ENGINEEREDWOOD SPRING 2021

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About the cover photo:

Outgoing APA President Ed Elias retires July 1, 2021, wrapping up a 44-year career in the engineered wood industry. See story on page 9.



ENGINEEREDWOOD Journal

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IN THIS ISSUE ...

As we enter the second year of a global pandemic with hopeful, yet unpredictable outcomes, the engineered wood industry continues to demonstrate its ability to adapt and transition resources and energy to meet the needs of the industry and its customers. Changes to engineered products and their application throughout the years is highlighted in the following pages of this issue.

The engineered wood industry has seen numerous shifts in the 88 years since the founding of the Douglas Fir Plywood Association. APA's President Ed Elias retires July 1. We asked him to share some of the changes he's seen during his 44-year career. Check out "Reflections on Association and Industry Changes" on page 9 to read how advancements in products, construction assemblies, standards and technology all play a role in growth and innovations in the industry.

Regardless of the challenges brought on by temporary and permanent business and mill closures, EWTA members surveyed at the beginning of the year expressed a surge in optimism for 2021. With a high demand in engineered wood products and favorable housing starts in the U.S. and Canada, members also report that the ability to adapt quickly and implement virtual meetings helped play a role in reaching customers and providing technical support. Flip to page 27 to see a summary.

We have winners to announce! The 2020 Supplier Award Program winners were chosen through online balloting by APA member representatives. Turn to page 39 to see who received the awards.

The 2021 APA Annual Meeting and EWTA Info Fair is scheduled to be held October 16-19, 2021. As of the publication date of this magazine, APA was continuing to monitor the safety and feasibility of holding an in-person event, given uncertainty around increasing COVID-19 variants, uneven North American vaccination rates and members' comfort levels around travel. We expect to have more information later this spring available at www.engineeredwood.org/Info-Fair.

I look forward to the time we can safely gather again for in-person meetings. Until then, let's connect via email, phone, virtual meeting or social media.

Take care and stay safe,

JaDauna Dreon

LaDauna Wilson **EWTA Program Manager** ladauna.wilson@apawood.org

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INDUSTRY CONNECTIONS

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INTERNATIONAL ROUNDUP

Engineered wood use gains traction in Japan long-span agricultural buildings

Representing APA members and U.S. exports, American Softwoods Japan Office Director Tomoko Igarashi used a large-scale exhibit to promote U.S. LVL, glulam and wood I-joists for agricultural building systems. About 6,600 Japanese farmers attended the three-day Osaka trade show in late February. Show attendees expressed interest in the featured wooden building systems that reportedly save 20% on construction costs compared to steel, are quicker to build with and provide longer span options with greater

flexibility in terms of space use and configuration. Nonresidential buildings using LVL, I-joists, structural panels and the featured wooden building systems are establishing a new track record in Japan, with construction already completed for a large warehouse in Osaka and livestock sheds in Ehime Prefecture. More work is planned to expand exports and opportunities in this new market segment, including additional trade show promotion in the Tokyo region in the fall.

Digital marketing opens doors in Korea for panels, lumber

Embarking on a new era of digital promotion, the Canada Wood Korea Office, APA U.S. Korea Program Office, Korean Institute of Registered Architects, Chungnam National University, Simpson Strong-Tie and other key stakeholders recently teamed up to convene two halfday virtual conferences for more than 220 leading Korean architects, engineers, wood product distributors and building industry professionals. Promoting the benefits of North

Continued on next page

American structural panels, softwood lumber, wood frame construction and connection hardware, conference participants learned about seismic design using OSB shear walls, a software adaptation of APA's Wall Bracing Calculator, correct product specification and recommended construction practices. Canadian and U.S. wood industry representatives are generating increased interest in and use of North American wood and platform frame construction in Korea, as well as new product



Korean, Canadian and U.S. wood industry representatives tour a fivestory concrete structure using OSB in-fill walls in Seoul, South Korea.

applications in innovative MIDPLY[®] systems and in-fill walls for non-wooden midrise buildings, including those incorporated into a recently completed fivestory reinforced concrete multifamily project in Seoul.

APA product recognition makes important strides in Taiwan

With strong support from the U.S.D.A. Foreign Agricultural Service (FAS) and APA's Technical Services Division. APA member products have gained market access and acceptance in Taiwan. Major building code changes implemented in January 2021 now recognize fire-rated roof and floor assemblies using PS 2-rated sheathing for wood frame construction without requiring fire tests. This recognition, which opens a new category of buildings and new markets for structural panels, is an outgrowth of an **APA-FAS** technical mission



Lunping Cultural Landscape Park Pavilion, Taoyuan, Taiwan.

of Taiwanese government officials and researchers to the U.S. and continued technical exchanges with APA to address fire safety concerns. Taiwanese companies have specified and are using APA member Douglas-fir glulam in two large landmark projects

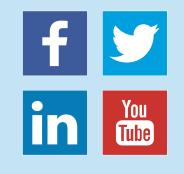
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INDUSTRY CONNECTIONS

that demonstrate market acceptance for APA member products in heavy timber and hybrid construction applications. The first is a Taoyuan City government project, the eye-catching Lunping Cultural Landscape Park Pavilion. The second is the Taichung Airport Terminal Expansion Project, which will enable the facility to handle 3.7 million passengers per year. Both projects were supplied by a U.S. glulam exporter working with APA members mills and a fabricator in Oregon. The projects, their use of APA member products and the building code changes will be highlighted at an APA exhibit in late April at Taiwan's largest architect show in Taipei. APA in-person marketing and promotion will continue at the Timberize Taiwan Exhibition from March through May in Kaohsiung, Taiwan's second-largest city.

APA ON SOCIAL MEDIA

Follow APA to stay up to date on the latest research, publications, webinars and more at <u>www.apawood.org</u>



Latin America online event draws strong engagement

The Dec. 9 online "Experiences with U.S. Wood and Panels" event resulted in high engagement on American Softwoods Latin America's social media accounts. The three Latin America representatives worked with CHVG, a recently contracted digital marketing firm, to plan and execute the event, which included opening remarks by the U.S. Agricultural Trade Office in Mexico City, presentations and a panel by three Latin American importers from Peru, Panama and Mexico, and a talk by Roland Hernandez of Bell Structural Solutions regarding glulam and CLT. American Softwoods Mexico

representative Fernanda Vale introduced each speaker, posed questions to the panel, fielded live questions generated from Facebook and YouTube and kept the event running smoothly.

American Softwoods Latin America's Facebook, Instagram and YouTube accounts show that about 88,000 people viewed advertising for the event, 340 interacted during the live event through likes, shares and comments, and more than 45,000 viewed the recording after the live event. The audience (both live and on-demand) drew from a variety of countries throughout the region: Argentina, Bolivia, Chile, Colombia, Costa Rica, Ecuador, Mexico, Nicaragua, Panama, Peru, Paraguay, Venezuela and the Caribbean region.

Because of the event's success, the Latin America program is planning a three-day workshop for early March. The workshop will feature two keynote speakers and a roundtable with three members of the trade from several different countries in the region. Throughout the three days will be trade show booths for APA/ SFPA member companies and networking opportunities. As in-person activities remain limited. APA's Latin America program will continue offering online events and activities to further education and business relationships between the trade and APA member companies.

Great housing momentum to start 2021

Housing starts in the U.S. and Canada kicked off the year at healthy levels. In the U.S., housing starts in January came in at a seasonally adjusted annual rate of 1.58 million units. Single-family ran at a seasonally adjusted annual rate of 1.16 million units, up 17.5% from January 2020. Housing starts in Canada were up sharply to a seasonally adjusted annual rate of 282,400 units. Starts of single-family detached units were up 54% from last January. A lack of existing homes for sale helped drive demand for new homes. In both the U.S. and Canada, the inventory of existing homes for sale was down to a two months' supply in December, record lows for both countries. The stiff competition for homes is evidenced by prices being up more than 10% from the same month a year ago in both countries. The monthly economic data for January were mixed. The employment number was effectively flat. Retail sales were better than the consensus expectation, and manufacturing was almost back to the level of February 2020.

Retirement announced for two industry leaders

Ben Crim, Hood Industries, Inc.



Ben Crim, Vice President of Engineering & Environmental Management for Hood Industries, retired in December 2020 after a 30-year career with the wood products manufacturer and distributor. Crim joined Hood in 1990 as the Director of Engineering & Environmental Services and was named Vice President in May 2012. His career in wood products

Ben Crim

spans nearly 49 years. Hood Industries President Jay Galloway said, "It has been a privilege for me to work with Ben at different levels throughout my career. He has been a true professional and valued colleague. I wish him all the best in this new phase of his life."

Congratulations, Ben.

Jim Baskerville, Tolko Industries



Jim Baskerville

After nearly 30 years, Jim Baskerville, Tolko Industries Vice President, Strand Based Business, retires in April 2021. Baskerville began his 44-year career in the forest industry as a logging supervisor for Great Lakes Pulp and Paper in Ontario. He joined Tolko in 2003 and has served as the Area Manager at Heffley Creek, Regional Manager at Armstrong

and Okanagan Operations and General Manager for Strand Based Business & Engineered Wood Products. He was named VP, SBB in 2012.

"Jim has been an effective leader who has lived Tolko's values every day of his career. Building the safety culture is part of his legacy at Tolko. His knowledge and experience will be missed," said Brad Thorlakson, Tolko President & CEO.

Congratulations, Jim.



APA President Ed Elias presents his first state of the association address at the 2013 APA Annual Meeting.







REFLECTION ON ASSOCIATION AND INDUSTRY CHANGES APA president retires from 44-year career

By Tara Mattina, APA Market Communications Director

In APA – The Engineered Wood Association's 88 years of representing the industry's North American manufacturers, change has been a constant. And, in Ed Elias' 44 years with the Association, he has been involved with many of its most significant evolutions.

As the Association transitions to a new president before Elias' expected July 1 retirement, he reflected on the organization and the changes he has seen within the engineered wood industry.

"What we look like today is far from what we looked like even 15 years or 30 years ago, but this Association has always been committed to our three core functions of product quality, market access through technical research and testing and effective marketing," Elias said.

Elias joined APA in 1977 as an associate scientist. After 10 years in various roles within the Technical Services Division, he went on to lead the International Marketing and Financial and Administrative Services divisions. Elias also served as corporate secretary and vice president before being named president in 2013.

During those years, advancements in products, construction assemblies, standards and technology have prompted growth and innovation. The Association has grown, expanding from prescriptive- to performance-based standards. That evolution alone has seen the introduction of new manufacturing technologies, adhesive systems and a whole new family of engineered wood products. Coordinated with this expansion has been the development of new technology-based quality assurance programs.

"We have expanded from our base of softwood plywood to embrace oriented strand board, glued laminated timber, structural composite lumber, structural wood I-joists and mass timber," Elias said. "Our production capacity in structural wood panels alone has grown from 17 billion square feet in 1977 to over 35 billion square feet today."

APA represents about 85% to 90% of engineered wood products in North America under one trademark. This representation follows strong strategic direction led by a proactive APA Board of Trustees. The Association has diversified product representation, expanded the geography of the industry it serves and continually strived to open new market opportunities.

"This Association and its members have shown a global approach toward growth in product demand," Elias said. "We have been able to focus our energies emphasizing fair trade and the harmonization of standards and building codes around the world."



Combining the research efforts of scientists at APA's 42,000-square-foot Research Center with the knowledge gained from decades of field work, and cooperation with our member manufacturers, APA promotes new solutions and improved processes that benefit the entire industry.



APA and APA EWS trademarks are the manufacturer's assurance that the product conforms to manufacturing and product performance standards shown on the trademark.

Even during 2020's global coronavirus pandemic and 2008's deep financial recession, while other industry associations contracted or folded, APA's membership grew, and the industry prospered. Elias attributes this success to the industry's proactive approach, led by APA's members.

"Our members have ownership in APA, dedicating both their time and attention to our strategic plan," he said.

One of the most visible investments in the industry's future can be seen in the recently expanded capabilities at APA's research center in Tacoma, Washington. The significant upgrades to APA's research and testing facilities support innovative design and construction of timber structures using wood structural panels, engineered wood products and mass timber assemblies. From this facility, new wood structural assemblies will evolve, allowing this industry to realize the dream of expanded heights and areas, raising wood-frame construction norms to 12 to 18 stories.

Continued on page 13

APA ANNOUNCES NEW PRESIDENT Mark Tibbetts as Ed Elias plans to retire

Mark Tibbetts joined APA March 15 to begin the transition to the president position July 1, when Ed Elias will retire. Tibbetts was selected by the APA – The Engineered Wood Association Board of Trustees through a lengthy search process after Elias announced plans in 2020 to retire.

"Mark Tibbetts' passionate interest in and understanding of the role APA undertakes for its members and the industry clearly set him apart," said Jim Enright, chair of the APA Board of Trustees. "The Board endorsed him as the new APA president because of his experience with team building, leadership and communication, and we are excited to add his expertise to our talented team at APA."

"With deep appreciation, the Board thanks Ed Elias for his tireless and steadfast leadership at APA during the coronavirus pandemic," Enright said. "When it coincided with the search for his successor, Ed, without pause, postponed his planned retirement on behalf of APA staff and members. We thank him for 44 years of service to APA and wish him the best in this new chapter of his life."

Tibbetts brings more than 15 years' experience in association and nonprofit program management, environmental policy and business development. He has held leadership and management positions in the Air Conditioning Contractors of America, Tag and Label Manufacturers Institute, Thermostat Recycling Corporation, National Electrical Manufacturers Association and American Public Works Association.

Tibbetts earned bachelor's and master's degrees from the University of Maine. He plans to move with his family from Alexandria, Virginia, to Tacoma, Washington, where APA is headquartered.

"For someone who has harbored a lifelong interest in residential construction and building design, I'm thrilled to be taking on this role," said Tibbetts. "APA has a proud history of supporting members by growing the market for engineered wood products through product promotion, quality assurance and technical support. I look forward to working with the membership, the staff team and our industry partners to build upon this legacy of leadership and exceptional service."

Elias has served APA and the engineered wood industry for more than 40 years, beginning as an associate scientist in 1977. After 10 years in various roles within the Technical Services Division, he went on to lead the International Marketing and Financial and Administrative Services divisions. He also served as corporate secretary and vice president before being named president in 2013.

"APA is in as strong a financial and strategic position as it has ever



Ed Elias



Mark Tibbetts

been," Elias said. "I am confident that through Mark and the APA staff, the Board of Trustees and the support of this industry, this Association will continue to grow, capitalizing on a fluid marketplace and becoming more globally relevant every day."

Tibbetts will become the 12th executive leader in the Association's almost 90-year history. Boyden, an executive search firm in Ottawa, Ontario, conducted the initial recruitment, screening and vetting of candidates.

Tibbetts and Elias will work together during the three-month transition until Tibbetts assumes the presidency July 1.



Built in 1969, the 42,000-square-foot lab has long been recognized as one of the leading wood research facilities in North America. While the lab had been well maintained and updated over the years, the \$4.5 million expansion raised a portion of the roof to 40 feet high and added a 4-foot-thick reinforced strong floor, 10 strong wall blocks with anchors, twin 5-ton cranes and whole range of new equipment to accommodate full-scale multi-story structural assembly testing.

"Our members' products will find new and expanded markets in wood-frame construction with a mix of lumber and other wood materials, and in buildings that blend concrete and steel with engineered wood product assemblies," Elias said. "These approaches have been initially and successfully applied in commercial and residential buildings, and we're looking at other ways to marry these products in the future."

APA's market access through research and testing dovetails into new innovative marketing schemes. The Association has more than 600 publications in its library of titles, with nearly all of them available at no cost from the <u>apawood.org</u> website. Videos, "how to" guides, webinars and other digital content are also available, which became more important as people sought safety from COVID-19 by avoiding in-person meetings.

"Our communications programs have evolved away from defending this industry's behavior under concerns for the spotted owl and forest management practices to the attributes of carbon sequestration and the role of forests in addressing climate change," Elias said.

When the coronavirus pandemic prompted states and provinces to lock down in spring 2020, the Association took proactive steps to safeguard the health of its employees and the people it serves. Mills were audited remotely, lab services were split into shifts and field staff implemented video conferencing to continue educating designers, builders and code officials.

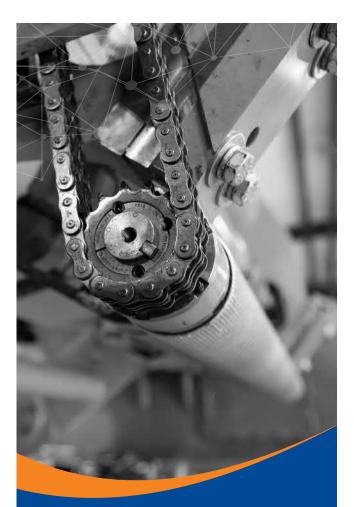
"We embraced technology to connect with our members and others," Elias said. "We not only maintained our services during a difficult time, we increased productivity and developed new capabilities we can carry even beyond the pandemic."

These may be different times, and just as APA has demonstrated over its almost 90-year history, new challenges require new approaches. The Association's fundamentals, however, are unlikely to change.

"The industry has seen the benefits of our core functions of quality, technical and marketing, and I don't see that changing," Elias said. "Our delivery and the type of information we need might be different, but we're still committed to those fundamental tenets."

