

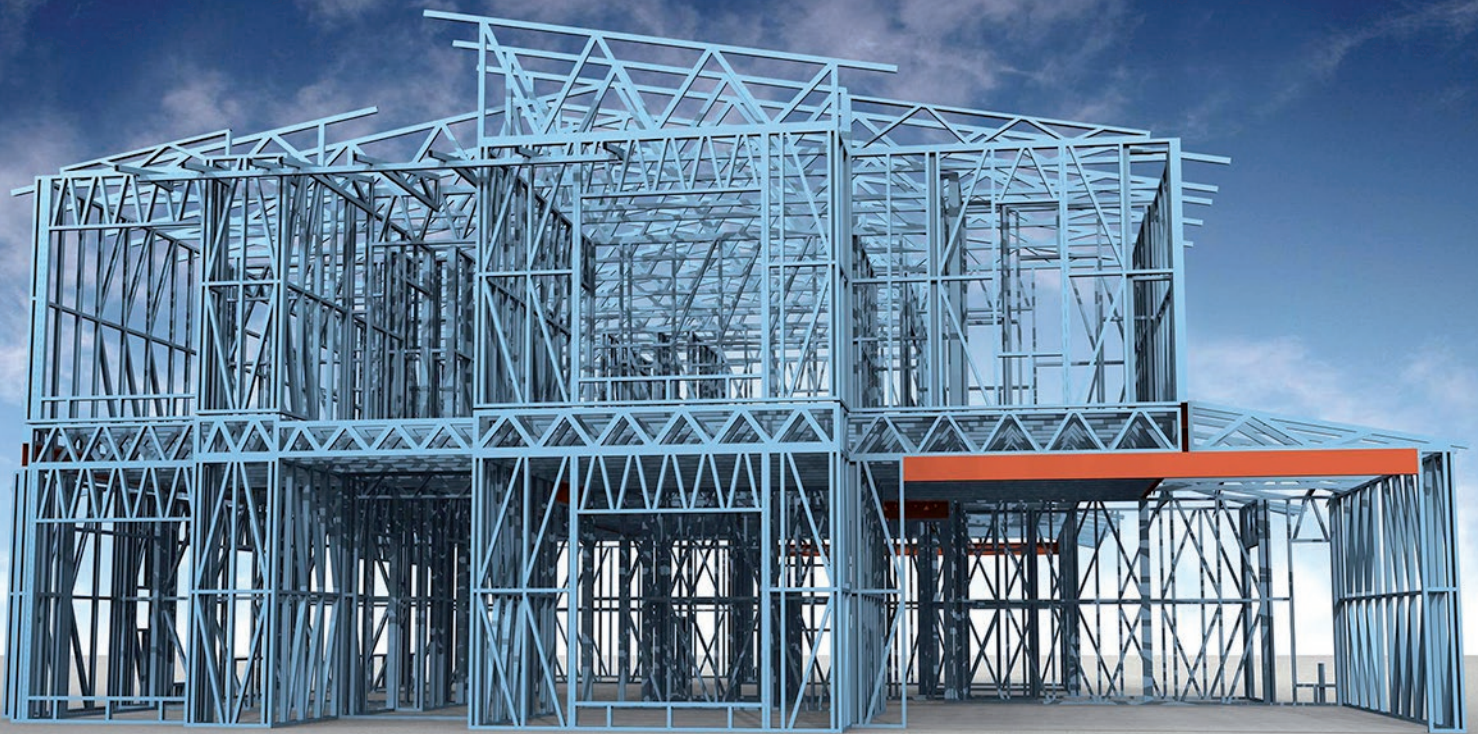


# VERTEX

## Global Vision

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Vertex BD 2015  
Smarter and faster with BIM



### QUEENSLAND STEEL HOUSE FRAMES

Steel house frames  
in 3D from detailing  
to production

### ANEBYHUSGRUPPEN

Timber house design  
with just one tool



V E R T E X   S Y S T E M S   O Y

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# VERTEX

Engineering  
software

Building

Interior

Mechanical

Electrical and Automation

Plant

Data management  
software

DesignStream

Flow

**Vertex Systems Oy** provides highly efficient software products for technical design and data management, as well as expert services.

