

WOODNEWS

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Anuj Divanji
(MD, Ritikaawood)
on wood flooring

INSIDE

Wood Art:

Insight into natural and 3-D veneers

Going Vertical:

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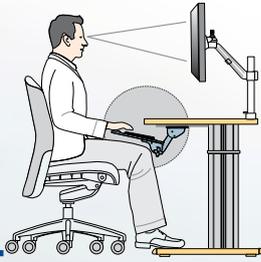
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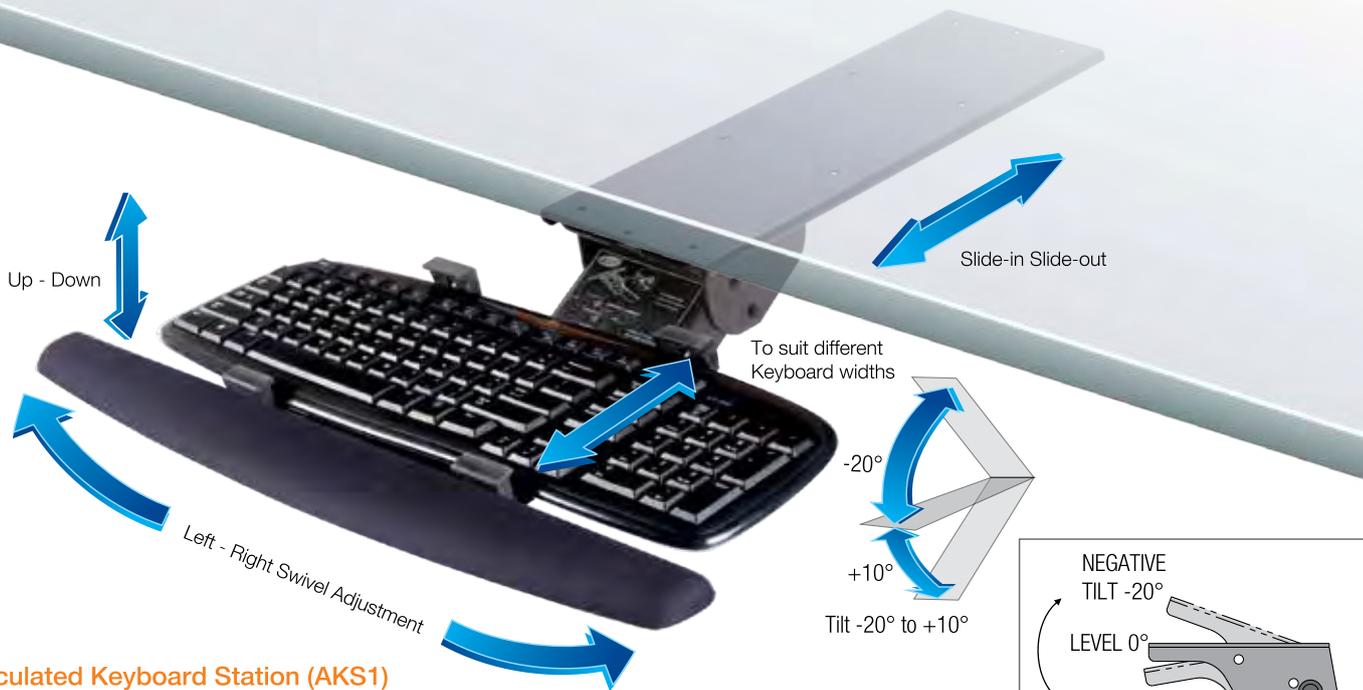
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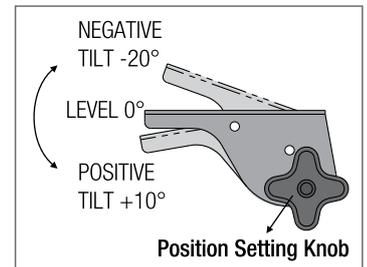


Ergonomics @ Work

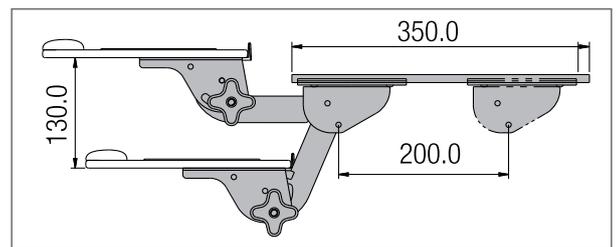
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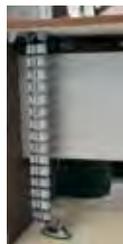
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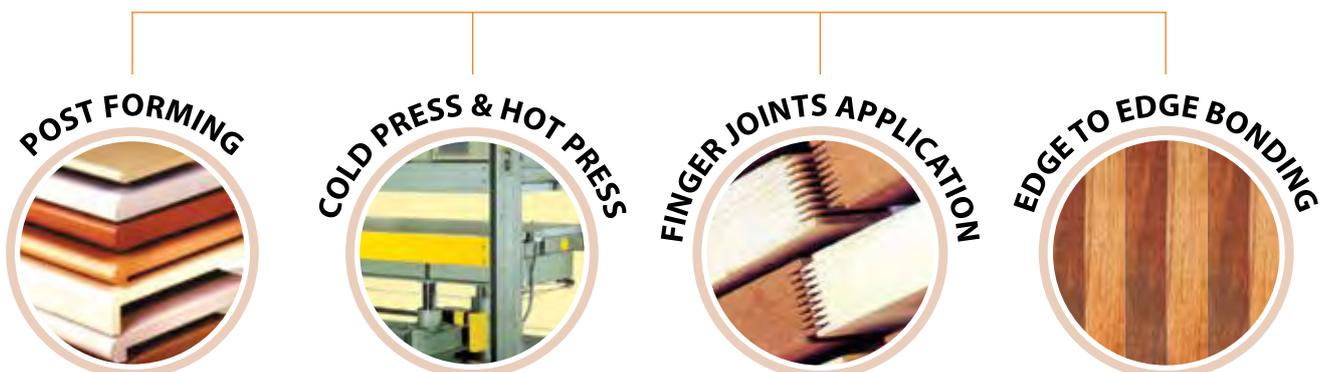
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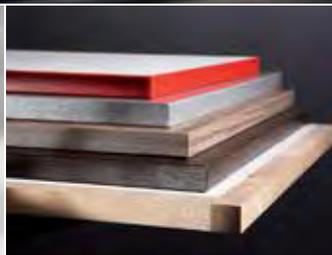
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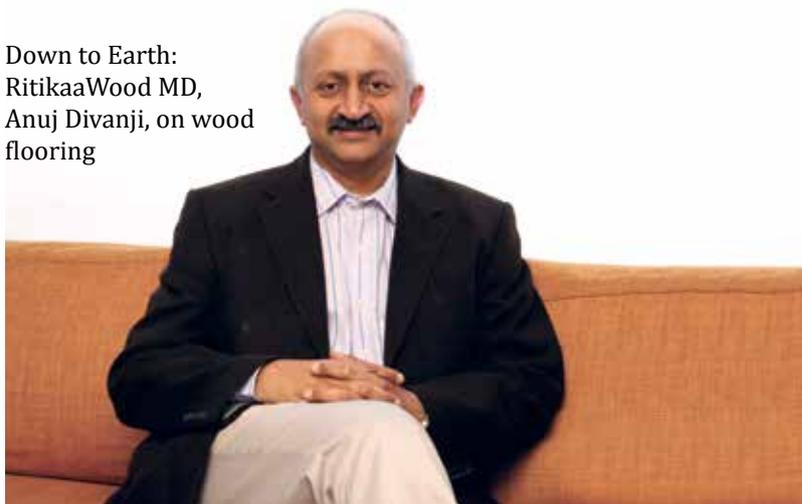
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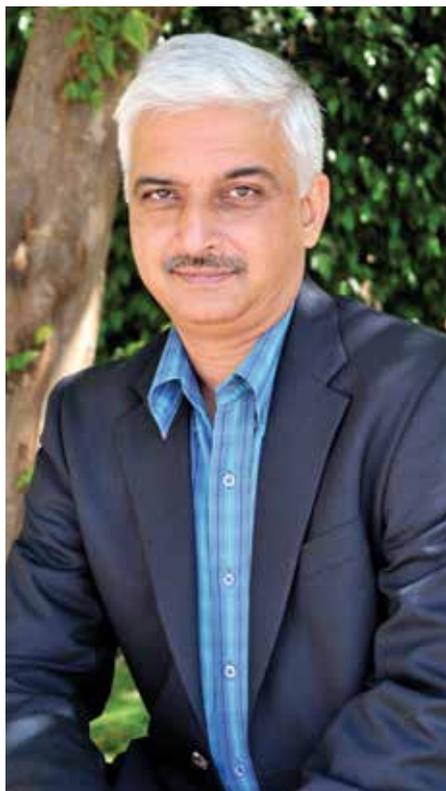
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EDITORIAL



Welcome back Readers!

When I initiated content generation for the special focus on flooring in this issue, little did I realise the tremendous scope and variety of the subject! From the mud and stone floors of yore, human ingenuity has harnessed cement, ceramics, laminates, plastics, woven textiles – even glass – to cover the ground beneath our feet. However, wood still stands out for various reasons: it is a natural, renewable and environment-friendly resource. As such, it was employed in flooring across India: from the cold of the Himalayas in the North to the interiors of palaces and traditional homes in the sub-tropical (hot) and coastal (humid) climates of Kerala in the South.

Wood in flooring not only has excellent acoustic and anti-static properties, it also acts as a natural ally of air-conditioning! However, wood's inherent vulnerability to humidity and pestilential attacks have architects and interior designers fighting shy of the risks. The high cost and scarcity of scientifically harvested wood also seem to have played a role in its diminished use in recent times. But no more: modern technology, machines and chemicals have now rendered wood as attractive (if not more) as other flooring options. Read on for the details – by no means exhaustive, but indicative of what you will get to read in future issues of *WoodNews*!

Another aspect of wood engineering is the use of glue- and cross-laminated timber and its use to face the ultimate challenge: conquering heights! Using these new technologies and their products, experts have designed, executed and delivered housing projects 10 storeys (32 metres) tall. What is more, its construction cuts down on carbon-dioxide emissions by more than 1,400 tonnes when compared to concrete and steel. It has now been proved beyond doubt that timber can be employed for load-bearing walls, floor slabs, as well as stair and lift cores. More on that in the pages within.

I consider natural veneers 'wood art': they are unique, and capture not only the beauty of the wood they are sliced from, but also the soul of each parent tree! Where each cubic metre of wood is capable of generating enough veneer to cover 16 bedroom cabinets, can you imagine the joy it spreads to thousands of its end users? Plus, veneer adds stability and durability to MDF and plywood. Like they say, a thing of beauty is a joy forever..

Until next time.