"It has been my honor to contribute to the growth of this industry over the past several decades," he said. "The Association staff and our many colleagues within the member companies are what make this Association the success that it is today and what will be achieved in the future. We are limited only by our collective ability to aspire to goals beyond what we believe are possible today."

Tara Mattina is Market Communications Director for APA – The Engineered Wood Association.



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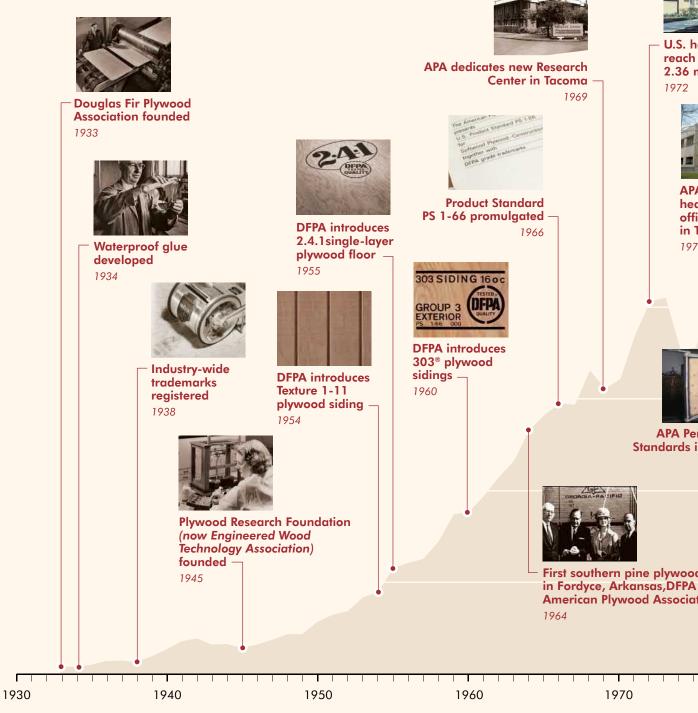
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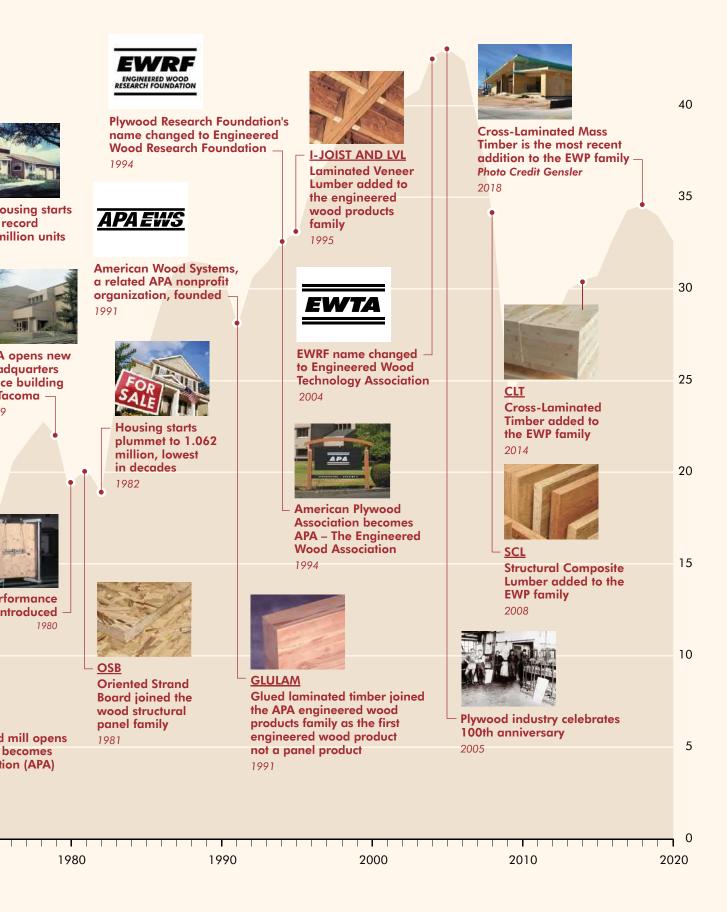
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APA AND EWTA THROUGH THE YEARS



Graph depicts North American Industry Production in Billions of Square Feet

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ENGINEERED WOOD IN SCHOOLS TODAY

Two new schools expose the benefits of engineered wood

By Karyn Beebe, P.E., LEED AP

As demand grows for new schools, the need to build facilities that are sustainable, cost-effective and aesthetically appealing is a priority for school districts, architects and builders. Two Washington school districts creatively leveraged the benefits of exposed wood products in their newly constructed schools, making engineered wood the ideal choice for school construction.

VANCOUVER SCHOOLS

The McLaughlin Middle School/Marshall Elementary School, located in Vancouver, Washington, is one of the largest mass timber projects in the Pacific Northwest, at an astonishing 203,000 square feet. The project was carried out by Western Wood Structures, a local construction company based out of Tualatin, Oregon, that specializes in mass timber installation.

Mike Dyer, project manager for Western Wood Structures, is no stranger to the benefits of engineered wood products. Western Wood Structures has been building with engineered wood for more than 50 years. "We love the product because it doesn't have the natural flaws of traditional timber," Dyer said. "It's a very consistent building material."

Vancouver Public Schools wanted to begin incorporating wood into its schools. In addition to sustainability, the school district was also enamored by the warmth and natural aesthetic of the mass timber. The school district chose to leave the wood exposed, so people could see its natural beauty and the structural elements, creating a strong focal point.

Photo courtesy of Western Wood Structures



The Vancouver school project used multiple engineered wood products, including crosslaminated timber (CLT), glulam and laminated strand lumber (LSL). Using mass timber significantly increased the speed of erection. "Our crew was able to set entire floors of CLT panels in just a few days, which would normally take a week or two with traditional framing," Dyer said. "The beauty of mass timber is that all the fabrication required for the project is done when it shows up. It's much more precise and very beneficial for the timeline of the project." Engineered wood products can be manufactured in dimensions specific to the project, resulting in less wasted scrap materials. Traditional lumber requires cutting, drilling and tooling on location, which requires more labor hours, produces more waste and creates more room for errors.

The mass timber improved safety on the job site. "It allowed our crew to spend less time preventing safety issues and constructing components to walk on, because instead, they had a large, sturdy panel to walk on," Dyer said. "It reduced the number of our crew members that were in the air."

The project was met with innovation by Western Wood Structures. "We developed a special rigging form for lifting the different sized CLT panels and ensuring they were precisely set in place," he said. With over 800 CLT panels, and more than 700 different shapes and weights, the company needed a rigging system that was simple but could accommodate the variety. Western Wood Structures' project engineers designed, developed and manufactured a rigging system that allowed the crew to install over 30 panels, or 10,000 square feet of floor or roof a day.

"It's hard to move the panels once they are set, and this rigging form allowed us to increase our crew's productivity and improve their safety on the job."

TACOMA SCHOOLS

About 175 miles north, Tacoma Public Schools also discovered the benefits of incorporating exposed engineered wood into their new school. Birney Elementary is home to one of Tacoma, Washington's deaf and hard of hearing programs.

The prior building was replaced by a brand new 56,055-square-foot structure featuring four classroom wings and a communal learning commons. The new school, completed by Turner Construction Company, opened in 2020.

For Tacoma Public Schools, engineered wood was an easy choice.

According to Kris Stamon, project manager for McGranahan Architects, early in the project, mass timber components were chosen instead of steel because of wood's inherent beauty. "The

Continued on page 22



Photo courtesy of Tacoma Public Schools

"People are moving toward wood because of the environmental benefits. It's sustainable and renewable, and people feel good about that."

-Mike Dyer, Project Manager for Western Wood Structures

Biophilia and Learning

Wood products can positively affect the learning environment. The natural beauty and aesthetic of exposed wood creates a warm and enriching atmosphere. More research is backing the hypothesis of "biophilia," or the tendency for humans to prefer natural materials. Research suggests that natural materials, like engineered wood, support increased focus and productivity that is conducive to an effective learning environment. Read more about biophilia and the research behind it at www.apawood.org/biophilia.

Photo courtesy of Western Wood Structures design expresses the warmth and beauty of the wood products, specifically via the exposed roof structure that unifies the main circulation spaces throughout the school," said Stamon.

One of the main drivers of the project was being able to maximize the openness of the building. "The visual openness unifies the school," Stamon said.

But for Tacoma Public Schools, choosing engineered wood was about more than just good looks. For the single-story building, wood products were also the most cost-effective solution. Instead of needing to layer finish products over the structural members, the glulam and laminated veneer lumber (LVL) used on the project served as both. "We were able to use the structural wood as the finish material, which reduced our costs when compared to a layered approach," said Tacoma Public Schools Project Manager Greg Stidham. "The fact that many of the wood elements could be left exposed and expressed structurally had added benefits. The ability for the students to see the structural and exposed connections can also be used as an educational tool."

The structural design was intentionally repetitive and allowed the construction process to be sequenced for improved efficiency. "We were able to pre-construct panelized walls, which allowed for mass installation. Using the sequencing system improved our crew's productivity," said Turner Construction Engineer Karen Lawton.

"Glulam served as the main beams, which we installed first with plywood spans, then we installed the roof system. The exposed glulam beams and plywood provide roof structural support and horizontal stability throughout the main hallways of the school,"



Acoustic Advantages

The wood products also offered some acoustical advantages for the deaf and hard of hearing students. Wood doesn't reverberate sound as much as its steel or concrete counterparts. The wood helps soften the noise and makes sound easier to control, creating an enhanced learning experience for the students.

Photo courtesy of Tacoma Public Schools

Lawton continued. "These beams can span longer distances for flexibility of design and construction."

By using wood on the project, Turner Construction was able to cut labor costs and support the local economy by sourcing the wood materials from local suppliers. "We were able to tap into the large, local carpentry force," said Amanda Packer, project manager for Turner Construction. "We were also able to save on labor costs because we didn't need to hire additional welders or ironworkers, whose wages are typically more expensive." "The wood products were local and readily available, so we didn't need to wait for shipping from another country, which was a big advantage," Packer added.

"Engineered wood products and traditional materials were combined to form a beautiful, cost-effective and safe learning environment for the students," Stidham said. "The exposed wood makes this school unique; it makes it stand out." It's clear that for these two school districts, engineered wood gets an easy A.

Karyn Beebe is the West Region Field Services Manager for APA – The Engineered Wood Association



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No LIGNA? No problem!

Raute has something new and exciting planned for this upcoming May. With LIGNA being postponed this year, along with the travel restrictions and safety concerns due to the pandemic, we have decided to create our very own virtual event. We would like to introduce you to our RxEvent - Raute **Online Experience.**

RxEvent is open for all to attend and is more than just an online seminar. It will feature interesting and insightful keynote presentations as well as industry-related content from our key speakers on the main stage. The virtual showroom will showcase our top-of-the-line products, services, and solutions. Of course, there will be lots of fun and interactive activities planned for the audience as well. We will be putting extra effort into connecting with our guests and we will be answering any guestions you may have related to your production during this virtual event.

"We're bringing the industry together in a way that's never been done before and we hope that everyone is as excited about this RxEvent as we are," says Päivi Talonen, Chief Marketing Officer, Raute.

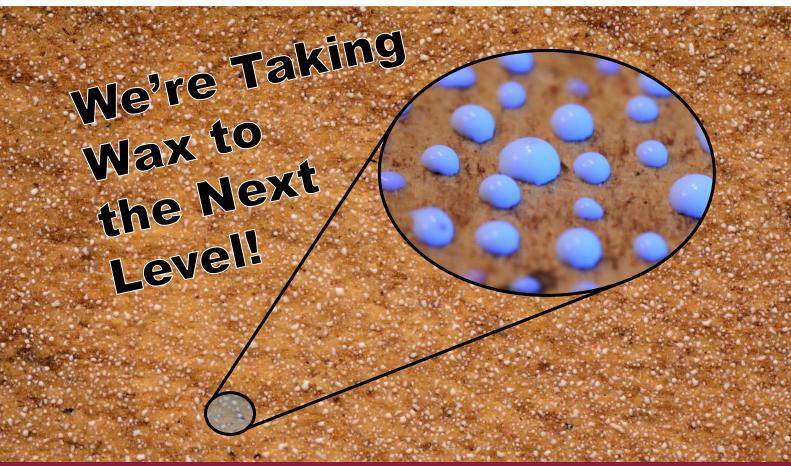
For further information on our upcoming RxEvent, please visit www.RauteRx.com.

May 2021 | RauteRx.com Ш





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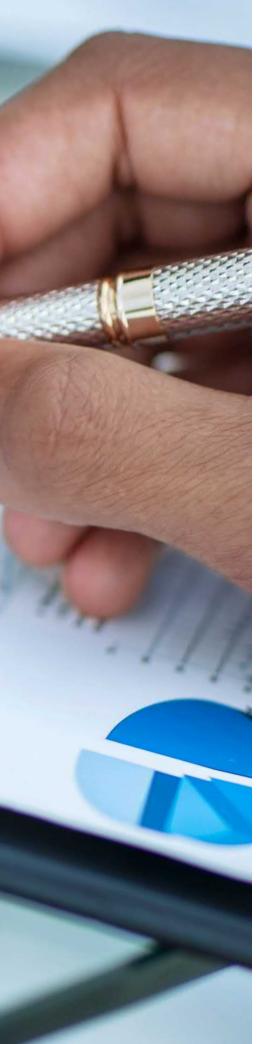
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BUSINESS OUTLOOK Early projections look favorable for the industry

by LaDauna Wilson

Following a year of temporary and permanent closures and unpredictable outcomes due to a worldwide pandemic, Engineered Wood Technology Association (EWTA) members surveyed at the beginning of the year convey a surge of optimism for 2021. An increased demand for building products, reopening of businesses and the widespread distribution of COVID vaccines may be what is triggering this opinion. Whatever the reason, 81% of the responses anticipate improved business projections for the new year.

This year marks the 11th time the Engineered Wood Technology Business Outlook survey has been sent to EWTA members at the beginning of the new year. The web-based survey is posed with five questions designed to capture EWTA members' perception of growth, their companies' employment levels and other businessrelated issues. While sentiment is not at the level expressed in 2013, it ranks second in the outlook of optimism and future business projections that have been gathered in the last decade. Current and past responses are reflected in the following charts and illustrate trends from 2011 to 2021.

CHOICE OF TOP RECOVERY FACTOR IS CONSISTENT

Members are asked to rate the relative importance of several factors in relationship to the stability and/or expansion of their business. The highest-ranking item is consistently the state of the U.S. housing market. This year is no different, with 75% of the respondents indicating that it is "very important." The remaining 25% of the responses rank the U.S. housing market as "important." The state of the U.S. housing market was the only category with no "unimportant" level selected.

Assessed as second and third in a level of high importance are the government economics and tax policies, and the price and supply of raw materials, respectively. This is a shift from the 2020 rankings, where government economics ranked low in importance and raw materials prices and supplies were mid-range. Members continue to be fairly satisfied with the state of the employment and labor issues, listing it and international exchange rates and trade policies in the mid- to lower ranks of importance. A complete breakdown follows, showing that EWTA members believe all factors carry a varying degree of weight for recovery.

OPTIMISM IS HIGH

Ninety-six percent of survey respondents reported they are more optimistic or at the same level of optimism when looking at future outcomes in 2021 compared to those available to the engineered wood industry in 2020. Only 4% claimed to be less optimistic. When asked how companies adapted to economic conditions, the ability to adapt quickly to circumstances with creativity and patience has been a key. Virtual meetings also played a role in reaching customers and providing technical support, as did adjusting staff and inventory levels.

As optimism increased, so has the outlook for business projections for 2021, which reported an 81% improvement, compared to 50% in 2020. The percentage of members who predicted that 2021 would be worse increased to 15% up from the 10% projection in 2020.

BUSINESS PERFORMANCE STEADY FOR SOME

Despite the impact due to the COVID-19 pandemic, 69% of EWTA members reported that their business stayed the same in 2020, up from the 45% reported in 2019. Business improved for 17% and was worse for 15% during the year.

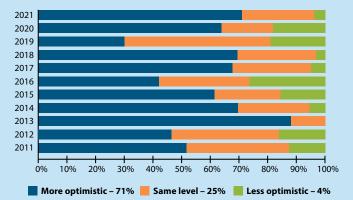
When asked about changes to employment levels in 2020, 69% had no change in staffing, 17% increased staff and 15% saw a decrease. A couple members addressed adjustments in staffing levels through attrition and reduction

	Very Important		Unimportant
State of the U.S. housing market	75%	25%	0%
Government economic/tax policy	60%	32%	8%
Raw material prices or supply	54%	35%	9%
Economic uncertainty	48%	48%	4%
Transportation costs	45%	40%	15%
Government regulation	42%	42%	16%
Marketplace competition	35%	56%	9%
Labor issues	26%	50%	24%
International exchange rates/trade policies	23%	56%	21%

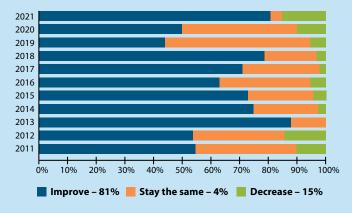
2020 - HOW IMPORTANT ARE THE FOLLOWING FOR RECOVERY?

