

ENGINEEREDWOOD

SPRING/SUMMER 2020

Journal



INNOVATIONS LEAD TECHNOLOGICAL REVOLUTIONS

PAGE 10



NEW YEAR BEGINS WITH STRONG OPTIMISM FOR THE INDUSTRY

No one predicted the
detour ahead

PAGE 22



INDUSTRY AND GLOBAL IMPACTS OF COVID-19

A look at the first half
of 2020

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Journal

ENGINEERED WOOD JOURNAL
Volume 24, No. 1,
Spring/Summer 2020

Engineered Wood Journal is published by the Engineered Wood Technology Association, a related nonprofit organization of APA – The Engineered Wood Association. The Journal is produced for and distributed free of charge to North American engineered wood product manufacturers, their equipment, product and service suppliers and other industry stakeholders. © 2020 Engineered Wood Technology Association. All rights reserved. Reproduction in whole or in part without written permission is prohibited. The views and opinions of contributing authors are not necessarily those of EWTA, APA, their members or advertisers.

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Photo courtesy of APA

About the Cover Photo:

APA's \$4.5 million lab renovation is complete and greatly expands the association's assembly testing capabilities. See story and more photos, page 20.



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In this issue...

We knew this would be a year of transition for EWTA as management was incorporated into the APA organization and Steve Zylkowski, EWTA's long-time APA adviser, retired. Little did we know how many transitions would crop up in the first six months of 2020.

One transition is the move from a printed magazine to an electronic version. This option, a component of long-term planning, became a top priority as the impact of COVID-19 hit with force. One of the benefits of an electronic magazine is easy access to additional information. Be sure to click on links in the articles and advertisements to go directly to company websites and resources.

The housing market of 2019 ended on an upswing, and member optimism is evident in the Business Outlook survey responses, highlighted on page 22. Even though today's outlook may not mimic that from early January, we believe it is helpful to share where the pulse was at that time. For an assessment on the industry and impacts of COVID-19 in the first six months of 2020, turn to page 64. Read insights from APA's Market Research Director Joe Elling on the U.S. housing industry and the recovery outlook for residential construction.

Many of us are quickly adapting to the changes in how business is conducted. "Innovations Lead Technological Revolutions," on page 10, shows how change can be the catapult for new advancements as illustrated through various industrial and technological revolutions the world and our industry has experienced, adapted and benefited from.

Highlights from the 2019 Info Fair and the Annual Supplier Awards program are provided on page 51. Unfortunately, the impacts of the pandemic resulted in the cancellation of in-person activities associated with the 2020 APA Annual Meeting and EWTA Info Fair. This was a difficult decision to make, recognizing that these events provide valuable connections with members each year. We will continue to serve EWTA and APA members through video conference and online tools to stay connected and share industry news. Please share ideas you think might provide more meaningful bonds.

We look forward to a time in 2021 when we can safely gather again for in-person meetings.



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INDUSTRY CONNECTIONS



Mike Dawson accepts the Bronson J. Lewis Award from APA Board of Trustee Chairman Jim Enright.

APA Bronson J. Lewis Award Goes to Mike Dawson

Mike Dawson has been named as the 2019 Bronson J. Lewis honoree. Now in its 14th year, the Bronson Lewis award recognizes individuals for their leadership and outstanding contribution to our industry. It is named for the late Bronson Lewis, who served for 24 years as secretary and then executive vice president of APA – The Engineered Wood Association.

Dawson, former senior vice president of sales, marketing and logistics for Norbord, spent his 30-plus-year career in the wood products industry, starting as a forest sales rep for Noranda Aluminum. Throughout his career, he has been a champion for the engineered wood industry.

Besides his work on behalf of Norbord, his contributions and service to the engineered wood products industry include terms on the APA Board of Trustees as chair of the Marketing Advisory Committee and an active committee member for many years, the American Wood Council Board of Directors for five years and as an adviser to the WoodWorks Board of Directors.

Manufacturing and Distribution of Engineered Wood Products Should Remain an Essential Function

During difficult times like the current coronavirus pandemic, government officials make hard decisions about restricting movement of people and business. The Department of Homeland Security's Cybersecurity and Infrastructure Security Agency (CISA) acknowledge the importance of our industry by including the following as essential functions under food and agriculture: "Workers who support the manufacture and distribution of forest products, including, but not limited to timber, paper, and other wood products."

Some states have implemented tighter restrictions. The American Wood Council, which provided input to the federal guidelines, recommends sharing them with those state officials.

APA Promotes Sonya Bachlmayr to Vice President

Sonya Bachlmayr has been promoted to vice president of finance and strategy for APA – The Engineered Wood Association, a recognition unanimously supported and approved by the APA Board of Trustees. The promotion recognizes that her responsibilities have expanded considerably beyond those of the director of finance and administrative services position for which she was hired. In the new position, Bachlmayr will continue her role as secretary/treasurer,



Sonya Bachlmayr

Continued on next page

IN MEMORIAM

John "Jack" Creighton

John "Jack" Creighton, former Weyerhaeuser CEO, died Jan. 29 at the age of 87. Creighton's appointment as chief executive in 1991 marked the first time someone outside the Weyerhaeuser family led the company. He retired in 1997 and went on to become chairman and CEO of United Airlines after the 9/11 terrorist attacks. He also served as a strategic director for Madrona Venture Group, a Seattle-based technology investment firm.

Corey Farrens

Corey Farrens, former business development manager at EWTA member company SparTek Industries and a member of EWTA's advisory committee from 2017 to 2019, died Sept. 16, 2019. Mr. Farrens was born in Sedalia, Missouri on Dec. 5, 1968, and attended Clinton High School, Virginia Tech and the Oregon Culinary Institute. He served in the Navy as a machinist's mate on the USS Durham and USS Abraham Lincoln, and is a veteran of Operation Desert Shield.

Mr. Farrens is survived by his sister Tracy McClain; sons Jesse and Alex; and significant other, Vanessa Yankowski.

Mr. Farrens' presence on the EWTA Advisory Committee and at EWTA's annual Info Fair supplier exhibition will be greatly missed.

Continued on next page

IN MEMORIAM

Bruce Lyons

Bruce Lyons, former APA general manager, died March 2 at the age of 89. Lyons worked for more than 30 years at APA, holding positions as an engineer, manager, director and vice president before being promoted. Prior to joining APA, Lyons worked for the Army Corps of Engineers and served in the U.S. Army. He graduated from the University of Washington with a degree in civil engineering. He is survived by his wife of 60 years, Paula; three children, Curtis, Craig and Christine; and two grandchildren.

Warren (Ted) Theodore Wier

Warren (Ted) Theodore Wier, former Weyerhaeuser sales and marketing manager, died Dec. 11, 2019, at the age of 88. Wier worked for Weyerhaeuser for 29 years, in such locations as Downey, California; Cleveland, Ohio; and finally, Lakewood, Washington, before retiring in 1991. His team provided the glulam beams in 1983 for the Tacoma Dome. Wier graduated in 1958 from the University of Minnesota with a degree in forestry. Before joining Weyerhaeuser, he was in the U.S. Air Force and worked for 3M. He is survived by his wife, Carole, two adult children and three grandchildren.

one of the association's two officers. While the emphasis of the new position remains on finance, she will be tasked also with promoting the association's increased organizational effectiveness and overall strategic goals.

"Sonya has proven to be both strategic and tactical in her thoughts and performance," President Ed Elias said in announcing Bachlmayr's promotion. "Recognition of that performance is being formally acknowledged."

Bachlmayr previously served as APA's accounting manager for six years. She returned to APA in 2013 to direct the Finance and Administrative Services Division.

Steve Zylkowski Retires After 37 Years of APA Service

APA is saying goodbye to Steve Zylkowski, director of Quality Services, after 37 years of service. Steve joined APA in 1983 as an associate scientist in Technical Services.

He has fulfilled several roles since then, including senior scientist, manager of research and development and director of Engineered Wood Systems before taking over the Quality Services Division in 2003. He has also served as an APA adviser for EWTA, and chaired and participated in several technical boards and committees for such organizations as Association of National Standards Institute, ASTM, Canadian Standards Association, International Standards Organization, National Institute of Building and Science and Structural Roof Erectors Association. Steve's last day was May 29.



Steve Zylkowski

Charles E. Hartke joins APA as QSD Director

Charles Hartke has joined APA – The Engineered Wood Association as director of the Quality Services Division. In this role, Hartke will oversee APA's accredited certification programs, auditing and inspection of member products, and the staff who convey standards requirements to manufacturers.



Charles E. Hartke

Hartke has extensive experience in the certification arena, having held similar roles at SGS, a global testing, inspection and certification company; AI-ANSECO, an international consumer product testing company and Bureau Veritas, a global testing, inspection and certification company. He holds a bachelor's degree in biochemistry from Canisius College and a master's degree in business administration from the State University of New York at Buffalo. He is certified by ASQ as a Six Sigma Black Belt and Manager of Quality/Organizational Excellence.

New Trustee Joins APA Board

One new trustee has been elected to the APA Board of Trustees. Chris Degnan, Director of Commodities and Home Improvement Warehouse for Weyerhaeuser, has an extensive background in sales and marketing of engineered wood, OSB and plywood products. Before joining Weyerhaeuser in 2008, he was a sales manager for Willamette Industries and started his career as a district forester in Louisiana. Chris fills the position vacated by Allan Bradshaw.



ON-DEMAND WEBINAR Wood as a Sustainable Building Material

Presented by Kathryn (Katie) Fernholz of Dovetail Partners. This webinar outlines what makes wood a green building material and clears up misconceptions on the environmental impacts of harvesting wood.

View this webinar and others at www.apawood.org/webinars



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ENGINEERED WOOD INNOVATIONS LEAD TECHNOLOGICAL REVOLUTIONS

By June De La Paz

Engineered wood products by definition are technological innovations, although generations have defined “technology” differently. Industry partners have continued to advance and enhance the standards of these products by working together and building on previous innovations.

A technological revolution can be defined as an era of accelerated progress characterized by new innovations whose rapid application and diffusion cause an abrupt change in society. In short, a technological revolution is a dramatic change brought about by the introduction of new technology.

The revolution begins

The First Industrial Revolution, starting around 1760 and lasting more than 70 years, dramatically altered almost every aspect of human existence. Traditional agriculture and handicraft economies, popular in the pre-industrialized era, were ousted to make room for large-scale industry that was more

productive and efficient. The industrial revolution birthed some of the world’s greatest inventions like the steam engine, sewing machine, incandescent light bulb, internal combustion engine and the modern

assembly line.

