

WOODNEWS

Furniture and Manufacturing Technologies

29
Years

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industry

CHANGE AGENT

**Hettich Poddar Institute
ushering cultural shift in
carpentry P.24**

FEATURE

Zen and the art of
woodworking **P.10**

SPECIAL FOCUS

Timber Forum 2019
Highlights of the event. **P.40**



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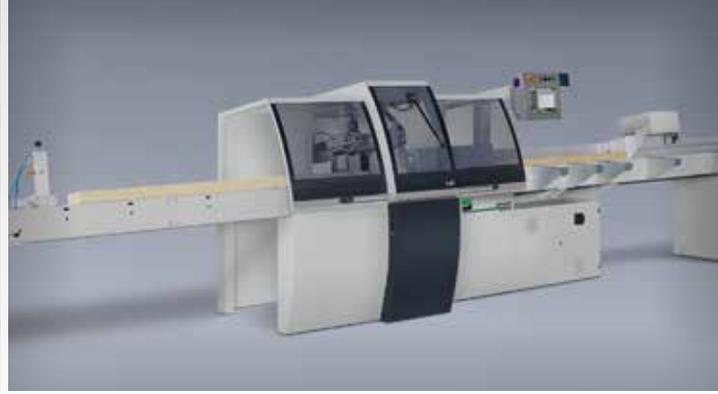
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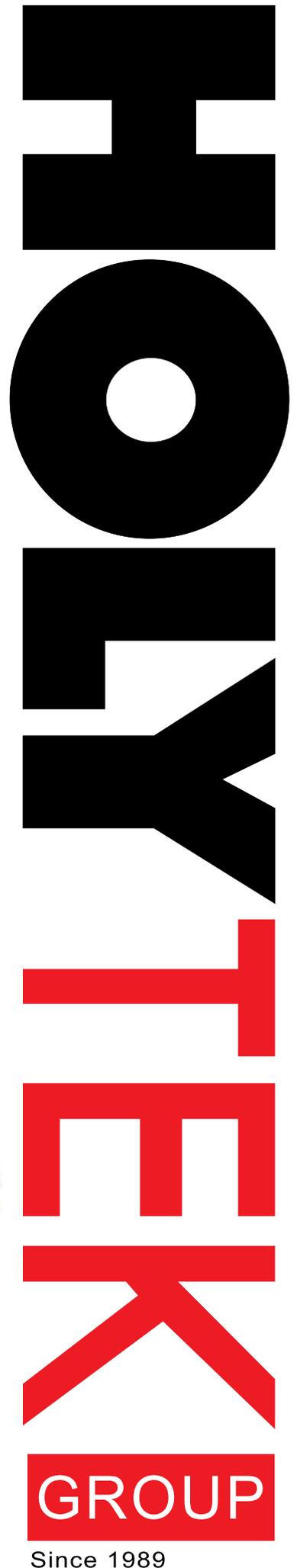
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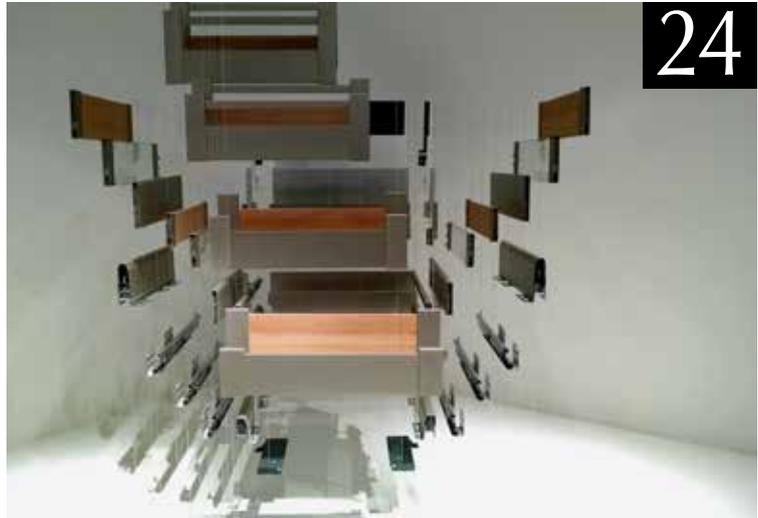
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Chief Editor | Dhananjay Sardeshpande
dhananjay@pdatrademedia.com

Chief Copy Editor | Roy Thomas
roy@pdatrademedia.com

Founding Publisher | Gouri Ramakrishnan

Founding Editor | Dr. Joseph George

President | Tony Doulton
tony@pdatrademedia.com

Senior Manager - Advertisement | Fabian Roberts
fabian@pdatrademedia.com

Senior Executive - Circulation/Admin | Chandrababu M
chandru@pdatrademedia.com

General Manager - Design | Infant Vikas
vikas@pdatrademedia.com

Manager - Design | Ramesha K S
ramesha@pdatradefairs.com

Layout | Govindaraju S | govind@pdatradefairs.com

Taiwan, China and Hong Kong:

Robert Yu, Worldwide Services Co., Ltd., 11F-B, No. 540,
Wen Hsin Road, Sect. 1, Taichung, 408, Taiwan.
Tel.: +886-4-2325-1784 Fax.: +886-4-2325-2967
Email: erin@dacw.com.tw

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Managing Director | Srinivasan S.

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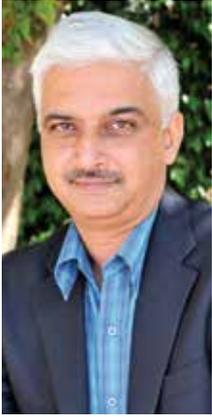
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Tilting domes, Zen woodworking, and...

Dear Reader,

India continues its attempts to deal with overwhelming challenges in upgrading its employable young population with skills and expertise that will meet industry requirements and sustain the growth of the economy. For the furniture manufacturing and woodworking industry, a beacon of hope and

living space is shrinking and becoming more expensive. These changes demand multi-functional furniture, clever built-in solutions and smart solutions that make life easier.

Clever designs that use space more efficiently and conserve resources will become more and more important. Production and processes need to be reconceptualised and redeveloped. A glimpse of this is offered by Finland and her expertise in wood housing.

Japanese artist and master-craftsman, Takahiro Yoshino, writes about how woodworking is comparable to Zen meditation: "In woodworking you focus on the sensations you feel from the vibrations and sounds coming from the blade when sharpening, and on how the tool comes in contact with the whetstone, and at that moment you are not thinking about anything else... This line of work is extremely similar to Zen, which is the world of nothingness." Curious? Read more inside!

We bring you (belatedly!) some highlights of the second edition of Timber Forum, which was held during DelhiWood 2019. The Keynote Address on 'Wood in Construction' was delivered by the well-known Architect Gurpreet Singh, founder of Aakar Design, Gurugram. For those of you that missed it, read how the nature and scale of his executed and proposed projects left the audience in thrall. There were interesting presentations from Canadian Wood, American Hardwood Export Council, Swedish Wood and the Export Promotion Council for Handicrafts, for the benefit of timber importers and buyers. There's more inside. Until next time!

FROM THE EDITOR

DHANANJAY SARDESHPANDE

a pillar of support stands in the form of the Hettich Poddar Woodworking Institute, situated right outside New Delhi.

If you are a green-horn wishing to work with wood; or a carpenter looking to upskill; if you aim to grow your team into a contract business; if you want to be a machine operator or production supervisor; or an online retailer who wants his/her employees trained on delivery and installation, the institute is your go-to option! Read more about its credentials, expertise, syllabus, facilities, standards and achievements inside.

Zoom out to a macro level: globalisation, demographic change, urbanisation and digitalisation are having a profound impact on our homes, lives and work. Cities are expanding and becoming more populated;

STAYING IN TOUCH

In keeping with the times and for ease of communication, WoodNews has discontinued the printing of Business Reply Envelopes with each issue of the magazine.

However, we continue to welcome your views and reviews of happenings in the industry, your contributions to and suggestions for the magazine, as well as business proposals via email.

For Editorial content: dhananjay@pdatraddemedia.com, or editor@woodnews.in, or call +91-80-42505036.

For Advertising options: tony@pdatraddemedia (+91-80-42505059), or fabian@pdatraddemedia (+91-80-42505065).

For Circulation and Subscriptions: chandru@pdatraddemedia.com (+91-80-42505054).

If you prefer to communicate by snail-mail, you are welcome to write to us at: WoodNews Magazine, No. 32/2, PDA House, Spencer Road, Frazer Town, Bengaluru-560005. (+91-80-42505000).

We look forward to hearing from you soon!

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Zen and the art of woodworking

By Takahiro Yoshino

I was introduced to Zen through my wife's disease and decided to create a chair that promotes Zen meditation. The chairs that I create for my clients make the sitter aware of observing proper, healthy posture.

I do not create chairs simply as an art, but so that my clients can become healthy once again by observing proper sitting posture with the heart of Zen. I make Zen chairs through my desire to share the joy with others.

I feel that there is a commonality between Zen and woodworking. The most important thing in Zen is to face yourself at the present moment. In woodworking as well, you focus on the sensations you feel from the vibrations and sounds coming from the blade when sharpening, and on how the tool comes in contact with the whetstone, and at that moment you are not thinking about anything else.

In this state you are, in essence, inside of nothing. I feel that this line of work is extremely similar to Zen, which is the world of nothingness. If you are then mixed in something intentional or egoic, you end up not being able to execute your task effectively.

Natural harmony

Woodworking, which is the act of processing wood, is basically a harmony between the wood, the tools and yourself. But if you try to

overpower the wood and self-centredly believe that the design must be a certain way, then you completely lose that harmony and the end-product does not turn out beautiful.

I feel that the perfect balance between these three elements produce the greatest performance that produces the best, most beautiful woodwork.

After I participated in the Furniture Society in 2014, various young foreign woodworkers started expressing interest in visiting my workshop to learn the art of Japanese carpentry. Since then, I have been offering foreign visitors short workshops that span two to three days, about once a month.

The number of foreign woodworkers wishing to learn Japanese technology gradually keeps increasing. I want to create a woodworking

1 *My clients can become healthy by observing proper sitting posture with the heart of Zen.*

2 *Woodworking is a harmony between the wood, the tools and yourself.*



2



Courtesy: Wood-Mizer

Born in Tokyo in 1958, the writer is a widely-exhibited and award-winning furniture designer and manufacturer. He learned woodworking from Shinagawa Training School and studied under Jiro Hayashi and Kenji Suda. In 1986, he established his woodworking studio, COM, at the foot of Mt. Fuji, and started an artist exchange programme.

exchange centre (Mt. Fuji School of Woodworking) where people from all over the world can come and interact by creating a new workshop using the 100 pillars and 100 beams that I extracted from my own forest.

My ideal workshop is spacious and does not have any pillars, thus creating a wide, expansive workspace. When there are pillars, the materials can easily bump into each other. A long beam is required to create such a space without any pillars. The big advantage I have is being able to create them from my own forest.

Portable sawmill

I have been using a Wood-Mizer LT15 portable sawmill. It is extremely compact and performs

well. In Japanese lumber sawing, the sawmill machines are fixed; instead, the logs are moved.

Its philosophy is completely the opposite of Wood-Mizer's philosophy that entails moving light sawmill machines and fixed heavy logs. I was very surprised to find that such a simple system can be used to saw the logs.

My forest was mostly left unattended for 70 years after the War ended, so there were quite a lot of pine trees growing. Since there were too many pine trees, other types of trees were not able to grow. Therefore, my family and colleagues worked together to reduce the number of pine trees.

By doing so, sunlight is now able to reach the forest floor, and buds of hardwoods that haven't had a chance to see sunlight until now are now sprouting.

The Japanese forestry industry has been steadily declining. There were three lumber producers in our town before, but they are all gone now. I had to travel to distant towns to do some lumber sawing. With a Wood-Mizer sawmill, I can easily do it right on my own property!

If it is too much for me to handle, I can simply share it with several other people, who will promote greater use out of the trees in the region. I believe that it would have a significant impact in sustaining the forests.

My message to fellow woodworkers is that we, the woodworkers, should improve our craft by thoroughly understanding the forest, lumber, and furniture.

As the users of trees, we must first understand and learn about the forest. I feel that it is our mission to fulfil an intermediary role between the forest and clients by serving as a bridge that helps clients understand the culture of trees and sustainability.

3 *I have been offering foreign visitors short workshops that span two to three days, about once a month.*

4 *With a Wood-Mizer sawmill, I can easily do all my lumber processing on my own property!*





Furniture beyond the surface

To meet the requirements of individuals according to their taste and opinion, and to design according to personal ideas are new, modern-day challenges. Rehau has tried to meet this demand by offering a wider range of variants, as well as more individualised products.

1 *'Future Apartment' reduces the kitchen, living room and bathroom to three highly functional blocks, almost sculptural objects.*

'Future Apartment' follows a radical approach that reduces the kitchen, living room and bathroom to three highly functional blocks, almost sculptural objects. Each remains deliberately abstract to highlight the many technical possibilities offered in a never-seen-before way.

At Interzum this year, visitors to the international trade fair in Cologne (Germany) were able to experience touch points and communication triggers that stimulated their imaginations. The staging was devised by Ippolito Fleitz Group.

Says Ms Tilla Goldberg, Director of Product Design at Ippolito Fleitz, "Rehau's unlimited technical potential grants us totally new possibilities when dealing with the design of surfaces. They enable us to think beyond the surface to create independent objects with

character instead of 'silent' furniture."

To address these three thematic blocks the company envisioned the apartment of the future. It rethought and leverages the properties of previously unused surfaces, not only characterised by mere optical beauty and aesthetic added value, but also by the synthesis between technology and material.

The core of the programme was supported by an inspirational formula: more individuality, more space, and more emotion.

Kitchen space

Since time immemorial, the kitchen has been the fulcrum of day-to-day activities, created to nourish, to cook and store food. It has morphed into an emotional, pivoting crossroad between all domestic spaces.

If the dream kitchen has become the centre of everyday life – and unarguably an object of desire – the lack of space and rising living costs translate into fewer square metres available. This calls for a clever concept that leaves plenty of room and options to develop within a limited surface area, without compromising on individuality. ▶

OAK REDEFINED

AHEC, Adam Markowitz and Marcus Piper collaborated on 'Oak REDEFINED', an installation exploring American red oak from multiple perspectives. Both natural and thermally-modified American red oak was selected for the collaboration with designer and architect, Adam Markowitz and top graphic artist, Marcus Piper, who came together to create a space in which to relax, recharge and reconnect with a thoughtfully designed environment. So vast is the U.S. hardwood forest that all of the 2.75 cubic meters of red oak lumber used to create the installation would be replaced through natural regeneration in just 3.15 seconds.



For more information visit www.americanhardwood.org



2 A wide variety of materials and finishes in different colours are complemented by bespoke visuals on panels to offer a customised experience.

Tambour door cabinets, previously frowned upon as a necessary evil in the kitchen corner, now confidently prove their potential. It is reimagined as a minimalistic, free-standing body made of two blocks intersecting at 90-degree angles.

There is no shortage of possibilities and smart functions here: storage space granted the containers feature 'out of stock' indicators, motorised doors, centrally controlled intelligent display strips, and wireless power supply surfaces.

The interactive kitchen work surface consists of the new materials: Rauvisio Mineral and Hanex Solid surfaces. A wide variety of materials and finishes in different colours are complemented by the possibility to print bespoke visuals on panels that offers a customised experience.

Living area

The living room is for everyone and is considered as a retreat within the apartment, a personal "safe place" where the personality of the occupants manifests itself.

It is a nest for intimacy, created not only by furniture but also by doing things. With 'after-hours' work spilling into the living room, this environment has morphed into an office too, blurring the confines between the two.

Here, a floor-to-ceiling open lamella structure made of the material Rauvisio Crystal

encapsulating a soft upholstery lounge is envisioned. It is a sheltered cocoon where one can retreat and unplug, or simply bring home a piece of office, in a more comfortable setting.

Raukantex Lite is the individually-programmable lighting profile. Smart and elegantly integrated interfaces with controllable strips in each 4.5-metre-high lamella edge enhance the experience, creating suggestive atmospheres with the programmable light profiles and invisible surface-embedded switches.

Inside the cocoon, a pulsating sewn-in lighting contour on the seams of the cushions creates an ethereal halo effect enveloping the individual. An ingeniously integrated overhead light source makes it the perfect domestic spot to relax, listen to music or read a book!

The bathroom

The bathroom is the most sensory-laden, body-centered home environment where the individual re-energises after exhausting workdays or strenuous training sessions. Personal hygiene, durability and individually-controllable functionality are the demands placed on the modern bathroom.

With this in mind, the company has excogitated products and designs to overcome lack of space, and to enhance the soothing effect of the water room. The bathroom windows are equipped with the smart shading

function that transforms the bathroom into a safe and private space.

The functionality of the overall environment is focused on placing a high premium on integrated surfaces and interfaces. Understated light-lines transform full-body, black-milled mirrors into congenially illuminated make-up mirror surfaces, while at the same time changing the depth perception of the entire room.

Integrated lighting fixtures on the outer perimeters of washbasins and bathtubs neatly show the way even at night without any strain on the eyes. And, by virtue of translucent crystal panels, custom motifs can be added to each surface.

In the shower, the same vitreous material crystal replaces the tile and, with incorporated, water-proof control elements, ensures that stored functions can be accessed at any time, as indicated by the change in color of the shower head as the water temperature varies.

“This new range has entered the contract markets. We have reached out to industries such as commercial aviation or rail transport,”

said Mr Markus Winning, Head of Product Management Systems at Rehau.

“Imagine such features on a long-haul flight aboard a state-of-the-art airplane or on a Tokyo-Kyoto bullet train night ride cruising at 300 km per hour. The possibilities are infinite!” he added.

The Rehau Group is a polymer specialist with an annual turnover of over 3.5 billion Euros and provides solutions for the construction, automotive and industry sectors.

3 Integrated lighting on the perimeters of washbasins and bathtubs neatly shows the way even at night.



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Finnish wood: right choice for wooden structures

1 Finnish wood is a versatile material that is environment-friendly, renewable and natural, and has an excellent strength-to-weight ratio.

Finnish softwood is a versatile, recyclable and low-carbon material that is useful for various applications. Finnish sawmills manufacture and market high-quality sawn softwood.

Due to its beautiful structure and appearance, this softwood is very popular all over the world, especially in visible end-use applications.

Finnish wood is a versatile material that is environment-friendly, renewable and natural, and has an excellent strength-to-weight ratio. It is easy to work with – straight, slowly grown, homogenous, small knots, straight, with not much tension.

The use of wood reduces carbon footprint and with its natural beauty is a popular choice in indoor applications, visible construction parts, and outdoor applications.

There are several uses of building with wood that include energy efficiency and lightness combined with strength and resistance. To

add to this are include features that make it essential for earthquake safety.

Other features include speed and measuring accuracy, ability to build possible also in frost conditions, good for sound-proofing, positive physiological and psychological effects of wood in interior, and its usefulness in fire safety.

Fire safety

Most fire deaths are the result of smoke inhalation. In more than 75% of cases the reason for fire are the dangerous and flammable synthetic materials used commonly in home construction and furnishing. When burning, they produce extremely dangerous substances like carbon monoxide that are released into the air and can be deadly in small amounts. These toxic gases replace the oxygen and are inhaled by victims.

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cyanide released can interfere with cellular respiration. Another product, phosgene, is formed when household products, including those containing vinyl, burns.

Wood is a burning material but also fire-safe material. Wood ignites normally at around 300 degrees Celsius, depending of time of exposure. Fire progresses slowly in solid wood products, because the layer of carbon protects the wood.

