

# WOODNEWS

NOV - DEC 2020

Vol. 30 • No. 4



**30**  
YEARS

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## WOODNEWS

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

Executive - Media | Jyotsna Yadav  
jyotsna@pdatrademedia.com

Executive - Media | Vinay M C  
vinay@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

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@acw.com.tw

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32/2 Spencer Road, Frazer Town, Bangalore, 560 005, India.  
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Chairman | Pradeep Devaiah

Managing Director | Srinivasan S.

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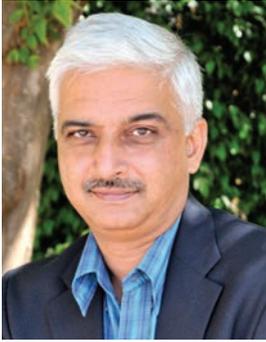


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## EDITOR

DHANANJAY SARDEHPANDE

# Of temples, kitchens and home automation

### Hello Readers!

It is interesting to see how a Secunderabad-based star Export House, a family with a long tradition of timber trading, has metamorphosed into a centre of excellence in manufacturing – from teak decking and cladding for top European shipyards making yachts, to constructing luxury resorts in exotic tourist destinations worldwide. This time around, the entrepreneurs have executed a mammoth order for hundreds of doors for a new temple project near Hyderabad in record time.

What is more, Anuradha Timber International (*WoodNews* featured the business in its November-December issue in 2016) has helped preserve the art, skill and livelihoods of these woodcarvers and temple artisans, who follow an ancient, yet scientific, style of architecture, aesthetic, design and

decoration. Read on to share their exciting journey.

In the time after the Covid-19 lockdown (which continues in start-jerk-halt patterns in many parts of the world to this day) home has become 'haven' for all of us in the literal sense. The kitchen, in particular, has become the "command centre" of all domestic operations: more cooking on account of 'work/study from home', greater attention to cleanliness and safety, greater focus on functionality and efficiency, remodelling to increase space and storage, and frequent use as a congregation and entertainment hub by family members.

In our Special Focus on Modular Kitchens in this issue, experienced and award-winning Indian kitchen designer, Mr Gopal Dwivedi has shared a chapter from his new book, '*Modular Kitchen Planning & Designing Guide*', for your benefit. He also has a special discount on the book, exclusively for the first 50 readers of *WoodNews*. Don't forget to sample his *gyan* and grab that offer real quick!

To put this in perspective, the global modular kitchen market reached the US\$ 33 billion in the year 2019, according to a couple of international surveys. They both project double-digit growth over the next 5 years. The demand is being driven by the design and flexibility of kitchens, along with ease of assembly and repair.

Easy-to-clean surfaces, flexible living spaces, and seamless integration of technology are increasingly taking centre-stage in all home and commercial construction as well as furniture design. To highlight these aspects, we have included in this issue articles on building automation by Siemens, updates on sanitisation solutions, going 'green' with newer materials and technologies.

Here is wishing you all a more constructive and prosperous New Year! But there is something we all can do to make it happen: stay safe by washing our hands and cleaning surfaces frequently, maintaining physical distance in public spaces, and wearing masks in crowded areas.

## 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.

Now follow us on:



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

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

For Circulation and Subscriptions: chandru@pdatradermedia.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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# Webinar defines advantages from mass timber architecture



*The main building of Thompson River University in Canada is made from engineered mass timber.*

Forestry Innovation Consulting India Pvt. Ltd. (FII, India), popularly known as 'Canadian Wood', recently held another educational webinar on 'Developments in Mass Timber Architecture'.

Canadian architect and industry stalwart, Mr Derek Newby, was specially invited as a speaker to

the event. A LEED-accredited professional and a certified Passive House Designer, he is a vocal advocate for reducing greenhouse gas emissions in buildings, both through the application of Passive House principles to reduce operating emissions and through the use of timber to address embodied emissions.

Derek is also a member of the Architectural

Institute of British Columbia and the Royal Architectural Institute of Canada, and has served on a number of municipal advisory design panels and has advised governments on timber in architecture.

The webinar began with specific references to the benefits of building mass timber structures such as wood's eco-friendly nature, ability to reduce emissions, the fast-paced building process, cost comparatives and so on.

This was against the backdrop of the fact that buildings currently consume around 40% of earth's resources while 33% of the green-house gases (GHGs) emitted are from such constructions, making it one of the prime contributors of climate change. The speaker emphasised that this state of affairs was unsustainable in the long run.

## Mass timber

The necessity of using of engineered mass timber in construction was the focus of webinar and was divided under the following heads:

- Emissions Imperative
- Benefits
- Mass timber primer
- Prefabrication and Modularity
- Issues and Misconceptions

Derek subsequently introduced the attendees to a deep dive on various engineered wood products such as cross-laminated timber (CLT), glue-laminated timber (glulam), mass plywood panels, nail laminated timber (NLT), dowel laminated timber (DLT) and others.

He also elaborated on the link between pre-fabrication and modular techniques that can help optimise the process in mass timber construction projects. Information on timber composites was also provided.

The highlights of the presentation were architectural case studies and projects in mass timber from Canada, along with a special focus on misconceptions related to various aspects of building with wood – such as durability, fire safety, seismic performance, resistance to insect/mold/



moisture and acoustic properties.

Referring to the advantages of building with wood Derek said, "Construction for mass timber projects is more a process of assembly on site because parts are delivered in a highly pre-fabricated condition. Pre-fabrication saves time, sites are cleaner and less labour is required.

"Sometimes foundations are reduced

because the material is lighter. All this is possible with detailed preparation and construction knowledge of those in the industry," he added.

The webinar concluded with an insightful Q&A session. When quizzed about costs of construction using engineered timber Derek noted, 'There is a perception of higher cost, and while this may be true at times, the reality is that when we optimise

*Mr Derek Newby is a LEED-accredited professional and certified Passive House Designer.*

the design and account for the benefits, including rapid build time, wood as an option is often more competitive than it is understood to be."



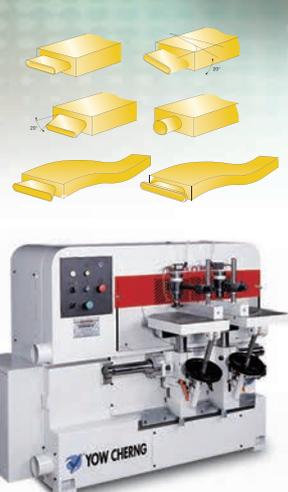
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# Finland looks to feeding India market

Wood from Finland recently organised a webinar featuring industry experts from Finland and India to bring in their perspectives on the opportunities for certified softwood timber from the north European exporting country.

It brought together leading Finnish organisations dealing with certified wood and with a keen interest in exploring the Indian timber market, and was aimed at the way forward to establishing partnerships.

In his opening remarks, Mr. Jukka Holappa, Country Manager for India, Business Finland, pointed to how climate change and sustainability in procuring raw building materials had brought back the focus on wood.

Business Finland, he added, has been laying the foundation in India not only for trade in certified timber, but also in spreading awareness and sharing expertise in building and furniture manufacturing.

The Managing Director of Finnish Sawmills Association, Mr. Kai Merivuori, gave an introduction to sustainable forestry and timber trade in his country, saying that Finland is the 7th biggest producer of softwood in the world. But is the 4th-largest exporter of softwood timber, after Russia, Canada and Sweden.

Although most forest ownership in the country is in private hands, all of them follow sustainable harvesting and are certified so by the PEFC (Programme for the Endorsement of Forest Certification) and FSC (Forest Stewardship Council), he said.

Finnish sawmills together produce more than 12 million cubic metres of softwood timber (as in 2017) extracted from the country's boreal and temperate coniferous forests. Most of the sized and treated timber is exported to China, West Asia, Japan and the UK, he said.

## Indian perspectives

Mr. Naval Kedia, President of the Federation of All-India Timber Merchants, Saw Millers & Allied Industries, expects a 10% increase in imports of certified wood each year in the 2020-30 decade.

This, he observed, was partly due to the Indian furniture manufacturing industry moving from the unorganised sector to organised factories with high levels of mechanisation and automation.

The head of 70,000 saw millers across the country said his federation was right now focusing on skill development in carpentry, certification in sourcing and seasoning timber, and seeking government and private encouragement to agro-forestry to meet the growing demands of the furniture industry.

India currently imports as much as 2 million cubic metres of hard and softwoods each year, mainly from Australia, Canada, Germany, New Zealand,

the United States – and lately Uruguay. FSC-certified wood from Uttar Pradesh, Gujarat and Tripura is now coming into the market, Mr Kedia added.

Noting that Finland offered sustainably-harvested wood and assured supplies, he said there was need for better awareness of timber grading and competitive pricing to make a mark in the Indian market.

Mr. Abraar Ahmed, Vice-President and Woodworking Head at Total Environment Building Systems (Bengaluru), noted that there had been a "drastic" increase in certified wood imports into India since 2015.

This was an indication of awareness about sourcing legality and sustainability, he said, adding that his company's focus was on honouring its commitments to its customers about "green" construction.

Total Environment is a big construction firm in the home and commercial sectors that manufactures its requirements on its own, be it door and windows, kitchens, flooring and facades or static and moveable furniture for its exacting customers.

Manufacturers such as Mr Ahmed seek better workability and structural stability in the wood they use. He said the advantage of certified wood lies in hassle-free transactions, elimination of uncertainties in long-term supply and dependable quality.

Mr Pauli Aaltonen, Sales Director of JPI-Wood Oy, Mr Heikki Kähkönen, Sales Manager of Metsäntuottajat Oy, and Mr Kari Hiltunen, Program Head for 'Wood from Finland', also made presentations during the seminar.

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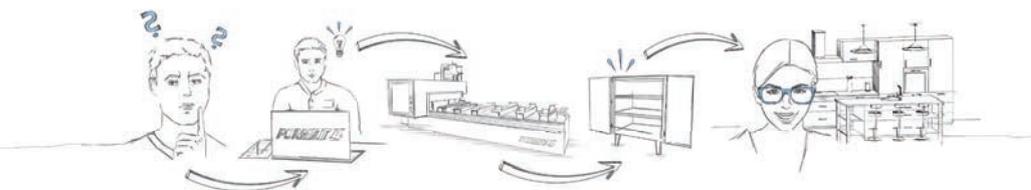
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# Interzum 2021 to go 'hybrid'

Preparations for Interzum (4-7 May, 2021) are entering the next phase right on schedule. Even though the total registrations for the international trade fair are on target, the Interzum team is continuing to rigorously refine the event's concept.

Hybrid events will stream the action at the trade fair venue around the world in online-friendly formats, enriching the industry event with additional digital offerings and extended availability online. The template for success that trade fairs have always followed is being expanded, not replaced.

The strategic focus of interzum@home is on increasing digital reach. Digital components are the logical extension of the physical showcase in the trade fair halls. This will enable trade fairs to extend their reach beyond in-

person attendees and make contact with a global audience.

Knowledge and content are the focus online, while experience and the social aspect are the priorities at the venue in Cologne (Germany), but the boundaries and links between them are naturally always fluid. "Networking is the connecting element between offline and online," says Maik Fischer, Director of Interzum.

A significant 82% of exhibitors expect to see a push towards hybrid trade fairs and digital elements, according to the Global Exhibition Barometer, published by UFI, the global association of the exhibition industry.

As digital exhibitors, interzum@home participants will have the opportunity to showcase their products with visual and textual information in their exclusive showrooms and to raise their company's profile further, for instance by embedding video content.

Exhibitors will be able to present content on trends, innovations, products and their businesses to a relevant audience on digital stages or in workshops, while special networking features in the form of chat, video-telephony and digital meetings will allow them to forge deeper relationships.

Various filters can be used to find relevant contacts among both visitors and exhibitors. Focused chats and specific appointment and contact enquiries are a means for users to hold one-on-one conversations or to invite selected groups to exchange ideas.

To complement direct communication with visitors, interzum@home offers exhibitors a unique approach for generating leads: They can select specific visitor data in their exhibitor profile. The exhibitor's sales team, for instance, can then approach all the visitors that have viewed the company's profile on interzum@home.

According to Matthias Pollmann, Vice-President (Trade Fair Management) at Koelnmesse, "On one hand, the development of the pandemic will ultimately determine how Interzum presents itself. On the other hand, the development of a coronavirus vaccine is advancing rapidly, which would certainly have a lasting positive impact on the situation."

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# ***Cliff Guangzhou: reinvigorating furniture industry***

The 47th China International Furniture Fair (Cliff), the major furniture design event of 2021 in China, will aim to promote the value of design and create a new business model in touch with current events and the new rules of the game.

The model is based on synergy between the extraordinary internal market and the further growth of exports, as well as integration of offline and online promotion in order to offer an optimised, more comprehensive exhibition portfolio that adequately represents the entire furniture industry.

Cliff Guangzhou 2021 will be held in two phases organised by product sector: the first (18-21 March) dedicated to home furniture, home decor and home textile, outdoor and leisure furniture; and the second (28-31 March) for office, commercial and hotel furniture and furniture machinery and raw materials.

Covering a total area of 7,50,000 square metres, the China Import and Export Fair Complex in Guangzhou is expected to host 4,000 companies and attract 3,00,000 trade visitors.

The success of the last two 2020 editions of Cliff – held in July in Guangzhou and in September in Shanghai – at such a complicated moment in history has rewarded the organisers' investment,

hard work and commitment to always offer the furniture industry's main players new and concrete opportunities.

During the first phase international design trends, modern and contemporary furniture, upholstery and a variety of living and night area solutions will be displayed.

Home decor and home textiles will focus on new interior design trends in furnishings, lighting, paintings, decorative elements, and artificial flowers. Outdoor and leisure will feature outdoor furniture such as garden tables, chairs, and equipment and seasonal decorations leisure time.

At the same time, Clifm/Interzum Guangzhou 2021 will host the leading brands in China and internationally, who will offer the latest technologies, machinery, materials, surfaces, and essential components for the furniture industry.

There will be at least 20 themed events, design exhibitions, seminars and conferences, including the second contemporary Chinese furniture design fair. ([www.cliff.furniture](http://www.cliff.furniture)).



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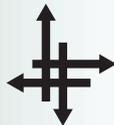
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# Algeria offers opportunities for manufacturers, investors



Algeria, the gateway to much of northern Africa, is holding 'Algeria WoodTech', its first international trade fair on wood, furniture, manufacturing technologies and equipment from 20-23 September, 2021.

About 130 national and foreign exhibitors and 15,000 trade visitors are expected at the Exhibition Centre, Pine Maritime, in its capital, Algiers. The show will be open from 10 am to 6 pm on all four days.

Although Algeria is the third-largest producer and exporter of cork, it imports nearly US\$ 530 million worth of sawn, sliced or unrolled lumber each year to meet its rising domestic demand for furniture.

The North African nation recently launched a programme of building more than 1 million housing units in 2020-2024, a project that opens up broad prospects in the field of wood industry and the manufacture of high quality

furniture.

Algeria recently adopted fresh legislation to attract foreign direct investments in various sectors. To promote local manufacturing and employment, it also imposed a 60% tax on imported furniture.

Already, several national delegations from Algeria, Turkey, China, Morocco, Tunisia, Egypt, France, Portugal and Romania have evinced keen interest in participating as exhibitors

## Why participate?

In parallel to the exhibition, conferences will be organised by national and international professional and speakers specialising in various aspects of wood technology, furniture manufacturing, supply chain building and industrial development.

Algeria is looking forward to securing raw material for the manufacture of furniture; diversification of composite wood products in terms of quality, size and thickness; new technologies, processes and machines necessary for the increase and perfection of production; professional training, know-how and manufacturing

expertise.

North Africa offers a vast, and as yet untapped, market for infrastructure and technology advancement; suppliers of raw material, accessories and consumables; as well as providers of financial and other industry-related services.

According to the organisers, participation could help you set up your brand image in the Algerian market. and a foothold in the much larger African continent. It could help earn a share in the larger African market, which is now characterised by low competition and high consumption in the furniture manufacturing sector.

In order to attract investment of pioneer companies in this sector, the Algerian government is extending assistance and granting vast benefits in land acquisition, labour and energy availability, ease of doing business and clearance of proposals.

For details visit <https://algeriawood.com/en/index.php>, or email [contact@algeriawood.com](mailto:contact@algeriawood.com) or [info@algeriawood.com](mailto:info@algeriawood.com).

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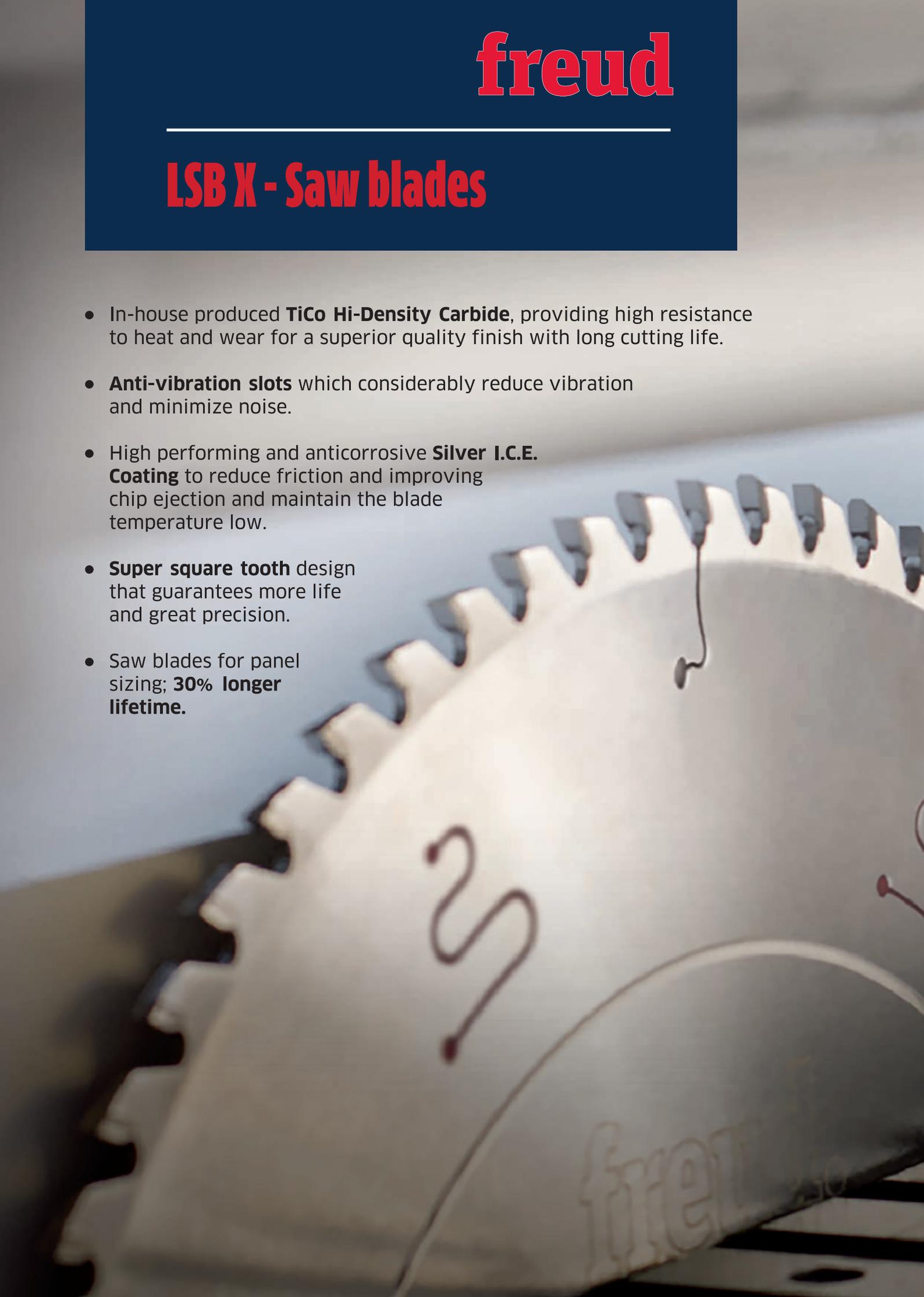


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# Inspired Craftsmanship



Photographs, including cover page: A.R. Shekar (shekaraleti@gmail.com)

*Driven by divine design, Anuradha Timber International has given a new lease of life to traditional woodcarvers and temple artisans from Tamil Nadu, for a mega-project on the outskirts of Hyderabad*

## DHANANJAY SARDESHPANDE

When the Telangana government announced a project in 2016 to rebuild the 12th-century Sri Lakshmi Narasimha temple on Yadagirigutta, Mr Thirupathi Rao, Managing Director of Anuradha Timber International in Secunderabad, felt it was his familial duty to participate in and help bring such an ambitious project to fruition.