The world’s population climbed exponentially along with the standard of living, increasing demand for goods and services. By the 1800s the population would surpass



The first patent for plywood was issued in 1865 to John K. Mayo of New York. Patent No. 51,735 was an invention that “consists in the formation of various structures used in civil engineering of a plurality of thin sheets of veneers of wood, cemented or otherwise firmly connected together, with the grain of the several scales or thicknesses crossed or diversified so that they will afford to each other mutual strength, support, and protection against checking and splitting, shrinking or swelling, expanding or contracting.” Note: Mayo may have had a vision, but history does not record that he ever capitalized on his patents.

1 billion and the impact of the industrialized world would accelerate production capacity in all aspects of human needs including food, medicine, clothing, and housing.

Advancing to the next level

The end of the 19th century saw the dawn of the Second Industrial Revolution. Technological advancements in new sources of energy

industries in electricity, petroleum and oil would pave the way for the invention of the automobile and airplane and the development of new products. Discoveries and advances in chemical synthesis, the telegraph and telephone, the incandescent lightbulb and the rotary veneer lathe would significantly transform production and business.



From 1905 to 1920 door panels were the primary market for softwood plywood.

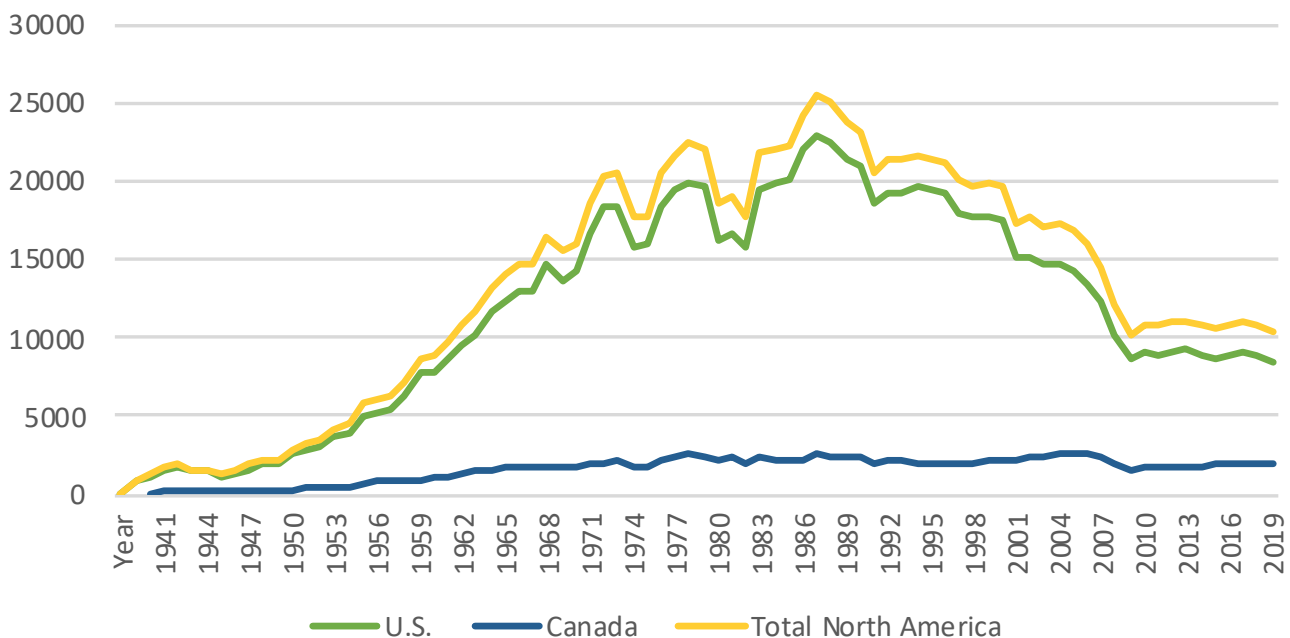
The introduction and advancement of plywood

The plywood industry was born in 1905 when the Portland Manufacturing Company, a small wooden box factory, laminated wood panels from a variety of Pacific Northwest softwoods. By 1907, production

Continued on next page

North American Plywood Production

Million square ft., 3/8" basis



soared, and to keep up with demand, an automatic glue spreader and sectional hand press was installed. In those early years, doors were the main use for this new engineered wood product, but it was the automobile industry that would advance the industry by using plywood for running boards.

In 1925, Steger Marvin Earl recognized that "... wood is beautiful in color and grain but is frequently marred by surface defects, such as pitch pockets, knots and the like.." He was issued the first patent for a defect-removing and patch-cutting machine. Unfortunately, his invention would not experience any real commercial success.

In 1928, 4-foot-by-8-foot plywood sheets were introduced to the U.S. for general building purposes.

The following year, 17 plywood mills were operating in the Pacific Northwest, producing a record 358 million square feet (on 3/8-inch basis).

The Great Depression arrived in the U.S. Oct. 24, 1929, with the worst stock market crash in history, triggering the longest and most widespread economic depression of the 20th century. Motivated by an unprecedented 24.9% unemployment rate, substantially reduced



Skoog Veneer Patcher, first manufactured in 1941 by the Skoog Manufacturing Company.

household incomes and a shortage of low-cost housing, the demand for inexpensive and rapid-build factory-

“Timber supplies in the upper Midwest dwindled by 1900, forcing loggers to move to the Pacific Northwest. As of 2015, 28% of U.S. softwood is provided by timber producers in Oregon and Washington state.”

produced houses using plywood skyrocketed. To address declining quality timber resources, Gifford Pinchot led a movement toward forestry conservation. In 1933, President Franklin D. Roosevelt

proposed to strengthen U.S. forestry resources to Congress and enacted emergency conservation work that included planting trees, watershed restoration and erosion control.

During World War II (1939 – 1945), plywood was declared an essential war material and used to make everything from barracks, boats, planes, huts, and temporary housing and shelters. In the decade following the end of the war, demand for plywood rose by over 280% and nearly doubled in the next five years as the economy boomed.

The defect and patch machine that Steger Marvin Earl invented in 1925 would come to fruition in 1941 when Per F. Skoog applied for his first veneer patching apparatus

patent and later manufactured the Skoog Veneer Patcher under the Skoog Manufacturing Company, based in Olympia, Washington.

Grade and Quality Standards established

The first Grade and Quality Standards were introduced by the U.S. Commercial Standard and Douglas Fir Plywood Association (now known as the APA – The Engineered Wood Association or APA) in the same year.

By the 1950s, two manufacturers offered pneumatic or mechanical patching

equipment with features like automatic die cleaning and patch blank magazine feed. These patching machines used single boat (oval with two points) patches about 4.5 inches by 2 inches cut from high quality veneer. The machine relied on an operator to manually check the sheet for defects, moving the sheet by hand into place while a foot switch initiated the die to punch out the defect and then insert a veneer patch. Well-made and built to last, these heavy-duty machines proliferated in the market

for almost 50 years mostly unchanged and unchallenged.

The Digital Revolution emerges

The Digital Revolution, also known as the Third Industrial Revolution, marks the beginning of the information age with the introduction of the computer. Spanning the late 1950s through the late 1970s, the mass production and widespread use of computers, microprocessors, digital cellular phones and the internet once again transformed traditional production and business.

Continued on next page



Raute Patching Line P2



Raute Patching Line P2

Plywood production advanced during the digital revolution through the development of the first automated patching line in the United States in 1998. Raute's Patchman did not rely on operators to make patching decisions, but relied on the technology of a camera grading system first introduced in 1997. This vision sensing technology accurately detected defects as small as 2mm x 2mm, scanning sheets at speeds up to 200 m per minute. A computerized system showed real time images of sheets as well as the ability to freeze and store images, magnify defects

and customize grade rules. Scanned sheets were conveyed on vacuum belts for precision control, and programmable logic and motion controllers accurately patched defects. At the time, a single Patchman replaced three manual patchers and made about 1,900 patches per patching head every hour (about one patch every two seconds). Auto strip feeders reduced veneer prep, and the large magazine reduced frequent loading. The Patchman could accommodate three levels, allowing the replacement of nine manual patchers with a minimum

increase in footprint.

Demonstrating how technology can move at lightning speeds, the next generation patching line unveiled in 2011, merging sophisticated cameras and intelligent automated advances into a high capacity system for fast and consistently accurate patching. The latest generation of patching lines minimizes waste and maximizes surface veneer value, without any manual veneer handling. A single level can patch about 3,200 per hour (less than 1 second a patch), over four times faster than manual patching. Before the debut of these new

patching lines, the best way to patch was tested extensively, including whether the shape and size of the patch made a difference in durability and strength. After rigorous and exhaustive testing in real veneer and plywood scenarios, Raute submitted butterfly-style patches to APA for evaluation in its laboratory. The results revealed that the patches can bear double the load of industry standard style of patches. As of December 2019, the butterfly-style patches were included in the updated Grade A veneer standard in Voluntary Product Standard PS 1-19, Structural Plywood, under the “compound boat” patches, which have multiple rounded ends. Before that, the U.S. Department of Commerce (USDOC) and National Institute of Standards and Technology (NIST) had not changed wood patch standards since 2010. (See pages 17-19 for recent Product Standard updates.)

“Standards are produced and updated through a consensus process, involving multiple agencies and industry partners, relying on data,” said Steve Zylkowski, APA’s director of quality services. “That’s how we have advanced the engineered wood industry together through the years.”



Butterfly-style patches are now included in the updated Voluntary Product Standard PS 1-19.

Looking ahead to the next revolution

The First Industrial Revolution happened about 260 years ago. The Second Revolution occurred 110 years later, and the Third Revolution about 70 years ago.

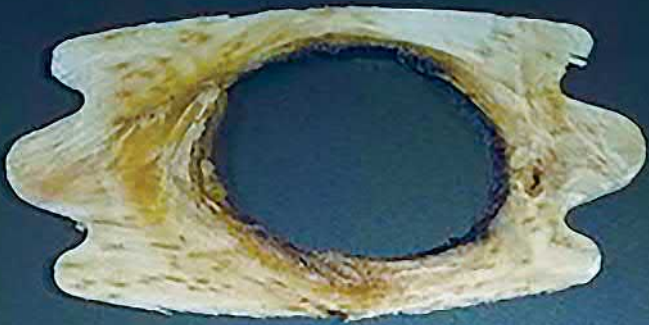
It is projected that the fourth technological revolution is underway that will blur the lines between the physical, digital and biological spheres. Technologies like artificial intelligence, autonomous vehicles and the internet along with voice-activated assistance, facial ID recognition and digital health-care sensors are technological changes altering how people, companies, organizations and even governments are operating, transforming societies like previous industrial revolutions.