For example, 36/38mm thick solid wood needs one hour to burn through. For glulam the speed is about 0.7 mm/minute. Wood structures can relatively easily achieve 30-, 60-, 90- and 120-minute fire resistance.

Durable structures

Correctly designed and built wood structures are very durable. In the world, there are examples of wooden buildings that have survived for almost 1,000 years in their original form.

Finland’s oldest wooden building is the Tarsia Granary at Kihnio, south-west of Finland, which was built in 1441.

Ways to improve the longevity of wood include selecting an application suitable for wood, selecting the right type and quality of wood for the application, keeping the structure dry, providing adequate structural protection from water, moisture and direct

sunlight, impregnating the wood against decay, termites, etc., surface treatment such as painting, lacquering and waxing and taking good care of it and changing parts that may wear.

Wooden building materials are in constant competition against other building materials. Confidence of the final customers as well as the constructor can be achieved through reliable quality assurance systems where product certification is playing essential role.

Certified wood

In European countries most wooden products utilized in construction have to carry a certificate which is awarded by certified independent professionals. Certified products are marked with a stamp where the consumer/constructor is able to identify certificate code and producer and also who has been awarding the certificate which is precisely defining the characteristics of each product e.g. concerning strength, glue type, chemical content etc.

So these products bear certain minimum levels which make them homogenous and more easily applicable and comparable with other construction materials.

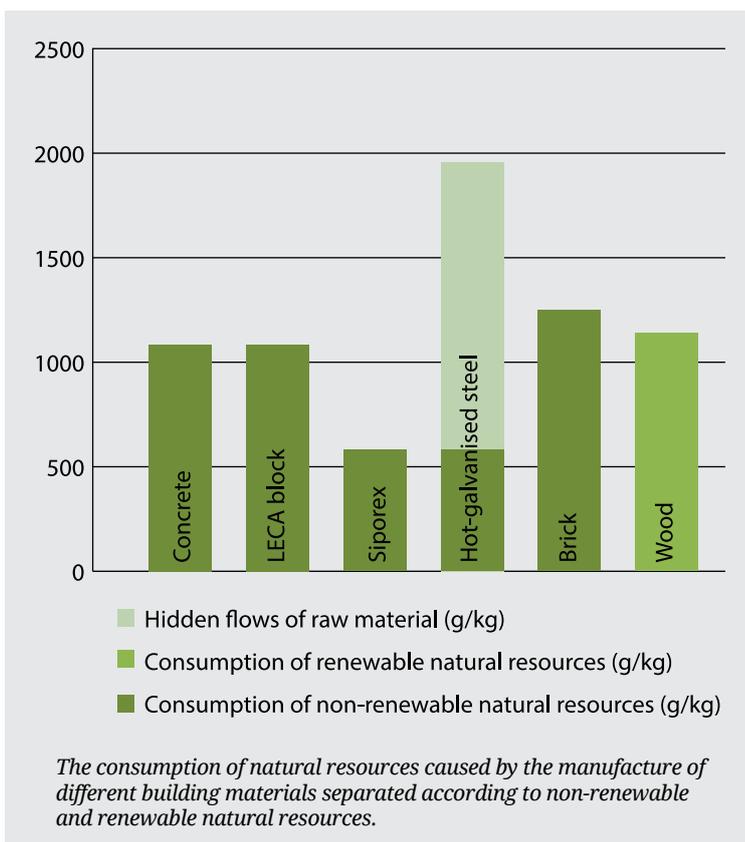
In Nordic countries, where the strength properties of wood are better than in most other areas can happen, that in order to obtain certain minimum strength properties less raw material is needed than in regions where the wood raw material is weaker and more fast-grown.

For Nordic glulam, Finland, Sweden and Norway have created common regulations and standard have published a Glulam Handbook, which is available on the internet. Laminated log house producers have their own certificate laminated logs and also for log house kits.

Producers of impregnated products have their certificate for impregnated pine, while thermo-wood producers have their own certificate. External, regular auditing of this impartial, independent body is the best assurance of reliable product quality for the final consumer and in this way best for the marketing of wood products.

Glulam structures

Laminated timber is a structural wood product made from strips of wood glued together. It is made up of at least four strips or sheets of sawn goods, maximum 45 mm thick, with the grain direction running along the length of the laminated timber product.





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2



2 *Log house producers have their own certified laminated logs and building kits.*

For high quality gluing correct moisture content of wood is essential as also the selection of right glue suitable for the end use application.

Maximum height of laminated timber is approximately 2 metres and maximum length approximately 30 metres. The strips or sheets from which laminated timber is made are normally 45 mm maximum thickness for straight beams and 33 mm maximum thickness for curved structures.

Laminated timber beams have good fire resistance and do not bend under the effect of heat. Laminated timber is used for load-bearing structures, in both the horizontal and vertical directions, which are either left visible, or clad. Laminated timber is usually planed all round and is available in various finishes and pressure-impregnated.

With structural glulam it is possible to make spans which reach over 100 metres. It is also possible to combine glulam and laminated veneer lumber (LVL) and reach spans of up to 160 metres.

Glulam timber has great potential in different construction applications in earthquake regions. Slowly grown Finnish pine and spruce have excellent strength properties and this is the reason why huge glulam market Japan is importing both sawn timber and

ready products for the production of traditional Japanese wooden houses.

Various bridges of many different sizes can be built out of wood, even for carrying road transport. Prefabricated wooden bridges can be assembled quickly, something which reduces the deleterious effects of construction on traffic flow.

Wooden bridges have been shown to have long-term durability and low maintenance and repair costs. The prime advantage of wood in bridge building is its lightness and strength. The change from using solid wood to using lam-inated wood has made it pos-sible to manufacture large beams in wood.

Log houses

Through lamination and finger jointing it is possible to produce very long lengths; but spe-cial attention must be paid to making sure the wall has sufficient transverse stiffening. Log walls are stiffened with cross-walls and/ or dowels.

Dowels prevent the logs from be-coming warped out of position, especially in long walls and adjacent to openings. The spacing between dowels should be a maxi-mum of 2 metres.

One special characteristic of the design of a log building is the control of sink or settle-ment ▶

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and the movement of the wood, such as splitting. Apart from this, the design principles of log building are more or less as for other forms of timber construction.

Log construction can be used to construct buildings which are excellent in terms of energy efficiency, weather-tightness, fire safety and sound insulation. The weather-tightness of a log building is ensured by the shape of the groove between the logs, and by the way they are sealed.

The most critical areas from the point of view of weather-tightness are joints between different components in the external envelope, or holes in it for pipes or other components to pass through.

Pine has been the most popular choice in the log home construction, but spruce has become more and more popular during last decades because of its lighter colour, which may offer more alternatives for interior decoration.

3 *Although wood is a burning material, it is also resistant to collapse in a fire accident.*

Finnish log houses companies are exporting log homes to all parts of the globe including tropical beaches to the arctic. The type of houses varies from small beach saunas to huge three-floor villas build in Las Vegas or Dacha styles.

Psychological benefits

Wooden interiors improve indoor air quality and acoustics. Wood balances the humidity of the interior air – absorbing when outdoor humidity is high and releasing when the humidity is low.

3

Wood is an anti-bacterial material. It prevents the growth of harmful microbes in kitchens, hospitals and saunas. The favorable psychological effects of wood have also been proven in schools.

In classrooms with whole-wood interiors, the morning stress peak, measured as a variation in pulse rate, subsided soon after arriving at school and did not rise again.

The use of wood in interiors also seems to extend to human behaviour and social observation.

In offices where wooden products are used, visitors' first impression of the workers is more favorable than in places where there is no wood. In wooden offices, workers seem better at their jobs, more successful, more honest, more responsible and more reliable than in normal offices.

An interesting and unexpected observation concerned the supported living of the elderly. When, in homes for the elderly, wooden materials like wooden trays in the dining room were introduced, in the opinion of the staff, interaction between the residents and awareness of their surroundings increased.

It seems that the positive effects of wood cannot be reproduced with imitation wood. Physiological measurements have shown that the quality of sleep and recovery from stress are better in a room with wood than one with imitation wood.



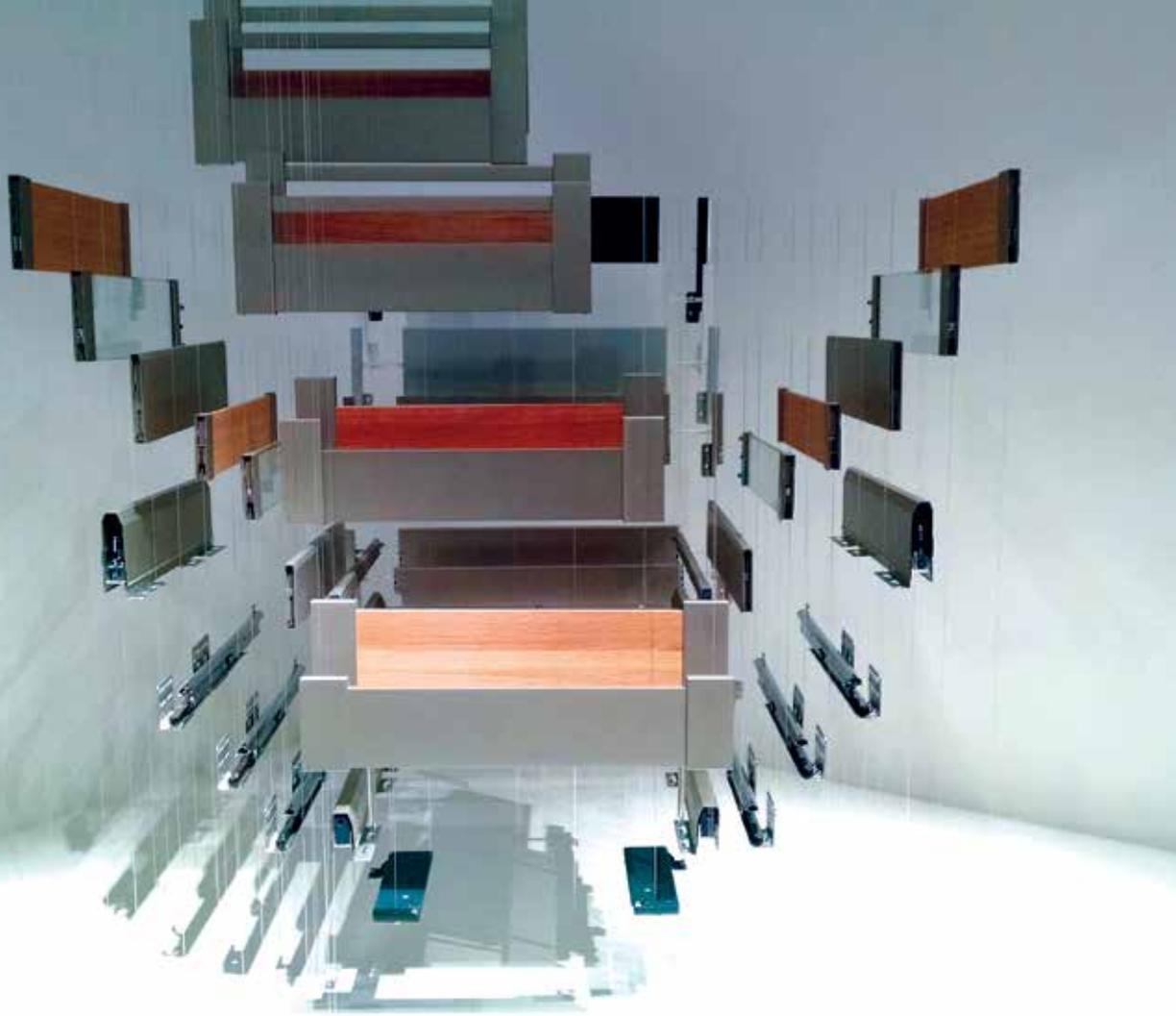
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1

Change Agent

How the Hettich Poddar Woodworking Institute in Faridabad (Haryana) is ushering a cultural shift in carpentry in the country

India continues its attempts to deal with ever-changing – and sometimes overwhelming – challenges in upgrading its employable young population with skills and expertise that will meet industry requirements and sustain the growth of the economy.

furniture hardware and fittings, it is a corporate social responsibility initiative by the Germany-based company to change the culture of carpentry, ethos of woodworking and business of mass manufacturing in India.

Technology leap

When the likes of Hettich (among others) entered the lucrative Indian market, it was realised that skilled manpower was at a premium. The Industrial Training Institutes (ITIs) across the country had obsolete syllabi and systems, out-of-date tools and teaching faculty, and insufficient will to transform to the fast-changing requirements of modern furniture manufacturing.

In our quest to keep abreast of technology and trends, market variables and consumer preferences, we look far and wide for inspiration, advice, investment and expertise.

But for the furniture manufacturing and woodworking industry in India, a beacon of hope and a pillar of support stands in the form of the Hettich Poddar Woodworking Institute (HPWI), situated right outside New Delhi.

Started in 2017 by Hettich, a world leader in

The company started awareness and training

1 *Hettich supplies thousands of products in architectural hardware and furniture fittings. The high level of engineering design requires trained carpenters and installers.*



2 Hinges, sliding systems, knobs and handles need expert preparation in boring and drilling, ahead of installation.

sessions across the country when it entered the India market some 15 years ago – the change in hardware materials and leap in fittings technology required it. But the need for a centralised, formal educational system and training centre led to the formation of the HPWI in Faridabad.

In the initial years there was tremendous resistance to new technology – even Hettich's simple slide-on hinge did not find favour with freelance carpenters (they still make up 70% of Indian furniture manufacturing capacity!) who preferred the outdated piano hinges. They preferred the obsolete chisels to boring jigs and machines.

The HPWI is now an 8,000-square-foot, fully air-conditioned learning centre with classrooms, workshops, a machinery shop floor and a library. The machines are elementary, but essential to understanding sawing, shaping, boring and edge banding of wood-based panels. It is on these machines that students learn that production tolerances cannot exceed +/- 0.05 mm!

Customised courses

It has a manifold agenda: upskilling carpenters from traditional methods to modern furniture-

making; upgrading the knowledge of contractors and interior designers; and providing modern factories (OEMs) with skilled and trained manpower to achieve quality standards and improve manufacturing efficiencies.

The institute has designed a 3-month course in woodworking for storage (cabinets and cupboards), seating and sleeping systems (chairs, tables, sofas and beds) doors and windows (including frames), kitchens, as well as furniture upholstery. It also deals with critical architectural hardware and furniture fittings that go with these products.

The course can be customised to train workers from factories – and so far more than 1,000 such employees have successfully learned their respective skills from OEMs based in Kerala, Karnataka, Rajasthan, Gujarat, and even Bhutan. Many return to the institute for upskilling, or to learn new skills.

A successful candidate from the institute has sound knowledge of solid wood; understands the nature of panels and boards; knows his cabinetry (assembling, dismantling); and can process panels (cutting, boring, shaping, polishing, etc.) for the required product.

3 The Hettich Poddar Woodworking Institute in Faridabad spans 8,000 square feet, accommodating classrooms, workshops and a section for panel processing machinery.



3

More importantly, however, s/he is capable of collating data – reading drawings, interpreting designs, planning material optimally, processing boards precisely, and preparing a bill of quantity for any production order. Without doubt, this is a huge advantage for those looking to hire skilled personnel in his/her factory!

More centres

The HPWI has been labelled a centre of excellence by the Furniture and Fittings Skill Council and the National Skill Development Corporation. It is a vocational training partner for the former, and provides internationally recognised training and certification for the industry.

It has trained installation teams from Livspace and Urban Ladder. It also trains selected candidates for the World Skills Competition,

considered the Olympics of vocational training expertise. It plans to open four more such learning centres, beginning with Indore (Madhya Pradesh).

If you are a green-horn wishing to work with wood; or a carpenter looking to upskill; if you aim to grow your team into a contract business; if you want to be a machine operator or production supervisor; or an online retailer who wants his/her employees trained on delivery and installation, the HPWI is your knowledge and training partner.

Successful candidates can aspire to earn good salaries in factories; or start their own contract manufacturing businesses; or even find attractive employment opportunities abroad. So what are you waiting for? (www.hettichwoodworkinginstitute.com).

4 Apart from training the trainers, the institute also prepares candidates for the prestigious World Skills competition, considered the Olympics of vocational expertise.



4



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MumbaiWood to showcase carpentry skills



The forthcoming edition of MumbaiWood (17-19 October) promises to outrank its own success and high benchmark with a grander event, both in terms of its size as well as the visitor turnout from across the country.

Organized by NuernbergMesse India Pvt. Ltd., in cooperation with PDA Trade Fairs, the 4th edition of MumbaiWood, to be held at the Bombay Exhibition Centre, Mumbai, will once again offer the industry a huge 5,000+ impressive square metres of display space for machinery, technology, raw materials, semi-finished products, components, hardware and fittings.

Hosting over 175 participants from India and other countries, the 3-day trade fair offers a holistic experience for furniture and wood-based manufacturing industries, interior designers and architects.

Strongly established as one of the most important events of the Indian woodworking industry, MumbaiWood (along with IndiaWood and DelhiWood) has consistently offered an all-encompassing platform for both the demand and supply sides to equip themselves with latest in technology, design, machinery and raw materials in the Western India region.

The expo will bring together the best brands, solutions and services for the woodworking

and furniture industry from across India, clearly marking it as absolute essential trade and technology platform for manufacturers and woodworkers, architects and real estate developers.

A significant highlight of the show is the special workshops organised with Dimensions Network, focusing on skill and knowledge development in innovation, conservation, education, and sustainable development in woodworking.

With live skilling demonstrations and workshops, the sessions would showcase skills in carpentry, material machinery to create a monumental solid wood structure. There shall also be a live skill competition between mentees in the Dimension Network mentored by professionals in the field, and product showcase by a few select members of the network.

For every single visitor to the event, there would be something promising, in terms of knowledge, information, networking and business prospects. To avoid long queues, visitors are expected to pre-register at <http://www.mumbai-wood.com/Visitor-Registration>.

For press and media queries, contact

Gourav Srivastav (Marketing Manager) on +91-9686234270, or email gourav.srivastav@nm-india.com.

For space booking, contact

MK Belliappa (Project Manager) on +91-9916092922, email belliappa.mk@nm-india.com; or

Pradeep Kumar Gopal (Project Director) on +91-9986066910, email pradeepkumargopal@nm-india.com.

Highlights

- 175+ exhibitors from all over India and abroad
- High number of visitor registrations from SMEs
- Architects, builders, interior designers as visitors
- Free entry for all visitors; pre-registration preferred

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Renowned architects head for CIFF-Shanghai

44th edition of international furniture fair will be held from 8 to 11 September

Spreading international ideas and trends to reinforce the value of design in the furniture industry in China; offering international brands a privileged channel for accessing the most important furniture market in the world; and creating a global furniture community – these are, for Mr Yang Huawei, General Manager of China Foreign Trade Macalline Exhibition Co., the objectives of the 44th edition of CIFF Shanghai.

Over 1,500 exhibitors representing the full range of the furniture sector, from the home to the office to the outdoors, from decor to furnishing textiles to machinery for the furniture industry, will be present at the China International Furniture Fair in Shanghai

Hongqiao National Exhibition and Convention Centre from September 8 to 11 this year.

CIFF expects over 1,50,000 visitors from 200 regions and countries worldwide, providing them with a unique offering of new products and design events grouped under the theme, 'A Paradigm for Global Living'.