**Vertex software** boosts the customer's business by improving the capacity of the design, sales and production teams.

**Vertex Systems** was founded in 1977 and it has exported over 8,000 software licences to 35 countries.

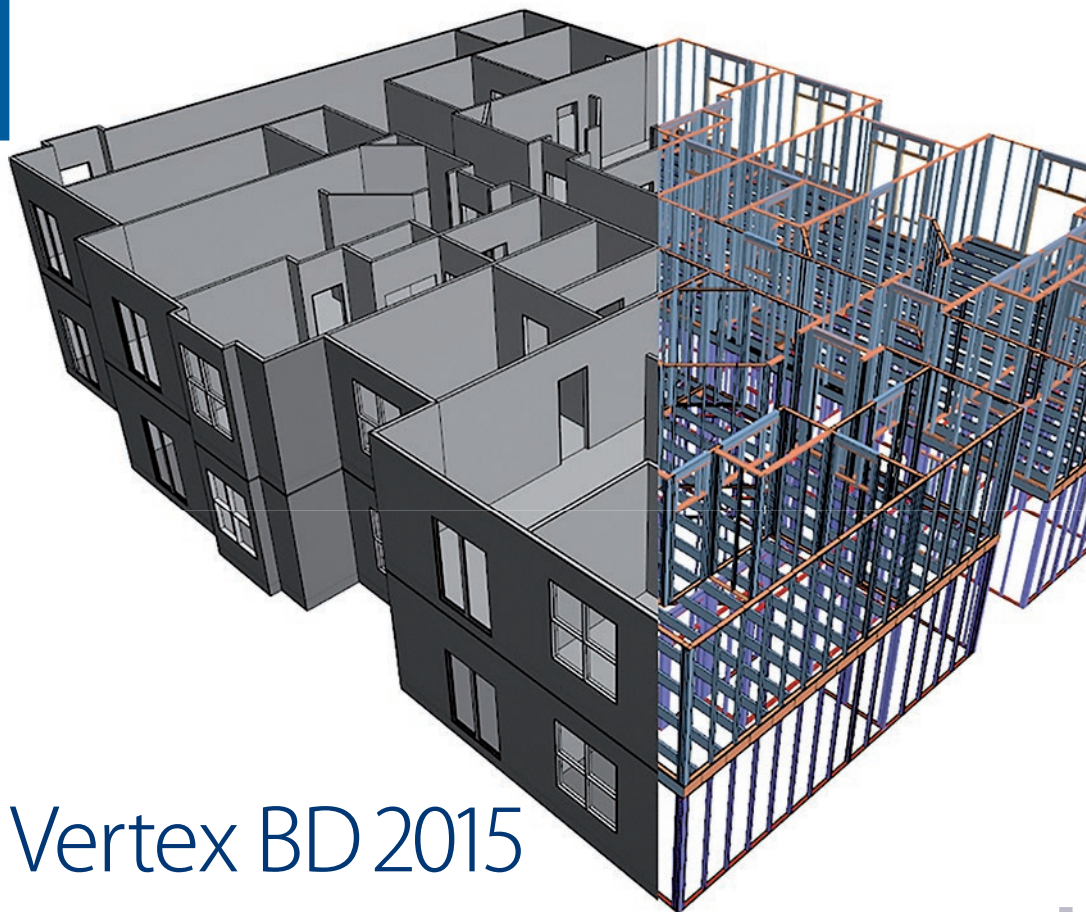


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## Vertex BD 2015

# Smarter and

**Intelligent features of the new Vertex BD version 2015 make the importing, converting and editing of different components easier. Unnecessary work phases can be left out – thanks to the new tools for IFC file conversion (Industry Foundation Classes) and truss engineering with Eurocode 3 support.**

**VERTEX BD**, a flexible BIM software platform for designing homes and light commercial buildings, continues to revolutionize the use of architectural drawings and models. The all-new IFC file conversion tool makes it possible to import architectural 3D models into Vertex BD from almost any architectural software. The IFC conversion tool streamlines the overall architectural design to framing process by converting IFC 3D model geometry into native Vertex 3D objects. Time-consuming trace-over and re-modeling phases can be skipped.

"Walls, floors, ceilings and roofs are converted to intelligent components, instead of plain geometry", explains Product Manager **Jukka Haho** from Vertex Systems.

"Overlapping work phases can be reduced remarkably when the existing architectural design can be used in frame design. The window placement, for example, has to be done only once", Mr. Haho clarifies.