With the Fourth Revolution upon us, the time before drastic societal changes is getting shorter and shorter. What will the Fourth Revolution mean to the plywood and engineered wood industry? What will future mills look like with artificial intelligence and autonomous equipment? Working together, the industry will continue to transform itself.

June De La Paz is the Marketing Coordinator at Raute.

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UNDERSTANDING CHANGES IN PRODUCT STANDARDS

By Steve Zylkowski



Basic requirements for types and grades of structural plywood and wood structural panels are established in Voluntary Product Standards PS 1 and PS 2. These standards have recently been revised by the National Institute of Standards and Technology (NIST). This agency, part of the U.S. Department of Commerce (DOC), is charged with maintaining national technology and measurement standards.

Numerous changes common to both standards include:

- The methods for determining panel dimensions were revised to provide more clarity and accuracy.
- Definitions of various terms were revised:
 - “Exposure 1” refers to panels designed for exposure to weather during construction
 - “Sized for Spacing” means the panel is cut short of nominal to provide for recommended panel spacing
 - “Indents and depressions” in plywood are defined with respect to face grade requirements.

Product Standard PS 2 covers structural and bond performance requirements of

Continued on next page

wood structural panels such as plywood, OSB (oriented strand board) or composite panels. It defines qualification and quality assurance requirements for wood structural panels as structural wall, roof and floor components, which are recognized throughout building codes in the U.S.

The changes in this new Product Standard PS 2-18 include the following provisions:

- New stiffness requirements were added to the wall sheathing grade to assure the panel's ability to resist deflections under wind loads.

- Requirements for a new panel grade, Structural I Single Floor, were added. Similar to Structural I sheathing grades, this grade includes increased structural requirements for shear performance and cross-panel stiffness.

Product Standard PS 1 covers the wood species, veneer grading, adhesive bonds, panel construction and workmanship, dimensions and tolerances, marking, moisture content and packaging for structural plywood.

Changes in this new Product Standard PS 1-19 include the

following provisions:

- Wood patches used in plywood with A-grade veneers now permit patch shapes that include rounded ends. See the sidebar discussing the performance research on appearance and performance of new patch shape.

The role of NIST in the establishment of a DOC Voluntary Product Standard is to act as an unbiased coordinator in the development of the standard, provide editorial assistance in the preparation of the standard, supply such assistance and

PS 1-19 A-GRADE PATCH CHANGES

Wood patches are used in various grades of PS 1 sanded and decorative (siding grades) structural plywood. One requirement for A-grade veneer boat patches, or plugs, was that the patch ends come to a point with radius of no more than 1/8 inch. In recent years, wood equipment manufacturers have developed alternate shapes for wood patches. To determine suitability of such patch shapes, APA conducted a study of appearance performance of sanded and rough sawn plywood to determine whether the patches with rounded ends performed comparably to traditional boat-shaped patches.

The study examined rough sawn and sanded plywood grades made with Douglas fir and southern pine faces. The plywood specimens were exposed to wetting and drying conditions to simulate long-term weathering that can be expected for sanded and siding grades of plywood. The plywood specimens were prepared with no coating and with a painted surface. After moisture exposure, the plywood patches were examined for various attributes related to surface appearance, including end gaps, thickness differential, separation along the patch edges or ends and loss of bond to the substrate.

Based on the alternate patches' comparable performance, the revised PS 1-19 permits wood patches that have one or more rounded ends as long as the ends have a radius of 3/8 inch or less.

review as is required to assure the technical soundness of the standard, and seek satisfactory adjustment of valid points of disagreement. NIST also determines compliance with the criteria of the department's procedures and publishes the standard as a public document. Producers, distributors, users, consumers and other interested groups contribute to the establishment of these product standards through a Standing Committee that participates in the development of the standards provides technical guidance as appropriate, promotes the use of and support for the standards and assists in keeping them current with respect to advancing technology and marketing practices.

Because there were limited changes requiring re-evaluation, trademarking to PS 1-19 is expected to begin immediately. Mills may transition existing marks to the new designation on an attrition basis or all at once so specifiers and users will see panels marked to the new standards soon.

More information, including copies of the full product standards, may be found at www.apawood.org.



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APA RESEARCH LAB EXPANSION

Enhanced testing is underway

By Dr. Borjen Yeh



APA's expanded research laboratory in Tacoma, Washington, provides testing of full-scale shear walls and floor diaphragms

The renovated APA Research Center, with the addition of a high-bay laboratory and a new conference room, has been completed and in operation in Tacoma, Washington since October 2019.

The 43-foot-tall high-bay laboratory offers enhanced testing capabilities with a ceiling height of 34 feet and a floor area of 70 feet by 75 feet providing space to test shear walls up to three stories tall.

The “strong floor” is 62 feet by 66 feet with 868 inserts of 100,000 lbf each in a 2 feet by 2 feet grid. The high-bay laboratory is equipped with a 20-foot-tall modular strong wall system, dual 5-ton overhead cranes and a 150 gallon per minute hydraulic test system. This new laboratory has been accredited under ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories,

since November 2019.

Enhanced safety systems and policies have been implemented with additional staff training and personal protective equipment in the new laboratory. A new conference room, on the second floor of the laboratory adjacent to the high-bay area, includes a large viewing window providing a safe vantage point to witness hazardous tests being conducted in the laboratory.



20-ft tall stackable strong wall and a 220,000-lbf actuator



Full-scale shear wall test frame with strong arms

Testing of full-scale shear walls and floor diaphragms (24 feet x 24 feet) have been conducted under a cyclic or monotonic loading protocol at the new high-bay laboratory. Cyclic shear wall tests are being planned for walls up to 16 feet by 16 feet. In addition, large structural composite lumber beams up to 4 feet in height and 72 feet in length will be tested later this year. Assembly system tests are also in the planning stage.

A research project on high-strength shear walls, utilizing the new test capabilities of the high-bay laboratory, is in development. This project is a collaboration between APA and FPInnovations in Canada with an intent to develop

new shear wall systems for high seismic and high wind areas that may require shear walls exceeding the strength of the current light-frame wall systems. APA has also funded a university to conduct computer modeling for such high strength shear walls and

has joined another university to develop methodologies for force transfer around opening for such new systems.

Dr. Borjen Yeh (borjen.yeh@apawood.org) is Director of Technical Services at APA – The Engineered Wood Association



24 ft by 24 ft full-scale diaphragm test setup

NEW YEAR BEGINS WITH STRONG OPTIMISM FOR THE INDUSTRY

No one predicted the detour ahead

by LaDauna Wilson

With the dawn of a new decade, and strong housing starts and forecasts, Engineered Wood Technology Association (EWTA) members surveyed in early January looked to 2020 with increased optimism for the engineered wood-related industry. The first U.S. recorded case of COVID-19 was reported Jan. 20, 2020, in a suburb east of Seattle, Washington. Within a month, day-to-day business was impacted and stalled as a world wide pandemic unfolded. While today's outlook for

EWTA members has most likely changed based on recent events, the outlook provides a snapshot of the opinion of the association members at the beginning of 2020.

The Engineered Wood Technology Business Outlook survey has been sent to current EWTA members each January since 2011. The web-based survey presents five questions designed to capture EWTA members' perception of growth, their companies' employment levels and other business-related

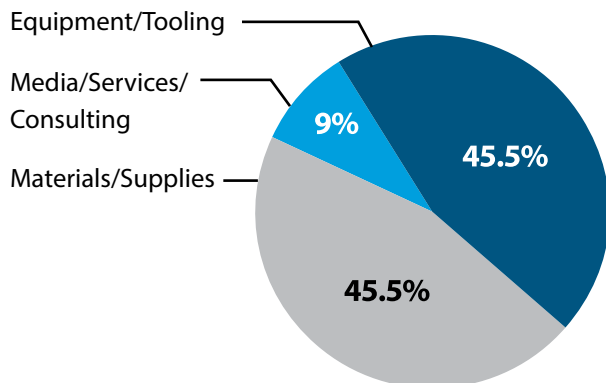
issues. The results gathered this year indicate a mix of highs and lows reported for the actual business performance of 2019, as well as projections for the new year. Current and past responses are reflected in the following charts, illustrating trends throughout the past 10 years.

A rise in optimism

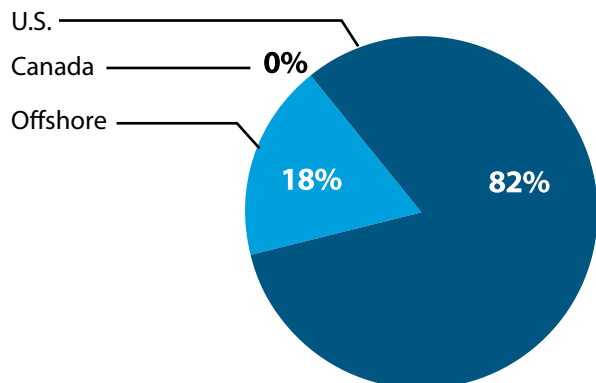
At the beginning of 2020, the majority of EWTA members responding to the survey gave an optimistic perspective, sharing that they were looking