Anuradha Timber is a 140-year-old entity in timber trading and a Star Export House led by Mr Thirupathi Rao, a third-generation sawmiller, and his sons, Mr Sharath Babu and Mr Kiran Kumar.

Apart from trading in the best hardwood

timbers from six continents, the family has earned global respect through the several projects involving decking and cladding for luxury yachts made in European shipyards, as well as wood construction and furniture for luxury resorts in tourism hot-spots across the world.

You can read their whole story in the *WoodNews* issue of November-December 2016.

Their construction of *dwara* (doors), *ratha* (chariots), *dhwaja-stambha* (flag posts) and idols in temples in Tirupati (Andhra Pradesh), Rameshwaram (Tamil Nadu) and

Talakaveri (Karnataka) has also earned them renown. Here they worked with traditional wood carvers and temple artisans.

### Temple project

Now renamed Yadadri, about 60 km from Hyderabad, the *sanctum sanctorum* is a cave about 12 feet high and 30 feet long. It has deities of the *avatar* of Vishnu in all five forms embedded in stone: Jwaalaa Narasimha, Gandabheranda Narasimha, Yogananda Narasimha, Urga Narasimha and Lakshmi Narasimha.





But the hillock, spread over 14 acres, is now peppered with several carved-stone temples. The construction of the temples is based on the ancient Agama Shastra, which is being used for the design and architecture of the new temples, intricate sculptures, mandapams (halls) and gopurams (entrance towers).

The project, budgeted at Rs 1,800 crore, is being executed by the government-appointed Yadadri Temple Development Authority, with help from more than a dozen Sthapatis (temple architects). Over 500 sculptors drawn from traditional stone-carving hubs in Telangana, Andhra Pradesh and Tamil Nadu are also on the job.

In 2018, Anuradha Timber was awarded the contract for production and installation for all carved doors, including the main door for the seven-storey-high Maharaja Gopuram, the entrance to the temple complex.

This main door measures 30 feet (height) by 15 feet (width), is 6 inches thick, weighs 7 metric tonnes, and has no linear joints. There are no nuts and bolts for support; only carefully planned and executed wooden joinery!

The other doors are smaller – but many are 25 feet (height) by 4 feet (width) and are 4 inches thick.

An interesting aspect is that all these doors were designed to fit into pre-carved stone door frames in all temple entrances, using special joinery, ancient techniques and local binding materials!

The project was completed and handed over to the Yadadri Temple Development Authority's satisfaction in September 2019.

### Tradition prevails

Sharath and Kiran had to do a lot of research on ancient temple architecture and carving of the region, to understand the historical milieu that the doors would represent and the modern socio-religious scenario in which they would be assimilated.

That is how, Sharath says, the carving designs are all their (Anuradha Timers) own. ▶

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That apart, the temple authority and its panel of experts had to be consulted, and drawings and designs approved by them before beginning sawing or milling the timber for the doors.

According to Sharath, a total of 10,000 cubic feet of Indian teak from their timber yards was selected. Each log had been air-dried for a minimum of 2 years. Timber for the main door had been air-dried for 5 years. Artificial air-drying and seasoning was avoided.

"We had to carefully inspect and work on each log – no knots, no insect holes, no sapwood, no cracks... We finally selected 1,000 cubic feet of good timber and discarded the rest. These doors are made to last for centuries," Sharath says confidently.

Natural-grown harvested teak contains no sap, has a moisture content of less than 8%, and has natural oil that makes it more durable. "The durability of teak can be measured from several temples in South-East Asia that have endured tropical weather for more than 200 years since they were built," Sharath notes.

In the Secunderabad depot, Anuradha Timber already has a Primultini automated sawmill; a Wintersteiger thin cutting frame saw; a Raimann ProfiRip gang rip saw for planed lumber; a Weining Unimat Gold moulder for planing and profiling; Buffering sanding machines; and Stellite (alloy) tools from Leitz.

The traditional methods permitted sawing and planing of the logs on modern machines; so that is where the selected timber went. In the end, each door had to take eight rounds of a special Italian wood coating, which itself took 3 months to complete.

#### Attracting artisans

"However, the sanding of all carved work pieces was done by hand; and the chisel marks were left untouched to showcase our artisans' carving skills," Sharath says. These craftsmen are traditional artisans from the Rameshwaram region in Tamil Nadu, with several generations in wood carving.

A great many of them have dispersed and taken up other jobs to keep themselves ▶

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above poverty, and the younger generation is no longer interested in learning or following the traditional skills, says Sharath. That makes these artisans a dying breed of experts.

Following up on their previous contacts Anuradha Timber got in touch with several families, and signed up 100 artisans, brought them to Secunderabad, provided them accommodation, food and

salaries to accomplish the temple project.

However, now that the temple project is accomplished, Anuradha Timber has extended their employment. Looking at the flood of inquiries for good and traditional craftsmanship, Sharath says, he has extended his portfolio to secular wooden sculpture in contemporary styles.

Not all 100 artisans stay on in Secunderabad; they return home and are on call whenever their skills are required. There are two family heads who supervise tasks and work rotation.

I sincerely hope this model of work and experimentation works to the benefit of not only these artisans, but also inspires their progeny – and other woodworkers – to learn, survive, flourish and keep some of India's unique traditions alive.

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# Building automation is preventive healthcare



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Today, there is growing awareness that the quality of air we breathe has a significant impact on our health and productivity. Commercial buildings are becoming clean in order to maintain the health of the people who live, work and play in them.

Let's have a closer look at why healthy air is so important and what can be done about it. It is a familiar phenomenon: The room is packed with people, and the longer the meeting, the less dynamic its participants. What is happening is that the CO<sub>2</sub> exhaled by everyone reaches a concentration level that compromises people's

productivity.

There is science behind this. In a large project the productivity of students was tested for tasks that required different levels of involvement, under various exposures to CO<sub>2</sub>. The result of the research, published in 2012, found that even for simple tasks – such as listening and absorbing information – the performance of the students increased by a significant factor of 1.5, when the air quality was improved.

For tasks requiring higher levels of involvements, such as taking initiative, the measured performance increased by a sheer factor of 10. Keep in mind that these high-value tasks are what make you stand out and advance your career, and are generally speaking what make a

work-force more productive.

Imagine a system that brings in exactly the amount of fresh air that is needed to make sure you stay productive! This is what we call demand-controlled ventilation.

Natural light from dusk to dawn decreases depression and improves mood, energy, alertness and productivity. Therefore, lighting systems that mimic the change of light temperature (colour) during the day are not just "nice to have" but a driver for productivity and occupants' health.

## **Total automation**

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next level by integrating advanced parameters such as CO<sub>2</sub> and light colour, in an overall concept of HVAC (heat, ventilation and air-conditioning) and lighting control.

TRA relies on highly accurate self-calibrating sensors to keep people productive and healthy. Companies who know how to drive productivity get the most out of their people's talent, produce fewer failures and bring better products and services to the market, which in turn drives revenue and profits.

Did you ever have the feeling that the air inside a building makes you ill? Heating systems often dry the air. It has been shown that dry air enhances the lifetime of viruses, resulting in a higher risk of catching an influenza virus.

In the US, influenza creates approximately \$10.4 billion in direct costs for hospitalisations and outpatient visits each year – this does not include productivity losses due to sick leave!

Good temperature and humidity control greatly reduces the risk of falling ill while improving comfort significantly. Advanced hygro-thermostats, which are also capable of measuring and controlling the humidity in rooms, could have the effect of an influenza vaccination that really works!

Products such as Siemens RDG200 range room thermostats can be used for measurement, monitoring and control thanks to built-in temperature and humidity sensors, and also can be integrated with building management systems for further applications.

**'Sick' buildings**

Do you know buildings that give people a head-ache and/or irritation of eyes and throat? Potentially they are experiencing sick building syndrome (SBS), caused by gassing from building materials such as carpets, paints or furniture. These gases are summarised as volatile organic compounds (VOCs).

Recent laws on energy saving require well insulated and draught-proofed buildings to minimise the need for heating and cooling. The resulting air

tightness of buildings, however, also keeps the VOC gases inside, creating SBS among occupants.

Humid air can also indirectly contribute to SBS by promoting the growth of fungi and mould. Besides devaluing the real estate, exposure to mould spores represents a hazardous health risk.

Symptoms range from allergic reactions to poisoning by myco-toxins. Today already, every second school child is experiencing sensitisation to one or more allergens.

The number one measure to prevent SBS is proper ventilation. In cases where HVAC is not fully automated, it is all about knowing when to open the window.

Siemens offers web-based solutions for monitoring and quantifying remotely not only the SBS indicators of VOC and humidity, but also temperature and CO<sub>2</sub> levels, by using one single flush-mounted multi-sensor device called AQR.

**Air pollution**

According to the United States Environmental Protection Agency (EPA), indoor environments are two to five times

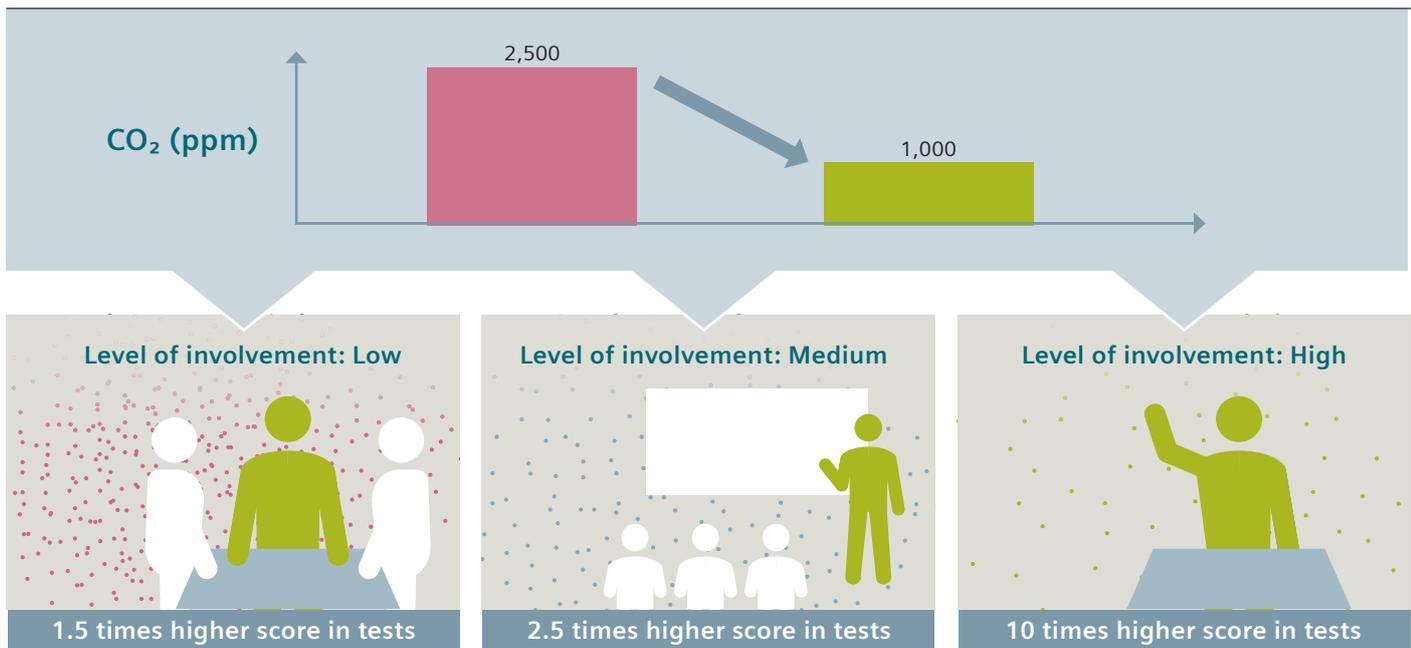


Figure 1: The schematic illustration shows the significant increase in people's performance that can be achieved by reducing indoor CO<sub>2</sub> concentration from 2,500 to 1,000 ppm. The effect is shown as a factor of 1.5 for low levels of involvement (left) and increases up to a factor of 10 for high levels of involvement (right).

more toxic than outdoor environments. This is a problem because people on average spend 90% of their time in buildings.

Even low concentrations of fine dust increase the risk of developing cancer. Developing countries experience high levels of fine dust concentration.

The main sources of this dust are fossil power plants and cars. Fine dust concentrations are also high in large cities of the developed world, and awareness is growing.

The trend towards deploying air purification in commercial buildings is driven by consumer markets. In Japan, 60% of all urban households are equipped with mostly stand-alone air purifiers.

This generates the expectation that also in commercial facilities, such as office buildings and hotels, the air is clean.

However, today's commercial ventilation systems typically do not clean the air from pollutants – in fact they are often the main inlet for hazardous air!

Most purifiers still operate independently from the HVAC system and are controlled based on a local fine dust sensor measurement in the room. Integrating purifiers into the HVAC system offers significant advantages.

A purifier cleans the air by blowing it through a filter with a fan. A ventilation system creates an air flow anyway. Integrating the filter into this airflow allows significant overall efficiency gains.

Since fine dust also enters through many small holes in a building and is not a gas that can be removed in one place by suction, there is also a need for local air purification and cleaning.

Controlling the relative humidity in buildings reduces the risk of influenza

virus transmission significantly, which is a major productivity and comfort gain. Companies such as Siemens Building Technology provide products and expertise to create perfect places for people's health and productivity. ([www.siemens.com/room-automation](http://www.siemens.com/room-automation)).



– The writer is Head of Product Line Sensors, Siemens Building Technology.

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(Courtesy: Guido Radig; Wikipedia.com)

# Glulam: rated better than steel, concrete

Glued-laminated timber (glulam) is a highly innovative construction material which (weight-for-weight) is stronger than steel and has greater strength and stiffness than comparably sized dimensional lumber.

Increased design values, improved product performance, and cost competitiveness make glulam the superior choice for projects from simple beams and headers in residential construction to soaring arches for domed roofs spanning more than 500 feet.

Glulam is a stress-rated engineered wood beam composed of wood laminates that are bonded together with durable, moisture-resistant adhesives. The grain of the laminations runs parallel with the length of the member.

Glulam is versatile, ranging from simple, straight beams to complex, curved members. It is available in both custom and stock sizes and

one of four appearance classifications: premium, architectural, industrial, or framing.

Stock beams are manufactured in commonly used dimensions and cut to length when the beam is ordered from a distributor or dealer. For non-residential applications, where long spans, unusually heavy loads, or other circumstances control design, custom members are typically specified.

Common custom shapes include straight and curved beams, pitched and curved beams, radial arches and Tudor arches.

Contrary to general perception, correctly engineered wood can be used in a variety of environmental conditions, with little maintenance, and can last for centuries. In fact glulam is known to offer greater fire resistance as compared to steel beams under the same fire conditions!

This machine stress-rated wood laminate offers greater compressive resistance strength than even concrete.

Glulam has a reputation for being used in striking, exposed applications such as

*The roof of the Centre Georges Pompidou Museum in Metz (France) comprises of 16 km of glulam. It represents a 90-metre-wide hexagon with a surface area of 8,000 square metres. The glulam motif forms hexagonal wooden units resembling the cane-work pattern of a Chinese hat.*

vaulted ceilings and other designs with soaring open spaces. In homes, churches, public buildings, and other light commercial structures, glulam is often specified for its beauty as well as its strength.

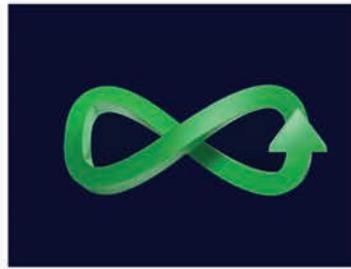
It is also a workhorse in common hidden applications, including simple purlins, ridge beams, garage door headers, floor beams, and large cantilevered beams. In commercial construction, glulam is used in applications ranging from large, flat roof systems to complex arches.

Glulam also meets demanding environments of bridges, utility poles, cross arms, and marinas.

A case study conducted in 2002, comparing energy use, green-house gas emissions and costs for roof beams found that it takes three times more energy and 12 times more fossil fuels to manufacture steel beams than it does to manufacture glulam beams.

It compared two options for a roof structure of a new airport in Oslo, Norway – steel beams and glulam spruce wood beams. The life cycle green-house gas emission is lower for glulam beams.

# Caple raises the bar of service standard in India



# Understanding lamination adhesives



For beginners, here are descriptions of several lamination applications, along with the most common adhesives used in the various lamination applications.

Adhesives play a minimal part in the overall cost of the laminated end product; but poor adhesive selection and lack of supplier support and knowledge will affect the bottom line faster than any difference in price.

Effective surface cleaning is an essential step in the production of high-quality products. The substrates, machine and the adhesive must be kept free of dust and debris as customers are not going to pay for laminated parts with contamination under the laminate material.

These not only look bad they could also create adhesion issues. This can be addressed utilising a panel brush cleaner, web vacuum, low static adhesive rollers and/or compressed air.

## Flat panels

Polyvinyl Acetate (PVA) is a water-based adhesive that is primarily used for paper lamination. Vinyl Acetate Ethylene (EVA) is also a water-based adhesive most used for lamination of vinyl. These can also be used for paper lamination if looking to consolidate products.

Epoxy (a two-part system) offers a destruct bond when miter folding

is needed. Polyurethane reactive hot-melt (PURHM) is a 100% solids technology that can be successfully used on a very wide range of substrates.

All these adhesives can be applied by roller to the board/base substrate or as a web coat (adhesive coating on the laminate material.) A few applications apply adhesive to both substrates.

Water-based adhesives may allow swelling of the wood fibres, grain raise, when applied directly to the board, which can be aesthetically objectionable. This can be mitigated by adjustment of heat, rate of application or use of a web coater.