Dhananjay Sardeshpande



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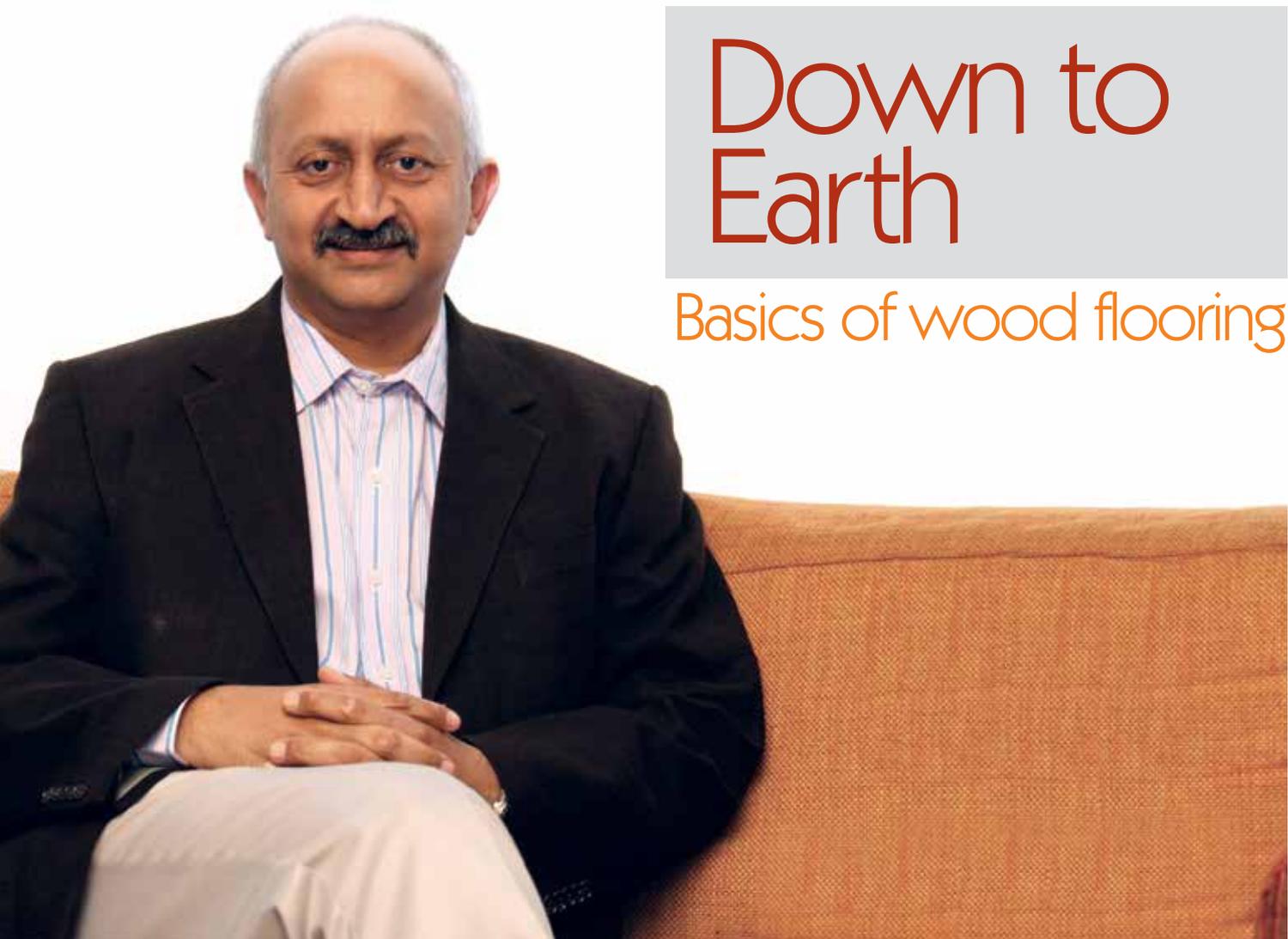
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Down to Earth

Basics of wood flooring

While floors of all materials (stone, wood, ceramics, concrete or linoleum) and uses (domestic, industrial, indoors or outdoors) have their own pros and cons, the real challenge lies in harnessing natural, renewable and environment-friendly resources that come from wood species. *WoodNews* asked a leading veteran in the field, **Mr. Anuj Divanji**, Managing Director of Ritikaawood, to enlighten its readers.

Of wood, concrete, stone, ceramics (tiles) or laminates, what is best for flooring? Why?

Every material has its place, with its own unique properties, and therefore applications. When it comes to wood, it provides a very warm, natural feeling, particularly when walked upon barefoot. In addition, wood provides excellent thermal insulation, which saves heating costs in cold areas and air-conditioning costs in hot tropical regions by better retaining the effect of air-conditioning in a room.

For outdoor flooring though – particularly when exposed to sun and trod barefoot – any other material

(stone, ceramic, concrete, etc.) will get extremely hot and uncomfortable to walk barefoot. On the other hand, a wooden deck, even when exposed to direct sunlight, will gain minimum temperature, which makes it more comfortable.

What technical and aesthetic factors does one consider for safe and durable flooring?

There are various aspects for durability of wooden flooring: dimensional stability, water resistance, scratch resistance, termite resistance, etc. While all natural wood species expand and contract with changes in atmospheric humidity, this is less in certain hardwood species and more in other species.

This can lead to warping over time and the floor can become uneven. Engineered woods are more dimensionally stable and, therefore, should be preferred.

Most wood species (except Accoya, which is modified) are food for termites and, therefore, need additional anti-termite treatment for protection. Naturally, hardwoods are more termite-resistant as compared with other woods.

Sub-structure dampness and water leakage in the immediate vicinity of wooden floors can cause permanent dampness and, therefore, premature rotting of the wood. Site preparation is therefore most important.

There are some design factors that assist as well. Good quality timber coatings, sealing of end grains etc. further enhance durability of timber floorings.

Some species are inherently more scratch-resistant than others. If one prefers the aesthetics of a species that are not very scratch-resistant, then appropriate coatings must be used to protect the flooring from scratches. Having said that, wood being a resilient material, scratches on a solid wood floor (not on engineered or laminate floors) can be easily repaired.

What are the differences between flooring, decking and cladding?

Cladding: is mainly used on walls or as a false ceiling. It is usually used for aesthetic purposes and to protect the surfaces clad from exposure to weathering. Cladding can be indoor or outdoor. When used outdoors, it is often exposed to rain and sun, which affects the timber significantly.

With any other timber cladding (except RitikaaWood cladding) one can expect to carry out maintenance works more often: typically once a year. As with any timber application, a good design and implementation can significantly enhance the life of cladding. Particular attention must be given to ensure that any water incident on the cladding drains off quickly and does not stagnate on the wood.

Decking: is the most demanding application for any material as it is horizontally laid and therefore exposed to direct rain, intense sunlight and heavy loads. It is particularly prone to termites, since it is in close proximity with the ground, and can often be damp.

Again, a good design and implementation can significantly enhance the life of a decking product. Another important aspect of decking, which is often neglected, is the type of fixing. If fixed using visible screws, these are points from which the decking can start to crack and become an entry point for water to get in and further deteriorate the wood.

A hidden fixing system requires a more stable wood species, but can offer a significantly higher life. All of the above-mentioned design and implementation precautions, combined with an extremely stable wood species, allow RitikaaWood decking to offer a lifetime timber warranty of 50 years!

Flooring: also needs to be designed and implemented within certain guidelines. While most floors are designed for dry interior areas, our

floorings can also be used in wet areas such as bathrooms, sauna rooms, verandas, etc.

How do wood species and technical specifications differ for domestic and commercial flooring?

The primary difference in terms of application for a domestic flooring versus commercial flooring is the extent of traffic and therefore wear and tear. Also, in a commercial application, the chances of impact damage, water spillage and scratches are much higher.

Wood being a resilient material, impact and scratch damages can easily be repaired only in the case of solid wood flooring. Engineered wood and laminated floors cannot be repaired – they have to be replaced.

We normally advise using slightly thicker sections in commercial areas to permit more extensive repairs and, therefore, ensure a longer service life when compared with floors in domestic applications. Similarly, one would prefer high performance coatings which can sustain much higher wear and tear in case of commercial applications.

What are the special demands when it comes to industrial and sports flooring?

The most critical factor in industrial flooring is the risk of damage from impacts and scratches, which must be protected by high performance coatings and higher density wood which is dimensionally stable. Also to be considered – especially in hospitals – would be friction or smoothness of the floor to prevent slippage, and a coating that will prevent any fungal growth.

For sports flooring, besides higher resilience and dimensional stability, good fixing methodology is very important. Also, different sports require different levels of friction/smoothness, which needs to be customized using appropriate coatings.

What are the other important attributes of wooden flooring?

Health and safety: One needs to ensure use of non-toxic timber treatment and coatings with low VOC (volatile organic content), which can be carcinogenic.

Fire resistance: Any wood stands the risk of catching fire, but this can be reduced by fire retardant coatings. It must be noted that wood burns slowly, therefore any fire-fighting system can easily overcome the risk of fire being fuelled due to a wooden flooring.

Moisture and insect resistance: Moisture is the most critical risk for any real wood product. This must be reduced by best practices in design, manufacturing, installation and coating, as explained in my answers to other questions. Sustained dampness can not only cause premature rotting of wood, it also significantly increases the chances of attacks by termites and other insects.

Acoustics, anti-static and thermal properties: These are useful functional attributes of wooden flooring.

Thermal properties are an inherent characteristic of wooden flooring. For acoustic insulation, glued-down installation must be carried out.

Modern technology enables ease of installation and maintenance of wooden floors. Could you elaborate?

Earlier, the preferred method of installation of indoor wooden flooring was gluing to the base floor. This is a permanent, very reliable method of installation and provides excellent acoustic insulation. However, it is a very labour-intensive and therefore expensive method which requires a long time.

Modern manufacturing systems have made it possible to provide interlocking flooring boards that can be installed in a free-floating manner. This is a very quick method of installation, but requires some precautions – dryness of sub-structure before installation and use of foam sheets to protect from moisture must be used.

Even though India has a long tradition of wood flooring (Kerala to Kashmir), why is it not so popular in contemporary construction?

The primary reason for this would be cost. Good quality, aged and seasoned timber is expensive and its supply is limited when compared with the huge demand.

To overcome these issues, wood modification techniques like acetylation (the process used to make Accoya timber, the raw material for RitikaaWood products) have been invented, which use faster growing softwood species and stabilize them using chemical processes. This provides reliable, durable and high performance timber in a sustainable manner without causing any loss to the global forest cover.

What is it that the Indian woodworking sector is not doing right?

The timber industry in India as a whole is relatively unorganized and has not kept pace with global advancements in timber technology and best practices in timber sourcing, grading, product design, manufacturing and workmanship to develop beautiful, reliable and durable timber products that can last a lifetime.

We at RitikaaWood strive to not only adopt, but also exceed global standards in woodworking. If we apply ourselves sincerely, we in India can surely combine our local traditional skills and global best practices to achieve amazing results.

What is your estimate of the current and potential market in the country for wooden/laminated flooring?

That's difficult to guess; but probably in the range of about Rs. 500 crore.

What have been the most popular wood species for flooring in India?

While teak has traditionally been the species of choice for all applications in India, limited supply (and therefore cost) of quality timber has forced us to move to various imported hardwoods

for solid wood flooring, or even look-alikes such as laminate floors.

How does Accoya wood compare with them?

As mentioned earlier, Accoya is a real solid timber sourced from sustainable forests and modified using a non-toxic process called acetylation. This stabilizes the timber completely – to its core and not just on the surface – so that it is completely resistant to water and termites and does not bend, warp, swell or rot.

Accoya comes with a warranty of 50 years, even when used on the outdoors and exposed to sun and rain. When permanently submerged in fresh water or soil, the warranty is 25 years. As a result, this timber can safely be used for demanding applications like outdoor or bathroom cladding and decking, extra-large windows (without the risk of the windows jamming during monsoons).

Also, since the timber is very stable, the coatings also last much longer. In fact, RitikaaWood is able to provide a warranty of 5 years on its lacquer coatings even for outdoor applications, which is otherwise unheard of with any other timber.

Having used this wood for hundreds of projects across India, and for all types of product applications, we can now justify our claims practically. Accoya can therefore be considered to be the only timber that, on its own, requires absolutely no maintenance or care, can be used freely for any application and remains unaffected by environmental factors. 

