

WHITE PAPER

WOOD INDUSTRY

How automated warehouses
stabilize the wood market





WOOD: A CONSTRUCTION MATERIAL OF THE FUTURE

Recently, there has been an increasing demand for processed and refined products made of wood and wood fiber for up-to-date ecological wood construction. In 2021, the market price of wood tripled as a result of the building boom and supply shortages. By increasing their storage capacity, wood processing companies can take advantage of demand peaks and keep prices and production volumes stable during subsequent slumps in demand. Automated compact storage creates maximum storage capacity where space is limited in existing warehouses. However, there are not many vendors specializing in economical solutions for heavy and bulky loads. Fabian Spitz, sales representative at Westfalia Technologies, explains which technologies the intralogistics specialist uses to increase the capacity and agility of customers in the wood industry.

As the search for alternative building material solutions continues, building with wood has moved into focus. Advanced processing of wood, bent wood products, and CNC manufactured special modules allow to create sophisticated architectural objects with highly individual shapes. Glued and pressed wood products and wood fiber insulation materials for modern wood and passive house construction enable ever larger construction projects such as industrial halls or office buildings made of wood. Glued laminated timber, solid structural timber, glulam, cross-laminated timber and timber box elements, and wood-fiber insulation materials are produced in an energy-efficient manner. Sawdust is pressed into wood pellets while innovative wood processing companies feed residual wood into their in-house power plants to supply their production process, especially technical drying, with energy. Wood is a renewable resource, and forests play a key part in global climate regulation: According to the 2012 German Federal Forest Inventory, Germany's forests alone bind around 4.3 billion tons of CO₂. Suppliers are committed to both PEFC-certified and sustainable as well as regional forestry which cuts down on transport, making an important contribution to climate protection. Wood is a great insulating material and regulates indoor climate. It is particularly suitable for the construction of energy efficiency houses such as the Efficiency House 40 Plus.



GLOBAL DEMAND AND CAPACITY – A COST FACTOR

All these properties, together with the global construction boom, have led to an enormous increase in demand for wood. Supply shortages caused by blocked supply chains, pest infestation, climate extremes such as drought, forest fires or severe winter storms, or failure of major suppliers such as Canada, which normally delivers wood to the USA, have driven up prices. In addition, demand has been boosted by the DIY trend that flourished during the pandemic. Wood processors can expand their storage capacity in an effort to counterbalance strong market fluctuations and be prepared for a surge in demand. This will also help them to quickly process wood accumulating as a result of extreme weather events and to store it in a space-saving manner until it can be sold.

Many companies are traditional, medium-sized, family businesses that have grown gradually with the market. Their storage capacity often is not sufficient. Companies that want to be in a position to flexibly react to surges in demand face a number of challenges: On the one hand, large investments in the automation of intralogistics, on the other hand, a lack of specialized suppliers to deliver highly customized solutions. After all, wooden elements are heavy and bulky. Here, we would like to present Westfalia's solutions for the various storage types.



INTERMEDIATE WAREHOUSE FOR SEMI-FINISHED WOOD PRODUCTS



ARE YOUR SAWING AND PRODUCTION LINES CONFRONTED WITH THESE CHALLENGES?

Wood construction has many facets. Construction projects often involving large buildings, architectural demands, and the trend towards more sustainability and energy-efficient houses increasingly require a greater variety of wood building materials and prefabricated modules with smaller batch sizes. At the same time, with each retooling, sawmills are being set for manufacture of just one product model at a time over a given period.



WESTFALIA'S AUTOMATED INTERMEDIATE STORAGE FOR SEMI-FINISHED WOOD PRODUCTS

- > Intermediate storage makes production more flexible. After conversion of a saw or production line, a significantly larger batch of a certain product type can be manufactured for staggered orders. As a result, costly set-up time is significantly reduced, and production planning is simplified, including for smaller lot sizes. This is made possible by the automated and scalable intermediate warehouse.
- > Due to the small space required by



automated storage systems, the dried sawn products can be stored completely under cover. This safeguards the quality of the products and extends their potential storage period.

- > A single system handles modules, sawn products in many sizes, and load units with different dimensions. An automated system stores goods on or without pallets, single-deep or multi-deep, for further processing. Requirements such as access frequency determine the best suited load handling device: telescopic fork or Satellite®.
- > Automated storage and retrieval by means of storage and retrieval machines minimizes the susceptibility to errors as well as the accident risks associated with manual operation. The overall system consisting of mechanics, control device, and software delivers all half-finished products within the production process as required. Storage space is never wasted. Instead, it is always refilled as needed.
- > Additional capacity requirements on limited floor space can be easily met using a high-bay warehouse. Dedicated manufacturers of storage and retrieval machines such as Westfalia can handle small, medium, and large sizes as well as a large variety of loads.
- > Thanks to the digital management of the warehouse by Savanna.NET®, all load units can be continuously managed and stored and retrieved without errors. The exact location of the load units can thus be transparently recorded and traced continuously. The possibility of manual errors is thus reduced to zero.