ABOUT THE BUSINESS OUTLOOK SURVEY

EWTA Membership Category



Headquarters location



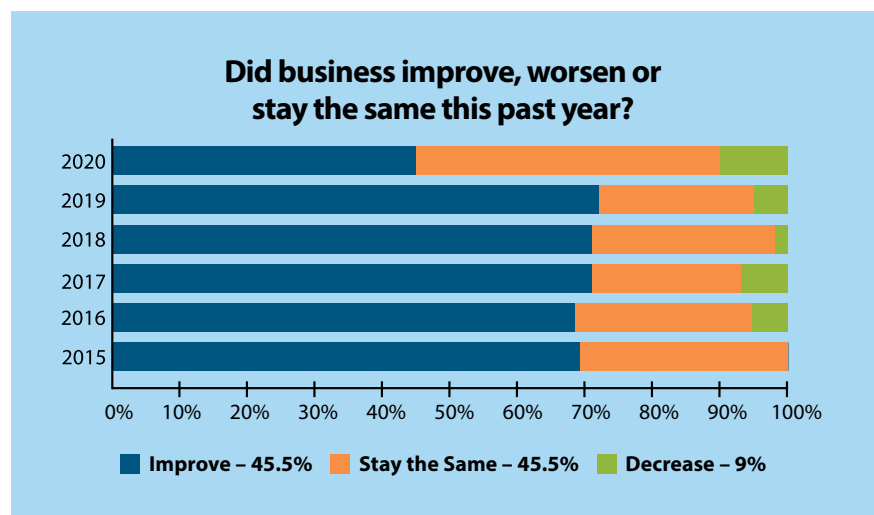
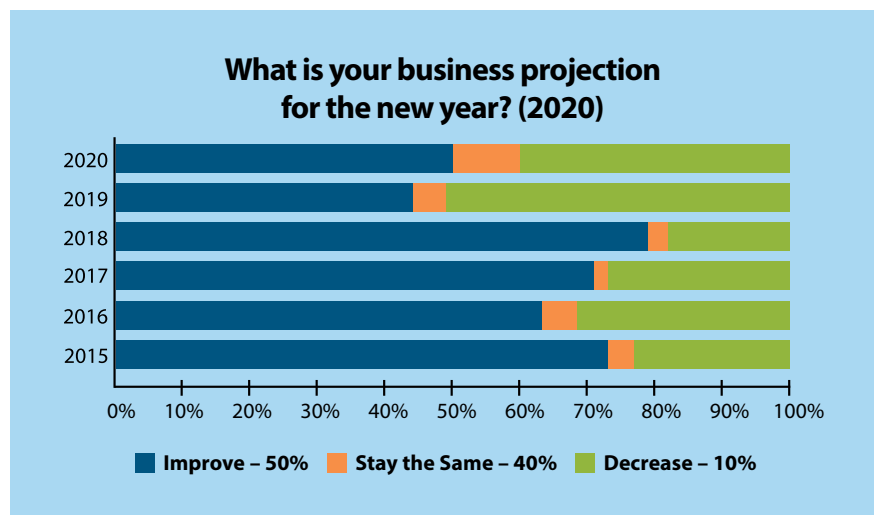
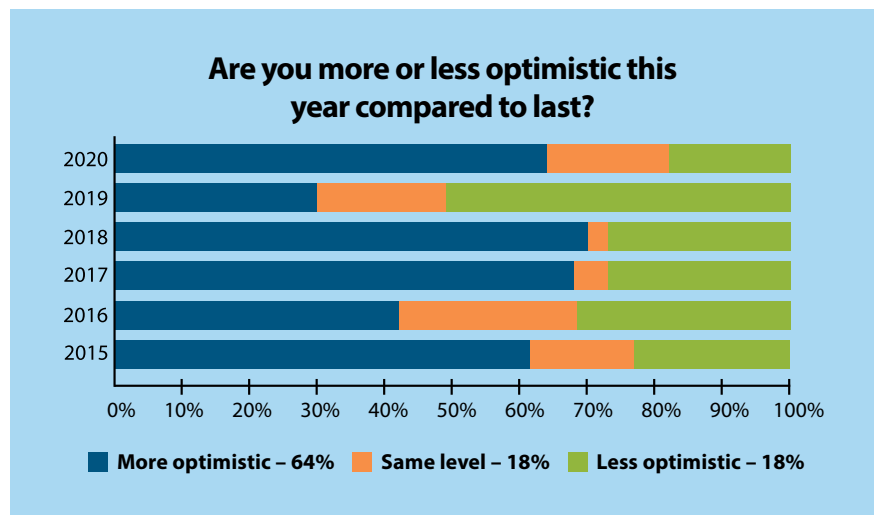
for opportunities to expand and grow their business while bringing advancements to the engineered wood industry markets.

The level of optimism was conservative in 2019. When asked if they are more or less optimistic comparing 2018 to 2019, 30% of the survey respondents reported an increase in optimism. This year, when asked the same question, 64% claim to be more optimistic regarding business prospects in 2020, mirroring the highs reported in 2017 and 2018. Members reporting less optimism decreased slightly from 19% in 2019 to 18% in 2020. While the sense of optimism increased, the outlook for business projections varied, as 50% of the respondents predicted an improvement (a rise from 44% in 2019). Forty percent of the respondents forecast that business would stay the same (down from 51% rating in 2019), and the percentage who projected that 2020 would be worse doubled from 5% in 2019 to 10% in 2020.

Business performance flattens

When asked, “Did business improve, worsen or stay the same this past year?” 45% of responding members saw

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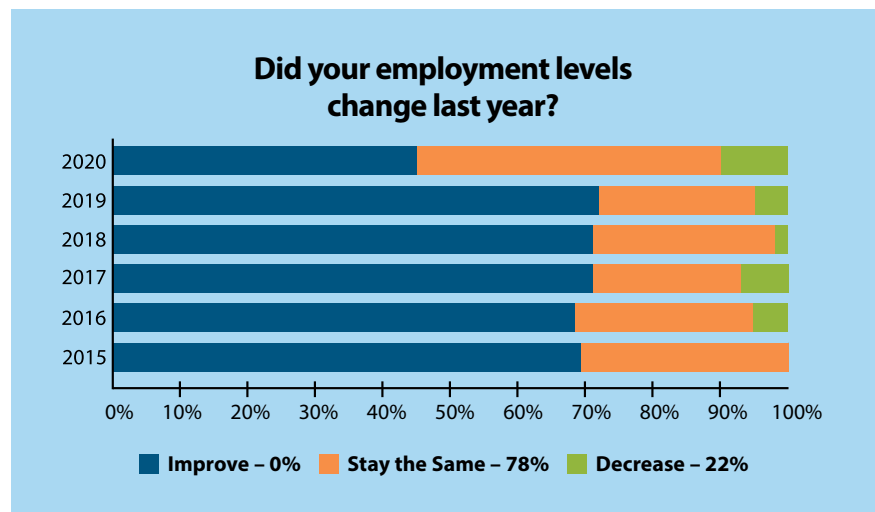
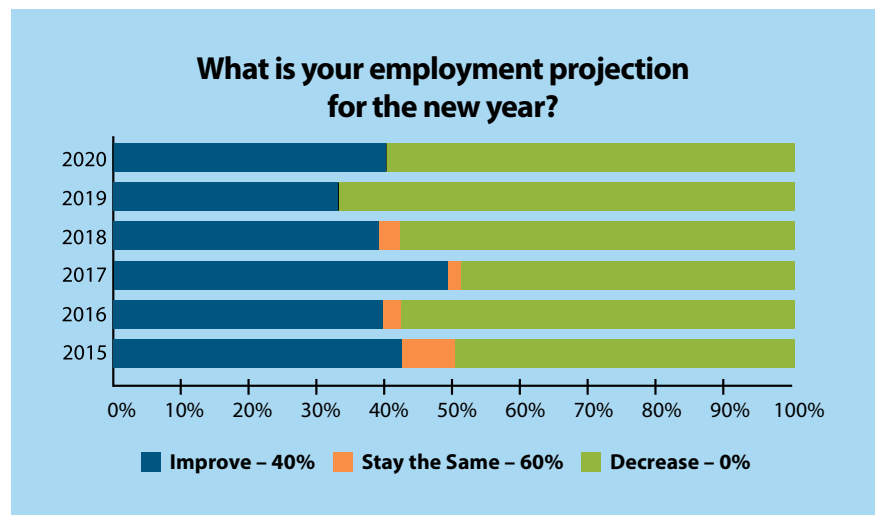
business improve, down from the 70% range reported in 2016, 2017 and 2018. Those who stated business stayed the same increased from 23% in 2019 to 45% in 2020. Nine percent said business had declined.

Respondents predicted they would have no reduction in staff in 2020, with 40% increasing their staff and 60% maintaining current levels. When asked about 2019 levels, members reported to have no increase in staffing, with 78% of the members retaining current levels and 22% reporting a reduction.

Key factors remain consistent

The survey also asks members to rate the relative importance of several factors in relationship to the stability and/or expansion of their business. As in the past, the highest-ranking item continues to be the state of the U.S. housing market. Ninety-one percent of the respondents indicated that it is “very important.” The remaining 9% ranks the U.S. housing market as “important.” None ranked it as “unimportant.”

Following the high ranking of the U.S. housing market, the second and third factors tie. Sixty percent of the responses identify economic uncertainty and transportation costs as very important factors, with



30% ranking each as important. Members were satisfied with the state of the employment and labor issues, listing it as the lowest ranking factor. Thirty-three percent of the responses identified it as unimportant.

When asked how the company looks for ways to adapt to fluctuating economic conditions, members reported implementing improvements across all areas, some, by adding modernization to their plant

for increasing production and decreasing costs. Other ideas included working on new product development and ways to expand the current product line.

Today’s engineered wood industry is in many aspects paused. Early forecasts predicted the economy ramping back up by summer. This is still an unknown. One thing is for certain, 2020 will be a year for the history books.

2020 - HOW IMPORTANT ARE THE FOLLOWING FOR RECOVERY?

	Very Important	Important	Unimportant
State of the U.S. housing market	91%	9%	0%
Government regulation	18%	64%	18%
Government economic/tax policy	11%	78%	11%
Marketplace competition	44%	44%	11%
Raw material prices or supply	30%	70%	0%
Transportation costs	60%	30%	10%
International exchange rates/trade policies	18%	73%	9%
Labor issues	0%	67%	33%
Economic uncertainty	60%	30%	10%

LaDauna Wilson (ladauna.wilson@apawood.org) is the EWTA Program Manager and editor of the Engineered Wood Journal.



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EWTA 2020 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 connection between North America’s engineered wood product manufacturers and their product, equipment and service providers.

This membership directory, updated for 2020, 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 www.engineeredwood.org/-about or contact LaDauna Wilson at ladauna.wilson@apawood.org or 253 620-7483.



STRENGTH THROUGH CONNECTIONS

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Membership Benefits

The many benefits of EWTA membership include:

Valuable Networking Opportunities

■ Info Fair

This supplier trade show is held in conjunction with the APA Annual Meeting and provides EWTA members direct business-to-business links with your customers in the engineered wood products industry.

- Exhibit and sponsorship opportunities
- Meet with industry executives from APA member companies
- Attend a special reception with APA Board of Trustees and one representative from each exhibiting company to build networks and open new doors
- Hailed by many exhibitors as their favorite show every year
 - *2019 stats: Over 500 attendees with plenty of networking opportunities (exhibits, receptions, golf, tennis, sporting clays competition, meals and meetings)*

Market Research and Publications

■ EWTA members receive the following:

- Market Research Reports (\$1,150 for non-members)
- Monthly Housing Starts Report (\$600 annual subscription rate for non-members)
- Quarterly Production Report (\$275 annual subscription rate for non-members)
- Structural Panel & Engineered Wood Yearbook (\$275 for non-members)
- APA Management Report
- APA Annual Report
- APA publications are available for free or at a discount to members when ordered through the EWTA office. For more on APA Publications, visit <https://www.apawood.org/resource-library>.
- EWTA Publications and directories

■ Supplier Awards Program

The annual Supplier Awards Program recognizes EWTA members for their contributions to the industry.

