Tradition. Ambition. Vision.

Find out more about the future at **randek.com**

EN

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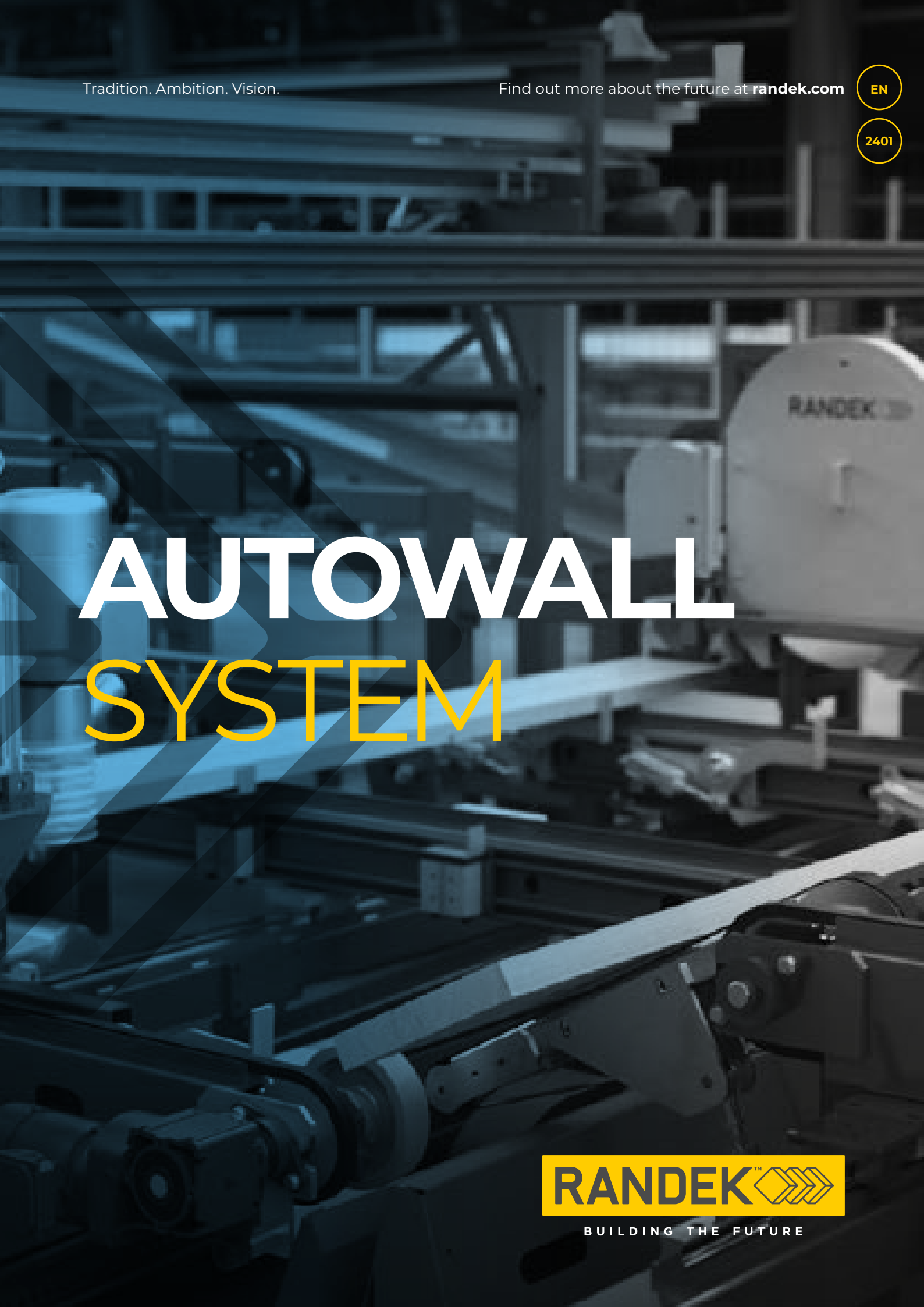


AUTOWALL SYSTEM

RANDEK™

BUILDING THE FUTURE

AUTOWALL SYSTEM

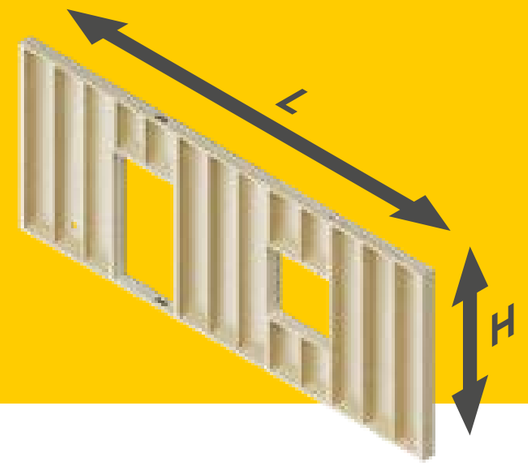
AutoWall enables leading-edge automated manufacturing of wall elements, with great precision and high quality. Accelerated project schedules, streamlined on-site assembly with minimal disruption, and a substantial reduction in labor requirements.

Depending on the type of walls you intend to manufacture, we customize our production lines using a variety of machines to meet your specific requirements. These machines are integrated into a comprehensive control system, allowing you to access both production and consumption data directly from the production line.

INDEX **PAGE**

ELEMENT LENGTH DIMENSIONS

The machine line is based on the maximum element length on each station. We work in increments of 1200mm (~3,94 Feet) between each maximum element length.



	Maximum Lenght (L)	Standard Height (H)	Extended Height (H)
Imperial [feet]	20	6,9-10,8	7,87-12,8
	23.6	6,9-10,8	7,87-12,8
	27.6	6,9-10,8	7,87-12,8
	31,5	6,9-10,8	7,87-12,8
	35.5	6,9-10,8	7,87-12,8
	40	6,9-10,8	7,87-12,8

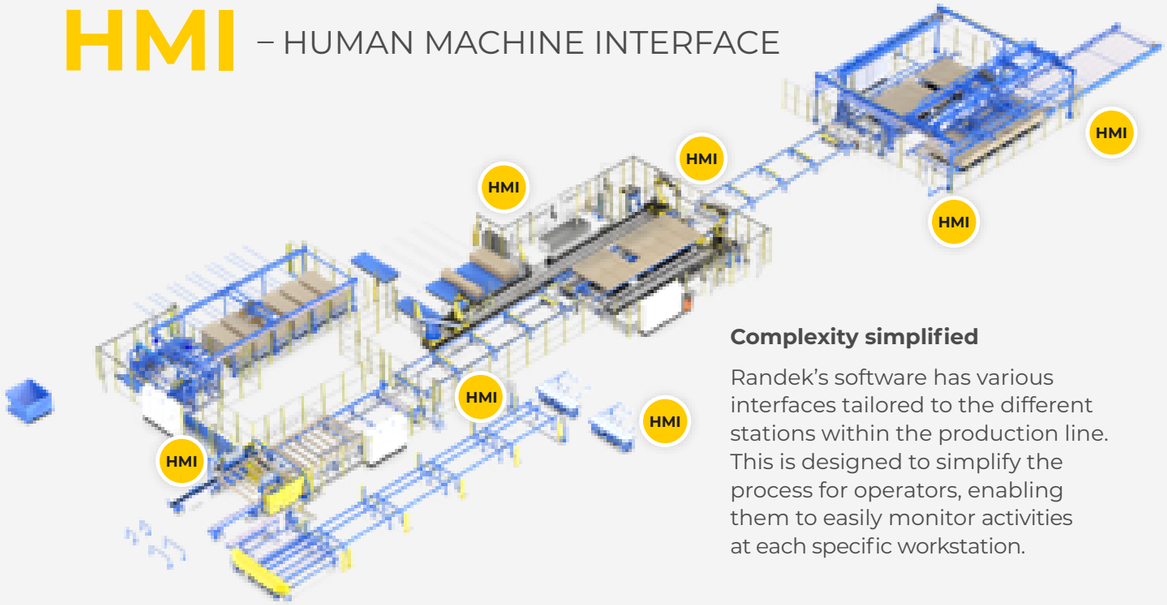
	Maximum Lenght (L)	Standard Height (H)	Extended Height (H)
Metric [mm]	6000	2100-3300	2400-3900
	7200	2100-3300	2400-3900
	8400	2100-3300	2400-3900
	9600	2100-3300	2400-3900
	10800	2100-3300	2400-3900
	12000	2100-3300	2400-3900

CAD

CDT file workflow

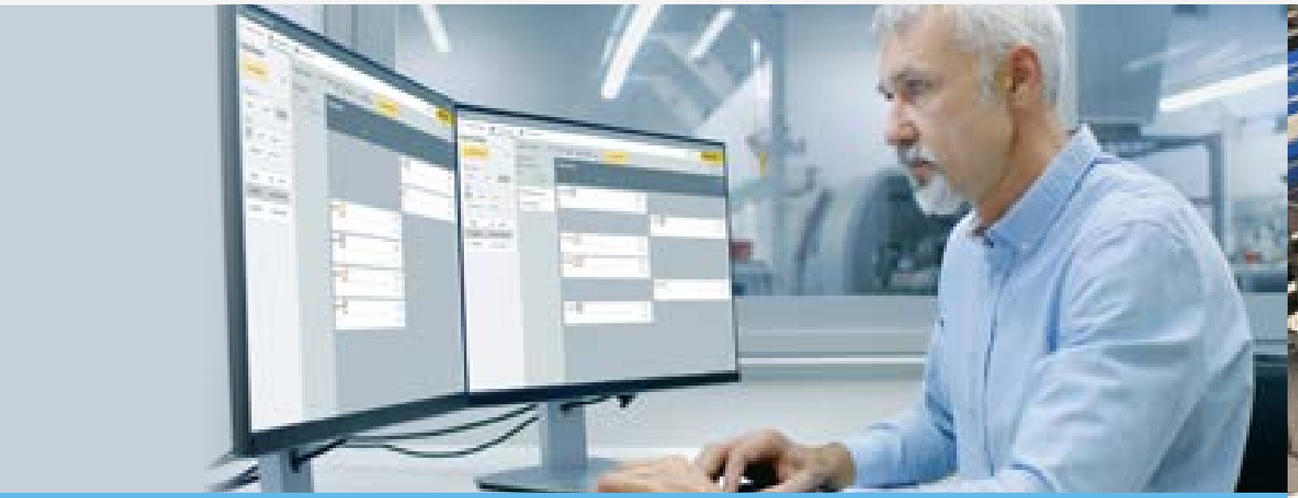
Your designers create buildings and wall element drawings using their CAD software. All major timber framing CAD applications can export data to Randek machines. They export the data from their CAD software as a .cdt file, which the Randek machines can interpret. The .cdt files can be opened and verified with the Randek Viewer software and easily transferred into the Randek planner.

HMI – HUMAN MACHINE INTERFACE



Complexity simplified

Randek's software has various interfaces tailored to the different stations within the production line. This is designed to simplify the process for operators, enabling them to easily monitor activities at each specific workstation.



RANDEK PRODUCTION PLANNER

Transform your production planning process with our production planner

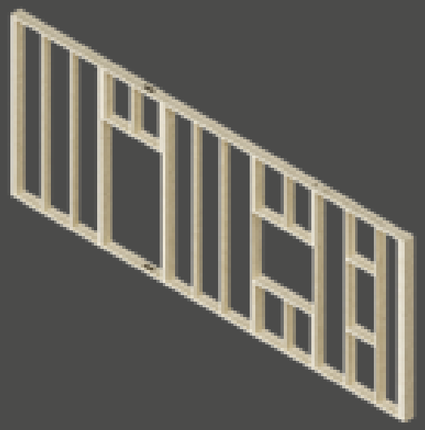
We offer user friendly production planning software. Allowing plan work orders and prepare finished stacks.