As always, a higher quality board can reduce the chance of grain raise.

Epoxy will not cause grain raise but requires very precise handling of the recently bonded materials. Little to no movement of the product while the adhesive cures is required.

PURHM adhesives require heated delivery systems. As these are 100% solids, grain raise is eliminated. The variety of substrates that can be bonded with PURHM are wide, plus the low application quantities required to create a water-tight, high-temperature-resistant bond provide an extremely high quality economical option.

A point to watch for in panel lamination is wrinkles created in the overlay during lamination of which the lay-flat of the overlay would be the likely culprit. This can be solved by brake tension, adjustment of the spreader roller, web heat to relax the film or a combination of these.



(Courtesy: [www.daubertchemical.com](http://www.daubertchemical.com)).

## 3D lamination

This process ensures heat to all sides and contours within the part to ensure proper activation of the adhesive. Running a membrane press is an art. Proper machine and adhesive selection, along with working with a supplier with a longstanding knowledge of the process, are keys to success.

Polyurethane Dispersion (PUD) is a water-based adhesive system that is catalysed for best performance and spray applied. PUD is sprayed on the base/core substrate, left to dry, and a short time later reactivated with heat.

PUDs are used in either vacuum or membrane pressing. Vacuum pressing is done by heating the overlay and then creating bottom vacuum pressure to form the laminate material over the part.

The heat and vacuum pressure create intimate contact between the part and laminate material that then activates the adhesive. Once the process is complete the part is trimmed and ready to process further.

During the process, the membrane is heated by an upper platen, the overlay will be drawn to the membrane to be softened by heating. Then vacuum and upper positive pressure are applied,

causing the membrane and overlay to form around the parts.

Poor bond at the lowest edges of a part is a common issue. Cures might include adjusting the membrane temperature, moderating the press cycle, slightly higher application quantity of PUD adhesive or a combination.

Parts in a press will need bottom support from pedestals or pins for laminate material to be applied on all appropriate areas. Common pedestals should be ½-inch smaller all around the part being pressed for proper product support so as to not break the corners.

PUD adhesive must be applied to see a minimum 50% sheen on the edges of parts, once dry, to achieve proper bonding.

### Edge banding

Most edge banding processes are very similar regardless of the adhesive. A hot adhesive is applied to the edge of your core substrate. An edge band is applied almost immediately to ensure contact with the still molten adhesive.

Thermoplastic hot-melt (EVA) can be reheated/softened endlessly. But in thermoset hot-melt (PURHM) once cured, the adhesive will not soften.

Once married together, the adhesive must cool and set within seconds to ensure that the banding holds to the part as it is trimmed and cleaned.

The adhesive will need to be matched to the products being bonded. Once an adhesive is chosen, the application amount is set, the rest is mechanical. The pressure between applicator roller/slot nozzle and part, adjustment of adhesive, speed rate are all items to watch to ensure quality parts.

### Profile wrapping

Wood, plastics and metals are among the materials that are typically profile wrapped. The key is talking with suppliers of the various components that make up the final product to ensure choosing the right adhesive.

Also, depending on the core substrate there could be the need for a primer to be applied on the parts.

EVA hot-melt is used for speed of initial set. PURHM is used to achieve superior heat and water resistance with a non-softening glue line.

There should always be an awareness of the quantity of adhesive being applied. There are various ways to calculate application quantity.

Setting up compression wheels based on the part being wrapped is a learned art, and on-the-fly adjustments are not out of the ordinary. Proper lamination environment, including temperature adjustment and moderate humidity, will play huge roles in the ultimate quality of the adhesive bond.

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# Sunken 'treasures' from a riverbed

A 2017 Martin custom shop 14-fret acoustic guitar (L) and others made from 'Sinker mahogany'. Pic courtesy: guitarchimp.



Mahogany stuck in the Belize River can be as old as 400 years.

'Sinker Mahogany' is a very interesting variation of mahogany timber (*Swietenia macrophylla*) that is used extensively by the guitar manufacturing industry in the West.

Adventurous entrepreneurs saw Europe as an ideal market for the importation of the old-growth hardwoods of Central America. They braved the harsh environments of jungles, snakes, crocodiles and insects to harvest the timber and export it to Europe.

More than 200 years ago, when the British were cutting mahogany forests in Central America, they would float the logs down rivers for transport. There were no roads in the jungles; so the rivers were the highways.

Logging crews would work year round felling the trees and dragging the logs into the rivers. When the rains came the logs would be lashed into large rafts, floated downriver, loaded onto ships and delivered to European sawmills.

The first species to be exploited was Logwood, prized by dye makers for its brilliant red colour. The second most highly desired species was Mahogany.

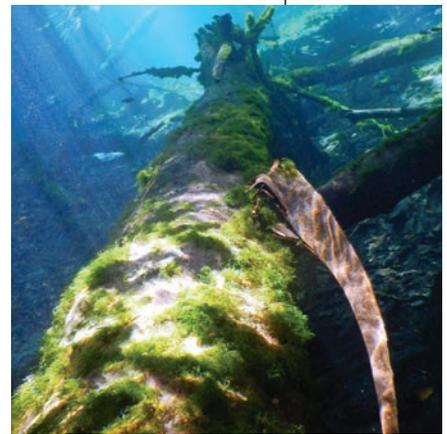
But quite often the densest specimens would sink and get stuck in the riverbed. When timber

companies retrieve these logs from the depths of the Belize River system it yields some of the most beautiful mahogany ever seen.

These trees were already about 200 years old when they were cut, and then slept on the river bottom for another 200 years. When dredged out, companies get 400-year-old, "riverbed-aged" mahogany!

Its colours range from a golden straw to specks of the darkest sediment and everything in between. The lacquer brings out all of the visual nuance of the wood.

At first 'Sinker Mahogany' was used as a substitute for new mahogany. It was soon discovered to be an exceptional tone wood. It seems that all those years "curing" at the bottom of crocodile-infested rivers changes the structure of the wood to produce amazing sounds in



acoustic guitars.

The runout reflects amazing figures in both directions when flipped back and forth in the light. 'Sinker Mahogany' is truly a special example of one of the most revered guitar materials.

Furniture makers also prize 'Sinker Mahogany' for its rich colours. Some characteristics of 'Sinker Mahogany' are:

Country of Origin	Belize
Botanical Name	Swietenia macrophylla
Specific Gravity	0.64
Colour Range	Light to dark reddish-brown
Average Width	4" to 15" , but can be found up to 30 wide
Average Length	4' to 16'
Wood Uses	Fine Furniture, Cabinetry, Architectural Millwork, Guitar Making, Wood Turning and Carving
Lumber Grades	Common 1 & 2, FAS, Quarter-sawn, Quarter-sawn (Figured), Flitch, Figured (Heavy), Figured (Medium), Veneer, Crotch
Other Names	Belizean Mahogany, Genuine Mahogany, Sinker Mahogany, Central American Mahogany, Zopilote Gateado, Araputanga, Mogno

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# Covid-proof outdoor benches from US hardwoods

(All photos: Natelee Cockis).



AHEC Regional Director Roderick Wiles (seated) with Emirati designers (L-R) Aljoud Lootah, Khalid Shafar and Hamad Khoory.

'Please Sit Here' challenged three prominent Emirati designers to develop versatile public seating solutions in thermally-modified American hardwoods, which were featured at the Dubai Design Week, 2020.

According to the American Hardwood Export Council (AHEC), "social distancing" – a captivating oxymoron coined to reference the space we need to leave between each other – has begun to dominate the way we live and the decisions we make.

While incredibly important in the fight against the spread of Covid-19, it also curbs our freedom of choice and forces us to behave in an unnatural way. People are social by nature and regulations that inhibit normal social behaviour do not come naturally.

In response to this, three prominent Emirati designers – Aljoud Lootah, Khalid Shafar, Hamad Khoory and their teams –

were invited by AHEC to each design and develop a hardwood bench for outdoor use in a public space.

## The concept

The bench needed to be designed in such a way that people who sit on it are forced to separate by the current social distancing minimum of 2 metres. This would negate the need for warning signs and allow for people to sit in a relaxed way without having to think about whether they are too close to the next person.

However, the design of the bench would also allow for conversion to accommodate more people, closer together, as and when the time comes for social distancing regulations to be relaxed. This ensures that the benches retain a legacy as functional public seating in the future.

'Please Sit Here' draws inspiration from the AHEC's many high-profile and ambitious collaborations to date, in the UAE, Europe, Australia and South Africa.

These projects have included multiple design teams, imaginative briefs,

innovative designs and the very best of wood craftsmanship, to celebrate the beauty, performance and sustainability of American hardwoods.

## Two species

The three designers were offered a choice of two American hardwood species: hard maple and red oak. Together, these species account for nearly 25% of the eastern hardwood forests of the USA, one of the largest and most sustainable hardwood resources in the world.

Because the benches are for outdoor use, the maple and red oak offered was thermally modified, involving high heat in a vacuum, carried out after normal kiln drying.

Thermally-modified timber (TMT) is ideal for exterior application, as it has both increased durability and dimensional stability.

Specified widely across India, thermally-modified American hardwoods are suitable for applications such as cladding, decking and shading structures, as well as in outdoor furniture.

## Secure seating

'Jalees', by Aljoud Lootah, in thermally-modified American red oak, has been designed to recognise the primitive characteristics of outdoor benches found around the UAE and in every Emirati home. 'Jalees' in Arabic translates to being seated securely in place and also means companion.

According to Lootah, this seating design pays tribute to its minimal structure and attributes. The essential vertical and horizontal red oak members have inspired the minimalist design of this outdoor bench creating an appealing modern interpretation.

Contrasting the horizontal octagonal thermally-modified American red oak members are circular seats with metal inserts that slide along the length of the

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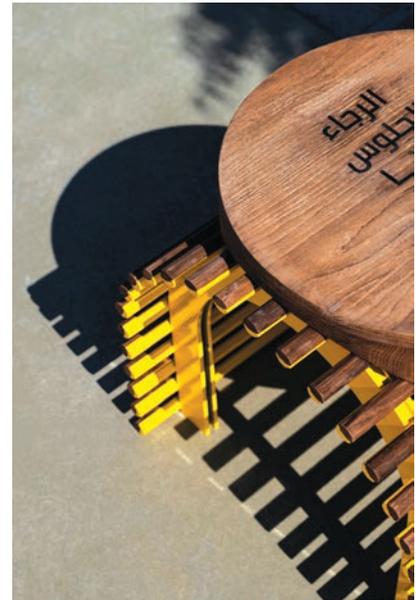
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*'Jalees' (L) recognises the primitive characteristics of outdoor benches found in every Emirati home. The circular seats with metal inserts (R) slide along the length of the bench.*

bench to create social distancing when needed between strangers, and to bring family together at the same time.

Additional seats could be added or removed from the bench according to the requirements of the user.

Contrasting the natural hardwood is a playful pop of colour – yellow – that is minimally added on the interior of the bench, both for visual aesthetic and structural purposes, along with three metal arches to stop the seats from moving further along the bench.

Smaller sliding and removable tables are also placed between the two seats to provide the users with a space to place their cups of

coffee, phones or small personal belongings.

### Roaring Eighties

'Pop Up', by Khalid Shafar, in thermally-modified American hard maple with thermally-modified American red oak detailing, has been inspired by the '80s.

Neon linear lights, ad-boards, the energy in the era's synth wave music, catchy pop colours in the fashion industry and the retro cyber-techno theme all served to inspire the design of the smart outdoor bench.

"From the launch of the first space shuttle and the release of the first IBM computers to the fall of the Berlin Wall and the end of the Cold War, the '80s offered hope to humanity to once again achieve the impossible and for people to chase their wildest dreams," said Khalid Shafar.

### Plug-n-play

'Wahda Bench', by Hamad Khoory, in thermally-modified American hard maple, has been inspired by the traditional majlis with its inherent values of humility, equality and community.

According to Khoory, "Employing thermally-modified hard maple in cuboid modular units of seat, tree, planter and sanitisation, the modules engage with a linear comb-like thermally-modified maple base."

The design also affords plug-and-play approach of slipping into and out of the comb, with many possible configurations.

The separated seat modules slip out of the main bench, and then slip back when the social distancing measures of the Covid-19 pandemic are no longer required.

For more information, visit [www.americanhardwood.org](http://www.americanhardwood.org).



*'Wahda Bench' (L) employs thermally-modified hard maple in cuboid modular units (R) of seat, tree and planter.*

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# Peace, inspiration and an award for Swedish architects



The winner of the Swedish Wood Award 2020 is Ateljé i Södersvik, a studio building that architects, Mr Anders Johansson and Ms Anja Thedenius, designed for themselves in Roslagen, outside Norrtälje.

The winner was celebrated by over 1,000 people when the gala was streamed live from Stockholm in early December.

The architects wanted to push the boundaries, break with convention and incorporate the workspace into the living space. Ecological

sustainability was important to them, and wood was just the obvious choice in most places.

The architects created a building that is both a home and a workspace in one. Large windows welcome in nature and light, and it is easy to find both peace and inspiration.

Ateljé was completed in 2018 and offers a studio, a loft, a space beneath the loft and a bathroom. The material has been used everywhere, on every scale, from the structural frame to furniture.

"I like to describe the space as a theatre that can be reconfigured to form different kinds of settings. It was also important to get the right relationship between inside and out. Opening up the oversized doors invites nature into the building," said Anja.

The jury described the studio as a carefully considered and well-proportioned way of experimenting with space and with wood. "Ateljé i Södersvik provides a genuine encounter with wood, with its simplicity providing a beautiful



Photo courtesy: Ryno Quantz

and multifaceted environment in which to live and work," it said.

The winners went home with prize money worth US\$ 12,000. A total of 130 competition entries were submitted for the award this year.

"It is vital that we recognise how our lifestyle affects our tomorrow, and how we therefore need to make sustainable choices day in and day out," said Mr Alexander Nyberg, who is responsible for the Swedish Wood Award at the industry organisation, Swedish Wood.

The award is presented every 4 years to a new work in Sweden that demonstrates outstanding architectural qualities, be it a new building, bridge or other structure that makes full and proper use of wood's potential.



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# This chair story rocks!



Hal Taylor has been an avid reader all his life, and passed on the habit to his children early on. Over time, the story-telling sessions presented a problem: the furniture maker and rocking chair specialist from Stanley, Virginia (US), did not have a lap large enough to accommodate all his three children.

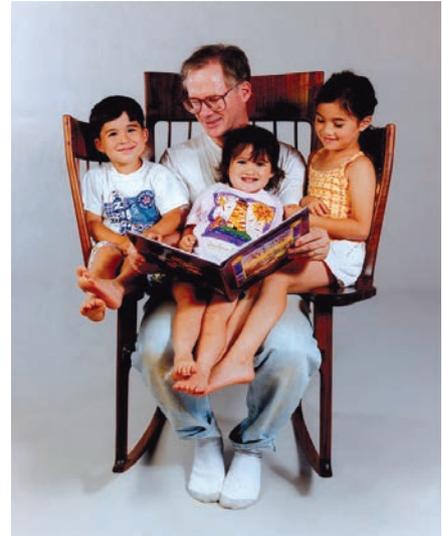
Drawing on his quarter-century experience, Hal soon devised his

*The first 'Story Time Rocker' bought by a royal family in Abu Dhabi.*

now-legendary 'Story Time Rocking Chair' where all his three children could have a comfortable seat when reading.

Every piece of wood in the chair is carefully matched; each seat is bilaterally

*The six joints in this chair are quite complex, remain strong and are matched perfectly.*



*Hal Taylor and his children during story-telling time.*

symmetrical; and each joint is perfect because it is hand-planed.

The 19 back braces in each rocking chair are made out of more than 200 precisely cut and shaped pieces of wood. The back braces are cut sequentially from the same carefully selected board.

Every board in the chair is matched to the one next to it. In order to fabricate one of these chairs Hal has to cut 262 separate pieces of wood. But when ready, the headrest grain matches, the back braces match and so on.

In interactions with the press, Hal signs off with his typical wisdom: "Of all of the things you have spent money on in the last 20 years, how many of them will ever be used by your great grand-children? This chair will!"

Hal has written a book about two-decade expertise in making rocking chairs, which he sells along with templates and a DVD. ([www.haltaylor.com](http://www.haltaylor.com)).



## 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](mailto:dhananjay@pdatradedmedia.com). The information published in *Notes and News* and *Products & Processes* 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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Front Rim	17x3.5"
Brake disk	Dual 320 mm

# Electronic speedster has wooden body

The French automobile manufacturer, Newron Motors, is introducing a high-end electric motorcycle that has a unique feature: a body fashioned almost entirely from wood!

Available in a choice of ebony, oak, red cedar and white ash, the "steam punk" motorcycle is fully customisable, allowing customers to opt for foot-rests, a passenger seat, and other specifications.

Newron is partnering with French software firm, Dassault Systems, and has planned to build 12 bikes in 2020.

Its lithium-ion battery can be fully charged in as little as 40 minutes. The bike is capable of going to 96 km per hour in just 3 seconds, and has a top speed of 210 km per hour.

The bike is highly intelligent, allowing riders to input their destination and the motorcycle will use power most efficiently to get them there. If the battery gets low mid-route, the bike's intelligence will assist in throttling back, helping complete the intended route.

An accompanying app allows drivers to check battery level and other settings.

The bike is designed with speed and sustainability in mind. Wheels feature ultra-light carbon rims for increased agility.

A fully charged battery can last for around 200 km. It will be available, at around US\$ 67,000, beginning in 2021.





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# *Six 'P's of designing kitchen space*



Representational image: Courtesy Cookscape Interiors, Chennai.