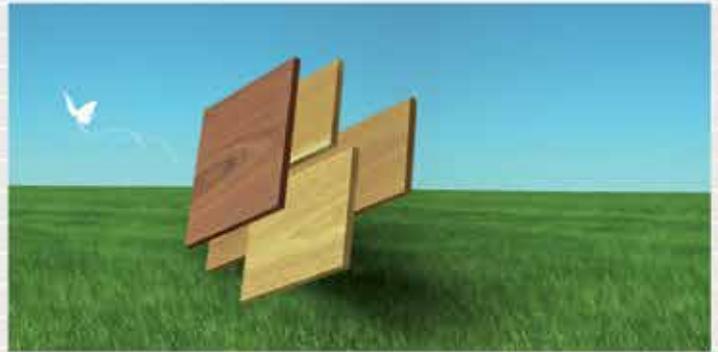
Established in 2002, Mumbai-based Ritikaawood is a fully integrated value-added manufacturer of all products made only from Accoya wood. It offers factory made, quality solid wood products such as glazed windows and doors, solid wood doors, flooring, cladding, decking and timber structures. It provides end-to-end solutions with wood: design, manufacturing, installation and after-sales services.



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American Ash sits pretty on French museum

The Museum of European and Mediterranean Civilisations, designed by the Algerian-born French architect, Mr. Rudy Ricciotti, is the flagship project of Marseille's ongoing architectural and cultural renaissance in France.

The museum is located on Marseille's seafront, next to a 17th century stronghold, Fort St. Jean. Built upon the Greek and Roman vestiges of the antique city-state, the fort is charged with history and includes a chapel that dates back to the 12th century.

Mr. Ricciotti's classic monolithic design is built around a perfect square; each side of the building is 72 metres. An inner square of 52 metres per side forms the heart of the museum and comprises the exhibition and conference halls.

The inner structure, which is composed of steel and glass, has been covered with a delicate ornamental skin of

filigreed concrete. The same innovative material has been used to create 308 tree-shaped pillars that stand at over 8 metres tall and form the vertical structure of the building.

This patterned concrete skin opens the building to natural light and views of the sea, allowing the marine atmosphere to pervade entirely the inside of the building.

Vital Statistics

The lace veil of concrete on the outside of the building creates intricate shadow patterns that can be seen as "a projection of the bumpy and irregular sea bed", comments Mr. Ricciotti. He goes on to say his museum is, "open to the sea, to draw a horizon where the two shores of the Mediterranean can meet".

The total surface area amounted to 15,510 square metres; took four years to complete (2009-2013); and cost 68.2 million Euros.

The museum is organized on three levels with an array of exhibitions, an auditorium and a bookstore. The rooftop is a particular feature and is set to become an iconic venue for the city with beautiful panoramic views of the sea and harbour. At night a lighting scheme designed by Mr. Yann Kersalé creates a magical atmosphere with shades of blue and turquoise.

The top floor roof decking, which spans a width of 24 metres covering an area of 1,600 square metres, is made from heat-treated American ash. The top deck sits along the pedestrian route running through the museum and across Marseille's historic seafront. With a constant flow of pedestrians a heavy duty decking solution was essential.

Apt Showcase

"We asked the general contractor to come up with a decking solution that could withstand an average load of 250 kg per square metre," explains Mr. Tilman Reichert, the project architect.

Mr. Eric Durand from Roofmart, the contractor in charge of supplying the heat-treated ash decking comments: "The architect was looking for solutions that would avoid him specifying tropical hardwoods. When the architect saw the samples he was won over both by the aesthetic appeal of ash with its characteristic grain, but also its dimensional stability and long lengths (20 x140)."

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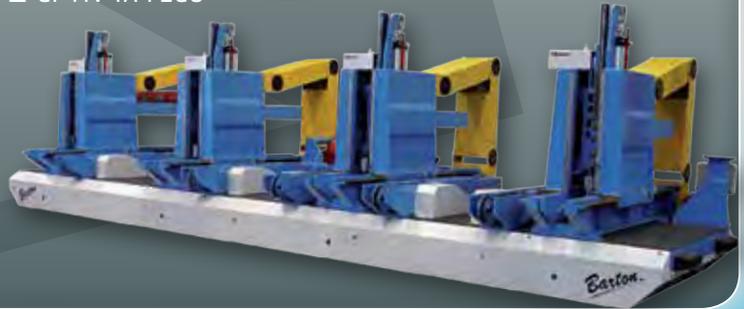
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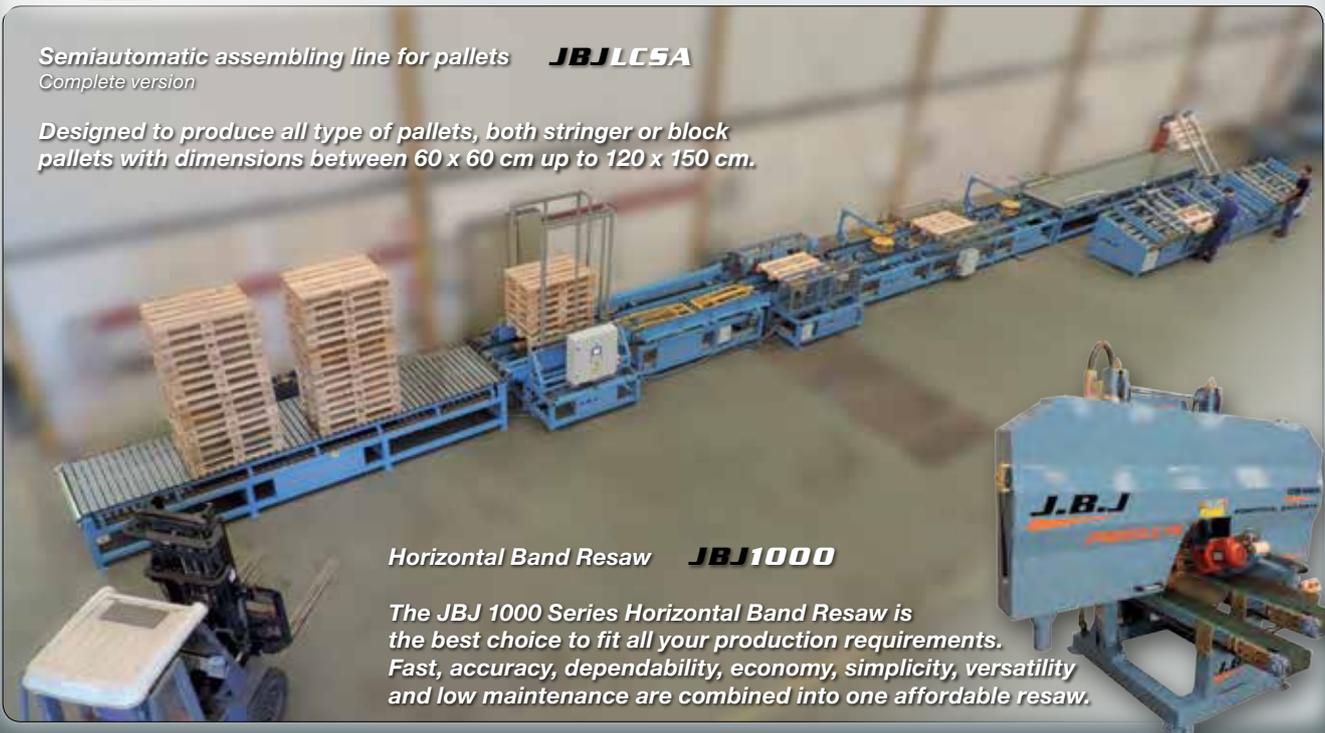
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The thermal modification process uses a high temperature in a controlled environment, permanently altering the wood's chemical and physical properties. This limits the ability of the wood to absorb moisture, so products are more dimensionally stable and less prone to cup, warp and twist with changes in humidity.

The thermal modification process also removes the nutrients in wood that would otherwise provide a food source for insects and wood-destroying fungi. This increase in dimensional stability and decay resistance significantly extends the service life and reduces maintenance needs of the decking.

Given its marine environment, the deck is highly exposed to weathering from the sun, rain and sea spray. It will be monitored to assess its performance over time. Architect Reichert comments: "We believe that ash, with its long wood fiber, will offer greater resistance to wear than pinewood."

The decking is laid on a traditional system of boarding joists to allow the insulation membrane directly under the wooden decking to be well ventilated. The boards were nailed, not screwed, which is visually more pleasing.

The weight of the 24-metre-wide rooftop terrace contributes to stabilizing the concrete pergola above it through a clever system of stainless steel cables. The vast veil surrounding the terrace is made up with the same intricate filigreed concrete that covers the sides of the building.

It rests on 15-metre-wide concrete cantilever beams that sit on top of the main vertical pillars of the building. On the outside the cantilever beams carry the weight of the external ramps that lead up to the terrace through long stainless steel braces that span the whole height of the building.

Stainless steel cables have also been fixed from the wooden deck to the cantilever beams, which overhang above the terrace by 4 metres to stabilize the whole canopy structure above the terrace.



Walk Through History

The roof terrace offers visitors an inclined walkway made up of 115 metres of bridges traveling out from the roof of the building and crossing the harbour basin. This links the museum to Fort Saint-Jean, which hosts the main restaurant.

In time the fort will house a further 15,000 square metres of museum exhibition space. The open public spaces around the fort have been redesigned to showcase a unique botanical collection of Mediterranean plants along a landscaped promenade. Another footbridge leads visitors to Le Panier, the oldest and most traditional neighborhood in Marseille, with

endearing narrow streets and steep steps.

The American Hardwood Export Council (AHEC) is the leading international trade association for the US hardwood industry, representing committed exporting US hardwood companies and all the major US hardwood production trade associations.

It runs a worldwide programme to promote American hardwoods in over 50 export markets, concentrating on providing architects, specifiers, designers and end-users with technical information on the range of species, products and sources of supply.

(www.americanhardwood.org). 



Photos: Gabrielle Vionot





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All hands on Accoya decking this summer

Accoya, the world's leading modified wood, proves it has what it takes to be the decking product of choice for installers, contractors, builders and do-it-yourself enthusiasts.

Manufactured by Accsys Technologies, the patented Accoya production process takes sustainably sourced, fast-growing woods and enhances them to create a modified and environment-friendly wood that matches or exceeds the durability, stability and beauty of the very best tropical hardwoods.

Thermography tests show that the premium Accoya decking product is 'bare-foot-friendly', remaining cool to walk on despite being in direct sunlight in days of 32 degrees Celsius. It also remains smooth and splinter-resistant, even in high temperatures.

Accoya is, therefore, one of the best quality products on the market when it comes to decking, with examples from

around the world demonstrating its key features and benefits.

In India, a shipping company wanted to create a decking area on the top floor of a 16-storey building in Mumbai which would provide guests with spectacular views over the Arabian Sea. India receives more than 2,000 cm of rainfall during monsoon; and summer temperatures can often rise to over 40 degrees Celsius in some areas.

Here, Accoya demonstrated that it was one of the most stable and durable of decking options in challenging climates, and the client was pleasantly surprised by both the performance and look of Accoya.

Mr. Kiran Kamath, Managing Director of Link Shipping Pvt. Ltd. said, "I have been pleasantly surprised by the performance and look of Accoya's decking solution."

Mr. Bryan Crennell, Director of Sales

and Marketing at Accsys Technologies said: "The patented acetylation process that Accoya goes through ensures that it is the most advanced wood on the market, and positions it in a league of its own when it comes to outdoor and decking projects across the globe in 2014."

Accoya has successfully demonstrated its hard-wearing credentials on projects in a diverse range of countries across the world. "From Europe to India, research shows that Accoya wood is Class-1 leading durable, exceptionally stable, indigestible to a wide range of insects, and lasts a minimum of 50 years above ground and 25 years in ground or freshwater contact," Mr. Crennell added.

Accoya is available from RitikaaWood (www.ritikaawood.com) from sites across India.



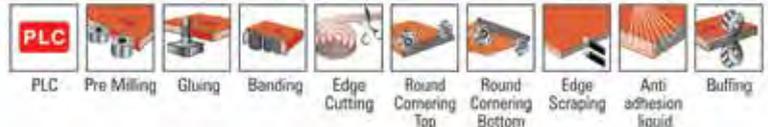
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Particle Boards have set a revolution in the engineered wood panel trade since 1960 globally and in India post 1980's and the demand has escalated in leaps during this century. Particleboards are products of high technology and technical configurations and are highly performance oriented. Several furniture manufacturers are buying huge volumes of particle boards to process in their factories and the biggest challenge is to know if the buyer is paying for the quality for a board which looks more or less the same externally but internally has a large play field to be "tailored" by the manufacturer based on price demands of buyer. Some Questions and Answers to clear the mist around

Why is choosing the correct Particleboard important in determining the quality of your furniture.