- Supplier of the Year. Selected by a vote of APA members, the program honors one EWTA member company from each of three categories: Consulting/Services, Equipment/Tooling and Materials/Supplies.
- Innovation of the Year Award. One company is chosen by APA members who cast their vote for a new product or service that has demonstrated a positive impact in the field

■ Member Communications

EWTA offers a number of communication platforms for members to advertise and publicize information and achievements.

- EWTA website – www.engineeredwood.org
 - *Searchable online member directory includes company description and contact information*
 - *Calendar of events*
 - *Links to publications, news and resources*
- Connections Newsletter: An industry and member newsletter emailed to all APA and EWTA members
 - *EWTA members may submit press releases and news*
 - *New member highlights*
 - *E-newsletter sponsorships available*
- Engineered Wood Journal: Magazine sent to over 3,000 industry subscribers semi-annually
 - *EWTA Member Directory included in the spring issue*
 - *Info Fair Exhibitor Directory included in the fall issue*
 - *Editorial opportunities for members to submit articles or news*
 - *Discount advertising rates available for members*

Adwest Technologies, Inc., A CECO Environmental Company

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 HEE-Duall sister Division provides Bioreaction brand Biofilter and scrubber systems while our FKI Division provides cyclone prefilters. We also service, rebuild and relocate RTOs, RCOs, Biofilters and scrubbers for the wood products markets including Smith, Pro-Environmental and all other brands.

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Anaheim, CA 92807
www.cecoenviro.com



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

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Kaukauna, WI 54130
www.albint.com

A-Lert Construction Services

A-Lert Construction Services was established in 1979 and specializes in design, manufacturing and the installation of equipment in the wood and grain industries. We offer everything from single- and triple-pass rotary dryer drums, as well as 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.

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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, non-wovens 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 visit <http://www.arclin.com>.

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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.

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**Con-Vey**

Con-Vey, LLC—previously known as Con-Vey Keystone, Inc.—is headquartered in Roseburg, Oregon at their full-service facility of over 100,000 sq. ft. Beginning as a fabrication and machine shop in 1946, Con-Vey has become a leading manufacturer of material handling equipment. From steel fabrication to custom robotic automation, Con-Vey is a proven, high quality supplier offering innovative solutions to customers around the world. For more information, visit www.con-vey.com.

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www.covestro.com

Dieffenbacher Customer Support, LLC

Dieffenbacher is an international group of companies specializing in the manufacture 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.

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DO2 Industriel

The DO2 Rapid Wrapper Automatic Panel packaging system offers outstanding performance. 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.

DO2 Industriel continued:

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Dominion Chemical Company, Inc.

Wax nuances 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.

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Dürr Systems, Inc.

Dürr Systems, Inc. offers multi-pollutant 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, and ultra-high-efficiency RTO/RCO systems for VOC abatement. We also offer pulse jet fabric filters (baghouses), SNCR systems for NOx control, and cyclonic dust collectors. The Dürr MEGTEC aftermarket group also provides upgrades, parts, and service for every make of air pollution control equipment for the engineered wood products industry.

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

Contact:

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Evergreen Engineering, Inc.

Evergreen Engineering, Inc. 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."

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Evertree

Evertree provides plant-based chemical solutions offering a revolution in industrial solutions and materials with cost competitive, plant-based chemicals that offer the same or better performance than petroleum-based chemicals. Our first product family SynerXiD™ offers a 20 to 40% reduction of formaldehyde and petroleum-based resins used in wood-based panels with a significant raw material cost reduction while achieving the same panel properties.

Evertree continued:

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Fagus GreCon, Inc.

Since 1911, Innovation is Our Tradition. MEASURING SYSTEMS: Improves your bottom line. Check out the full range of in-line 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.

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**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

Flamex, Inc. continued:

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.

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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 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.

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FROMM Packaging Systems

FROMM Packaging Systems for the lumber industry consists of heavy-duty 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 while upholding traditional values such as proximity to customers, quality consciousness, continuity, independence and environmental awareness, which are the reasons for decades of success.

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Fusoni U.S.

Fusoni develops and manufactures release agents and additives for panel board manufacturing, and also for paper impregnation processes. Our expertise in chemicals 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

Fusoni U.S. continued:

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.

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Georgia-Pacific Chemicals LLC

Georgia-Pacific Chemicals offers a portfolio of thermosetting resins for plywood, oriented strand board and laminated veneer lumber applications as well as custom-formulated 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 - WOODWELD® spray dried powders; RESI-STRAN® and RESI-BOND liquid adhesives; and RESI-MIX® and RESI-MIX® Ultra ready-to-use mixed adhesives.

Georgia-Pacific Chemicals LLC. continued:

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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.

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Grenzebach Corporation

We are a leading global manufacturer and supplier of drying systems to the veneer and building materials industries with over 400 dryer installations worldwide. Grenzebach's new Wood Fiber Insulation Board line produces materials in densities of 3 to 10 lbs. per cubic foot. Our veneer product line includes dryer infeed and outfeed systems, jet and longitudinal dryers, and color veneer grading and stacking systems.

Grenzebach Corporation continued:

Grenzebach has completed extensive rebuilds on all makes and models of veneer and gypsum dryers. Complete parts and service support is also available.

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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 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.

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H.B. Fuller

H.B. Fuller Plywood Adhesive Coated Solutions has specialists for all your composing needs. Gain improved wood recovery and reduced unit costs at the composer through a package of specialized tapes and strings, patented adhesive application equipment, process improvement tools and expert service for both green and dry veneer process.

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Hansen-Rice, Inc. (HRI)

HRI – Industrial projects, concept to commissioning. Experienced, trusted, long-term industrial GC partner: Safety (EMR <1 for 21 years running, .75 avg. Current EMR .62), 100% open-book cost transparency, speed to market, certainty, critical path control, risk mitigation, Assured 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

Hansen-Rice, Inc. (HRI) continued:

the project. Master planning, site evaluations, project management. HRI: Your fully-integrated industrial contractor.

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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 high-efficient 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.

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HAWE Hydraulik

HAWE Hydraulik is a well-respected, 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

HAWE Hydraulik continued:

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.

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Henkel

Henkel is the world's largest Adhesive company. LOC-TITE 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. 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.

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

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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 more than 50 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

Hexion, Inc. continued:

our materials to manufacture a wide range of composite and engineered wood products including plywood, particleboard, oriented strand board, medium density fiberboard, structural beams, furniture, mouldings and millwork.

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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.

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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

Huntsman Polyurethanes continued:

customers reach their goals in all market conditions. There is no added formaldehyde (NAF) with Huntsman's RUBINATE® resins, and they can be qualified as exempt under CARB Standards and EPA TSCA Title VI.

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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 are provided for in-process packs. We offer Automated Package labelers (AutoLabeler) for Veneer, OSB, MDF, Plywood, Lumber and EWP. IBC manufactures tags and labels for any labeling system and are a single source provider for turnkey solutions. Vendor Managed Inventory of consumable and integrated data collection systems are offered across North America. We provide full design, build, on-site service, preventative maintenance, training and consulting on a system wide or mill by mill basis.

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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. IDEMITSU 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.

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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

IMAL-PAL Group continued:

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-PAL is a leading manufacturer of glue dosing and blending systems and supplies the most innovative on-line and laboratory quality control devices that are found in virtually all the production plants around the world.

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IMEAS Inc.

IMEAS is a world leader in surface finishing solutions, with over 3,000 machines operating worldwide. 2016 marked IMEAS's 50th 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.

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

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Itipack Systems

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

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JAX, Inc.

JAX is a full-line lubricant manufacturer with expertise in compounding high-end synthetic and petroleum lubricants. With over 65 years of industry experience, JAX has earned our reputation as a leader in lubricant technology. JAX lubricants are compounded with the finest raw materials and additive chemistry in the industry. Formulation decisions are based upon performance and quality which ultimately lead to substantial, verifiable cost savings in terms of extended machine life,

JAX, Inc. continued:

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 and performance.

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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.

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Kimwood Machinery, Inc.

Kimwood Machinery is the 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.

Kimwood Machinery, Inc. continued:

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KOCH KNIGHT

Koch Knight, LLC

Koch Knight is 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 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.

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KTC Industrial Engineering Ltd.

"Great projects start here." KTC Industrial Engineering has expertise, experience, and a proven track record second to none. Our staff has designed 24 greenfield plants and

*KTC Industrial Engineering Ltd.
continued:*

completed over 600 projects in the engineered wood industry over the past 30 years. KTC utilizes proven methodology to design machinery and processes while supporting the project management team with accurate budgets and schedules. We are now taking the risks out of projects with Dynamic Process Modeling and Advanced Project Tracking technology.

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LIMAB North America

LIMAB supplies non-contact laser measuring systems for composite panels and engineered wood products, including thickness and squareness measurements, and blow detections on panels.

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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, mold and moisture. Lonza offers formulations specifically designed for the treatment of engineered wood, including Permatak® glueline treatments designed to work in harmony with resins. Additional Lonza products include Wolman® residential preservatives,

Lonza Wood Protection continued:

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.

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Lundberg (Dustex | Lundberg)

Lundberg 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.

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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 ink jet printing solutions for applications including grade marking, nail patterns,

*Matthews Marking Systems
continued:*

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.

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McLube

McLube is a globally recognized leader in the release and lubrication industries headquartered outside Philadelphia, PA, USA. Founded in 1954, McLube has remained at the forefront of the release agent, anti-stick, and lubrication markets by providing quality, tailor-made coatings complemented 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 for more information, on-site technical assistance, and samples of our proven formulas. McLube is a brand of McGee Industries, Inc.

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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 compositors, grading systems, automatic layup lines, and sanders. Represented in USA by Merritt Machinery, LLC in Lockport, NY.

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U.S. Representative:
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Anna McCann, President
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

Mereen-Johnson LLC continued:

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:

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Metriguard Technologies Inc.

High-speed Metriguard veneer graders operate in LVL and structural plywood mills worldwide. Laboratories depend on Metriguard Panel Bending & Performance Testers to evaluate structural panels. The new Model 840 tests OSB used as I-joist web stock. For MSR/MEL lumber producers, Metriguard offers the Model 7200 for longitudinal installations and the Sonic Lumber Grader for transverse installation, both are compatible with scanners. The Model 312 Bending Proof Tester is a standard in MSR QC labs. With over 40 years in the engineered wood products business, Metriguard has the knowledge and equipment for grading and testing structural veneer, panels and lumber.

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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 as well as government and commercial clients with a particular expertise within the forest products industry. Mid-South has offices in Hot Springs, Arkansas; Cary, North Carolina; and Orono, Maine. Established in 1969, MSECO has since grown steadily in knowledge and experience. 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:

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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:

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MSK Coverttech, Inc.