User friendly HMI

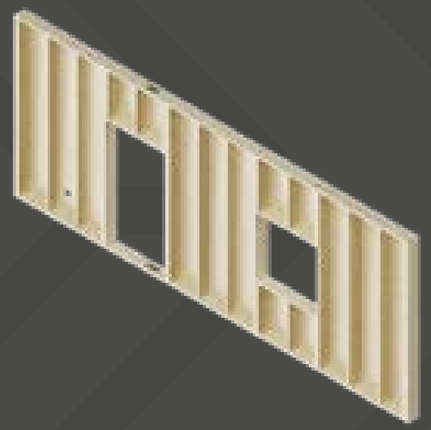
LINE TYPES

Turn your CAD files into perfectly finished walls by using the Randek Production planner

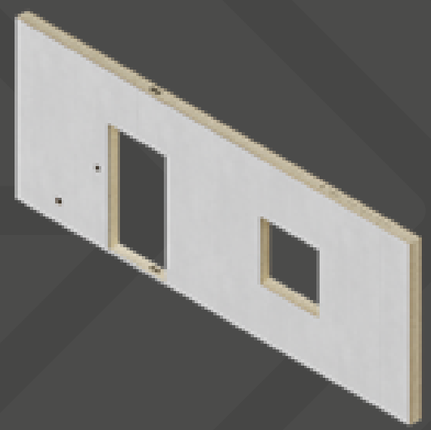
AUTOWALL FRAME



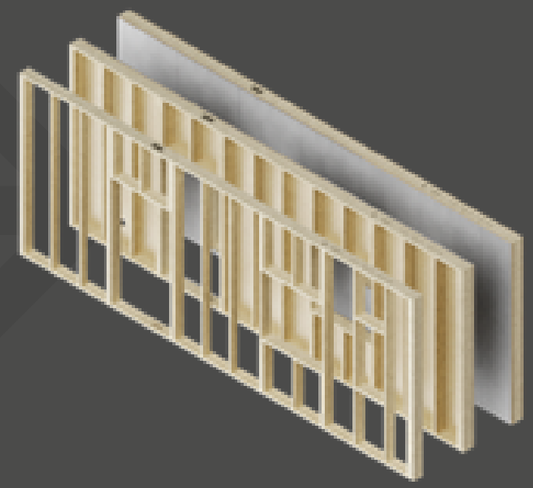
AUTOWALL OPEN PANELS



AUTOWALL CLOSED PANELS



AUTOWALL MIXED PANELS



RANDEK IIoT 4.0 PRODUCTION DATA

Analyse your data from the production line

The platform and its connected devices provide data collection capabilities as well as user-friendly tools for analysis, monitoring, and report creation. It permits data analysis from the supplier's perspective in order to maximize equipment availability for the user.

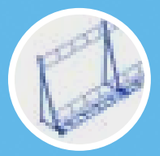
AUTOWALL
FRAME

AutoWall frame can be outfitted with all the most advanced wall frame building technology. Several options to meet your production capacity and facility. Depending on the manufacturing footprint and intended output, it can be optimized and configured in a variety of ways.

INCLUDES THE FOLLOWING FEATURES

Framing area

Work area



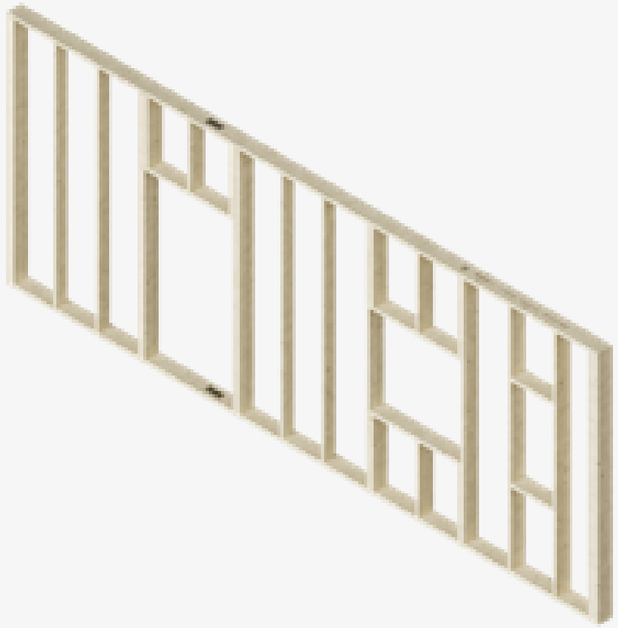
Stack & Storage

AUTOWALL
FRAME

Specifically designed for frame builders, making it the perfect machinery for customers who wish to automate their production processes. We can offer several different line types depending on your specific needs.

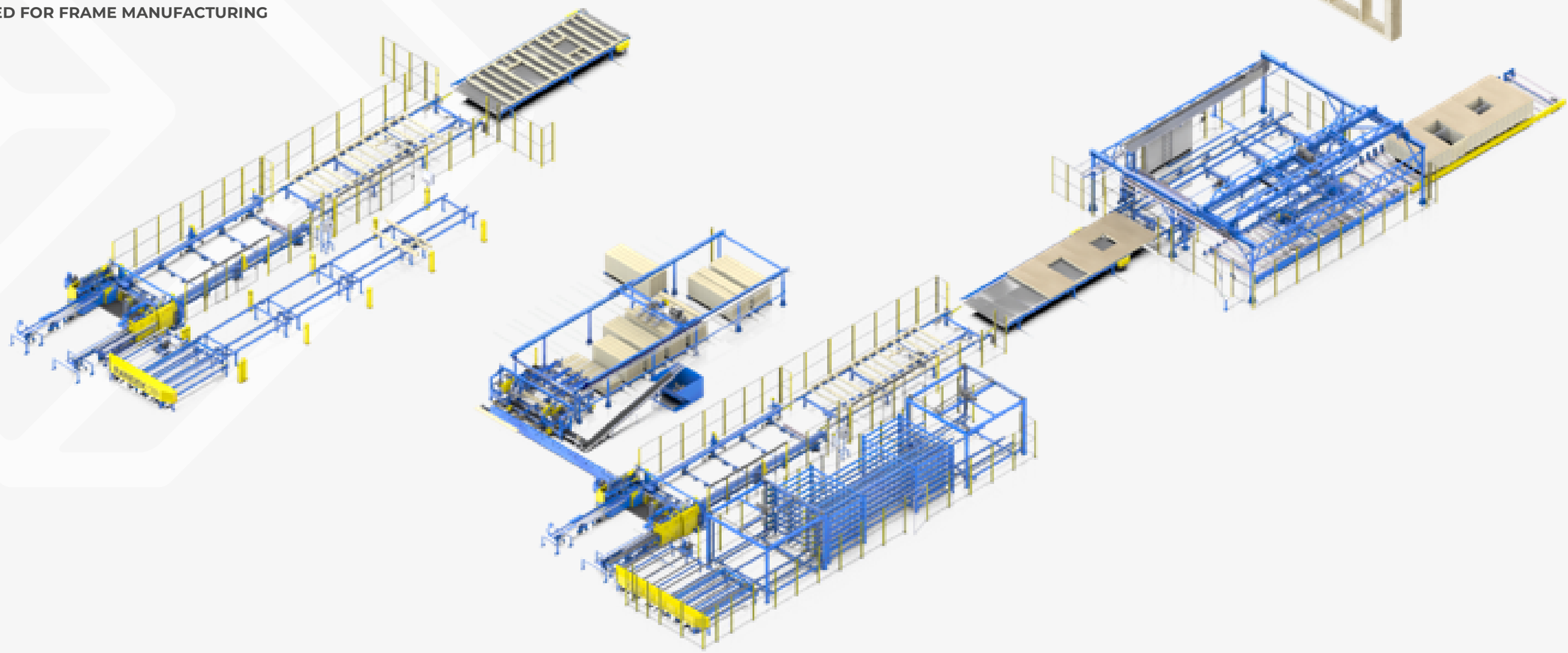
- Build with the Multiwall function
- Plan your production
- Elements delivered in stacked packages *
- Reduced staffing needs
- Increased quality
- Lucrative return on investment
- Long-lasting machinery

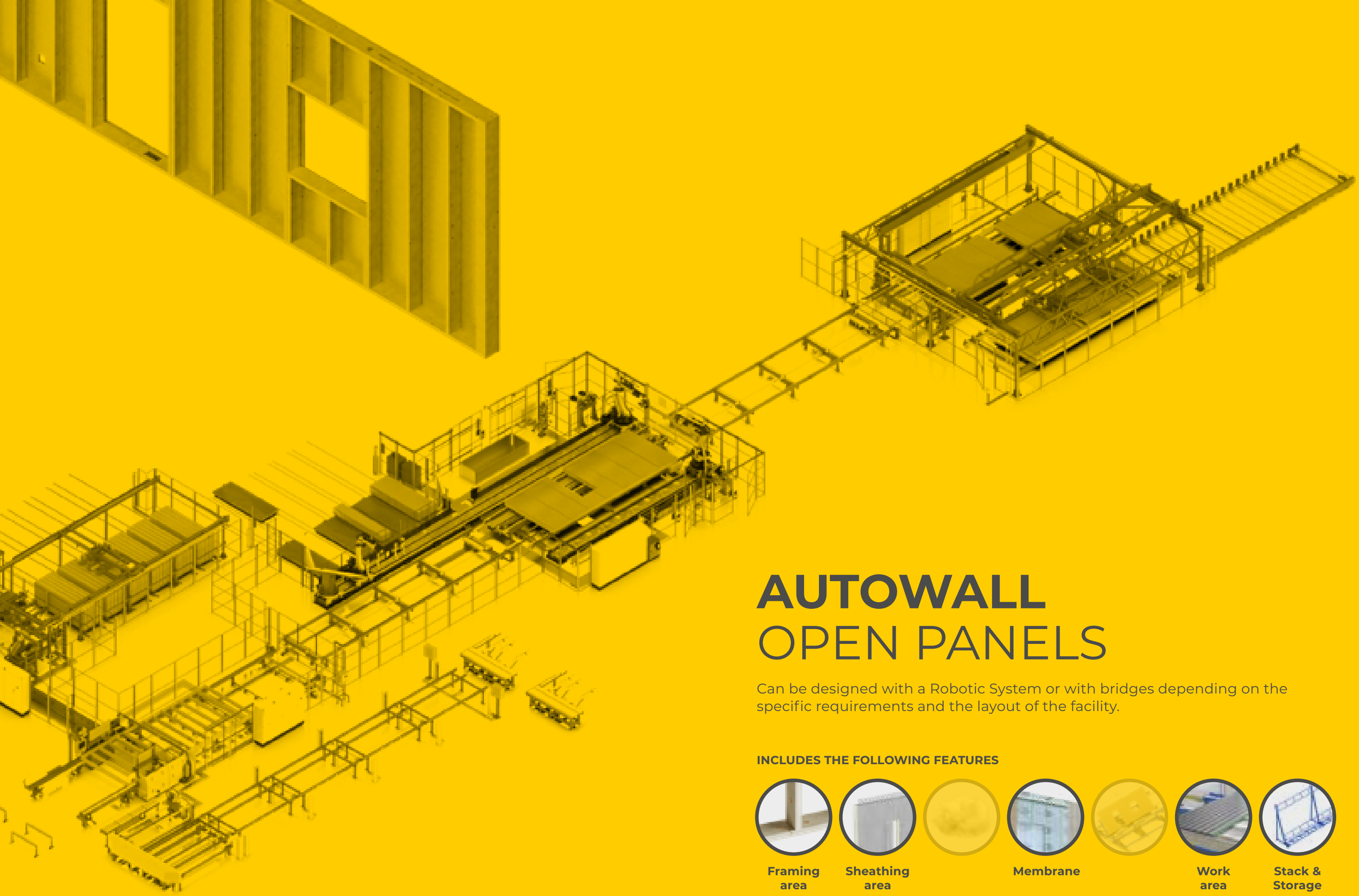
** Need Stacker unit.*



EXAMPLE LAYOUTS

OPTIMIZED FOR FRAME MANUFACTURING





AUTOWALL
OPEN PANELS

Can be designed with a Robotic System or with bridges depending on the specific requirements and the layout of the facility.

INCLUDES THE FOLLOWING FEATURES

Framing area

Sheathing area

Membrane

Work area

Stack & Storage

AUTOWALL
OPEN PANELS

Suitable for manufacturers who prefer one open side in their wall panels during the production process. The production line can attach screws, nails, clamps, and membrane to one side of the wall element, as well as mill and cut openings.

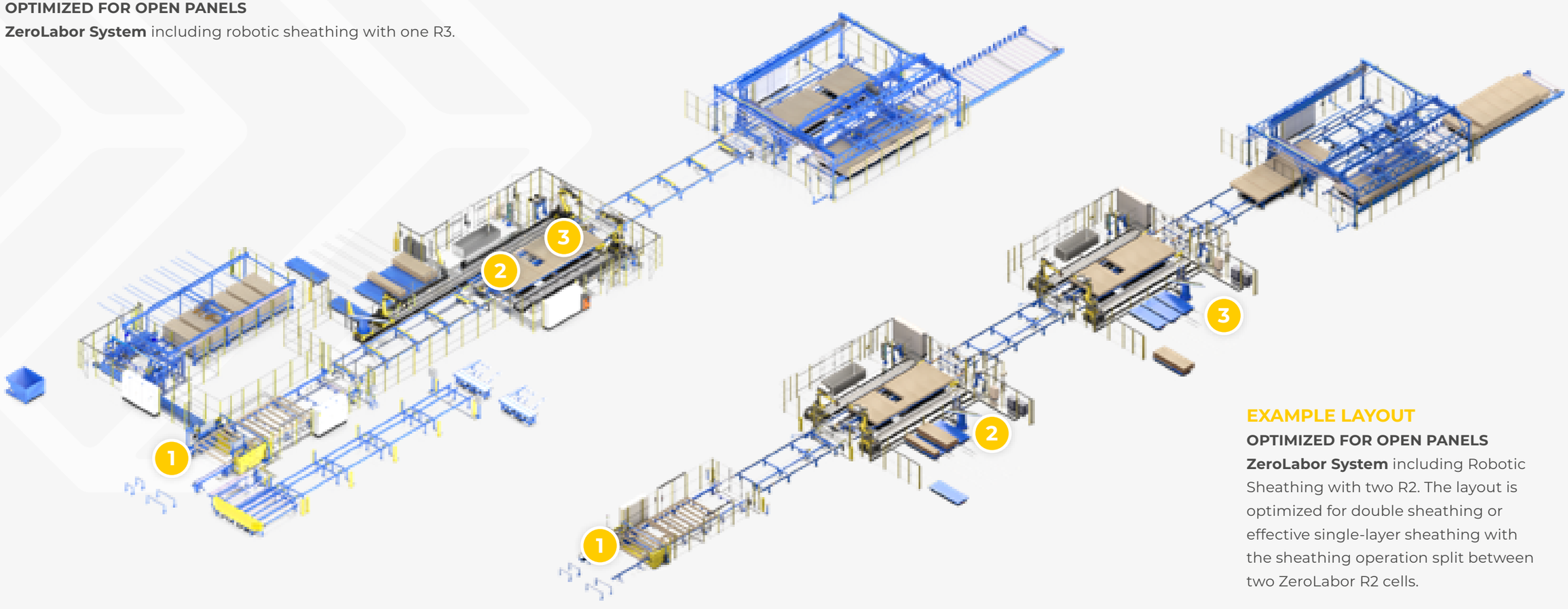
- Build with the Multiwall function
- Plan your production
- Elements delivered in stacked packages *
- Reduced staffing needs
- Increased quality
- Lucrative return on investment
- Long-lasting machinery

** Need Stacker unit.*

EXAMPLE LAYOUT

OPTIMIZED FOR OPEN PANELS

ZeroLabor System including robotic sheathing with one R3.