*In what is perhaps the first of its kind in India, award-winning kitchen designer **GOPAL DWIVEDI** has recently published 'Modular Kitchen Planning & Designing Guide' in English at his own expense.*

*Presently Assistant Vice-President with Livspace, Gopal has more than 15 years' experience in the Indian kitchen industry with Hettich, H&R Johnson, Hindware and Sleek International.*

*WoodNews presents an exclusive excerpt from the 240-page handbook (Rs. 999, paperback), which is generously illustrated with technical drawings (electrical, plumbing, ventilation and lighting), and extensive specification sheets and planning checklists.*

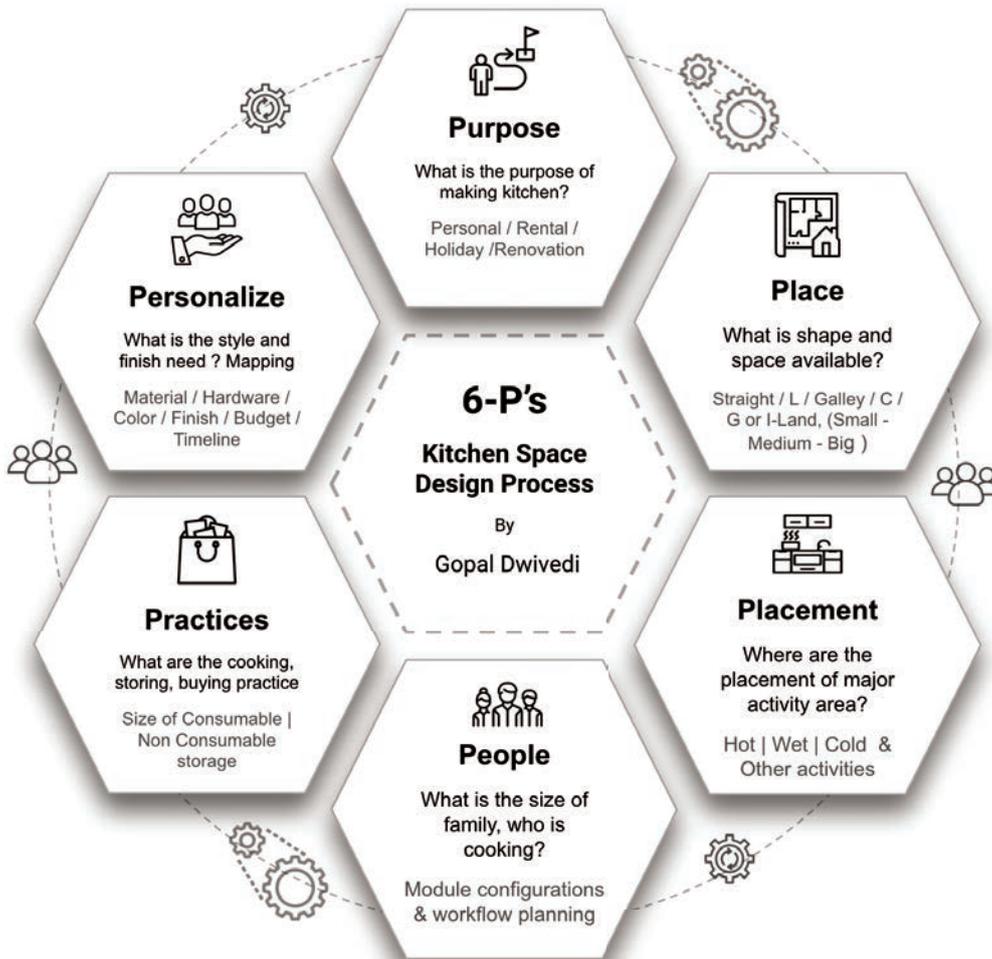


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Kitchen design is highly professional work, and it has lots of dimensions to work on. We are here presenting the steps which help in designing an adequate kitchen space and perfect solution for the user. Each of these steps is sequential and needs user input in a structured format.

Multiple selection possibilities in each step to choose from each step make each kitchen different from others. An experienced designer gives importance to each of these steps and derives the final solution.

**Understanding purpose**

Everyone does not order a modular kitchen or home interior

for the same purpose. The various purposes can: personal use, rental property, holiday home, office pantry, open kitchen, etc. When the purpose is not the same, the proposal also cannot remain the same.

If a designer does not understand the real purpose (or need) for the kitchen, a seemingly perfect solution may not fit in well. For example, if someone is looking for a modular kitchen in a recently bought apartment, there can be two purposes: to use it for his/her own need or to rent out the flat.

The moment the purpose changes, the overall kitchen design will also have to change. If the apartment is being given out on rent, it will not remain a personalised product designed as per the

user's persona. It will be a commonly used design that can do for any type of user.

This one factor even changes everything, from the selection of raw material to size of kitchen cabinets to the budget. This is because a kitchen designed for personal use is highly focused on the user's persona, his/her storage need, choice of finish and colour and work comfort.

The whole design consulting will focus on understanding the need, habits and personality of the user to make a kitchen suitable. Even other family members, social involvement, current trends, etc. are considered during the whole concept creation. Most of the time people use their best budget for a personal kitchen.

A kitchen made for a home to give on rent ▶

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has completely different characteristics. All of a sudden the designer is expected to make a kitchen for a user which is unknown and can change over time. The demand for design is 'made for mass'.

Now the design will aim to have minimum requirements for a functional kitchen with a well-balanced design theme. The customer expects a kitchen with a smaller budget, but with sturdy and long-lasting material and hardware.

A kitchen that will be used rarely – or less frequently, such as in a holiday home – is mostly a very minimal and functional kitchen. The user focuses less on aesthetics and storage, but more on the quality of material and maintenance-free hardware, within an average budget range.

The holiday home is itself not frequently used, so the overall selection must be done considering no need for daily care, and the kitchen must be functional at short notice whenever required.

### Understanding space

Several factors need to be known and validated before starting any placement. Site visit and status, and accurate measurement of all dimensions (with the help of a site checklist) are the most useful inputs in this step.

The overall size of the kitchen is the base of any design. In the absence of required width or



length, a specific shape cannot be achieved.

Shape is the one most important input for planning and designing. The use of a corner, the possibility of an island, or the addition of a breakfast table are some decisions that depend on the shape of the kitchen.

Design must also take into consideration if a kitchen is a renovation project or a brand new one. During renovation the existing counter can limit the possibilities to achieve a specific design, or may increase the need for customisation in the whole project.

The position of water inlets and outlets, electrical switches and gas pipe connection need detailed attention while planning and designing. Relocating these inlets, outlets and points can be challenging and also increase the scope, timeline and cost of the kitchen.

Any kind of projection, undulation or level difference in the wall and floor can cause alignment problems. These

elements can also affect the overall aesthetics. The colour and texture of the wall also play a major role in the overall design of the kitchen.

Both the horizontal surfaces (flooring and ceiling) need to be considered in overall design planning. Wooden flooring may not be suitable for the modern kitchen; and a POP false ceiling can be challenging while planning for the loft in the kitchen.

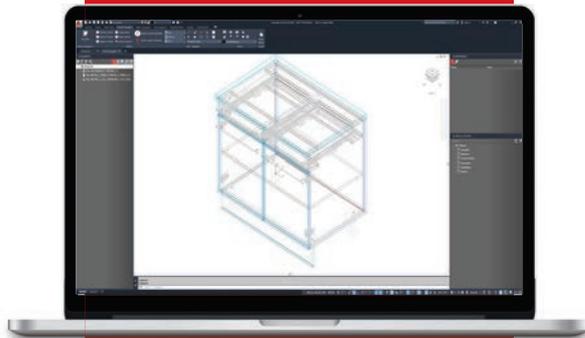
The location, size of the door and its opening direction, the position and height of the window from the floor, are also very important inputs for designing workflow and overall ergonomics of the kitchen. The size of the aisle is an important input to determine the cabinet door opening and appliances landing.

### Zone placement

Once the size and shape inputs are clear to the designer, the next important step in kitchen design is to do the 'Placement' of the core ingredients of the kitchen. As we know, the whole kitchen design is placed around three major working zones: ▶

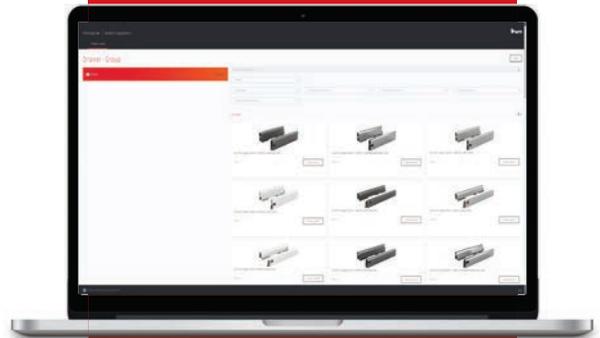
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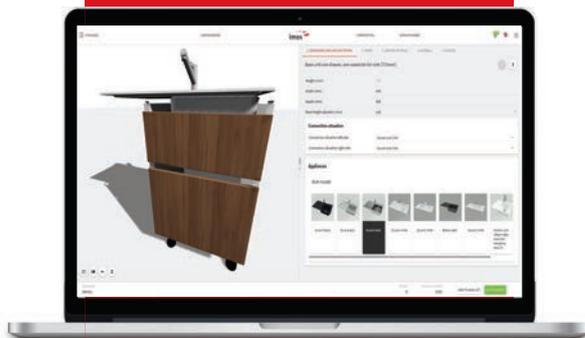
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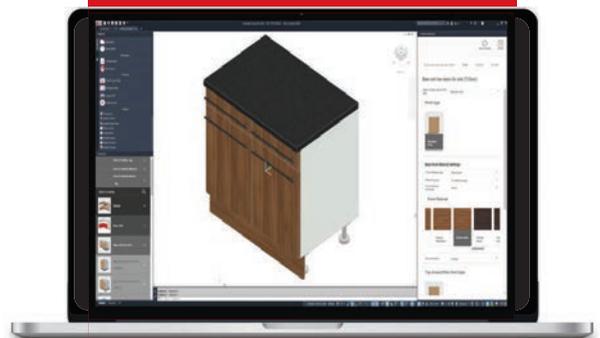
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To buy the book, go to <https://notionpress.com/read/modular-kitchen-planning-designing-guide>.  
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Wet (faucet and sink), Hot (stove and oven) and Cold (refrigerator).

After that, the remaining space must be planned for storage – and dining, if possible – in the same room.

The sink placement is mostly pre-allocated by the builder in the case of apartments. This position is dictated by the position of existing inlets and outlets which no one wants to move as a first preference because it involves a lot of civil work and increases project time and cost.

But if someone wants to change the sink location or construct from scratch, one should consider sufficient space between other activity zones in the kitchen and try to incorporate a scientific work flow and food flow.

Once the wet zone is fixed, applying the rule of kitchen ergonomics one can easily get some positions to decide the correct location of cooking. The preparation space and recommended distance from the sink play a major role in this decision.

Ventilation and source of light must also be considered before making the decision about the most active and creative zone in the kitchen.

So far as personalisation goes, the kitchen designer (and manufacturer) must know the working hand preference (left or right hand) of the user and then make sure of keeping sufficient space accordingly.

Generally the cold zone is positioned near the entry to the kitchen, unless there is a space crunch. The fridge is rightly positioned near the entry as this zone is also used by other people in the family not participating in cooking. But make sure to know the refrigerator brand and door opening angle, and leave adequate space to open the fridge door.

After decision on these three zones have been finalised, the remaining space in the kitchen can be planned for other activities such as storage units, sitting space and placement of the oven, microwave and/or dishwasher.

A small activity or work-from-home table in the kitchen, or additional utility unit are some decision can be taken easily once the core zones are decided.

### More inside

The descriptions of kitchen shapes and designs are based on advanced ergonomic principles, which include positioning of door, windows and appliances; space utilisation and seating with safety and accessibility in mind; and even special designs for the elderly and wheelchair users... A must read for all architects and interior designers.

For kitchen manufacturers, the author

dwells at length on panel manufacturing and cutting, lamination and lacquering, drilling and routing, edge banding and other factory operations.

There are chapters on the design, construction and finishing of carcass, cabinets and other storage units; the use of architectural and functional hardware; and components and accessories for customisation.

Apart from addressing the usual pain points – oil, moisture, stains, dust and infestation – there are tips on kitchen care, cleaning, maintenance and safety.

Another important input to the industry comes in the form of customer consultation and profiling. This involves measuring the user's needs, understanding his/her cooking and social habits, and building in flexibility for modular re-organisation or expansion to meet the needs of the future.

This compendium of knowledge comes with forewords by Snehal Vasani (Kitchen Grace), Saurabh Jain (Livspace) and architects Ahana Miller and Pratap Jadhav.

It comes recommended by industry experts such as Nadeem Patni (Blum-India), Anil Goel (Hettich-India), Rajesh Ahuja (Saviesa Home), Kirit Joshi (Spacewood), Santosh Saldanha (Indoline), Nitin Nalavade (Nitshaw), Juergen Wolf (Hafele India), Srikant Iyer (Homelane) and Rahul Mehta (FFSC).

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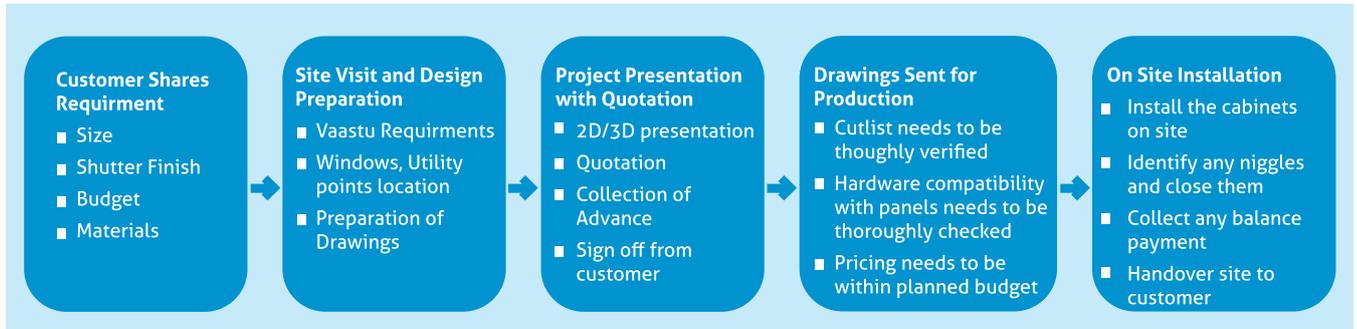
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# Quick-start guide to furniture selling



## NAMAN GUPTA

*A typical order cycle for a modular kitchen order.*

As the furniture industry tends to become more organised, with more entrepreneurs setting up mechanised furniture and door manufacturing units, we are also seeing a lot of hardware and plywood dealers morphing into interior contractors to sell kitchens and wardrobes.

However, when we delve deep into the market, we realise that even after having the right setup many of these factories or contractors still do not have the right knowhow.

Coming from a background of distribution and wholesale of hardware and furniture components, we barely realise the importance of manufacturer's drawings, installation templates and the most basic fundamentals of furniture manufacturing.

However, after a journey of 5 years and accumulating experience (after making a lot of mistakes!) here is a quick start guide on how to start selling modular furniture.

### Planning & design

When one begins to retail kitchens and wardrobes, especially in the premium end of the market, the approach of the business needs to be that of a service provider rather

than transactional – think of a fine dine restaurant, saloon or a luxury car dealership.

The customer isn't just buying the furniture, s/he expects you to give him a tailor-made design using the materials s/he wants. Further, s/he wants the installation to be top notch, without any service or warranty issues.

For companies which have traditionally been engaged in transactional businesses, this is the most difficult part.

The designer is the most important cog in the modular furniture business. The business does not allow him even a minimal margin of error. If s/he makes a mistake, the factory processes panels accordingly and the technicians at the site are left stranded.

Thus, it is important to give a thorough training to your entire team about the most basic fundamentals of modular furniture, including cabinet structure, System 32, understanding and interpreting drawings.

Institutes such as the HPWWI (Hettich Poddar Wood Working Institute, in Faridabad) are a magnificent place to start your learning journey.

### Team-process mix

Based on your target market choose the vendors who can supply you the components efficiently, consistently,

safely and timely. Ask your vendors to provide you free training for the products – and most will be very happy to do so!

These components include the hardware, wood material, shutters, countertops and appliances.

To start off, one would need a smart designer who is ready to multi-task, along with a carpenter who values perfection. These two are the most important pillars in your new journey of modular furniture selling.

We cannot over-emphasise the importance of training your team members. The process will differ as per each business.

Do not try to re-invent the wheel. Talk to your vendors and partners as to how a particular problem can be addressed. Use templates and tools to get work done efficiently and accurately.

Never hesitate to buy good tools, templates or software for your team members. Templates like this are used to install kitchen hardware and can reduce installation times by up to 50%.



*– The writer is Director of Etna Hardware, which has two showrooms in Hyderabad. His company distributes hardware under the brand name Nimmi.*

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# Functionality with convenience and class



*The Kinvaro F-20 is an intuitive two-fold lifting system, and is friendly and accessible for people of any height.*

Pune-based Utturkar's Wood Culture has been a full-fledged solutions provider for the furniture industry for 25 years, combining knowledge of master carpentry and architecture. In the kitchen space the company has some fabulous solutions.

The Kinvaro F-20 is a perfect movement fitting for overhead cabinets, which creates an equal division of doors of overhead cabinets with a horizontal line, instead of needing to keep it as a single, large, bulky fascia.

This intuitive two-fold lifting system actually makes access to the insides of the cabinets much easier. Some customer delighting aspects include: the opening flap stays wherever the user stops it, making it friendly and accessible for people of any height.

Complete safety for the user – even if fingers get stuck in the dividing line, both, the fingers and the mechanism remain unharmed.

Its spring-assisted opening and integrated damping functionality allows it to be used with any kind of door material, heavy or light, and is fuss-free in fitting.

And of course, there is the soft close, which swishes back into position noiselessly, no matter how heavy the flaps are.

This fitting can support a fascia height from 520 mm to 900 mm, and weight from 4.6 kg to 18 kg. All these features make the Kinvaro F-20 a coveted solution for overhead cabinets.

The Linear Pantry is an efficient larder for all the storage needs in a kitchen. It is a tall multi-shelf unit with a door, in titanium finish, equipped with anti-bacterial surfaces that can be cleaned very easily.

The Linear Pantry shelves slide out when the door is opened, making the contents inside accessible from the front and the sides. A piece that is sturdy, aesthetically pleasing and effortlessly catering to storage requirements of the customer, the Linear Pantry is a must-have for kitchens.

*The Linear Pantry shelves slide out when the door is opened, making the contents inside accessible from the front and the sides.*





*The Scala drawer systems can be fitted with handles, or can be used handle-free with the Tipmatic fitting.*

The Scala drawer systems are traditional, yet progressive and modern, blending into the modular mould seamlessly. The opening and closing is soft and the finish is pleasing.

They can be fitted with handles, or can be used handle-free with the Tipmatic fitting. The overall effect of the side frames can be enhanced by using glass or wood in varied heights, each in its own way adding to the aesthetic value of the drawer and the utility.

Utturkar's now has a product and knowledge base offering over 3,500 functional fittings. Kitchens that emerge from the Utturkar portfolio are bound to be distinguishably appealing, and convenient and friendly for users. Utturkar's supplies to OEMs such as Spacewood, Alskog, Magppie and Interwood, among others.

Utturkar's also offers design, planning, software, specifications, production and hardware, project execution and implementation services, to extend to their customers an incomparable benefit.

Utturkar's works with PalleteCAD, which does end-to-end visioning for the customer, right from virtual reality, 3D rendering, planning, optimising up to being the manufacturing interface—which is a dream come true for B2B customers. ([www.utturkars.com](http://www.utturkars.com)).

# *Flexi-Box helps save 40% space*



Rakshan Home Styles, an ISO 9001:2015 company, manufactures modular kitchen accessories under the brand name 'Peacock Revera'. The company is engaged

in producing modular kitchen accessories and hardware for home and kitchen with an aim to organise the lives of people.

An Indian household has also gone through a huge shift in mindset, space utilisation and time-share pattern. Rakshan is introducing a new basket in which there is space optimisation of up to 40% compared to traditional kitchen baskets.

This basket is the Flexi-Box basket, being introduced under the brand name 'Toughler'. Flexi-Box baskets have been introduced to solve size issue with their extendable properties, with new and sturdy look, innovative design and colours, and easy installation and quick removal for cleaning.

These baskets can be fitted in Tandem, Quadro and wooden base. Flexi-Box baskets are made of 100% stainless steel and come with a 6-year warranty. (<http://www.peacockrevera.in/>)

# ICA helps nourish body and soul

Euromobil Kitchens (from Gruppo Euromobil of Italy) has been focusing on this special area of the house, carrying out studies and research projects. It designs kitchens with a story to tell and a vibe to experience, both of which are completely respectful of the large house we live in: Mother Earth.