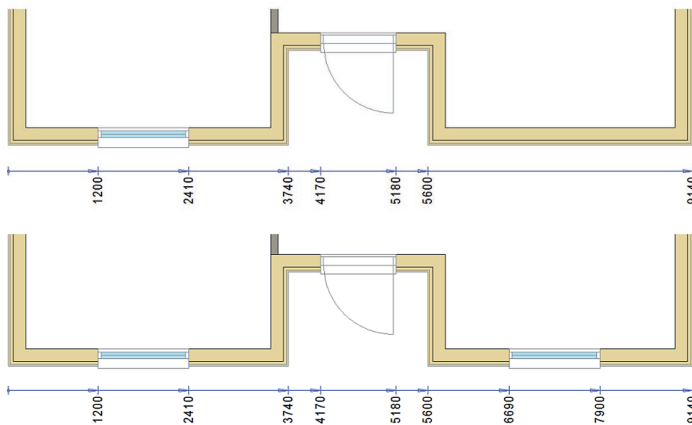
Demand for the IFC import has maintained high for the last couple of years in the market of technical design and data management.

"We will continue the further development of the conversion tool", Mr. Haho promises.

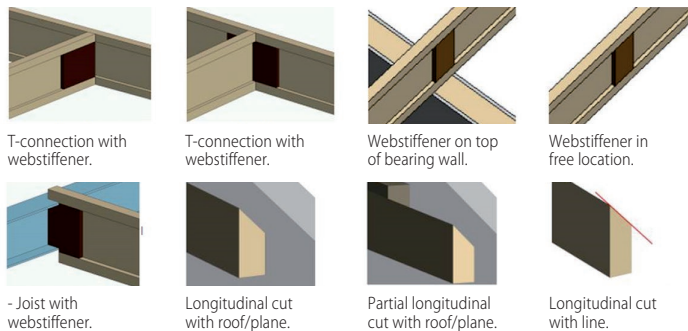
### Faster truss engineering with Eurocode 3 support

Checking the capacity of the truss has been made easy in Vertex BD 2015. The existing flexible and effective tools

Dimension chain before and after.



New framing connections.



## Other superior features

### More dimensions

New efficient tools for adding and removing dimensions to an existing dimension chain.

### Easy rendering

Creating HD quality renderings is very easy. Changing the rendered texture on any 3D object is now very simple: you can provide numerous color and material variations for your customers with just a few clicks.

### Project specific panel drawing templates

If needed, panel drawing templates can be customized and saved on a project-by-project basis.

# faster with BIM

for the generation of truss frames have been updated by a new truss engineering module, supporting the Eurocode 3 as a novelty. The strength of a truss can be checked using the module, and there is no need to transfer the structure into any other software.

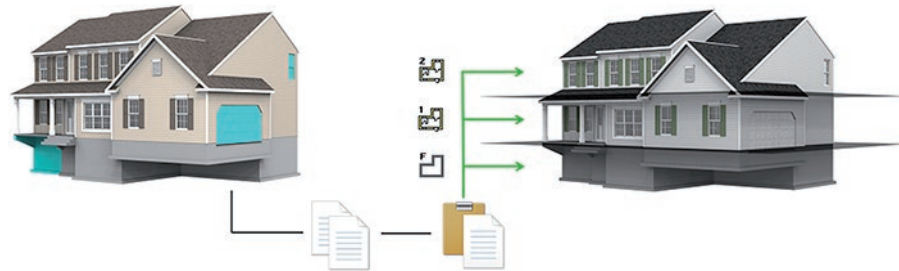
Eurocode 3 applies in the European market area. It is concerned with requirements for resistance, serviceability, durability and fire resistance of steel structures. There are national annexes for Eurocode. Vertex BD truss engineering module supports UK NAD.

"Like the IFC conversion, Eurocode support for the truss engineering module makes planning faster. No extra structure strength analysis is needed – just add loads and check capacity of the truss", Mr. Haho explains.

### Less routines with new copy functions

In addition to new tools for IFC and truss engineering, updated copy functions of Vertex BD have received an enthusiastic welcome. Copying objects between projects and building levels is smooth with the new intelligent features.

Using the function "Copy to Another floor" from the advanced menu, panels and parts can be copied to another level of the project, as well as between structures. Giving that the target location has a similar layout, the smart copy function knows how to connect the copied panels and parts to the structure in the new location, and apply the



connection types to the copied parts. The structures and parts can also be copied and pasted from one project to another, maintaining the original building levels and connections between parts.