The forum, 'Designed for Humans', organised by CIFF and Aedes Architecture Forum, will serve as an exchange and networking event to allow insights into global as well as Chinese strategies and applications in terms of design and production. Seven world-renowned architects from Japan, Portugal, France Denmark UK and China will discuss new paths into the digital future.



Extraordinary sources of inspiration and cues for reflection on Chinese design will be offered by the EAST Design Show, through a selection of finely designed Asian products, as well as the Design Dream Show, which presents the most innovative trends and bears witness to the legitimacy of Chinese design.

New layout

In the interest of improving the experience of visiting professionals based on their targets and areas of interest, China's international design promotion platform has completely reorganised the exhibition layout.

Hall 3 will witness extensive presence of foreign brands, including Thomasville Furniture, Elements International, Casa Chic, Jab Furniture, Haba, Brianform, Rossini Furniture, Cuunion, Lexington Furniture, Coco-Mat and many others.

It will offer a good overview of new trends through new collections, thus fostering innovation and encouraging, through competition, the pursuit of quality.

Hall 6.1 will be dedicated to outdoor furniture as well as textiles and accessories for the home. An extraordinary opportunity for international buyers to find, in the same space, a selection of furniture, chairs, accessories and decor elements, and awnings and umbrellas to furnish outdoor spaces, pool areas and beaches.

It will host collections by the best Chinese brands, including Higold, Lican, Evergaining, Zhenting, Kailian, Derui, Paifeng, Caopu, Gryto, Meiyaxin, Qinda, Baocheng, Meiyang and Yalees.

Hall 5.2 will offer local and international buyers a full range of products for living and sleeping. The best manufacturers of bedroom furniture and mattresses – among them Simmons, Serta, Kingkoil, Sealy, Caluful, Dunlop and Kuka – as well as those specialising in living spaces – such as Chenxi, Huaya, Baishi and Biaodian – will present their new products in line with trends in the Chinese and international markets.

Halls 6.2 and 7.2 will have top Chinese and international sofa brands; Halls 8.2 and 7.2 will accommodate office pavilion for defining modern work environments, proposing operating systems, furnishings for public spaces and “smart” office furniture and accessories from major companies.

In conjunction with CIFF-Shanghai, the second edition of the Shanghai International Furniture Machinery and Woodworking Fair, will be held in Halls 7.1 and 8.1. It will be brought to life by leading Chinese and international manufacturers such as Jintian Haomai, Weinig Powermat and Biesse, who will present production technologies and all types of process machinery.



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IPIRTI campus interviews in October

The Indian Plywood Industries Research and Training Institute (IPIRTI) is organising employment interviews for its 28 trainees of the 30th batch of its 1-year post-graduate diploma in Wood and Panel Products Technology (WPPT).

The campus interviews will be held on its Bengaluru campus on 23 October, 2019. The diploma-holders are market-ready for positions such as production managers, quality control managers, marketing managers, team leaders and wood chemists.

These candidates already possess degrees in science (B.Sc. in chemistry/ physics/ mathematics/ agriculture/ forestry) or engineering (B.E./B.Tech) from recognised universities. They have been selected from all over the country on the basis of marks obtained in the qualifying examination.

The WPPT course imparts professional knowledge and skills with regard to processing technologies for efficient utilisation of wood through conversion into engineered wood and a variety of panel products – plywood, particle and fiber boards, block boards, flush doors, etc.

Wood-based industries in need of trained personnel in middle management cadre may contact Dr. Manoj K. Dubey, Joint Director (manojkumar@ipirti.gov.in) or Dr. V.K. Upadhyay, SORIT Division, IPIRTI, Bengaluru (upadhyay@ipirti.gov.in).

Professional training

The course includes processing technology on bamboo mat-based panel products and adhesive technology. Standardisation aspects with respect to quality management and BIS certification are dealt with in detail. Emphasis is given not only to theoretical background of various technologies but also practical and hands-on exercises.

The PG course content includes wood science (physics and chemistry) in great detail; saw milling technology and saw doctoring; plywood manufacturing technology and veneer production; and panel products and their applications.

The candidates also learn statistics, human resource, production management, financial and accounting management; as well as quality control and marketing management.

Since the establishment of a training centre in 1989, more than 500 graduates have successfully completed the course. Almost all of them have been placed in sound pay packages in plywood industries all over the country.



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AHEC announces Jaipur convention in October

Given the developing opportunities in mind, the American Hardwood Export Council (AHEC) has redoubled its efforts in India over the past 2 years or so, stepping up activities and focusing heavily on the wooden furniture and handicrafts sector in Rajasthan.

Following a successful event in Jodhpur in March this year (see WoodNews: March-April, 2019), AHEC is now looking forward to working with the Federation of Rajasthan Handicraft Exporters (Forhex) for a similar event in Jaipur on October 21 and 22.

It seeks to conduct a 'mini-convention' of Indian furniture manufacturers and exporters, to spread awareness about certified and sustainably harvested hardwoods from the US.

This mini-convention will include factory tours and a networking event. As testament to the interest in the Indian market, AHEC has already received confirmations from more than 25 US-based hardwood and veneer exporters, who are all keen to do business in the country.

For more information, email india@americanhardwood.org.

Growing imports

AHEC will return to MumbaiWood (October 17 to 19, 2019) to offer a strategic platform to interact with timber importers and traders, furniture manufacturers, wood processing companies, as well as architects and interior designers.

"The market for American hardwoods in India is on its way to fulfil its true potential over the course of the next few years," says Mr Roderick Wiles, AHEC's Regional Director.

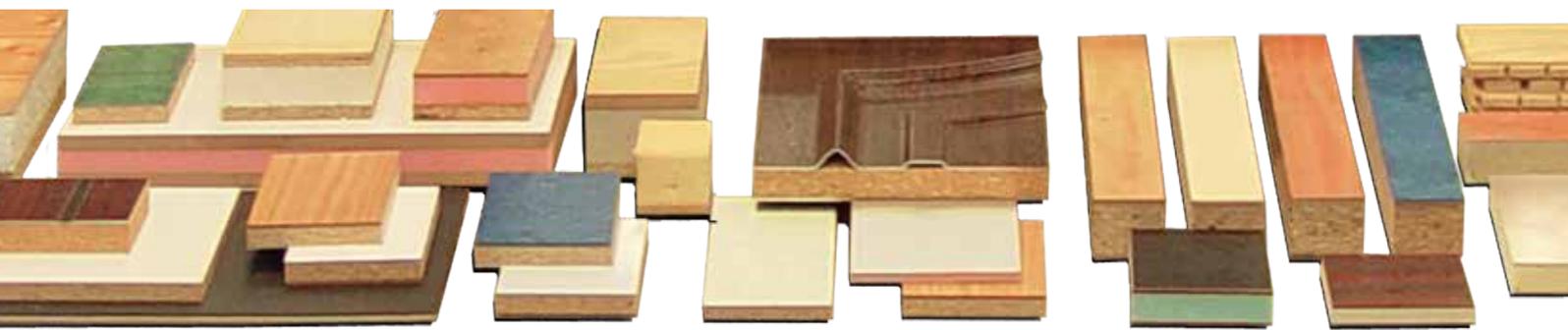
"For some time, anecdotal evidence has pointed to a genuine increase in interest from both Indian importers and manufacturers in bringing kiln-dried hardwood lumber from the United States. However, there is now hard evidence in the export statistics to support this."

According to the latest reports, the volume of US hardwood lumber shipped to India during the first half of this year increased by over 190% in volume to 1,661 cubic metres and by 102% in value to US\$ 1.06 million.

Over one-third of the volume was accounted for by red oak, which was not shipped to India at all in 2018. The remainder was accounted for by a range of species, including hickory, walnut, white oak, ash, maple and cherry.

AHEC has been monitoring the development of modern and mechanised furniture manufacturing in India over the past few years and the indications are that more factories are investing in space, machinery and manpower, as the conditions for running a business become less bureaucratic and the market opportunity becomes more evident.

"Looking ahead, it would seem that almost any American hardwood species may find a place in the Indian market, provided that it is both competitive in price and readily available in significant and consistent volumes," Roderick adds.



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Photo courtesy: Finnish Wood

VietnamWood set for September

The biannual 13th VietnamWood is all set to open at the Saigon Exhibition and Conference Centre in the country's capital, Ho Chi Minh City, from 18 to 21 September this year.

Apart from furniture manufacturing equipment, hand and portable power tools, the B2B show will also have on display woodworking materials and consumables, material handling equipment, dust extraction machinery, fire detection and protection equipment.

Importantly, there will also be exhibitors with chemical dosing equipment and systems, kilns and moisture measuring equipment, testing and laboratory equipment, and waste disposal equipment.

Organised by the Ministry of Industry and Trade and the Handicraft and Wood Industry Association (HAWA), it is supported by the European federation of woodworking machinery manufacturers (Eumabois), Binh Duong Furniture Association and the Vietnam

Timber and Forest Product Association.

The participating national pavilions will be from the Taiwan Woodworking Machinery Association, Taiwan Furniture Manufacturers' Association, the German Woodworking Machinery Manufacturers' Association, the American Hardwood Export Council, French Timber Association, the Softwood Export Council, British Columbia Wood Association, the Quebec Wood Export Bureau and participation from Austria.

The previous VietnamWood (October 18-21, 2017) had a gross exhibition space of 18,200 square metres, hosted 383 exhibitors from 28 countries, and attracted 11,470 visitors from 11 countries including Canada, China, Germany, Hong Kong, India, Malaysia, Myanmar, New Zealand, Singapore, Thailand, Taiwan, the US and Vietnam.

For details, email Ms Ruru (ruru@chanchao.com.tw) or Ms Jessica (marketing.vn@chanchao.com.tw).

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1



*Mr Gurpreet Singh,
Director-Architect,
Aakar Designs,
Gurugram.*

Glulam proves itself in monumental structures

The second edition of Timber Forum was held on 15 March, during DelhiWood 2019. The Keynote Address on 'Wood in Construction' was delivered by the well-known Architect Gurpreet Singh, founder of Aakar Design, Gurugram.

Architect Gurpreet dwelt on the nature of engineered wood as a building material in various scenarios: home, institutional and industrial architecture. The nature and scale of his executed and proposed projects left the audience in thrall.

India faces huge challenges in timber availability; so his architecture firm had to resort to glue-laminated timber (glulam), which was also fabricated onsite, he said, giving the example of the Royal Academy in Paro, near Thimpu, the capital of Bhutan.

In an impressive visual presentation, he explained how materials – earth and stone on

the site, as well as local timber – were included in the construction. Spread over 260 acres, the site had only 15% of land where construction was possible.

The project consisted of the school, a clock tower, a central courtyard, laboratories, dance and drama centre, a teachers' development centre, hostels for 1,200 students, a 1,500-seat dining hall, and on-campus accommodation for 140 teaching faculty and administrative personnel.

Tilted dome

Glulam was also used for the roofing. The multipurpose hall the size of three basketball ▶



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courts has a dome-shaped roof. This posed a peculiar problem: the north side received a lot of snowfall and that would not slide off easily. This resulted in the construction of a tilted roof, using wires as connectors!

Much of the faculty accommodation was completed using local fire-resistant timber, carved and finished by master-craftsmen. But most of the school and hostel construction required the use of glulam. This ensured that it is stronger and more durable than conventional timber – besides there was considerable savings in material mass and structure. The glulam columns are in compression and are countered by bringing it in tension by steel cables.

Another interesting twist to the project was the fact that a Swiss company hired by the Bhutan government set up a small factory at the site to manufacture glulam. Most trees felled for clearing the site were utilised for making glulam beams!

An innovative system was put to use because some architectural structures had to be curved for installation in the multipurpose

hall. This on-site factory began with processing the local timber – cutting, sizing, shaping and planing it – before the joining and lamination could take place. The emerging glulam was also tested for stress on-site!

Sustainable building

Architect Gurpreet's firm is also working on a 130-acre campus in Kodagu (Coorg) district of Karnataka, with slopes ranging between 10 degrees and 30 degrees. There are many ridges and valleys on the campus, and as part of a sustainability initiative about 60% of the existing area has to be maintained as it is.

'Timber Forum' has been conceived by *WoodNews* magazine as a knowledge-sharing platform for suppliers (timber traders, importers & exporters), end users (furniture makers and real estate construction companies) and influencers (architects, interior designers, project consultants, etc.).

The project covers about 2.5 lakh square metres of built-up space, including the school, hostels, dining and multipurpose halls and teachers' accommodation. Here too, timber has a large presence – the main structure of the classrooms, the roof structure, the hovered panels are all in timber.

Both options have been employed: traditional timber truss system with galvanised steel connectors and glulam truss with galvanised steel connectors. In the dining and multipurpose halls glulam has been used for the roofing along with steel connectors. The roof timbers have louvers to control the light quality.

The Panel Discussion on 'Opportunities & Challenges in Woodworking', threw up some interesting thoughts, proposed solutions and experiences from experts in the fields of furniture and interior design, furniture manufacturing & retail, timber construction & trading.

Those on the panel were French master-craftsman Bram Rouws who works from Mysuru; Ashwini Kedia from Kolkata-based Costaa Woods; IKEA's Business Head, Sandeep Sanan; Architect Anurag Khandelwal of Wood Style in Agra; and Ankush Seth of Build Kraft India in Faridabad.





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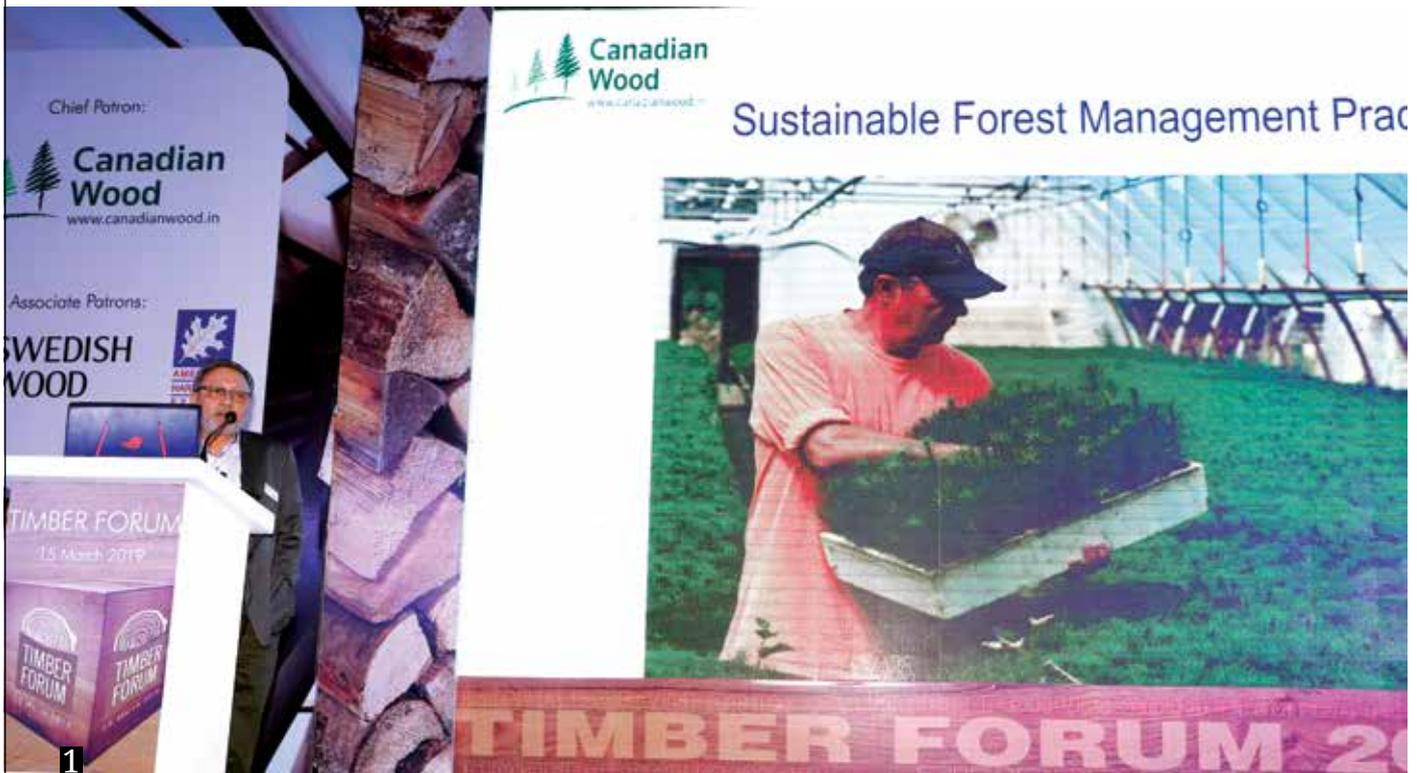
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Creative solutions in Canadian wood

The focus here was on enhanced solutions with Canadian wood species, which afford greater creativity in woodworking, beauty and warmth of wood and its value proposition as a construction and design material.

But what makes Canadian wood special? First, it is seasoned wood that is extracted by loggers practicing sustainable forest management practices – in Canada it is mandatory that three trees are planted from the same place where the wood was harvested.

Lumber companies are mandatorily made to take care of the trees planted for a minimum period of 5 years, till they grow up to a height of about 7 feet. “In Canada, it is not just planting but reforestation. The same species of tree is planted back in the same forest from where it was harvested,” Pranesh noted.

Although more than 10% of the total forest cover of the world lies in Canada, in the last three decades Canada has not lost any space to deforestation, he added. Canada exports over 50% of lumber in the world, mainly from

the state of from British Columbia.

Among the main species suited to the Indian sub-tropical climate are Western Hemlock for interior paneling and furniture, Spruce, Pine and Fir for construction, Douglas fir for interiors, yellow and red Cedar for the outdoors. Wood from the latter is extremely durable and naturally resistant to termites and fungus.

Most harvested trees in British Columbia are slow growing and are 100 years old, and grow to 100 feet in height. Because of the ageing and slow growth, the trees are more stable, which results in very good quality of lumber.

Forestry Innovation Consulting-India, which represents the government of British Columbia and suppliers of Canadian wood, can promise Indian consumers of sustainably sourced and certified lumber; easy availability and continuity of supplies; creative solutions for furniture factories; and versatility of wood species to suit various applications.

1 Mr Pranesh Chhibber, Country Director, Canadian Wood.



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Hard facts about American hardwoods

American Hardwoods are sustainable as the forests are growing very-very quickly. The last forest census in 2012 showed an increase of forest cover by nearly 130%. An American hardwood forest is not planted, but grows by natural process.

American hardwoods have low environmental impacts: they are carbon-negative right from the harvest point till export. The life cycle assessment of US hardwood shows there is more carbon sequestration than that is emitted into the atmosphere.

1 Mr Roderick Wiles,
Regional Director,
American Hardwood
Export Council.

America has excellent climatic conditions for hardwood trees – the east of America, especially Mississippi, is the area where the hardwoods are found. There are around 10 million hardwood farm owners in US.

All American hardwoods are kiln-dried and meet stringent standards of the US lumber associations for more than a century. The hardwood inventory comprises of around 25% red Oaks and 10% white Oaks, apart from 10% Maple and 1% Walnut.

For Indian manufacturers, who are facing scarcity of local species, American hardwoods are not only abundant but are backed by an assurance of legal and sustainable production which is already well recognised in the main consumer markets.

India's exports of wood-based products, which mainly comprise wood furniture and handicrafts, more than doubled from US\$ 500 million in 2010 to US\$ 1.05 billion in 2017. Data indicates that exports increased a further 7% to around US\$ 1.13 billion in 2018.