BUSINESS PERFORMANCE CHARTS

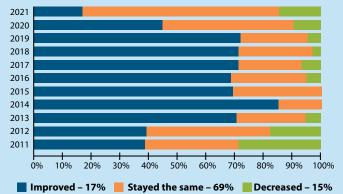
HOW OPTIMISTIC ARE YOU ABOUT YOUR WOOD-RELATED BUSINESS THIS YEAR COMPARED TO LAST?



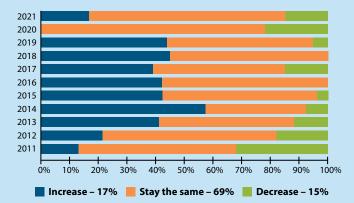
WHAT IS YOUR BUSINESS PROJECTION FOR 2021?



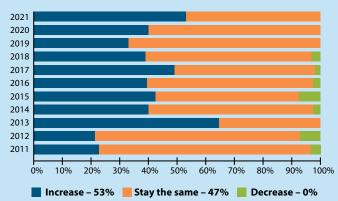
DID BUSINESS IMPROVE, STAY THE SAME OR WORSEN THIS PAST YEAR?



DID YOUR EMPLOYMENT LEVELS CHANGE LAST YEAR?



WHAT IS YOUR EMPLOYMENT PROJECTION FOR 2021?

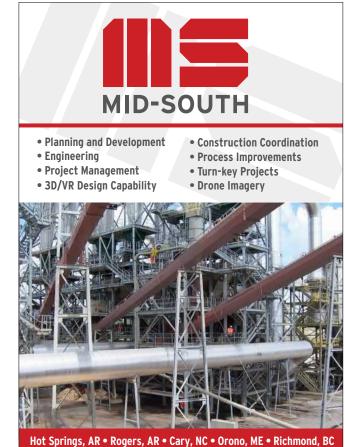


in hours. However, a growing demand for business in the new year was providing an opportunity to build staff levels once again.

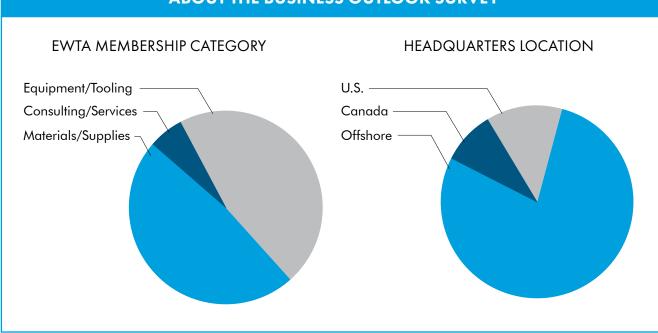
PROACTIVE MEASURES

When asked how businesses were adapting to the current economic conditions imposed by the 2020 COVID-19 pandemic, some members were able to seize opportunities by quickly adapting to new processes. One company shifted their focus to QA programs and on-time delivery, while others adjusted inventory and interactions with clients. Another company noted that labor conditions were thin due to COVIDrelated issues, making timely order distribution a challenge. Overall, the implementation of virtual communication methods was a universal transformation, with many companies adapting to a new format for internal and external use as we all strive to stay safe in 2021.

LaDauna Wilson (<u>ladauna.wilson@apawood.org</u>) is the EWTA Program Manager



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ABOUT THE BUSINESS OUTLOOK SURVEY



Enabling Engineered Vood Products

For over 80 years, Hexion has been at the forefront of the engineered wood industry, inspiring our partners to produce the most sustainable building materials on earth.

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- Utilization of the entire tree
- CO₂ sequestering



33 THE OFFICIAL PUBLICATION OF THE ENGINEERED WOOD TECHNOLOGY ASSOCIATION

THREE KEYS TO CONTENT MARKETING SUCCESS SEO strategies

By Dana Ohler

It's a big world wide web out there. With nearly 2 billion live websites on the internet and an estimated 5 billion internet users, about 4 billion of whom are on on social media, it's all too easy to get lost in the crowd. But there are ways to improve search visibility through crafting content that's more friendly to search engines—and to humans alike. Here's three ways to boost your signal to get the most out of content-based marketing.

CONTENT VS. COPY: WRITING TITLES AND HEADINGS WITH SEARCH IN MIND

Copy writing usually refers to printed material, while content writing refers to web publishing. There's definitely overlap good writing is good writing—but the real difference is that copy writing is not necessarily web-optimized, while content writing purposefully integrates best practices for SEO. In other words, content writing is web search friendly.

To illustrate the difference, here's an example of a title for the same content about plywood manufacture, copy versus content:

- 1. The ABCs and 123s of the Original Panel Product
- 2. Plies, Adhesives and Orientation: How is Plywood Made?

The first one is a playful title that alludes to the actual subject without mentioning it. It's fine for copy writing, but it's the wrong approach if the content is destined for the web. Basic as it may seem, it will get lost in the web search shuffle—and your content along with it—because it is too abstract. The second one is a lot a more searchable. It's phrased as the kind of question that people enter into search engines, and it uses keywords related to the subject. Wherever possible, write headings and titles that mimic search terms or queries.

DO: Cut right to the chase of what your content is about and use keywords or ask basic questions.

DON'T: Use abstract titles that metaphorically touch on the topic.

Titles, subtitles and headings can go a long way towards optimizing SEO. Search engine crawlers are constantly indexing websites, and they make note of what is in headings (the <h> tags in HTML). If you omit headings, or use headings that don't make use of keywords, you're missing a golden opportunity to win at the web search game.

ACCESSIBLE CONTENT IS GOOD FOR BUSINESS

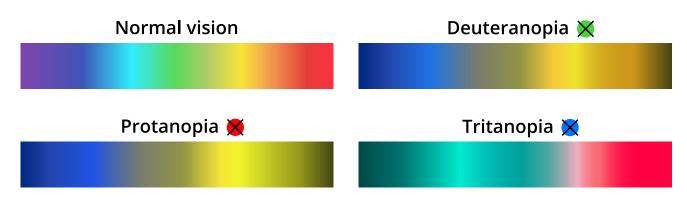
Accessibility is sometimes overlooked, but doing so is a major blunder. Not only can inaccessible content frustrate would-be customers, omitting accessibility features is also unfavorable for SEO.

A sizeable portion of the population uses accessibility features to read web content, and

this population is well represented among customers, as a rule. How sizeable a portion? 15% of Americans 18 and over have trouble hearing, according to the National Institute on Deafness and Hearing Disorders. According to the NIH, 6% of Americans experience vision impairment. Additionally, an estimated 8% of men and 1% of women have some form of colorblindness, according to the National Eye Institute. These numbers don't account for those with temporary hearing or vision loss, either, so even with some overlap, combining those groups suggests approximately 20% of the population requires accessible content. With an aging population, these numbers are projected to grow over time.

Make it easy for your customers to understand your message. For audio-heavy content like podcasts and videos, offer transcripts and subtitles, as appropriate. For graphics, make sure there are no issues with low-contrast colors that people with vision impairment will have difficulty seeing; same goes for combining colors that people who are colorblind will have difficulty reading or distinguishing. A high-contrast color scheme is

Colorblindness



Example of colorblindness side-by-side comparison.

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 Right-click or tap and hold here to download pictures. To help protect your privacy, Outlook prevented automatic download of this picture from the Internet. Thumbnail

ARTICLE // Framing

The Best Way to Frame: Less Wood, More Thought

With the price of lumber skyrocketing, it might be a good time to learn about advanced framing.

Example of suppressed image with alt text displayed.

best, but avoid inverted text (light text on a dark background); it's notoriously difficult to read.

DO: Make content accessibility a priority.

DON'T: Pass up a large customer group by skimping on accessibility measures.

Add alternative text, aka "alt text" or the "alt" attibute, to every digital image, web, email or social post. If there's no option to add alt text, write an explanatory caption. The alt text clearly and briefly explains what the image shows and prevents frustration for those who can't see the image—and that's not only folks with visual impairments, but folks whose email client suppresses images, or any of the other technology issues that can result in image suppression. And, as mentioned earlier, alt text is important for SEO. Like titles and headings, web search crawlers index alt text for site search. Because of its weight in web search, it's worth taking the time to write alt text that uses keywords to clearly describe the relevance of the image and what it depicts.

TEST REPEATEDLY AND IMPLEMENT FEEDBACK

No matter how good the writing, graphic or image is, personal quirks and content habits are all too easy to overlook by those who have them. The best content has the widest appeal, and one of the best ways to broaden appeal is by committee.

Ask others to review content—as many other folks as practical—and thoughtfully implement changes based on their feedback. You don't have to take every suggestion, but always consider the possible benefits and drawbacks to suggested improvements and thoughtfully address the concerns that were raised.

DO: Test, test and test again. Thoughtfully implement feedback to make improvements.

DON'T: Skip the review process because the content seemed fine last time.

Contrast Checker

<u>Home > Resources</u> > Contrast Checker



Example of failed Contrast Checker results.

Test digital content. No need to guess if your content meets accessibility standards. There are many free tools that allow for thorough testing. For graphics, WCAG's Contrast Checker at <u>https://contrastchecker.com</u> checks for visibility issues, including colorblindness, that could render the graphic indistinguishable. Microsoft's Accessibility Insights tool at <u>https://</u> <u>accessibilityinsights.io/en/</u> is a browser extension that checks webpage compliance with WCAG accessibility. These are free, among many other utilities for graphics and websites available through a quick web search.

HTML email testing, on the other hand, is not free, but it's highly recommended. There are many different email clients (Outlook, Gmail, Yahoo! mail and so on) that users receive email through, and each client renders emails differently. What looks good in Gmail can flop in Outlook, and vice versa. Some good subscription-based email test providers include Litmus PutsMail, Email on Acid and MailTrap. These services test emails amongst a broad array of clients and help identify changes so that marketing emails display at their best. For images and graphics in email, always include alt text; an estimated 60% of email clients suppress images. For this reason, it's not recommended to use an email that is only one large image. The whole thing may be suppressed, and the message will be lost. The classic recommended text-to-image ratio is 80% text to 20% graphics.

Dana Ohler is the Publication and Website Manager of the Market Communications Division for APA – The Engineered Wood Association.



Solutions to Fight Wood's Natural Enemies

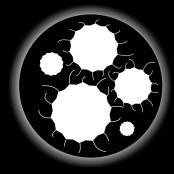


TERMITES



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SUPPLIER EXCELLENCE



2020 SUPPLIER AWARD PROGRAM WINNERS ANNOUNCED

Four EWTA companies have been selected to receive the 2020 Supplier of the Year and Innovation of the Year Awards for their contribution to the industry. Due to the cancellation of the 2020 APA Annual Meeting and EWTA Info Fair, APA member representatives were asked to cast their votes through online balloting to select EWTA members who provide excellence and innovation through their products and services.

The Supplier of the Year Awards are based on the quality, service and delivery of EWTA member products and services to APA member companies. The Innovation of the Year Award recognizes a company with a new, original and unique product or service that is used in the field and producing positive results. Congratulations to the 2020 winners.

Supplier of the Year Award Winners

The Supplier of the Year awards are presented for each of EWTA's membership categories: Equipment and Tooling, Materials and Supplies, and Consulting and Services. Following are the 2020 winners for each of the categories.

Innovation of the Year Award Winner

The Innovation of the Year Award recognizes a company providing a new technology, product or service that has been shown to reduce production costs increase productivity, improve product quality or in some other way provide a bottom line benefit to APA members.

EQUIPMENT AND TOOLING CATEGORY



Raute

Raute is a technology and innovation leader providing global expertise in wood products manufacturing. Raute invests in advancing the production process of plywood, LVL, and engineered wood products and provides profitable solutions for large mill-wide projects, individual process lines, equipment upgrades, spare parts and service.



Arclin

Arclin is a producer of innovative bonding and surfacing solutions for building and construction, industrial materials and natural resource markets. Arclin provides bonding solutions for a number of applications including structural wood panels, engineered wood, composite wood panels, non-wovens and paper saturation.

CONSULTING AND SERVICES CATEGORY



BMI

For nearly 40 years, BMI Contractors Inc has been a machinery installation contractor specializing in the wood products industry. BMI operates across North America and has installed complete plywood, OSB LVL and I-Joist facilities and has replaced, rebuilt or modernized individual machinery lines including over 100 veneer dryers and a significant number of plywood presses LVL presses and OSB presses.

EWTA

SUPPLIER DF <u>THE YEAR</u>

EWTA

SUPPLIER OF THE YEAR

SUPPLIER EXCELLENCE

INNOVATION OF THE YEAR



Since 1911, innovation is our tradition. Fagus-GreCon is a global leader in the manufacturing and development of measuring equipment and fire protection systems for multiple industries, includig the wood-based panel industry.

3D ParticleView

Date of First Use: July 2020

<u>Benefit 1:</u> Reduction of material loss in the screening process due to early changes of the ring flaker

<u>Benefit 2:</u> Reduction of glue usage by providing better control over the number of fine particles

<u>Results:</u> Exact reporting of the length, width, and height of the wood particles



OF THE YEAR

Fagus GreCon: 3D ParticleView measuring unit that assesses wood particle quality.

Description:

The 3D ParticleView is a measuring unit that assesses wood particle quality. The particles are taken from the process downstream of the knife ring flaker and are placed in the particle view. The unit will use a patented laser line and camera to measure the length, width and thickness of each particle.

"The particle thickness is an important parameter for the physical characteristics of finished particleboards," reports Tiki Joshua Manga, Fagus GreCon Technical Sales. "The ratio of particle surface to volume is the most important variable in glue application. The surface and volume of the particle both depend on the adjustment of the knife ring flaker and these variables can change as the knife ring takes on normal wear and tear."



Strength Through Connections

The Engineered Wood Technology Association is the leading North American organization of suppliers to the engineered wood products industry.



EWTA membership provides vital connections with your customers in the North American engineered wood industry through a variety of networking platforms.



EXHIBI

EWTA's Info Fair supplier exhibition, held in conjunction with APA – The Engineered Wood Association's annual meeting, provides face-to-face opportunities with key decision-makers.



EWTA's Engineered Wood Journal provides a highly cost-effective method to deliver your advertising message to a target-rich readership of your customers.

Learn more about the benefits of EWTA membership WWW.ENGINEEREDWOOD.ORG

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EWTA MEMBERSHIP DIRECTORY

The Engineered Wood Technology Association (EWTA), the related nonprofit supplier organization of APA – The Engineered Wood Association, serves as a networking and information transfer vehicle between North America's engineered wood product manufacturers and their product, equipment and service providers.

This membership directory, updated for 2021, includes company descriptions and contact information for current EWTA members. It's just one of many tools designed to help members connect with each other and the industry.

The annual cost of EWTA membership is just \$1,200. For more information about the benefits of membership or for a membership application, visit <u>www.engineeredwood.org/-about</u> or contact LaDauna Wilson at <u>ladauna.wilson@apawood.org</u> or 253-620-7483.



www.engineeredwood.org = 7011 So. 19th Street, Tacoma, WA 98466



Albany International

Albany International is a global advanced textiles and materials processing company founded in 1895. We are headquartered in Rochester, New Hampshire and employ approximately 5,000 people worldwide. Our 26 manufacturing operations are strategically located in 13 countries to serve our global customers. Albany International's core business is production of custom-designed engineered fabrics and process belts, used to manufacture all grades of paper from lightweight technical paper to heavyweight container board. In its family of emerging businesses, Albany belting technologies process unique materials for engineered wood products particularly for wood forming in OSB, PB and MDF/ HDF manufacturing. Visit us @ Albint.com.

Contact:

Tom Israel - Product Manager-Americas Phone: 920-521-4618 Email: tom.israel@albint.com 3601 Electric City Blvd. Kaukauna, WI 54130 www.albint.com

A-Lert Construction Services

A-Lert Construction Services was established in 1979 and specializes in design, manufacturing as well as installation of equipment in the wood and grain industries. We offer everything from single and triple-pass rotary dryer drums, flash tube and steam tube dryers with the ability to process both organic and inorganic materials across a wide variety of manufacturing industries. We also offer the process piping, trommel screening, conveying and Cleanaire systems often needed with these systems as well. A-Lert serves as a specialty fabricator and replacement parts supplier for all existing M-E-C systems.

Contact:

Jordan Stewart - Sales Manager Phone: 620-607-4035 Email: jstewart@centurionind.com 120 West Madison Fredonia, KS 66736 www.centurionind.com

Altec Integrated Solutions

Altec designs and manufactures precision machinery and advanced controls equipment. We create innovative solutions to solve the toughest application demands in the veneer and plywood

Altec Integrated Solutions continued:

manufacturing industry and amusement park industry. With our facilities in Coquitlam, BC and Diboll, Texas, we continue to expand our products and services, setting new benchmarks for innovation and integration.

Contact:

Paul Lupton - Sales Manager Phone: 604 791-9577 Email: plupton@alteconline.com # 120 - 185 Golden Drive Coquitlam, BC V3K 6T1 Canada www.alteconline.com

ANDRITZ Inc.

With a comprehensive range of technically advanced products and more than half a century of experience, ANDRITZ Wood **Processing Global Product** Group can supply a customized system for all the stages of your log handling, debarking and wood and bark processing operations worldwide. ANDRITZ is specialized in supplying complete systems including total project management, all relevant process equipment and control/automation systems. Our range covers all sizes of plants. Our globally organized project group can take responsibility for all stages of your project: Design, Manufacturing, Transportation, Erection, Commissioning, Start-Up, Staff Training. The level of each project service can be structured to match your specific project requirements.