Particleboard is an engineered product capable to last a decade withstanding the daily use abuse just like plywood if used of the right quality with the right Modulus of Rupture, Modulus of Elasticity and Internal bond properties. HeveaBoard specialized in producing Low Emission Particleboard which do not compromise on mechanical properties.



Why does door hinges loosen after some time?

Holding hinges is a property of the construction of the board. If the board has a low internal bond the hinges loosen within short time and can cause the shutter to come loose from the carcass.



Why does cabinet shelves started to warp after some time?

Sagging or warping by placement of any weight on the shelves is caused by the board having poor modulus of rupture. A poorly produced board can sag even by its own weight!!!



Why is my furniture made of particleboard swell?

Swelling is a natural reaction to moisture for any wooden product however the resin formulations inhibit swelling to large extent to less than 8% after 2 hours immersion. However compromise on the resin additives and formulations will cause reflection on furniture by display of the swelling.



HeveaBoard

Why are Bending Strength and Internal Bond of Particleboard important?

Bending strength and Internal Bond are the key engineered lifestyle properties of the particleboard which reflect like a healthy heart and a positive mindset in a human body. Poor properties mean premature death of the furniture.



HeveaBoard Quality vs Competitors.

eg. Bending strength of $>13\text{N/mm}^2$ vs 10N/mm^2 .

Internal Bond of $>0.35\text{N}$ vs 0.25N .

Thickness Swelling $<5\%$ vs $<8\%$

HEVEABOARD never compromises on quality and ensures the product at market prices at all times. It has dedication to uplift the falling standard of quality in the particleboard industry. All boards look same from outside to a furniture manufacturer and lack of the knowledge of cause and effects of the key properties on the life of furniture is rapidly earning a bad name for particleboard industry in India.



What is Formaldehyde?

Formaldehyde is a common precursor to more complex compounds and materials. When treated with phenol, urea, or melamine, formaldehyde produces, respectively, hard thermoset phenol formaldehyde resin, urea formaldehyde resin, and melamine resin. These polymers are common permanent adhesives used in plywood, ParticleBoards and MDF. Production of formaldehyde resins accounts for more than half of formaldehyde consumption.



Why is Formaldehyde hazardous to health?

Formaldehyde has been declared a known carcinogen chemical and for any indoor use the emission level is necessary to be below $8\text{mg}/100\text{g}$ oven dry board.

Why choose low emission Particleboard?

Low emission ensures the air quality has no toxic emissions from the furniture items. In India unfortunately the awareness of the formaldehyde emissions is too low. In EU all engineered board manufacturers have self imposed to produce only E1 norm as standard minimal emission and other countries too have similar or lower emission like E0 level board mandatory. HeveaBoard can supply upon request E0 as well as CARB P2 and F**** compliant particle boards.



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Fevicol Adhesive Solutions for Woodworking Applications



Fevicol Hotmelt Products

Fevicol's range of edge banding adhesives has several options for manual as well as automatic machine application. All options provide good adhesion properties with good resistance against heat, cold, moisture and oxidation.

Hotmelt 380 (unfilled) and Hotmelt 388 (filled) are Ethylene Vinyl Acetate (EVA) based thermoplastic adhesives recommended for through feed edge banders. They can be used with PVC, PP, ABS, veneer, polyester or melamine resin edge bands.

Hotmelt 382 is specially designed for manual edge banding machines. It can be used to apply PVC, HPL, ABS or solid wood lipping onto MDF or particle board.



Fevicol SWR Range

Specially designed for the handicraft industry, this Polyvinyl Acetate based white adhesive meets the DIN EN 204 Stress Group D3 Standard. It is suitable for all types of wood working applications and provides very high water resistance and excellent bonding in lamination with all grades of wood, even in high humidity areas. Fevicol SWR Plus is specially designed for application in cold weather conditions. SWR EQ has even better cold weather performance and can achieve D4 standard by adding 5% isocyanate. SWR LV has very low viscosity. All are non-flammable and non-toxic with REACH Compliance, Low VOC (Volatile Organic Compound) Certification and Free Formaldehyde Certification.

Fevicol PVC Fix

This water/synthetic resin based emulsion adhesive is suitable for lamination of primer coated PVC sheet to MDF. It is also used for manual edge banding of primer coated PVC Strip to MDF, particleboard, ply etc without using any edgbanding machine, making it highly economical. It has excellent bonding compared to solvent based adhesives, as well as high heat resistance, easy applicability and low VOC



Fevicol SH

The classic PVC white glue for wood to wood bonding features unsurpassed bonding strength, good resistance to water and heat, higher coverage and good value for money. It is not only a leading brand in India, but also the most successful brand in the world in this segment, being exported to over 50 countries.



Fevicol SP Range

This range of sprayable, synthetic rubber based solvent borne contact adhesives can permanently bond painted steel, plywood, chipboard, PU foam, muslin, foam rubber, felt, fabric, leather or many other materials. SP-4 is the basic version. SP-5 is specially designed for the automotive industry and is also used to make writing boards using honeycomb cardboard and white laminates. SP-6 also has high heat resistance.

Membrane Press Range

Fevicol Membrane PU is a solvent based polyurethane contact adhesive used to bond PVC foil to MDF, plywood or other materials. It is ideal for door manufacturing, with low activation temperature, fast drying time and good bond strength.



Fevicol Membrane Press Star 2K is a two-component water based synthetic adhesive used to bond PVC film laminate to wood based panels in the modular furniture, modular kitchen and doors industries. It has excellent heat resistance, low activation temperature and high green tack. It is non toxic and non flammable.

Fevicol Heatx

Fevicol Heatx is a synthetic solvent-borne rubber-based adhesive made with a special formula with excellent heat resistance of up to 170 degrees Celsius. It also possesses quick grab property and strong bonding efficiency. It comes in 1 litre and 5 litre packing.



It is used in bonding challenging substrates like PVC foam sheet, WPVC, UPVC sheet to Mica, PVC film and veneer.

However, some precautionary measures have been recommended by the manufacturer:

- Bonding surface has to be sanded using No. 80 ambar paper or any handy sanding machine
- After cleaning the surface, Fevicol Heatx should be spread in one direction only
- Wait for 7 minutes to remove solvent for the adhesive system
- After joining both substrates, apply pressure using hammer strokes on wooden patti for strong contact
- Remove excess mica or PVC film using knife or trimmer after 5 minutes
- Initial bonding takes 3 hours; final bonding strength comes after 24 hours
- The same process can be used in roller press machines for faster production

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FLOORING



Floorpan 'clicks' just right!

The laminate flooring brand 'Floorpan' has 26 decors and offers the highest quality to its customers. This product is manufactured with the latest technology, which offers many advantages to users.

It is stain-resistant, not easy to scratch, long lasting, economical, does not fade and preserves its vitality and the aesthetic appearance for many years. Due to easy mounting and dismantling – thanks to the click system – flooring panels can be re-used.

As a result, Floorpan can be installed in a very short time in showrooms, stores, display windows and fair grounds, and gives the users chance of changing the decoration. Floorpan Click is moisture-resistant, since four sides of the flooring panels are impregnated. It saves time and labor due to fast and easy installation.

Glueless installation system ensures the surfaces stay clean and stainless. Perfect click technology of Floorpan Click provides a smooth floor without clearance opening as the time goes by.

It gives further after-sales advantage with 5 years guarantee for office use and 10 years guarantee for residential use. Floorpan Click laminated flooring is available with choices of AC3 and AC4 grades as a complete flooring system. It brings the natural beauty and warmth of wood to our lives with wide range of colors and patterns.

One of the distinguishing features of laminated flooring – produced by Kastamonu Entegre of Turkey – is that quality control and sorting is done with computer-controlled camera system. In terms of quality, the product is certified by ISO 9001, TSE, E1& CE certificates.

Floorpan Click is produced in dimensions of 8-mm thickness, 1205-mm or 1295-mm length and 191-mm or 195-mm width.



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A thing of beauty, a joy forever

Natural veneer is wood art. Two things are of primary importance to its quality and value: knowledge and experience in selecting the right logs and the production know-how.



 *American White Oak veneer was used for the furniture in the Trusteeship Council Chamber at the United Nations headquarters in New York.*

Although forests contain 40,000 different species of wood, there are only 600 species that can be used commercially. Of these, only 28 species cover around 75% of the industrial demand for wood, and then only a small amount of these can be utilized for veneer production.

The job of producing veneers from a tree begins with the selection of the right logs. Depending on the species and the log's external appearance, the expert must then decide how a log should be prepared for production. These decisions are not only important to the quality and value of the veneer, but also to get the best utilization of precious raw material.

High quality and yield of veneers is also influenced by the proper cooking of the logs prior to cutting. This makes for a smooth cut and excellent colour. Depending on the species – and often influenced by the logs' region of origin – the length of the cooking time varies

from only a few hours to over a week. The water temperature is also a very important variable which must be strictly controlled.



 *Only a minuscule percentage of the 40,000-odd tree species can be utilized for veneer production.*

Experience Counts

If overcooked, the wood gets a rough cut. The water in which the logs are boiled should not contain any chemical additives. Steaming requires nothing but water, time and the right temperature.

In the end, experience plays a large part in slicing and drying. From the slicing machine, which must be set precisely to the respective type of wood and constantly readjusted to the specific growth, up to the drying temperature, everything has to be just right to produce veneer.

Thanks to a new innovation in cutting technology, differences in the thickness of veneer sheets are practically a thing of the past.

Highly trained log buyers inspect the logs or standing trees and negotiate the purchase, or in case of competitive sales make a bid for the raw material parcel.



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Straight Line Rip Saw

Automatic Through Feed Edge Banding (Compact Machine)

Portable Edge Bander

Manual Edge Bander



Vertical Band Re-saw



Band Saw Blade Grinder

Three Head Multi Boring Machine

Hydraulic Hot Press 1/3/5 Day Light



Rectangular Tenoner DAD-115



Oscillation Mortiser MOM-130

Auto Panel Saw

High Speed Router

Spindle Moulder



Clamp Carrier

Heavy Duty Automatic Copy Shaper

Double Surface Planner



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FEATURE WOOD VENEERS

The logs are debarked and sawn lengthwise to produce two, three or four flitches prior to cooking. The flitches are placed into large stainless steel or aluminium-lined vats.

Thin sheets of veneer are sliced, peeled, or half-round peeled from the flitches. Many burls are, however, peeled in one piece if they are best suited for that kind of production.

For drying, each sheet is fed either manually or, in many case, mechanically into ultra-modern third generation steam or hot water heated press dryers, which flatten the veneer while they dry.

Most veneers produced go through a clipping line, where the edges are straightened, most defects are cut out, and the sheets are bundled in 16-, 24- or 32-sheet bundles. Then the veneer goes through an electronic measuring machine that feeds the measurement and grade into the computer, after an expert grader has sorted it for grade, length and anticipated best use.

The veneer is finally sold to furniture, door and panel manufacturers; but also to interior decorators, architects, carpentry stores and merchants.

3D Veneers

By using a process similar to metal sheet forming, Danzer employs its 3D technology to deep-draw 3D veneer. Molded parts made of 3D veneer or parts coated with 3D veneer have a closed surface. Formed mats are very strong due to their three-dimensionality.

This high degree of stability, or "eggshell" effect, is required to manufacture extremely light parts with minimal section thickness. With 3D veneer, the



Another startling application is in show cars, such as this Mercedes F800.

veneer grain follows the shape of the part (FFT form following texture). 3D veneer can be used for flat (two-dimensional) as well as curved (three-dimensional) parts.

