Source: Stora Enso

GET TO KNOW LVL

Laminated veneer lumber (LVL) is an engineered wood product used in a diverse range of construction applications. LVL beams, columns, and panels have become established as essential components in modern timber construction due to their numerous advantages, versatility, and proven structural performance.

LVL is made of veneer sheets, laid-up in a continuous manner, and bonded together with weather-resistant phenolic adhesive. This means that the dimensions of the final product are not limited by the dimensions of the raw material, and even small-diameter logs can be used to produce large beams and panels.

Although the production costs of LVL, like all engineered wood products, are higher compared to sawn timber, with LVL the same constructions can be designed with smaller LVL sections due to LVL´s enhanced structural properties. Through LVL´s manufacturing technology, the product can be made with continuous length and large thickness and width, allowing LVL to be used in applications where suitable sawn timber sizes are not available.

The low deviation of LVL's high strength and stiffness means that these properties can be fully utilized as characteristic values in structural design. In addition, due to the lack of sizeable defects, the strength to weight ratio of LVL is extremely high – LVL is twice as strong as steel in

proportion to weight. Due to its laminated structure, LVL is also dimensionally stable and free of warps, splinters, and splits. LVL arrives from the factory with stabilized moisture content, eliminating the risk of shrinkage or swelling on-site and in the ready building, as long as the LVL members are protected against weather exposure.

The wood building construction sails upwind in Europe.

LVL is a natural material, manufactured from certified raw material sources, that also serves as a carbon store in buildings: 1 m^3 of LVL contains stored carbon equivalent to 789 kg of CO_2, making it an environmentally friendly choice.

The use of LVL

The modern wood building industry uses LVL products increasingly because they are dimensionally accurate, stable and stiff load-bearing components, allowing quick installation time, less disturbance and less waste to dispose of on construction sites. LVL is commonly used in wall-, floor-, and roof applications mainly in low-rise and mid-rise structures.

With its sustainability and structural performance benefits, wood and LVL usage gradually increase in modern designs of new single-family homes, apartment blocks, public buildings, and office spaces, especially where large open floor plans are required.

In addition to its superior strength and uniformity, long lengths, and wide range of cross-sectional sizes, one of the principal advantages of LVL is its compatibility with other engineered wood products. In recent years, LVL has been adopted in many projects, where LVL frame is designed in conjunction with CLT panels, glulam beams and I-Joists.

These products work well together as they are factory-produced, achieving high levels of dimensional accuracy and tolerances. The selection of such materials´ combination ensures that the use of a hybrid solution serves the design needs but does not negatively impact the time advantages associated with wood construction.


Source: Stora Enso


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Global building industry for global environmental health

North America currently represents the largest global structural LVL consumption market. This can be accredited to the LVL´s life cycle maturity and long historical acceptance of the product in the domestic building practices. The second largest global structural LVL market is Europe, where the quality raw material, modern state-of-the-art manufacturing facilities, comprehensive LVL design practices and highly developed value-added chains, make LVL a preferred product in wooden construction. Although still with limited consumption in structural applications, LVL has made noticeable inroads in Asia and Pacific Rim, where LVL usage is forecasted to steadily grow, aligned with the governmental focus to develop sustainable construction and reduce CO_2 emissions.

According to Raute's Area Sales Manager Sauli Salmela, the wood building construction sails upwind in Europe. "The EU has set the goal to decrease CO_2 emissions by 1,5% annually and to become climate neutral in 2050. The use of wood in building construction supports this target as 40% of the carbon dioxide emissions come from the construction industry. The aim is that wooden buildings become the ultimate carbon sinks in the future."

Raute continues to pioneer the design of LVL production machinery and solutions

Raute has been developing the LVL production technology and complete production line solutions for decades, working in cooperation with LVL producers and in-house designers and engineers.

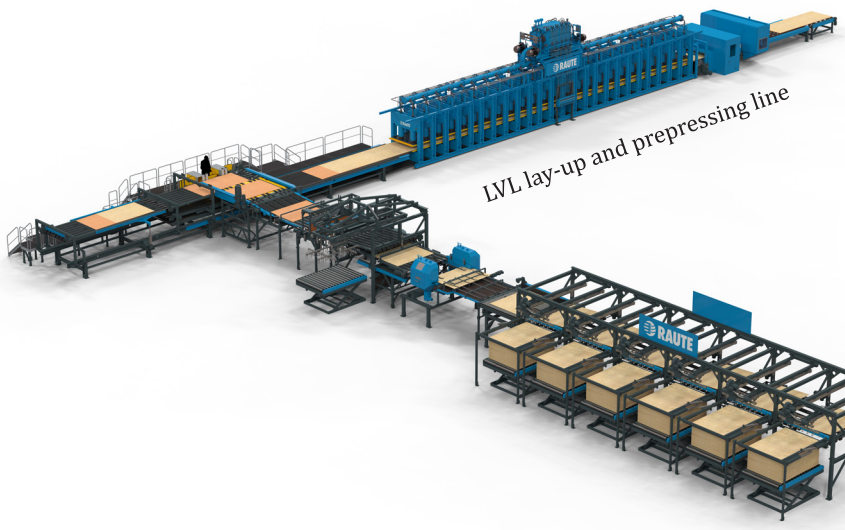
Over the years, Raute has developed log conditioning, log handling, peeling, drying, grading, stacking, lay-up, pressing, and billet handling line solutions. In addition, Raute is the only complete turnkey LVL mill supplier in the world providing solutions for every LVL production phase.

"At Raute, we understand the wood as raw material and we understand what the machinery needs are in LVL production", says Hannu Sinko, Raute's Head of LVL Technology. "We have

Student Accommodation in Finland

Finland's tallest wooden building

Source: Stora Enso



LVL lay-up and prepressing line

Source: Stora Enso

Supercell Headquarters in Finland

delivered various standard and unique solutions for our customers nearly all around the world. Our solutions are always based on customer's needs, and different raw material types."

Today Raute rides on top of the creativity wave – now the focus is aimed at veneer grading. The LVL production quality is under the authorities' magnifier and this is where Raute directs its full effort.

"We have significantly developed our analyzers for veneer grading so that with our machines the most suitable veneer sheets can be identified for the best end-result in LVL production.", reveals Sinko. "The development has been remarkable lately, considered that the basic idea and equipment have been around for more than 30 years."

The global LVL production is well-positioned for future growth. "The competition in LVL production continuously expands, which we, at Raute, consider a good thing. LVL has enormous potential as a product and the competition brings more actors on the field, as the demand grows. What's more, the highly automated factories enable 24/7 production everywhere, increasing supply coverage, reducing delivery times, and transportation costs", Sauli Salmela concludes.

The global LVL production is well-positioned for future growth.

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Making Wood Matter

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