VST BUILDING TECHNOLOGIES AG

Setting New Standards

VST GROUP

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Dear Sir or Madam,

Sustainability in construction and cost efficiency are not a contradiction in terms. With the patented technology of VST BUILDING TECHNOLGIES AG, building owners meet the latest energy efficiency standards and can significantly reduce the construction time of their projects at the same time. The renewable raw material wood is the main component of our products, a VST assembly team on the construction site usually consists of only 5 people. With our prefabricated formwork elements, we are defining new standards and industrializing building construction on an increasingly digitized basis.

We manufacture the VST elements automatically in our own factory, precisely tailored to individual requirements and design concepts. Accordingly,

VST BUILDING TECHNOLOGIES is your innovative and reliable partner. Our customer base is international - from private builders to large European companies. We offer everyone a range of services from project planning and building statics to the production of composite formwork elements and their assembly and concreting on the construction site. In addition, one of the most innovative general contractors in Europe is part of our group. The shares of VST BUILDING TECHNOLGIES AG are traded on the stock exchanges in Frankfurt, Vienna and Munich.

We look forward to introducing you to our company, our technology and our portfolio in more detail in this brochure.

The Company

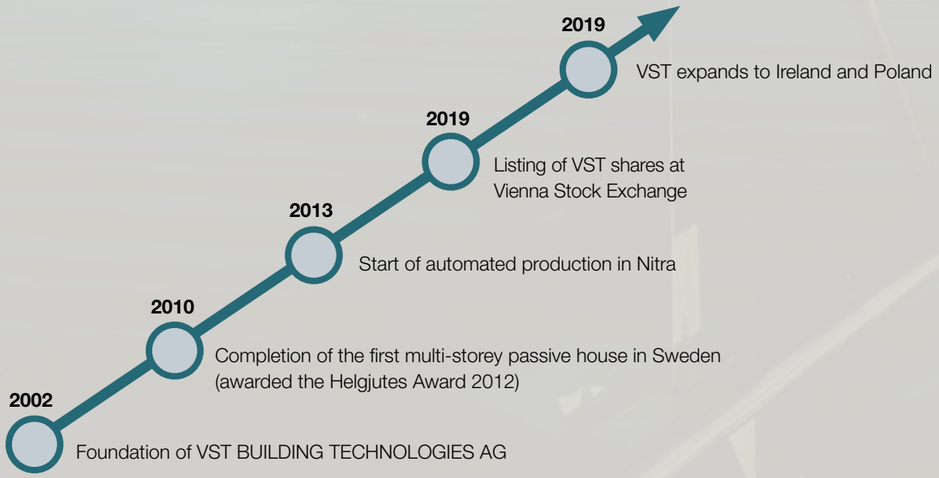
Our mission, vision & ambition

Vision
We want to offer affordable and sustainable living space for future generations.

Ambition
Our enthusiasm for the common goal drives us forward.

Mission
We develop sustainable and resource-saving building components.

Selected milestones



Business areas & services

Sales and distribution of VST elements, planning

- sales and delivery of VST elements
- planning services
- granting of distribution licenses

Construction activity on the basis of VST elements

- assembly & shell construction in connection with VST elements
- construction work through to turnkey objects