That is why Euromobil chose to employ ICA Group's water-based coatings for its furnishings. Euromobil was a small artisan firm with big ambitions 50 years ago.

Its design principles are the search for beauty, a timeless design, painstaking attention to detail, respect for the environment and innovative production systems.

That is how kitchens can improve the quality of time and space intended for them, as well as remain respectful of the environment. To achieve these goals, Euromobil has never stopped researching, improving and innovating.



In the middle of this innovation journey Euromobil and ICA Group crossed paths. Euromobil was looking for a super matte, anti-glare and anti-fingerprint finishes, to renew two of its iconic kitchen models: Antis and Lain.

The group was searching for top quality, low environmental impact, high resistance materials and finishes – high resistance is an essential requirement for kitchens – and found all these properties in ICA's coatings.

The S-Matt coatings give an ultra matt

effect, and are anti-fingerprint, anti-scratch and self-healing. Also, being water-based, they have very low emissions of volatile organic compounds.

Iridea water-based coatings have a very low VOC content (3%), and ensure excellent aesthetic and qualitative results.

Thus Euromobil is able to revive the original kitchen atmosphere concept, of décor capable of creating a real atmosphere that welcomes people and nourishes their body and soul.



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# Häfele offers intelligent kitchen solutions



*Häfele's plug-and-play Qanto is a pre-assembled corner solution with two versatile trays.*

with a wooden board or can accommodate a "little urban garden" for fresh herbs. The tray below it offers further organisational space and storage for electrical appliances, or for wine and spices.

The trays are crafted from high-quality, easy-to-clean ABS with a polished crystal glass finish and are completely illuminated by LED light fixtures integrated beneath the top tray.

Utilising unreachable space in the corner to its optimum effect, Qanto proves to be an intelligent corner solution which combines maximum operating comfort, generous work surfaces, well organised storage space, ergonomic qualities and the highest technical and design standards into a perfect symbiosis. ▶

Requirements regarding kitchens have changed enormously in recent years. Exacting design standards are now every bit as important as outstanding functionality.

It is precisely due to these customer requirements that Häfele's plug-and-play corner solution, Qanto, hits the mark. The pre-assembled corner solution comes with two versatile trays that can be extracted and retracted vertically by a linear drive, at the press of a button.

Just one press on the integrated switch is all it takes for the Qanto trays to rise up. Reaching stored items in the kitchen has never been as easy.

The top tray that seals the gap when fully retracted can be fitted

*Glass, wood or other materials, the design elements go beautifully with Blum's Legrabox.*

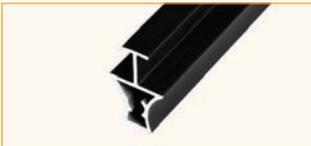


# Sub Zero **Lean** Profile System

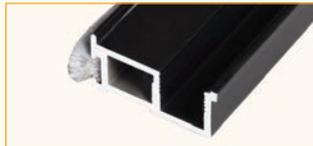


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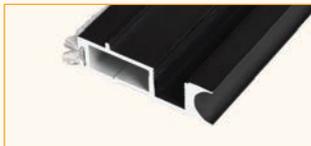
NSUB004 - Partition



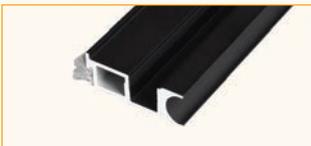
NSUB005 - Inner Vertical



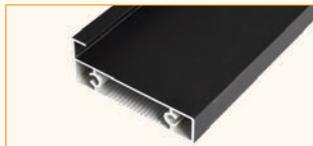
NSUB006 - Outer Vertical



NSUB007 - Standard Vertical



NSUB008 - Horizontal



# Sub Zero **Fit** Profile System



- Robust Design; Extremely Stable
- Suitable for Inset Doors
- Minimal Gap between the doors
- Compatible with multi-brand sliding kits
- Easy to Install

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NSUB002 - Partition



NSUB003 - Vertical



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## MODULAR KITCHENS

**Blum Legrabox**

Blum's attractive full extension box system, exclusively distributed by Häfele, have impressively slim drawer profile thickness (12.8 mm), making it the thinnest double wall box-side available in the Indian market.

It is straight on the inside and the outside which helps maximise the usable interior space of the drawer and is available in four luxurious finishes: anti-fingerprint stainless steel, Terra black matt, Orion grey matt and Silk white matt, all of which give it a distinct look and feel.

The Legrabox pure programme consists of three drawer side heights for standard drawers and two drawer side heights for inner pull-outs. The versatile system allows for a wide range of design options for any kitchen, bath or furniture application, whether used with standard drawers, high-fronted drawers or inner drawers.

**BePure faucet**

Whether it is drinking water, washing tableware, cleaning fruits and vegetables or even sanitising food packages, the sink area is always teeming with people performing various activities in and around it.



*The water sense technology integrated within the BePure faucet helps save 20% water.*



*Blanco kitchen sinks have a unique built-in 'Hygiene+' property of their surface to reduce bacterial growth by 98%.*

It is in essence a focal area of the kitchen where events of the day commence and culminate. There is hence an unsaid expectation that solutions catering to the sink centre of the kitchen deliver efficiency and functionality without compromising on its aesthetics and quality.

The BePure kitchen faucet by Häfele, with its clean sinuous profile, effortless operation, stylish sophistication and versatile colour options, pairs perfectly with kitchen sinks. Manufactured in Italy, this faucet adheres to European standards and demonstrates the highest form of quality and refined design.

The perfect splash-free water flow and quiet operation of this faucet makes working with it seamless. The water sense technology integrated within the faucet helps save 20% more water compared to similar faucets in the market.

It also comes with a separate outlet for drinking water, which is supplied through copper pipes, providing users with healthy and safe water absolutely fit for consumption.

The BePure faucet is now available in the new Anthracite, Rock Grey, Coffee and Alumetalic finishes, in addition to the Brushed and Polished Chrome finishes introduced earlier.

**Blanco sinks**

Your customers can match the new BePure faucet colours with similar finishes from Häfele's range of Blanco sinks, to achieve a classy monotone trend in the kitchen.

Blanco kitchen sinks and faucets help attain the highest level of disinfection,

preventing germ growth on their surfaces owing to the unique built-in 'Hygiene+' property of their Silgranit™ PuraDur surface.

This patented hygiene protection formula acts as a shield against dirt and bacteria, reducing bacterial growth by 98%!

The new Tartufo finish of the Blanco sinks and faucets brings the utmost elegance to kitchens and interiors through its golden-brown blend. There are multiple configurations available based on size and utilities.

The faucets from this range are made of brass, are sturdy and durable, and can rotate within a 360° angle for comfortable usage.

**Touch bins**

Waste bins are not only an integral part of kitchens and are constant companions during cooking and prepping, cleaning and re-organising, eating and snacking.

The BO Touch bin by Häfele offers numerous features and functionalities, all packed in a beautiful steel exterior. The bin fits perfectly against any wall space, and allows adjustment of height as per user's comfort and use.

The soft-touch opening and closing mechanism of the BO bin facilitates easy and silent operation. With the slightest push, the lid opens completely and stays in that position until the user chooses to close it back after completing chores.

The outer steel body of the bin encloses two inner plastic buckets with capacities of 11 litres and 23 litres, enabling effective waste separation and disposal.



*The soft-touch mechanism of the BO bin facilitates easy and silent operation.*



# खूबसूरती की असली पहचान स्टार माइका.

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# *Eurodekor MFCs from Egger*



Furniture, made of one piece or with accentuated designs, can be created by matching the decorative board and edging in terms of colour, texture and degree of gloss. The large selection of edges in the Egger Decorative Collection offers solutions for all design wishes.

Whether for fronts, shelves, wardrobes or wall claddings, Eurodekor melamine-faced chipboards (MFCs) are the optimal product solution for furniture and interior design projects. It consists of raw chipboard coated on both sides with melamine resin-impregnated decorative paper.

The pre-fabricated panels can be easily cut and edge-banded,

saving time and money. They offer a quality, high-performance solution that meets the aesthetic demands of contemporary design.

Surface decors and textures can be ideally matched across Egger's product ranges, including edge banding and laminates.

Eurodekor chipboards reproduce the look and feel of realistic wood grain, stone or material designs. MFC panels deliver enhanced performance benefits and characteristics, and are appropriate for residential, healthcare, hospitality, retail and other commercial settings.

Eurodekor MFCs are ideal for both horizontal and vertical applications in cabinets, closet systems, office furniture, store fixtures and architectural wall paneling.

It has optimal surface properties for durable applications (resistant to abrasion and scratches, light-fast and food-safe), environment-friendly and recyclable, and ready to use immediately – no oiling, staining or other protective measures.

Egger's large selection of 3,000-plus edge bands offers solutions for all design requirements, be it matching the decor or create exciting contrasts.

The edged surfaces are sealed to be scratch-resistant with UV-hardened synthetic resin varnishes and have high mechanical abrasion resistance. ABS edges on the back are coated with a universal adhesion promoter to ensure perfect adhesion of the edge to the core material with commercially available hot-melt adhesives. ([www.egger.com/eurodekor](http://www.egger.com/eurodekor)).

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# With leadership comes enormous responsibility



*Humans have tried to come up with clever ways to prevent climate change, but one solution has always been here: trees!*

## MIKHAIL TARASOV

Take a look around you. The wood used for any IKEA furniture likely comes from Poland, Russia, Sweden, Lithuania, Germany, Romania or China – the top countries from which IKEA sources wood.

In the last 12 months, IKEA used approximately 21 million cubic metres of round wood. This is almost 1% of the world's industrial round wood supply. Looking at all IKEA sales, 60% are connected to wood-based products.

With those volumes in mind it is easy to understand that wood is an essential part of the IKEA identity. Being such a large actor in the timber industry carries enormous responsibility, but it is also a great opportunity to influence forest management around the world positively.

This involves not just responsible sourcing wood for IKEA products but also promoting responsible forestry, helping to make this the industry norm. If wood is essential to the IKEA identity, forests are essential to mine.

### Responsible management

Growing up in Saint Petersburg (Russia), it was never far to a forest, and with a father working with forestry research, which brought me on field trips I got to know forests early.

This woke an interest in forest biology and the climate implication of forest ecosystems – an interest that led to doctoral studies for me in forestry in Russia, the US and in the Netherlands.

Even though research is very inspiring, I started to wonder about the practical implications and how we can approach the whole ecosystem from a practical business point of view. Research can contribute to addressing a lot of global

problems, but the business needs to be on board.

Responsible forest management involves everyone. So what is a responsibly managed forest then? This is a forest where logged trees are replanted, endangered species are protected, wildlife is maintained, and the people working in the forests or living nearby are supported, and many other things.

IKEA has partnered with the Worldwide Fund for Nature (WWF) to promote responsible forest management, good governance, and transparency in the global timber trade.

IKEA is also one of the founding members of the Forest Stewardship Council (FSC) that promotes solutions for responsible forestry and verifies that it is secured.

### Collaborative effort

IKEA's target is that by the end of 2020, all wood used in its products will come from more sustainable sources, which is defined as FSC-certified or recycled wood.

In countries where forests are at risk, or there is a history of bad forestry practices, the target of 100% wood from more sustainable sources was met in 2017 – a major milestone. Today 90% of all the wood used in IKEA products come from sources defined as more sustainable.

I think many questioned if we were going to succeed. However, in 2017, we passed an important milestone, that all wood should come from more sustainable



*JokkMokk, the iconic table made from wood sourced from Central Siberia.*

Nobody believed that we would be able to source this wood from Central Siberia responsibly, but together with FSC, we proved the opposite!

Today my favourite product is the Möckelby dining table. I have spent a lot of time with our teams and WWF in Romania, where the oak wood comes from. It is beautifully made, and what I also really like is that the particleboard inside and thick veneer on top helps us use less wood.



– The writer is Global Forestry Manager at IKEA. He joined the organisation in 2010, and leads the effort towards a 'Forest Positive' IKEA.

sources where forests are at risk, and that was a real breakthrough.

I believe we played a big role in pushing the standards to a new level, and we need to continue.

There are many different suppliers at different levels of the supply chain that need to be on board, which makes achieving more sustainable sources a collaborative effort.

We didn't just place demands on the suppliers, but also offered to support them and their partners with technical assistance upstream in the supply chain. 'What kind of technical assistance could that be?' you may ask.

Whether it is the small private forest in Vietnam or a big industrial forest in Russia, you need to know the different values of the forests. You have to be aware of environmental values and social values.

Is there a part of the forest that is old, intact and unique? Together with WWF, we have identified those forests that need to be set aside and protected. Many of them are already protected by the government or are listed by UNESCO, but we need that information to reach every part of the supply chain.

### My favourites

Trees are marvellous machines that

mitigate climate change itself. For the last 20 years, humans have tried to come up with a clever way to prevent climate change, but one solution has always been here: the trees!

Among my favourite IKEA products are two. One is the JokkMokk, the iconic table with four chairs, which reminds me of a certification of its forest of origin I was involved in.

*The Möckelby dining table is made from certified oak from Romania.*



# PEFC showcases carbon-negative housing complex



*Dalston Lane has a gross external area of more than 11,000 square metres, and incorporates 121 residential units.*

Located in east London, Dalston Lane is a multiple award-winning private residential building. Nearly 34 metres high, it is one of the world's largest load-bearing buildings made of cross laminated timber (CLT).

The landmark development, built by B&K Structures and Waugh Thistleton Architects, used CLT panels certified by the PEFC (Programme for the Endorsement of Forest Certification) for the external and core walls, right through to the floors and stairs.

Dalston Lane has a gross external area of more than 11,000 square metres, and incorporates 121

residential units, comprising contemporary style apartments, spread across nine floors.

As well as meeting the need for high quality, high-density housing, the use of timber technology has significantly reduced the carbon footprint of the building in terms of both material production and onsite energy consumption.

Dalston Lane has a negative carbon footprint, meaning that it removes more CO<sub>2</sub> from the atmosphere than it adds. The project's net carbon footprint of 2,600 tonnes CO<sub>2</sub> represents a saving of an estimated 4,600 tonnes of CO<sub>2</sub> compared to equivalent concrete buildings.

To put this in perspective, the carbon removed from the atmosphere in the construction of Dalston Lane is equivalent to the emissions produced by 1,703 cars over a year.

The block weighs only a fifth of a concrete building of the same size, and using CLT reduced the number of deliveries during construction by 80%. As a rapid, robust and reliable offsite manufactured solution, CLT delivers many benefits during the construction process and beyond.

Manufactured to exceptional levels of accuracy in factory controlled conditions ensures minimal defects and improves construction and project delivery time, reducing costs and maximising efficiency on all levels – providing cost and programme certainty.

## Christmas trees

This past Christmas, several European cities chose PEFC-certified Christmas trees for a sustainable celebration. One of the certified Christmas trees was in London's Covid-restricted style at of the iconic Trafalgar Square.

The traditional annual gift from Norway to the UK is the 74th in the series of trees donated by Oslo to London. Oslo has sent a tree to London every year since 1947 as token of gratitude, celebration and commemoration of Britain's support during World War II, when the Norwegian government and royal family lived in exile in London from 1940 to 1945 during Norway's occupation.

The 80-year-old, 23-metre-tall Norwegian spruce was sourced from a PEFC-certified forest in Maridalen, Oslo. Weighing about 200 kg, it was transported to London by road and sea.

Sustainable festive splendour also came to the Austrian parliament. PEFC Austria handed over the 4-metre-high fir tree to the National Council Presidents.

The tree brings a breath of 'Silent Night' to the parliament, as it comes from a PEFC-certified forest in Arnsdorf, Salzburg.



*PEFC Austria handed over a 4-metre-high fir tree to the Austrian parliament.*

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**gabbiani p 75**

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**minimax me 20**

**Edge bander**

- Simple and intuitive.
- Ideal edge application.
- Quality finishing and versatility.



**minimax me 40 t**

**Edge bander**

- Premilling.
- Partial corner rounding.
- scraping.



**olimpic k 360 r**

**Edge bander**

- 11 m/min panel feed speed.
- "AUTOSET" pneumatic positions of units.
- Pre-milling, corner rounding, scraping units.



**stefani kd**

**Edge bander**

- 10-20 m/min panel feed speed.
- Solid wood up to 12 mm thickness.
- "SGP" glue pot for EVA or PU glue.



**stefani xd**

**Edge bander**

- High productivity with corner rounding up to 30 m/min.
- The use of EVA and Polyurethane glue is made possible.
- Zero glue line possible with "AirFusion" technology.



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**CNC machining centre**

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- 5 Function Combination Machine.
- Incredible cutting of very thick solid wood and panels.
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**minimax tw 45 c**

**Spindle moulder**

- 4-speed shaper with sliding table.
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- The maximum tool diameter 210 mm.



**profiset 60**

**Throughfeed multi spindle moulder**

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- Inverter for the stepless speed adj. from 5 to 25 m/min.
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**dmc sd 60**

**Wide belt sander**

- The best finish with any material. Higher quality results.
- "Logic SC" electronic programmer: easily avoid mistakes.
- Diamond-shaped belt: no slipping of the work pieces.



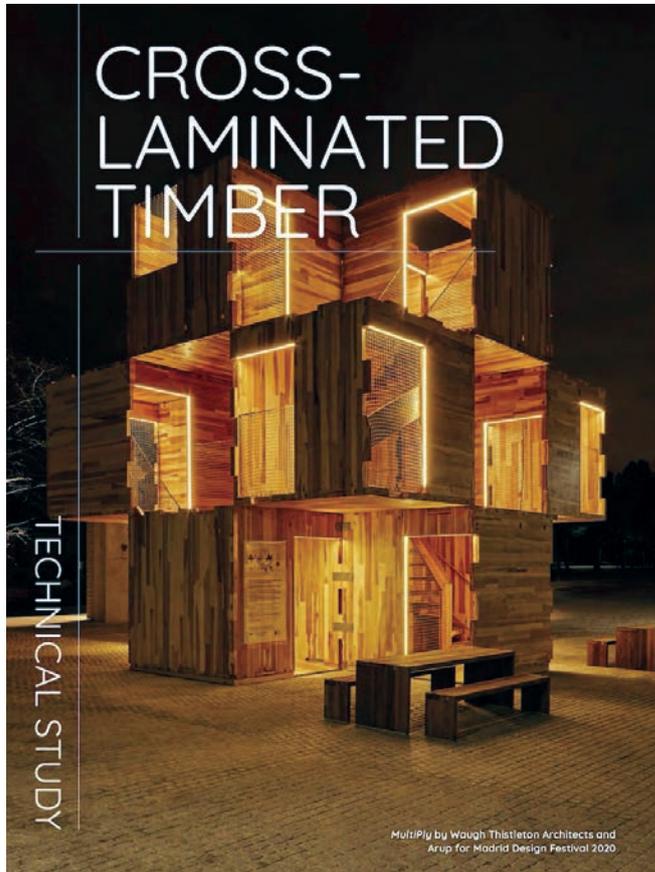
**compact 3 r**

**Spraying machine**

- Double arm reciprocator.
- Pressurized cabin with double filtration system.
- Lacquer reclaiming unit.