Last year, 40% of exports were destined for the US and 31% for the European Union. But increasingly the furniture sold to big corporations is now under the scrutiny of



regulators and environmentalists to reduce illegal logging in wood supply.

India's wooden furniture and handicrafts sector still relies heavily on locally sourced Mango, Acacia and Sheesham – the latter is now identified by CITES as an 'endangered' species and trade is subject to tight control. This opens the door to a very simple solution for Indian manufacturers interested in expanding markets for their products in the EU and the US.

They can manufacture their products using wood imported from countries where there is a negligible risk of illegal harvest. Only one globally significant supplier of hardwoods, the United States, has invested time and resources to ensure conformance to laws like the Lacey Act and the EUTR.

Today, US hardwood forests cover around 111 million hectares, equivalent to about one-third of the entire land area of India, and the volume of hardwoods standing in US forests, which now exceeds 13 billion cubic metres, is expanding (after harvesting) at a rate of around 150 million cubic metres per year.

US hardwoods like Oak, Ash and Tulipwood are already fashionable in the US and Europe. There is a tremendous opportunity to combine Indian woodworking skills and styles with American hardwoods to produce globally competitive furniture products.

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Sweden shows the way in construction lumber



The demand today is for natural materials, renewable materials, and versatile materials. More and more wood buildings can be seen coming up around the world, including the tropics. It is not only a trend but also a big and important part in our world of climate change.

1 *Mr Bjorn Nordin, Director (Interiors & Design), Swedish Wood.*

Sweden has 70% forest cover and is the third-largest wood exporter of wood in the world, the trade happening mostly to Europe, Asia, North Africa and West Asia.

There are two dominant wood species in Sweden: Pine and Spruce. Swedish wood is very useful in making furniture, moldings, floorings and wall claddings. It can also be used in construction of arenas and high-rise buildings.

In Sweden for every tree that is harvested at least two more are planted. It is also natural from the forest, which respects wildlife and also non-toxic. It is also versatile as it can take many different shapes, colours and textures. It has also got a stable design.

The trending colour globally is yellow, and Swedish wood has adapted to the trend colour. Architects, students and designers can

use Pine and Spruce in a new way which has not been seen before. Pine wood can be used not only for interiors but also for exteriors.

What happens when you order Swedish wood in India? Every tree is unique and there is variation in every material that you get both for Pine and Spruce. The trees are approximately 80 metres long and they are cut into three pieces.

The top, middle and bottom parts have different characteristics and uses. The primary applications are in furniture, flooring and window components, but also in packaging and construction.

When wood is imported from Sweden what one gets is sawn wood. The Swedish lumber industry has standardised grading systems both for Pine and Spruce. So there is a large range available for sawn wood.

Swedish wood has a very bright future, not only in India but the world over. Swedish Wood is an organisation that works through various channels like exhibitions, seminars and training, to promote the adoption of Swedish lumber across the world.

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Vriksh is India's label of legality



1

1 *Mr Deepesh Sharma, Regional Director, Export Promotion Council for Handicrafts.*

The Export Promotion Council for Handicrafts (EPCH) is engaged in the export and promotion of Indian handicrafts since 1986. It has a pan-India presence with more than 10,000 member exporters.

Exports of handicrafts from India in 2018 amounted to US\$ 3,500 million, of which 40% was wood-based. The sector employs more than 11 lakh woodworking artisans, who mainly work with Mango, Acacia and Sheesham.

The major clusters of handicrafts in India are Jaipur, Jodhpur and Saharanpur. The largest importers are North America, Europe, Australia, New Zealand and Japan.

In 2013, soon after handicraft exporters began facing problems of certified and sustainably sourced wood from its importers, EPCH was named the authorised wood-certifying

agency. It introduced the 'Vriksh' standards for certified wood.

The Vriksh committee helped in due diligence, and compliance with various international legislations, taxes and royalties and other requirement of trade and export. Today there are 550 exporters all over the country who are Vriksh-certified.

All stake holders who are exporters of wooden handicrafts are beneficiaries of this scheme. In addition to manufacturers getting certified under the Vriksh scheme, agents, depots, merchants and contractors are also being certified.

Recently, a wood testing laboratory has also been opened in Jaipur for the benefit of manufacturers and trade across India (www.vrikshindia.in).



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Turning Wood of Dreams...

Wood furniture growth pegged at 6%

By Vitika Verma & Amit Rawat

The global wooden furniture market size was valued at over US\$ 395 billion in 2018, and is anticipated to grow at over 5.5%. Product innovations, such as ‘smart’ furniture to fit in limited space, provide enhanced functionality and durability, is propelling the business expansion.

Wooden furniture offers multiple benefits, including improved aesthetic appearance, resilience and structural integrity. Shifting preference for low-maintenance, quick-installation, and high-quality home interior products are generating new growth opportunities for the manufacturers.

Industry players are prominently focusing on developing eco-friendly products supported by favourable regulations to gain a competitive edge. Manufacturers are also collaborating with technology companies to develop superior product designs.

Increasing demand for outdoor furniture, supported by a rise in consumer spending on leisure and experiences, the trend towards outdoor cooking and family gatherings, is providing potential growth prospects for the market advancement.

As per Forest Research, in 2016, Europe accounted for around 33% of the global sawn-wood production, while Asia-Pacific produced around 62% of the global wood-based panels. However, limited availability of skilled labour, along with increasing manufacturing cost, could hamper the market growth.

By application

Residential building applications dominated the global wooden furniture market share, accounting for over 66% of the demand in 2018. Residential uses majorly include upholstered, non-upholstered, bedroom, kitchen cabinet, dining room, and others.

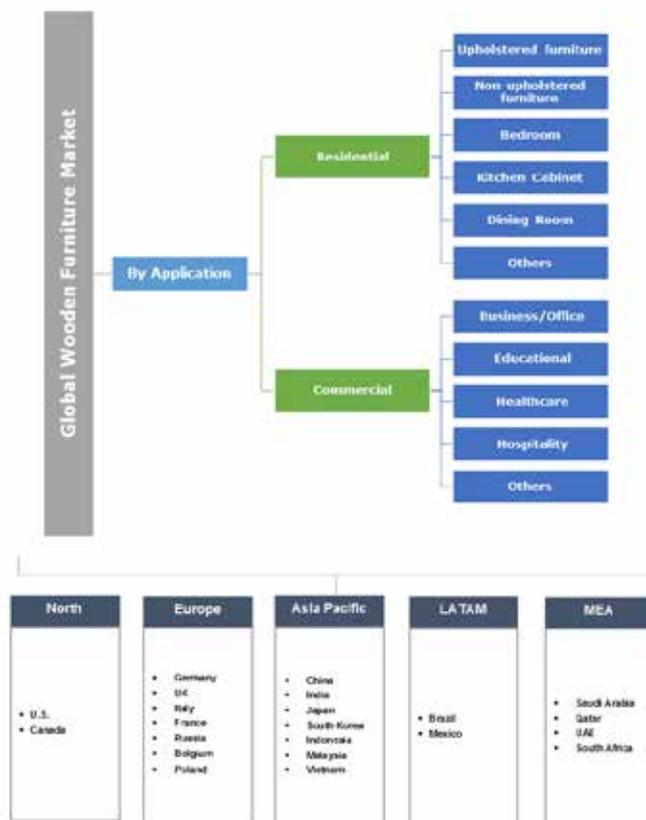
Strong growth in the real estate sector, rapid urbanisation, and rise in per capita incomes are among the key factors driving the industry share. Design innovations – such as antique finishes along with improved durability, and fire-resistance – will generate notable gains. The global wooden furniture market size from commercial applications is projected to witness over 6% CAGR from 2019 to 2025.

Increase in private and government investments toward the construction of offices and hospitals will prominently augment the product adoption over the study time-frame.

The improved requirement for modern office interiors offering productive and comfortable working environment is further expanding the segment share over the study period. Economic growth supported by a rise in the tourism industry will drive the hospitality industry infrastructure, thus propelling wooden furniture demand.

By region

Europe accounts for more than 27% of the wooden furniture market share in 2018. Availability of superior designs and colour options, accompanied by high consumer



Courtesy: Global markets Insights.



spending on the household, is propelling business revenue. Presence of large-scale manufacturers accompanied by high raw-material production is supporting the regional share.

The Asia-Pacific region is the fastest growing and is projected to witness over 6% CAGR from 2019 to 2025. China, India and Japan account for more than 75% of the regional demand.

Expansion of distribution network by leading wooden furniture manufacturers to enhance their revenues will drive the regional share. For instance, in August 2018, IKEA launched its first store in India as part of its expansion strategy and has announced to launch multiple stores in Asia-Pacific over the next few years.

Global wooden furniture market share is highly competitive owing to the presence of a large count of multinationals players along with regional manufacturers. The key industry players include Ashley Furniture Industries, IKEA, Williams-Sonoma, Steel Case, Rooms To Go, and Herman Miller.

The rapid expansion of residential and commercial construction sector, supported by government investments and favourable FDI policies in the construction industry, are among the primary aspects helping business advancement. Manufacturers are anticipated to gain an advantage by entering into partnerships with construction companies over the forecast timeframe.

Strong growth in the travel and tourism industry, particularly in developing economies of the Asia-Pacific and Latin America, has fuelled investments in the hospitality sector, enhancing the demand for premium wooden furniture.

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CLT cabin for sub-Arctic trekkers



A Norwegian architecture group has designed a cross-laminated timber (CLT) cabin that was put together in 1,500 hours, mainly by volunteers. The project has two-layer bitumen water-proofing of the shell, and concrete pouring for the foundation on site.

After finding and mapping out a suitable site in 3D using a drone and photogrammetry software, architects designed 77 unique CLT panels that would be assembled on site like a 3D puzzle.

Designers then tested the cabin by simulating wind conditions and Arctic storms in an

artificial setting. 3D printing was utilised to test how the panels would fit together.

The cabin's construction involved a major crowd funding campaign to raise money after plans went over-budget. Local businesses donated materials and services for the construction effort, and Kebony donated materials for the exterior cladding.

The cabin is very minimalist, featuring just a wood-burning stove, nominal seating, fireplace and a window. It exists for hikers trekking through the cold town of Hammerfest in Norway.

CLT is driving the effort to replace concrete with wood in construction around the world. These buildings are faster to construct, more energy-efficient, and comprise completely of renewable materials. The recently approved Timber Innovation Act incentivizes timber construction in the US.

The design brief called for a small mountaintop structure that aligned with the existing landscape. The Norwegian architect firm, Spinn, was tasked with designing the cabin.

The first cabin was loaded onto a flatbed lorry, lifted into place and winched together. The window, fireplace, ramp and interior furniture were all fitted into place on site by the volunteers.



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1

When LVL proved its mettle, and some more

The construction in 2016 of a new sports complex, the Trivaux-Garenne, in the town of Clamart (France) is part of a vast high quality environment urban development project, featuring a school campus and a large sports centre.

The architectural and urban approach in the project is based on a desire to recreate links between two highly contrasted urban environments: residential zone of detached houses, and a sprawling district of tower blocks up to 12 storeys high.

The sports complex contains a *dojo* (hall for martial arts and meditation), a gym, a track and field area and a tennis court, all within one floor! Different sports are brought together under one gigantic envelope. As if bent out of shape by its many uses, the building fits into the surroundings beautifully.

The sports complex is shaped to follow the curves of the landscape. Designed to be an authentic city of sports, its rolling shape fits the intended use and the official dimensions of sports activity areas.

The design work carried out by VS-A Structural Engineers was based on the definition of the architectural image and ensuring it matched the technical, structural and financial requirements of the project.

The technical solution connected the façade and roof together with a continuous structure. The solution required to optimise the shape of the structure while preserving the geometrical shape.

1 *LVL rafters covered 5,200 square metres of the building's frame and roof structure.*

More information

Surface area: approx. 5,200 square metres

Over 500 cubic metres of Kerto LVL used

70,000 dowels and bolts; 120 tonnes of steel

12,000 hours of cutting/ assembly of box beams

Max. beam span: 30.4 metres between supports

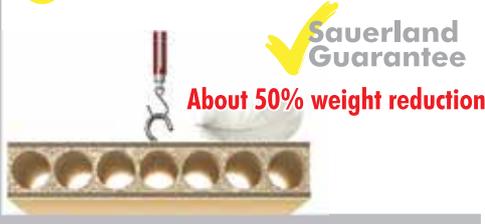
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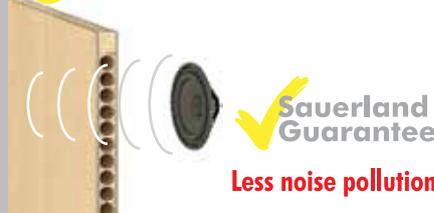
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2

2 The innovative use of LVL included an oval opening for the track and field area.

All pix courtesy: Metsa Wood ©Sergio Grazia.

The engineers chose Metsa Wood’s Kerto LVL (laminated veneer lumber) as the building material for the ambitious Project. Mr Gaetan Morales, project manager of the sports hall explains, “Kerto LVL enabled long spans and complex curves for which the sports centre is now famous.”

Due to its complex geometry, the roof and framework design of Clamart sports complex involved challenging technical and aesthetic requirements. Major technical challenges arose from the double curve in certain areas in the roof. The dimensions of the complex are approximately 130x40 metres, with a maximum height of 10.35 metres above the gym space.

3 The sports complex contains a hall for martial arts, a gym, a track and field area and a tennis court, all on one floor!

Curved Kerto LVL now forms the oval opening for the track and field area. LVL replaced glulam, which is generally used for building long curved beams. The metal façade transfers loads to the wooden frame, but does not contribute to the overall stability of the building.

This was solved by a grillage frame structure made of LVL beams – the structure transfers the loads from roofing, while imposing the desired architectural form.

The roof consists of a 3x3-metre grid, which is formed from primary rafters connected to each other with secondary rafters. The primary rafters are hollow, made of two panels assembled together using internal flanges.

The gluing of the flanges produced the desired strength and stiffness of the beams. This truss type structure transfers horizontal bracing loads to the vertical concrete frame of the building.

The bracing is completed with a metal diagonal between every rafter. Certain areas in the structure were reinforced in order to optimize the cross sections and reduce the material cost of the diagonals.

The excellent mechanical properties of Kerto LVL Q, notably the cross veneers, can improve the resistance of fasteners. The hollow cavity of the beams was used to hide most of the steel plates and for embedded metal fasteners.



3



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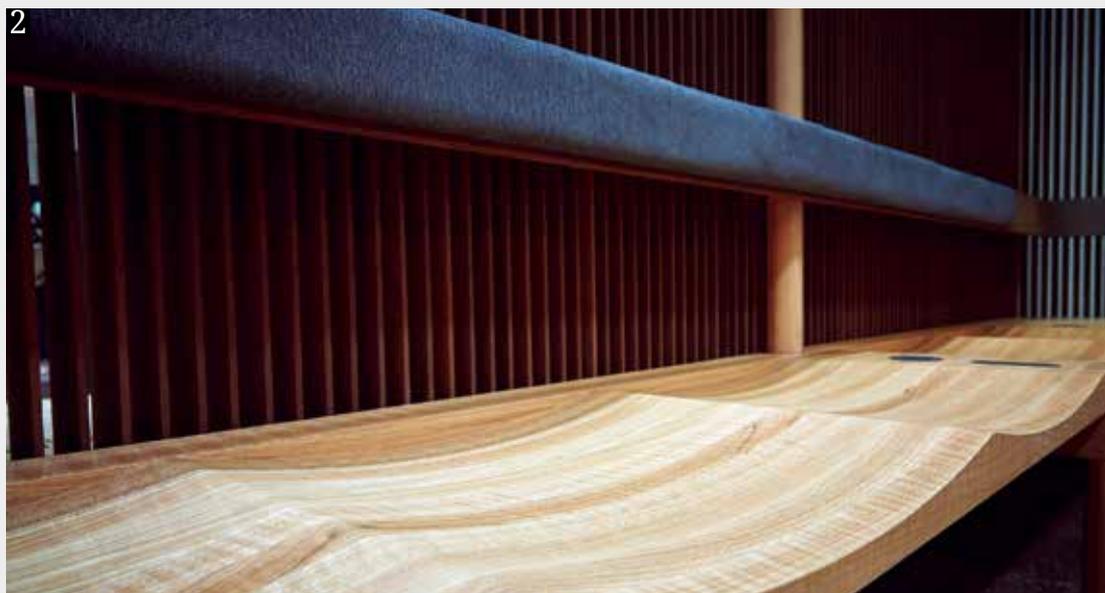
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1

1 The space provided a respite for visitors, who could relax, recharge their phones, laptops and brains.



2

2 With discreet and comfortable seats with woven cord, the designers demonstrated that with timber, functionality and beauty are seamless.

Exploring functionality of red oak

The American Hardwood Export Council (AHEC), along with designers Adam Markowitz and Marcus Piper, collaborated on 'Oak REDefined', an installation exploring American red oak from multiple perspectives at the recently concluded Denfair 2019.

The installation seeks to explore the physical and emotional properties of timber, a material favoured by Australian designers. American

red oak was selected for the collaboration with designer and architect, Adam Markowitz and top graphic artist, Marcus Piper, to create a space in which to relax, recharge and reconnect with a thoughtfully designed environment.

The quality of the design and build of the installation, won it the 'Best Large Stand' award at Denfair.

'Oak REdefined' was conceived after carefully considered research pointed to the beneficial effects of natural materials in the work environments. The space provided a respite from the visual vigour of the fair in which visitors could relax, recharge their phones, laptops and brains.

The installation was manufactured to a very high standard by Sydney-based Evostyle, who used both natural and thermally-modified red oak. It incorporated a number of different 'moments', from a hot desk to a dedicated relaxation zone to a playable puzzle designed in the form of a tangram table.

It demonstrated how functionality can be fun and how beauty and practicality can balance for an energizing and productive result.

"It's an interesting species for me to focus on because I think, for Australian architects, most are not even aware of the different species of American oak," said Markowitz. "There is a difference between American white and red oak, and for me red oak is a very interesting species because of its porous stain absorbing attributes that are very different to that of white oak."

Markowitz has demonstrated that with timber, functionality and beauty are seamless. With discreet and comfortable seats with woven cord seating by Modasest and charging stations, the stand provided a space where something or nothing can be done.

Every element of the installation was created from American red oak. Lesser understood in Australia than American white oak, the species shares many of the same qualities, though red oak is more abundant in US forests.

Australian designers are eager to embrace different species, with timber species that machine well and that have all the other properties valued in a timber (hardness, workability and uniformity of grain).

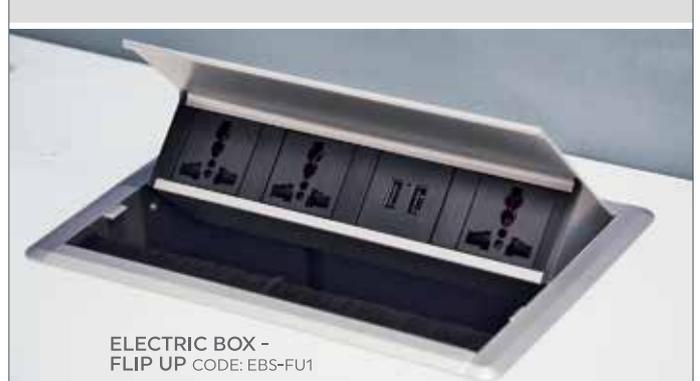
With American red oak there is also the added bonus of sustainability, legality, compliance with global timber regulations, availability and abundance.

The finished stand at Denfair comprised around 1.81 cubic metres of American red oak, which, through carbon sequestration, stores just under 2 metric tons of CO2 equivalent, with calculations indicating that the entire stand would be carbon neutral.