Technology transfer and sales of manufacturing plants

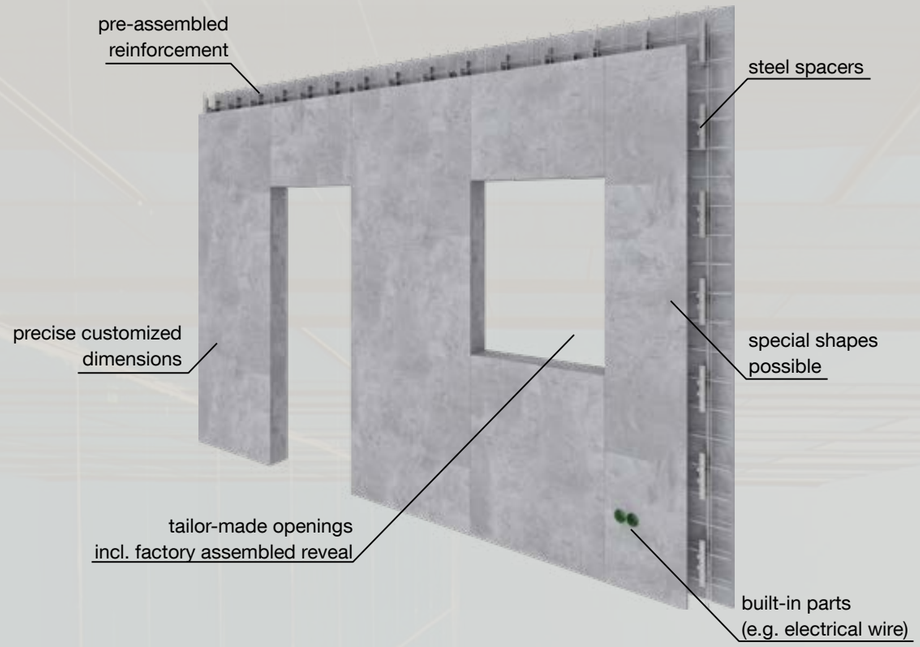
- sales, delivery and assembly of VST manufacturing plants to clients inside and outside Europe
- know-how transfer
- granting of geographically limited licenses; industrial property rights remain the property of VST group

VST Technology

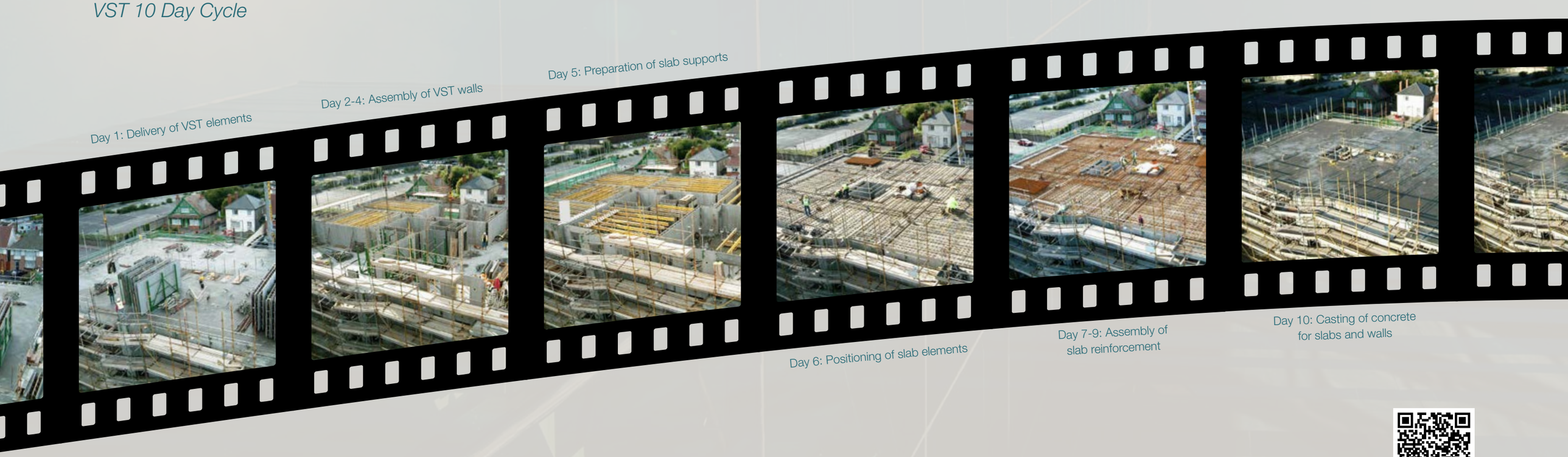
With VST, time is on your side

The innovative VST (translated: composite formwork technology) elements are made of 24mm thick cement-bonded particle boards which consist of 70% wooden particles and 30% cement. The industrially prefabricated VST elements are designed individually according to the costumer's individual requirements. Throughout the industrial prefabrication process, the highest precision is guaranteed. At the construction site, the work is limited to the assembly and concreting of the elements. After this process, the concrete core connects permanently with the particle boards. This means that the VST components form the composite shell which remains as a so-called "permanent formwork" in the construction. Because of the low weight of the VST elements, one truck can load up to 190m² of VST walls or 490m² VST slabs. Therefore, the VST plant in Nitra has a delivery radius of up to 2,000km.