Usual veneers of different wood species and thicknesses between 0.6mm to 1.5mm are prepared mechanically to become distortable. This is the basis for 3D forming capabilities (bending in two directions). This is comparable to deep-drawing metal sheets usually applied to produce bins from metal sheets by bending the faces.

But, in comparison with metal sheets, 3D veneers become stabile if several layers are glued preferably with grains crossing (laminated wood mouldings). Moreover, they can be applied as a single layer to a carrier panel, in most cases these are thin veneers.

3D veneer can be prepared for



3D-mould Stingray rocking chair manufactured by Fredericia.

processing (gluing and packing) with usual techniques. 3D forming will be done by a moulding tool as prepared for the current forming degree.

Applications

Danzer's innovative 3D veneer was launched approximately 10 years ago. The patented technology has proven to be a practical and affordable solution for a broad range of applications: for furniture, automotive, interior architecture, and industrial design.

Today, more than 300 furniture designs use 3D veneer. Veneer is cut into fine stripes to allow for the three-dimensional movement. All machines for the patented production process have been developed and were built in-house and are a secret well kept by the company.

The usability of 3D-Veneer is now supported by a completely new development of 3D-inner layers. They exhibit superior physical properties and make 3D-moulded parts more cost-effective.

An impressive example for the use of 3D veneers is showcased in an assembly hall at the United Nations headquarters in New York. Danzer donated American White Oak and 3D veneers for the furniture in the Trusteeship Council Chamber. They are used in plain, as form-following 3D veneer on the curved table tops for the delegates, and as 3D-mould for the chairs of the Danish brand, One Collection.

Danzer has special capabilities in coating of curved shapes (such as tubes), grain structures that follow a curve or geometry of parts (table surfaces), 2D or 3D veneer coatings of various substrates (metal, plastics, glass fibre reinforced plastics, MDF, etc.), and complete production of components (coating with veneer or multi-ply shapes) and tools.

Danzer serves the Indian market with its own sales people who travel from Europe and North America. For details, contact julien.gaissier@danzer.com or alvaro.gonzalez@danzerveneer.com.

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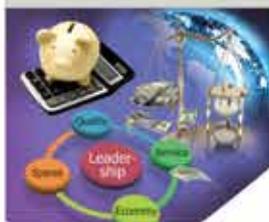


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'Silver Splash' from Greenply

Going by its trend of introducing innovative designs and newer product categories, Green Decowood Veneers has introduced 'Silver Splash', which has shades of grey giving the surrounding a smoked look and feel. This new collection will target those who prefer a classic, silvered look to the interiors.

The new collection is inspired by the silver-coloured wood that was used in the 18th century by Abraham Roentgen. This collection was crafted after a detailed research process followed by a perfect execution using natural products and natural energy. While it has historical connections, it is also used in the most posh and modern

homes overseas.

This rare grey-coloured veneer is aimed at being the perfect choice to give a sophisticated and urbane décor. Speaking at the launch in New Delhi recently, Mr. Alex Joseph, Vice-President (Marketing), Greenply Industries said, "Over the years we have worked towards giving the end user choices that make them opt for interiors which are exclusive, unique and stylish. 'Silver Splash' is a very unique range and the end consumer will love the effect that it creates."

Green Decowood is the leading natural decorative veneer brand in India. Veneers are derived from decorative timber sliced in 0.5-mm thickness

glued with a waterproof adhesive to a stable substrate. Veneers provide all kinds of surfacing solution and give a high aesthetic value.

Greenply Industries Ltd. is India's largest interior infrastructure company with consolidated net sales of Rs 2044 crore. It has seven state-of-the-art manufacturing facilities across the country, more than 40 branches and a strong channel network of over 14000 dealers, distributors, sub-dealers and retailers.

Greenlam (the laminate brand) is available in more than 100 countries with more than 300 distributors and dealers and a strong brand presence across the globe.

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Now Sauerland launches a specially engineered door infill which enables door manufacturers to cater to the builders and architectural requirements at a incremental cost increase. A Win Win Situation now unfolds.



The tubular infill boards are a **ECOFRIENDLY AND GREEN PRODUCT INITIATIVE** replacing the 80% of timber used internally as door infill which dramatically improves the performance of the door

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Sauerland launches a 34/38mm tubular board which will be the heart of the 40/44mm door with 3mm skin both sides. The increase in the timber cost based on seasoned timber and the infill material will be incremental and now open new corridors of better décor and interiors within the housing segment.

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Engineered beams turn into chairs & table

By Abhinav Tewari

The foldable garden chairs and table (glass-topped) were fashioned out of bamboo beams, and displayed at IndiaWood (February 2014) in Bangalore.

Bamboo furniture, and the use of bamboo in interiors, is becoming a trend that people are appreciating these days. It is a renewable material and is as sturdy as solid wood in a lot of ways. In light of the fact that bamboo is classified amongst grasses, it takes on an added exotic significance!

Bamboo is increasingly being used by a lot of flooring manufacturers. Looking at its increasing acceptability by interior designers, architects, and home owners many architectural millwork companies and case goods manufacturers have joined the wagon. The North East Center For Technology and Reach (Nectar) approached us to try out bamboo beams, an engineered material being manufactured in the North-East. The beams that we received were from Tripura.

Nectar is an autonomous organization under the Department of Science and Technology of the Union government. The Centre looks at harnessing and leveraging niche frontier technologies

available with central scientific departments and institutions.

It also helps North-Eastern states with technological assistance to prosper socially and economically. The efforts made by Nectar for the promotion and application of bamboo and bamboo-based products have been commendable. India has the second-largest reserves of bamboo (after China) in the world, with the North-East contributing to about 70% of national resources.

Bamboo As Timber

Bamboo is cut to lengths of 8 feet, then split into six parts. The skin and internal knots are removed, and the remainder strips/strands are dried to a moisture level of 4-5%.

These are then dipped in resin tanks: PF is widely used by Indian manufacturers. The strips are then put in a conveyor dryer to remove the excess moisture and pressed in a cold press. The mould is then put through a tunnel dryer for cooling and finally the timber/beam is taken out from the

mould.

The specific gravity of the resulting beam material is 1.1. As soon as I saw these beams of bamboo it reminded me of the look and feel of Parallam, also known as parallel strand lumber (PSL), which is used extensively as a construction material in the United States.

PSL technology has been used successfully to manufacture composite "lumber-like" products. PSL is produced mainly from long strands of Douglas fir or Southern pine veneer. The manufacturing process of these bamboo strand beams (if I may call it so) is pretty similar to PSL.

Work Experience

The furniture items that we decided to make (which were on display at IndiaWood-2014 in Bangalore) were a coffee table and a garden set of two chairs and a table. The designs chosen were simple to manufacture, and the products were foldable.

The shop drawings were prepared and the bamboo timber was cut to



 *Bamboo strand beams supplied by Nectar from Tripura.*

size at a sawmill and delivered to our workshop. Bamboo beams are heavy, and if your work piece falls it will dent – so one has to handle it carefully.

The edge and thickness was done on our refurbished Wadkin jointer that we have had for about 30 years now, and on our Felder thicknesser with the new ‘silent cutter’ block. Ripping was done on our Felder 900s.

The saw blade was changed to a solid wood blade (Leitz) with lesser teeth ($z=32$) and wider kerfs. The speed (RPM) had to be adjusted as per the density of the material. It was important to do so to avoid damaging the tools and leaving mill marks on the material.

Formaldehyde resins used in any engineered material (such as MDF) dulls the cutting edge of the tools by causing corrosion and weakening of the cobalt binder of carbide-tipped cutters: so, the density of the material and variation in speed should be kept in mind.

There weren’t much tear-outs

while working with this material on machines. Tear-outs are extensive only while using hand planers and chisels. Tooling has to be given a lot of importance while working with this material. High-speed steel will not work very well because of the density and hardness of the material. Carbide tips are a must to make life easy.

Joining & Finishing

Bamboo beams are not good with nails: the hardness of the material doesn’t allow their use. The screw holding capacity of the beams was fair but pre-drilling is the way to go about it. I would suggest the use of dowels and dominos or biscuits, as they will increase the strength of the joint.

Edges of a few pieces were glued with the use of D3-type glue and it bonded pretty well. Bamboo timber comes in two colours: light (natural) and dark (coffee brown).

One of the things to keep in mind while finishing the furniture was to give a very natural feel to it, so we avoided staining. Shellac is considered

one of the finest natural sealers; after sanding the pieces we applied several coats of shellac.

Later on, the shellac was scuff-sanded and beeswax was rubbed to the furniture pieces to give a smooth finish.

Bamboo is no longer identified as a poor man’s timber that was sold on the roadside. It has come a long way and is not just confined to flooring: it is now used for decking, cabinetry, wall paneling, etc.

The use of horizontal grained bamboo veneer in kitchen cabinetry is also in demand in the US. Bamboo veneered paneling and furniture made from bamboo timber are also gradually creating an impact in residential as well as commercial interiors, especially in the West.

However, we in India are not very good at replenishing our forests and using bamboo. But bamboo is a material that is renewable and takes only 8 years to mature. This is something that planters and manufacturers in the country must consider.

– The writer is Director, Bantus Interiors Pvt. Ltd., a family-owned business.

Bantus Interiors Pvt. Ltd. has been for five decades a leading Lucknow-based manufacturer, retailer and supplier of home and institutional furniture in Uttar Pradesh and Uttaranchal.



 *The Horyuji Temple (completed in 1603) in Nara is a 5-storey pagoda standing 32.25 metres tall. It has a central wooden pillar, and the timber is held together by Japanese joinery.*

The ultimate 'green' construction material

Timber is exciting and inspirational. It is one of the most eco-friendly solutions for housing the earth's growing population; and the only building material that can be grown using mere soil, water and the sun.

By Yeo Heng Hau

Of the many construction materials, timber is sometimes still under-appreciated among members of the architectural, design and construction fraternity. This is exacerbated by misconceptions that wood is not a sophisticated, versatile or durable building material.

This is far from the truth, because timber is one of the world's top performing construction materials. Tried and tested over centuries, its inherent beauty, strength and durability has seen that it remain as one of the favourite choices of building material among many architects and engineers.

Contrary to what modern society believes, timber, applied and maintained correctly, can outlast other materials such as steel and concrete.

The durability of timber and how it has stood the test of time is best illustrated by the Horyuji Temple in Nara, Japan, which is officially the world's oldest wooden building. Dendro-chronological studies of the wood have shown that they came from trees felled in AD 594.

Another fine example within Malaysian shores is a wooden palace, called Seri Menanti, in the state of Negeri Sembilan, which has stood steady for 105 years – and counting!

Capturing Carbon

With the increasing emphasis on 'green' construction or sustainable building, there is a greater need for resources that significantly reduce the carbon footprint of a building,

while enhancing the quality and cost-efficiency of a project and ensuring the comfort and safety of its occupants, over the entire lifetime of the building.

As a building material that is renewable, carbon-neutral and amenable to advanced engineering specifications, incorporating timber into a building's design is one of the easiest ways to reduce a project's environmental impact and cost – for example through pre-fabricated timber members that can be easily installed on-site to reduce construction time.

Why? Because timber is the only building material that stores atmospheric carbon. Facts speak for themselves:

- The carbon that is absorbed by trees in their lifetime remains "imprisoned" in the wood.





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- On average, a single tree is capable of “locking” up to a whole tonne of carbon during its lifetime.
- When trees die and the wood rots, the absorbed carbon will return to the air, contributing to CO2 buildup in the atmosphere.

In short, by harvesting trees before they die of old age, we are able to lock up the carbon and prevent it from returning to the atmosphere. Hence, incorporating timber in a design can easily lower the carbon footprint of the project, be it for structural or decorative purposes.