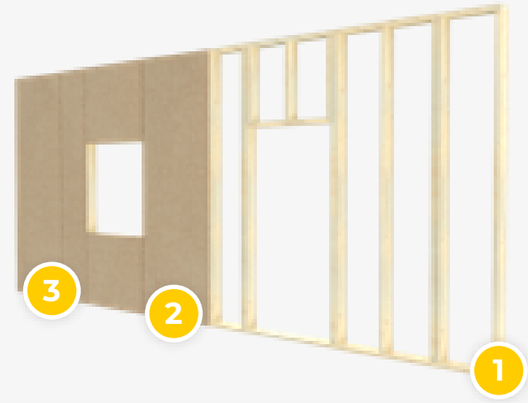


EXAMPLE LAYOUT

OPTIMIZED FOR OPEN PANELS

ZeroLabor System including Robotic Sheathing with two R2. The layout is optimized for double sheathing or effective single-layer sheathing with the sheathing operation split between two ZeroLabor R2 cells.

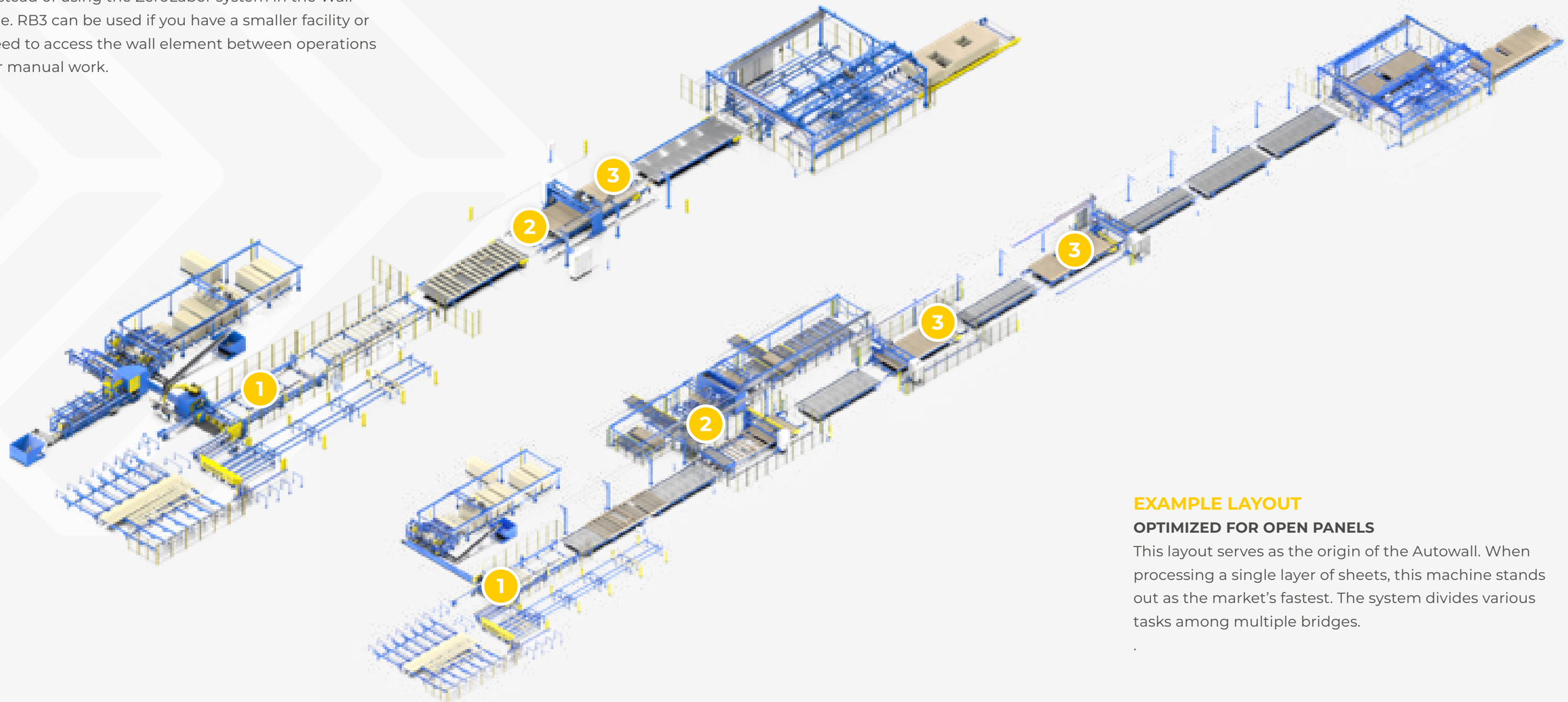
AUTOWALL
OPEN PANELS



EXAMPLE LAYOUT

OPTIMIZED FOR OPEN PANELS

Instead of using the ZeroLabor system in the Wall line. RB3 can be used if you have a smaller facility or need to access the wall element between operations for manual work.



EXAMPLE LAYOUT

OPTIMIZED FOR OPEN PANELS

This layout serves as the origin of the Autowall. When processing a single layer of sheets, this machine stands out as the market’s fastest. The system divides various tasks among multiple bridges.

.

AUTOWALL
CLOSED PANELS

This product is designed and built to maximise and incorporate enhanced value into the wall element. It allows you to control all the production steps whilst building closed panels in your factory.

INCLUDES THE FOLLOWING FEATURES

Framing area

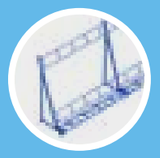
Sheathing area

Insulation

Membrane

Turning System

Work area



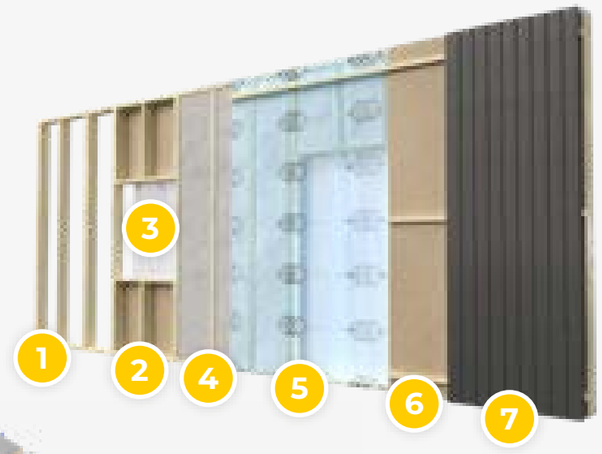
Stack & Storage

AUTOWALL
CLOSED PANELS

Suitable for manufacturers who prefer to build closed walls in their production process and add more value. The production line can attach screws, nails, clamps, and membrane to both sides of the wall element, as well as mill and cut openings.

- Build with the Multiwall function
- Plan your production
- Elements delivered in stacked packages *
- Reduced staffing needs
- Increased quality
- Lucrative return on investment
- Long-lasting machinery
- Eliminates unnecessary steps at the construction site and reduces on-site time

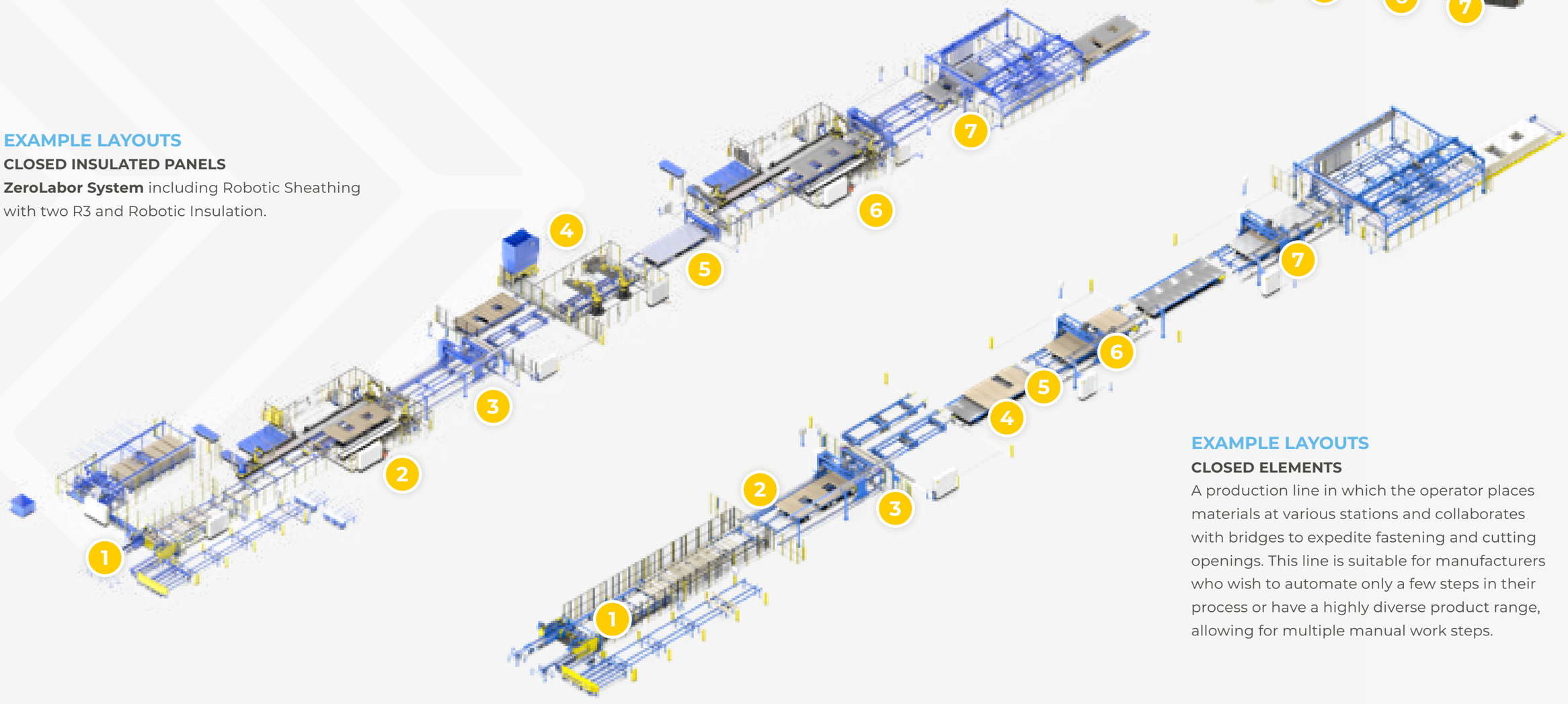
** Need Stacker unit.*



EXAMPLE LAYOUTS

CLOSED INSULATED PANELS

ZeroLabor System including Robotic Sheathing with two R3 and Robotic Insulation.



EXAMPLE LAYOUTS

CLOSED ELEMENTS

A production line in which the operator places materials at various stations and collaborates with bridges to expedite fastening and cutting openings. This line is suitable for manufacturers who wish to automate only a few steps in their process or have a highly diverse product range, allowing for multiple manual work steps.

AUTOWALL
MIXED PANELS

One start flow, producing several different end products.

