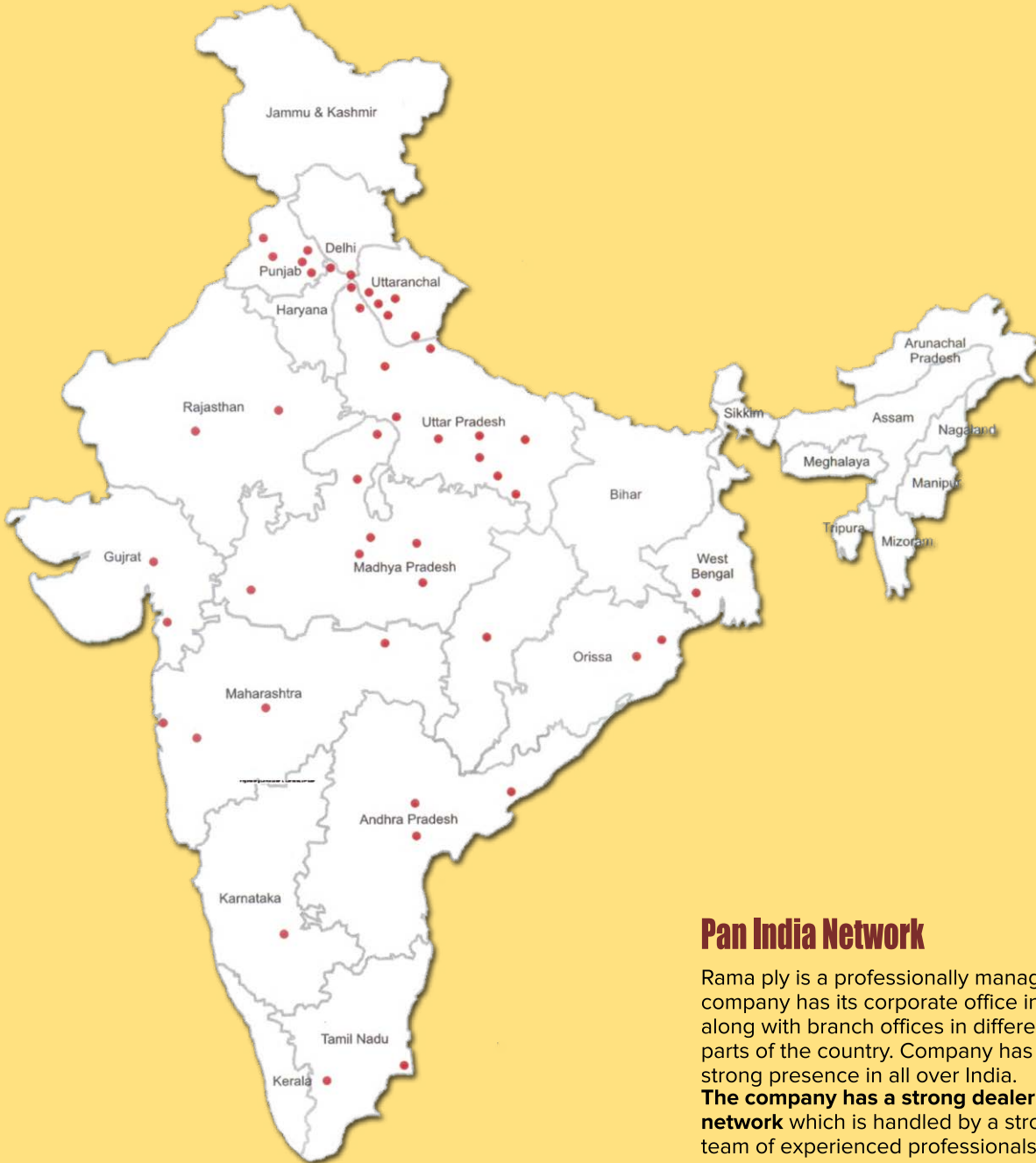


## Flush Doors



## Ply





## Pan India Network

Rama ply is a professionally managed company has its corporate office in Delhi along with branch offices in different parts of the country. Company has its strong presence in all over India.

**The company has a strong dealer network** which is handled by a strong team of experienced professionals.

- Andhra Pradesh
- Assam
- Bihar
- Chhattisgarh
- Goa
- Gujarat
- Haryana
- Jammu & Kashmir
- Jharkhand
- Karnataka
- Madhya Pradesh
- Maharashtra
- New Delhi
- Odisha
- Puducherry
- Punjab
- Rajasthan
- Tamil Nadu
- Tripura
- Uttar Pradesh
- Uttarakhand
- West Bengal



**Rama Panels Pvt. Ltd.  
Rama Boards LLP**

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**Branch Offices**

Mumbai, Delhi, MP, CG, Orissa

**Customer Care No. : 7440966666**

**E-mail : contact@ramaply.com**

**Website : www.ramaply.com**