Timber also requires a lot less energy for processing compared to other building materials (see box). For example, trees require 1.5 mJ/kg of energy to turn into timber building



 *The Forté is Australia's first and the world's tallest high rise apartment building using cross-laminated timber. It reduces CO2 emissions by more than 1,400 tonnes when compared to concrete and steel, the equivalent of removing 345 cars from the roads.*

Material	Energy required to convert raw material into usable building form (mJ/kg)
Bauxite → Aluminum	435
Iron ore → Steel	35
Trees → Timber building materials	1.5

materials, compared to 435 mJ/kg of energy needed to transform bauxite to aluminum.

The life cycle assessment (LCA) research by renowned entities – such as the United Nation’s Food and Agriculture Organization in 2002, the UK Building Research Establishment in 2002 and the US Consortium for Research on Renewable Materials in 2004 – have all shown timber’s cradle-to-grave ecological quotient to be superior to that of steel, concrete and plastics.

In 2012, the American Hardwood Export Council (AHEC) published a report of the first stage of its LCA of rough-sawn kiln-dried American hardwood lumber. It contains data on the environmental profile of US rough-sawn, kiln-dried hardwood lumber using a comprehensive set of environmental impacts, from point of harvest in the US through to delivery at the importers yard in major export markets. It provides quantitative data on potential of global warming,

acidification, eutrophication, photo-chemical ozone creation and depletion.

Compelling Case

Developments and advancements in engineered wood products and in timber treatments – such as termite resistance and fire retardation – have opened up more options for incorporating timber into one’s built environment.

And in key areas such as acoustics, thermal performance and strength, timber is capable of not just fulfilling a wide range of technical specifications, but also providing solutions for both form and function that is not easily matched by other materials.

Timber also has a high strength-to-weight ratio – for the same strength required for a given structure, the weight of the timber material to be used can be as much as 16 times less than steel, or five times less than concrete. This is also the reason why glulam (glue-laminated timber) is often

specified for large-span areas, enabling innovative pillar-less construction for public projects like indoor stadiums and hospitals.

Glulam is a highly engineered product that is flexible, stronger but lighter than steel, fire resistant, and most importantly, ecologically sustainable. In many developed countries, glulam has also been used to create vehicular bridges, public pavilions, large span buildings, and Olympic stadiums, fulfilling even the most demanding design, engineering and safety requirements.

Major timber-based projects such as the Metropol Parasol (Spain), the Cutty Sark Pavilion (UK), the Sheffield Winter Garden (UK), the Centre Pompidou (France) and the Hannover Convention Centre (Germany) invigorate the imagination with their creative contours that not only turn heads, but also challenge the public’s preconceived ideas and values about timber.

Going Vertical

Timber engineering research has proven tall wooden buildings as light-weight, efficient structures with the potential to respond dynamically to turbulent wind load. For example, 

the nine-storey timber Stadthaus Apartments in London used exclusively cross laminated timber (CLT) walls with a 2-hour fire rating. It is the first of its kind and this height with its load-bearing walls, floor slabs, as well as stair and lift cores made entirely of timber.

The tower houses 29 apartments. CLT's technical strength is similar to pre-cast concrete, but timber's advantages lie in its lighter weight, thermal properties, and a production process that is a lot less CO2-emitting compared to concrete and steel. In short, CLT is a durable, strong, versatile and sustainable alternative to conventional structural materials.

In August 2013, the Stadthaus was

overtaken by Melbourne's The Forté as officially the world's tallest residential timber building. Sited in Victoria Harbour in Melbourne, Australia, The Forté houses 23 boutique apartments. Its frame was built using CLT, while the walls, floors and ceiling were all made of solid timber.

Once timber's technical and inherent properties are adequately understood, it is only a matter of imagination for it to exceed design and performance expectations. 'Green' design is increasingly becoming a pre-requisite for modern-day construction.

Owners and developers are becoming more discerning with genuine interest for built forms that support sustainable choices: from certified building

materials to smart energy-saving devices and recyclable resources.

For as long as there is a human need for the built form, timber will continue to amaze with its versatility and capacity to be bent, carved, conditioned, glued, joined, oiled, laminated, nailed, painted, peeled, polished, sanded, sawn, screwed, sliced, turned, treated and varnished to suit any design specification.

Whatever the requirements, there will always be a timber species to suit any design style at any time. Timber is versatile, durable, warm, sustainable, eco-friendly, beautiful and natural. In short, timber is timeless.

– The writer is Chief Executive Officer, Malaysian Timber Council (MTC).

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Learning while earning

Unique opportunity for woodworking professionals

By K. R. Prakash

Wood industries were traditionally established as a proprietary concern and have given more opportunity to employ semi-skilled personnel with not much educational background. Over the decades these industries have grown big, attracting more investments and collaborations with foreign multinational companies.

In spite of all the growth and a large Indian market to cater to, the woodworking sector has not attracted qualified engineers to join this industry. The reason for this is that jobs in the woodworking industry are not vastly challenging; nor are the remuneration packages attractive. Engineers passing from colleges prefer the aerospace, automobile and IT sectors or government jobs.

However, there are a lot of technical and non-technical personnel working in the wood industry who could not undertake formal education or college-level courses of study. They have good practical experience in the job they handle but, without a degree they have not progressed in their careers as they would have wished.

It is here that the AMIE Section-A & Section-B exams, conducted by the Institution of Engineers India (IEI) are very significant. It is mandatory that a candidate taking Section-B exam should be working. It is a golden opportunity, particularly for those working in the wood industry, to study and pass Section-A & Section-B exams to become qualified engineers.

These IEI examinations are approved by the Union Ministry of Human Resource and Development as equivalent to a degree in the appropriate field of engineering, and is recognized by University Grants Commission as well as the Union Public Service Commission.



This qualification enables these personnel to work more productively, absorb foreign technology and also compete with them. They can also seek higher positions in their job and seek good career advancement. The industry should encourage their personnel to study through IEI and also provide them incentives.

Salient Features

Candidates can take advantage of the open admission system in English medium of instruction, and can appear externally at the examination, which is held twice a year at 57 centres in India and five abroad. There is no routine college, college schedule or attendance.

Passing Section-A & Section-B exams gives access for admission to post-graduate programmes such as ME, MS and MBA. To register for Section-A exam one should have attained 17 years of age and passed 10+2 exams with a minimum 45% marks in aggregate as well as 45% marks in physics, chemistry and mathematics (passing in English is compulsory).

The tentative fees for completing AMIE exams is around Rs.25,000,

including registration, exam fees for each session, and fees for laboratory experiments and project work evaluation.

A candidate is free to choose an engineering discipline and subjects of study in which s/he has confidence. S/he has to attend tutorials and seek guidance when required. Course material, books and solved question paper guide are recommended at the beginning of the study programme.

However, time management is of essence to prepare for each exam: adequate hours for work, study, leisure and sports must be allocated. More than 60,000 candidates take Section-A and Section-B exams each year. There are 3.5 lakh alumni of the IEI.

For more information, visit the Institute of Engineers India's Karnataka State Centre at No. 3, Dr. B.R. Ambedkar Veedhi, opposite New Indian Express, Bangalore-560001, or any centre in another state, or log on to www.ieindia.org.

– The author is BE, C.Eng (I), FIE, FIIE, FIPE, FIV and Joint Advisor for NDRF, IEI & KSC in Bangalore



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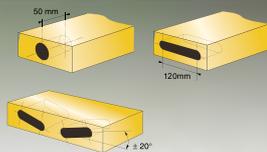


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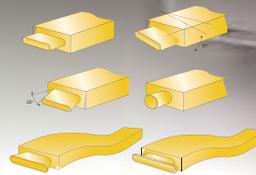
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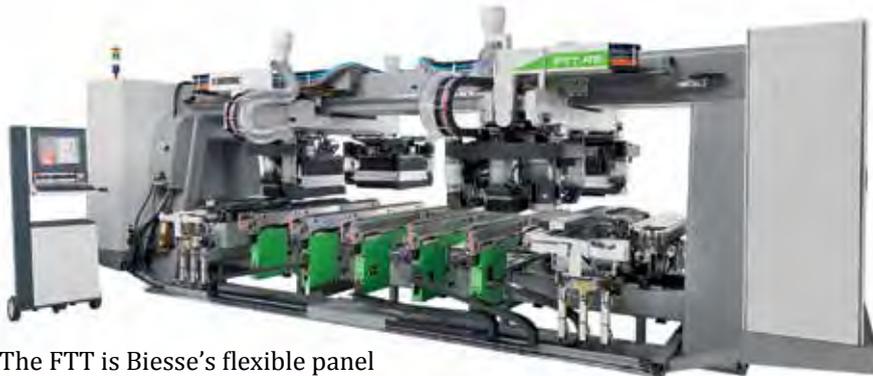
YOM-3 / YOM-4
 Multiple Spindle Oscillation Mortiser



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 E-mail: yowcheng@ms15.hinet.net http://www.yowcherng.com.tw

FTT from Biesse: flexible panel machining



The FTT is Biesse's flexible panel machining centre for drilling and routing applications. It is the ideal solution for furniture manufacturers producing batches in high variability of boring patterns and a range of tools, customers requiring a flexible machine for just-in-time production, and for manufacturers requiring high flexibility along with mass productivity.

The machine is a crosswise throughfeed with the possibility of working single or two panels (max. 800 mm width each) simultaneously. It is possible to work a panel with max. length of 3200 mm, and on the top panel surface, and the four sides of the panel in one setting.

The panel conveyor belts are driven by brushless motors at speeds of up to 120 metre per minute. It has high precision in positioning of drill holes, thanks to the reading of the real X-Y panel dimensions. It also has automatic adjustment of the drilling holes and elimination of tolerances.

Operating Units

- Four vertical drilling heads, each



one with 32 vertical drilling spindles and 4 horizontal drilling spindles in 'Y'.

- Electrospindle available as an option
- 2+2 horizontal drilling heads; each with 18 drilling spindles in 'X'
- Speed and high performance, thanks to brushless motorization on each carriage: 1 in the X axis, 2 in the Y axis and 2 in the Z axis
- Y and Z independent axes for the contemporary working of equal or mirror-like panels
- Liquid-cooled operating units for a constant 30°C working temperature in the vertical drilling head

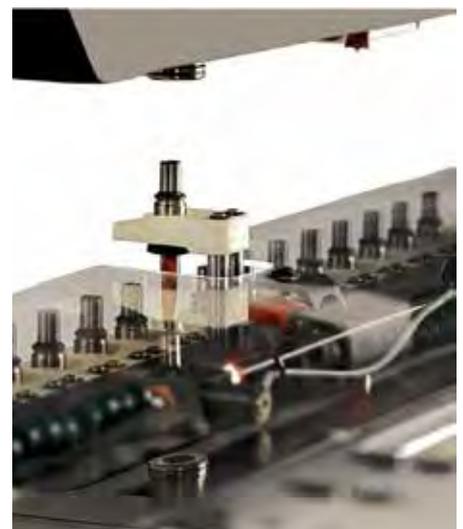
Working Table

- Five working tables



- Brushless motorized positioning in X
- Vertical raising and lowering for automatic engaging, according to length of panels
- Two brushless motorized and independent belts for each working table for the best dynamic and precise positioning of two panels, up to 120 metres per minute
- Vacuum system for proper clamping of panels and routing operations

Auto Tool Change Magazine (optional)



- 2x59 positions automatic tool change magazine to optimize the tool configurations of the operating units for every drilling pattern
- Automatic tool replacement in few seconds, eliminating operator errors
- Wide availability of tools without oversizing the operating units

Horizontal Drilling Units

- 2+2 brushless motorized horizontal drilling heads along 'X' with 18 independent spindles each
- Quick change tool holders and dedicated air suction system
- Quick tooling up (Biesse patented design)





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RD Dowelling Module (optional)

- Glue injection and dowel insertion module with 5+5 injectors
- High pressure glue equipment
- Automatic injectors pre-positioning when changing the panel program
- Quick setup
- Two panels simultaneous positioning in the machine (1 panel in hidden time)
- Two independent and brushless motorized belts for each side, to get



the maximum speed and feeding accuracy

- Fulfilling all the insertions even on big dimension panels by means of multiple strokes: up to 1550 mm along Y

Handling Equipment (optional)

- Panel loading and unloading device available as an option

Graphic Interface

- Assisted editor programming of drilling and routing operations on the panels
- Parametric programming of the machining operations

- Graphic set-up of the spindles of the four operating units
- Graphic set-up of tool change magazine
- Tool database management
- Graphic interface of the five panel surfaces and relative machining operations
- DXF/CID files import
- Online instructions.