### Six layers with one edit

Similar fluency applies to the new user-friendly interface for creating horizontal structures for floors, ceilings and roofs. The new visual interface makes it easy to create and edit floor, roof and ceiling libraries, as well as stretching the walls to a desired location.

With "3D Shaping" the wall shapes can be edited by moving wall layer edges, adding and deleting edge points, and by matching edge directions with other lines and planes.

"If there are six layers in a wall, it's possible to edit the whole wall shape instead of editing each layer separately. The design process is speeding up significantly", Mr. Haho summarizes. ■



# Building without scaffolding

Speeding up the construction process with prefabricated components

**Webo Joinery, an innovative joinery supplier in the Netherlands, is speeding up the construction process by releasing the constructor from the use of scaffolding. Partnership between Webo and the local Vertex distributor CAD Serviceburo brings along the flexible CAD/PDM software, making the design work and data management easier.**

**INNOVATIVE CONCEPTS** in the timber and wooden frame elements inspire Webo Joinery, a Dutch family business established in 1988. It has developed a methodology for building without scaffolding, based on prefabricated components. The methodology accelerates the construction process even by 80 percent, making it more efficient and sustainable.

"This is a smart solution with a high demand", describes Webo's director and owner **Willem Haase**.

"Traditional construction on the site will decrease significantly in the coming years", he estimates.

Building without scaffolding has been fully applied in practice in the course of the year. In Delft, Hoven Passage, three 84 meters high residential towers are under construction, using Webo's cladding panels. For the construction project of the new city hall of Deventer, Webo produced as many as 6,000 customized oak frames. Webo is responsible also for the engineering of the project's Building Information Modeling (BIM).

## Optimizing the process with Vertex BD

Webo's partnership with Vertex distributor CAD Serviceburo started last year, aiming to master the projects even better. Vertex BD, the



Webo manufactured the cladding panels for the three residential towers in Delft. The cladding panels were lifted by a crane and screwed to place from inside.



Webo delivers wooden frames, prefabricated elements and components for residential and public construction. The new city hall of Deventer is one of the latest projects of the company.

flexible CAD/PDM software platform, allows to connect the design phase with the rest of the business processes. It enables the control over the construction data, estimates, margins, and other features. Mr. Haase is satisfied with the comprehensive software.

"Details of complex projects can be mastered better, which reduces failures and unnecessary expenses to the minimum. Designing with 3D software enables us to work more efficiently and respond to our clients' needs", Mr. Haase tells.

In addition to the latest technology, Webo has recently invested in its personnel. The whole staff follows a "Lean initiative", aiming to optimize the business processes. Constant development is a key strategy for Webo.

"We want to do it in another way – better", Mr. Haase summarizes. ■

# Delivering the promises

"The software reaches even 99.9% accuracy, reports one of our customers"



**"Don't we all have more time to spend doing the things we care about – instead of fixing the mistakes", writes Pekka Moilanen, President of Argos Systems.**

**IN FINLAND, WHERE I COME FROM**, we mean what we say. So when I tell you that I have a way to save design time and reduce construction errors at the same time, I mean it.

Let me explain.

It is a day for framing, and the walls have been delivered. However, several of them come in a wrong size. If you are building an apartment building or a hotel, we are talking about hundreds of walls. The entire project slows down and expenses rise while the crew works to fix the problems on-site.

That means time and money down the drain.

The error was made on the design table, and that is where my solution fits in, too.

Vertex BD as an automated computer-aided design software is a key to tackle this challenge. It allows you to set the framing rules and wall properties, such as profile sizes and spacing, corner details and more, and the software automatically generates the wall panel shop drawings. It manages the floors, roofs and ceilings, too. As a result, the entire design process becomes faster.

Missing a single component and ending up with costly delays

– way too easy with the traditional CAD design software – will be ruled out.

Another notable feature in Vertex BD is the possibility to edit the whole wall shape instead of working with each layer separately. Problems usually occur when a change is applied to an architectural plan, concerning things like window sizes or types. Without an automated program, the designer must update hundreds of wall panel drawings manually to match the plan, increasing the odds for human error.

Vertex BD will not only automatically update the drawings quickly, all at one time, but does the job very accurately. In fact, one of our customers reports that the software reaches even 99.9% accuracy. In the end of the day we all have more time to spend doing the things we care about – and not fixing the mistakes. ■

**Pekka Moilanen**

President,  
Argos Systems Inc,  
Vertex sales unit in the USA



# Unlimited demand of steel frame buildings



**Dubai-based PinnacleLGS manufactures sophisticated framing machines with intelligent design software, and offers customer support in cooperation with Vertex Systems.**

**THE GLOBAL COMPANY** PinnacleLGS offers a totally integrated design to production solution for multi-storey and low-rise residential homes, as well as for modular and industrial buildings. Under the brand Pinnacle LGS the company offers Vertex software integrated into its framing machines for the light gauge steel building industry.