Key Features



VST 10 Day Cycle



Watch a full installation process at
https://www.youtube.com/watch?v=1-KtSkrFh0Q

Advantages of VST Technology

The quick formwork system for humans...

Architectural flexibility

A good building system should not restrict the customers, but rather support them in the implementation of their ideas. With the VST system, you get every element made to measure to the millimeter according to your wishes. Special elements such as round designs are also possible. Thanks to VST, there are no limits to your imagination.

Buildings erected with VST technology have been awarded architecture prizes.

Cost effective

Due to the relocation of work steps to the VST plant, these steps no longer have to be done on site. Due to the shorter construction time, the costs for site maintenance are lower. The number of workers required on the construction site is also considerably reduced, which is becoming an increasingly significant advantage due to the shortage of skilled workers and rising wage costs. For example, a VST assembly team consists of only 5 people.

Due to the high energy efficiency of VST buildings, operating costs will continue to be saved after completion.

Short construction times

Due to the high degree of industrial prefabrication and the elimination of the formwork process (lost formwork: the concrete combines with the formwork elements that become part of the building), the construction time can be reduced by up to 50% compared to other construction methods. The risk of unexpected delays on the construction site, for example, due to bad weather conditions, is also minimised. With VST, the completion of a raw superstructure storey only takes 10 days on average.

Compatibility

The VST system is compatible with construction methods such as in-situ concrete and precast concrete parts. For examplfe. a VST light or air duct can also be retrofitted, or the VST roof dormer can be used as a supplement to the brick construction. A combination with timber construction components is also possible.

Fireproof

Due to the non-combustible components of the cement-bound flat pressed panels and the concrete core, a high degree of fire protecton is provided. Certain of the fire protection standards are also used as fire protection walls and elevator shafts.

Ready to paint surfaces

The VST-elements have a smooth, ready-to-paint surface. A full-surface filling or plastering can therefore be omitted. Only in the area of the panel joints is a painter's structure (filler, reinforcement, primer, paint) to be applied.

Monolithic

VST buildings are reinforced concrete structures, which have a monolithic concrete core (i.e., the concrete core extends unitary throughout the entire building). This is not only an important factor for high air tightness and energy efficiency, but also increases the stability and thus the resistance of a building – also to the accidental loads such as earthquakes.

...and nature

Safety and cleanliness

By relocating many work steps to the secure environment of the VST factory, not only is construction site safety increased, but due to the high degree of prefabrication and the composite formwork of the VST technology, it is possible to reduce construction site waste to a minimum.

High energy efficiency

The VST technology is a monolithic construction and therefore, has a high level of airtightness whereby heating and cooling costs can be saved. In addition, the cement-bonded flat pressed panels have a heat-insulating effect compared to concrete. The energy-saving construction of the VST technology is confirmed by the passive house certification.

Mould and pest resistance

The basic product of VST elements, the cement-bonded particle board, has a high PH value of approx. 12, which excludes mould growth. This means that VST products can also be used in wet rooms. Due to the cement content in the boards, VST elements are absolutely resistant to termites and pests.

Green Building

The shortcut to your passive house

The term “passive house” describes a building standard. This standard is achieved through the use of various building methods, construction designs and building materials, and is a further development of the Low-Energy House standards. The term “passive house” refers to a building that provides a comfortable indoor climate, in summer and in winter, without using a conventional heating system. The annual heating demand must not exceed 15kWh/(m²a). The remaining heating requirement is supplied by warming the air current flowing through the existing ventilation system.