ANDRITZ Inc. continued:

Contact:

Jarno Kamarainen - Director, Wood Processing North America Phone: 770-640-2467 Email: jarno.kamarainen@ andritz.com 5405 Windward Parkway, Suite 100W Alpharetta, GA 30004 www.andritz.com

Arclin - Performance Applied

Based in Roswell, Georgia, Arclin is a leading producer of innovative bonding and surfacing solutions for the building and construction, industrial materials and natural resource markets. Arclin provides bonding solutions for a number of applications including structural wood panels, engineered wood, composite wood panels, nonwovens and paper saturation. As a world leader in paper overlays technology, Arclin provides high value surfacing solutions for construction and building products, decorative panels and industrial specialty applications for North American and export markets. For more information please visit <u>http://www.arclin.com</u>.

Contact:

Bret Knudsen – Senior Applications Manager Phone: 678-781-4431 Email: bret.knudsen@arclin.com 475 28th Street, Springfield OR 97477 www.arclin.com

Argos Solutions LLC

Argos offers a full range of optical inspection and process control systems that replaces manual grading and patching of wood products. With more than 25 years of experience, and installations in more than 30 countries, Argos provide the latest technology of vision-based scanning systems for plywood, composite and furniture industry. Argos is a single source supplier for inspection and grading after the press, sander, cut-to-size, including edge inspection systems, and automatic patching systems for plywood and parquet panels.

Contact:

Richard Lepine - General Manager Phone: 919-428-1262 Email: Richard.Lepine@ argossolutions.no 2013 Castleburg Drive Apex, North Carolina 27523 www.argossolutions.no

Ashland LLC

ISOSET[®] adhesives from Ashland have been specially formulated for engineered wood product applications. ISOSET adhesives applied in I-joist, glulam beams and structural finger jointing wood applications provide manufacturers with high-strength, structural bonds. They cure fast, clean up easy and dry in a neutral wood color offering an alternative to traditional phenolresorcinol-formaldehyde (PRF) type adhesives. ISOSET adhesives provide excellent resistance to moisture, elevated temperature

Ashland LLC continued:

and creep making them an ideal choice for engineered wood products. Ashland, LLC. (NYSE:ASH) is a Fortune 500 specialty chemical company providing products, services and customer solutions throughout the world.

Contact:

Mark Vlaisavich - Account Manager, Structural Assembly Adhesives Phone: 708-205-1586 Email: mvlaisavich@ashland.com Atrium II – North Tower – Suite 500 5475 Rings Road, Dublin, OH 43017 www.ashland.com

ATCO Wood Products Ltd.

Located in British Columbia, ATCO Wood Products is a forest management company and a producer of softwood veneer. ATCO specializes in producing custom softwood veneer for plywood and engineered wood products customers in both Canada and the United States.

Contact:

Mark Semeniuk - Chief Operating Officer Phone: 250-367-9441 Email: mark.semeniuk@ atcowoodproducts.com 2073 Hepburn Drive PO Box 460 Fruitvale, BC V0G 1L0 Canada www.atcowoodproducts.com

Axalta Coating Systems

With a wide range of products and technologies, Axalta Coating Systems is the leader in the Wood Coatings Industry for the Building Products market.

Contact:

Craig Lyerly - Market Segment Manager, Building Products Phone: 336-802-4746 Email: craig.lyerly@axaltacs.com 1717 English Road High Point, NC 27262 www.axaltacoatingsystems.com

BASF - We create chemistry

Global supplier of MDI to the wood industry with extensive experience in MDI conversions.

Contact:

Gregory Lonc - Business Manager, Rigid Urethane Chemicals North America Phone: 732-324-6837 Email: gregory.lonc@basf.com 1609 Biddle Avenue Wyandotte, MI 48192-3736 www.basf.us

Bates and Company, Inc.

Bates & Co. is an industry leader in providing various support products to the forest product industry. Extenders and fillers comprise the majority of sales, especially those customers

Bates and Company, Inc. continued:

extending phenol formaldehyde adhesives for use in plywood, LVL, and hardwood. Bates has also expanded its scope and reach by forming a joint venture, Bates-Willamette, LLC, with a strategic partner in the industry.

Contact:

Jim Gilliam – President Phone: 409-883-0384 Email: jgilliam@cdbates.com 707 West Front Ave. PO Box 1328 Orange, TX 77631

Baumer Inspection GmbH

Baumer Inspection GmbH specializes in optical surface inspection systems. In over 35 years of quality service, we have installed more than 750 systems worldwide and are a leader in scanners for fully automatic inspection and process control. Baumer Inspection offers inspection systems for particle boards, wood fiber boards (MDF, HDF), paper, film and foils, flooring and surfaces of furniture panels as well as edge inspection systems. Our highly skilled and motivated team always pushes the limit of what is possible to bring you the newest innovation in vision technology for the wood working industry.

Baumer Inspection GmbH continued:

Contact:

Stefan Eisenkohl Head of Sales & Engineering Phone: +49 7531 9943-31 FAX: +49 7531 9943-44 Cell: +49 172 1408381 Email: Ifleischhackl@baumer.com Lohnerhofstrasse 6 78467 Konstanz, Germany www.baumerinspection.com

BETE Fog Nozzle, Inc.

BETE's FlexFlow[®] Spray Systems and Electric HydroPulse[®] Automatic Spray Nozzles provide solution confidence for precise applications of resin, wax, water, and release agents during engineered wood production. Addresses problems involving overspray or under-spray to ensure production efficiency for chips, mats, cauls, or belts.

Contact:

David Adams – National Sales Manager Phone: 413-834-4302 Email: dadams@BETE.com 50 Greenfield St. Greenfield, MA 01301 www.bete.com

BID Group

The privately-owned BID Group has over 35 years of experience in providing industry leading solutions for its highly valued customers in the wood processing industry. As one of the largest integrated suppliers to the wood processing industry and the North

BID Group continued:

American leader in the field, BID Group is your one-stop source for comprehensive and innovative solutions that exceed our customer expectations. The ability to provide a complete, smart connected, turnkey manufacturing facilities that includes engineering, project management, installation, startup, and after sales service furthers the BID Group companies' strategic value to its customers.

Contact:

Steven Hofer – EVP of Business Development and Strategy Phone: 843-563-7070 Email: steven.hofer@bidgroup.ca 5154 Highway 78 St. George, SC 29477 www.bidgroup.ca

BMI Contractors, Inc.

BMI Contractors Inc, is a machinery installation contractor specializing in the wood products industry for nearly 40 years. We operate across North America and have installed complete plywood, OSB, LVL and I-Joist facilities. We have replaced, rebuilt or modernized individual machinery lines including over 100 veneer dryers and a significant number of plywood presses, LVL presses and OSB presses. We pride ourselves in innovation and are responsible for completing three veneer dryers that were rolled into place after their construction. Our crews are ready to assist you in achieving your goals for timely, efficient, safe and cost-effective plant improvement projects.

BMI Contractors, Inc. continued:

Contact:

David Brown – President Phone: 503-375-2222 Email: dbrown@ bmicontractors.com 4375 Turner Rd. SE Salem, OR 97317 www.bmicontractors.com

BRUKS-SIWERTELL

Bruks Siwertell is a market-leading supplier of dry bulk handling and wood processing systems. With thousands of installations worldwide, our machines handle your raw materials from forests, fields, quarries and mines, maintaining critical supply lines for manufacturers, mills, power plants and ports. We design, produce and deliver systems for loading, unloading, conveying, storing, and stacking and reclaiming dry bulk materials, alongside equipment for chipping, screening, milling and processing wood for the biofuel, board, saw mill, pulp and paper industries.

Contact:

René Cuchens - Sales Manager, North America Phone: 770-849-0100 Email: sales@bruks.com 5975 Shiloh Road, Suite 109 Alpharetta, GA 30005 www.bruks-siwertell.com

Brunette Machinery Company Inc.

Specializing in wood processing machinery and material handling systems for the Forestry and Biomass industries: CBI Grizzly Mill, BioSizer®, Chippers for Pulpchips or Micro-Chips, Electric Log Sweeps, Log Decks, Log Singulators, Rotary Debarkers, Vibrating Conveyors. Custom engineered solutions to take control of your fiber supply and get more from your mill.

Contact:

Kristy Hammond Phone: 604-522-3977 Email: kristy@brunettemc.com 8717 - 132nd Street Surrey, BC V3W 4P1 Canada www.brunettemc.com

CECO Environmental: Adwest Technologies, Fisher-Klosterman, HEE-Duall

Adwest Technologies provides high efficiency Regenerative Thermal and Catalytic Oxidizers (RTOs and RCOs) for engineered wood, OSB, MDF, laminating, veneer drying, and resin VOC abatement. Adwest can provide compact 2 chamber **RETOX RTOs as well as multi** chamber RTOs up to 400,000 SCFM flow rates. Our Fisher-Klosterman, Inc (FKI) division provides ultra-high efficiency cyclones and venturi scrubbers for boiler and wood manufacturing applications, while HEE-Duall provides Bioreaction biofilter and scrubber systems for

CECO Environmental: Adwest Technologies, Fisher-Klosterman, HEE-Duall continued:

VOC abatement. We also service, rebuild and relocate RTOs, RCOs, Biofilters and scrubbers for the wood products markets including Smith, Pro-Environmental and all other brands.

Contact:

Jeff Yerkes - Key Account Manager, Adwest Phone: 714-632-9801 Email: jyerkes@onececo.com 680 Langsdorf Dr. Fullerton, CA 92831 www.cecoenviro.com

Chem-Trend LP

Chem-Trend has long been known as a global leader in the development of release agent technology to the world's industries. Our sealers, release agents and lubricants are rapidly gaining acceptance in the wood composites industry, offering significant productivity improvements including increased through-put, improved output quality and definition, cleaner conditions/environment, greater productivity, less downtime and increased costs savings.

Contact:

Gerard Przekop - Director, North American Sales Phone: 517-545-7844 Email: gprzekop@chemtrend.com 1445 West McPherson Park Drive PO Box 860 Howell, MI 48844-0860 www.chemtrend.com

Clarke's Industries, Inc.

Clarke's provides a broad range of products for the Panel Board Industry. The products include Material Storage and Metering Bins, PyroGuard Spark Detection and Extinguishment System, Hi Speed Abort Gates, Back draft Dampers and Explosion Venting, Waste Wood Processors, Rotary Screens and Classifiers, Rotary Airlocks/Feeders, Fans, Dust Collection and Pneumatic Conveying Systems.

Contact:

Andy Clarke - President Phone: 541-343-3395 Email: andyc@clarkes-ind.com 660 Conger Street PO Box 2428 Eugene, OR 97402 www.clarkes-ind.com

Clarke Veneers and Plywood

Clarke Veneers and Plywood is an international trading company of wood products, specializing in imports, exports and domestically traded veneers - including hardwood and softwood species for structural panels, in MDO, HDO and other applications requiring clear, sound faces.

Contact:

Stuart Clarke - President Phone: 601-366-0331 Email: info@clarkeveneers.com 3000 Old Canton Road, Suite 335 PO Box 4876 Jackson, MS 39216 www.clarkeveneers.com

CMA engineering Inc.

Since 1986, CMA engineering Inc. has accomplished a number of projects in the manufacturing end of the forest products industry, including the conceptual design, budget preparation, process engineering, detail engineering (mechanical, electrical, civil and structural), equipment procurement, project management, construction management, PLC/HMI programming and start-up of board plants (OSB, Particleboard and MDF), plywood and veneer mills, bioenergy plants, engineered wood product plants and sawmills.

Contact:

Claude Malette - P. Eng. Phone: 705-360-5525 Email: cma@cmaeng.com 60 Wilson Avenue, Suite 101 Timmins, ON P4N 2S7 Canada www.cmaeng.com

Coastland Wood Industries Ltd.

Coastland has grown from a single line veneer mill to a triple line mill with an offsite drying facility, two barge loading facilities, and three log sorts. Our infrastructure continues to grow as our customers' needs have grown with efficiency, and safety as key drivers. Our facilities compliment the other capacity in our region, resulting in a healthy forest industry that further benefits Coastland and our customers.

Coastland Wood Industries Ltd. continued:

Quality: We strive to deliver quality in every aspect of our business, it touches everything we do; quality is job security. Our reliable grades allow our customers to accurately control the structural properties of their products.

Contact:

Doug Pauzé - President Phone: 250-762-5995 Ext. 115 Email: dpauze@ coastlandwood.com 751 Haliburton Street, Nanaimo, BC V9R 4W8 Canada www.coastlandwood.com



Coil Manufacturing Ltd.

Coil Manufacturing is the leading manufacturer of rotary drum blenders and spinning disc atomizers for resin application in the engineered wood industry.

Contact:

Mike Coil – General Manager Phone: 604-596-7578 Email: mdc57@telus.net; mike@ coilmanufacturing.com 8269 - 130th Street Surrey, B.C., V3W 7X4 Canada www.coilmanufacturing.com

Connexus Industries Inc.

Connexus industries Inc. manufacturers and distributes specialized chain, attachments and sprockets for OSB manufacturing plants. We also are manufacturers of Laharco Laser Diodes and Rens-Metal Shark Metal Detectors. Locations in Atlanta, Quebec, Portland & Vancouver. Formerly Viking Chains, I'ANCO Products and Lacey Harmer Inc.

Contact:

Cliff Lane - President & General Manager Phone: 604-882-1602 Email: clane@cnxsind.com 27474 Gloucester Way Langley, BC V4W 4A1 Canada www.connexusindustries.com



Con-Vey

Con-Vey is a leading manufacturer of material handling equipment and a proven, high quality supplier offering innovative solutions to customers in nearly 20 countries. Con-Vey designs and manufactures complete systems for automated material handling, wood panel processing, packaging, and laminating, including feeders, stackers, and conveyors. Con-Vey also specializes in beam presses, robotics, and PLC control systems. For more information on Con-Vey's innovative solutions, visit

Con-Vey continued:

CON-VEY.COM or contact Product Manager for Panel Products, Brent Hensley, at brent.hensley@con-vey.com.

Contact:

Brent Hensley – Product Manager -Panel Products Phone: 541-672-5506 Email: sales@con-vey.com 526 NE Chestnut Roseburg, OR 97470 www.con-vey.com

COSTA Sanders LLC

Building on 60+ years of experience manufacturing industrial calibrating, sanding and polishing equipment, Costa's large panel series machines continue a tradition of rugged world-class machinery that made Costa an industry leader in the field of industrial sandingcalibrating equipment. These "super duty" solutions are engineered and manufactured to the highest quality standards, in modular frames, with the right combination of working units, motors, and feed speeds that best fits the industrial process of today and tomorrow. Costa Sanders offers machine solutions engineered expressly to fit each client's own manufacturing environment and production needs - whether particleboard, fiberboard, plywood, OSB, or CLT. Our sanding systems are capable of processing up to 145" wide panels with thicknesses up to 13" at the required industry production speeds.

COSTA Sanders LLC continued:

Contact:

Eric Johnston - Sales Director -Panel Division Phone: 336-434-6644 Email: eric.johnston@ costasanders.com 107 Seminole Drive Archdale, NC 27263 www.costasanders.com

Covestro LLC

Covestro LLC is a world-leading supplier of high-tech polymer materials. Thanks to our global presence and close proximity to our markets, we are the partner of choice for a variety of industries. For manufacturers of composite wood products, consistent product quality and process advantages make Covestro's Mondur® pMDI your natural choice for binding wood composites. Offering extensive R&D and strong technical service, Covestro is your source for binders and binder technology. The excellent property performance of wood composites bonded with Mondur[®] pMDI products makes them especially suited for use in specialty applications; particleboard, laminated-stranded lumber, moisture-resistant OSB, OSB web-stock and OSB flooring.

Covestro LLC continued:

Contact:

Ian Hughes Sr Market Manager – Building and Construction Phone: 412-413-6871 Email: ian.hughes@covestro.com 1 Covestro Circle Pittsburgh, PA 15205 www.covestro.com

Dieffenbacher Customer Support, LLC

Dieffenbacher is an international group of companies specializing in the manufacturer of press systems and complete production systems for the wood, automobile and supplier industries. As an independent fifth generation family company, we have stood for continuity, tradition and reliability for over 140 years. Our Wood business unit plans and implements complete solutions for the manufacture of wood-based panels, such as particleboard, MDF, OSB and LVL plants.

Contact:

Cole Martin - Sales Manager, Capital Sales and Modernizations Phone: 678-325-5782 Email: cole.martin@ dieffenbacher.com 1345 Ridgeland Parkway, Suite 100 Alpharetta, GA 30004 www.dieffenbacher.com

Dominion Chemical Company, Inc.

Wax Products are our expertise. With over 60 years of experience in the wax business, Dominion Chemical offers rare and valuable working knowledge as well as trust and proven abilities to bring solutions, support and alternatives to provide the exact product you want. With locations in Virginia and Georgia, Dominion Chemical's capacity to blend, package and create specialty wax formulations will meet your unique needs. We offer an exceptional emulsification process, state of the art blending, compounding, packaging and experienced personnel as well as a full-service wax lab dedicated to your needs for R&D, QC, and general product evaluation.