PinnacleLGS is one of the world's leading cold formed steel technology providers, serving major construction companies and pre-fabrication building manufacturers by offering a seamless process from design to production. Integrating the software with the machines has contributed towards PinnacleLGS' success.

## Efficient customer support through cooperation

PinnacleLGS' products are available globally from its offices in Dubai, Miami and Taiwan. The roll forming machines are manufactured in the Taiwan factory, and shipped to customers all over the world. Vertex Systems and PinnacleLGS cooperate in providing efficient customer support through a combined network of global offices. The customer requests can be dealt with rapidly, and with the latest support tools and technologies.

## Responding the needs of global customers

"We are using one of the best design software in the world in our highly capable and efficient framing machines as a part of the smart and intelligent building system", says Mr. **Charles Chan**, Managing Director of PinnacleLGS. According to Mr. Chan, there is an unlimited demand of steel frame buildings all around the world, especially in Asia and Africa.

"Knowing various framing software in North America and Australia, we found Vertex the most suitable option for our

requirements in the offering of efficient and productive design tools to our worldwide clients", he adds. Vertex was chosen mainly for its superior architectural and 3D features. "Our own design and engineering departments use it at full scale, and the sales department for marketing purposes."

## Sourcing on behalf of the customer

PinnacleLGS provides also support services for sourcing building material on a global basis. "Clients can get major cost advantage on all the materials for their job", Mr. Chan explains. The global sources of materials include e.g. steel coil, cladding, fasteners, roofing, flooring and insulation products.

In the future, PinnacleLGS plans to invest in continuous R&D of software, machines and building finishing methods. "We expect a rapid expansion in Southeast Asia." ■





# Metal framing with a lightweight design

Competitive edge with a high level of customer service



**Light Gauge Steel Framing, LGSF, based in North Yorkshire, UK, designs and builds metal framing that combines structural strength with a lightweight design.**

**LGSF SUPPLIES** bundled, paneled and modular systems for residential, commercial and industrial constructions, being one of the major suppliers to the largest light gauge steel frame users in the UK.

## **Easy import and export of any file format**

Vertex has made the design job easier in several ways. According to Mr. **Ian Cade**, Technical Director at LGSF, the

3D environment allows a smooth design development process between the company and the customers. LGSF is also satisfied with the importing and exporting of various file formats, including IFC, allowing effortless cross-checking of associated building elements with other suppliers and designers.

## **From repetitive tasks into a mouse click**

"With help of the Vertex development team, we can customize the software to incorporate our bespoke design elements, reducing repetitive and time-consuming design tasks into a single mouse click", Mr. Cade explains.

"Our development as a company has benefited greatly from using Vertex software, especially from having the local support team to assist with our development and queries", he adds.

## **Growing business**

LGSF has experience in several AutoCAD products, but was first introduced to Vertex when buying a new framing machine. Today, Vertex is used in presales, project drafting and design development, as well as in creating production and assembly drawings.

The company is growing with a new facility of 24,000 square feet, and is preparing a new product launch for the third quarter of 2015. "Our success is based on attention to detail and the ability to respond to our customers' requests and requirements quickly. The loyalty of our valued customers has been won by supplying quality products at a fair market price", Mr. Cade explains. ■



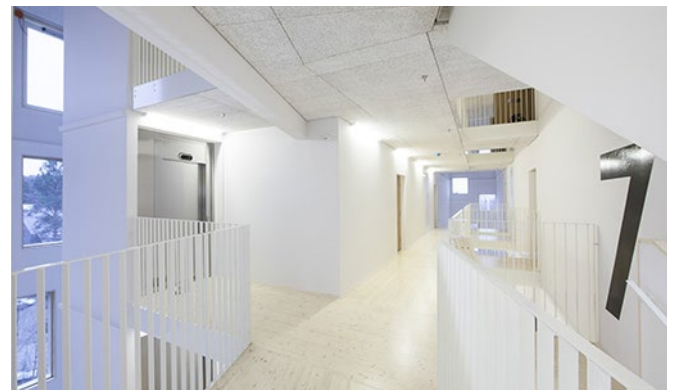


# Wood construction with speed

Combining environmental awareness with business acumen creates a growing demand for wood construction. The sector has become more competitive through Cross Laminated Timber (CLT) wood panel production, enabling a cost-efficient assembly of multi-storey timber buildings.