Passive houses require about 75% less heating than buildings constructed in line with the German Heat Insulation Regulations of 1995 (Wärmeschutzverordnung 1995). The passive house is named as such because the heat required to maintain a pleasant indoor climate during heating time is, for the most part, sourced from sunlight let in through the windows and the thermal output of household appliances and residents. All other energy demands, particularly electricity for household appliances (to name but one area) should be kept to a minimum in passive houses by using energy efficient technologies.

Sustainable Building with VST

In addition to energy-saving, green building also includes resource-saving construction. With our system, we value the use of environmentally friendly and sustainable materials. With wood as the main component of our composite formwork panels, we promote the use of a renewable raw material. Wood is a true master of sustainability, because it is not only durable and environmentally friendly to process, but also breaks down CO_2 and other greenhouse gases while it is growing.

The transport industry is the second largest emitter of CO_2. The low weight means that far fewer transport routes are required. Our elements are only filled on site with locally sourced concrete and long journeys can be reduced to a minimum.

A resource-saving construction method goes hand in hand with the avoidance of waste. 30% of Swedish waste comes from the construction industry. With our technology, a large part of the construction site waste is avoided because the formwork becomes part of the building after being connected to the concrete core, and does not have to be disposed of. In this way, the waste can be reduced to up to 5m³ with a construction time of 4 weeks. In addition, cut-outs and leftover pieces are reused as far as possible in our plant in Nitra.

CERTIFICATE

Certified Passive House Component

ID: 0371cs03 valid until 31. December 2021

Passive House Institute
Dr. Wolfgang Feist
64342 Darmstadt
GERMANY

Category: **Construction system | Solid construction**
Manufacturer: **VST BUILDING TECHNOLOGIES AG**
LEOPOLDSDORF
AUSTRIA
Product name: **VST Passive House Formwork System**

This certificate for the cool, temperate climate zone was awarded based on the following criteria

Hygiene criterion
The minimum temperature factor of the interior surfaces is $f_{Rsi=0,25m²K/W} \geq$ **0,70**

Comfort criterion
The U-value of the installed windows is $U_{W,i} \leq$ **0,85** W/(m²K)

Efficiency criteria
Heat transfer coefficient of building envelope $U^*f_{PHI} \leq$ **0,15** W/(m²K)
Temperaturfactor of opaque junctions $f_{Rsi=0,25m²K/W} \geq$ **0,86**
Thermal bridge free design for key connection details $\Psi \leq$ **0,01** W/(m²K)

An airtightness concept for all components and connection details was provided.

cool, temperate climate
ZERTIFIZIERTE KOMPONENTE
Passive House Institute

cool, temperate climate
www.passivehouse.com

epddanmark

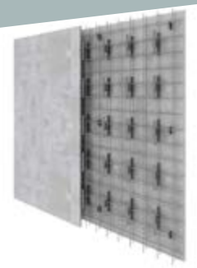
EPD EN 15804 VERIFIED

Owner: VST BUILDING TECHNOLOGIES AG
No.: MD-20028-EN
ECO EPD: 00001341
Issued: 21-09-2020
Valid to: 21-09-2025