Contact:

Maclin Ferrell - President Phone: 804-733-7628 Email: maclinferrell@dominion chemical.com Dan Spurlock – Technical Sales Phone: 804-586-2022 Email: dans@dominion chemical.com 2050 Puddledock Road PO Box 1069 Petersburg, VA 23803 www.dominionchemical.com

DO2 Industriel

The DO2 Rapid Wrapper Automatic packaging system offers outstanding performance. Over the years, DO2 keeps improving and can now automatically wrap panels, engineering wood, finish products and an I-joist solution is on its way. Each wrapper is built to fit the mill production in term of speed and package dimensions with a lot of flexibility. The wrapping machine's electrical, mechanical and pneumatic components, its design, the programming structure and tactile interface have all been designed for easy use and no-hassle operations. All of the wrapper's components are robust and maintenance-free. Built with durability and efficiency in mind, the wrapper will optimize your plant's production on a daily basis.

Contact:

Patrick Sasseville – Director of International Development Phone: 888-276-0554 Email: info@do2.ca 303 8th Avenue Dolbeau-Mistassini, Quebec G8L 1Z6 Canada www.do2.ca



Dürr Systems, Inc.

Dürr Systems, Inc. offers multipollutant clean-air solutions to the engineered wood products industry that meet stringent emissions regulations: wet scrubbers and wet electrostatic precipitators for high-efficiency particulate, blue haze and condensed salts removal for dryers and press vents; dry electrostatic precipitators for particulate removal from energy sources, ultra-high-efficiency RTO/RCO systems for VOC abatement, and SNCR systems for NOx control. The Dürr Systems aftermarket group also provides upgrades, parts, and service for every make of air pollution control equipment for the engineered wood products industry.

Contact:

Rodney Schwartz Phone: 920-336-5715 Email: durrmegtecinquiries@ durrusa.com 830 Prosper Street De Pere, WI 54115 www.durr-megtec.com

Electronic Wood Systems, N.A.

EWS North America was founded in 1993. We are a leading supplier of quality control measuring systems for the wood composite panel board industry, including: Thickness Gauges, Blow Detection, Press Protection Devices, Spark

Electronic Wood Systems, N.A. continued:

Detection & Extinguishment Systems, Mass (WPUA) Measuring, non-contact Weigh Scales and Density Profile Measuring Systems.

Contact:

Steven Mays - Partner Phone: 503-643-6305 Email: steve@ews-usa.com 3720 SW 141st Avenue, Suite #206 Beaverton, OR 97005-2349 www.ews-usa.com

Evergreen Engineering, Inc.

Evergreen is a multi-discipline (mechanical, electrical, civil/ structural and environmental) engineering firm. From project planning and feasibility studies through detailed engineering, construction management, maintenance and process consulting, to start-up and commissioning support, Evergreen can handle any project in your mill. Our wood products experience includes OSB, LVL, I-Joist, Particleboard, MDF, Hardboard, WPC, Pulp & Paper, Lumber, Plywood, Chemical and Resin plants. "Our mission is to provide customized support to move our client's vision to reality by delivering practical engineering solutions, displaying project leadership and contributing technical expertise."

Evergreen Engineering, Inc. continued:

Contact:

Aaron Edewards - Director, Industrial Business Development Email: aedewards@eeeug.com

Eugene Office: Phone: 541-484-4771 1740 Willow Creek Circle Eugene, OR 97402-9152

<u>Atlanta Office:</u> Phone: 404-267-1471 8607 Robert Drive, Suite 100 Atlanta, GA 30350

Everett Office:

Phone: 888-484-4771 13322 Evergreen Way, Suite 201 Everett, WA 98204

www.evergreenengineering.com

Evertree North America Inc.

Evertree North America Inc. is the designer, manufacturer and supplier of bio based and renewable adhesive solutions (both unique bio based adhesive compositions plus innovative application dispensing technology) used in the manufacture of composite wood panels. Our initial product family Green Boost[™] delivers significant cost savings to the composite wood products manufacturer through a combination of sizable resin cost savings and several process efficiency improvements. Additional benefits of Green Boost[™] include an improved environmental footprint, via reductions in VOC's and emissions of hazardous materials during

Evertree North America Inc. continued:

the manufacture and use of the composite wood product, all while maintaining similar wood composite panel properties.

Contact:

Joe Lynch – General Manager -North America Phone: 856-650-3660 Email: joe.lynch@evertreetechnologies.com 727 Norristown Road Ambler, PA 19002 www.evertree-technologies.com

Fagus GreCon, Inc.

Since 1911, Innovation is Our Tradition. MEASURING SYSTEMS: Improves your bottom line. Check out the full range of inline measuring systems: thickness gauges, blow & delamination detector, moisture meters, raw density profile. Weight per unit area across the whole production width at the mat former and after the press. Detect surface defects on décor panels and flooring. SPARK **DETECTION & EXTINGUISHING** SYSTEMS: Provides safety for your production. Detect sparks and extinguish them before the filter. Detect heat buildup in silos, bag houses and storage bins. Outlined in NFPA 69, 654 and 664 standards. Factory Mutual Approved.

Contact:

Todd Havican Phone: 704-912-0000 Email: sales@grecon.us 648-A Griffith Road Charlotte, NC 28217 www.grecon-us.com

Flamex, Inc.

Flamex Inc. is a leading supplier of customized industrial process fire prevention and protection equipment. We specialize in the protection of facilities that handle combustible dusts that utilize pneumatic dust collection and air filtration systems. To address the process fire hazard inherent in various industrial applications, our company pioneered the utilization of a new technology in North America by introducing the FLAMEX Spark Detection and Extinguishing System in 1977 and the MINIFOG PressProtect System in 1997 for the protection of Industrial Presses. The flexibility of these systems allows their use in other hazardous areas such as Thermal and Hydraulic oil rooms where AFFF Foam Fire Fighting systems can be utilized for further protection.

Contact:

Ed Pridgen - Minifog Product Manager Phone: 336-299-2933 Email: epridgen@ sparkdetection.com 4365 Federal Drive Greensboro, NC 27410 www.sparkdetection.com

Franklin Adhesives & Polymers

Franklin Adhesives & Polymers, a division of Franklin International, manufactures adhesives for the domestic and global wood furniture, millwork and engineered-lamination markets. We have led the way in the innovation of wood adhesives and

Franklin Adhesives & Polymers continued:

various types of wood bonds and have developed adhesive solutions for many applications in the wood product manufacturing plant. Under the trusted brand names Titebond, Multibond, ReacTITE and Advantage, our products provide superior performance in wood assembly, solid edge and face gluing, engineered product lamination and finger jointing.

Contact:

Joshua Bartlett - Business Development Manager Phone: 800-877-4583 Email: joshbartlett@ franklininternational.com 2020 Bruck Street Columbus, OH 43207 www.franklinadhesivesand polymers.com

FROMM Packaging Systems

FROMM Packaging Systems for the lumber industry consists of heavyduty machinery. Our equipment covers all packaging solutions for the forestry industry (timber, plywood, MDF, HDF, chipboard etc) with strapping machines, wrapping and waterproof machines. We develop and produce a wide variety of systems for unitizing and palletizing goods for transport: strapping machines and systems, pallet stretch wrapping machines, together with all necessary consumables. Established in 1947, the Swiss company pursues a policy of logical vertical integration

FROMM Packaging Systems continued:

while upholding traditional values such as proximity to customers, quality consciousness, continuity, independence and environmental awareness, which are the reasons for decades of success.

Contact:

Francesco Belloni Phone: 917-698-2052 Email: francesco.belloni@ airpadusa.com 85 Fulton St Boonton, New Jersey 7005 USA www.frommstrappingsystems.com



adding value with chemistry

Fusoni

Fusoni develops and manufactures release agents and additives for panel board manufacturing, and also for paper impregnation processes. Our chemicals expertise extends to other industries, such as release applications in bakery, polyurethane systems, and other applications. For almost 40 years we have been serving clients in Europe, Asia, Africa, Australia and the Americas. We add value through chemistry, and work closely with our customers, helping them improve the properties of their products and reducing production cost through excellent release and additive performance. We look forward to working with you to make your products better and your business more profitable.

Fusoni continued:

Contact:

Adrian Yovanovich - President Phone: 210-712-7803 Email: ayovanovich@fusoni.us 422 Mesa Loop San Antonio, TX 78258 www.fusoni.net



Georgia-Pacific Chemicals – Wood Adhesives

Georgia-Pacific Chemicals offers a portfolio of thermosetting resins for plywood, oriented strand board and laminated veneer lumber applications as well as customformulated solutions to meet our customers' specific needs. **Our innovative RESI-BOOST®** adhesive technology, when used in combination with RESI-BOND[®] and RESI-MIX[®] adhesives. has demonstrated decreased press times as much as 10-20% without sacrificing bond quality nor increasing temperatures. It can lower glue usage as much as 3-10%. RESI-BOOST adhesive technology joins our other quality products. The GP® Dynamic Microchamber performs formaldehyde emission testing on panels in plants around the world.

Georgia-Pacific Chemicals – Wood Adhesives continued:

Contact:

Georgia-Pacific Chemicals – Wood Adhesives Phone: 866-4GP-CHEM 866-447-2436 Email: gpchemical@gapac.com 133 Peachtree Street NE Suite 10 Atlanta, GA 30303 www.gp-chemicals.com

Globe Machine Manufacturing Company

Globe Machine offers single machine centers along with complete systems to the following industries: OSB, MDF, particleboard, plywood, strawboard, moulded door skins, membrane presses, siding, LVL, laminate flooring and sheet plastics. Globe Machine is the leader in the supply of automated I-joist assembly systems and has achieved a leadership role in the cement fiberboard industry and moulded door skin lines. For 100 years Globe Machine has served the forest products industry.

Contact:

Paul Phillips - Sales Manager Phone: 253-383-2584 Email: sales@globemachine.com 701 East "D" Street PO Box 2274 Tacoma, WA 98421 www.globemachine.com

Grenzebach Corporation

Grenzebach is a leading global manufacturer and supplier of drying systems for the veneer and building materials industries with over 400 dryer installations worldwide. Our veneer product line includes jet and longitudinal dryers, infeed and outfeed systems, and veneer grading and stacking systems. Grenzebach has completed extensive rebuilds and upgrades on all makes and models of veneer, wallboard, and ceiling tile dryers. Grenzebach Service supplies complete parts and service (on-site and remote) for all building materials drying systems.

Contact:

Charles Shurtliff Sales Manager -Building Materials Division Phone: 678-488-8369 Email: charles.shurtliff@ grenzebach.com 10 Herring Road Newnan, GA 30265 www.grenzebach.com

Guardian Chemicals Inc.

Providing solutions, results and meaningful service has earned Guardian Chemicals Inc. the enviable industry reputation as the "go to" people for chemical technology and services. Our extensive research and development group, in house ISO 14001 certified manufacturing and products like our revolutionary patented PRESSGUARD series Guardian Chemicals Inc. continued:

release agent technology for MDI resins in continuous and multi-opening presses, keep us at the forefront of the engineered wood industry. From W.E.S.P. and Scrubber treatment technology, process chemicals and defoamers to maintenance chemicals, odor control and corrosion prevention, Guardian's wood group provides our partner clients with a complete package along with the flexibility to adapt products to the specific needs of each individual application and customer.

Contact:

Greg Pecharsky - Vice President Phone: 780-998-3771 Email: gpecharsky@ guardianchem.ca 155-55202 SH 825 Sturgeon Industrial Park Sturgeon County, AB T8L 5C1 Canada www.guardianchem.com



Hansen-Rice, Inc.

HRI – Industrial solutions, from concept to commissioning. Experienced, trusted, long-term industrial GC partner: Safety (Current EMR .62 and under 1 for over 20 years), 100% openbook cost transparency, speed to market, certainty, critical path control, risk mitigation, Assured

Hansen-Rice, Inc. continued:

Delivery, and single source accountability. Proven nationwide: Local greenfield/brownfield projects for engineered wood, pulp & paper, bioenergy, recycling, and related industries. HRI deploys a strong team of content experts (deep EWP experience), proven engineering partners, dedicated program managers, and competent project leadership to collaborate with Owner/Clients throughout the project. Master planning, site evaluations, project management. HRI: Your fullyintegrated industrial contractor.

Contact:

Jason McIntosh - Director, Industrial Programs Phone: 318-243-1116 Email: jmcintosh@hansen-rice.com 1717 E. Chisholm Dr. Nampa, ID 83687 www.hansen-rice.com

Hashimoto Denki Company, Ltd.

Hashimoto Denki Company, Ltd was established in 1946 in Nagoya, Japan, the Japanese woodworking machinery capital. Our company specializes in manufacturing machinery for highefficient and value-added plywood and veneer production, ranging from veneer lathe lines to panel sizing lines. We offer machinery for total plant operation of veneer, plywood and LVL, serving the worldwide marketplace. Hashimoto Denki Company, Ltd. continued:

Contact:

George Mori, General Manager Phone: +81-566-53-6902 Email: mori-j@hdk-co.com 5-1-17 Shinden-Cho, Takahama City, Aichi, Japan 444-1301 www.hdk-co.com/english/

HAWE Hydraulik

HAWE Hydraulik is a wellrespected, worldwide, German based company with offices in over 20 countries. HAWE's primary business is providing high quality hydraulic components through modular design and energy efficient solutions. HAWE offers a full range of products from high pressure valving to custom hydraulic units and manifolds to complete hydraulic systems including motion controls. We are a complete solutions provider.

Contact:

Steve Kathan - Industrial Group Manager Phone: 503-222-3295 Email: s.kathan@hawe.com 12990 SE Highway 212 Clackamas, OR 97015 www.hawe.com

H.B. Fuller

Our fast setting, strong bonding tapes and glues deliver near zero waste veneers. Zero waste = more profit. Our patented rotary applicators are designed to increase production uptime and eliminates costly and ineffective chillers. Our wood team has over 50+ years of market experience to ensure the right solution for hardwood and softwood veneer in the plywood, parquet and LVL markets. Our industry first Dry & Green Welding tapes are a next generation solution for eliminating laps and gaps while further maximizing drier efficiency. Our goal is simple – help you make more money and build better wood products.

Contact:

Adam Brennan - Global Market Manager Phone: 503-437-8652 Email: adam.brennan@hbfuller.com 417 NW 136th Street Vancouver, WA 98685 www.hbfuller.com

Henkel

Henkel is the world's largest Adhesive company. LOCTITE® PURBOND is a world leading brand in Polyurethane and Polyurethane Hybrid adhesives for engineered wood bonding, offering ductile bond lines, zero Formaldehyde, zero solvents with a wide range of open and set times for Glulam, CLT, Finger jointing, and innovative applications, both cold setting and RF/hot pressing.

Henkel continued:

LOC-TITE HB Xxx2 Purbond is the ONLY 1 component, high production adhesive certified to North American Glulam, CLT, Finger Jointing and I-Joist requirements. With a strong North American sales and technical team and a fully equipped wood lab, we can provide the solutions, support and technology to meet the demanding requirements of engineered wood bonding and innovations of the future.

Contact:

Chris Whelan - Business Development Director Phone: 604-880-2361 Email: chris.whelan@henkel.com 10 Finderne Ave, Suite B Bridgewater, NJ 08807 www.furniture-buildingcomponents.com

HexArmor

HexArmor is a global PPE (personal protective equipment) manufacturer that uses innovative technologies to build high performing hand protection, arm/ body protection and eyewear. At HexArmor, we understand the daily challenges faced by safety teams in the wood products industry. Working to meet growth and operational expectations while keeping employees safe on the job can be a tough balancing act. Injuries are costly. Down time and lost productivity damage company reputations and slow growth. Let HexArmor help you build a PPE program that keeps

HexArmor continued:

you operationally efficient while giving your employees the best opportunity to go home safely to their families.

Contact:

Patrick Beadling - Director of Account Services Phone: 616-459-4144 Email: patrick@hexarmor.com 2000 Oak Industrial Drive Grand Rapids, MI 49505 www.hexarmor.com



Hexion Inc.

Hexion Inc. is a leading global source for adhesives, resins, formaldehyde, melamine and derivatives serving a broad range of markets including the forest products, foundry, automotive, construction, composites, electronics and oilfield industries, operating 34 manufacturing plants in North America, Latin America, Europe and Asia/Pacific. The Forest Products division of Hexion Inc. is the global leader in supplying resins, adhesives, wax emulsions and ancillary products to the forest products industry. Customers use our materials to manufacture a wide range of composite and engineered wood products including plywood, particleboard, oriented strandboard, medium density fiberboard, structural beams, cross laminated timber, furniture, mouldings and millwork.

Hexion Inc. continued:

Contact:

Steve Banick Phone: 541-741-6650 Email: Steve.Banick@hexion.com 180 East Borden Street Columbus, OH 43215 www.hexion.com

Hunt, Guillot & Associates LLC

Hunt, Guillot & Associates, LLC (HGA) is a multi-disciplined project management and engineering design firm. HGA has been serving the forest products industry since the firm's founding in 1997. HGA continues to provide expertise to the Engineered Wood Products, LVL, I-Joist, OSB, Plywood, Particleboard, Glulam and Lumber industries. Services provided include project management, feasibility studies, preliminary engineering, detailed design engineering and on-site technical support services.