# New guide to 'Sustainable American Hardwoods'



The American Hardwood Export Council (AHEC), the leading international trade association for the American hardwood industry, has launched a brand new 'Guide to Sustainable American Hardwoods', which is now available to download on its website ([www.americanhardwood.org](http://www.americanhardwood.org)).

The project was primarily driven by the AHEC's European office, which spent the year reimagining AHEC's technical publications. The result brings together the species and grading guides into a single guide, complete with lavishly illustrated application case studies.

The new design combines all of the technical information on species, applications and the

NHLA grading rules, with updated illustrated case studies to provide a publication that is informative, educational and inspirational. Its aim is to provide one publication that meets the needs of a broad target audience: from timber traders, through end-users to specifiers.

The 1,00-page guide also contains new information on sustainability, detailing the Seneca Creek legality risk assessment, the American Hardwood Environmental Profile (AHEP) and the map showing forest distribution, growth and timber removal.

Further highlighting renewability, each species section gives the time taken by the forest to re-grow a cubic metre of wood, derived from AHEC's online life cycle assessment tool.

Alongside detailed technical performance data, the species section features

applications of the timber. These range from furniture in cherry, maple and red oak created for AHEC's latest design project, Connected, to the 40,000 square metres of red oak used for cladding, flooring and glulam screening in Bloomberg's European headquarters in London.

There are also new sections on thermal modification of American hardwoods (TMT) and cross-laminated timber (CLT).

Readers will be able to discover and learn about the latest and most innovative examples of American hardwood use, from large-scale architectural structures to fine furniture and joinery. It also highlights the structural potential of American hardwoods from projects across the world.

"The launch of our brand new, more user-friendly and informative guide forms part of our global forward-thinking strategy to educate all elements of the 'timber chain' to allow them to make an informed decision," says Mr Roderick Wiles, AHEC Regional Director.

"We look forward to the launch of this publication in Hindi across India early next year," he adds.





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# Why diamond-tipped tools have an edge?

With many cutting tool options for industrial woodworking applications, why are diamond-tipped solutions said to be the right choice? Here are a few diamond cutting tool tips to help achieve better performance, higher quality output, cost savings and less maintenance in industrial woodworking applications.

Diamond-tipped solutions are provided in the form of moulder heads, shaper heads, tenon heads, hogging heads, CNC router bits, panel saws, scoring saws, gang saws, trim saws, grooving saws, and cutters for specialised machines.

Diamond tools are designed to match a customer's specific application. Look for the technical sales team that goes the extra mile to ask you for spindle RPM, feed rates, wood species, laminate types, cutting directions and grain directions.

The salesmen need this information to send to engineering and technical staff for evaluation, to be compared in a large database of cutting data.

Each tool manufacturer would want to match your specific needs

from experience and create a custom cutting tool for your application.

Wood product manufacturers that are not taking advantage of the benefits of diamond-tip tooling over traditional carbide tip and insert tooling might be missing an opportunity. While not suitable for every cutting application, diamond can be used in many applications, including those involving solid wood, wood-based materials, plastics, or composites.

Advancements in diamond grades and sharpening technology also have resulted in higher impact resistance compared to carbide tooling, typically 20 to 75 times longer life, depending on the application!

There also is a higher tool life per cost ratio in favour of diamond-tipped tooling.

Another important feature to look for in diamond-tipped tools for profiling is the

*Lietz's Diamaster EdgeExpert router cutter.*

design; one that maximizes the number of sharpening's while maintaining the exact profile shape every time.

One option is for adjustable stacked tool bodies combined with intricately machined tool bodies. This allows for large sharpening removals before replacing tips.

Another option is for profile tools in a single piece tool body. However, while a one-piece tool body design will have a lower new tool price upfront, it can cost more across the total life of the tool, as service costs can accumulate more rapidly over time due to frequent replacement of the diamond tips.

There also is potential for compromising the tool life by repeatedly re-heating the brazed diamond tips in order to maintain the profile shape.

*(Source: [www.peaktoolworks.com](http://www.peaktoolworks.com)).*

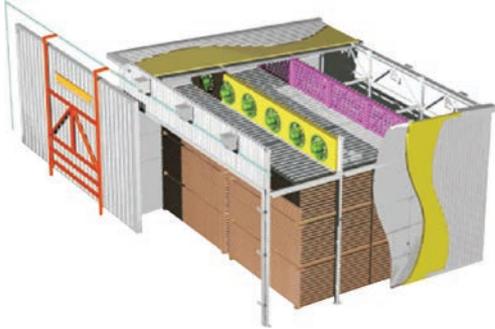
Sliding Table Panel Saw



Wide Belt Sander



Seasoning Kiln



Spiral Cutter Heads



Vertical Band Re-saw



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Multiple Rip Saw



Gang Rip Saw



Double Side Planner



Heavy Duty Automatic Copy Shaper



Oscillation Mortiser MOM-130



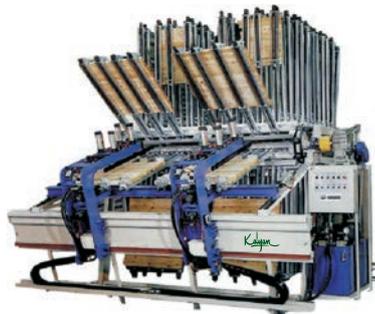
Rectangular Tenoner DAD-115



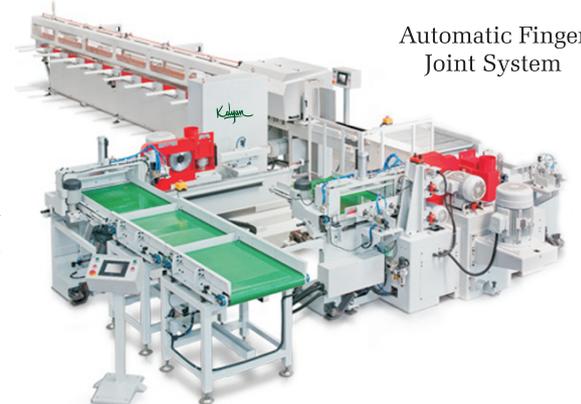
Four Side Moulder



Clamp Carrier



Automatic Finger Joint System



Hydraulic Hot Press



High Frequency Edge Glue Press





## Clamping 'big' in small spaces

Bessey, the German company and world leader in clamping and cutting technology, has introduced GearKlamp, a first-of-its-kind clamp that conveniently masters clamping applications even in the tightest spaces.

This is made possible by a mechanism that allows the separation of the spindle from the handle and to position it around the rail. Thus, the compact GearKlamp can be skillfully used even in places that were previously difficult or impossible for clamping tools to access.

GearKlamp is much more compact than classic screw clamps, lever clamps or one-hand clamps because its handle is positioned around the rail. Each turn of the

handle transfers the clamping force to the spindle via a mechanism concealed in the sliding arm.

This innovative design gives the user key advantages: there are no protruding tool components in cramped working areas that could damage the work piece or cause injuries to the operator. It guarantees ergonomic handling and enhanced comfort in every clamping situation as there is no need to contort one's hand.

With its compact design, it achieves a clamping force of up to 2,000 N. It is also equipped with a quick-release shift button for fast movement along the sliding arm.

In addition, it has a smoothly-running trapezoidal threaded spindle with a swiveling pressure plate that adapts perfectly to the work piece.

*Bessey's new GearKlamp comes without additional aids, with enhanced ergonomics and with reduced risk of damage or injury.*

Even round, pointed and angular work pieces are held securely with the help of the crossed V-grooves located under the protective cap on the upper section.

The stable profiled rail is made of tempered and burnished steel. The upper section and the sliding arm's plastic housing protect the driving mechanism from dust and splintering and are made of fiberglass-reinforced polyamide, thus ensuring durability.

GearKlamp is available in four clamping widths: 150 mm, 300 mm, 450 mm and 600 mm, each with a throat depth of 60 mm.

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Model: WM-241 - 11L



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Model: WM-246 - PM + PT



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Model: WM- 187 SLD



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# Carpenter's glues from Jowat



Jowat SE, one of the world's leading suppliers of industrial adhesives used mainly in woodworking and furniture manufacture, has recently expanded its portfolio to add a selection of tried and tested

carpenter's glues for industry and trade.

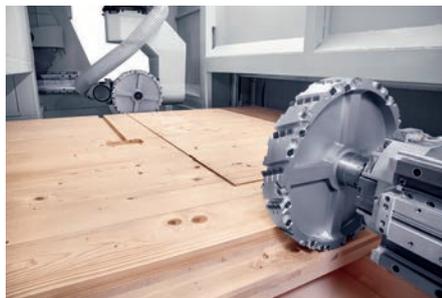
Supplied in a handy bottle and with an extra-long durability, Jowacoll PVAC dispersion adhesives have been successfully used in industrial applications for decades. A special selection of those established industrial

adhesives supplied by the company now also provides professional solutions for manual adhesive applications.

The comprehensive package of four Jowacoll dispersion adhesives covers a wide range of applications in the furniture industry and interior finishing. The carpenter's glues are supplied in handy 0.5 kg bottles with a re-closable screw cap and have a minimum durability of 24 months.

The selection is comprised of the following glues: Jowacoll 103.30 (D3 glue for superior requirements), Jowacoll 103.70 (pH-neutral D3 glue), Jowacoll 104.20 (general-purpose glue in D2 quality) and Jowacoll 119.60 (lacquer glue for bonding difficult surfaces).

# Machining centre for large-format CLT



SCM, the global leader in technologies for machining a wide range of materials, including wood, has come up with a solution for production of large format CLT (cross-laminated timber) panels.

The Area XL is the new 5-axes CNC machining centre designed for the industrial production of large format CLT panels. This solution, an evolution of the already popular and appreciated Area model, was developed to meet the needs of those companies requiring high productivity,

accuracy and reliability.

The processing of large format CLT panels is characterised by heavy duty stock removal, process automation in the handling and referencing phases, as well as cleaning of the work area.

The new machining centre has been designed taking into consideration these specific requirements. Elements of up to 16,000 mm, 3,600 mm wide and up to 400 mm thick can be processed, because of an electro-spindle of high power and torque in continuous operation.

The overall productivity can also be

further increased by equipping the machining centre with a second machining head unit, capable of simultaneously executing several operations.

Another plus is the possibility to perform transversal through-feed drilling operations even on the maximum panel size, thanks to optional auxiliary units. The machining centre offers up to 60 tool stations in total, including two sawblades for each machining head unit.

The operator's work becomes even easier, both during the process, thanks to automatic workpiece handling and referencing systems; and during chip removal from the work area, thanks to innovative cleaning systems.

It also allows work to be done in total safety, thanks to the full enclosure and a protected access system to the work area through laser barriers.



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## Thermwood unveils Next-Gen CNC router

The Thermwood Cut Ready cut center is the ultimate in next generation CNC routers. It doesn't require programming and most people can operate it with little or no training or guidance.

It is complete, fully contained with all the ancillary equipment smoothly integrated into a package that almost runs itself. It operates on a sophisticated combination of software and machinery to help save time and money and is a powerful tool that allows you to focus on your products.

Its product offering is extensive and constantly growing and includes cabinets, closets, furniture, doors, drawers,

moldings and much more. The sizes can easily be changed with no programming.

Cut Ready helps you make your products and your competitors products with little effort and allows the expansion of the range of your current offering. It allows an ever-expanding product line and helps you develop custom libraries for your specific products in the size range and material you want and install them in your machine.

This results in virtually an instant start-up and it is possible to be in full production in about a half a day, compared to a typical CNC router that can take as much as 6 months to program and get to that point.

With this cut center, it is all figured out and no extensive training is required; no tooling and cutting parameters have to be

figured out as all the details are taken care of.

Running Cut Ready is much easier than a typical CNC router as it manages tools for you, figures out which tools to use for each job, proper cutting speeds, tracks tool life, and it recovers from problems easily and smoothly.

Damaged parts can easily be remade by simply scanning a label to recover from broken tools without scrapping parts. It manages maintenance and tells you when to clean filters and when to lubricate and connects you to a service tech if you ever need more help.

In addition, new libraries, features and capabilities are constantly being added to the award-winning cut center system.

It can also be operated as a CNC router in the traditional manner, running programs generated with virtually any CNC software. It is simple to switch between operating as a CNC router and as a cut center to ensure that all machine parameters are properly reset and that the standard tooling is properly installed.

# "MADE IN TAIWAN" adjective

Definition: Might not be the cheapest but always a bargain for manufacturers who value product quality and service with integrity.

## 30 Years of High Quality Cutters Still In Action



Heavy Duty Helical Planer Cutter Heads with Changeable Knives  
Knife: 14 x 14 x 2 x 30°  
14 x 14 x 2 x 37°



Heavy Duty Helical Planer Cutter Heads with Changeable Knives  
Knife: 30 x 12 x 1.5 x 35°



Helical Planer Cutter Heads with Changeable Knives  
Knife: 15 x 15 x 2.5 x 30°  
15 x 15 x 2.5 x 37°



Safety Corrugate Cutter Heads with HSS Knives



Adjustable Planer Cutter Heads with HSS or TCT Knives

Spindle Shaper Planer Cutter Heads with Changeable Knives  
Knife: 30 x 12 x 1.5 x 35°  
50 x 12 x 1.5 x 35°  
60 x 12 x 1.5 x 35°



Changeable Knives / TCT



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°  
14.6 x 14.6 x 2.5 x 30°



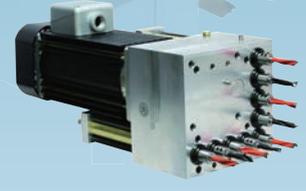
## We Can Customize for Your Request



### CNC Drilling Heads Series



CNC-WF3213L-2S-2H



CNC-WF3209L



H707+WD213



H707+WF3205

### CNC Drilling, Boring and Aggregate Heads Series



WHC3001L



WHC3019L



WHC3002L



WHC3003L

### Adjustable Drilling Heads Series



WD213

MODEL	PITCH
WD211	14-82mm
WD212	32-160mm
WD213	18-100mm



WD315

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

### Adaptors and Quick Change Chuck Series



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# Best-in-class machinery from Jai



Jai Industries offer an unparalleled array of products that include woodworking and panel processing machinery. Its range of machines are products of R&D backed, high-end precision engineering and have the best possible features and are made of the topmost quality material and components. All the products are backed by dedicated service and guidance.

Jai manufactures 30,000 machines a year in its seven plants spread over a total floor area of 4, 00,000 square feet. Its machines, specifically produced to suit Indian working conditions, ensure performance and operating comfort.

The Modula range of solid wood machinery have high-end features that are specially developed for units engaged in solid wood-craft business.

## J-1250.in (Compact)

The J-1250.in (compact) is a Vacuum Membrane Press that is suitable for factories having a space constraint.

### Salient Features

Used for applying a uniform lamination of PVC, decorative papers and veneer till 0.4 mm on top surface and borders on flat & designed work piece having smooth shape

- Vacuum abnormality wrapping technology having single table
- Lamination of PVC foil on one side of MDF, particle board & solid wood
- Silicon membrane offered for veneer application



Manual feed of tray for loading Special steel work table is high temperature and corrosion proof



Heating by tube heater



Additional 2nd trolley (optional) can be ordered separately

Also available J-1250.in Compact Double Trolley



- Short-pressing cycles
- More efficient, stable and long life high grade 3 hp - GERMAN vacuum pump, which reduce the cycle time with more effective pressing

Technical Specification:	
No. of working table	1
Work table size (L x W)	2500 x 1250 mm
Maximum height of work piece	50 mm
Vacuum	- 0.1 mpa
Heating load	24.8 p
Total power (3 Phase)	12 hp

- Silicon membrane sheet is standard supply with the machine
- One set of tray minimizer for optimum usage of work tray along with the machine

### Additional features

Manual feed of tray for loading Special steel work table is high temperature and corrosion proof. The Heating is done by tube heater. An Additional 2nd trolley (optional) can be ordered any time separately. J-1250.in Compact Double Trolley is also available.

# SLIM LIFT - TRIPLE E



Application areas for feeding of BEAM SAW, PANEL SAW and SANDING MACHINE.

- ★ Improved Productivity.
- ★ Payback in a Few Months.

- ★ Reduced Worker Injury.
- ★ Reduced worker dependency.



**SLIM LIFT TRIPLE - E** is the perfect solution for efficient lifting, lowering, and positioning material for variety of wood working machines. They take the backache and strain out of bending & lifting.

Woodworkers recognize that increase in production are achieved by increased worker efficiency. Slim lift is a perfect solution to feed and receive boards / panel to Beam saw, Panel Saw and Sanding machine. It is easy to install and it can be placed directly on the floor (**NO PIT REQUIRED**).

## SPECIFICATIONS

- Capacity up to 2.5T.
- Closed Height 100mm.
- Max Lift Height up to 900mm.
- Can Be Customized.
- Suitable for 8'x4' & 9'x6' boards
- **NO PIT REQUIRED.**



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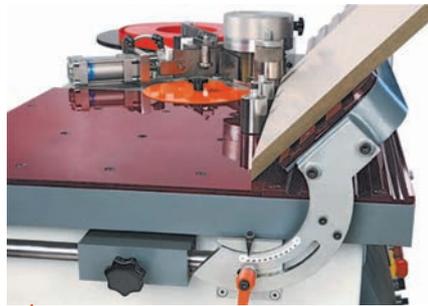


### J-2500.in (Semi Auto)

J-2500.in (Semi Auto) is Curvilinear Edge Bander and an extremely flexible machine for application of PVC/ABS or Veneer on straight or shaped panels. It is a semi-automatic machine for curvilinear work piece, where the predefined length of PVC/ABS to be glued to the laminate can be set for repetitive work piece and the digital temperature.

#### Salient Features

- Pneumatic cutting device for pre-defined length, with foot switch
- Glue roller apply glue on board & tape for perfect bonding
- Gearbox for smooth & power drive with long life synthetics lubrication
- Easy regulation of variable speed 4 to 16 m/min
- Revolving edge coil holder plate 525 mm. Ø
- Rubber & hard chrome steel rollers to support & guide the work piece
- Working table with specially designed hylum surface for heat insulation and frictionless movement of work piece
- Tilting working table from 0° & 45°
- Electronic digital temp. Controller with safety circuit, which allows starting the drive motor only when the hot glue has reached the set temperature



*A specially designed hylum surface working table can be tilted from 0° & 45°*

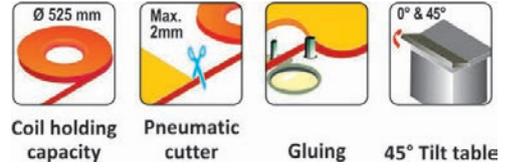


*The pneumatic cutting device can be set to actuate the pneumatic cutter to cut the band*



*The glue in the glue pot, glue wiper, the extrusion screw and the heating element all make a bonding system, which gives an effective & efficient banding to the work piece.*

*Specially design height adjusting steel roller give perfection to edge band for proper fixing with work piece.*



Coil holding capacity    Pneumatic cutter    Gluing    45° Tilt table



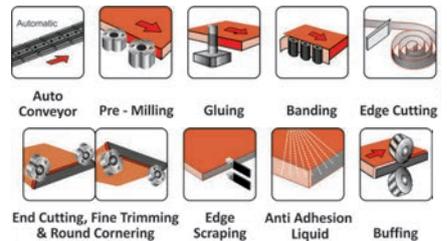
#### Additional features

Specially designed hylum surface working table that can be tilted from 0°-45°

The pneumatic cutting device can be set to actuate the pneumatic cutter to cut the band

The glue in the glue pot, glue wiper, the extrusion screw and the heating element all make a bonding system, which gives an effective & efficient banding to the work piece.