MSK Coverttech, Inc. is a systems manufacturer of complete packaging lines, with over 4,700 installations world-wide since 1975. MSK specializes in a variety of End-of-Line Packaging Systems, which include Automatic Bagging Systems (Auto-Baggers) that provide 5-sided protection for a variety of applications such as Engineered Wood Products. With 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.

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NESTEC, Inc.

NESTEC, Inc. is a turnkey provider of thermal oxidation systems for the wood products industry including regenerative thermal oxidizers (RTO) including online 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.

NESTEC, Inc. continued:

Contact:

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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, 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:

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701 E. Arkansas Ave.
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Star City, AR 71667
www.next-wire.com

Nicholson Manufacturing Ltd.

Nicholson Manufacturing is an industry leader in ring debarking technology since 1948.

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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 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-to-reach parts of the equipment.

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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 improve lay-up efficiency and reduce 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 and tapes to supply to the plywood industry

Northwest Adhesives, Inc. continued:

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:

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OCI Melamine Americas

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

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Owens Corning - InterWrap

InterWrap® 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. InterWrap is a vertically integrated, global manufacturer of innovative coated woven products serving a wide variety of markets.

Owens Corning - InterWrap continued:

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. InterWrap's global supply chain efficiency is achieved by our strategic manufacturing and distribution centers located throughout North America, Asia & Europe.

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Panel Machinery & Controls, LLC

At Panel Machinery & Controls, our focus is to provide the most up to date and trouble free Equipment design, Servo Motion Control and Automation systems for the Engineered Wood Products Industry. Our engineering staff has years of experience in quality-designed and field proven equipment and controls for the Plywood Industry. We have service technicians experienced with hydraulic & electrical motion control, capable of on-site troubleshooting and programming of all brands of PLC's and motion controllers. We are a United Laboratories 508A certified panel shop experienced in custom panel design and fabrication. Call or Email for more information.

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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), held March 12-13, 2020.

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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.

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Permapost

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

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Raute

Raute is Your Partner in Performance. Global expertise in wood products technology and innovation driven, Raute continually leads the market in developing cutting-edge advancements in the production of plywood, LVL, and engineered wood solutions. Raute provides profitable solutions for large mill-wide projects as well as individual process lines, line modernizations, and equipment upgrades.

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REA JET

Because REA JET knows that real demands need real solutions, we continue to be a global leader of coding and marking equipment for the building materials industry. German engineered, our technology has been consistently designed and developed to withstand the demands of harsh production environments.

REA JET continued:

Our extensive line of technology includes Large Character Ink Jet Printers (DOD), zero maintenance High Resolution Ink Jet (HP) printers as well as Laser and Spray Mark systems. Contact REA JET today to learn more about our products, capabilities and service offerings.

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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 and packaging requirements. Samuel's product line includes steel and plastic strapping, pneumatic and manual hand tools, seals, edge protection, stretchwrap, product identification equipment and 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 to polyester strapping. Samuel is a leader in strapping for engineered wood products and had the first AAR approved polyester strapping.

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Sansin Corporation

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 high-performance 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 cross-laminated timber, siding, OSB, glulam, millwork and timbers. Sansin continues to deliver environmentally friendly wood coatings that enhance performance without compromise.

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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.

*SASCO Chemical, A PSG Company
continued:*

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Siemer Milling Company

Siemer Milling Company 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 extender for the
wood panel (plywood) industry. This
proprietary product was developed
from trade secret processes with
contributions from plywood
manufacturers, master millers,
adhesive scientists and cereal
chemists.

Contact:

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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 complete
plant engineering; Pallmann for
debarking lines, chippers, stranders,
and other size reduction machinery;
Buettner for energy systems, dust and

Siempelkamp LP continued:

multi-fuel burners and dryer systems,
the complete process machinery
portfolio is covered. Siempelkamp
LP provides the service support,
modernizations and spare parts for
North America.

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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.

Contact:

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SMARTECH

Smartech is a leading global
technology company focused
on generating game changing
technologies to production lines
of manufacturing sectors. With its
wax technology, changing the way
wax is handled in production lines
and creating significant savings,
Smartech is trusted by the world's
leading manufacturers to supply
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SonicAire

SonicAire is a progressive air-
engineering firm that eliminates
the problems with combustible
dust through its line of SonicAire®
fans. SonicAire Systems apply
our proprietary and innovative
BarrierAire technology, which
delivers enterprise-wide continuous
clean through robotic engineering
design. Products create high
velocity and high mass airflow
to create an overhead barrier
preventing combustible particles
from accumulating on steel
structures, pipes, ducts and process
equipment. Solutions include an
engineered and customized plan
for every application since factories
and fugitive particles vary by
the materials processed. Contact
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2437.

SonicAire continued:

Contact:

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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 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:

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Spraying Systems Co.
 Experts in Spray Technology

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

Spraying Systems Co. continued:

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.

Contact:

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Total Surface Quality

Steinemann Technology USA, Inc.

Established in 1917 For Total Surface Quality, Steinemann provides complete solutions for the entire sanding process: from high performance, cutting edge sanding machines, to top quality sanding belts, smart Sprint insert systems and an innovative process control system. Customers benefit from a cleverly designed modular machine concept which fits their specific needs and finishing quality. The result is a consistent panel quality, maximum availability and best cost efficiency. Steinemann's portfolio is rounded off by a broad range of global sales and service networks. With headquarters in St. Gallen Switzerland and hubs in China, Malaysia, Russia and Charlotte, NC, USA, Steinemann fulfills its promise and is close to the customer's site.

Steinemann Technology USA, Inc. continued:

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StrataChem Solutions

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 keeps 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.

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Sweed Machinery, Inc.

Sweed is known in the industry as the superior choice for providing full veneer dryer infeed and outfeed systems, 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, Sweed offers unmatched quality, customer service, engineering and technical support.

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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.

*Taihei Machinery Works Ltd.
continued:*

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Tebulo Industrial Robotics

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

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TSI

TSI designs and manufactures complete panel finishing lines for OSB, particleboard and MDF. This includes saws with such features as automatic position change and adjustable blade exposure. High-speed sorting and stacking of panels is easily achievable with TSI's "primary stacker" solution. TSI also supplies Heat Energy and Drying and Pollution

TSI continued:

Control Systems for OSB and Particleboard based on Single Pass Recycle technology. The Dryers are proven to increase productivity and reduce emissions compared to other systems. Heat Energy includes Step Grate Furnaces in conjunction with Sigma Thermal, and Pollution Control solutions includes Wet ESP and RTO systems developed by TSI to work at optimum efficiency with TSI Dryers.

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www.tsi-inc.net

Union Pacific Railroad

Union Pacific Railroad is the principal operating company of Union Pacific Corporation (NYSE: UNP). One of America's most recognized companies, Union Pacific Railroad connects 23 states in the western two-thirds of the country by rail, providing a critical link in the global supply chain. From 2009-2018, Union Pacific invested approximately \$34 billion in its network and operations to support America's transportation infrastructure. The railroad's diversified business mix is classified into its Agricultural Products, Energy, and Industrial and Premium business groups. Union Pacific serves many of the fastest-growing U.S. population centers, operates from all major West Coast and Gulf Coast ports to eastern gateways, connects with Canada's rail systems and is the only railroad serving all six major Mexico gateways. Union Pacific provides value to its roughly 10,000 customers by delivering products in a safe, reliable, fuel-efficient and environmentally responsible manner.

Union Pacific Railroad continued:

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**University of Tennessee, Center
for Renewable Carbon**

The Center for Renewable Carbon is a state-of-art research facility at The University of Tennessee. The CRC has nine faculty conducting research on forest products, sustainable biomaterials and bioenergy, <http://renewablecarbon.tennessee.edu/>. The laboratories include wood composite laboratory steam-injected presses, destructive testing lab, conditioning chambers, dry kiln laboratory and new laboratory capabilities for sustainable biomaterials preprocessing, pretreatment research, thermochemical and biochemical conversion, and product analysis. Also, unique analytical capabilities for nanotechnology sustainable biomaterials are available. The CRC has M.S. and Ph.D. concentrations in Sustainable Biomaterials and Wood Science Technology. The CRC provides world-class industry training programs in SPC/Lean, DOE, and data mining.

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USNR

USNR

With the addition of Ventek's veneer scanning, grading, and handling solutions to USNR's lathe, dryer, and downstream product portfolio, USNR 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.

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Venango Machine Company, Inc.

Venango Machine and our sister company, Custom Engineering, are complete platen service providers 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 platen-refurbishing programs that include flow and pressure testing, weld repair and re-machining to original specifications. Our technicians provide assistance in platen change outs and in-press weld repair. Please contact us for all your platen requirements.

*Venango Machine Company, Inc.
continued:*

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Veneer Services, LLC

We build profitable machine solutions based upon better engineering. We take pride in the fact that our machines run reliably with minimum operating costs - yielding you the greatest efficiency and profits. Every prototype machine ever built is running today. We were the first and still the only company to build a voice activated veneer bundle grading line. We developed the most accurate debarker/planer system ever built and then we built a fully automated butt flare reducer to go with it. Our veneer chipper is proven to use less energy and produce better chips. Our veneer machine rebuilds have allowed our customers to improve profits while saving them as much as 50% over the price of a new machine.

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Phone: 317-346-0711
Email: dane@veneerservices.com
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INFO FAIR 2019

EWTA members gather for annual supplier exhibition



EWTA members and guests from around the world gathered at the JW Marriott Starr Pass Resort & Spa in Tucson, Arizona, on Nov. 2-4 for the Engineered Wood Technology Association's annual Info Fair supplier exhibition.

Held annually in conjunction with APA's Annual Meeting, Info Fair is an opportunity for members to share ideas and network with others in the engineered wood industry. This year, 86 EWTA member companies exhibited at the event, and 61 provided event and program sponsorships.

In addition to Info Fair, the annual meeting provides an opportunity for both EWTA and APA members to attend APA-sponsored workshops, participate in roundtable discussions and listen to presentations about association activities.

Continued on next page





Members also took part in numerous receptions, luncheons and sporting competitions, including the annual golf tournament, cripple coot shoot and Ole Sorenson Memorial Tennis Tournament.



INFO FAIR 2020 CANCELLED

Given continued uncertainty around COVID-19, APA has made the difficult decision to cancel the in-person component of this fall's 2020 Annual Meeting and Info Fair. This was a hard call to make. The Annual Meeting and Info Fair are important events to connect with members and share industry news.

The health and well-being of our communities while maintaining member services remains our top priority. We will continue to serve APA and EWTA members using video conference and online tools to stay connected.