INCLUDES THE FOLLOWING FEATURES

Framing area

Sheathing area

Insulation

Membrane

Turning System

Work area

Stack & Storage

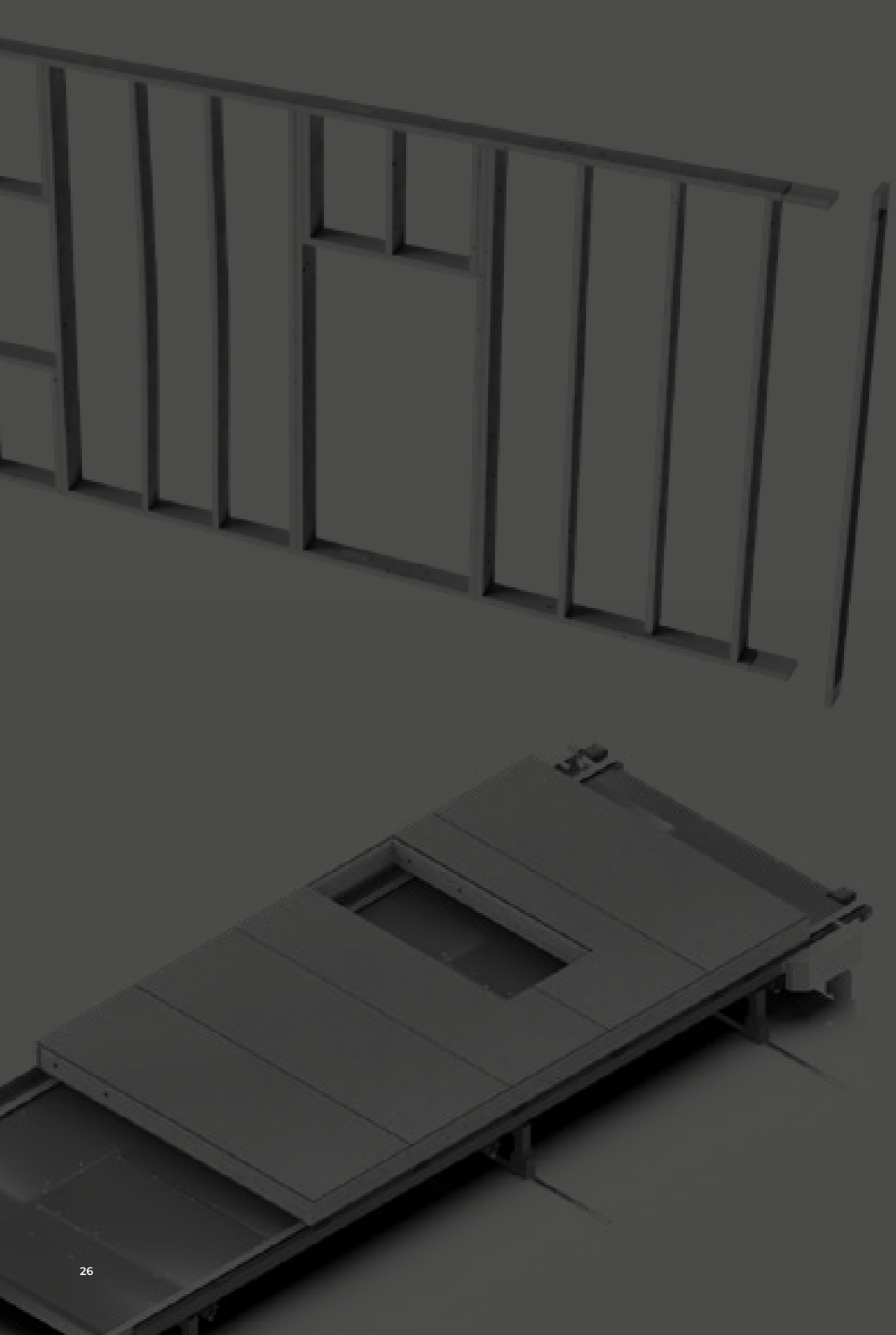
AUTOWALL
MIXED PANELS

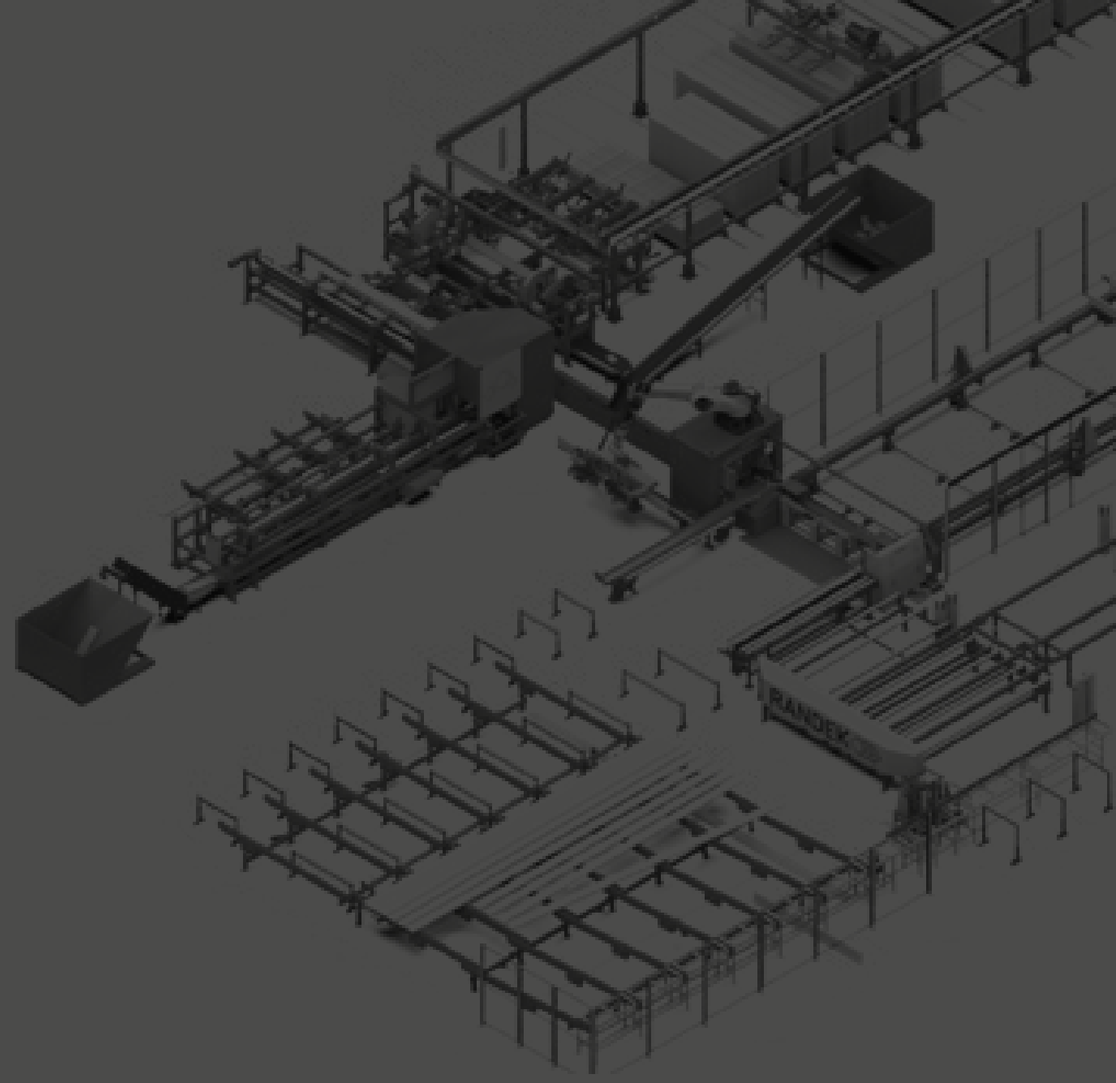
Randek can provide various types of manufacturing production lines, tailored to accommodate modular manufacturing, whether for major companies or smaller ones with lesser output requirements or smaller facility spaces.

- Build with the Multiwall function
- Plan your production
- Elements delivered in stacked packages *
- Reduced staffing needs
- Increased quality
- Lucrative return on investment
- Long-lasting machinery
- Eliminates unnecessary steps at the construction site and reduces on-site time

** Need Stacker unit.*

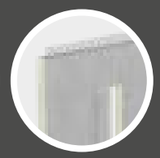
1. Framing
2. Placing sheets
3. Laser guidance for manual work
4. Bridge for manual work
5. Split of line
6. Insulation
7. Manual work in vertical stands
8. Closed wall element
9. End Storage





AUTOWALL
FEATURES

Framing area

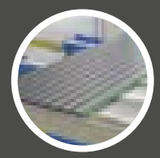


Sheathing area

Insulation

Membrane

Turning System

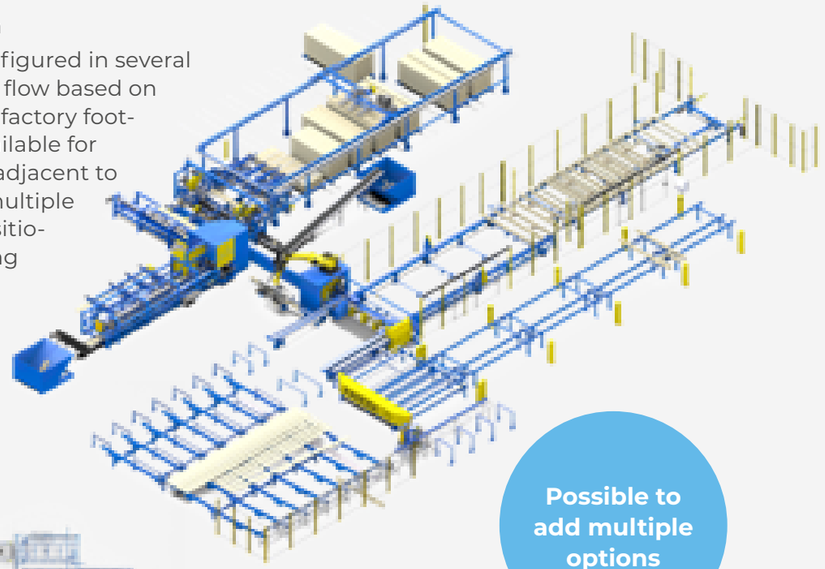


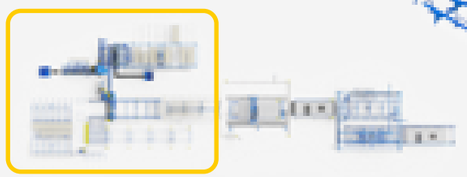
Work area

Stack & Storage

Framing area configuration

The framing area can be configured in several ways to optimize production flow based on the desired output level and factory footprint. Various options are available for customization, for example, adjacent to the framing machine unit, multiple support solutions can be positioned to facilitate daily planning and internal workflows.