**THE ECOLOGICAL ARGUMENTS** for wood as a construction material are undeniable: it significantly reduces the CO<sub>2</sub> emissions of the construction industry. Growing wood binds carbon dioxide from the air, turning timber buildings into long-term carbon stores. Timber is the only renewable building material suitable for load-bearing structures in large buildings.

In addition to the positive environmental impact, competitiveness is required to guarantee the growth. In wood construction this has been improved through the use of CLT.







The Finnish-Swedish forest industry company Stora Enso manufactures CLT wood panels for fast and easy construction of multi-storey timber buildings. The wood panel is a massive wood construction product, consisting of bonded single-layer panels arranged at right angles to one another.

### Structure library in Vertex

Stora Enso manufactures CLT in Austria and further processes it as construction modules in Finland. A separate CLT structure library has been introduced in Vertex, and it is now being sold also to other design companies interested in cross-laminated timber construction.

The wood panels enable a cost-efficient construction of modules, i.e. parts of an apartment prefabricated in factory premises, and consisting of several rooms. This has made speed one of the assets in wood construction.

'With the CLT wood modules, a two-storey building of eight flats can be completed in just four weeks. Completing an eight-storey residential timber building with the modules takes only about six months, an equivalent concrete building more than a year,' says **Janne Manninen**, Sales Director at Stora Enso Building Solutions.

### Doubling the growth

Due to the availability of wood raw material and the strong position of the forest industry, the number of multi-storey residential timber buildings in Finland is growing rapidly. Last year, around 500 multi-storey residential timber buildings were constructed in the country, and the figure is expected to double in 2015.

The growth prospects are encouraging also elsewhere in Europe, where forested areas are increasing in size. Currently wood accounts for only less than a tenth of all construction in Europe. Wood construction has markets especially in the Western Europe, where erected, prefabricated products are widely in use. ■



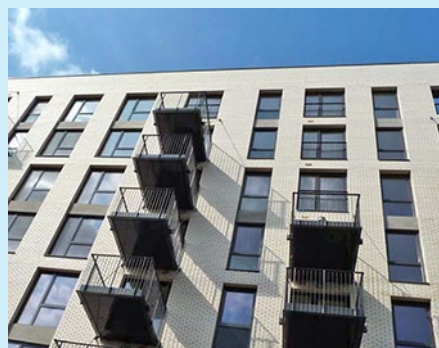
## CLT (Cross Laminated Timber)

Stora Enso's CLT is a massive wood construction product consisting of bonded single-layer panels arranged at right angles to one another. A CLT panel can measure up to 2.95 meters in width and 16 meters in length. CLT solid wood panels are made of several layers and are available in different thicknesses depending on the structural requirements.

The layers are bonded together using a formaldehyde-free and environmentally-friendly adhesive which makes up less than 1% of the entire product.

Panels can be further produced as modules; pre-fabricated parts of an apartment combined together at the construction site.

## Small carbon footprint matters in UK



One of Stora Enso's interesting wood construction projects in the UK is Bridport House, the first building in the country built fully with CLT from bottom to top floor. The eight-storey building,

consisting of 41 maisonettes and apartments, was built in just twelve weeks.

Bridport House stands as an example of wood's ecological footprint. A report by Cambridge University Engineering Department shows that if the house would have been built of another material, 892 tonnes more carbon would have been embodied. This equals to the energy required to heat and light all the dwellings in the house for 12 years.

# Zero problems on the site

The new IFC file conversion tool (Industry Foundation Classes) is receiving good feedback in Norway. The possibility to fix potential problems on the drawing board instead of the construction site has been welcomed in projects of all sizes.

**THE IFC FILE CONVERSION TOOL** brings benefits in joint projects where several companies and different CAD programs are involved, says **Ole K. Øverland** from Vertex Systems AS in Norway.

The all-new IFC tool enables importing of architectural 3D models into Vertex BD from almost any architectural software. Converted IFC components can be edited in Vertex BD, and framing rules can be applied and run on the converted components.