We look forward to a time in 2021 when we can gather with confidence again for the face-to-face meetings we find so valuable.



Info Fair Sporting Events





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EXHIBIT

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



ADVERTISE

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SUPPLIER EXCELLENCE

EWTA members recognized in annual supplier awards program



EWTA honored the winners of the 2019 EWTA Supplier of the Year Awards at the Chairman's Dinner during APA's Annual Meeting last November. From left: John Murray, Willamette Valley Co.; Rich Donnell, Hatton Brown/Panel World magazine; Jeremy Goebel, Con-Vey; Roy O. Martin III, vice-chairman, APA Board of Trustees; and Terry Kerwood, former EWTA managing director.

Four EWTA member companies were honored during the Chairman's Dinner at the APA Annual Meeting in Tucson, Arizona, on Nov. 4 for excellence in the industry. The companies were winners in EWTA's 15th annual Supplier Awards program. The two-pronged program includes the Supplier of the Year Award (three categories) and the Innovation of the Year Award.

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 awards are presented for each of EWTA's membership categories: Equipment and Tooling, Materials and Supplies, and Consulting and Services. 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.



Supplier of the Year and Innovation of the Year trophies are presented to winners selected by APA members.

2019 Supplier of the Year award winners

The award winners are selected by votes of APA member representatives. Fifty-two different EWTA companies received votes from APA members, with the award winners decided by just a few votes.

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Willamette Valley Company

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CONSULTING/SERVICES CATEGORY



Panel World Magazine/Hatton Brown Publishers

Panel World publishes six issues per year for a 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).

2019 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.

Eleven entries were submitted for the 2019 Innovation of the Year award. KTC Industrial Engineering Ltd. took the top honors this year with an OSB Press Platen Repair Robot.



KTC Industrial Engineering with Nova Robotics

KTC Industrial Engineering Ltd. utilizes proven methodology to design machinery and processes while supporting the project management team with accurate budgets and schedules.

At KTC Group we have taken our core business principles and engineering practices and expanded, while providing a wide range of services. Our clients are from a variety of industrial sectors including the Forest Products Industry, Pulp, Pulp & Paper, Mining and Energy.

2019 Innovation of the Year

OSB Press Platen Repair Robot with Nova Robotics

First Field Use Date: September 2018

Key benefit #1: repair of platen dents while press is still hot, reducing downtime.

Key benefit #2: Keeps people out of the line of fire as dangerous work is performed by machinery.

Measurable results: repairs platen surface dents.

Presses accumulate wear and require regular maintenance, but it is rarely economical to schedule a full maintenance shutdown for minor repairs. Human labor cannot be performed on or around a hot press. As a result, maintenance is deferred to infrequent, often annual, intervals during large scheduled maintenance shutdowns. This limitation frequently results in the decision to continue plant operation even though board quality and output are diminished. Robots can be sent into a press and perform work immediately and at full press temperature. Platen surface damage, due to



KTC solution: a high temperature OSB Press Repair Robot capable of repairing press dents by welding and grinding.

Continued on next page

rocks and metal debris, is corrected immediately after it occurs. Through the use of robots, it is no longer essential to defer necessary work to scheduled cold shutdown. Costly maintenance is performed as required, restoring full operational performance while improving safety by keeping people out of a dangerous environment.

The other entries include:

- Automatic panel repair system for plywood
- Belt conveyor
- Robotic plywood layup line
- HAJ13 dispenser
- P2 pressguard x200
- Loctite HB X Purbond
- Real-time predictive plant modeling
- Edge scan press frame inspection of multi-opening daylight press frames
- High-speed packaging
- Board quality cockpit (BOC)

All 2019 Innovation of the Year entries are available at www.engineeredwood.org.



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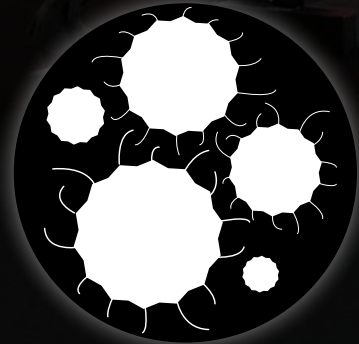
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ASSOCIATION CONNECTIONS



EWTA Advisory Committee Recommends 2020 Budget

The EWTA Advisory Committee finalized the association's 2020 budget during its meeting last November in Tucson, Arizona. The budget is for an income of \$459,600 and expenses of \$486,454, resulting in a year-end deficit of \$46,321 with cash reserves of \$191,518. The proposed budget was forwarded to the APA Board of Trustees for approval.

EWTA Allocates \$95,000 For APA Research

EWTA's Advisory Committee, at its meeting in Tucson, Arizona, last November, voted to recommend an allocation of \$95,000 to fund four projects benefiting the engineered wood industry. The project proposals, presented by APA staff, included:

- \$30,000 to complete the Build a Better Building Moisture Detailing for Commercial Building (\$10,000 from 2019 project)
- \$50,000 for Hybrid Wall UBC design phase
- \$25,000 for Hybrid Wall APA test phase

The recommendation was forwarded to the APA Board of Trustees as part of the overall EWTA budget for 2020. Research contributions, made possible by EWTA member support, continue to trend in a positive direction with more than \$430,000 invested since 2000.

EWTA Integrates into APA Management to Enhance, Streamline Services

At the 2019 Annual Meeting, the APA Board of Trustees approved a budget that integrates the Engineered Wood Technology Association management directly into the APA organization. The transition should gain efficiencies by dovetailing membership services, back-office support, meeting organization and communications with a dedicated EWTA program manager under the leadership of APA's market communications director and with support from the whole APA team. EWTA always has had a core goal of enhancing the industry by connecting APA and EWTA

members to promote technology, support research and communicate advancements for the industry's betterment. The recent Annual Meeting that brought 500 EWTA and APA members together was a testament to this success and collaboration. We appreciate the service that Terry Kerwood and other contracted personnel have provided to EWTA members over the years and look forward to maintaining or exceeding that same high level of support under this new structure.

New EWTA contacts

EWTA members have new contacts at the association following the recent incorporation of EWTA management into the APA organization.

Continued on next page



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LaDauna Wilson rejoined the Market Communications Division as EWTA's dedicated program manager. She has been part of APA staff for more than 20 years working in quality services and marketing and provides an understanding of the engineered wood industry, as well as initiative and organizational and communication skills. She can be reached at ladauna.wilson@apawood.org. Wilson will work closely with APA's market communications director, Tara Mattina, and other APA staff to dovetail membership services, back-office support, meeting organization and communications.



LaDauna Wilson

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INDUSTRY AND GLOBAL IMPACTS OF COVID-19

A look at the first half of 2020

by Joe K. Elling



APA's Market Research Director Joe Elling provides insight into the recent impacts that COVID-19 has had on the U.S. housing industry and the recovery outlook for residential construction.

The initial economic projections for 2020 pointed toward a positive performance for the wood products industry. Housing starts in the U.S. had averaged an annual rate near 1.6 million units from December 2019 through February 2020. Single-family

starts averaged an annual rate of 1.03 million during those three months. New home sales had averaged an annual rate approaching 750,000 in those months, up 19% from a year ago. Builder and consumer confidence soared.

Then the rapid spread of

COVID-19 stunned the world, leading global policymakers to shut down their respective economies. Unemployment has surged to levels not seen since the Great Depression of the 1930s. The rapid rate of descent points to the decline in global GDP in the range of

3% to 5% in 2020, much worse than the global gross domestic product during the Great Recession of 2007-09. The rate of recovery in 2021 carries great uncertainty.

Service industries bearing the brunt of the decline

Within the U.S., the service industries most severely affected are those relying on person-to-person contact. Data for the Open Table online reservation application in the U.S. and major cities throughout the world point to a 100% decline in sit-down restaurant dinners compared to a year ago. Transportation

Security Administration data show a 95% plunge in traffic through airports. Personal service businesses, such as beauty and nail salons, have shut down. Many retail stores closed operations. The most glaring example of the impact is clothing store sales in April were down almost 90% from April 2019.

The average annual income of people employed in these industries tends to be lower than the \$57,000 average income based on hourly earnings within the private sector. Reflecting this, the April unemployment rate for those

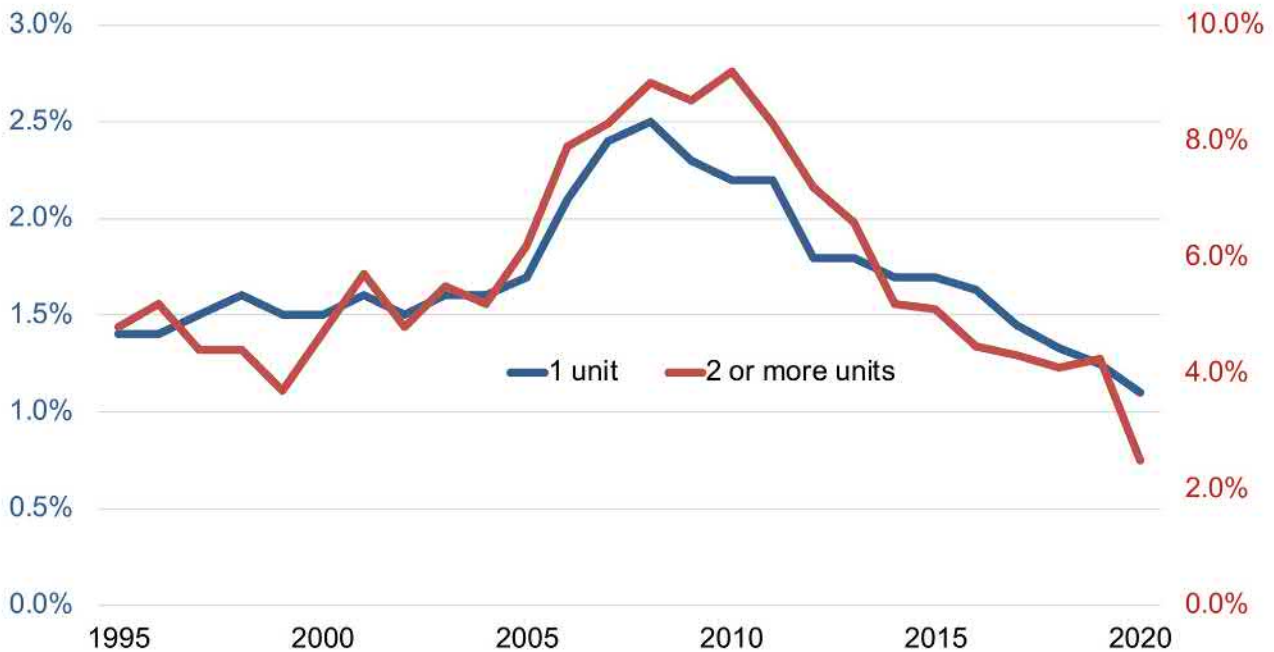
with an annual income of less than \$40,000 was 40%, almost triple that of the other sectors of the economy.