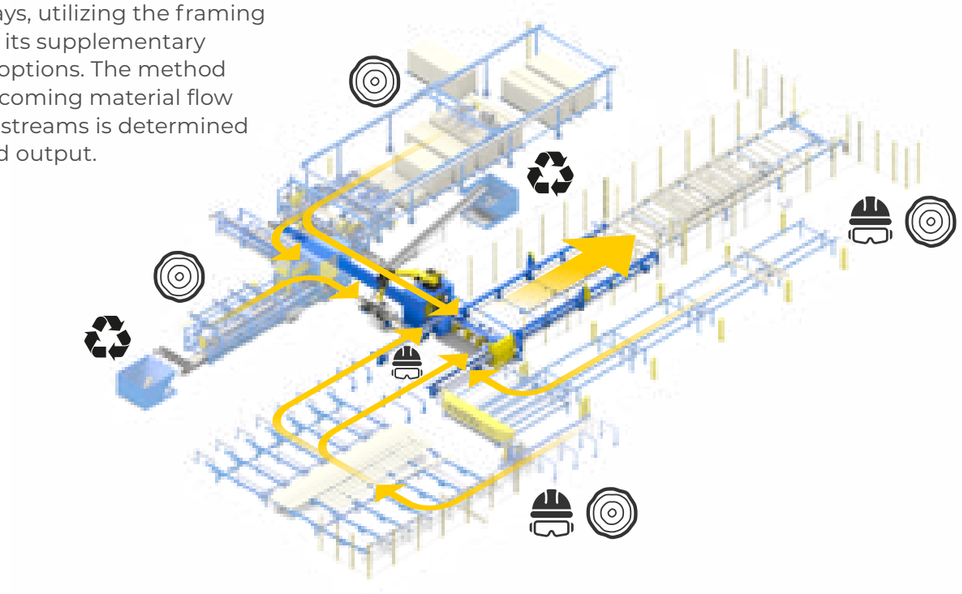


Possible to add multiple options

FRAMING MACHINE

Workflow

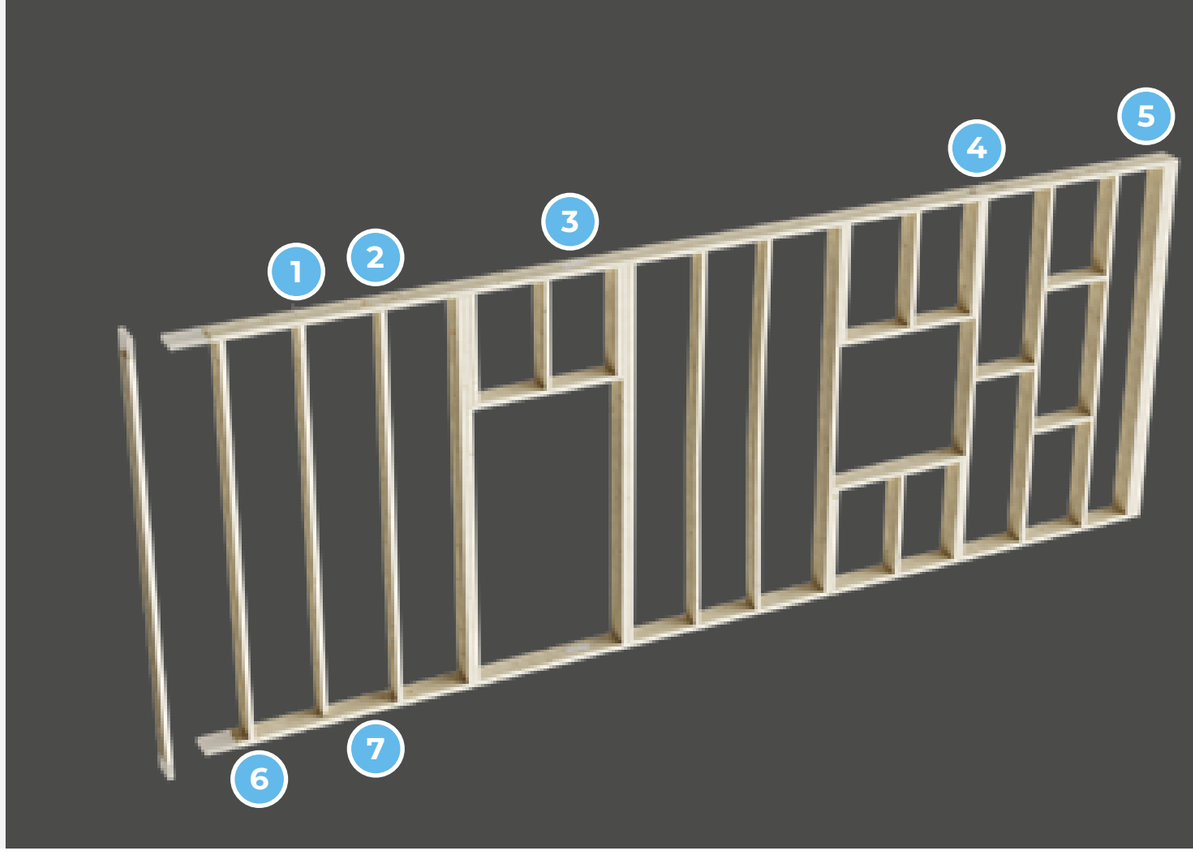
The frame can be assembled in numerous ways, utilizing the framing machine and its supplementary features and options. The method of splitting incoming material flow into multiple streams is determined by the desired output.



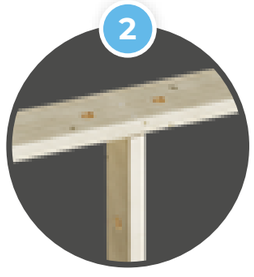
Worker

Timber

Recycle bins



Add industrial nail guns to securely fasten the studs to both the top and bottom plates.

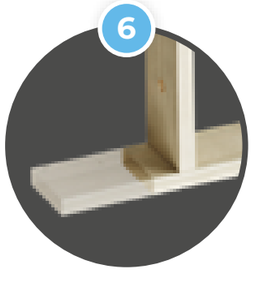


Possible to drill holes in the top and bottom plate to facilitate easy threading of electric cables and/or lifting slings.

Splicing and pressing nail plates.

Inkjet printer to label your projects.

Multiple load-bearing studs.



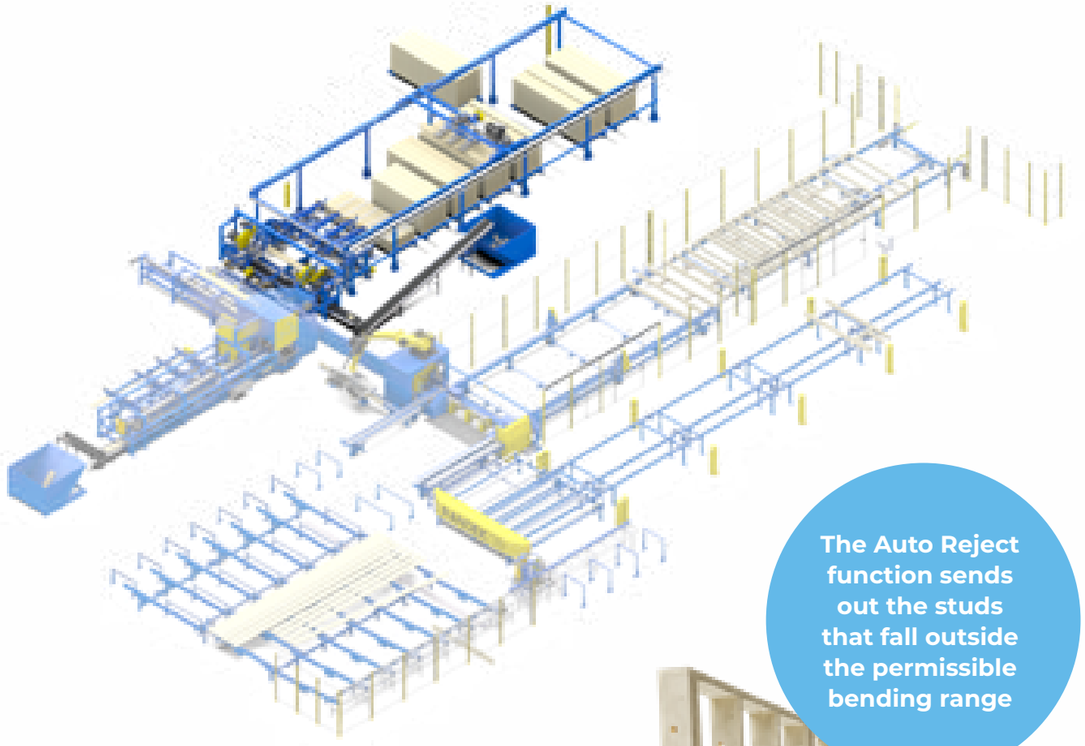
Cut top and bottom plates.

Staggered stud function.

STUD FEEDER

Beneficial standardization

The stud feeder handles packages of studs placed directly on trolleys. It can be equipped with several optional functions that prepare the studs before they are assembled in the frame. This enables standardization, using basic wood lengths, which facilitates inventory management and procurement.



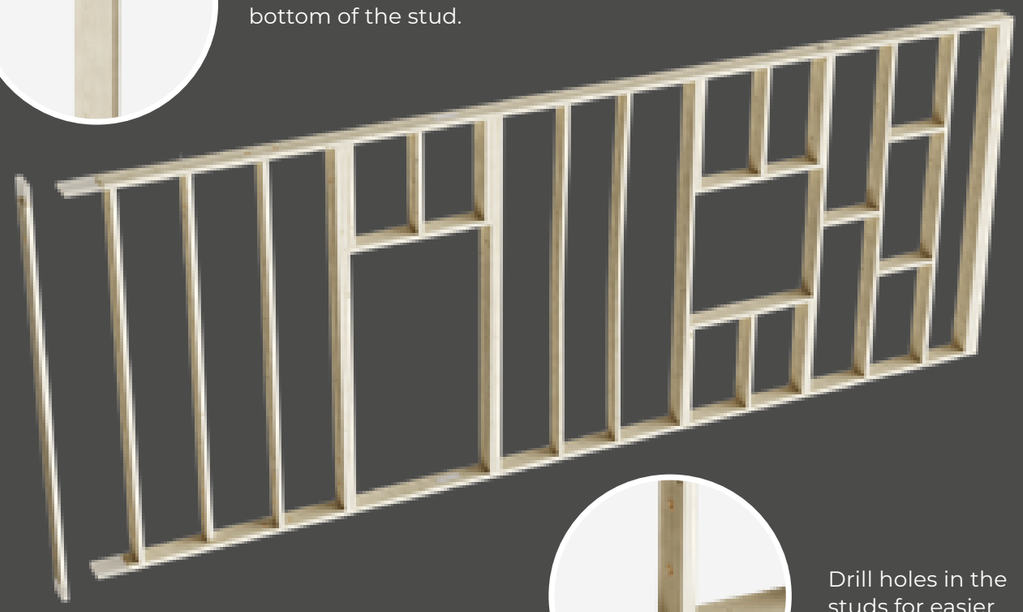
The Auto Reject function sends out the studs that fall outside the permissible bending range

Automated inspection

Patented Crown check function an automated quality control, with the help of lasers, inspects each stud for eventual crowning and flips it over to ensure the crown is always facing in the same direction.

Example of studs in a wall element correctly crowned.

Trim cut the top and bottom of the stud.

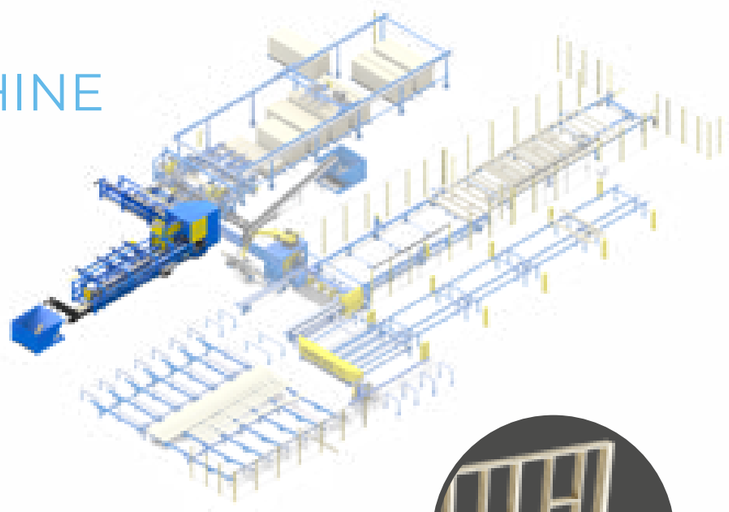


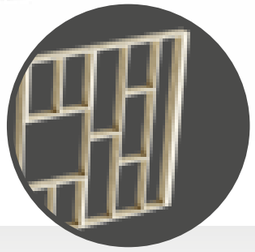
Drill holes in the studs for easier cable threading.

NOGGIN MACHINE

Ensuring frame accuracy

The machine cuts the noggins to the correct lengths and secures them in the desired positions. The length of the noggin is determined by the actual distance between the studs. This ensures the correct dimensions, even in cases of deviations in stud thickness, resulting in the correct overall dimension of the element.



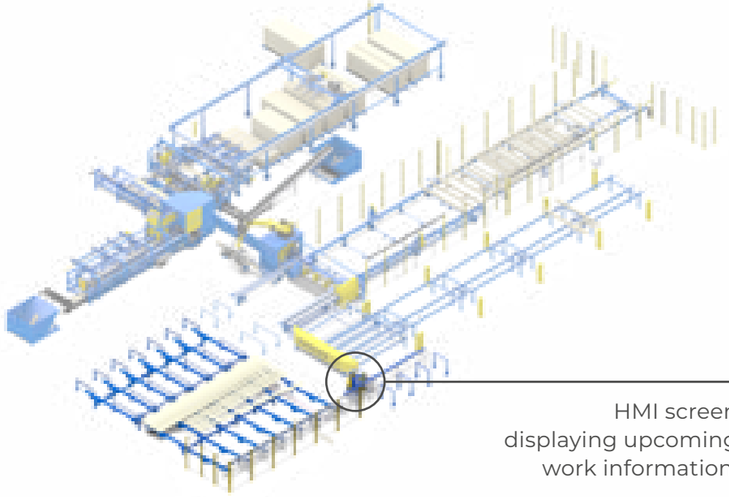


Cut and place the noggin, centrally or two pieces evenly spaced.

SPLICE AND PRESS

Accelerate the pace

To prepare and accelerate the pace of the production line, it is possible to separate the preproduction of the top and bottom plates. This enables standardization to a basic wood length, facilitating inventory management and procurement.



HMI screen displaying upcoming work information.

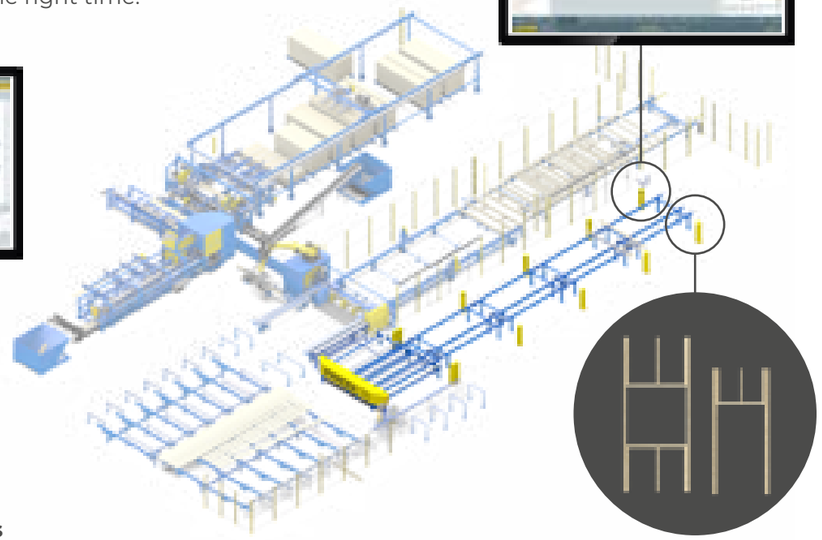
SUBELEMENT BUFFER

HMI screen for sub-element production planning.