Says Mr Roderick Wiles, AHEC Regional Director, "We want designers to be able to make an informed choice about the materials they use. Given the increasing number of studies that point to the positive effects of wood in our built environment, it made sense to provide a space at Denfair which allows visitors to experience this for themselves."



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On urban change, Swedes have some answers

1 *The Swedish forest and wood industry offers technical, economic and sustainable solutions for future cities.*

Swedish wood construction was a key point on the agenda at the first United Nations Habitat Assembly, which focused on innovations in sustainable development, and was held in Nairobi (Kenya) in late May this year.

A concurrent seminar also stressed on the global importance of beginning to “grow our cities”.

2 *‘Woodland Sweden’ exhibited the know-how that Swedish architects possess with regard to designing sustainable societies of the future.*

“There’s a huge need globally to transition to sustainable cities, and Sweden’s knowledge of modern wood construction, combined with sustainable forestry, can drive this transformation. The Swedish forest and wood industry offers technical, economic and sustainable solutions for future cities,” stated Mr Jörgen Hermansson, head of Södra Building Systems, who represented Swedish Wood in Nairobi.

The theme of this year’s Habitat Assembly was ‘For a better urban future’. According to the UN’s inter-governmental panel on climate

change (IPCC), the construction industry currently accounts for 40% of global carbon emissions. The discussions about sustainable construction were therefore an important point on the agenda.

Wooden housing developer, Arvet, presented an exhibition on how wood construction meets all of the UN’s 17 sustainable development goals, with sustainable forestry and the expertise of the Swedish wood industry as core factors.

Architects Sweden, in partnership with the Swedish Institute and the Swedish Embassy, also unveiled ‘Woodland Sweden’, an exhibition about the know-how that Swedish architects possess with regard to designing wooden buildings and sustainable societies of the future.

“Sweden has amassed a great deal of experience and knowledge about modern wood construction. Building cities in wood – literally growing our cities – offers a

sustainable solution to challenges such as housing supply, climate change, employment and urbanisation,” said Ms Susanne Rudenstam, head of the Swedish Wood Building Council.

The State Secretary in the Swedish Embassy in Kenya, Ms Elin Olsson, said the development of cities and communities needs to take account of site-specific conditions and place people at the centre of decisions. “It is possible to solve several challenges at the same time, and that Goal 11 of the 2030 Agenda, sustainable cities and communities, can and must be linked up with other global sustainability goals,” she added.

Swedish Wood’s aim is to increase the size and value of the market for Swedish wood and wood products in construction, interior design and packaging. It also lobbies on behalf of its members on key industry and trade issues.

Swedish Wood represents the Swedish

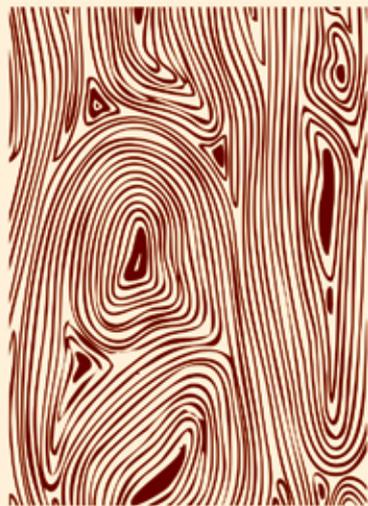


sawmill industry and is part of the Swedish Forest Industries Federation. It also represents the Swedish glulam and packaging industries, and collaborates closely with Swedish builders’ merchants and wholesalers of wood products.

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Bots for your spray job

iGiotto is Cefla's complete spray coating system for water- and solvent-based products using an anthropomorphic robot designed to paint large-sized objects such as doors, window frames, or objects with a complex shape, and materials other than wood.

Products transit on overhead lines and exit the spraying area into a drying tunnel before being collected in batches. Constant speed and constant distance between the spray guns and the product optimise lacquer consumption and ensure coating consistency.

In environmental terms, lower consumption and less waste improves sustainability.

cVision, the latest-generation, automatic 3D reading system (laser+ camera) acquires position, size and shape of pieces in transit with unprecedented precision. The combined action of the laser and ultra-high resolution cameras allows iGiotto to automatically generate precise work trajectories based on the "recipes" of objects present in its database.



The system, when used in conjunction with Cefla's exclusive cVision 3D Reading Barrier, ensures time savings through coating process automation, improves the quality and consistency, thus leading to reduced lacquer consumption and lower costs.

Salient Features

It allows you to manually program a robot by physically guiding its spraying arms around the complex geometrical shape. The robot learns how to move and replicates the movement piece after piece.

You can also program point-to-point trajectories using software off-line; but each batch will require your manual intervention to enter data into the software to obtain the coating parameters.

Apart from the cost of a skilled operator, manual spraying of window frames often leads to fluctuating yields and coating inconsistency. Lacquer consumption frequently exceeds the optimal amount by up to 30%, leading to high filter replacement and disposal costs.

Production batches can often be small or customised. Operators will need to stop the line for colour changeover or to re-program the trajectories. All this is an obstacle to production efficiency and incurs costly downtime.



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 *Notes and News* 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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The perfect Format for furniture production



Felder's new nesting-CNC, Profit H150 from Format-4 is the perfect panel cutting, drilling and milling centre for future-proof carpentry and joiner's workshops. Entire custom-made furniture with all holes, grooves and connections are produced in one single operation.

The latest nesting technologies ensure the highest possible material and time savings. The Profit H150 can be extended to full automation with different loading and unloading solutions, thus achieving maximum productivity.

Four sizes are available with integrated smart zoning vacuum management, high-end automation levels, above-average drill heads, new safety concepts and much more. For the unrestricted use of the 5-axes spindle, a recessed series of fence rows is available as an option. A large Z passage size of 200 mm offers flexible machining of high work pieces.

With the standard tool changer and optionally available moving rotary tool changer as well as the pick-up space for a large saw blade, a total number of up to 36 tool places are available. The automatic pre-labelling on the loading table minimizes sources of error and at the same time reduces the processing times.

Features

- Powerful moulding spindle with 5 axes for unlimited processing possibilities

- Intelligent smart zoning vacuum management system with pendulum operation
- Four sizes for every workshop: 16.38, 19.38, 22.32 and 22.43
- Recessed, fence row for unrestricted machining of individual work pieces with a 5-axes spindle
- Large Z passage size of 200 mm offers flexible machining of high work pieces
- Loading and unloading units and with automatic labelling on the loading table
- Up to 36 tool positions
- Fully automatic CNC program creation with F4@Design and integrated CAD/CAM module
- Cutting optimisation of the created programs in the F4Nest

With nearly 6,000 LEDs, the CNC machining centre indicates precisely to the millimetre the optimum vacuuming position and informs the operator about the machine status.

Additional information such as vacuum type or clamping status of the machine, etc. are visualised by additional RGB colour LEDs installed at a distance of 20 mm. All LEDs are mounted in a scaled aluminium profile.

The offset towards the middle of the console, front fence row guarantees unrestricted 3-, 4- and 5-axis machining. The solid-cylinder stops allow flexible component referencing of small, medium and large work pieces on the work area. Available for Format-4 CNC machining centres Profit H200, H300 and H350.

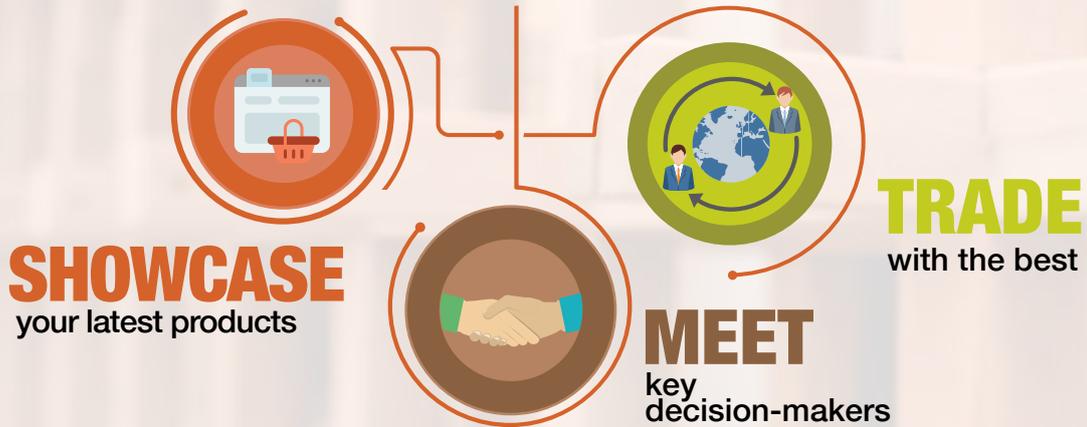
For quick access to change the drill or maintenance work, the hood can be easily opened on all CNC machining centres.



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Kitchen surfaces from Greenlam

Greenlam Laminates' Stratus kitchen surface solutions are a coordinated range that includes worktops, breakfast bars, upstands and splashbacks. A perfect blend of style, utility and durability, these temperature-neutral and easy-to-install kitchen surfaces bring a kitchen alive through countless textures and designs.

They can be installed with standard tooling; so there is no costly templating or long waits for off-site manufacture surface.

Stratus Slimline products are more than just aesthetics. Meeting the golden standards of emissions and safe food contact, they are low on maintenance, temperature-neutral, anti-bacterial products that are a planet-friendly substitute to depleting natural resources like stone for kitchens, with the same look and feel that is virtually indistinguishable from natural slab materials.

The Stratus range of 12mm compact worktops (3050x640 mm) offers sleek lines with a high level of performance in the demanding kitchen environment. Also, available is specially treated Stratus AFX worktop, boasting a unique surface performance that is super-matt, non-porous and water-repellent, making it effortless to clean away fingerprints, impurities and grease marks.

The Stratus collection also includes a 12-mm breakfast bar module. This can be easily adapted to the space requirements. Sinks and cookers can be readily incorporated to suit any design layout. It is available in some contemporary stone and striking woodgrain decors and textures as the worktop.

The range is supported by surface accessory like upstands that are a perfect dressing to complement worktops in the most seamless way. A modern and smart alternative to tiles, upstands stand up against food and water stains.

Available in 3mm and 0.7mm thicknesses, splash-back panels are the fourth integral element of the Stratus kitchen surface solutions. These laminate and compact panels are an ideal fit for smart kitchens with a dash of style.

Greenlam is among the top three manufacturers in the world with two state-of-the-art manufacturing facilities.



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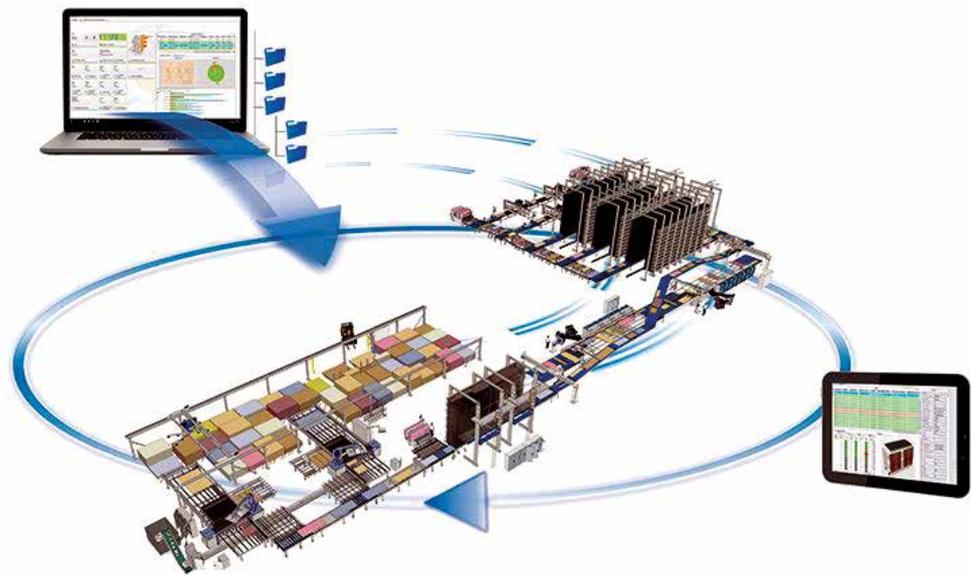
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FORMAT



Manufacturing execution by Homag

Industry 4.0 has long been a part of the wood processing industry and digitalisation and connected machines within production processes, manufacturing execution system are getting even more important.

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In order to operate them, you need a production system that is efficient and powerful and an IT system to organise and design the information flows.

With the ControllerMES manufacturing execution system, Homag offers a platform that optimally organises the production processes and perfects the interaction of machines and manual work stations.

The modular system supports the process — from the intelligent configuration and optimisation of the production data, to the production planning and ultimately the completeness check after final assembly. It is not only information flows that are optimized; the production as a whole is also improved and the performance is increased.

Benefits

- The right solution for both craftsmen and industrial enterprises
- Flexible and standard software
- Support for optimisation of production processes
- 100% update-ready and scalable



- Increased transparency, efficiency and control
- Perfect integration of Homag machines in an interlinked production process

Features

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- Monitoring production progress

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- The feeding unit can be adjusted upwards and downwards. The elevating range reaches 10 mm, and the processing precision can be enhanced with powerful feeding
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J-4423- Four-side Moulder

Specifications	Unit	Parameters
Working width min / max	mm	25 / 230
Working thickness min / max	mm	8 / 120
Feeding speed	m/min	6 to 12
Top & bottom spindle cutter dia	mm	120 Φ
LH & RH spindle cutter dia min / max	mm	100F / 180 Φ
Spindle shaft dia	mm	40 Φ
Top & bottom spindle cutter motor	hp	7.5 / 5.0
LH & RH spindle cutter motor	hp	5.0 / 5.0
Feeding motor	hp	3
Feed beam up-down motor	hp	0.5
Air pressure required	kg/cm ²	5 to 7
Total power	hp	26

J-4423- Four-side Moulder

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Changeable Knives / T.C.T



Spindle / Double Surface Planers Helical Planer Cutter Heads with Changeable Knives
 Knife: 14 x 14 x 2.0 x 30°
 15 x 15 x 2.5 x 30°
 15 x 15 x 2.5 x 37°
 30 x 12 x 1.5 x 35°
 30 x 12 x 2.5 x 35°
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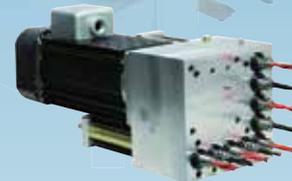
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WD212	32~160mm
WD213	18~100mm

MODEL	PITCH
WD314	14~96mm
WD315	20~122mm
WD316	32~192mm

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Collet Type:
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J-1163 Straight Line Rip Saw

This bottom cutter rip saw is a much safer system than the upper rip saw, because of the saw shaft rotating in a different direction.

A unique machine with patented, exclusive, engineering design and patented parts manufacturing. Equipped with adjustable tables and trolley, processing wide materials is more convenient for saving time and labor. The machine is equipped with Laser Light as a standard feature.

- Anti-kickback device, avoids kick-backing of wood, ensure safe cutting
- User-friendly control panel. Feeding speed of conveyor can be regulated from panel
- Automatic lubrication system circularly lubricates the entire machine, ensuring efficient operation and increased service life
- Special material conveyor chain blocks with teeth ensuring better friction and resistance making workpiece feeding smoother

J-1950 (A) Dovetailer Auto

Its high speed, continuous auto tenoning ensures jobs of highly finished quality while at the same time making the whole process easy. Tenoning head feeds on hard chrome plated guide rod, for maximum stability of tenoning operation and maximum wear resistance. Also, the process dovetails tenons/mortises simultaneously for accurate jointing. All the machine controls are centralized on one control panel for convenience



J-1940 Oscillation Mortiser

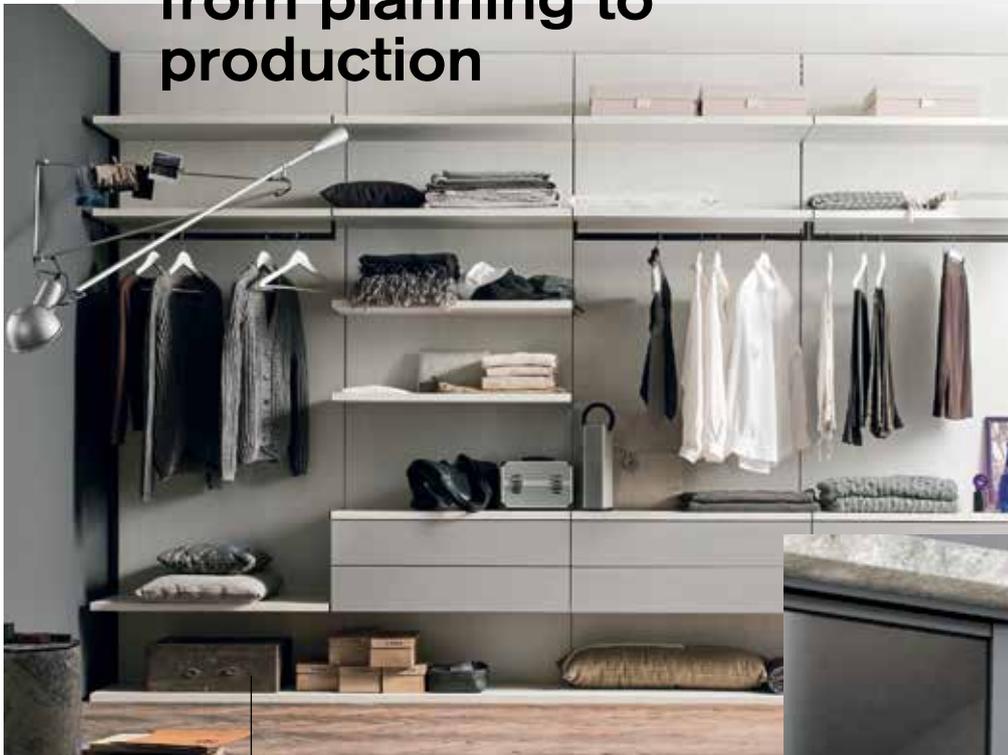
This is a powerful mortiser machine for great quality mortising with flexibility of execution. The Prima mortise gives you more features with better engineering design. It is a superior system with pneumatic clamping for perfect gripping. The machine is equipped with two tables at the right and left allowing two operators to simultaneously use it. The table tilts ±20° at the right and left side and can be elevated by turning a hand wheel.



J-1300R-RP Wide Belt Sander

The machine ensures the finest sanding of wood and veneer and achieves fine surfaces on wood jobs. It is equipped with a vibration-free structure and easy-to-operate, high-end electric control system. This wide belt sander is designed for three functions: thickness calibration, surface sanding and fine surface polishing. The two sanding belt can be used at the same time, or you have the option of using the first or second sanding belt separately. Besides, the polishing pad can be adjusted up-and-down to change the pressure according to the work piece.

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Boring now is faster, better and longer



1

As a supplement to the existing range for boring perfect fitting holes, tool specialists Leitz presents its new, three-edged solid carbide boring bits that help increase productivity and efficiency in combination with perfect boring quality.

1 *Leitz's new solid carbide boring bits come with three cutting edges.*

Boring processes have long been considered the bottleneck of any production in the furniture and object construction industries and is a constant headache for users. Due to rapidly wearing boring tools, quality targets can no longer be optimally met even after a short period of use of the tools.

2 *A comparison of boring sophistication of Leitz tools (bottom row), compared to an ordinary boring tool (top row).*

The result is additional reworking and numerous tool changes and, in the end, an unsatisfactory result from an economic point of view. The solution is the new solid carbide boring bit with three cutting edges.