Assessing the impact on the housing industry

The housing industry has not been immune from the impact of COVID-19. Key indicators of housing demand and supply have fallen sharply since February. These include home builder sentiment, home sales, attitudes concerning a good time to buy, existing homeowners pulling homes off the market and housing starts. Construction activity

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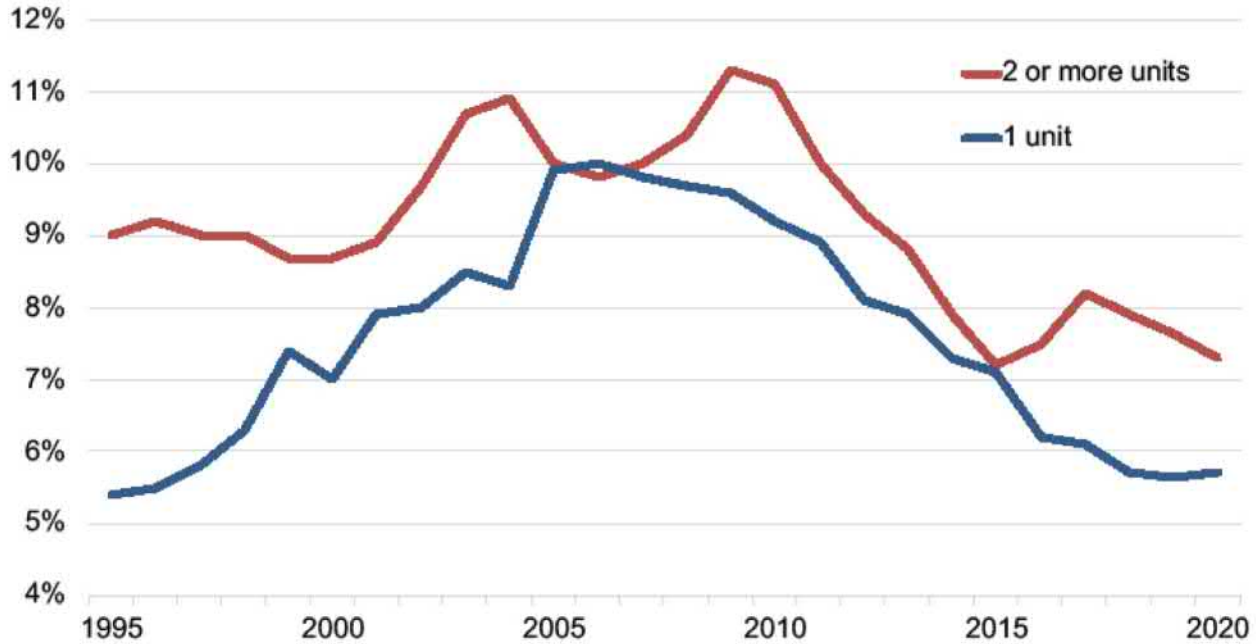
Owner Vacancy Rate, Units in Structure



SOURCE: CENSUS BUREAU



Rental Vacancy Rate, Units in Structure



SOURCE: CENSUS BUREAU



through May has been disrupted by public and private sector decision-makers to temporarily halt or slow construction by limiting the number of people on-site and practice social distancing. Shortages of construction materials have also disrupted construction. As a result, the amount of time from start to completion of single-family homes and multifamily structures has lengthened from what were near or record highs in 2019, depending on the area of the nation.

This should not be a repeat of 2007-09 for housing

There are several critical differences that should make the current recession in residential construction less severe and shorter-lived than the Great Recession last decade and the sluggish recovery thereafter. First, the estimated vacancy rates for homeowner and rental units are currently at or near record lows, much different than the record highs when entering the Great Recession. (See Figures 1 and 2.) Second, the rate on a 30-year fixed rate mortgage is just above 3%, much

lower than 5% leading up to the bursting of the housing bubble. Third, there are very few homeowners with subprime or other nontraditional mortgages compared to 2007, when mortgage foreclosures started the ascent to a record high. For those today having trouble paying their mortgage, some will receive relief through the forbearance program rather than having to be classified as delinquent on their mortgage. Fourth, the tight supply-demand balance should prevent home prices from crashing. In fact, in some areas of the

country, the competition is fierce. The lack of inventory of homes for sale, especially in the low end where first-time homebuyers are concentrated, promotes multiple offers.

Managing COVID-19 is the key for going forward

Unprecedented efforts have been taken and will continue on the part of the Federal Reserve and federal government to limit the damage done to the U.S. economy in 2020 and thereafter. These measures, however, will have limited effects. In a recent forum, I was asked, “What is the one thing that will most benefit

the housing industry going forward?” From my perspective, it is the development of reliable testing methods and a vaccine that provides policymakers, business leaders and the general population the confidence to return to some form of life in effect prior to the outbreak of COVID-19. The timing of when all that happens is unknown. Any forecast of economic growth and related measures heavily relies on that factor. That is why we see forecasts carrying wide ranges. U.S. real GDP is projected to decline 3% to 7% this year and recover

by 2% to 5% in 2021. Housing starts this year are forecast to run in the range of 1.04 million to 1.22 million units and then run in the range of 1.22 to 1.32 million units in 2021.

Joe K. Elling (Joe.Elling@apawood.org) is Director of Market Research for APA – The Engineered Wood Association.

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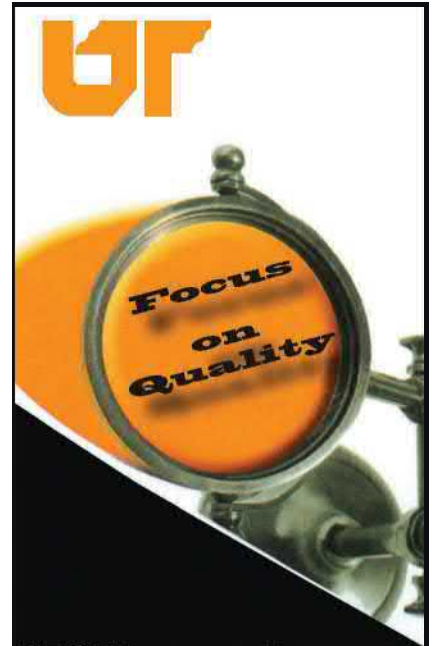
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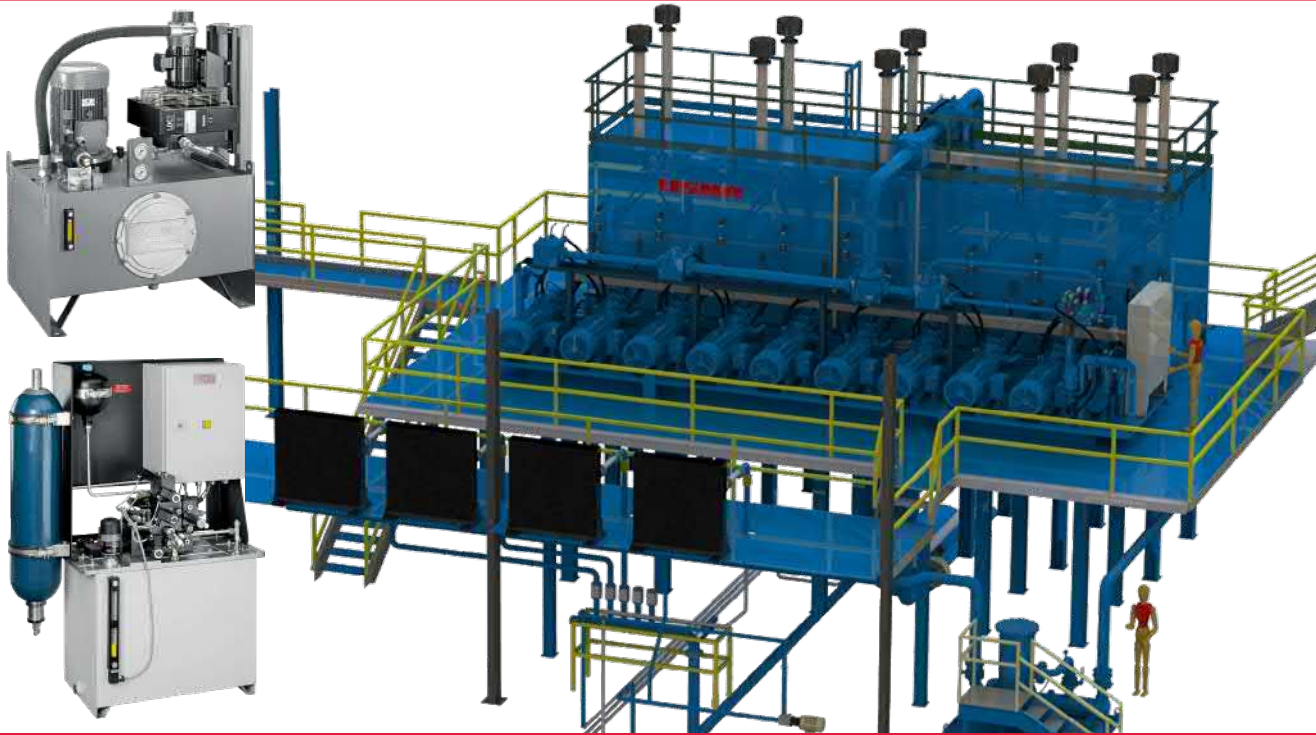
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Power Units

HAWE Hydraulik's custom power units are available in various sizes, designs, and duty cycle ratings. Our large hydraulic power units are known for their tailored solutions. A few of our custom options include steel frame work, custom reservoirs, hydraulic accessories like coolers, filters, electric enclosures and multiple motor/pump combinations. We work with you to make sure auxiliary components such as fans, coolers, filters, cylinders, metrology and control devices are in the most efficient locations.

Benefit from our experience

- Improved diagnostic tools
- Improved cycle time
- SYSTEC complete hydraulic solution
- Motion control specialists
- ISO 9001:2015 certified
- Increase energy savings
- Increase efficiency
- Increase profits



Choose the right hydraulic components for your application!

HAWE Hydraulik manufactures the highest quality hydraulic components constructed to minimize space and maximize efficiency and product durability for the on or off-highway, municipal and forestry market places.

Smart Hydraulics. Easy Business.



Functional Safety



Connectivity



Modular Design



Electric Drive

Solutions for a World under Pressure

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HYDRAULIK

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