(www.biessemanufacturing.com)



Automatic horizontal panel saws for pressed cardboard

The **Galaxy 3** panel saw is fitted with equipment for high quality cutting of overlaid post formed bars (Gabbiani patent). In this system the scorer situated on the blade carriage moves at an angle to the cutting direction.

The new feature presented by **Gabbiani** on this model is the fact that the blade carriage, driven by a brushless motor, can be modulated according to the type and thickness of material to be cut.

Base Frame

The advantage derived from this is that it is possible to have optimal



machining quality with single panels and with stacks. Guaranteed stability over time, thanks to a welded and reinforced closed ring steel structure, with irrelevant buckling even with considerable loads.

Advantages of the base frame re-circulating ball prismatic guides:

- Increase in production capacity by 10% compared to other solutions on the market, thanks to the high speeds achieved both during the feed phase (100 m/min per single boards, 50 m/min per pack) and the return phase (up to 170 m/min)

- No maintenance for the operator, thanks to the centralized and automatic lubrication system managed by the PC with video monitoring of the correct operation
- Long life, thanks to the lack of wear due to the perfectly balanced carriage structure

The advantage of sliding covers is that it enables fast and easy maintenance also for non-expert operators.

The cutting axis closure ensures thorough cleaning inside the machine with no risk of damaging the internal blade carriage movement parts.

The saw carriage blade and scoring blade vertical upstroke on prismatic guides has the following advantages:

- Quality and precision in the cutting measurement both with a single board and with a pack, thanks to the perpendicular upstroke of the blade in relation to the work plane (guaranteed tolerance b/G à ± 0.05/100 mm)



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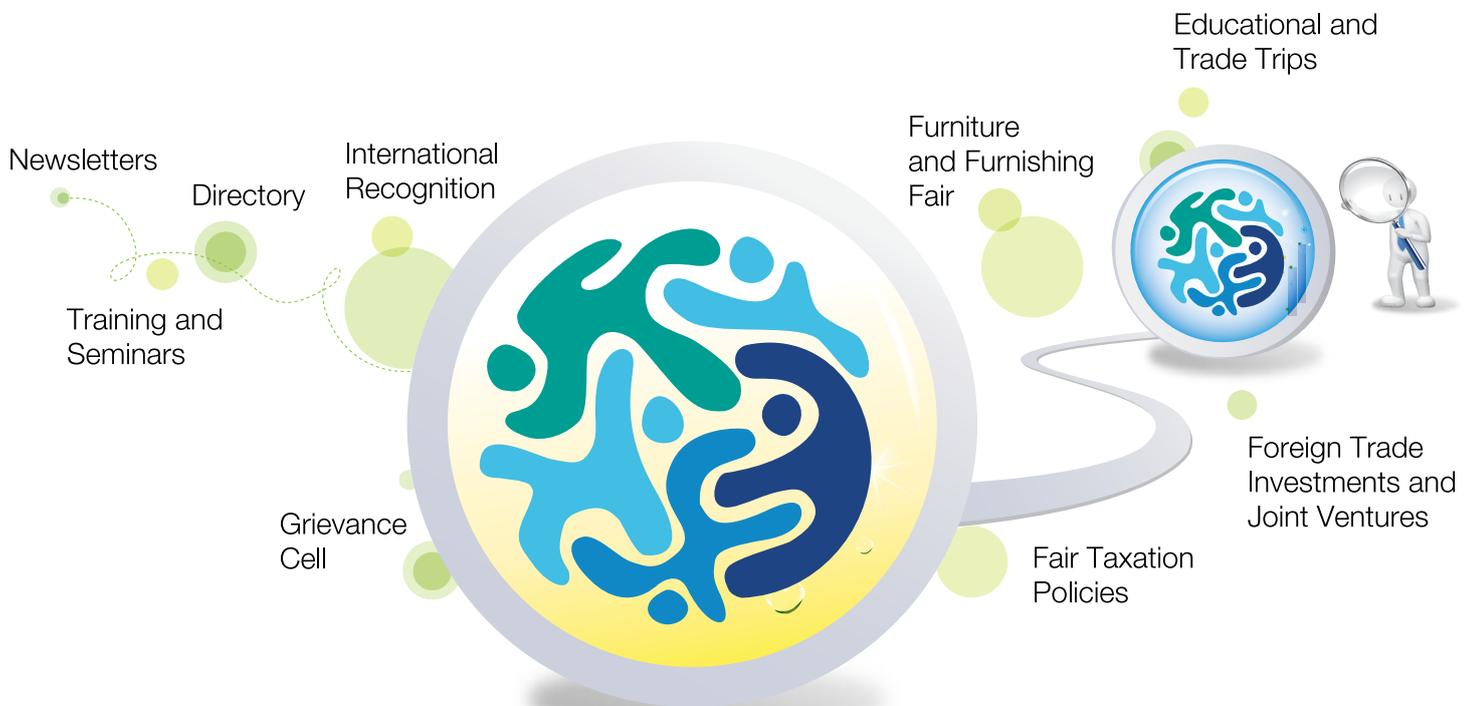


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Official Magazine

WOODNEWS

- No maintenance for the operator and constant performance, thanks to the centralised and automatic lubrication system managed by the PC with video monitoring of the correct operation

The advantages of saw carriage (Hi-Tronic) device:

- Production increase by 10-15% compared to state of the art technology, thanks to the execution of optimised machine cycles that drastically reduce 'dead' times and achieve startling execution speeds
- High precision, thanks to the use of Electronic Axes that allow: optimised blade upstroke, post forming, electronic scoring blade adjustment, grooves and slotting
- No maintenance for the operator and guaranteed reliability over time, thanks to the centralised and automatic lubrication system managed by the PC with video monitoring of the correct operation

The Pressure Beam (Series 130 and 145)

- Excellent cuts at high speeds thanks to a greater and more uniform pressure on the pack of panels being cut
- Thorough cleaning of the worktable thanks to optimal trim evacuation with an innovative system
- Versatile use to cut materials with differing consistency, by using the differentiated pressures which can be configured and saved on the PC

- Cutting precision also at high speeds (up to 100 m/min) thanks to the increased support surface (up to 50 mm) and pneumatic lifting cylinders with increased bore (Ø 100 mm) that guarantee the perfect clamping of the pieces
- Perfect cleaning of the worktable, thanks to the increased extraction channel and the channelled flow localised at the sides of the blade and along the whole cutting axis (it uses the 'Venturi Effect')
- Perfect cleaning of the work area thanks to an increased extraction flow (No. 2 outlets with a section of 150 mm instead of 120 mm).

Advantages of the pressure beam double motor-driven aligner:

Guaranteed squaring, thanks to the continuous adhesion of the panels to the guide during the cross cuts both in the pusher feed and return phase (indispensable solution for pack cuts associated to the FlexCut unit)



Advantages of the pusher prismatic guides:

- Maximum linearity and precision over time (guaranteed ± 0.15 mm/m), thanks to the greater rigidity of the system
- Faster cycle, thanks to the high speed that can be achieved in the return phase (up to 135 m/min)
- No wear of the guides, thanks to the special connecting joint between the pusher and pad
- No maintenance for the operator, thanks to the centralised and automatic lubrication system managed by the PC with video monitoring of the correct operation

Advantages of the new suction cups loading for thin and/or delicate panels with motor-driven 'Z' axis:

- Versatility, thanks to being able to load very thin panels (< 3 mm), panels with very irregular edging and panels with veneered surfaces
- High speed and precision (productivity up to 6-8 cycles/min), thanks to the control managed suction cups unit upstroke/down stroke (motor-driven Z axis)
- Compact size for the solution dedicated exclusively to loading panels with veneered surfaces: no compacting station side aligners
- Wide configuration options, thanks to the double loading possibility, that is single board (suction cups) and pack (pins).
- The machines are sold in India by Jai-SCM tie-up.

Convoy Lavidò from Ebco

Ebco offers Convoy Lavidò from Peka (Switzerland), a user-friendly solution for wide larder units offering optimum accessibility from three sides. The rounded shape of the elements ensures that every last inch of storage is put to good use.

The unobstructive non-slip mat sticks to the shelf surface and can be removed for cleaning. Magnetic dividers, rails can be used as a simple

flexible way of further organizing the storage spaces.

The shelves have infinite height adjustment; so one can easily adapt their height according to the items your clients want to store in them.



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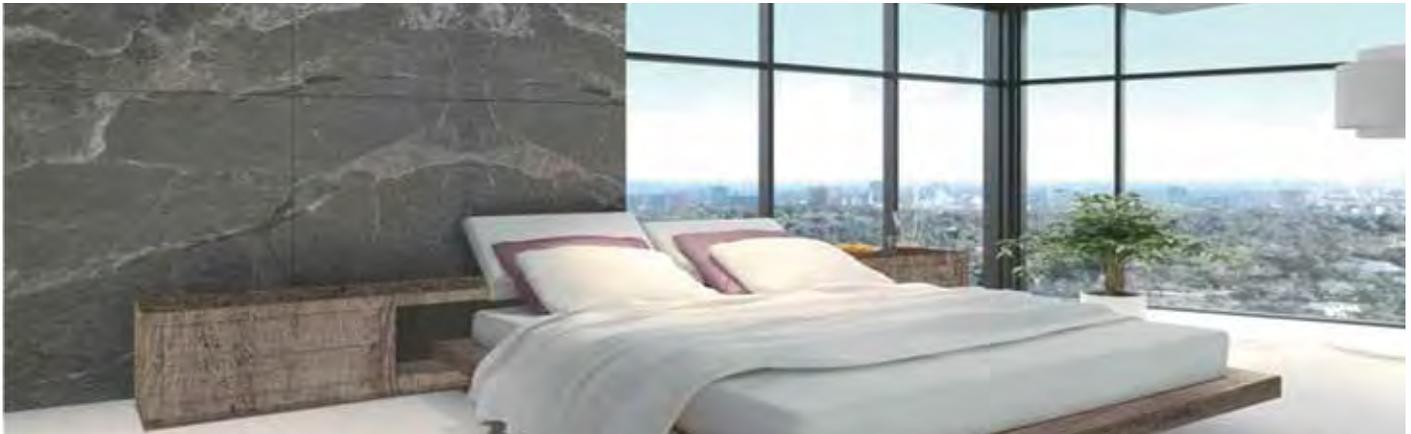
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'Inspired by nature' from Greenlam



This season the textured finish design, which is closer to nature in finish, is in trend. Designs that are reminiscent of natural products like a bark, brick, log, natural fabric or a stone are in high demand.

Carrying forward the theme of being close to nature, Greenlam has added many natural textures:

Marmoreal

Marmoreal is inspired from natural Italian marble, the colors are very trendy and real and the stone texture

adds a third dimension to it. It comes in three colors. In the photograph are Grey Marquina (wall) and Agrarian Oak (bedside cabinet).

Fabrics

Fabrics have never gone out of trend. From Thai silks to tweeds to linen look, they have only changed form but have been an integral part of the interior industry.

With a collection of 5 new fabrics in earthen colors mesh adds a touch of class to the Greenlam fabric series in

five colors and suede texture.

Woods

Grunge is the flavor of the season. Raw and rustic, this texture has a country feel to it. With a little bit of gloss it adds glamour to the interiors. The series has a rustic Oak and a very special Banana wood in three colors.