FINISHED GOODS WAREHOUSE



THE AUTOMATED FINISHED GOODS WAREHOUSE

- > An automated storage system stores the finished products as part of the daily production routine and uses time slots between storage jobs to provide pre-packaged goods for truck tours in the shipping zone of the ware-

house. Orders coming in as late as 5 p.m. still go out the following day because they are made ready for shipment overnight.

- > This is done automatically without use of personnel and forklifts in four-shift operation, including at night during production breaks. Automated loading and unloading systems for trucks can be added at request.
- > Manual storage using forklifts is limited to a height of about 10 meters. Automated storage allows a storage height of around 40 meters.
- > The finished goods warehouse has been designed for different load unit formats, different load carriers, and palletless storage of high loads.
- > It brings together proprietary products and third-party merchandise for picking and shipping.
- > A powerful all-in-one logistics software such as Savanna.NET® by Westfalia controls and analyzes all processes. The warehouse execution system combines the functions of a software for warehouse management as well as a software for material flow control. The system can flexibly connect all existing virtual systems such as ERP systems and PLCs, peripheral devices such as printers and scanners, all manual and partially automated warehouses, and is scalable via modules, depending on the scope of requirements.



IS YOUR FINISHED GOODS WAREHOUSE READY TO FACE THESE CHALLENGES?

Storing finished goods and providing the goods smoothly for on-schedule distribution has the highest priority. As the range of products available on the market is growing, the demand for different corrugated wood products is also rising. Capacity requirements as well as the complexity of finished goods storage are increasing. More and more frequently, manual storage facilities quickly reach their limits. Retaining retrieval speed in order to deliver on schedule requires more warehouse personnel and a greater number of forklifts. A higher level of industrial truck traffic within the warehouse also increases the risk of accidents and the probability that bottlenecks and delays in retrieval will occur due to errors.



- > The automated high-bay warehouses based on Satellite® and telescopic fork technology allow storage of great volumes in a highly compact, sustainable, and energy-saving manner – either in existing buildings or in self-supporting silo constructions that do not require an additional warehouse to be built. The system makes optimum use of real estate and warehouses of any type and size.
- > Automated high-bay warehouses can be flexibly designed depending on the required accessibility: from single-bay storage for quick access through to multi-deep storage of large batches of a single product. Automated high-bay warehouses bundle logistics in centralized locations, creating synergies within the supply chain.
- > The less space is used for storage of glued laminated timber, solid structural timber, glulam, cross-laminated timber and hollow box elements, wood fiber insulation materials or wood pellets and the less ground vehicle traffic and truck waiting times there are on the company premises, the less space is required in face of increasing storage capacity.
- > The materials flow on site and your shipment logistics become more efficient while the risk of accidents and susceptibility to errors in intralogistics processes drop significantly. The burden on staff is reduced while customer satisfaction grows. Adopting more efficient intralogistics, you will also contribute to the carbon neutrality of your operations.



Conclusion

PERFECT WAREHOUSE LOGISTICS FROM A SINGLE SOURCE

We design and build independent storage systems that can be integrated into existing systems and are easily scalable. This way, they can be adapted to ongoing market developments. None of our warehouses is off-the-shelf; we carefully analyze each customer's specific requirements. We are committed to providing transparent quotations without hidden costs. In addition, we strive to provide our customers with on-schedule delivery and turnkey storage systems that offer long-term benefits.

All storage requirements are mapped in our Savanna.NET® warehouse execution system software. Thanks to our in-house manufacturing of storage and retrieval machines and PLC control systems as well as a robust supplier network, we offer on-schedule delivery of state-of-the-art technologies for the entire scope of intralogistics. For the required IT infrastructure, we provide TERRA products supplied by WORTMANN AG corporate group of which we are a member. As a general contractor, we will manage your project from initial consultation to acceptance and provide long-term customer support.

We were the first manufacturer to develop the key technology for the multi-deep, high-density storage of large formats and loads for different load carriers – the Satellite® storage system. Make use of these advantages to raise the capacity and flexibility of your wood production to a new level.

Would you like to learn more? I look forward to your enquiries and will be happy to advise you.

Your Fabian Spitz
Sales Manager Technologies & Systems



FABIAN SPITZ

A sales engineer with a Bachelor of Engineering and a Master of Business and Management, Fabian Spitz has been working in project planning and sales of intralogistics systems for almost ten years. Since 2019, he has been part of Westfalia's sales team for technologies and systems, attending to national and international customers from various industries.

OUR VALUES

ALL FROM A SINGLE SOURCE

Logistics planning, mechanical engineering, control systems, software development, installation, and project funding

QUALITY MADE IN GERMANY

All manufactured centrally at the corporate headquarters in Borgholzhausen with our own test center for key units

EXPERTISE & FLEXIBILITY

Consulting, conceptualization, customer solutions made to measure

HONESTY & FAIRNESS

Transparent pricing, fair price-performance ratio

CUSTOMER PROXIMITY & AUTHENTICITY

Flat hierarchies; experts available at every project stage

SPEED & COMMITMENT

Local service centers; customers always supported by the same personal contacts

SECURITY & RELIABILITY

Dedicated and experienced employees ensure investment security and product functionality

RESPONSIBILITY

Job security in Germany, environmental awareness, and social commitment

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