Øverland gives practical examples from the customer's projects in Norway. "When trusses are imported from another software like Trusscon, walls can easily be observed, and rafters trimmed. In some cases, customers want the chases for ventilation to be cut in the factory. Imported IFC model of ventilation has been used in such cases."

The exact storey and floor heights or thicknesses of layers may also differ from the architectural models and final drawings. According to customer experience, quite a few changes are typically done in the late stages of the construction projects. That's where IFC flexes.

"The IFC tool helps to notice differences, uncover problems on the drawing board, and avoid expensive corrections on site", Mr. Øverland summarizes. ■



Advanced 3D models have been used to plan the special details, such as an underground bunker and a garage, for this historical building.





# Quality homes with just one tool

Expanding the use of Vertex for every designer



The Swedish building company Anebyhusgruppen manufactures single-family houses from timber-frame panels. The company acts also as a builder in area projects, and delivers houses for the innovative BoKlok concept created by IKEA and Skanska. Vertex BD has been used for architectural design for over ten years.



## Picking out the strongest through pilot testing

The previous AutoCAD 2D software used did not meet the requirements of the new way of designing houses, and was to be replaced with a modern 3D Building Information Model (BIM) based system. During a six months' pilot project period, products of eight software vendors were vastly tested in the daily operations. Vertex BD, complemented with the Design-Stream (DS) product data management system, was one of the contestants.

"After the pilot period, all designers shared the opinion that Vertex was the most suitable solution. We appreciate the development resources, wide knowledge of the industrialized house building branch, and a comprehensive solution from the first drafts to the data sent to our production and ERP system. One tool really does it all, as Vertex slogan mentions", says Mr. **Joachim Svedin**, R&D Manager in Anebyhusgruppen.



## Ready for the future

By the beginning of 2016, all of the designers in the company are going to use Vertex BD for both architectural and structural design, and Vertex DS for product data management.

"Anebyhusgruppen is one of leading industrialized house builders in Sweden, which makes this agreement a significant markup for Vertex in expanding in the Swedish house builder market. In the near future, BIM will be widely used in this business. Choosing Vertex enables Anebyhusgruppen to work with a future solution today", says Mr. **Santeri Pyhäniemi**, Sales Manager at Vertex Systems responsible for the Nordic and Baltic countries. ■

# Local support for the growing market

New users of Vertex BD, Mekos Stroy and LLC ZSMK, are pursuing growth in the Russian low-rise construction market, utilizing modern LGS technology. Time-saving design functions suit well for projects in demanding conditions.

**MEKOS STROY**, one of the leading local manufacturers of concrete mold systems and components, has another firm footstep in building design. The company offers a wide range of design services from turnkey LGS buildings to the development of construction projects in the industrial and agricultural sectors.

The increasing demand for the innovative design solutions in Russia keeps the company in good speed. Mekos Stroy is pursuing growth within light gauge steel construction (LGS), typically ideal for low to mid-rise construction.

## New opportunities for design

Vertex BD, a leading software for LGS construction, was chosen by Mekos because of the time-saving and highly automated design functions. Utilizing BIM (Building Information Modeling) technology, Vertex BD maximizes productivity and accuracy by generating architectural and structural drawing sets, fabrication drawings and material reports, all from a single building model.

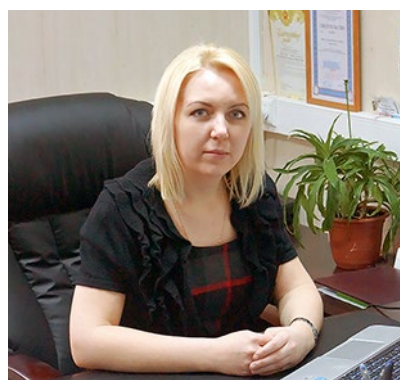
"Vertex software allows us to complete the design projects effectively and with maximum accuracy. It is also bringing us new opportunities in architecture and engineering design", comments **Irina Saricheva**, Chief Designer in Mekos.

Vertex's presence in Russia was another important factor for Mekos when choosing the new software.

"We wanted to be assured that Vertex's developers and technical support can respond to our request without delays", Saricheva explains.

## Best tools for Northern conditions

Vertex's local presence is appreciated also by the Russian LGS building manufacturer LLC ZSMK. The company operates in the remote region of Yakutia, with long distances and harsh weather conditions. This brings in special requirements for the technologies and tools. The company combines Howick rollforming equipment with Vertex BD software.