Contact:

Sam Costanza, Vice President Phone: 318-255-6825 Email: scostanza@hga-llc.com 603 Reynolds Drive PO Box 580 Ruston, LA 71270 www.hga-llc.com

Huntsman Polyurethanes

For more than 30 years, Huntsman has been a global leader in the production of MDI-based resin binders for particleboard, medium-density fiberboard and oriented strand board. Our dedicated Composite Wood Products teams are committed to helping our customers reach their goals in all market conditions. There is no added formaldehyde (NAF) with Huntsman's RUBINATE[®] resins, and can be qualified as exempt under CARB Standards and EPA TSCA Title VI.

Contact:

Richard Tyler - Business Manager Phone: 470-303-3605 Email: richard_tyler@ huntsman.com 10003 Woodloch Forest Drive The Woodlands, TX 77380 www.huntsman.com

IBC, International Bar Coding Systems & Consulting Inc.

IBC, International Bar Coding Systems & Consulting Inc. - An integrated manufacturer of individual piece wood product specific printer applicators. Complete solutions for finished or in-process packs we offer Automated Package labelers (AutoLabeler) for Veneer, OSB, MDF, Plywood, Lumber and EWP. We manufacture tags and labels for any labeling system and are a single source provider

IBC, International Bar Coding Systems & Consulting Inc. continued:

for turnkey solutions. We offer Vendor Managed Inventory of consumables and integrated data collection systems across North America. We provide full design, build, onsite service, preventative maintenance, training and consulting on a system wide or mill by mill basis.

Contact:

Chris Pedersen - President Phone: 250-493-3201 Email: cpedersen@ibcworld.net 160 Satikw Crossing Penticton, BC V2A 6J7 Canada www.ibcworld.net

Idemitsu Lubricants America Corporation

IDEMITSU Lubricants America offers engineered wood industry members a full line of proprietary lubricants including high-temperature chain oils, steel belt, rolling rod and bending rod oils approved for use in Siempelkamp ContiRoll®, Küsters/Metso, and Dieffenbacher continuous presses. IDEMTISU also produces PFPE/PTFE grease for high temperature roller bearings, hydraulic, gear, and heat transfer fluids specifically formulated for panelboard presses. IDEMITSU manufactures products in Louisville, KY and has a nation-wide distribution network to serve our customers. IDEMITSU has a team of lubrication and reliability experts that are ready to help improve reliability and reduce lubrication related parts replacement, downtime, and labor costs.

Idemitsu Lubricants America Corporation continued:

Contact:

Kevin Muehlman - National Accounts Engineer Phone: 248-727-3738 Email: kmuehlman@ilacorp.com 3000 Town Center, Suite 2820 Southfield, MI 48075 www.ilacorp.com

IMAL-PAL Group

Established in the 1970's, the Group is a world leader in the manufacture and supply of equipment and systems. It's extensive production program is able to supply complete turnkey plants for the treatment and processing of fresh and recycled wood, in both the wet and dry areas, for production and processing of particleboard, MDF, OSB, Plywood, Pellets, Pallet Blocks and pressed wood-based products in general. IMAL is a leading manufacturer of glue dosing and blending systems and supplies the most innovative online and laboratory quality control devices that are found in virtually all the production plants around the world.

Contact:

Andrew Jowett - President Phone: 509-855-3411 Email: andrew.jowett@imalpal.com IMAL-PAL Group, Inc. PO Box 870949 Stone Mountain, GA 30087 www.imalpal.com



IMEAS Inc.

IMEAS is a world leader in surface finishing solutions, with over 3,000 machines operating worldwide. 2021 marks IMEAS's 55th Anniversary of Innovation and Service to the Wood Products Industry. IMEAS sanding and grinding machines are used to achieve precise surface finish and thickness on a wide variety of products such as plywood, LVL, CLT, composite wood panels, decorative laminates, flooring and solid surface products, etc. IMEAS specializes in extra wide machines - 12' (3.6 meters) and cross-belt sanding for wood products.

Contact:

Nathan Rutherford - President Phone: 678-364-1900 Email: imeas@imeas.net 1125 Commerce Drive, Suite 200 Peachtree City, GA 30269 www.imeasinc.com

Intertape Polymer Group

Intertape Polymer Group[®] (IPG[®]) is the market leader in protective fabrics with over 25 years of experience in the wood industry. IPG is an integrated supplier and manufacturer of woven coated lumber wrap. IPG's wrap offers the ability to advertise your corporate logo in up to four colors and increase brand awareness

Intertape Polymer Group continued:

throughout the transportation process. Available in various weave strengths and colors to fit your needs.

Contact:

Scott Maw - Director of Sales Woven Packaging - IPG Phone: 780-224-6569 Email: smaw@itape.com 50 Abbey Avenue Truro, Nova Scotia B2N6W4 Canada www.itape.com

Itipack Systems

Itipack Systems has been in business since 1970. We are a manufacturer of automated strapping systems.

Contact:

Bert Kuik - NA BD/Sales Director Phone: 905-333-3695 Cell: 360-594-2338 Email: bkuik@itipacksystems.com 919 Zelco Drive Burlington, ON L7L 4Y2 Canada www.itipacksystems.com

JAX

JAX is a full-line lubricant manufacturer with expertise in compounding high-end synthetic and petroleum lubricants. With over 60 years of industry experience, JAX has earned its reputation as a leader in lubricant technology. JAX lubricants are compounded with the finest raw materials and additive chemistry in the industry. Formulation decisions

JAX continued:

are based upon performance and quality which ultimately lead to substantial, verifiable cost savings in terms of extended machine life. reduced downtime and increased production. Lubrication technology is a continually evolving science. Products that have worked in the past may not be sufficient to provide adequate lubrication in the future. In order to meet the evolving needs of our customers we are constantly analyzing the JAX product line for opportunities to improve value. JAX is a Manufacturer and Global supplier of the highest quality LUBRICANTS for machinery and process.

Contact:

Ted Schultz – Director CEM & Engineered Wood Phone: 800-782-0570 Ext. 307 Email: tjschultz@jax.com W134 N5373 Campbell Drive Menomonee Falls, WI 53051 www.jax.com

Kadant Carmanah Design

Kadant Carmanah provides leading edge technology and equipment to optimize fibre utilization for the production of wood-based panels. Kadant Carmanah's products include SmartDISC Stranders, SmartRING Stranders, Rotary Debarkers and Conveying/Feeding equipment for the oriented strand board market. As a global leader in stranding technology, Kadant Carmanah holds an impressive 80% of this market share.

Kadant Carmanah Design continued:

Contact:

Carlos Vieira - Director, Capital Sales Phone: 604-299-3431 Email: info.carmanah@kadant.com Unit #8 15050 54A Avenue Surrey, BC V3S 5X7 Canada www.kadantcarmanah.com

Kimwood Machinery, Inc.

World's leading producer of new equipment and OEM parts for Kimwood Sanders, Hogs and Handling Equipment, Stetson-Ross Planers and Moulders, Ferrari Resaws and Tri-State Equipment.

Contact:

Scott Carle – Forestry Operations Manager Phone: 604-835-1045 Email: scarle@mlpmachine.com 77684 Highway 99 South Cottage Grove, OR 97424 www.kimwood.com

Koch Knight, LLC

A domestic manufacturer and global leader of ceramic media for Regenerative Thermal Oxidizers (RTO). Our media is designed to work in normal to your most challenging application environments. A mixed bed of our FLEXERAMIC[®] structured media and LPD[®] random media offers optimal heat transfer and full bed utilization while our GR (Glazed Resistant Alumina) material is produced for OSB Dryer and other

Koch Knight, LLC continued:

applications for the wood products industry. We manufacture our ceramic media domestically and stock over 100,000 cubic feet at our East Canton, Ohio facility at any given time to accommodate current and future customers for quick response and short lead times.

Contact:

Matt Thayer - VP Sales and Marketing Phone: 330-488-1651 Ext. 210 Email: matthew.thayer@ kochknight.com 5385 Orchard View Drive SE PO Box 30070 East Canton, OH 44730 www.kochknight.com

KTC Industrial Engineering Ltd.

"Great projects start here." Expertise, experience, and proven track record second to none. Our staff has designed 24 greenfield plants and completed over 600 projects in the engineered wood industry over the past 30 years. KTC utilizes the latest technology and proven methodology to provide complete engineering while supporting the project management team with accurate budgets and schedules. We are now taking the risks out of projects with Dynamic Process Modeling, Advanced Project Tracking technology, and 3D design with augmented reality (AR) construction support.

KTC Industrial Engineering Ltd. continued:

Contact:

Jan Karnik - President Phone: 604-592-3123 Email: jan.karnik@ktceng.ca #218-12877 76th Avenue Surrey, BC V3W 1E6 Canada www.panelboard.net

LIMAB North America

LIMAB is the world leader in non-contact laser measuring systems for composite panels and engineered wood products.

Contact:

Tony Godair Phone: 704-321-0760 Mobile: 704-779-8106 Email: tony.godair@limab.com 3122 Fincher Farm Rd., Suite 722 Matthews, NC 28105 www.limab.com

LDX Solutions (Dustex | Lundberg)

LDX Solutions is a global supplier of air pollution control systems to process industries including the engineered wood products industry. State-of-the-art systems that include the Geoenergy E-Tube Wet ESP, GeoTherm RTO and GeoCat RCO Oxidizers and Geoenergy Wet Scrubbers. Geoenergy systems have provided environmental compliance to the engineered wood products industry on wood dryers, press vents and boilers since 1984. LDX Solutions (Dustex | Lundberg) continued:

Contact:

Robert Cox – Sales Manager Phone: 770-429-5575 Email: Rcox@LDXsolutions.com 8271 154th Ave NE Suite 250 Redmond, WA 98052 www.lundbergllc.com

Lonza Wood Protection

Lonza Wood Protection is a global leader in the development and supply of innovative technologies to improve the performance of wood products, making them resistant to termites, fungi, fire (flamespread and smoke development), mold and moisture. Lonza offers formulations specifically designed for the treatment of engineered wood, including Permatek® glueline treatments designed to work in harmony with resins as well as water repellents and mold prevention treatments to keep EWPs bright. Additional Lonza products include Wolman® residential preservatives, SillBor® borate treatments, Wolmanac® CCA and Chemonite® ACZA industrial preservatives, Dricon[®] fire retardants, FrameGuard® mold inhibition, and AntiBlu® anti-sapstain line. With global operations and an unparalleled offering of services and expertise, Lonza is dedicated to the success of its customers.

Lonza Wood Protection continued:

Contact:

Brian Delbrueck, Head of Business Development, Wood Specialties Phone: 425-229-3757 Email: Brian.delbrueck@lonza.com 1200 Bluegrass Lakes Parkway Alpharetta, GA 30004 www.wolmanizedwood.com

Matthews Marking Systems

Matthews Marking Systems, established in 1850, is a leading supplier of marking and coding equipment for the engineered wood and building products industries. Matthews supplies inkjet printing and labeling solutions for applications including grade marking, nail patterns, traceability and large format logo printing. We also offer a variety of inks, specific to the wood industry, including water based, fast dry and VOC free.

Contact:

Donna Meade - Strategic Initiatives Manager Phone: 800-775-7775 Email: info@matw.com 3159 Unionville Rd, Suite 500 Cranberry Twp., PA 15206 www.matthewsmarking.com



McLube Release Agents & Lubricants

McLube Release Agents & Lubricants is a globally recognized leader in the release and lubrication industries headquartered outside Philadelphia, USA. Founded in 1954, McLube Release Agents & Lubricants has remained at the forefront of the release agent, anti-stick, and lubrication markets by providing quality, tailormade coatings complimented by unparalleled technical assistance and customer service. Our Formulation Chemists have applied their decades of experience in the resin and composites molding industry to develop superior platen sealers and release agents for the tenacious resin binders used in the wood press industry. Contact McLube Release Agents & Lubricants for more information, on-site technical assistance, and samples of our proven formulas. McLube Release Agents & Lubricants is a brand of McGee Industries, Inc.

Contact:

Evan Silo - Technical Representative Phone: 610-459-1890 Email: info@mclube.com Glenn Dublisky - Sr. Technical Representative 9 Crozerville Road PO Box 2425 Aston, PA 19014-0425 www.mclube.com

Meinan Machinery Works, Inc.

Established in 1953 in Japan, Meinan develops and manufactures innovative machinery for veneer and plywood production, and holds hundreds of worldwide patents. Meinan's revolutionary "spindleless" lathe drives logs on their circumference with spiked discs instead of spindles, resulting in better veneer quality, higher recovery, and extremely close thickness tolerance. The lathe is part of an automatic veneer peeling line featuring automatic knife changing, automatic stacking, and green composing of random width veneer to save labor costs and increase dryer utilization. Meinan also manufactures scarf composers, grading systems, automatic layup lines, and sanders. Represented in USA by Merritt Machinery, LLC in Lockport, NY.

Contact:

Jimmy Nakaya - Sales Director Phone: 716-434-5558

<u>U.S. Representative:</u> Merritt Machinery, LLC Anna McCann - President Email: amccann@ merrittmachinery.com 10 Simonds Street www.merrittmachinery.com



Mereen-Johnson LLC

Mereen-Johnson has been setting the standard for the woodworking and engineered materials industries since 1905 and offers a complete line of Gang Rip Saws, Profiling Machines, Cross Cutting Equipment, Sizing Systems, I-Joist equipment, and related material handling designed for reliable, high speed production with minimal maintenance. Mereen-Johnson also offers a complete line of solid wood processing equipment such as fixed arbor and shifting blade straight line multiple Rip Saws, Rough Mill Optimizing and Material Handling, Moulders, Single and Double End Tenoners, CNC controlled Dovetailers, and Box Clamps.

Contact:

Dave Olson - Corporate Sales Manager Phone: 612-529-7791 Email: info@mereen-johnson.com 5201 East River Road Suite 301 Minneapolis, MN 55421 www.mereen-johnson.com



Mid-South Engineering

Mid-South Engineering is a full service, consulting engineering firm that provides a broad range of professional engineering services. Our multi-disciplined staff has served industrial, government, and commercial clients since 1969 with a particular expertise within the forest products industry. With offices in Arkansas, North Carolina, Maine, and British Columbia, Mid-South can serve clients across all of North America. Our services include Engineering, Project Development, Project Management, and Construction Services. We welcome projects from small troubleshooting efforts to large greenfield plant installations, as Owner's Engineer or as part of a turn-key project.

Contact:

Scott Stamey - Vice President Phone: 919-481-1084 Email: scott.stamey@mseco.com 200 Mackenan Drive Cary, NC 27511 www.mseco.com

Mill Machinery LLC

Mill Machinery is a provider of new and reconditioned machinery to the veneer and panel industries. Mill Machinery's inventory of production machinery includes veneer lathes, veneer stackers, dryers, plywood presses, sawlines, grade bins, panel feeders, sanders, hogs and related support equipment. Mill Machinery's Magnum line of new machinery includes press loading/unloading systems, press platens, hydraulic units, flying saws, panel feeders, panel stackers and conveyors.

Contact:

Tim Peterson - President Phone: 503-720-0540 Email: tim@millmachinery.net 31678 South Highway 213 Molalla, OR 97038 www.millmachinery.net



MINDA North America, LLC

MINDA has been meeting customer needs in the engineered wood industry for more than 40 years, providing leading technology for laminated timber processes. Whether the application requires custom press technology, material handling, data flow management, or overall plant development, MINDA provides specific solutions from concept and design to installation and commissioning. MINDA is a global

MINDA North America, LLC continued:

supplier of flexible, high speed presses for Cross Laminated Timber (CLT), Glulam Beam, and LVL Beam applications. Headquartered in Minden Germany with our latest expansion of a full service manufacturing facility located in Granite Falls, North Carolina, USA.

Contact:

Charles Martin – President & CEO, Minda NA LLC Phone: 828-313-0092 Email: c.martin@minda.com 10 N. Summit Ave., Branite Falls, NC 28630 www.minda.com

MSK Covertech, Inc.

MSK Covertech is a systems manufacturer that specializes in a variety of End-of-Line Packaging Systems, which include Pallet/ Load Automatic Bagging Systems (Auto-Baggers) that provide 5-sided protection for a variety of Engineered Wood Products. With over 4,700 installations world-wide since 1975, a local North American presence based just outside of Atlanta, GA, and with offices and service locations around the world, MSK is ready to serve your End-of-Line Packaging needs.

Contact:

Daniel Grupp, Sales Engineer Phone: 770-928-1099 Email: daniel.grupp@msk.us 600 Cherokee Parkway Acworth, GA 30102 www.mskcovertech.com

NESTEC, Inc.

Founded in 1999, NESTEC is a global leader in VOC and HAP emissions control. NESTEC provides innovative pollution management and abatement technologies for a range of industries, including specialty chemicals, wood products, ethanol, and building products. NESTEC's solutions control carbon monoxide, wood dust particulate, condensable organic aerosols, alkali metal containing ash, and water-saturated air streams. NESTEC engineers have treated emissions for over 25 years in plywood, particleboard, oriented strand board (OSB), and wood pellet plants.

Contact:

James L. Nester - President Phone: 610-323-7670 Email: jnester@nestecinc.com 222 East Main Street Pen Argyl, PA 18072 www.nestecinc.com

Nextwire

Nextwire is a North American company with over 50 years of manufacturing and engineering experience in woven fabrics for the Engineered Wood Industry. Nextwire CleanSheen II caul and press screens have greatly impacted the industry with extended life resulting in lower cost per board foot. Nextwire can provide these screens with attached tow bars which are manufactured from stainless or plain steel. All caul screens,

Nextwire continued:

press screens, and tow bars are manufactured to individual mill site specifications Nextwire also manufactures preheater, intermediate and tray belts as well as a variety of products in stainless steel and synthetic material.