Specially designed height adjusting steel roller give perfection to edge band for proper fixing with work piece.



### J-5150PRc.in

J-5150PRc.in is an Auto Edge Bander with pre milling & round cornering features. It ▶

# Best European Technology

## GLADES TECHNOLOGIES

GLADES Technologies is a woodworking consultancy created by an experienced professional in the year 2011 with the assistance of Best European experts to redefine India and its Subcontinental Woodworking industries to a World Class level . Glades is a solution with futuristic vision to those who urged for a long time to believe on reliable experts for their company. Here, we are very much dedicated from our beginning to answer all your queries and stretch out our helping hand to change the total makeover of this industry with individual machines to fully automated production lines.

Solution with futuristic vision  
Fully-automated production lines

CNC1325C



COMPUTERIZED BEAM SAW



STORM2508



TWISTER 1305



T90



is a sturdily built, heavy-duty machine designed to suit Indian working condition for precise application of edge banding material.

**Salient Features**

- Pre-Milling unit with set of diamond cutters, as standard supply with machine.
- Robust feed chain & conveyor system with German gearbox (with long life synthetics lubricant) for effective pressure on panels.
- High performance machine with feeding speed 11 m/min gives more production.
- Three edge banding pressure rollers actuated by pneumatic cylinders, gives adequate pressure on edge for effective banding.
- Overall meter run (OMR) of edge band tape is display in PLC.

- Project meter run (PMR) is to calculate total usage of edge band tape in a particular project.
- High-frequency compact motors sliding on prismatic guide ways for perfect finishing with trouble free performance.
- Automatic lowering of the glue temperature after a temporary non-use of the machine.
- Easily accessible, user-friendly Smart Touch PLC control panel positioned at machine infeed, for quick operations.
- All electronic & pneumatic parts are from well-known international brands.
- Low maintenance machine, easy-available, cost-effective spares, best service support.

**Additional features**

An optimal unit for panel edge pre-milling with two high-frequency compact motors.

Diamond cutters are standard supply with the machine. Individual pneumatic cylinder for perfect prepares the panel

for gluing.

Smooths the panel for achieving perfect joint line of the edge.

The feed track has a robust feed chain and conveyor system. A German gearbox gives straight movement and effective pressure on small / big panels.

Glue spreading roller provides precise & consistent glue application. Perfect adhesion to the applied edge with 3 heavy duty pressure rollers actuated by pneumatic cylinders.

Heavy duty knife with pneumatic pressure cuts the edge banding materials up to 50 mm height & 3 mm thickness.

End cutting, fine trimming & rounding activity is powered by two compact and powerful, high-frequency motors sliding on two prismatic guideways with recirculation ball bearings. that guarantee best finish on edge. Trimmer 2R cutter for PVC/ABS gives perfect rounding on edge of straight, chamfered and regular post formed panels.



**Pre - Milling :**

An optimal unit for panel edge pre-milling with two high frequency compact motors.

**Diamond cutters are standard supply with the machine.** Individual pneumatic cylinder for perfect prepares the panel for gluing.

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**The Feed Track :**

Robust feed chain & conveyor system with German gearbox gives straight movement & effective pressure on small / big panels.



**End Cutting, Fine Trimming & Round Cornering :**

Compact and powerful high frequency two motors guarantees best finish on edge, sliding on two prismatic guideways with recirculation ball bearings. Trimmer 2R cutter for PVC/ABS gives perfect rounding on edge of straight, chamfered and regular post formed panel.



**The Feed Track :**

Glue spreading roller provides precise & consistent glue application. Perfect adhesion to the applied edge with 3 heavy duty pressure rollers actuated by pneumatic cylinders.

Heavy duty knife with pneumatic pressure cuts the edge banding materials up to 50 mm height & 3 mm thickness.

# FE

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# Coating to protect surfaces from virus



Photo: Ryan Young/Virginia Tech.

The spread of the Covid-19 pandemic globally has brought the attention on doorknobs, light switches, shopping carts and other common touching surfaces as a medium for the rapid spread of the virus.

William Ducker, a Virginia Tech chemical engineering professor, has developed a surface coating that, when painted on common objects, inactivates SARS-CoV-2, the virus that causes Covid-19.

“The idea is when the droplets land on a solid object, the virus within the droplets will be inactivated,” Ducker said.

Since mid-April 2020, Ducker has been working with Leo Poon, a professor and researcher at the University of Hong Kong’s School

of Public Health, to test the film’s success at inactivating the virus.

Their research was published in the July issue of the *ACS Applied Materials & Interfaces*, a scientific journal for chemists, engineers, biologists, and physicists.

The results of the tests have been outstanding, Ducker said. When the coating is painted on glass or stainless steel, the amount of virus is reduced by 99.9% in one hour, compared to the uncoated sample.

Results have shown that the coating is robust. It does not peel off even after being slashed with a razor blade. It also retains its ability to inactivate the virus after multiple rounds of being exposed to it, subsequent disinfection, or after being submerged in water for a week.

If the project’s success continues, it is a significant discovery in fighting the

virus’ spread.

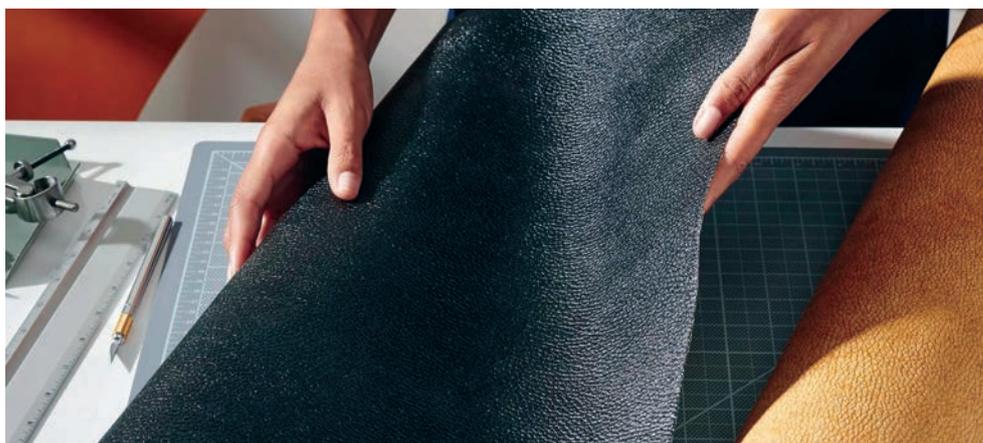
Already, Ducker’s research was focused on making films that kill bacteria. As the Covid-19 virus began to spread to the United States a few months ago, Ducker started looking at making a coating that can eradicate a virus, rather than bacteria.

Virginia Tech granted essential personnel status to Ducker and his two Ph.D. chemical engineering students so that they could enter campus labs to make the film and test its properties.

For Poon’s tests, Ducker and the students spread three different kinds of coatings on glass and stainless steel. Then, they shipped the samples to Poon.

However, the film does not replace other safety measures that people should take to stop the spread of the coronavirus: hand washing, physical distancing and wearing a mask!

# Mushrooms as replacement for leather



Mylo is a unique new material made from infinitely renewable mycelium, which looks and feels like leather, developed by bio-technology company Bolt Threads, of Emeryville, California (US).

Made from infinitely renewable mycelium – the branching underground structure of mushrooms – Mylo is created using a highly-efficient growing process that is intentionally designed to be low impact, taking less than two weeks to grow, emitting fewer green-house gases and using less water and resources than animal leather.

Adidas, Kering, Lululemon and Stella McCartney are the major brand names in the consortium which have secured exclusive access to Mylo. These brands will begin bringing products featuring Mylo to market in 2021.

Following what is the largest joint development agreement in consumer biomaterials to date, the technology replicates what happens on the forest floor in a controlled indoor environment.

The spores of mycelia cells are taken and fed with sawdust and organic material

and placed on a square mat while controlling the humidity and temperature. The mycelium grows into a foamy layer and is harvested, while leftover by-products are composted.

The sheet of mycelium is then processed and dyed and becomes the Mylo, used for making footwear, handbags, wallets, phone cases and other gorgeous products.

Consortium partners were drawn to Mylo because of its remarkable resemblance to soft, supple leather. It can be used like animal or synthetic leather and can take on any colour, finish or emboss.

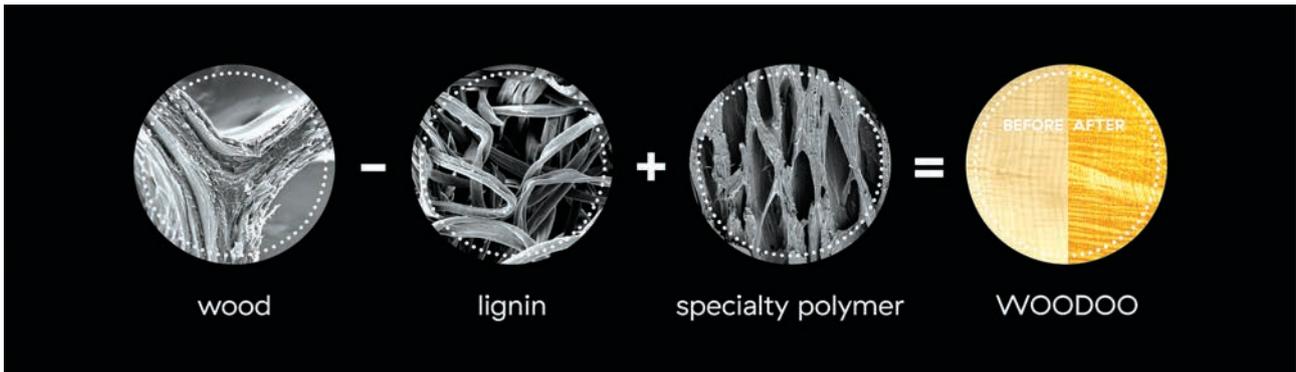
"We are thrilled to be working with partners who recognise that we are in a race to develop sustainable solutions to conventional technologies," said Bolt Threads CEO, Mr Dan Widmaier.

"They are joining forces and investing in a solution that can scale. These forward-thinking companies collectively represent hundreds of millions of square feet of potential demand for Mylo. Most importantly, this is an on-going commitment to developing materials and products for a more sustainable future."

Stella McCartney said: "Many people associate leather with luxury, but since the beginning I always wanted to approach things differently because killing animals for the sake of fashion is quite simply not acceptable."

According to Mr James Carnes, Vice-President of global brand strategy at Adidas, "This is an innovation that challenges the status quo. Products that use the best of what nature has spent millions of years perfecting are critical to that." ([www.mylo-unleather.com](http://www.mylo-unleather.com))

# Woodoo super-wood goes transparent



As automobile makers explore new materials and technologies to minimize cars' weight and emissions, some companies are offering innovative solutions that could advance these goals. Woodoo, a material science company based out of Paris, France, is one of these companies.

Automakers are reportedly showing an interest in Woodoo's latest tech: molecularly-modified transparent wood. Woodoo extracts air and lignin from low-grade wood like beech, pine and poplar, and then reinforces it with a bio-based polymer that boosts performance.

The modified wood is weather-proof, lighter in weight, more resistant to fire, up to five times stronger, and transparent. It has also low CO2 footprint, low-grade species compatible, and is fire-resistant, dimensionally stable and touch-sensitive.

The company is the brainchild of French architect Timothée Boitouzet, who says it's working with a few companies to integrate its modified wood into aircraft and vehicle displays as "tactile

dashboards". The company's mission is to blend nature with technology to design the materials of the future.

Boitouzet got the inspiration for modified wood from Japanese construction culture. "This material that we considered an old material, without innovation, was actually super-smart. This got me excited about wood," he said, predicting that wood will be "the material of the 22nd century".

Woodoo creates the augmented wood by extracting air and lignin from it, then reinforcing it with a bio-based polymer.

*The transparent wood is weather-proof, light-weight, more resistant to fire, and up to five times stronger.*

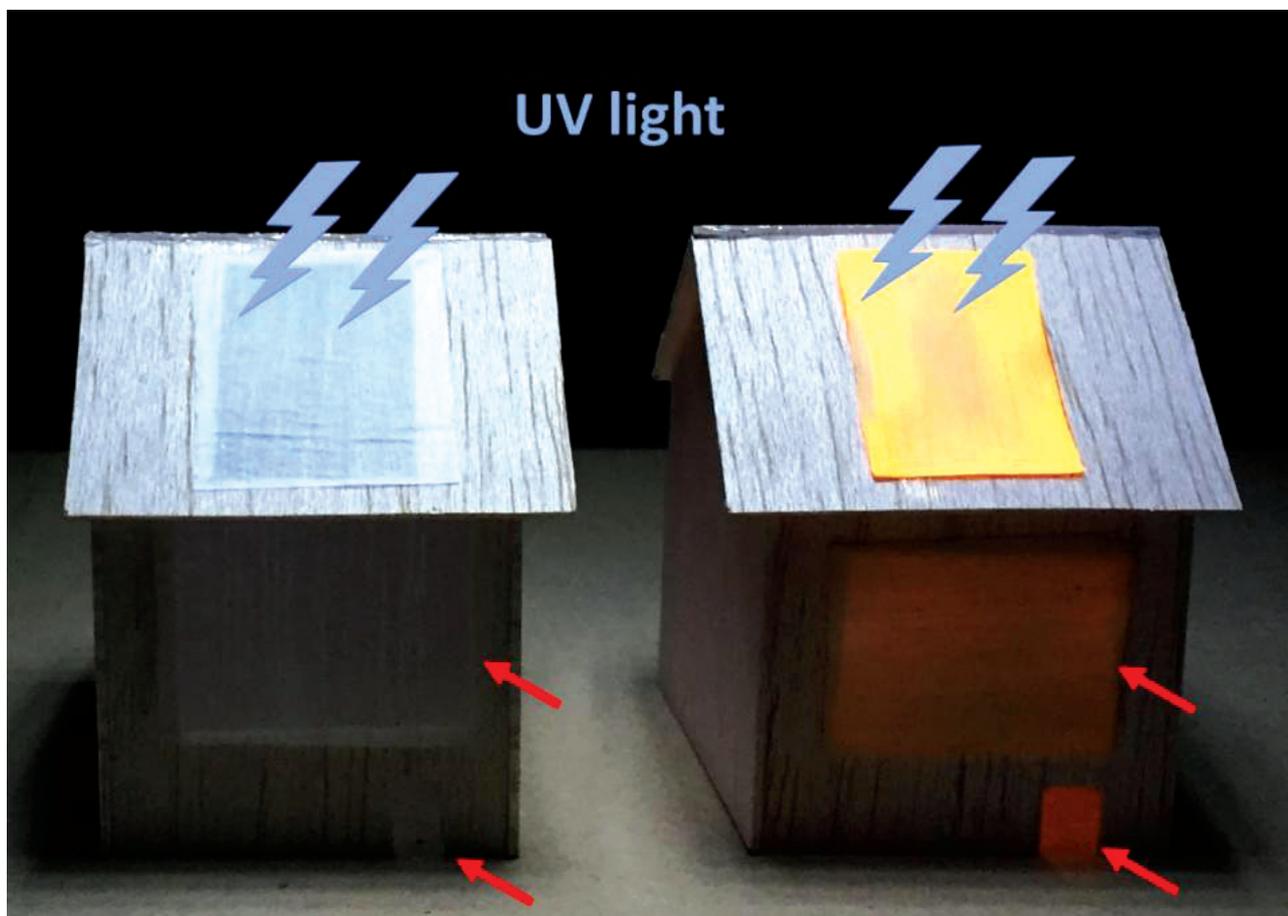
*Woodoo creates the augmented wood by extracting air and lignin from it, then reinforcing it with a bio-based polymer.*

This modification endows the material with strength and fire resistance and envisions multiple applications for the augmented wood, especially in the automotive and construction sectors.

As the construction industry is under pressure to meet environmental standards and reduce the use of endangered wood species, Woodoo offers a superior alternative to premium wood, and can eventually replace concrete, glass and steel in certain use cases.



# Wood film to 'light up' homes?



*A luminescent wood panel (R) lights up an indoor space (as seen through 'windows'; red arrows), whereas a non-luminescent panel (L) does not.*

The right indoor lighting can help set the mood, from a soft romantic glow to bright, stimulating colours. But some materials used for lighting, such as plastics, are not eco-friendly.

Now, researchers from the American Chemical Society have developed a bio-based, luminescent, water-resistant wood film that could someday be used as cover panels for lamps, displays, and laser devices.

Consumer demand for eco-friendly, renewable materials has driven researchers to investigate wood-based thin films for optical applications. However, many materials developed so far have drawbacks, such as poor mechanical properties, uneven lighting, a lack of water resistance, or the need for a petroleum-based polymer matrix.

The researchers have developed a luminescent wood film that has overcome these limitations. They treated balsa wood with a solution to remove lignin and about half of the hemicelluloses, leaving behind a porous scaffold.

The team then infused the de-lignified wood with a solution containing quantum dots – semiconductor nano-particles that glow in a particular colour when struck by ultra-violet (UV) light.

After compressing and drying, the researchers applied a hydrophobic coating. The result was a dense, water-resistant wood film with excellent mechanical properties.

Under UV light, the quantum dots in the wood emitted and scattered an orange light that spread evenly throughout the

film's surface. Different types of quantum dots could be incorporated into the wood film to create various colours of lighting products!

The team has even demonstrated the ability of a luminescent panel to light up the interior of a toy house. When exposed to ultra-violet UV light on the outside, a luminescent wood panel lights up an indoor space (as seen through 'windows'), whereas a non-luminescent panel does not.

# *Upholstery from recycled marine waste*



Tessutica, the Belgium-based subsidiary of Beaulieu International Group (BIG), recently announced a new product line in upholstery, 'Greencare' fabrics. The fabric is created from pellets that come from marine plastic waste and can themselves be 100% recycled into pellets again.

"Greencare is our new collection with 100% recycled and recyclable upholstery fabrics," says Mr Karl Henderson, General Manager of Tessutica, "It is certified under the Global Recycle Standard (GRS) label."

The company has engineered

these fabrics with recycled yarns from regular post-consumer PET bottles from the oceans, landfills and upcycled cotton from garments.

BIG is a global specialist in raw chemical materials (polymers), semi-finished engineered products (yarns, fibres, technical textiles and technical sheets) and a leader in a broad range of floor coverings for the residential and commercial markets (vinyl rolls, vinyl planks, laminate, parquet, carpet, needle felt, artificial grass and mats) as well as upholstery fabrics.

For the production of the Greencare fabrics, Tessutica partnered with the Seaqual project, which brings plastic

waste back into the manufacturing chain in its Seaqual-licensed mills.