Subelement buffer option

Option to install a sub-element buffer, where multiple H-elements and various parts can be arranged in the correct sequence, ensuring that the operator receives the correct element at the right time.

HMI screen enables visual overview and offline production of sub-elements.



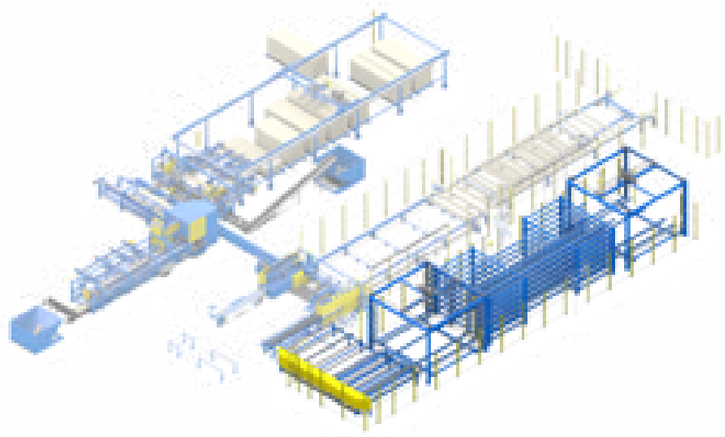
Prebuild and add extras

Enabling the pre-production of H-elements, triple studs, window installations, or the addition of other prebuilt components. Equipped with an HMI screen that allows an overview of work orders and pre-production.

SUBELEMENT HANDLING

Handling of subelements

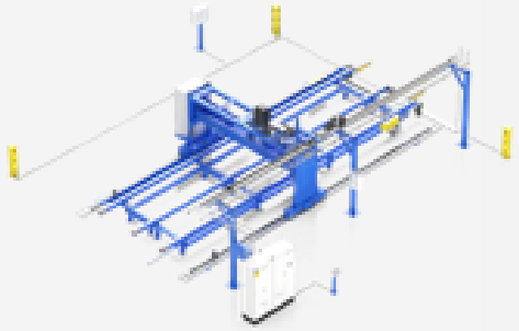
An expanded solution incorporating the same features as the Sub-element buffer, with the addition of larger sub-element storage capacity. This enables the preproduction and storage of multiple sub-elements on multiple levels.



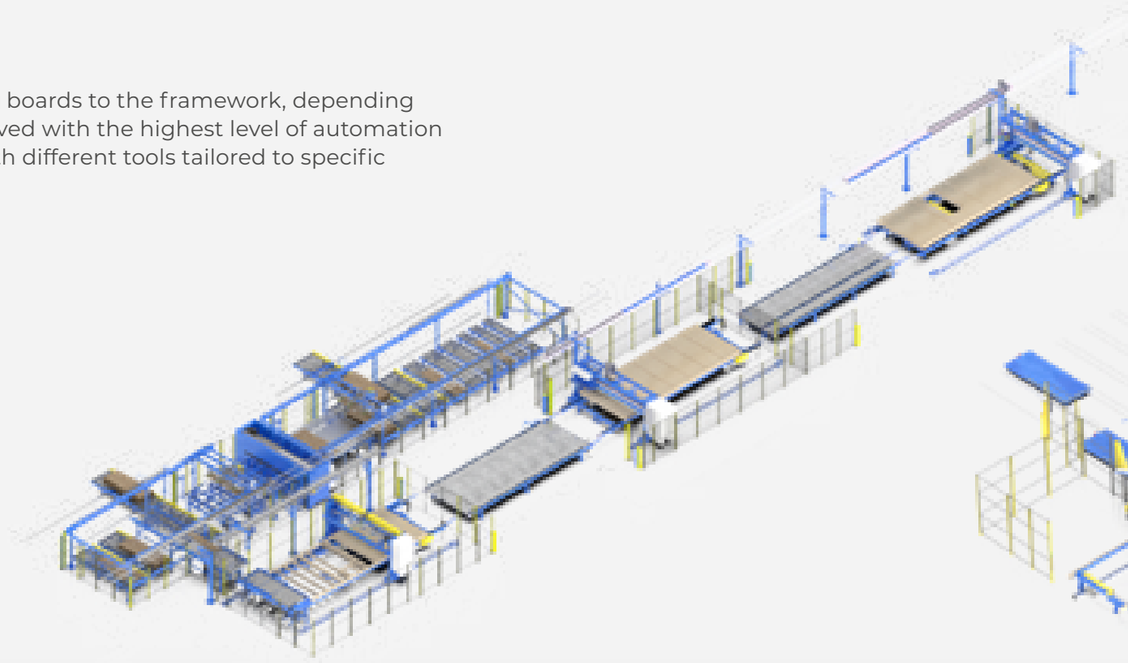
There are several different handling solutions to maintain the workflow

Automated board application

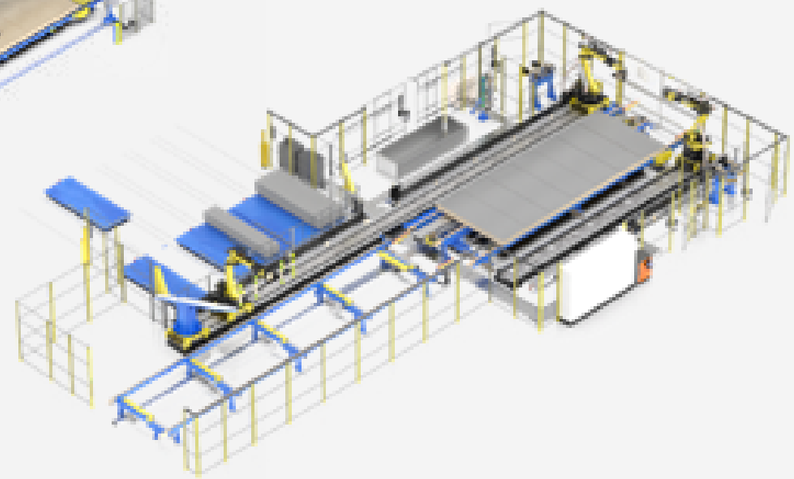
We offer various solutions for applying and attaching boards to the framework, depending on the desired level of automation. This can be achieved with the highest level of automation available in the market, utilizing bridge equipped with different tools tailored to specific operations.



RANDEK BRIDGE RB3



SHEET SAW+BRIDGE

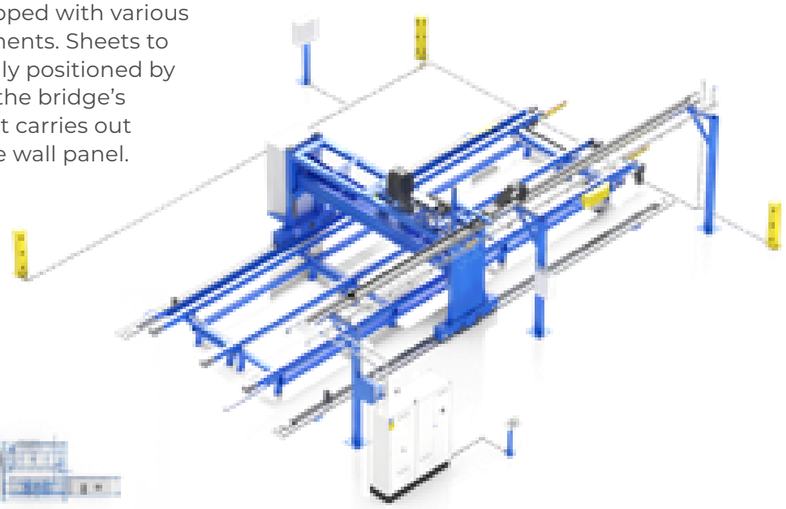


ZEROLABOR ROBOTIC SHEATHING

THE RANDEK BRIDGE RB3

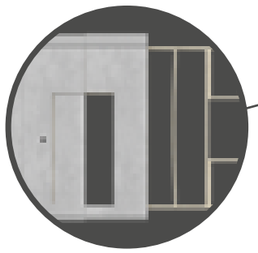
Configurable Bridge

Randek Bridges can be equipped with various tools for processing wall elements. Sheets to be attached must be manually positioned by the operator. Depending on the bridge's configuration, the equipment carries out the desired operations on the wall panel.

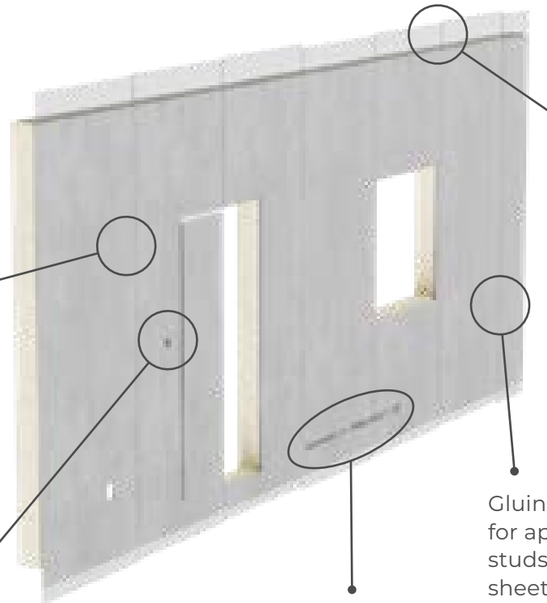


The Randek Bridge RB3

1-8 fastener tools can be added based on the type, required out-put, or speed needed. The bridge can be designed for clamping, nailing, screwing, or nail pushers.



Equipped with a function to straighten bowed studs before nailing.



Trimming function to adjust the positioned sheets.

Gluing equipment for applying glue on studs or between sheet layers.

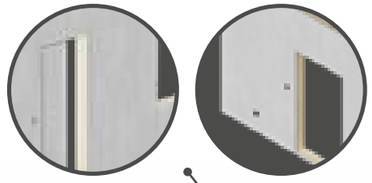
Inkjet for marking of the element.

Routing tool for smaller openings.

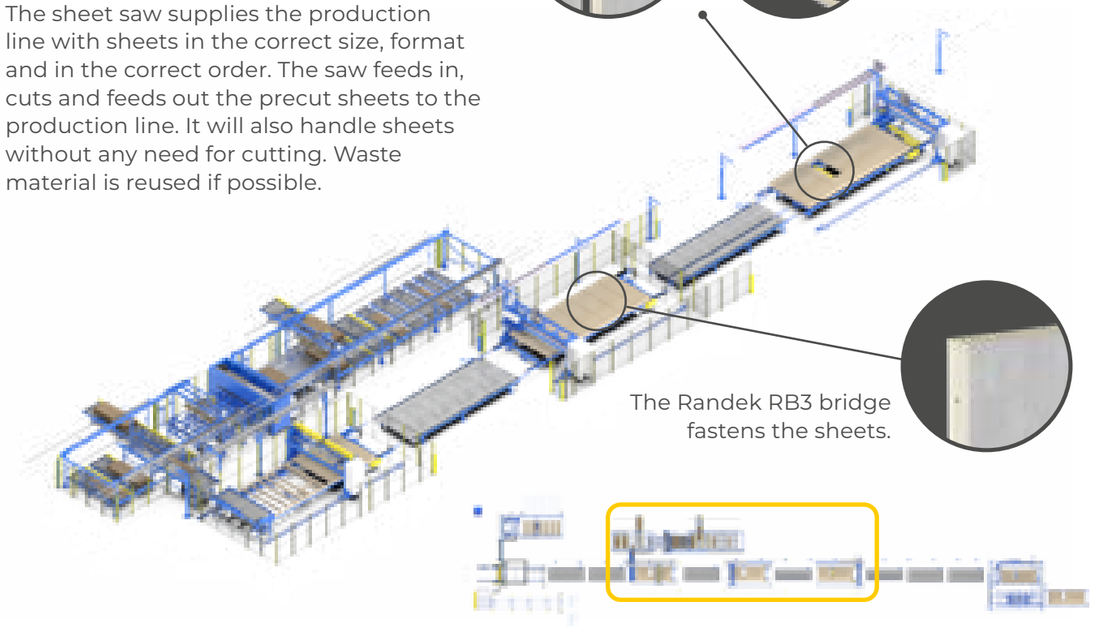
SHEET HANDLING

Precisioncut

The sheet saw supplies the production line with sheets in the correct size, format and in the correct order. The saw feeds in, cuts and feeds out the precut sheets to the production line. It will also handle sheets without any need for cutting. Waste material is reused if possible.