Contact:

Charlie Brown – VP of Sales Phone: 870-628-6378 Email: cbrown@next-wire.com 701 E. Arkansas Ave. PO Box 159 Star City, Arkansas 71667 www.next-wire.com

Nicholson Manufacturing Ltd.

Industry Leader in ring debarking technology since 1948.

Contact:

Ron Hait, Director of Capital Sales Phone: 250-655-7533 Email: forestsales@nmbc.com 9896 Galaran Road PO Box 2128 Sidney, BC V8L 3S6 Canada www.debarking.com

Nondestructive Inspection Service

Nondestructive Inspection Service (N.I.S.) was incorporated in 1960. Since that time we have taken preventative maintenance to higher levels of predictive maintenance while saving our customers costly unpredictable down time, on all types of process equipment along the

Nondestructive Inspection Service continued:

entire production line. We are the established leader in applying our knowledge of NDT and perfecting inspection procedures to exceed industry standards. In the case of wood processing and construction board plants, over the last 30 years we have developed, tested and implemented significant innovations on the standard inspection techniques to shrink costly inspection downtime and overcome the issues of inspecting difficult-toreach parts of the equipment.

Contact:

Ed Hauldren - VP of Operations Phone: 304-562-6835 Email: ed@nisforndt.com 2825 US Route 60 East PO Box 220 Hurricane, WV 25526 www.nisforndt.com

Northwest Adhesives, Inc.

Northwest Adhesives, Inc. offers high performing, cost efficient, "pre-coated" tapes for composing wood veneers, parquet flooring or LVL veneer into durable, continuous full sized sheets. When used with Northwest "spot glues" our PS-tapes provide a continuous, more durable wood assembly and improves lay-up efficiency and reduces cost. Some customers also invest in "Re-Coat" where they use both Spot glue and PS-tape together for best holding power. In the late 1990's Northwest Adhesives, Inc. started manufacturing pre-coated strings

Northwest Adhesives, Inc. continued:

and tapes to supply to the plywood industry for veneer composing. Since our beginning we have grown to become a global leader in manufacture, sale and technical service for pre-coated hot melt strings and narrow tapes for veneer composing on Raute, Durand-Raute, Hashimoto, Kuper and PES composers.

Contact:

Bryan Asbury – General Manager Phone: 360-260-1227 Email: bryan@northwest adhesives.com 4325 S. Lincoln Street Washougal, WA 98671 www.northwestadhesives.com

OCI Melamine Americas

OCI Melamine is a supplier of melamine. Melamine is used in the manufacture of formaldehydebased resins commonly found in decorative surfaces, OSB, plywood, MDF boards and other panel products.

Contact:

Rhonda Pizzolato -Customer Service Phone: 800-615-8284 Email: rhonda.pizzolato@ ocimelamine-all.com; info.melamine@ ocinitrogen.com c/o Advanced Louisiana Logistics - ALL 501 Louisiana Avenue, Suite 201 Baton Rouge, LA 70802 www.ocimelamine.com

Owens Corning[®] -WeatherPro[®]

Owens Corning[®] is the largest supplier of coated woven wrap to the Engineered Wood Industry. It's custom-printed WeatherPro® packaging products are designed to maintain product integrity throughout transportation, inspection and storage of sawn lumber, plywood, OSB, all types of beams, I-Joists and composite wood products. Owens Corning® is a vertically integrated, global manufacturer of innovative coated woven products serving a wide variety of markets. Consistent product quality is achieved by using state-of-the-art equipment along with a strong commitment to partnership with our customers, employees, and suppliers. Owens Corning's global supply chain efficiency is achieved by our strategic manufacturing and distribution centers located throughout North America, Asia & Europe.

Contact:

Steve Sahaydak - Sales Leader Phone: 604-992-3700 Email: Steve.Sahaydak@ owenscorning.com 2650 Fassitt Road, Bldg. #200 North Charleston, SC 29406 USA www.weatherpro-wraps.com

Panel World Magazine / Hatton-Brown Publishers, Inc.

Panel World publishes six issues per year for domestic and international readership with emphasis on mill project startup articles. Product coverage includes structural and non-structural wood products. Panel World also hosts the biennial Panel & Engineered Lumber International Conference & Expo (PELICE).

Contact:

Rich Donnell - Editor Phone: 334-834-1170 Email: rich@hattonbrown.com 225 Hanrick Street PO Box 2268 Montgomery, AL 36104 www.panelworldmag.com

Paneltech

Paneltech is a young and growing, forward-thinking company comprised of people who have common values and share a common goal: providing environmentally responsible leadership in manufacturing the best performing products for industry. Our panel overlays are designed for high performance end uses and superior processability. They are designed to increase the value of the wood products they cover by increasing their durability, enhancing their appearance, and creating uniform surfaces to enhance the product's end use.

Paneltech continued:

Contact:

David Wentworth -General Manager Phone: 360-538-1480 Email: dwentworth@ paneltechintl.com 2999 John Stevens Way Hoquiam, WA 98550 www.paneltechintl.com

Permapost

Permapost provides custom pressure treating solutions for engineered wood products used throughout the U.S.A. and Asia.

Contact:

David Bond - Chief Operations Officer Phone: 503-648-4156 Email: david@permapost.com 4066 SE Tualitan Valley Highway PO Box 100 Hillsboro, OR 97123 www.permapost.com

Radian Robotics (Prev. Tebulo N.A. Ltd)

Radian Robotics provides the newest and most advanced technology for marking, labeling, barcoding, cardboard application, material handling, and other custom solutions in the wood products industry. Radian uses robotics for stenciling sidewall identification as well as end striping and coding. One system for both applications, with availability to use multiple colors. Radian's innovative cardboard application system

Radian Robotics (Prev. Tebulo N.A. Ltd) continued:

places and staples cardboard on all sides of a package, ensuring your products are well protected. Robots present high reliability and minimal maintenance. Our systems come with a guarantee to perform at over 99% reliability. Let your product stand out from the competition.

Contact:

Jim Kay – President Phone: 905-639-7370 Email: info@radianrobotics.com 70 Lancing Dr. Hamilton, ON L8W 3A1Canada www.radianrobotics.com



Raute

At Raute, we have global expertise in wood products manufacturing and we are technology and innovation leaders. Raute invests in advancing the production process of plywood, LVL, and engineered wood products. Raute provides profitable solutions for large millwide projects, individual process lines, equipment upgrades, spare parts and service. Raute is your partner in production performance.

Contact:

Trevor Wendt - Vice President Sales, NAM Phone: 604-619-0029 Email: trevor.wendt@raute.com 1633 Cliveden Avenue Delta, BC V3M 6V5 Canada www.raute.com

REA JET

REA JET has been a global leader of coding and marking solutions for the engineered wood industry for over 30 years. Whether you are looking to print APA grade stamps, large logos & graphics, 2D scannable barcodes or nail grid patters, REA JET has flexible and reliable systems designed to run at high speeds and hold up in the harshest environments. Contact REA JET today to learn more about our products, capabilities and all of your traceability needs.

Contact:

Nicole Richie - Marketing Manager Phone: 440-332-0555 Email: nrichie@reajetus.com 7307 Young Drive Walton Hills, OH 44146 www.reajetus.com

Samuel Packaging Systems Group

With over 50 years serving the lumber and forest products industry, Samuel Packaging Systems Group, offers their customers in the Engineered Wood industry a single source supply for all of their strapping, ink jet printing, labeling, and packaging requirements. Samuel's product line includes steel and plastic strapping, pneumatic and manual hand tools, seals, edge protection, fully automated strapping systems. Our industry leading VK-30 strapping head has been used in both new and retrofit applications to convert our customers from steel

Samuel Packaging Systems Group continued:

to polyester strapping. Samuel is a leader in strapping for engineered wood products, and had the first AAR approved polyester strapping. The Product Identification Division provides fully automated systems for ink jet printing for grade and marketing requirements, as well as piece and package labeling for identification, tracking and shipping.

Contact:

Bob Hadden – North American Forestry Manager Phone: 778-837-0135 Email: bob.hadden@samuel.com 2278 - 192nd Street, Unit 109 Surrey, BC V3Z 0N2 Canada www.samuelpsg.com

Sansin Corporation (The)

Backed by over 30 years of proven performance with large commercial, residential and mass timber wood buildings and structures, Sansin is the global leader in developing highperformance factory finishes that deliver the color, durability and performance that architects, engineers and builders can count on. From undercoats, treatments and preservatives to finishes and fire retardants, Sansin's Precision Coat products provide wood protection for a variety of substrates and engineered wood products, including crosslaminated timber, siding, OSB, glulam, millwork and timbers. Sansin continues to deliver

Sansin Corporation (The) continued:

environmentally friendly wood coatings that enhance performance without compromise.

Contact:

Caroline March-Long -Director of Sales and Marketing Phone: 519-245-2001 Email: cml@sansin.com 111 MacNab Ave. Strathroy, ON N7G 4J6 Canada www.sansinfactoryfinish.com

SASCO Chemical, A PSG Company

Polymer Solutions Group is an innovative manufacturer of proprietary and custom polymer additives, dispersions, and performance chemicals for the rubber, wood, consumer, construction, and medical industries. SASCO's TechKote® Release Agents, Additives, and Platen Conditioners are chemically formulated for all composite and structural panel applications. Together we strive to deliver customer-centric solutions that improve our customers' products, processes and performance.

Contact:

Clancy Redmond - Director of Sales and Business Development Phone: 734-582-3573 Email: credmond@ polymersolutionsgroup.com 827 Pine Avenue Albany, GA 31701 www.polymersolutionsgroup.com



Siemer Milling

Siemer Millings produces and markets Glu-X. Glu-X is an All-Natural Chemical Free special glue extender milled from wheat, and used expressly as the protein-starch adhesive for the wood panel (plywood) industry. This proprietary product was developed from the trade secret processes with the contributions of plywood manufacturers, master millers, adhesive scientists and cereal chemists.

Contact:

Jay Wallace, VP of Customer Service Phone: 271-857-2240 Email: jwallace@siemermilling.com 111 W. Main Street Teutopolis, IL 62467 www.siemermilling.com

Siempelkamp LP

Siempelkamp is a systems supplier of complete process equipment for the wood-based-panel industry. In addition to the ContiRoll generation 9 Continuous press, Multi-opening presses, as well as sanding, cut to size and stacking lines for the panel board industry, Siempelkamp provides the full range of process machinery. With its subsidiaries Sicoplan, the engineering company for

Siempelkamp LP continued:

complete plant engineering; Pallmann for debarking lines, chippers, stranders, and other size reduction machinery; Buettner for energy systems, dust and multifuel burners and dryer systems, the complete process machinery portfolio is covered. Siempelkamp LP provides the service support, modernizations and spare parts for North America.

Contact:

Dirk Koltze - President Phone: 704-424-4141 Email: d.koltze@siempelkampusa.com 200 N. Cobb Pkwy., Suite 302 Marietta, GA 30062 www.siempelkamp-usa.com

Signode Packaging Systems

Signode is a global manufacturer of steel and plastic strapping and the application equipment and accessory products for each. Our protective packaging systems for the Lumber and Panel Industries are centered around the material that ultimately secures loads for handling, shipping and storage, plastic or steel strapping. We offer a full range of application tools, equipment and accessories to complete your strapping system. Our Forest Products Industry sales, equipment service, customer service and engineering departments can help you design the optimum protective packaging system for your application.

Signode Packaging Systems continued:

Contact:

Claude Gregory - Forest Products Industry Manager Phone: 828-850-9777 Email: cgregory@signode.com 3624 West Lake Avenue Glenview, IL 60024 www.signode.com

SMARTECH

Smartech is a leading global technology company focused on generating game-changing technologies for production lines of varied manufacturing sectors. With its autonomous manufacturing suite, which enhances operators' work, and smart manufacturing modules such as wax & resin reduction technology, press machine optimization, and more, Smartech is trusted by the world's leading manufacturers to supply innovative, high-value technologies that transform their businesses.

Contact:

Hanoch Magid - CEO Phone: 972-4-6377757 Email: hanoch.magid@ smartech.com 7 Chalamish Street Caesarea, Israel 3088900

USA Contact:

Rami Arbili: Director of North & South America Phone: 925-322-7373 Email: Rami.arbilii@smartech.com 411 Waverly Oaks Road #420 Waltham, MA 02452, USA www.smartech.com

SonicAire

SonicAire engineered combustible dust fan systems provide safety, economic and regulatory compliance solutions to facilities that generate fugitive dust, including wood products and furniture manufacturing and multiple other industries. SonicAire systems robotically reduce fugitive dust accumulation using highvelocity, high-mass airflow that creates an overhead barrier. This proprietary BarrierAire™ technology controls the direction of the dust and forces it to the floor by preventing upward currents and stagnant air that keeps dust in suspension, preventing accumulation of fugitive dust in overhead and hard-to-reach places. Contact SonicAire Sales support at 336-712-2437.

Contact:

Chuck Morrison – Vice President of Sales Phone: 336-712-2437 Email: cmorrison@sonicaire.com 3831 Kimwell Drive Winston-Salem, NC 27103 www.sonicaire.com

SparTek Industries

SparTek Industries manufactures high quality machinery with the latest cutting edge technology for many industries including Plywood, LVL, Rubber and others. Today's high volume Plywood production Lay-Up Lines place an emphasis on efficiency. SparTek's lay-up lines, Hot and Cold Presses, Loading and Unloading

SparTek Industries continued:

equipment, Glue Application systems and other equipment are designed to meet these demands. Helping customers meet and exceed their production and operating goals is a driving force at SparTek. We are here to help you meet your goals and to do so requires innovative technology and machines designed to work at the highest operating speeds.

Contact:

Mike Cook - CEO Phone: 503-283-4749 Email: mike.cook@spartek.com 2221 North Argyle Portland, OR 97217 www.spartek.com

Spraying Systems Co.

Spraying Systems Co. is the world's leading manufacturer of spray technology equipment. Our offering includes a family of PanelSpray[®] systems for applying release agents, moisture, resin, wax or other various chemistries to wood substrate, mats, cauls or belts. These systems ensure the precise volume of fluid is applied even when operating conditions like wood throughput or line speed change. Our line also includes a PanelSpray System for precise nail marking on oriented strand board and the industry's largest selection of spray products for use in humidifying, marking, cleaning and coating operations. We serve our customers around the world from our 12 manufacturing facilities and 90 sales offices.

Spraying Systems Co. continued:

Contact:

Brian Valley - Director -Industrial Solutions Phone: 630-517-1283 Email: brian.valley@spray.com 100 W. Lake Dr. Glendale Heights, IL 60139 www.spray.com

Stratachem Solutions Group LP

Stratachem Solutions Group LP provides chemical solutions specifically for the wood products industry. With over 50 years of technical wood products experience, and a world class research and development group, we are prepared to take on tough process issues. We specialize in release agents for continuous and multi-opening presses, as well as environmental equipment chemical solutions. WESP water treatment chemistry, to keep WESPs and RTOs running up to design capacities. We are dedicated to customer satisfaction and understand the importance maintaining the highest levels of process efficiency while decreasing the cost of manufacturing.

Contact:

Mike Larke - General Manager Phone: 866-489-WESP (9377) Email: mlarke@ stratachemsolutions.com #155 513 Memorial Blvd. Springfield, TN 37172 www.stratachemsolutions.com



Sweed Machinery, Inc.

SWEED is known in the industry as the superior choice for providing full veneer dryer infeed and outfeed systems, dry, green and random veneer stackers, veneer saws, turners, and hoists. SWEED also specializes in all replacement parts for Raimann and Skoog patchers, and manufactures, sharpens and repairs patcher dies. SWEED provides the latest technology and exceptional craftsmanship; helping processors achieve higher production goals with less downtime. Based in Oregon, USA, and having served the industry for over 65 years, SWEED continues its legacy in offering unmatched quality, customer service, engineering, and technical support.

Contact:

Kevin Gordon - Sales Director Phone: 800-888-1352 Email: kgordon@sweed.com 653 2nd Avenue PO Box 228 Gold Hill, OR 97525 www.sweed.com

Taihei Machinery Works Ltd.

Taihei is a specialized manufacturer of veneer and plywood machinery, fully committed to the development and production of equipment that meets customer needs. We are driven by the goal of providing proprietary machinery that is second to none to our customers around the world. Taihei is the leading manufacturer of automatic knife grinding and honing machines. Other Taihei products include horizontal hot presses up to 140 openings, veneer jet dryers, veneer stackers, glue spreaders, reeling systems, and finger jointing equipment.