The Chased Wood series is a balanced mix of rustic and contemporary designs. There are two sub-series in a rough cut texture, one of a split Oak and of a clean quarter cut Ash.

Barton introduces another useful band saw

Following its success in the last 14 years in India, Barton has introduced in the market this year a very dynamic and robust horizontal band re-saw, Series-1000, under the brand name of JBJ.

After a deep study of the Indian market and utilising its knowhow of the saw mill industry over more than 50 years in the global market, Barton has introduced this machine series.

It offers variable feed speed (up to 50 metres per minute), depending on species of wood and cutting depth. It is very easy to work with because, being horizontal, the handling of wooden blocks is very comfortable.

It also has dynamically balanced 1000-mm, FG-25 cast iron flywheels. The operator does not have to push wooden blocks into the machine.

Once wooden blocks are under the supporting rollers, they enter into the band saw blade with the help of supporting rollers.

Dimensions:

Height: 2400mm
Length: 2600mm
Width: 2900mm
Weight: 1700 kg

Advantages:

- 100% accuracy guaranteed.
- Thin kerf band saw blade is used.
- Machine accepts even tipped or swaged blades.
- Pressure guides to maintain accurate cut.
- No vibrations while cutting the wood.
- Very low running cost, very low maintenance.



- Semi-automatic return system, no skilled labour required.
- 10mm least, 380mm highest cutting thickness.

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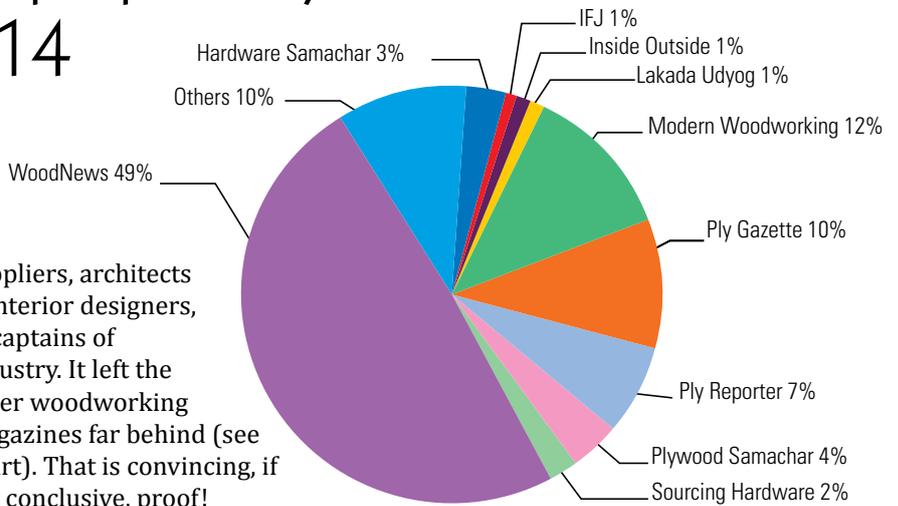
WOODNEWS

WoodNews tops popularity chart at IndiaWood 2014

If proof were required to prove the primacy of WoodNews among woodworking journals in India, it came in the form of a visitor survey carried out by PDA Trade Fairs during the five-day IndiaWood 2014, held in Bangalore in February.

Of the 100 written reactions, WoodNews garnered 49% share from the visitors, comprising of woodworking experts, carpenters, machine manufacturers, traders &

suppliers, architects & interior designers, to captains of industry. It left the other woodworking magazines far behind (see chart). That is convincing, if not conclusive, proof!



Global Timber Forum secures valuable development funding

The Global Timber Forum (GTF), an industry networking platform, has taken a major step forward by securing significant funding from the UK Department for International Development (DFID).

The GTF is already gathering industry support worldwide, with its 2013 roll out and road-mapping summit at the Rome headquarters of the Food and Agricultural Organisation (FAO) attracting delegates from 40 countries.

Earlier this year, the Forum's website went live (www.gtf-info.org), including a ground-breaking online survey, which will provide invaluable data for the foundation of GTF as information, discussion and communications hub for industry bodies worldwide, and

a channel for best practice and ideas exchange.

Key areas covered in the questionnaire are economic development, poverty alleviation, deforestation, illegal logging, and climate change. It also addresses industry liaison with government and non-governmental organizations, skills issues, key business topics, and the scope of timber industry association activities.

According to GTF facilitator, Ms. Rachel Butler, UK's support will underpin awareness raising of its role and aims. "It will also accelerate development of the website to share information and contribute to capacity building in a sector that is dominated by small and medium sized

companies," she said.

The GTF website will include discussion forums, where key topics will be debated and information exchanged, with news and events listings, blogs, links and detailed information on the GTF international membership network.

GTF launches at a time when the day-to-day business of the sector is being impacted by factors that are increasingly cross-national and regional boundaries; from timber legality requirements and wider environmental issues, to new regulation, and technical and design developments in end-user markets.

GTF will facilitate greater timber industry networking, knowledge and best practice sharing. The aim will be to develop united positions on the important issues, strengthen the sector's market presence and raise its political and strategic profile.



WOODNEWS

WoodNews thanks the various companies that have submitted information. For any editorial submissions, please contact Mr. Dhananjay Sardeshpande, Chief Editor, at dhananjay@pdatradedmedia.com. The information published in this, *Events, Products and Processes, Notes and News* sections is as per the details furnished by the respective manufacturer/distributor. It does not reflect the views of WoodNews or of the management of PDA Trade Media.

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Jai-SCM SI400 Nova panel saw machine

Machine Cleaning Warning:

- All cleaning operations are to be carried out by the machine operator or by skilled technician.
- Before carrying out maintenance operations, adjustments or dismantling any machine member, turn the main switch to 0, lock it then indicate this with a sign
- Do not use compressed air: by blowing with a strong air jet chips, dust and dirt of any type may enter into the moving members, so the machine is no more efficient.

The frequency of cleaning interventions is determined by the room in which the machine is installed and by the machined material.



Rules for correct machine cleaning

By using a power dust aspirator clean:

- The tables and all cavities where you see chips and dust
- Suction hoods by checking that there are no occlusions
- With the sliding table in position 1 (entry) then in position 2 (exit), its bottom guides and specially the points indicated by arrows for a 15 mm depth



- Guides of squaring frame
- Rod of the fence
- Slideways of the sliding table and of the rail
- Extension of pivoting arm and check that the dust scrapers correctly operate on the extension. Eventually adjust them by means of front screws, after taking off the front coverage
- Groove, tile-shaped stop and presser with a brush or cloth drunken with not dangerous solvent
- Then by using a cloth or a brush drunken with a proper and not dangerous product clean all moving parts specially the ones exposed to the resin and dust.

Warning: Do not oil, do not grease the guides of sliding table and of rail.

Trouble	Cause	What to do
Machine does not start	No power in one or more phases	Make sure that the three phases are hot
	Fuses of electric circuit interrupted/ housing of fuses loose	Close the housing of fuses (inside the electric cubicle). If the machine does not start, open the houses, check the fuses; replace if necessary.
	Emergency button on	Switch off emergency button.
	Thermal overload cutout interrupted	Reset the motor overload cutouts inside the electric cubicle
	Main switch turned to 'off'	Turn it 'on'
Machine stops while working	No power in one or more phases	Make sure that the three phases are hot
	Fuses of electric circuit interrupted or housing of fuses loosen	Close the housing of fuses (inside the electric cubicle). If the machine does not start – open the houses – check the fuses; if necessary replace them
	Heavy duty working to motor power	Wait until the motor overload cutout is cold. Reset it after few minutes
The scorer does not start	The saw motor is not on	Start the saw motors
The motor rotates but the saw table stops when it is in contact with the piece	Belts slack	Stretch bells
The cut measure on the panel does not correspond to the measure read on (or on display) of the rest rule	The rest rule has moved	Set the rule
	The millimeter rule has moved	Set the rule



The cut measure on the panel does not correspond to the measure indicated by pointer of the parallel fence	The millimeter rule has moved	Set the fence to 0
The saw blade 'rubs' the parallel after the cut	Fence not parallel to the saw	Consult with tech service of Jai-SCM
The cut is not parallel	Fence not well adjusted	The fence position to the saw table shall be adjusted in order to have on the exit side a micrometric 'opening' (offset) equal to 0, 10 mm. For adjusting the fence position to saw blade consult with Tech Service
Square cuts not precise	Aluminum fence not adjusted	Adjust the position of plates after loosening the screws, then tighten the them. Carry out a test cut and check the square.
The scorer blade does not remain aligned	Grub screw is loose	Set knob to '0', tilt the saw unit to 450, then with machine off, take off the rear door to reach the motor housing, and with a wrench screw down grub screw to tighten it and set then align the scorer with the saw blade with test cuts and by operating on ring nut with a 30-32 mm wrench.
	Ring nut loose	Set knob to '0', tilt the saw unit to 450, then with machine off, take off the rear door to reach the motor housing, and with a wrench screw down ring nut in order to align the scorer with the saw blade.
The scorer does not keep vertical position	Nut loose	Set knob to '0', with machine off remove the rear door to reach the motor housing and with two wrenches reset the scorer blade position by means of nut and counter nut.
The scorer lifting does not occur	The push rod for scorer lifting has moved from its seat	Reset push rod on small piston and, in the housing, on the scorer sleeve.
The display SKV 200 electronic control is off	Battery dry	Replace the battery (LR14-1.5V), removing cover in the positions indicated in figure according to the fitting, keep polarity right.

For problems not described here, contact Jai Industries' technical service.



EVENTS CALENDAR

Afriwood
2 to 4 May, 2014

Venue: Kenyatta International Conference Center, Nairobi, Kenya.
Details:
www.expogr.com/woodafrica/

IFMAC
8 to 10 May, 2014

Venue: JI Expo Kemayorn, Jakarta, Indonesia.
Details:
www.ifmac.net

Interwood
8 to 11 May, 2014

Venue: Taiwan World Trade Center (TWTC), Nangang Exhibition Hall, Taipei, Taiwan
Details:
www.interwoodtaipei.com.tw

Xylexpo
13 to 17 May, 2014

Venue: FieraMilano fair grounds, Rho, Milan, Italy.
Details:
www.xylexpo.com

INDEX-UAE
19 to 22 May, 2014

Venue: Dubai World Trade Centre, UAE.
Details:
www.indexexhibition.com

India Kitchen Congress
23 to 24 May, 2014

Venue: The Lalit Ashok Hotel, Bangalore.
Details:
www.indiakitchencongress.com





WHAT DO YOU THINK?

WOODNEWS

George Fernandez
Director, Systems Engineering Consultants, Chennai (Tamil Nadu):
'Perfect looking joints' (*WoodNews* Jan-Feb 2014) explained the commendable use of 'zero joint technology' based on the diode laser by Homag's Mr. Markus Kostenbader, to establish quality benchmarks in edge banding, furniture and interior fittings.
In the 'LaserTec' method the diode laser directed beam melts the edge and panel is joined as a wafer-thin layer on the edge by oscillating motion. No glue is required. The greatest benefit working with 'LaserTec' is that the functional layer is the same décor as the edge décor material.

Suresh Agarwal
Partner, Timberland Inc., Ahmedabad (Gujarat):
We are into building materials and manufacturing foil-laminated MDF boards. We find *WoodNews* very informative and innovative.

N. Thambi Durai
Proprietor, Mega Promoters, Chennai (Tamil Nadu):
WoodNews is a very helpful magazine for furniture manufacturers, dealers and end-users.

Manoj Kumar Jangid
Director, Super Doors, Sri Ganganagar (Rajasthan):
It's very nice to write to you about *WoodNews*. It's vital to keep knowing about new concepts and staying aware of the news from the woodworking world.

Amit A Jande
Partner, M/s Forestor's, Nashik (Maharashtra):
Very educative! I am a regular reader of *WoodNews*. It would be helpful if some articles on PVC foil plywood door jambs were published. Production lines, if explained in detail, would be most welcome.

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