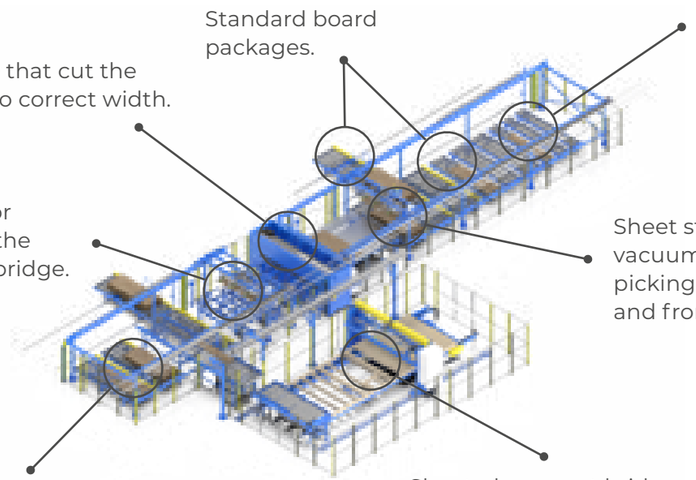


The Randek RB3 bridge performs routing and saw processes.



The Randek RB3 bridge fastens the sheets.

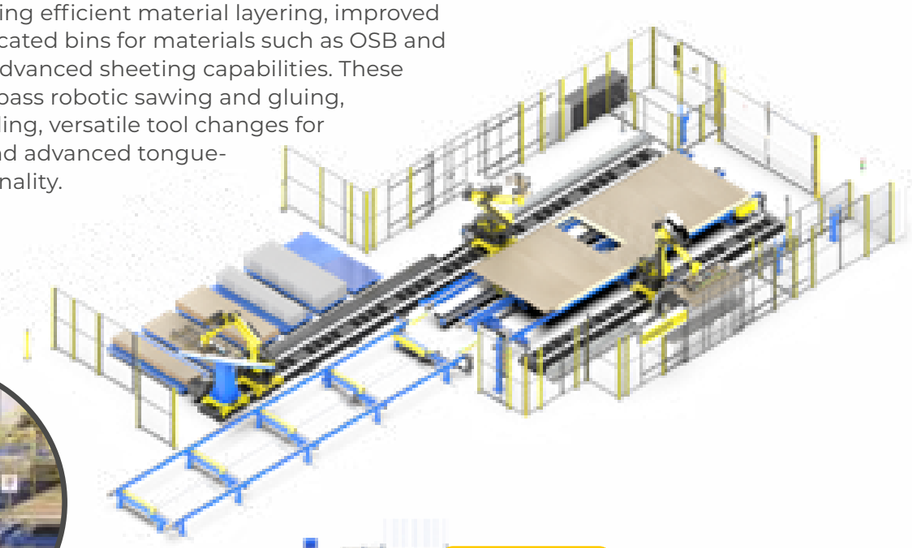
SHEET SAW

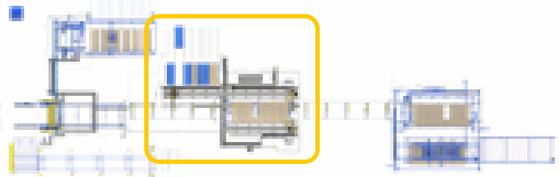


ZEROLABOR ROBOTIC SHEATHING

Handles the following processes

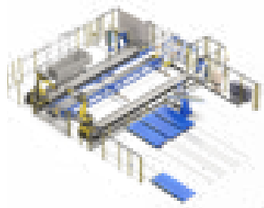
ZeroLabor sheathing streamlines the production of building elements by providing efficient material layering, improved recycling with dedicated bins for materials such as OSB and plasterboard, and advanced sheeting capabilities. These capabilities encompass robotic sawing and gluing, precise sheet handling, versatile tool changes for router-end tools, and advanced tongue-and-groove functionality.



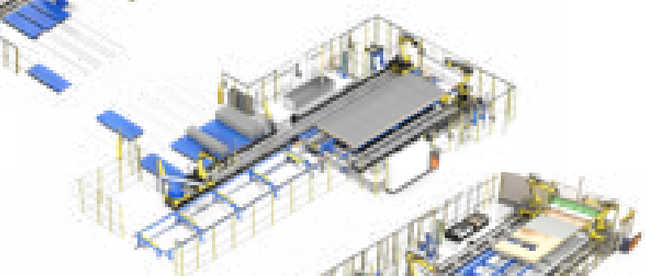


Several configurations

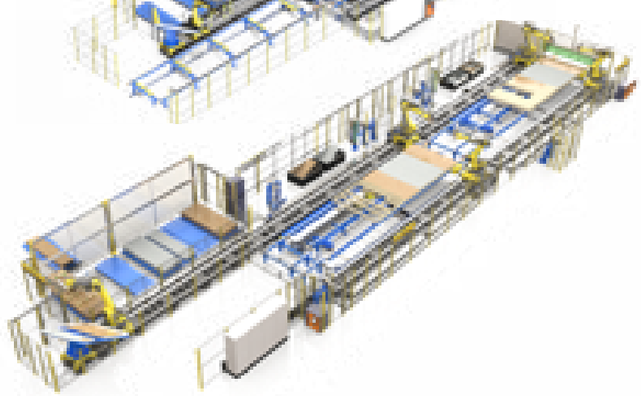
The ZeroLabor R2 - a compact and versatile configuration solution, designed to automate your production processes.



In the ZeroLabor R3 – One more robot is added which allows for greater output. With this option, sheet storage capacity is also extended.



In the ZeroLabor R5 - there are five robots to further increase your production.



ZEROLABOR ROBOTIC INSULATION

Application equipment

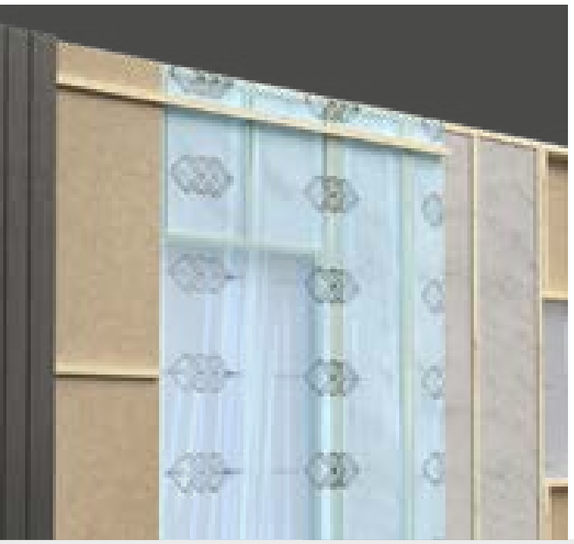
Our fully automatic ZeroLabor Robotic Insulation of elements allows you to increase the efficiency and quality of your insulating process. This becomes more cost-effective and removes the repetitive and strenuous job of manually fitting the insulation.

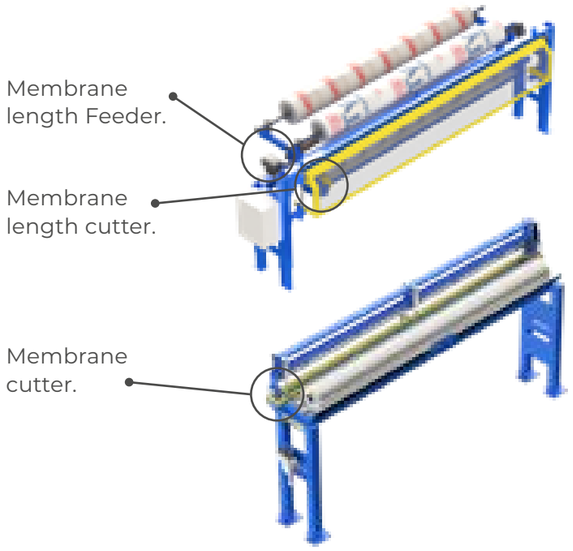
Off-element service position.

MEMBRANE SYSTEM

Membrane handling

Holder for securing the membrane layer. Automatic or manual feed. Includes an automatic cutting blade for precise cuts. The holder is positioned in the production line to assist you. The cutting solution cuts the correct length, based on CAD data or decided by the operator (depending on machine type)

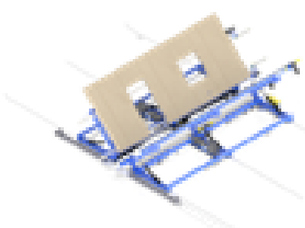




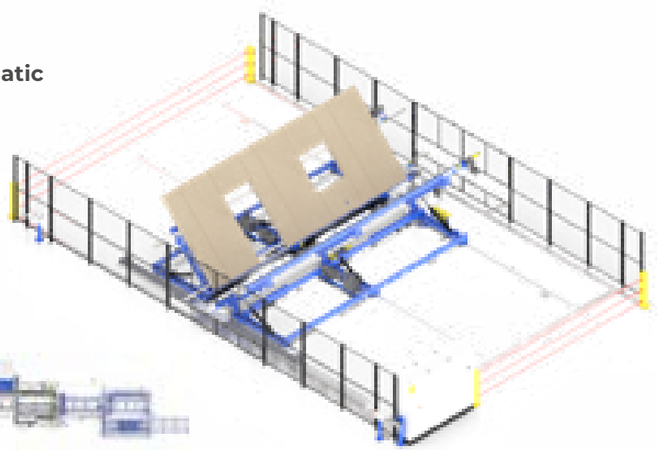
THE RANDEK TURNING SYSTEM

Level of automation

Randek's turning system offers the flexibility to operate in an automated sequence with built-in safety measures or manually through an operator panel, where an operator controls the turning process.



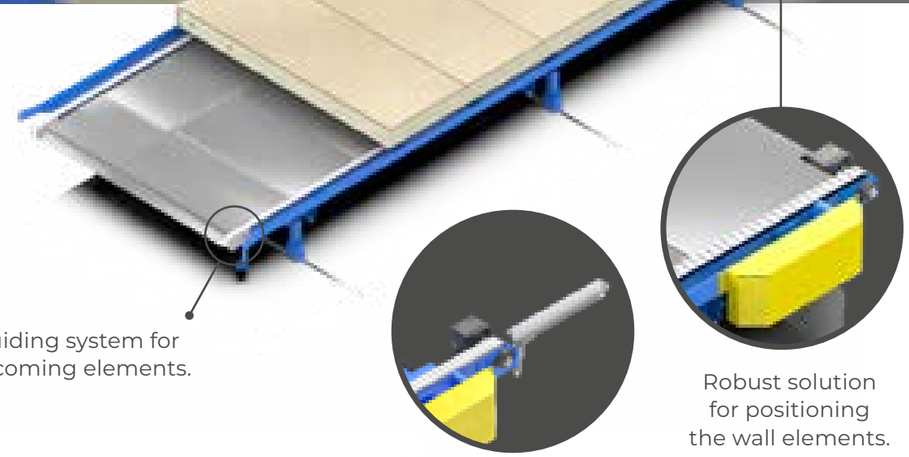
Semi-Automatic option

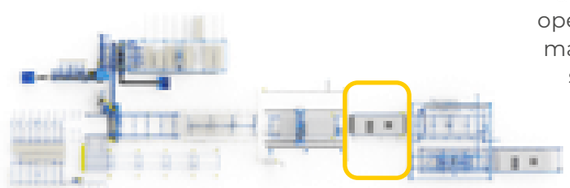


WORK AREA

Manual work area

The stations automatically adjust themselves based on CAD data. The element can be fed automatically or through operator functions on the control panel. Additional functions, such as squaring or holding the element in the correct position, can be incorporated. Laser guidance projection simplifies tasks. An HMI screen can display instructions for necessary manual steps.



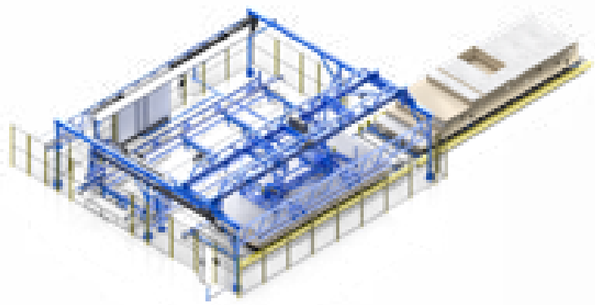


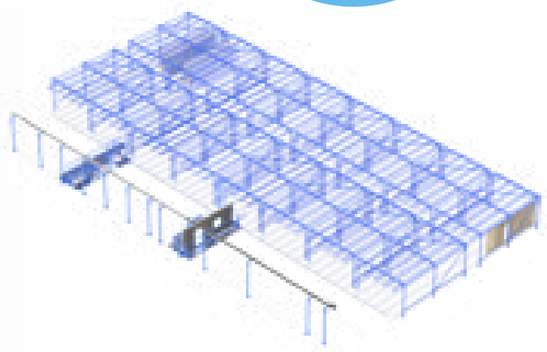
STACKING AREA

Multiple stacking and storage solutions are available

We offer several different stacking solutions. Horizontal placement in a stack or vertical placement. We also offer various types of storage systems, including adjustable systems that are manually adjusted based on the incoming element's height, as well as angled systems that tilt the wall element using a roller rack solution.