Contact:

Sam Matsuoka Sales Department, Export Phone: +81-568-73-6421 Email: h_matsuoka@taihei-ss.co.jp 955-8 Miyamae Irukade-Shinden Komaki, Aichi 4850084 JAPAN www.taihei-ss.co.jp

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TSI continued:

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Contact:

Andrew Johnson - Vice President Phone: 425-771-1190 Ext. 128 Email: ajohnson@tsi-inc.net 20818 44th Avenue West Suite 201 Lynnwood, WA 98036-7709 www.tsi-inc.net

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Union Pacific Railroad continued:

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The Center for Renewable

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Contact:

Timothy Young - Ph.D. - Professor Phone: 865-946-1119 Email: tmyoung1@utk.edu 2506 Jacob Drive Knoxville, TN 37996-4570 www.spc4lean.com

USNR

USNR

With the addition of Ventek's veneer scanning, grading, and handling solutions to USNR's lathe, dryer, and downstream product portfolio, USNR now offers tightly integrated mechanical and optimization solutions for the plywood industry. USNR products are known to increase recovery, value, and yield, improving mill profitability. USNR also manufactures machinery for beam lamination, finger-jointing, and presses for the composite board industry. Committed to superior customer service, USNR offers OEM parts, training, and 24/7 support around the globe. 800-BUY-USNR.

Contact:

Chris Van Ackeren - Sales Manager, Veneer Systems Phone: 360-225-8267 Email: chrisvanackeren@usnr.com 1981 Schurman Way PO Box 310 Woodland, WA 98674 www.usnr.com

Venango Machine Company, Inc.

Venango Machine and our sister company, Custom Engineering, are complete platen services provider to the forest products industry. We provide new platens for every make of press in the industry for manufacturing of all board products. Our product line includes small specialty platens for lab applications, intermediate sized platens for particle board, OSB, and LVL in both multiple platen and continuous processes. We also provide complete platenrefurbishing programs that include flow and pressure testing, weld repair and re-machining to original specifications. Our technicians also provide assistance in platen change outs and in-press weld repair. Please contact us for all your platen requirements.

Contact:

Nyla Vogel - Sales Manager Phone: 814-739-2211 Email: nvogel@ venangomachine.com 14118 Route 8-89 PO Box 239 Wattsburg, PA 16442 www.venangomachine.com

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Contact:

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Contact:

Jacob Sturgeon -General Manager Phone: 613-796-1606 Email: jacob.sturgeon@ us.whchem.com 3803 West Chester Pike Suite 240 Newton Square, PA 19073 USA www.whchem.com

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Contact:

Mike Crondahl - President, Owner Phone: 604-607-7010 Email: crondahl@westmill.com 30640 Marshall Road Abbotsford, BC V2T 6J7 Canada www.westmill.com



Willamette Valley Company

Willamette Valley Company, LLC manufactures epoxies, putties and urethanes for upgrading all wood substrates and also makes a wide range of water based coatings, primers and sealers. In addition, Willamette manufactures custom formulated wax emulsions, custom slack wax blends and value-added waxes. Willamette also produces different fillers and extenders for wood adhesives and plywood glues. Pre-Tec, the company's equipment solutions division, specializes in the design and manufacturing of advanced fluid systems and the integration of robotic application systems.

Contact:

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COMPARING NORTH AMERICAN AND IMPORTED ENGINEERED WOOD PRODUCTS

By Kurt Bigbee

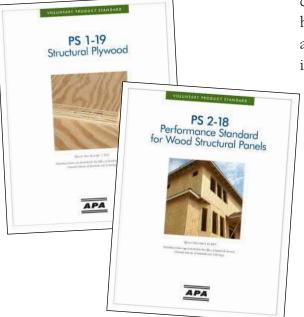
When ordering engineered wood products, it's important to understand what you will getsuperior quality materials, or inferior products that won't perform. APA certifies engineered wood products to some of the most stringent standards in the world. The standards, PS 1 for plywood only, and PS 2 for all structural wood panels, are designed to assess the ability of engineered products to perform in their intended application and are tested for installed attributes such as concentrated load, uniform load, bond performance and expansion with moisture content. Complementary standards in Canada are CSA-O121 for Douglas-fir plywood and CSA-O325 for all structural wood panels. Structural elements such as structural composite lumber and wood I-joists are tested to develop

appropriate design values for bending, tension, shear and compression. SCL is certified to ASTM D5456 and wood I-joists are certified to ASTM D5055.

Once certified, engineered wood products are evaluated based on a strong quality assurance policy that includes reviewing mill quality procedures, APA third party audits of the mill quality system and quality testing that verifies the quality and performance of engineered wood products. Finally, APA's quality assurance policies have proactive steps to ensure quality issues are dealt with promptly.

Qualified products are then authorized by APA so the products can bear a trademark that clearly identifies where and how it can be installed. Structural panels are evaluated for qualification

and quality assurance that results in a trademark for a specific span for roofs, walls or floors, or for uses such as concrete form. Structural composite lumber certified by APA will bear a trademark for the elasticity design grade and often the design strength grade. Again, the quality assurance auditing and testing provides assurance the quality of the material matches the grade stamped on the product.



PS 1-19 and PS 2-18 are two of many Product Standards available at <u>apawood.org</u>.

cases, the panel might have a clear face with an attractive pattern, and it could look like a 3/4"

panel that could be used in a structural application. But without a standard in the trademark, the wood species used could have inferior strength and stiffness, the glue could have inferior moisture performance or high formaldehyde emissions, and the degree of quality assurance is completely unknown. An APA

trademark provides the assurance of appropriate qualification and quality assurance evaluation that yields a product that provides performance matching the product trademark.

APA has responded to inquiries in the past of questionable trademarks, particularly on structural panels. In certain cases, APA noted that panel stiffness was low in comparison to the product trademark rating. In some of the panels, the bond quality was low, and formaldehyde emissions were higher than normal for North American structural panels. When purchasing engineered wood products, such as panels, structural composite lumber, wood I-joists, glulam beams or cross-laminated timber, the APA trademark provides the assurance of a quality product that will consistently perform as labeled for span rating or grade.

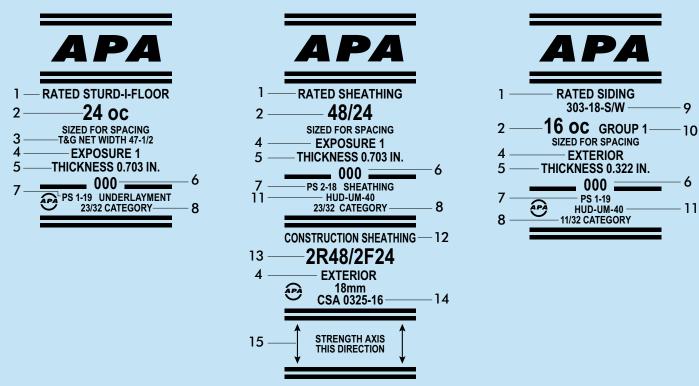
Kurt Bigbee is Senior Scientist with the Technical Services Division for APA – The Engineered Wood Association.

Imported panels, in comparison, could come

in three different categories, and the purchaser needs to be aware of the implications. In one instance, it could be an imported engineered wood product that has a similar span rating or grade information as APA uses, but the product quality may not be the same as an APA stamped product. A second instance could be an imported engineered wood product that is trademarked to a foreign standard. The standard could be legitimate, but a foreign standard will not have a North American span or grade rating. How will a purchaser in North America figure out the correct application for the panel?

In a third instance, the panel may identify the source of the product, the thickness and the manufacturer—but if there is no standard reference listed in the trademark, there's no telling how it was made and whether the combination of glue, wood species and manufacturing will result in a product with adequate structural performance. In some

THE APA PANEL TRADEMARK EXPLAINED

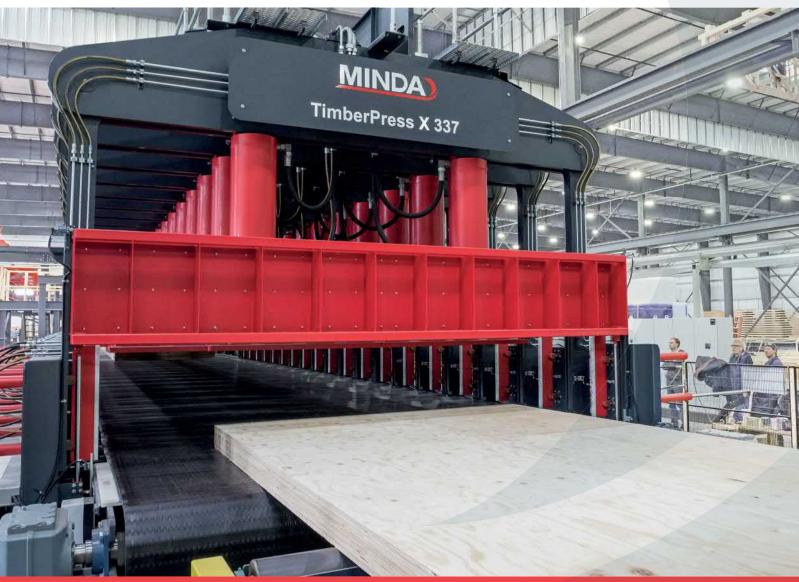


- Panel grade the term "grade" may refer to panel grade or veneer grade. Panel grades are generally identified in terms of the veneer grade used on the face and back of the panel (e.g., A-B, B-C) or by a name suggesting the panel's intended end use (e.g., APA Rated Sheathing, Underlayment).
- 2. Span rating Two numbers separated by a slash. The left-hand number is the maximum recommended center-to-center spacing for supports in inches when the panel is used for roof sheathing with long dimensions across supports. The right-hand number is the maximum center-to-center spacing of supports in inches when the panel is used for subflooring with the long dimension across supports. The span rating on APA RATED STURD-I-FLOOR underlayment and APA RATED SIDING panels appears as a single number. The span ratings for APA RATED STURD-I-FLOOR and underlayment panels, like those for APA RATED SHEATHING, are based on application of the panel with the long dimension or strength axis across three or more supports.
- Tongue-and-groove A system of jointing in which the rib or tongue of one member fits into the groove of another. Tongue-and-groove edges eliminate the need for blocking beneath panel edges for support.
- 4. Bond classification Exposure ratings for APA wood structural panels may be Exterior or Exposure 1. The classifications are based on the severity and duration of weather and moisture exposure the panels are designed to withstand, and the wood materials and adhesives used in manufacture.
- Decimal thickness declaration This value is generally at or near the lower tolerance specified in PS 1 or PS 2.
- 6. Mill number Manufacturing mill identification number.
- 7. Product Standard An industry product manufacturing or performance specification. Voluntary Product Standard PS 1-19 for Structural Plywood was developed cooperatively by the plywood industry and the U.S. Department of Commerce. Voluntary Product Standard PS 2-18, Performance Standard for Wood Structural Panels, establishes performance criteria for specific designated construction applications.

- 8. Performance Category A panel designation related to the panel thickness range that is linked to the nominal panel thickness designations used in the International Building Code (IBC) and the International Residential Code (IRC).
- **9. Siding face grade** Grade identification of siding face, based on number of repairs and appearance characteristics.
- 10. Species group number Classified according to strength and stiffness under manufacturing standard PS 1 into Groups 1 through 5. Group 1 woods are the strongest, Group 2 seconded strongest, and so on. Typically used when no span rating is noted.
- 11. HUD recognition Recognition of wood-based Performance Rated Panels is contained in Use of Materials Bulletin UM-400.
- 12. Panel grade, Canadian Standard Some APA panels are manufactured to both U.S. and Canadian standards, and carry a dual mark, as shown in the Rated Sheathing mark above. Other panels may carry a single mark for either the U.S. or Canadian standard.
- 13. Panel mark Rating and end-use designation, Canadian standard. In the Canadian span marking, the "R" signifies roofs and the "F" represents subfloors.
- 14. Canadian performance-rated panel standard.
- 15. Panel face orientation indicator.

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TENTATIVE DATE SET FOR 2021 EWTA INFO FAIR

We eagerly look forward to a time when we can gather again in person. While the 2021 EWTA Info Fair and APA Annual Meeting are scheduled tentatively for Oct. 16-19 at the JW Marriott Desert Springs Resort and Spa at Palm Desert, California, we are monitoring safety guidelines. We expect to have more information later this spring available at <u>www.engineeredwood.org/Info-Fair</u>.

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EWTA WELCOMES NEW MEMBER

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from concept and design to installation and commissioning for custom press technology, material handling, data flow management or overall plant development. MINDA is a global supplier of flexible, high speed presses for cross-laminated timber (CLT), glulam beam and LVL beam applications.

Minda is headquartered in Minden Germany, and has expanded to Granite Falls, North Carolina, USA offering a full service manufacturing facility. Charles Martin, President and CEO of MINDA NA, can be reached at 828-313-0092 and <u>c.martin@minda.com</u>

Columbia Forest Products to invest in USNR's Coe-brand lathe carriage assembly

The Columbia Forest Products veneer processing plant at Klamath Falls, OR, is investing to update its legacy Coe-brand lathe. The existing carriage has seen decades of service and is now worn to the point that it needs replacement. The USNR Coe-branded lathe carriage assembly will be installed in 2022.

Finnish Fibreboard acquires new system from Argos Solutions

A new Argos grading system will be installed at the Finnish Fibreboards facilities in Heinola, Finland. The new digital vision system will be replacing a system that has been an integrated part of production for many years but has reached the peak of its technical lifetime.

Raute to hold RxEvent

Raute RxEvent, an exclusive online event scheduled for May 11-12, 2021 is an immersive, interactive and free-of-charge online event that unites veneer, plywood and LVL professionals around the globe. The event is built around appearances by international experts, forwardfocused specialist presentations and one-to-one sessions with Raute experts.

Arclin names new chief executive officer

Arclin's Board of Directors recently selected Bradley R. Bolduc as Chief Executive Officer, replacing Russell C. Taylor, who retires after nine years with the company. Bolduc joined Arclin in 2012. Leveraging years of business development experience, he focused initially on new market development before ultimately assuming the role as President of Arclin's engineered

Continued on next page

surfaces division. As CEO, Bolduc will focus on expanding markets through continuous product enhancements and, more importantly, on marketchanging innovations that address industries' most pressing challenges, from protecting building products from environmental elements and fire suppression to environmentally friendly industrial fertilizers and more.

Fagus GreCon Inc. welcomes new director of sales

Todd Havican is the new Director of Sales and newest member of the GreCon team. Havican has over 25 years of experience leading sales teams in a variety of industries including fire protection, nonwovens, dust collection and food processing. He will be headquartered in Charlotte, NC, for Fagus GreCon's North American headquarters.

Hansen-Rice, Inc., announces new directors

Hansen-Rice, Inc., is pleased to announce that Jason McIntosh has joined their team as Industrial Solutions Director specializing in engineered wood. McIntosh brings 20+ years of direct operational and capital project experience in the engineered wood industry. For industrial solutions, visit www.hansen-rice.com or contact jmcintosh@hansen-rice.com / 318-243-1116.

Terry Kerwood has been named Marketing Director and will oversee Hansen-Rice's client engagement and outreach efforts for the Industrial Solutions Program, which includes the engineered wood industry. For more about HRI Industrial Solutions, visit www.hansen-rice. com or contact <u>tkerwood@hansen-rice.com</u> / 253-431-9663.



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NESTEC, Inc. is a turnkey provider of thermal oxidation systems for the wood products industry including regenerative thermal oxidizers (RTO) including on line bake out, regenerative catalytic oxidizers (RCO), process scrubbers, Wet Electrostatic Precipitators (WESP), duct design, secondary heat recovery, system upgrades, energy audits, inspections and parts. Our key staff of engineers has over 300 years of experience in the field of thermal oxidation and has participated in solving air emissions problems for the wood products industry since the early 1990's. Whether you need a new air pollution control system or require upgrades and improvements to an existing RTO-WESP system, NESTEC, Inc. is your best resource to ensure a successful project.

Raute

Trevor Wendt, VP Market Area, NAM Phone: 604-619-0029 Email: trevor.wendt@raute.com 1633 Cliveden Avenue Delta, BC V3M 6V5 Canada www.raute.com



At Raute, we have global expertise in wood products manufacturing and we are technology and innovation leaders. Raute invests in advancing the production process of plywood, LVL, and engineered wood products. Raute provides profitable solutions for large mill-wide projects, individual process lines, equipment upgrades, spare parts and service. Raute is your partner in production performance.

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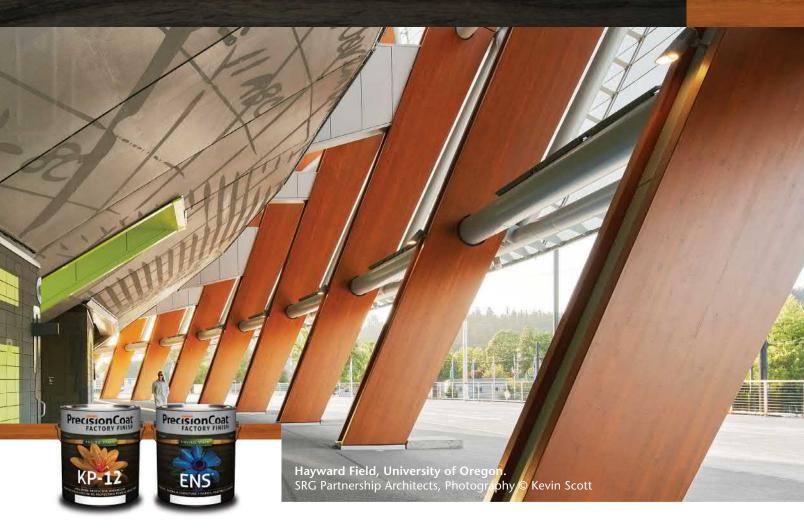
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