Especially with regard to boring quality, service life and process reliability, the new

hinge boring bit shows its strengths in comparison to conventional, double-edged tools. No tears at the edges of the holes are possible, even with demanding decors and boring at the edge of the panel.

In addition, the tool life is two to three times longer, which simply means fewer tool changes are required, and the boring speed is 50% higher, which in turn reduces the intervention time.

All this is possible, above all by increasing the number of teeth from Z2 to Z3. Of course, factors such as the carbide grade specially optimized for boring or the newly developed spur geometry also play a major role.

The new hinge boring bit will in future be available in right-hand and left-hand rotation in diameter ranges from 18mm to 35mm. It can be reground several times and can be used on all common boring units.



Siemens ensures efficient, networked woodworking

There is great potential for cutting costs and increasing efficiency in the woodworking and wood processing industry, especially in the control and automation of the individual value-adding processes.

1 *Siemens has an extensive portfolio of innovative control and automation solutions for digitalising the entire value chain in the woodworking and wood processing industry.*

Siemens has an extensive portfolio of innovative control and automation solutions for digitalising the entire value chain in the woodworking industry.

It's new, open Sinumerik MC CNC works on a machining centre and is especially suitable for wood, glass and stone cutting machines, and special technologies in the machine tool industry. The proven solution ensures optimum motion control for woodworking machines.



1

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At the same time, the automation performance is improved by the integrated Simatic S7-1500 fail-safe controller. The Windows 10 operating system ensures that manufacturers can integrate customised software for controlling and operating woodworking machines.

The integration of its own user interfaces and the extensive range of interfaces make the Sinumerik MC a universal, open control system which can be easily integrated into existing machine solutions.

Another new feature is engineering through the TIA portal which simplifies engineering processes and reduces the likelihood of errors, leading to a cut in commissioning times.

The company recently exhibited a digital twin of a tool changer, demonstrating how a project can already be imaged as an exact virtual model in advance of its implementation.

This allows the user to simulate the behaviour of the work piece and the machine, optimise performance, and apply the knowledge gained from previous design and production activities. As a result, the ever growing demands on productivity and flexibility can be met.

The basis for this is to link the real and virtual worlds, for example through the MindSphere cloud-based, open IoT operating system, which help machine manufacturers analyse their machines during operations.

Performance fabric for all seasons



its fibres are dyed and then woven into fabric from the beginning of the manufacturing process, so that the entire textile is fully saturated with colour and is fade-resistant.

What is a performance fabric? It is defined by the specific qualities of the material with key terms to look for including “stain-resistance,” “fade-resistance,” and “mildew-resistance.”

Every fabric has different characteristics, and many have no performance characteristics at all, leading to a short furniture life or limited furniture use.

One of the big differences between basic fabric and performance fabric is the colour quality. For most fabrics, the dye is applied as the last step in the manufacturing process, meaning its colour only penetrates the very top layer of the fabric.

This makes it more susceptible to fading as a result of water spills, sun exposure, high use, and other daily challenges. In the safety of a rarely used living room, a couch’s colour will probably last but if exposed to any daily challenges it can quickly dissipate.

Sunbrella’s performance fabrics are specifically designed to withstand fading. As

Most performance fabrics are also treated with a “finish” that acts as a coat of durability and defends against stains from spills, mould, and mildew. Performance fabrics from Sunbrella go beyond the finish, using UV-stable pigments to dye each thread, making the fabric fade-resistant.

In addition, the fabrics are specifically engineered to resist mould and mildew, so you don’t have to worry about outdoor furniture being subject to water damage either.

The collections are built with eye-catching colour and irresistible texture, centred on high-quality design and global trends that are scratch resistance and stain resistance.

With powerful UV-resistance, stain resistance and easy care, Sunbrella upholstery fabrics are engineered to retain their beauty and strength season over season. For information on Sunbrella dealers in India, visit www.sunbrella.com.

1 Sunbrella’s performance fabrics are treated with a “finish” that defends against moisture, and stains from spills, mould and mildew.

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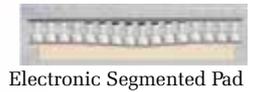


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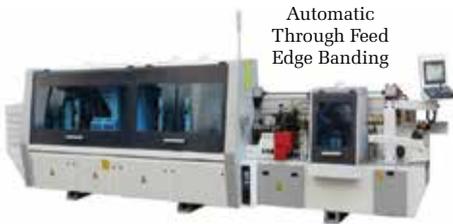
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Uruguayan rosewood now available



1

Urufor is Uruguay's leading forestry company, covering more than 40,000 hectares of plantation forests. It also owns a saw mill that processes an annual volume of 3,50,000 cubic metres of logs into sawn timber. Urufor has been FSC-certified since 2001.

1 With its beautiful grains, consistent texture, colour and perfect density, Uruguayan Red Grandis is an ideal material for furniture.

China became a key market for Urufor and has seen stupendous increase in volumes, from less than 4,000 cubic metres in 2008 to more than 30,000 cubic metres in 2018. The company feels that India is at the same learning and adaptive curve as China was in the last decade.

Environmental pressures, declining availability of tropical hardwoods, lack of good quality hardwoods which can withstand extreme climatic conditions and moisture, and availability in large volumes will propel Urufor's Red Grandis into India.

Red Grandis, also known as Rosewood, is the only species planted and sold by Urufor. In fact, in China it has become so popular that some of the companies operate only with Red Grandis as its raw material and Urufor as its key supplier.

With its beautiful grains, consistent texture, colour and perfect density, Uruguayan Red Grandis is an ideal material for furniture. The timber can also be stained into any finish.

The concept of using one wood not only ensures consistent shrinkage rate and stable finished furniture it also supports the sustainability development of global trade. A stable supply of consistent quality timber, not only enriches a manufacturer's product variety, but also creates new opportunities for growth.

Urufor is able to provide kiln-dried lumber of up to six different dimensions, which other suppliers may not be able to do, month after month. For more information contact Emilio Klappenbach (emilio@asiatimber.hk) or Siddhartha Bhargava (sid@vanproimpex.in).

AI to enhance wood-use optimisation

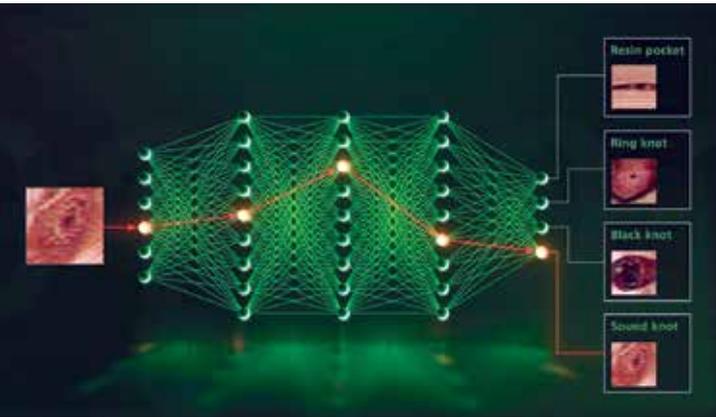


Weinig LuxscanLine scanners are known for their reliability, accuracy and flexibility, and with the new CombiScan Sense it sets new benchmarks in four-side wood defect detection.

The scanner series is based on a single platform and is adapted for all applications in solid wood manufacturing. By adding various software modules and optional sensors to the base model, it can be extended to the ideal optimising machine and can be combined with other machines for cross-cutting, ripping and sorting.

The new scanner features the powerful OptiCore AI software that uses a new image processing method based on deep learning, a class of neural networks from the field of artificial intelligence, to automatically analyse and identify wood defects.

This results in higher detection accuracy, improved detection repeatability with changing wood characteristics and reduced set-up time. Based on the exact board data



obtained during image processing, the software allows programming multiple qualities and zones tailored to the final product requirements and almost all requirements can be taken into account.

The quality of the sensor technology is the key to efficient scanning. Not only does the CombiScan Sense have faster cameras for better length resolution, but its high-resolution cameras also provide excellent width resolution, which ensures optimal detection of all kinds of wood characteristics, including 3D surface defects.

The dual, scatter solution consisting of one line and one dot laser enables highly accurate fibre analysis and ensures an optimal cutting position.

The CombiScan Sense uses four specially positioned lasers to detect flat, non-vertical cracks. This so-called angle crack module (ACM) provides crucial additional information for the detection of wood defects that are difficult to identify.

The X-ray add-on features a completely redesigned low-power X-ray unit, which means that separate cooling is no longer necessary. The sensor identifies defects based on density differences. This option is not only useful for rough or dirty surfaces, but also for wood species with large colour variations and can be used for density measurement and strength grading.

Due to the frame structure both the X-ray sensor and the Roughness+ sensor for unplanned areas can be combined for all-in-one scanning solution. In addition, the improved random width module can run up to 60 boards per minute. The optional, automatic camera positioning ensures maximum quality even in high-end applications and reduces operating errors to a minimum.

The new software can be effectively integrated into lines for various wood applications that extend from combining the scanner with a cross-cut saw or a rip saw to a complex production line with several scanners. A pre-configured model variant is available for cutting, ripping and sorting.

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Pic: Elias Levy/ Wikimedia.org

Millions of years ago, the ‘smasher’ mantis shrimp, one of nature’s feistiest predators, evolved to develop an internal structure to protect the hammer-like club it uses to pulverise prey with incredible speed and force.

1 *A Peacock Mantis Shrimp.*

This unique structure that wraps around the mantis shrimp’s club protects it from self-inflicting damage as it crushes hard-shelled prey.

‘Smasher’ shrimp shows strength of steel

The University of California-Riverside (UCR) has spent more than 11 years and over US\$ 9 million reverse-engineering the club and has determined that it is not the material, but the structure that provides the strength and toughness.

The material is organised in sheets of locally parallel fibres that are stacked upon each other such that each sheet is skewed by an angle from the sheet below it. This unique architecture is called a helicoid and has now been broadly patented by UCR and licensed to Helicoid Industries Inc. to commercialise its use in composite materials.

Manufacturing ultra-strong composite materials and components using this helicoid structure will result in them being lighter, stronger, tougher, and more impact resistant.

Manufacturing any composite product that is currently made with traditional fibre alignment – including solid and engineered wood – and simply utilising the helicoid structure will provide one of two benefits, or a combination of both.

Reduced cost

Composite parts will provide similar strength and toughness, but only require approximately half of the material to achieve these properties, resulting in reduced material costs, reduced weight, and better energy efficiency.

Using the same amount of material would result in approximately twice the strength, toughness, and damage resistance – which would be preferred in applications where weight reduction is not a driving factor, such as armour plating or bullet-proof vests.

The benefits of the helicoid structure have been demonstrated regardless of the materials used to create the composite material. This helicoid structure is a platform technology that can easily be applied to numerous industries that are constantly searching for lighter and stronger components.

The technology, which creates material with a structure that resembles twisted plywood, has been developed by David Kisailus, professor of chemical and environmental engineering, as well as materials science and engineering at UCR.

In the mantis shrimp, the helicoid prevents cracks from growing and ultimately dissipates significant amounts of energy from strikes to avoid catastrophic failure. It achieves immense impact resistance without adding unnecessary weight.

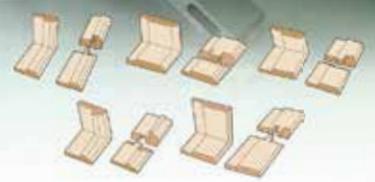
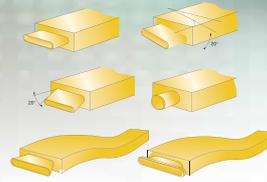
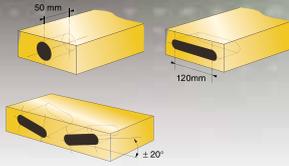
Kisailus and his team discovered manufacturing ultra-strong composite materials and components using this helicoid structure results in lighter, tougher, and more impact-resistant products.

Helicoid Industries now hopes to sub-license the technology to the sporting goods, wind turbine, aerospace, auto parts, defence and industrial components industries. (www.helicoidind.com).



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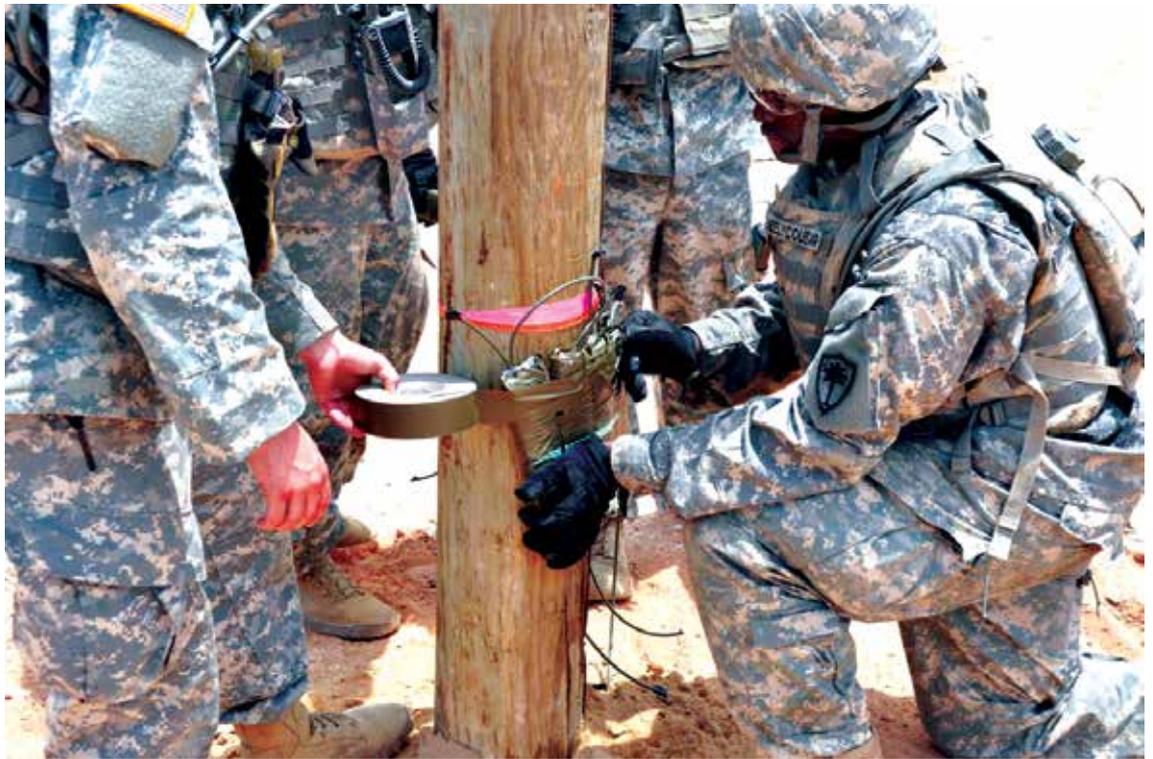


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When you construct hotel lodging for the US Army, not only do the buildings need to be comfortable and well-equipped, they need to be blast-resistant to mitigate any potential security risk.

It's a tall order that mass timber is proving able to meet, its performance on par with steel-stud wall construction. CLT is already used as walls, roofs, and floors in mid-rise buildings, and increasingly in taller timber towers.

CLT is now having a blast!

In the test conducted at Tyndall Air Force Base in Florida, strong and stable cross-laminated timber (CLT) was shown to be remarkably robust in the world's first blast tests on full-scale structures framed with the renewable construction material.

The tests, which varied the blast force, material grade, number of plies and other factors, were conducted by WoodWorks in collaboration with Karagozian & Case Inc. (KCI), the University of Maine and the Air Force Civil Engineer Center. Funding is primarily from the Softwood Lumber Board and the U.S. Dept. of Agriculture Forest Products Lab.

The testing program was initiated, in part, by the US Army when its primary developer-builder of hotels and guest-lodging beds at bases across the country, was looking to use CLT instead of steel framing because it offered the potential for faster, more efficient construction, according to an article in *Engineering News-Record*.

In all tests, three conducted in 2016 and four in 2017, the structures remained intact under significant explosive loading well beyond their design capacity. The testing structures, each of which were exposed to successively larger blasts over a period of seven tests; two of the mock buildings were 27 feet tall with two-foot-tall parapets and window cut-outs at 12 feet, and the third was 23 feet tall, with two-foot-tall parapets and window cut-outs at 10 feet. Both "buildings" had 15-square-foot footprints.

After exposing the structures to 32, 67, 199 and finally 610 pounds of TNT (some tests also included additional gravity loading), it was concluded that, for blast exposure, CLT tested performance closely matched the model performance.

Because CLT panels contain multiple laminated layers, the remaining wood provides some residual strength after blast loading. Based on the tests, the researchers were able to conclude that for blast, CLT is just as good as a properly sized, steel-stud wall.

The Protective Design Center is reviewing the final report and will issue formal recommendations on standoff distances and modelling.

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AI on duty for tedious tasks

From watching pulp cook for hours on end and handling lengthy legal documents, Swedish forest companies are creating new jobs they would never ask a human to do.

Packaging maker Billerud Korsnas AB has been an early adopter of artificial intelligence by using the technology to analyse thousands of diagrams to determine just how long it needs to cook its wood chips before they turn into pulp.

While that process could be done manually, it says it would be difficult to find any human who would be willing to spend all day just looking at such charts.

“A machine can review large data quantities and find patterns in ways we humans just find too boring,” Mr Olle Steffner, director of intellectual property management, said. “Tasks such as monitoring processes or analysing diagrams will hardly be missed by anybody. Our staff is needed for other things.”

The rewards from using artificial intelligence (AI) for such mundane tasks could be plentiful. The biggest advantages include being able to replace costly manual labour with automation, as well as reducing the time machines used in the manufacturing process are idle for maintenance. Companies can also use AI to help them improve the manufacturing process.

Sweden’s forest companies are the latest

example of an industry embracing artificial intelligence to cut costs and lift profits. However, while the forest industry still lags retail and manufacturing in using AI, it still has the strongest drive to automate among the traditional process companies.

Beetle attacks

Sogeti has, together with Sveaskog AB, Sweden’s largest forest owner, developed algorithms that teach themselves to find signs of spruce bark beetle attacks on satellite photos of forests. With the bug threatening to destroy wood valued at 6 billion kronor (\$622 million) in a worst-case scenario in Sweden this year, AI could become one of the most efficient defences against the bug.

While you could gain the same knowledge by putting on a pair of boots and walking into the forest to check for yourself, but AI helps you to attain it without the cost for large amounts of manual labour.

A recent development with both cheaper computer-processing power and more advanced sensors is what is making the technology more accessible to the forest industry right now.

The company is stepping up efforts with a two-year long program that will look at all its processes and evaluate where they can be made more efficient by using robots.

1 Sweden’s largest forest owner has developed algorithms that teach themselves to find signs of spruce bark beetle attacks on satellite photos of forests.