Stackable in a specific order according to CAD/CAM data

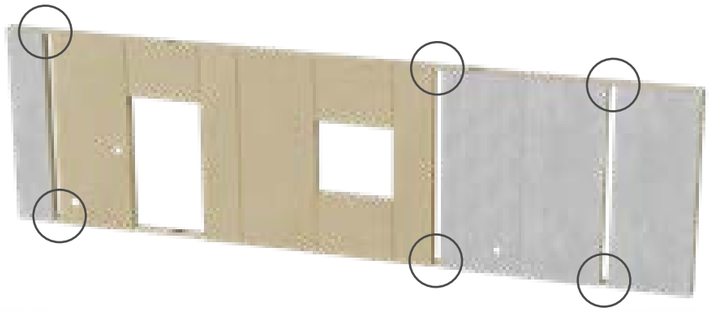


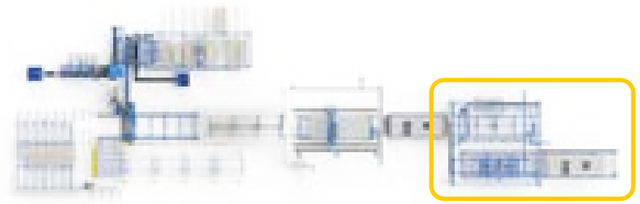


STACKING AREA - MULTIWALL

Effective assembly solution

Combine and assemble multiple smaller walls into one during the planning phase using the Multiwall function.



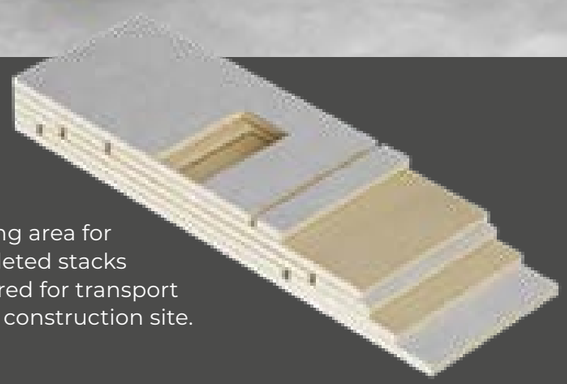


Effective stack planning

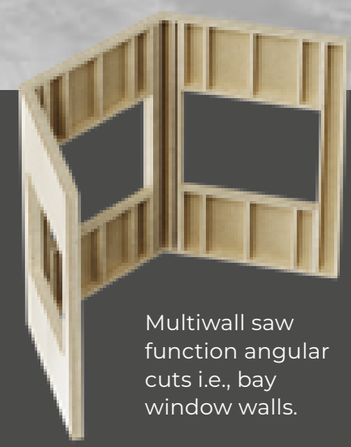
Determine the order of the stack in the planning phase, using the Randek Production Planner.

STACKING AREA - LIFTING SYSTEM

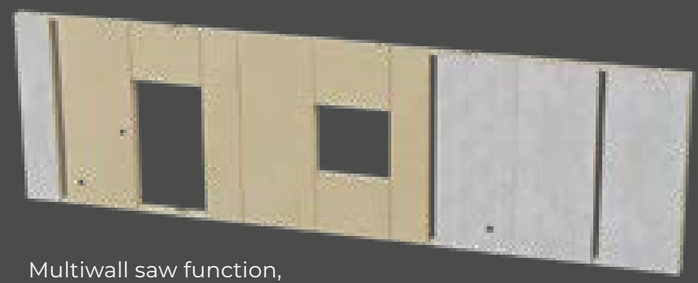
Lifting system for handling wall elements



Loading area for completed stacks prepared for transport to the construction site.



Multiwall saw function angular cuts i.e., bay window walls.

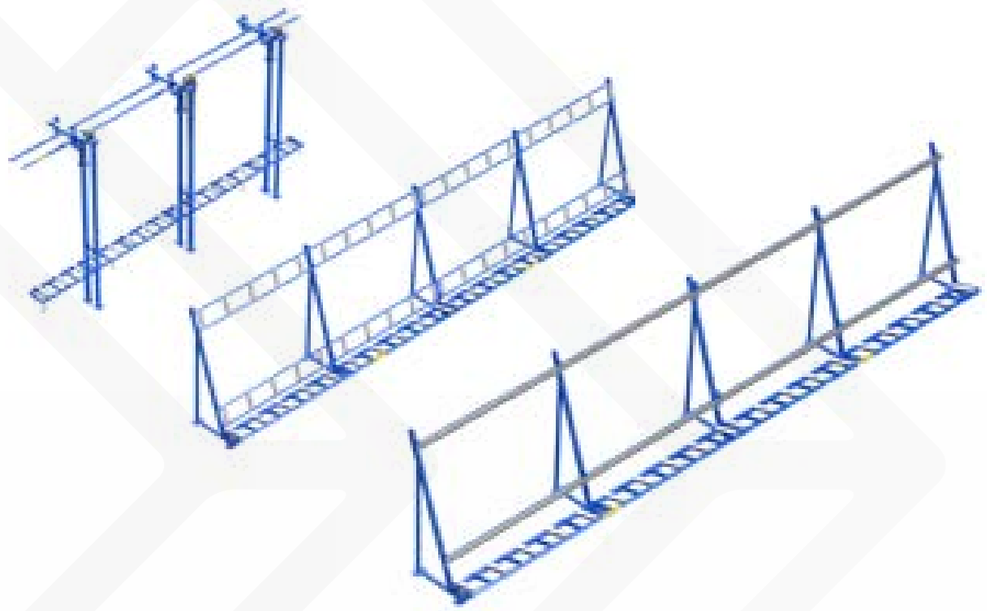


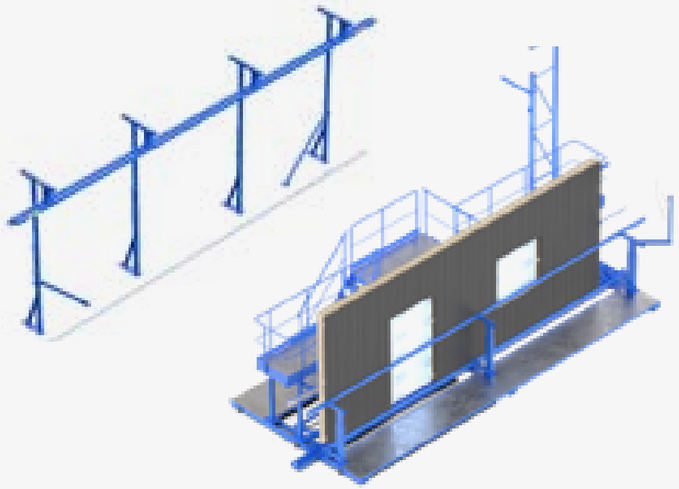
Multiwall saw function, straight cuts.

STORAGE AREA

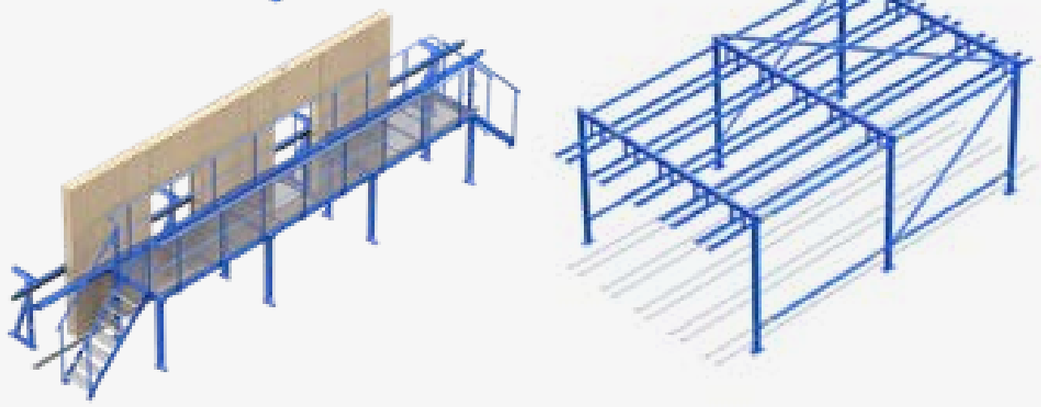
Flexible storage options

It’s possible to conclude your production line with a storage area. You can choose whether you want your wall elements to be stored vertically or at an angled position, guided by rollers.





If you require a larger storage system we can provide one with a movable platform for loading and unloading



CUSTOMER COMMENTS

Kodumaja, ZeroLabor Robotic Sheathing R2 Closed elements

Kodumaja mainly builds multi-story apartment buildings. They specialize in the construction of high-quality timber frame housing. They use an effective and future-oriented construction method that ensures and conforms to their strategic markets construction requirements and standards.

“Before we needed to have many quality checks in production, to eliminate human errors. The ZeroLabor Robotic System is highly automated, we can remove manual operations and quality checks which will increase our productivity dramatically. In general, it is difficult to find workers in the labor market, we need to hire people outside Estonia which is demanding. To have workers not speaking the same language is also challenging. We also struggled with the cost of introduction and training which is a significant cost to consider. We also like the fact that the system is future-proof as tools and functions can be added in the future if needed. The system is flexible if we would change the building system”

Marti Mets, CEO Kodumaja Element OÜ

Arcabo, ZeroLabor Robotic Sheathing with two R2 and Robotic Gluing Closed elements

Arcabo, Europe’s largest specialist in chalet construction for over twenty years and has been using Randek equipment for years and years and invested in a ZeroLabor Robotic Cell R2. The ZeroLabor Robotic System is integrated into a wall production line and several new functions were developed during the project. The robots will handle sheets, perform cutouts, remove and sort waste, handle nailing, screwing, stapling and gluing. All automated operations are based on CAD-drawing.

“The ZeroLabor Robotic System is the most automated robotic system on the market for the production of wall elements, the system will be a great asset for us in order to increase our growth and profit!”

Rijk Houthuijzen, CEO Arcabo

BoKlok, ZeroLabor Robotic Shetahing R3 plus R5 Closed elements

BoKlok, jointly owned by IKEA and Skanska chose Randek as a supplier to their modular factory. Randek delivered a highly automated robotic wall production line consisting of in total R3 plus R5. The ZeroLabor concept was further developed to increase the overall capacity and smartness of the system.

“One of the reasons we chose Randek as a supplier of the wall production line was that they managed to present a solution that could meet our requirements regarding space efficiency, automation level, capacity and data integration (IIOT 4.0). All this could be achieved by a close cooperation where further development of the ZeroLabor Robotic System was required.”

Andreas Knutsson, Project Director BoKlok

RANDEK PRESTUDY

Experience the Expertise
Randek boasts extensive experience in developing new systems for OFFSITE automation. Many existing systems, including functionalities within the AutoEye, ZeroLabor, and AutoWall product range, have been refined through prestudy agreements.

How it Works
Randek assigns a dedicated project leader to spearhead the development and configuration of the most optimal and suitable automation system for your requirements. This personalized service encompasses a comprehensive prestudy that involves utilizing existing automation equipment from our extensive portfolio and or crafting new machines and systems explicitly based on your requests.

Key Features of Randek Prestudy
Tailored Development and Configuration: Our skilled team ensures a customized approach to meet your specific needs, considering factors such as available production surface, capacity demands, automation levels, acceptable staffing, and your existing or future building system.

- Transparent Cost Agreement
- Comprehensive Prestudy Outcomes
- Detailed Layout
- Visualization
- Simulation
- Capacity Assessmen
- Function Development
- Prototyping
- Technical Specifications
- Delivery Time
- Quotation

SWEDISH QUALITY LASTS

Randek are pioneers in creating innovative automation solutions for customers within the prefabricated house manufacturing industry since the 1940s. Today, Randek is one of the world's leading suppliers of high-performance machines, robotic solutions and complete systems with production lines holding several world records in production capacity.

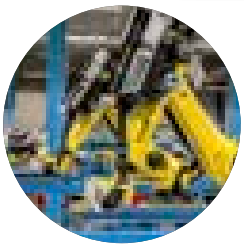
PRODUCTS/SYSTEM

CUT SAWS

Sturdy reliable cut saws delivered to house and roof truss manufacturers all over the world. From manual to fully automated

WALL, FLOOR AND ROOF PRODUCTION LINES

A comprehensive product range with tailor-made systems for prefab manufacturing of walls, floors and ceilings. From manual to fully automated.



ROBOTIC SYSTEM

Randek Robotics develop advanced systems in robotic automation. Delivering efficiency to customers in Europe, China, North and South America since the 1990s.

ROOF TRUSS SYSTEM

Equipment for traditional and effective manufacturing of roof trusses and a revolutionising automated roof truss production system.

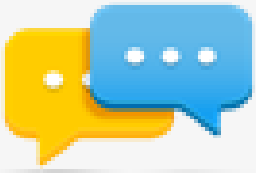
BUTTERFLY TABLES

Innovative wall-turning tables. From moderate manual wall-turning tables to advanced with a range of options.

RANDEK SERVICES

PRESTUDY

MAINTENANCE



GLOBAL SUPPORT

IIOT

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