Vertex BD was chosen due to the time-saving and highly automated design functions, says CEO Tatiana Obolenskaya, in Mekos Stroy.

"LGS building technology suits well for the Northern conditions. Steel framing reduces the need of wet processes, as well as lowers the transportation costs to remote project areas", explains **Oleg Koryakin**, CEO of ZSMK.

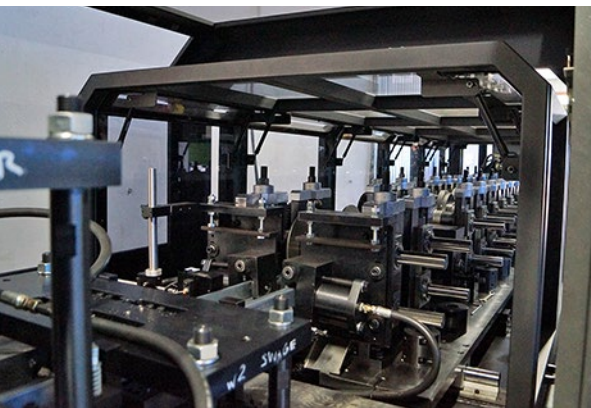
## Simple interface boosts learning

The company's increasing business activities in Yakutia include the construction of private homes, cottages and small commercial facilities on turnkey basis. The high requirements for architectural design and material calculations resulted in choosing Vertex BD. Recommendation by a supplier in New Zealand made a good contribution for the software choice.

"The speed of the design processes and automated generation of LGS structures are very useful in our projects. The simple interface and intuitive functionalities make it easy to train our engineers to use the software", Koryakin comments.

"Technical support in Russian is also important for us. We are satisfied with the local Vertex office and appreciate their know-how. It feels safe to undertake projects of any complexity." ■







Brisbane-based Queensland Steel House Frames has provided steel frames, floor systems and trusses for Australian builders since 2013. The company specializes in steel frames that are easy and quick to install, saving time and money on the site.

# Perfect steel house frames with 3D modelling

“Walking through” every room before production

**QUEENSLAND STEEL HOUSE FRAMES** serves large-volume and individual builders in the Eastern states of Queensland and New South Wales. “The secret to the company’s success lies in producing attractive and strong steel frames for residential housing, and doing it well instead of branching into other areas”, says **Brett Smith**, the owner and director of Queensland Steel House Frames.

## 3D capabilities with local support

Mr. Smith was recommended to use Vertex software alongside the machines, because the 3D capability of the software makes the detailing of the houses much easier.

“The Vertex software package was very attractive: it was easy to use and had the 3D capability of showing exactly how the frame and the steel house is going to be manufactured. Having local support here in Australia, rather than accessing the software from overseas and having the backup service, is very much an advantage.”

The steel house frames are designed by carpenters for carpenters.

## From detailing to production

The company uses Vertex for everything from detailing to production. According to Mr. Smith, Vertex makes communicating with clients easy: they can see on the computer what the house will look like before it is sent to the site.

“We can check the design with our clients and show them the way we have detailed it. It gives us an advantage in that regard.”







After the whole building is detailed, production information is sent directly to three different rollformers.

### Doing things right with professional pride

Queensland Steel House Frames wants to do things right the first time, and Mr. Smith says using Vertex helps in providing accurate designs.

“Vertex allows us to double-check every single wall or truss, as if you actually were on the site looking at the house. It stops us from making mistakes and having things sent to the site incorrectly”, he says.

Prior to Queensland Steel House Frames, Mr. Smith used to work as a carpenter for 10 years. After finishing a house, he used to walk through every single room to make sure everything was completed correctly. He still uses the same principle, but now it can be done with Vertex.

“We basically walk through every room of the house, and with the help of our 3D modelling, we check that everything is designed properly”, he adds. ■

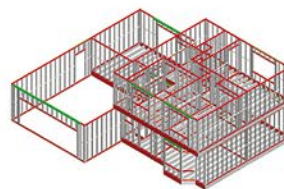
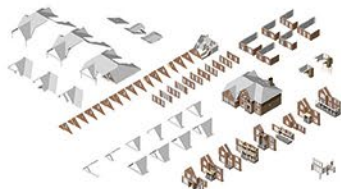






# Streamline your house project

Sales – Design – Production – Assembly



Vertex Systems is a global supplier of industry-specific CAD/PDM software solutions.

Vertex software solutions create added value to customers' business by streamlining the processes in sales, design, production and assembly.

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