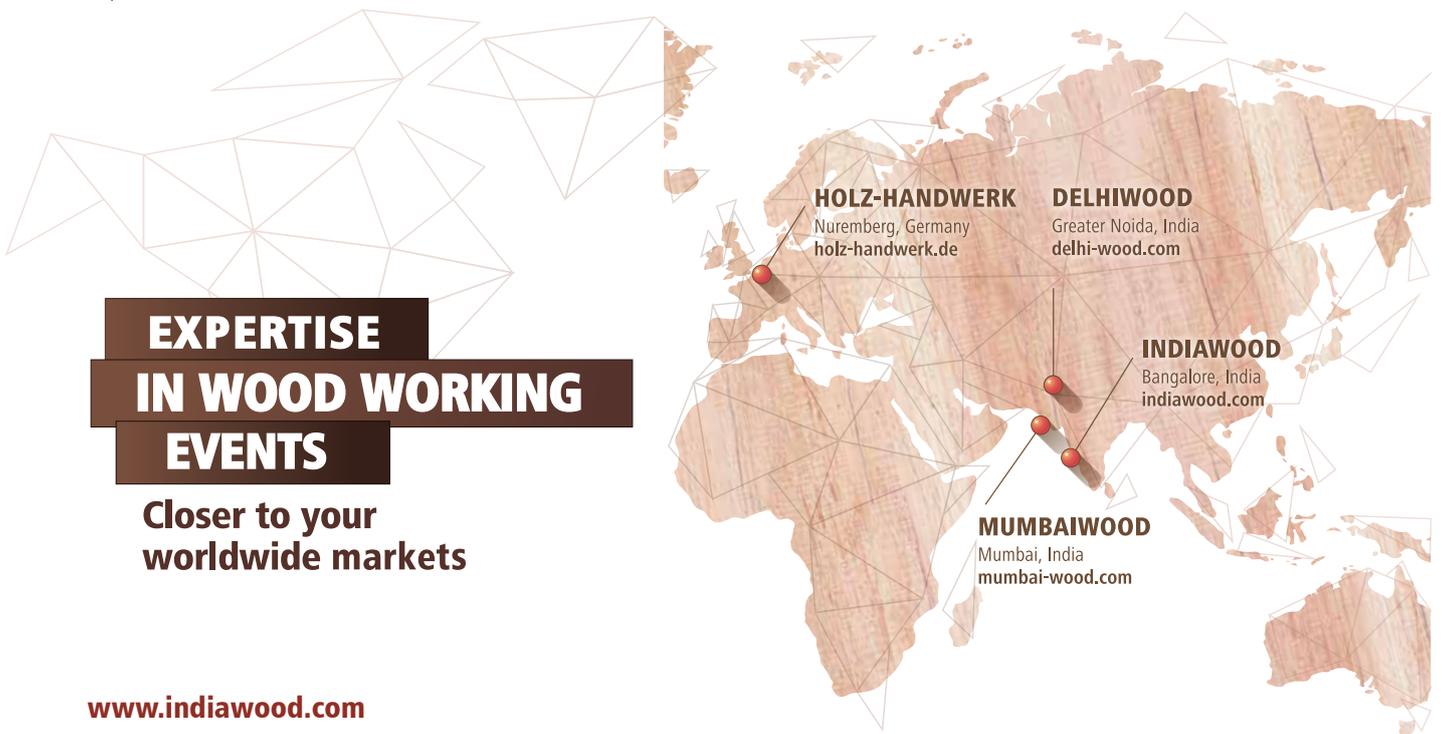
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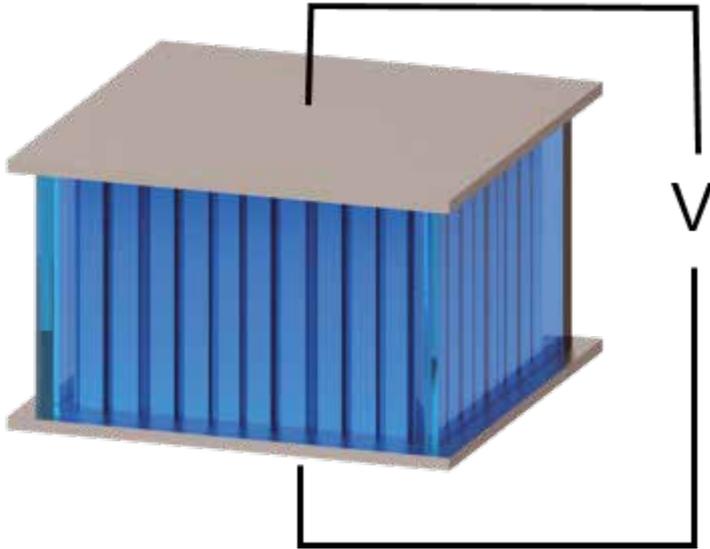


FOR BOOKINGS, PLEASE CONTACT:

Pradeep Kumar Gopal
Project Director
E : pradeepkumar.gopal@nm-india.com
M: +91 9986066910

Belliappa M K
Project Manager
E : belliappa.mk@nm-india.com
M : +91 9916092922

Hot-Bod to generate electricity



A University of Maryland-led team of researchers has created a heat-to-electricity device that could someday harness the body's heat to provide energy. The team transformed a piece of wood into a flexible membrane that generates energy from the same type of electric current (ions) that the human body runs on.

This energy is generated using charged channel walls and other unique properties of the wood's natural nanostructures. A small temperature differential can be utilized to efficiently generate ionic voltage, as demonstrated in a paper published in the journal *Nature Materials*.

Trees grow channels that move water between the roots and the leaves. These are made up of fractally-smaller channels, and at the level of a single cell, channels just nanometres or less across. The team has harnessed these channels to regulate ions.

The researchers used basswood, which is a fast-growing tree with low environmental impact. They treated the wood and removed two components – lignin, that makes the wood brown and adds strength, and hemicellulose, which winds around the layers of cells binding them together.

This process gives the remaining cellulose its signature flexibility and converts the structure of the cellulose from type I to type II, which is a key to enhancing ion conductivity.

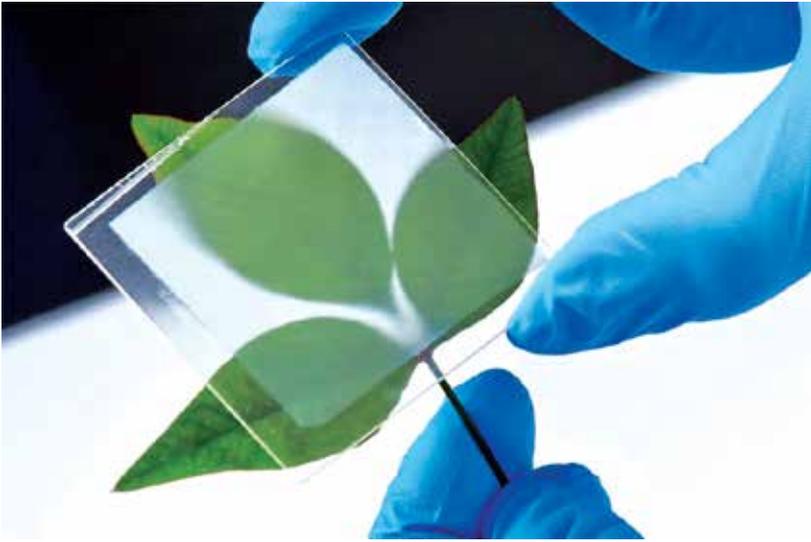
Exemplified by lightning storms, generating charge between two very different temperatures is easy. But for small temperature differences, it is more difficult. However, the team says they have successfully tackled this challenge and said they now have demonstrated their proof-of-concept device, to harvest low-grade heat using nano-ionic behaviour of processed wood nanostructures.

Tian Li, the first author, summing up the paper said “We are the first to show that this type of membrane, with its expansive arrays of aligned cellulose, can be used as a high-performance ion selective membrane by nanofluidics and molecular streaming and greatly extends the applications of sustainable cellulose into nano-ionics.

‘Transparent’ wood closer to real-world applications

New developments have been made in the study of “transparent” wood, which first made waves in 2016 when Swedish researchers at KTH Royal Institute of Technology discovered that they were able to remove the lignin in wood, the molecule that makes it rigid and dark in colour, and replace it with epoxy.

Engineers at the University of Maryland demonstrated later that windows made of transparent wood could provide more even and consistent natural lighting and better energy efficiency than glass. This study was published in the *Journal of Advanced Materials*.



UMD researchers patented their process, which, similar to the Swedish study, begins with bleaching the lignin from the wood, then soaking the wood in epoxy, adding strength back in and making the wood clearer.

While the Swedish study used Balsa wood in 10x10-cm pieces, the UMD team initially used tiny squares of linden wood about 2x2 cm. Researchers from both studies say there is potential for the process to be used on larger pieces of wood.

Transparent wood is also sturdier than traditional wood, researchers say, and can be used in place of less environmentally friendly materials, such as plastics. It could potentially transform architecture by enabling novel structures such as load-bearing windows. Such elements could also yield improvements in energy efficiency over glass or other traditional materials.

In February this year a study published in the *Journal of Materials Research* revealed that a research team in China developed a new process for removing the wood's lignin on larger panels. The goal of their study was to leave less lignin in the wood to leave more room for the epoxy, which would result in samples that are more optically transparent and stronger.

To achieve this, researchers steamed pieces of natural pine and basswood by placing them on a grid above a boiling aqueous solution of hydrogen peroxide. When the yellow colour of the samples disappeared, which occurred anywhere from 2 to 12 hours, researchers rinsed the samples with cold water and ethanol.

Researchers say the steam penetrates wood samples better than bleaching solutions and leaves transparent wood composites with half the lignin content of previously made transparent wood. Succeeding with 21x19-cm

samples, the study revealed that this technique retains the structural integrity of the wood by keeping the cellulose in the cell walls intact.

The 2016 UMD study showed that transparent wood provides better thermal insulation and lets in nearly as much light as glass, while

eliminating glare and providing uniform and consistent indoor lighting.

The channels in the wood direct visible light straight through the material, but transparent wood still has all the cell structures that comprised the original piece of wood. Through a property called haze, the cell structures bounce around the light that hits the surface, which means light won't shine directly into someone's eyes when looking at a window made of this material.

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In US, 62% wood products mislead or fake

A team of scientists decided to study and analyse fraud and misrepresentation (F&M) in wood products on the shelves of major US retailers. The products included what a typical American family might purchase: furniture, kitchen implements, sporting equipment, musical instruments, hand tools, home improvement materials, and other durable household items.

In the study, published in the *Plos* scientific journal, scientists reported to have investigated 73 consumer forest products acquired in the US market from major retailers, for the presence of F&M.

manufacturer or retailer may have represented a low-value wood as higher-value wood.

These latter two cases were examples of unambiguous fraud, whereas the former was an instance where a legitimate case for good-faith confusion and misrepresentation could have been made.

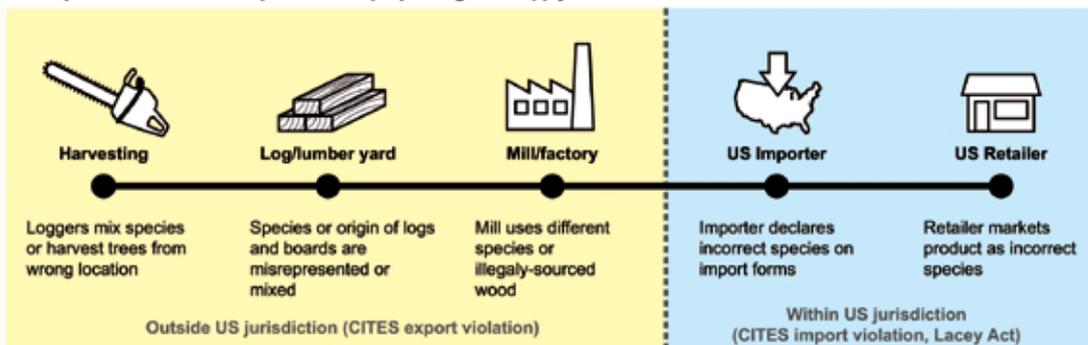
In all cases, the product claim is at a minimum misrepresented. When closely related or other similar species are mixed, as in the former example, such misrepresentation is not likely to be detected by the consumer, and may not appreciably impact the performance of the product.

Human driven

Product-type F&M is entirely human driven,

as it is the result of primary and secondary manufacturing choices and is not inherently dependent on the species or origin of the wood.

Forest products fraud or misrepresentation (FM) through the supply chain



The team used forensic wood anatomy to test 183 specimens from the 73 products. A full 62% of tested products (45/73) had one or more type of fraudulent or misrepresented claim. The study then breaks it down into two specific types of fraud and misrepresentation: botanical identity (wrong species) and the product type itself (solid wood or particleboard).

Honest mistakes

Full 55% (40/73) products tested showed clear evidence of botanical misrepresentation, with only 33 products (45%) being entirely made of wood consistent with the claimed species.

In approximately 20% of the botanical F&M claims, the researchers found that it could plausibly be attributed to honest mistakes and could be construed as misrepresentation.

Conversely, loggers may have selectively harvested high-value protected species but documented them as lower-value woods, or a

Despite its dependence entirely on human choices, product-type F&M can have gradations in severity. For example, plywood is not considered solid wood, but a maple butcher-block table top formed of many finger-jointed and glued pieces of solid wood is construed as solid wood in the data.

If a consumer were expecting a single piece of wood, a product claim that called such a table top 'solid wood' could be considered an honest mistake or misunderstanding.

The same table top claiming solid wood construction, but made with a veneer of maple glued to a medium density fibre board substrate is not solid wood, and would be a clear case of product-type F&M.

Plos was founded as a non-profit, open-access publisher, innovator and advocacy organisation with a mission to advance progress in science and medicine by leading a transformation in research communication.



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Delo sets new adhesive record

In July 2019, Delo Industrie Klebstoffe GmbH of Germany broke the world record for the heaviest weight lifted with glue with a new record of 17.5 tons by lifting a three-axle truck. It has been officially recognised by the *Guinness Book of World Records*.

A mounted crane was used for lifting the extended arm 40 metres into the air, using only 3 gm of adhesive. Additional concrete slabs were used to increase the truck's unladen weight of 13 tons to a total of 17.5



tons, according to *European Coatings*.

The epoxy resin used forms a very dense network during heat curing. A special filler was used, among other things, to modify the resin properties in order to achieve the extreme strength required for the world record. The name of the world's strongest adhesive is Delo Monopox VE403728, a modified version of the high-temperature-resistant Delo Monopox HT2860.

IKEA to close US plant

Swedish furniture maker IKEA recently announced it will cease production at its Danville (Virginia) plant in December this year, eliminating an estimated 300 jobs in the United States. The 930,000-square-foot manufacturing plant opened in 2008 and is its

only North American production facility.

High costs for raw materials were cited for the closure, and the company said it could produce the same products at a much lower cost from its European facilities, and ship them to North America. Products currently produced at the Danville facility include Kallax shelving units and Besta living room storage units.

Up-cycled plastics used in furniture

A material manufactured in Yorkshire (UK) from recycled PET (plastic) bottles and other single-use plastics, which initially launched as an eco-engineered carpet underlay, is now also being used inside sofas.

SpringBond, manufactured by Bradford-based Texfelt, is being used by a British furniture manufacturer inside more than 80% of its sofas and recliners. Lebus is using the material in the production of around 29,000 seats every month, across more than 25 sofa designs.



The material is fully recyclable at the end of its useable life and, because it contains no PU foam, there are no harmful volatile organic compounds, meaning better air quality throughout the home. The world is currently producing more than 300 million tonnes of plastic each year.

AkzoNobel turns 100

AkzoNobel's North American wood coatings division, whose portfolio of brands helps the world's leading manufacturers of cabinetry, furniture, flooring and building products protect and bring colour to their products, turned 100 years old.

At the recent AWFS Fair in Las Vegas, the company showcased its products alongside the latest innovations, including Maestro Hue, the complete wood coatings colour system developed by Chemcraft – its specialist wood coatings brand – that gives distributors and OEM manufacturers the power to match virtually any colour with unrivalled accuracy and minimal waste.

Ontario invests in CLT plant

The Ontario government is investing almost Canadian\$ 5 million in Element-5's cross-laminated timber (CLT) plant, the first in the province. The Canadian\$ 32-million manufacturing facility will be one of North America's first fully automated CLT plants.

The wood products will be used to construct

buildings and other infrastructure projects in Canada and the US. Element-5 aims to create cost-effective and environment-friendly building materials from sustainable renewable sources to reduce carbon dioxide emissions and create jobs.

Sauerland concludes tour for ASEAN area



Sauerland completed its sixth educational trip by having door manufacturers from the ASEAN area visit its factory in Gotha, Germany. They were taken on a tour of the massive factory and witnessed the fire test of all 100% engineered material doors.

It showed the most economical way to make fire-rated doors lighter in weight with no additives or inorganic fillers. Later they

visited two leading door factories, where they saw that none of the door manufacturers use any flat pressed board as infill or filler board in door manufacture because of the tendency to swell in thickness, which could affect the life, durability and finishing of the door.

The 18-member team was led by Mr Nitin Vaze, CEO, and Mr Amit Vaze of Pune-based Sleek Boards Marketing Services.

Egger ends 2019 with stable results

The Egger Group reported a successful 2018-19 financial year, with its turnover increasing by 5.6%. The record total investment of 489.1 million Euros had a strong impact on this result. One of the flagship projects, the 19th plant in Biskupiec (Poland) started operations at the end of June.

The most important geographical market for the company was Western Europe (58.9% of sales revenues), and above all Germany, with

the furniture industry strongly represented there. Central and Eastern European and Russian markets also achieved stable sales share of 29.5%.

During the year, it invested in property, plant equipment and intangible assets. The first production site in Lexington, North Carolina (US), started construction work in November 2018 and it is expected to be commissioned by the end of 2020.

New PB plant in Turkey

In July 2019, Starwood Orman Urunleri Sanayi produced the first board on its new particleboard line in Inegol, Turkey, replacing a Dieffenbacher line commissioned in 1991.

“Starwood, a family-owned company, always prefers working with family-owned companies who are well qualified and keen on their core business; who work hard to understand the needs of their customers and have similar values. There was a lot of



compatibility between our company and Dieffenbacher and that made cooperating on this project a great pleasure,” said a company spokesman.

Malaysian forestry laws reviewed

The Malaysian government is reviewing the current forestry laws and will consider suggestions on amendments that would strengthen forest protection. Under Malaysia’s constitution, forest management falls mainly under state, not federal control. Many complain that this has led to greater focus on economic interests compared to the

environment or indigenous people’s right.

In August, environmental activists lobbied demanding changes to the current decades-old laws to strengthen forest protection and to increase punishments for forest-clearing, corruption and pollution. One option being considered is closer coordination between the central government and state administrations.

Excess timber in Myanmar

The Myanmar Timber Enterprise (MTE) has said it is holding as much as 40,000 tons of unsold inn-Kanyin logs from last years’ harvest. Inn-Kanyin logs from Myanmar are commonly used for plywood face veneer.

The price of first quality of inn-Kanyin logs is around US\$ 800 ex-site, but at this price plywood manufacturers complain it pushes production costs too high. Prices for teak and other hardwood logs have been rising since a decision was made to lower the annual allowable cut.

New directors at Acimall



The general assembly of Acimall, the association of Italian woodworking machinery and tools manufacturers, has elected the new

board of directors that include president Lorenzo Primultini (Primultini) and vice-presidents Raphaël Prati (Biesse) and Luigi De Vito (SCM).

The “two-stage approach” for the election of the board was adopted in recent years to ensure continuity in the management of the association, introducing a 12-month interval between the election of members and the election of president and vice-presidents.

Rubberwood major draw in Vietnam

Rubberwood has become an important raw material for Vietnamese wood product exporters. Over the past few years clearing of rubberwood for replanting has yielded a volume of around 5 million cubic metres of

round wood and some 70% of this is utilised by manufacturers.

In 2017, exports of rubberwood products were worth around US\$ 1.7 billion, accounting for almost 25% of Vietnam’s wood products exports. In future, this source of raw material will have sustainable forest management certificates and chain-of-custody documents to satisfy demands for legality verification.