One of the major benefits of using recycled polyester yarns is that the production does not require the usage of new petroleum, which significantly reduces the carbon footprint. It also creates 75% less CO<sub>2</sub> emission compared to virgin polyester.

With growing demands for sustainability within the business world as well as from end-consumers, Tessutica felt it was the right choice to offer a product line that comes with a full guarantee of environmental consciousness and sustainability.

# TopSolid CAD/CAM sets shop in India

*An illustrative design for a retail outlet in India using TopSolid CAD/CAM software.*



TopSolid SAS, a leading publisher of CAD/CAM software for metal and wood industries worldwide, has announced 'TopSolid India', a new strategic partnership with DesignCell CAD/CAM Solutions Pvt. Ltd., as part of its objective to consolidate its footprint and get closer to the market.

Fitters, producers of furniture or urban amenities, outfitters of display fixtures for shopping malls, kiosks, leisure vehicles or pleasure boats all need a truly integrated design and manufacturing tool that can be customised to meet their different needs.

Since the lead times demanded in this sector require complete command of the digital chain specialists at TopSolid India – along with partners such as Hettich, Biesse, Homag, Felder and others – will provide the necessary support, implementation and learning process.

According to Mr Richard Lamure, CEO of TopSolid SAS, "The trends and strong demands of the Indian industry – such as Industry 4.0, automation, data management and connectivity – not only call for a global approach, but also

professional and sharp teams to guide customers' projects."

The Indian market is developing rapidly and the country's economy offers a lot of growth opportunities in the furniture and wood manufacturing industry, he said, adding: "To work closely with high-level technical support and training localisation in India, we needed to have an India-specific strategy in place. As a result, TopSolid India was born."

Some top-notch manufacturers who have benefitted from TopSolid's expertise are Crouzet, a French made-to-measure interior designer for luxury brands, and Linder in Germany, a worldwide elegant wooden door manufacturer.

In India, TopSolid already counts NAS Contracts Pvt. Ltd. (exclusive high-end furniture for luxury hotels), and Eudora Enterprises LLP (furniture for children and teenagers rooms) among its satisfied clients.

Mr Sunil Desai, who heads TopSolid India, says the company will focus on important industrial cities. "We will reach out to the market through trade associations,

furniture manufacturing clusters and vocational schools to further increase awareness about our specialisation and woodworking solutions."

The fact that the Indian furniture and wood-based manufacturing industry is maturing rapidly calls for new technology and working process, according to Mr Arnaud de Boisboissel, Business Unit Manager for Asia-Pacific at TopSolid SAS.

"More than 3,000 furniture makers, interior designers and cabinet makers already benefit from TopSolid's genuine digital chain created between the design office and the workshop, avoiding numerous errors, and saving a lot of time," he said.

TopSolid SAS is based outside Paris, and has been present on the international market since 1997. In 2019, the company's global footprint was more than €100 million.

## Catas ready for LCA certification



A team of Catas technicians are currently taking part in a high-level training project to support companies in their efforts to become sustainable. By June 2021, the Italian furniture testing

and certifying company will have all the necessary tools to offer technical assistance to the companies of the wood and furniture sector and will be able to support companies in the processes of "green" analysis and design.

'Life Cycle Assessment' (LCA) is a method that evaluates the impact that products have on the planet. It imposes strict, precise assessment and measurement tools to be able to generate an 'Environment Product Declaration' that can be verified by a third party and made public.

The service will be based on a technical method already adopted in many other sectors, with all the required ingredients of precision and objectivity on the measurements defined by the UNI 11698: 2017 standard.

An activity regulated by a series of ISO standards that will allow companies to give objectivity to their commitment to "eco-design" not only as a will or moral commitment but as a design and production strategy.

## Tamil Nadu plans furniture hub at Tuticorin

The state-run SIPCOT is currently preparing a feasibility report for setting up a furniture hub at Tuticorin, which is expected to house over 35 units, could attract a total investment of around Rs 4,000 crore, and will be India's first large-scale furniture hub.

Currently, India is a minor player in the the \$600 billion global furniture industry, with estimated global exports of \$125 billion. According to *The Hindu Businessline*, Tuticorin's advantage is the port, which has well-established connections to global destinations, and also availability of labour and raw

material.

Some of the major challenges that need to be addressed are the limited availability of certified and cost-competitive raw materials, lack of scale of operations and in-efficient logistics.

Skill development and capacity building across all levels and developing training facilities for the furniture sector are also very important factors to strengthen the Indian furniture industry.

## Ikea's growth plans on track

IKEA's net sales/revenue from operations swelled to Rs 566 crore and its total revenue stood at Rs 665.6 crore in FY20. According to *Exchange4Media*, The company's net loss widened to Rs 720.1 crore from Rs 685.4 crore.

IKEA India opened its first retail store in Hyderabad in August

2018; then launched online stores in Mumbai, Hyderabad and Pune.

Recently, Ikea opened its flagship store in Navi Mumbai. It also has plans to set up two city-centre stores in Mumbai.

IKEA Singapore is opening a Planning Studio, the first in the world to provide end-to-end renovation and interior design services, along with its wide range

of products. The new IKEA meeting point, a collaboration with Livspace, opens in January 2021.

The studio will enable people to plan out a new home from start to finish: design their spaces, select their home furnishings and arrange for all the contractors needed to take care of flooring, painting, electrical works or anything else needed for a complete home make-over.

## Godrej No.1 global home developer

GRESB, an organisation that provides environmental, social and governance benchmarks for real estate companies across the world, has recognised Godrej Properties as a real estate development sector leader, both globally and in Asia, for listed residential real estate.

Godrej Properties is the only real estate developer in India to receive this global recognition. In recent years, the company has received over 250 awards and recognitions, including the Porter Prize 2019, the Most Trusted Real Estate Brand 2019 from Brand Trust Report, Builder of

the Year 2019 at the CNBC-Awaaz Real Estate Awards, and The Economic Times Best Real Estate Brand 2018.

## Automated paint factory for bio-based coatings



The Italian wood coatings manufacturer, IVM Chemicals, recently launched the first fully-automated paint factory for wood coatings with a high degree of bio-based carbon. The pilot plant has an initial capacity of 2,000 tons per year.

The plant addresses multiple areas of paint production to reduce the environmental impact of coatings production. It uses bio-based raw materials and produces paints and coatings with very high shares of bio-

based carbon and even 100% bio-based coatings.

Also, it is fully automated and closed-circuit to ensure the complete avoidance of production rejects and as well as VOC emissions during production. To keep the energy demand low, the plant only produces 100% UV-curable products.

It uses only sustainable raw materials and has considerably less waste reduction (-80%) and energy consumption (-30%) and has a much lower environmental impact.

## Corn board plant coming up in US

CornBoard Manufacturing recently announced plans to build a \$15 million, 50,000-square-foot factory in the north-west part of Iowa state. The main product

will be corn board pallets, but it will also produce skateboards, surfboards and outdoor furniture. Corn board is an environment-friendly wood substitute

made from corn stover, the plant debris left in the field after the corn is harvested.

# Japan developing wooden satellites

The Sumitomo Group and Kyoto University have joined forces to develop, by 2023, what they hope will be the world's first satellites made out of wood. Sumitomo Forestry said it has started research on tree growth and the use of wood materials in space.

The partnership will begin experimenting with different types of wood in extreme environments and will work on developing wooden materials highly

resistant to temperature changes and sunlight.

Space junk is becoming an increasing problem as more satellites are launched into the atmosphere. Wooden satellites would burn up without releasing harmful substances into the atmosphere or raining debris on the ground when they plunge back to Earth.

There are nearly 6,000 satellites circling Earth, according to the World Economic

Forum, which are used for communication, television, navigation and weather forecasting. About 60% of them are defunct (space junk).

Research firm Euroconsult estimates that 990 satellites will be launched every year this decade, which means that by 2028, there could be 15,000 satellites in orbit.

# Eumabois celebrates 60th anniversary



Eumabois, the European federation of woodworking machinery and tool manufacturers, commemorates the 60th anniversary of its foundation. The organisation was founded in January 1960 in France, and in 1964, the brand name Eumabois and the corresponding logo was adopted.

Given the Covid-19 pandemic, it was decided to postpone the celebration of its 60th anniversary to the General Assembly 2021, which will be held in the city of Vienna, hosted by the Austrian association (FMTI).

# Total ban on Russian log exports by 2022

The Russian government has decided to control the export of round wood and low-value forest products and to clamp down on the illegal trade of logs. It also proposes a complete ban on shipments of unprocessed or roughly processed conifer and valuable hardwood by January

2022.

Lower-value hardwood logs, such as birch pulp logs exported to Finland, may be excluded from the future export ban.

To encourage domestic processing of Russian timber, it plans to implement a government programme of subsidised loans for investing in wood processing

facilities, primarily in Siberia and Russia's Far East, targeting the growing wood markets in Asia.

If the log ban is enacted, it will be the end of Russia's long-lasting role as one of the world's largest exporters of softwood logs. Russian hardwood log exports have fluctuated between 7-8 million cubic metres in the past 5 years, but are likely to fall in the next 2 years if higher-value logs such as oak and ash are banned for exports.

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# Jai's Panel Saw Machine



J-3200.in (2.0)



J-3200.in + (2.0)

Adequate maintenance is a crucial factor for the long life of the machine (Panel Saw Machine **J-3200.in (2.0) / J-3200.in + (2.0)**) and to provide conditions for its optimal working. General cleaning ensures the long life of the machine and is an important safety factor.

All maintenance/ cleaning operations must be done with the power turned off and personnel wearing protective gloves and have to be carried out by the machine operator or by a skilled technician.

Before carrying out maintenance operations, adjustments or to dismantle any machine part, turn main switch to OFF, look it then indicate this with a sign.

## Machine Cleaning & Checking

- Eliminate dust and chips from the table and all cavities by using power dust aspirator keeping the following points in mind:

- 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 on the them.

## Checking Of Safety Devices

Check the controls for emergency stops every 2 weeks with the following test:

- With the machine under normal operating condition, press the emergency button arranged on the machine: the saw blade shall 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 there is a problem.

## Machine Removal – Storage

Disconnect the machine from the electrical and pneumatic system. After a total cleaning of the machine, wipe antirust protection unit, and preventing the machine in good environments.

## Cleaning & Checking Schedule

Schedule maintenance is of the utmost importance to obtain the best performance as well as a safe operation of the machine.

## Periodical Lubrication

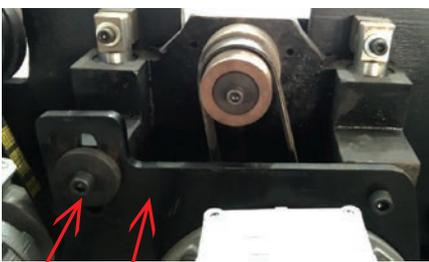
An accurate lubrication ensures the long life as well as the best performance of the machine.

Weekly, lubricate the following areas with grease:

Check items	Daily	Weekly	Monthly	3-Months	6-Months	Yearly
Check whether emergency stop and indicate lamp is normal	✓				✓	
Check the integrity of noise, pressure and ventilation of the machine.	✓			✓	✓	
Clean the exterior of the machine	✓		✓			
Check whether all the screws in the machine are tight					✓	
Check all wires and electric connections near the power switch to see if there are any loose connections			✓		✓	✓
Check if belt running normally. Replace if there is any break or failure.	✓		✓		✓	
Check the load voltage and current of the motor			✓			✓
Check the continuity of all the wires		✓				
Clean the interior part of the electrical box and check the continuity of the wires.			✓			
Tighten the terminal screws of the power supply wires in the control box					✓	
Check for any worn or damaged parts in a unsafe condition.	✓			✓		
Clean and vacuum dust build up from inside cabinet.			✓			

- 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.

**Belt Replacement- Main Saw Spindle Belts**



**Fig.1.1**

- 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 bolt A (Fig.1.1)
- Lift plate B (Fig.1.1) of motor to the end of slot, then tighten bolt A (Fig.1.1) If the belts are slack they may be replaced
- Set the new belts in the proper races as speed is required.
- Loosen bolt A (Fig.1.1)
- Move plate B(Fig.1.1) of motor to initial position (totally down) to stretch the belts
- Manually make the belt rotation for 2

or 3 complete turns, so that it gets the right settling.

- Tighten bolt A (Fig.1.1) & close the rear door again.

Make sure that the selected rotation speed is proper for the working and for the saw blade.

**Belt Replacement- 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 turns, so that it gets the right settling.
- Close the rear cover again

The belt remains always stretched by the motor weight.

**Note:** Never couple belts of

different make, and set.

Replacement of the pair of belts is 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 part 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 and resolving problems**

Carry out interventions only after carefully reading all that concerns the problem indicated in manual. For problems not described in manual apply to JAI Technical service.

**WARNING** - Disconnect the machine from the power source. For preventing serious personal injury, ensure a professional technician turns off power before troubleshooting.

Problem	Possible cause	Troubleshooting
The machine does not switch on.	No power on one or more phases.	If the MCB has tripped take necessary action.
	Control circuit fuses defective.	Turn off the main switch, open the switch cabinet and identify the defective fuse and remove it.
	MCB has tripped.	Replace new fuses using fuses of the same rating.
The machine switches off automatically during operation.	Power failure in one or several phases due to responding factory fuses.	Eliminate cause of phase failure.
	Overload protection has responded due to blunt saw or excessive feed speed.	Change saw blade or reduce feed speed. Allow motor to cool down.
Motor fails to develop full power (output of motor decreases rapidly with fall in the voltage at motor terminals)	Control circuit fuses defective.	Turn off the main switch, open the switch cabinet and identify the defective fuse and remove and replace, using only fuses of the same rating.
	MCB trip	Check electrical connection.
	Power line overloaded with lights, appliances, and other motors.  Undersized wires or circuits too long.	Reduce load on power line.  Increase wire sizes or reduce length of the circuit.

Problem	Possible cause	Troubleshooting
Motor overheats.	Motor overloaded. Air circulation through the motor restricted.	Reduce load on motor. Clean out motor to provide normal air circulation.
Main blade runs backwards	Two of the power wires are reversed.	Exchange wires L1 & L3 in the terminal box.
Blade makes a whining noise on start-up.	Belt worn out.	Replace belt.
Motor stalls (resulting in blown fuses or tripped circuit)	Short circuit in motor or loose connections. Low voltage.	Repair loose or shorted terminals, or Worn insulation on motor.

Problem	Possible cause	Troubleshooting
	Incorrect fuses or circuit breakers in power line. Motor overloaded.	Correct the low voltage conditions.  Install correct fuses or circuit breakers. Reduce load on motor.
Work piece jammed when feeding forwards.	Blunt saw blade. Riving Knife thickness does not match the saw blade used.	Fit sharp saw blade. Fit the correct riving knife that 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.	Dimension scale for cutting width is misadjusted. Incorrect scale position.	Reset the dimension scale to correct size. 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.	Sliding table is not parallel to blade. Rip fence is not parallel to blade. Crosscut fence is not perpendicular to the blade.	Adjust the sliding table. Adjust the rip fence. Adjust the crosscut fence perpendicular to the blade.

Problem	Possible cause	Troubleshooting
Motor stalls (resulting in blown fuses or tripped circuit)	Short circuit in motor or loose connections. Low voltage. Incorrect fuses or circuit breakers in power line. Motor overloaded.	Repair loose or shorted terminals, or worn insulation on motor. Correct the low voltage conditions. Install correct fuses or circuit breakers. Reduce load on motor.
Work piece jammed when feeding forwards.	Blunt saw blade. Riving Knife thickness does not match the saw blade used.	Fit sharp saw blade. Fit the correct riving knife that is 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.	Dimension scale for cutting widths is misadjusted. Incorrect scale position.	Reset the dimension scale to correct size. 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.	Sliding table is not parallel to blade. Rip fence is not parallel to blade. Crosscut fence is not perpendicular to the blade	Adjust the sliding table. Adjust the rip fence. Adjust the crosscut fence perpendicular to the blade.
Saw blade burns on the sliding table side.	Insufficient free cut on sliding table.	Re-adjust the free cut.
Saw blade burns on the rip fence side.	Excessive free cut on the rip fence. Insufficient free cut on rip fence.	Re-adjust the rip fence. Re-adjust the free cut.
Work piece has burn marks.	Blunt saw blade. Feed too low. Saw blade has too many teeth. Incorrect free cut.	Change the saw blade. Increase the feed rate. Change the saw blade. Re-adjust the free cut.

Problem	Possible cause	Troubleshooting
Work piece has chip out on the bottom edge.	Scoring blade height is incorrect. Scoring blade is not aligned with the main blade. 3. Scoring blade kerfs does not match the main blade.	Adjust the height of the scoring blade. Align the scoring blade.  Adjust the scoring blade kerfs.
Work piece has chip out on the top edge.	Main saw blade teeth damaged	Replace the main saw blade or regrind it if damage is minor.
Loud repetitious noise coming from machine.	Pulley setscrews or keys are missing or loose. Motor fan is hitting the cover. Belts are defective or damaged.	Inspect keys and setscrews. Replace or tighten if necessary. Adjust fan cover mounting position, tighten fan, or shim fan cover. Replace belts.
Breakout in spite of scoring	Scoring not aligned with main saw blade. Scoring blade too narrow.	Readjust free cuts; the free cut should be almost "0" Adjust saw width
Work piece rises when cut with the scoring	Blunt scoring blade. Cutting height too low.	Exchange the sawing blade. Set the scoring blade higher.
Breakout in spite of scoring	Scoring not aligned with main saw blade. Scoring blade too narrow.	Readjust free cuts; the free cut should be almost "0" Adjust saw width
Vibration when running or cutting.	Loose or damaged blade. Worn arbour bearings. Worn or damaged belts.	Tighten or replace blade. Check/replace arbour bearings. Replace belts.
Fence hits table top when sliding across table.	Front rail is too low. Rip fence roller is too low.	Raise the rail. Adjust the roller.

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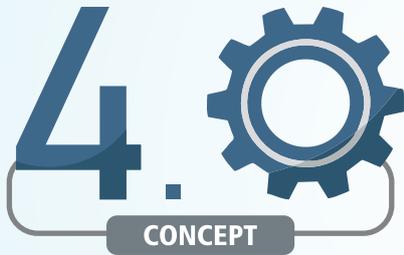
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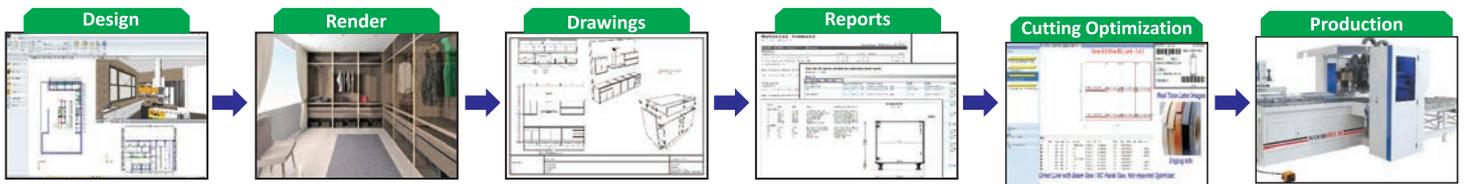
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