Uruguayan pine arrives in India

For the first time a shipment of pine logs from a country other than New Zealand has been unloaded in Kandla port. Members of the Kandla Timber Association hoped it would result in more competition in the pine log market.

Mr Navneet Gajjar, president of KTA, said this first shipment was of 35,000 cubic metres at a price of around US\$ 145 per cubic metre, some US\$ 20 per cubic metre lower than pine from other sources.

US blocks shipment from Peru

The US Trade Representative (USTR) has directed the United States Customs and Border Protection (CBP) to block future timber imports from a specific Peruvian exporter because suspected illegally harvested timber was entering the company's supply chain.

This is the second time that the USTR has taken such action under the United States-Peru Trade Promotion Agreement's (PTPA) on forest sector governance. The government of Peru revealed that a shipment from the company in question was not harvested in compliance with Peru's laws and regulations.

Japan Furniture Association formed

Although Japan is regarded as being an economic and technological power and a country with rich traditions and culture, that it is also one of the top furniture producers in the world with an annual shipment value of 1,400 billion Yen generated by approximately 10,000 furniture manufacturers.

The Japan Furniture Association pursues a wide range of activities aimed at promoting exports of its furniture, including surveys of overseas market trends and coordination between Japanese furniture manufacturers and foreign sources of raw materials.



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Adequate maintenance is a crucial factor for the long life of the machine (**Panel Saw J-3200.in +**) and to provide conditions for its optimal working. All maintenance operations must be done with the machine turned off and personnel wearing protective gloves.

Machine cleaning & checking

Before carrying out maintenance operations, adjustments or to dismantle any machine part, turn main switch to OFF.

All cleaning operations are to be carried out by the machine operator or by skilled technician.

General cleaning ensures the long life of the machine and is an important safety factor.

Use a power dust aspirator to clean the machine.

- Eliminate dust and chips from the table and all cavities.
- With the sliding table move in fully entry side, then in other position in fully exit side, its bottom guides and its guide ways.
- Weekly clean all moving parts in particular the elements exposed to the dust and to the

resin by using a brush or cloth with safe solvent.

- Carefully clean: guides of crosscut fence, sideways of the sliding table & of the rail, rod of the fence, and groove by safe solvent.
- Clean extension of pivoting arm and check that the dust scrapers correctly operate.

Checking of safety devices

For safe usage of the machine, the safety devices shall be efficient.

- Check the controls for emergency stops every 2 week with a test:
- With the machine under normal operating condition, press the emergency button arranged on the machine: the saw blade should stop.

Note: if the belts get slack, the braking time may increase. Therefore, make sure that the belts are stretched in good condition.

- Periodically check that the guards are efficient.
- Please stop processing and contact the local agent a.s.a.p. if you have any problem with the machine.

Machine removal – storing

Disconnect the machine from the electrical and pneumatic system. After totally cleaning the machine, wipe the antirust protection unit and store the machine in a good environment.

Cleaning & Checking Schedule

Scheduled maintenance is of the utmost importance to obtain the best performance as well as for the safe operation of the machine. Accurate lubrication ensures long life as well as the best performance of the machine.

Weekly lubricate with grease:

- Worms and toothed sector for height adjusting and tilting of the saw blade.
- Right and left guides, for the saw blade tilting.
- Pivots for height adjusting of the saw blade.
- The elements of scorer unit.

Replacing the scoring saw spindle belt

- Set the saw unit down.
- Stop the machine, turn the main switch to OFF; and then lock it and indicating this with a sign.
- Open the rear door & loosen bolts.
- Lift the small motor and support it (e.g. with a wood traverse): in this way it is possible to replace the belt.
- Replace the new belt and lower the motor.

- Manually make the belt rotation 2 or 3 complete times so that it can get the right settling.
- Close the rear cover again.

Note: The belt remains always stretched by the motor weight.

Never couple belts of different make and set.

Replace the pair of belts instead of only one belt if necessary for main saw spindle belts.

Belt stretching

After the first working period or after many working hours the belts get slack and this will increase the time required to stop the saw blade. So periodically checking this is necessary. The belt tension is right if, by applying a 3 kg force in the middle of the belt, you get an elastic flexion of approx.2 mm.

Troubleshooting

This section indicates how to solve problems that may rise during machine use.

Carry out interventions only after carefully reading all that details of the problem indicated in manual. For problems not described in the manual, contact Jai’s technical service.

Warning: Disconnect the machine from the power source. For preventing any serious personal injury the professional technician should turn off power before troubleshooting.

Problem	Possible cause	Troubleshooting
The machine cannot be switched on.	1. No power in one or more phases. 2. Control circuit fuses defective. 3. MCB trip	1. If MCB trips take necessary action. 2. Turn off the main switch, open the switch cabinet and identify which fuse is defective and remove it. Replace new fuses, only using fuses of the same rating.
The machine switches off automatically during operation.	1. Power failure in one or several phases due to responding factory fuses. 2. Overload protection has responded due to blunt saw or excessive feed speed. 3. Control circuit fuses defective. 4. MCB trip	1. Eliminate cause of phase failure. 2. Change saw blade or reduce feed-speed. Allow motor to cool down. 3. Turn off the main switch, open the switch cabinet and identify the defective fuse and remove it. Replace with new fuse, only using fuses of the same rating! 4. Check electrical connection.

Problem	Possible cause	Troubleshooting
Motor fails to develop full power (output of motor decreases rapidly with decrease in voltage at motor terminals)	<ol style="list-style-type: none"> 1. Power line overloaded with lights, appliances, and other motors. 2. Undersized wires or circuits that are too long. 	<ol style="list-style-type: none"> 1. Reduce load on power line. 2. Increase wire sizes or reduce length of the circuit.

Problem	Possible cause	Troubleshooting
Motor Overheats.	<ol style="list-style-type: none"> 1. Motor overloaded. 2. Air circulation through the motor is restricted. 	<ol style="list-style-type: none"> 1. Reduce load on motor. 2. Clean out motor to provide normal air circulation.
Main blade runs backwards	<ol style="list-style-type: none"> 1. Two of the power wires are reversed. 	<ol style="list-style-type: none"> 1. Exchange wires L1 & L3 in the terminal box.
Blade makes a squealing noise on start-up.	<ol style="list-style-type: none"> 1. Belt worn out. 	<ol style="list-style-type: none"> 1. Replace belt.
Motor stalls (resulting in blown fuses or tripped circuit)	<ol style="list-style-type: none"> 1. Short circuit in motor or loose connections. 2. Low voltage. 3. Incorrect fuses or circuit breakers in power line. 4. Motor overloaded. 	<ol style="list-style-type: none"> 1. Repair loose or shorted terminals, or worn insulation in motor. 2. Correct the low voltage conditions. 3. Install correct fuses or circuit breakers. 4. Reduce load.
Work piece jammed when feeding forward.	<ol style="list-style-type: none"> 1. Blunt saw blade. 2. Riving Knife thickness does not match the saw blade used. 	<ol style="list-style-type: none"> 1. Fit sharp saw blade. 2. Fit the correct riving knife; it must be thicker than the main saw blade (or at least the same)
The finished size of the cut work piece does not match the cutting width set on the rip fence.	<ol style="list-style-type: none"> 1. Dimension scale for cutting widths is wrongly adjusted. 2. Incorrect scale position. 	<ol style="list-style-type: none"> 1. Reset the dimension scale to correct size. 2. Reset scale position. Cut a work piece on fence. Precisely measure the cut width and position the scale to match work piece.
Sliding table saw does not cut square.	<ol style="list-style-type: none"> 1. Sliding table is not parallel to blade. 2. Rip fence is not parallel to blade. 3. Crosscut fence is not perpendicular to the blade. 	<ol style="list-style-type: none"> 1. Adjust the sliding table. 2. Adjust the rip fence. 3. Adjust the crosscut fence perpendicular to the blade.

Problem	Possible cause	Troubleshooting
Motor stalls (resulting in blown fuses or tripped circuit)	<ol style="list-style-type: none"> 1. Short circuit in motor or loose connections. 2. Low voltage. 3. Incorrect fuses or circuit breakers in power line. 4. Motor overloaded. 	<ol style="list-style-type: none"> 1. Repair loose or shorted terminals or worn insulation on motor. 2. Correct the low voltage conditions. 3. Install correct fuses or circuit breakers. 4. Reduce load on motor.
Work piece jammed when feeding forwards.	<ol style="list-style-type: none"> 1. Blunt saw blade. 2. Riving Knife thickness does not match the saw blade used. 	<ol style="list-style-type: none"> 1. Fit sharp saw blade. 2. Fit the correct riving knife; it must be thicker than the main saw blade (or at least the same)

Problem	Possible cause	Troubleshooting
The finished size of the cut work piece does not match the cutting width set on the rip fence.	<ol style="list-style-type: none"> 1. Dimension scale for cutting widths is misadjusted. 2. Incorrect scale position. 	<ol style="list-style-type: none"> 1. Reset the dimension scale to correct size. 2. Reset scale position. Cut a work piece on fence. Precisely measure the cut width and position the scale to match work piece.
Sliding table saw does not cut square.	<ol style="list-style-type: none"> 1. Sliding table is not parallel to blade. 2. Rip fence is not parallel to blade. 3. Crosscut fence is not perpendicular to the blade 	<ol style="list-style-type: none"> 1. Adjust the sliding table. 2. Adjust the rip fence. 3. Adjust the crosscut fence perpendicular to the blade.
Saw blade burns on the sliding table side.	<ol style="list-style-type: none"> 1. Insufficient free cut on sliding table. 	<ol style="list-style-type: none"> 1. Re-adjust the free cut.
Saw blade burns on the rip fence side.	<ol style="list-style-type: none"> 1. Excessive free cut on the rip fence. 2. Insufficient free cut on rip fence. 	<ol style="list-style-type: none"> 1. Re-adjust the rip fence. 2. Re-adjust the free cut.
Work piece has burn marks.	<ol style="list-style-type: none"> 1. Blunt saw blade. 2. Feed too low. 3. Saw blade has too many teeth. 4. Incorrect free cut. 	<ol style="list-style-type: none"> 1. Change the saw blade. 2. Increase the feed rate. 3. Change the saw blade. 4. Re-adjust the free cut.

Problem	Possible cause	Troubleshooting
Work piece has chip out on the bottom edge.	<ol style="list-style-type: none"> 1. Scoring blade height is incorrect. 2. Scoring blade is not aligned with the main blade. 3. Scoring blade kerfs does not match the main blade. 	<ol style="list-style-type: none"> 1. Adjust the height of the scoring blade. 2. Align the scoring blade. 3. Adjust the scoring blade kerfs.
Work piece has chip out on the top edge.	<ol style="list-style-type: none"> 1. Main saw blade teeth damaged. 	<ol style="list-style-type: none"> 1. Replace the main saw blade or regrind if the damage is minor.
Loud repetitious noise coming from machine.	<ol style="list-style-type: none"> 1. Pulley set screws or keys are missing or loose. 2. Motor fan is hitting the cover. 3. Belts are defective or damaged. 	<ol style="list-style-type: none"> 1. Inspect keys and set screws. Replace or tighten if necessary. 2. Adjust fan cover mounting position, tighten fan, or shim fan cover. 3. Replace belts.
Breakout in spite of scoring	<ol style="list-style-type: none"> 1. Scoring not aligned with main saw blade. 2. Scoring blade too narrow. 	<ol style="list-style-type: none"> 1. Readjust free cuts; the free cut should be almost "0" 2. Adjust saw width.
Work piece rises when cut with the scoring	<ol style="list-style-type: none"> 1. Blunt scoring blade. 2. Cutting height too low. 	<ol style="list-style-type: none"> 1. Exchange the sawing blade. 2. Set the scoring blade higher.
Breakout in spite of scoring	<ol style="list-style-type: none"> 1. Scoring not aligned with main saw blade. 2. Scoring blade too narrow. 	<ol style="list-style-type: none"> 1. Readjust free cuts; the free cut should be almost "0" 2. Adjust saw width.
Vibration when running or cutting.	<ol style="list-style-type: none"> 1. Loose or damaged blade. 2. Worn arbour bearings. 3. Worn or damaged belts. 	<ol style="list-style-type: none"> 1. Tighten or replace blade. 2. Check/replace arbour bearings. 3. Replace belts.
Fence hits table top when sliding across table.	<ol style="list-style-type: none"> 1. Front rail is too low. 2. Rip fence roller is too low. 	<ol style="list-style-type: none"> 1. Raise the rail. 2. Adjust the roller.

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EVENTS CALENDAR

SRI LANKA WOOD EXPO

06-08 September, 2019

Venue: Bandaranaike Memorial International Conference Hall, Colombo, Sri Lanka

Sri Lanka Wood Expo is an international exhibition that showcases products from across the globe. The Wood Industry in Sri Lanka has evolved to greater heights and the event will be the industry's key Exhibition. It creates an opportunity for investments, joint ventures, technology and innovation transfers through one platform of worldwide companies of the industry, and will deliver unprecedented access to key decision-makers in wood and related industries.

www.srilankawood.com

DREMA

10-13 September, 2019

Venue: Poznan Congress Centre, Poland

The four-day event is a great opportunity for professionals looking for new wood processing technologies. The scope of the fair constitutes a comprehensive offer for the industry: from the sawmill sector, through wood processing, up to the production of final products, such as windows, doors or ready-made furniture. Drema attracts many international leaders in furniture and wood processing solutions and presents opportunities for small, medium-sized and large consumers interested in technologies.

www.drema.pl

LIGNUM BRASIL

11-13 September, 2019

Venue: Expo Barigui, Curitiba, Brazil

Lignum Latin America is a trade fair focused on wood transformation, beneficiation, preservation, energy, biomass, forest management and timber use. With every edition, the fair brings solutions, product launches and trends for the industrial timber and forestry sectors in static and dynamic demonstrations. Lignum Latin America is the main event of the International Timber Week, which aims at providing participants the best opportunity for professional updating on the timber and wood markets.

www.lignumbrasil.com.br

EVENTS CALENDAR

VIETNAMWOOD

18 - 21 September, 2019

Venue: SECC-Saigon Exhibition & Conference Center, Ho Chi Minh City, Vietnam

The International Vietnam International Woodworking Industry Fair is one of the most well-known woodworking exhibitions in Asia. This year, the event will attract more than 450 exhibitors from 28 countries and regions. There is also a significant increase in exhibit space which spreads across an exhibition area of over 25,000 square meters. The exhibition presents a wealth of innovations and applications for the entire wood industry.

www.vietnamwoodexpo.com

LISDEREVMASH

27-30 September, 2019

Venue: IEC International Exhibition Centre, Kiev, Ukraine

The 15th edition of Lisderevmash (the international fair of machinery and equipment for forestry, woodworking and furniture industry) is an exhibition where several industry-related machinery and products will be on display. Typically this would include woodworking, woodworking machinery, wood products and furniture. Around 6600 visitors are expected to attend this annual trade show. The exhibitors would include vendors and decision makers in woodworking, woodworking machinery and furniture businesses.

www.lisderevmash.ua

WOODEX ASIA

27-29 September, 2019

Venue: Mahatma Mandir Convention and Exhibition Centre, Gandhinagar, Gujarat, India

Woodex Asia is an international exhibition for the wood industry where a total 150 companies from more than 15 countries are expected to participate. This includes woodworking machinery, furniture hardware & fittings, power tools, adhesives, plywood & panels, laminates, wooden flooring, wood composites, particle boards, raw materials, coatings, veneer, timber & lumber, doors & windows, etc.

W16 - WORKING WITH WOOD

27-30 September, 2019

Venue: Birmingham, Great Britain

W16 is the national show for the joinery and furniture industries. As one of the UK's largest trade exhibitions, it provides the opportunity to see running woodwork machinery together with components and materials all under one roof and is an event showcasing the latest products and developments in the industry. It is an opportunity for joinery and furniture manufacturers, large and small as most businesses within the industry attend the show, either as exhibitors or as visitors, providing a great platform for networking.

www.wexhibition.co.uk

IFMAC

9-12 October, 2019

Venue: Jakarta International Expo Kemayoran, Jakarta, Indonesia

The Only Dedicated Exhibition for the furniture and the woodworking sector IFMAC + Woodmac is the leading procurement source where 250 industry leaders will gather for the three-day exhibition. IFMAC is positioned as Indonesia's premium trade exhibition that presents high-technology machinery, unique products and creative manufacturing

methods for the furniture production market. It is also the industry's foremost sourcing, procurement and information event for the furniture manufacturing and woodworking sectors.

www.ifmac.net

HOLZ BASEL

11-15 October, 2019

Venue: Basel, Switzerland

The Holz, first introduced in 1957, is the leading Swiss exhibition for the woodworking industry and is held once in three years. Around 350 national and international exhibitors will be introducing their latest innovations in machinery, tools, materials and accessories at this time. Just about everyone in the building, construction, infrastructure sector, will be visiting the trade show.

www.holz.ch

INTERMOB

12-16 October, 2019

Venue: The Turyap Fair Convention & Congress Center, Istanbul, Turkey

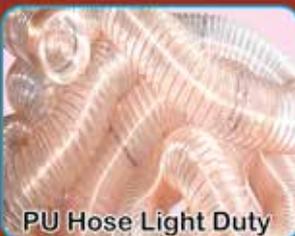
This 5-day event is the most important trade fair for the wood industry in the country. It showcases an extensive range of products such as machinery and technical equipment for processing forestry products, semi-finished products, surface finishing, assembly and packaging, and brings together local and international companies involved in the industry. Wood processing machinery, cutting tools and hand tools will be on display at this event.

www.intermobistanbul.com



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Mob: +91-98438 10577, +91-93453 10577

flexaflexhoses@gmail.com
pipe_agencies@gmail.com
Ph: 0422 - 22 33 452, 23 93 453

NORTH INDIA

flexaflexhoses@gmail.com
flexaflex.ahd@gmail.com
Ph: 079 - 22 14 04 61, 22 16 13 60

FLEXAFLEX HOSES INTERNATIONAL
106 Kailashpati Chamber Reid Road,
O/S. Panchkuva Gate, Ahmedabad-380002.
Mob: +91-09978442215, +91- 90990 16044,

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Editorial Advertisement

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LEVIGO ENGINEERING INDIA PRIVATE LIMITED
No-38/1, Nadkerappa Industrial estate,
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Email: vasanth@levigo.co.in ; marketing@levigo.co.in
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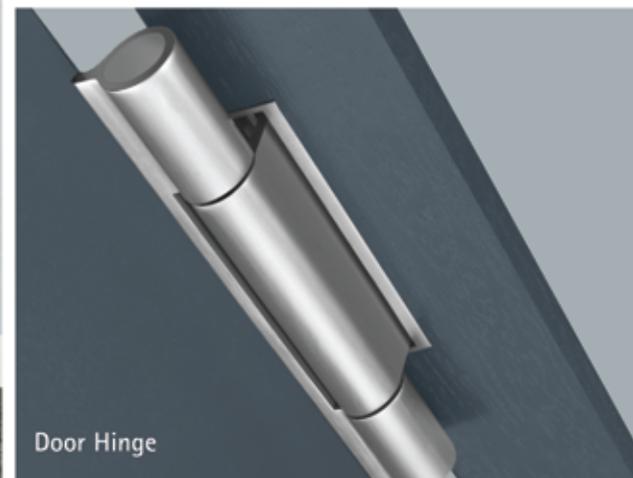
WOODTECH CONSULTANTS PVT.LTD
31/2, Nadkerappa Industrial Estate
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