3rd PARTY **VERIFIED**

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | **ISO 14025 & EN 15804**

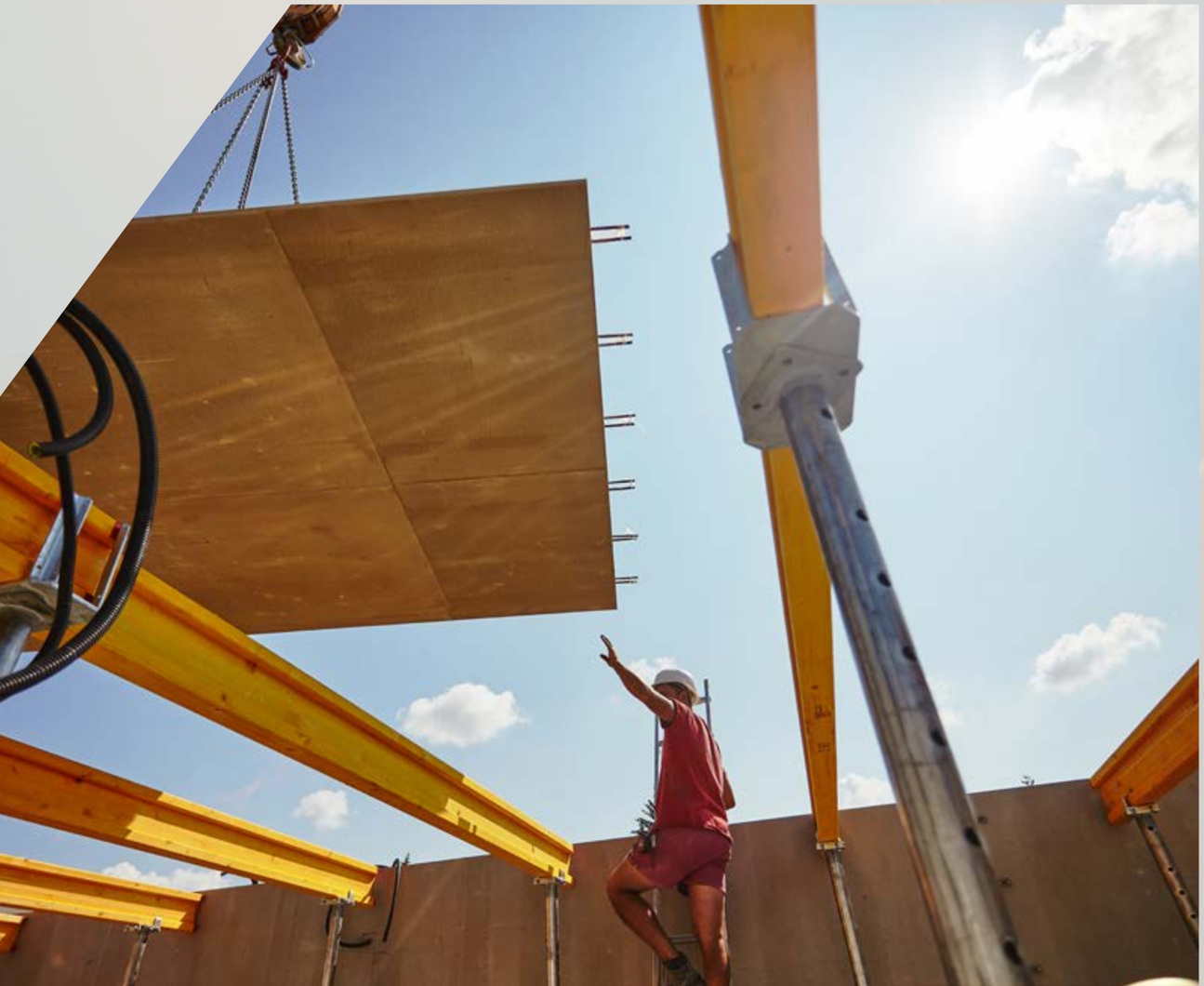


VST Construction Components

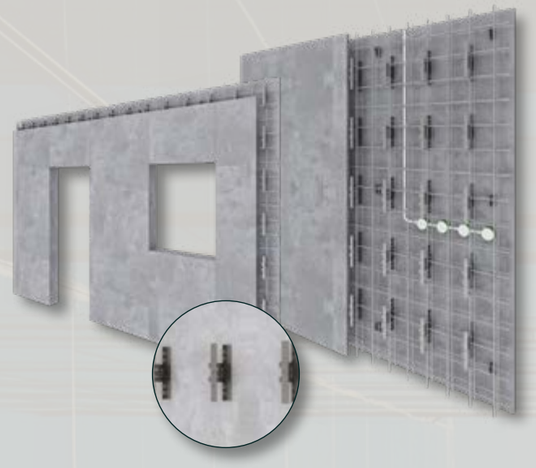
Start finished and precise

VST construction components meet the highest quality requirements, have a significantly lower weight compared to conventional concrete elements and are characterized by simple and quick assembly. The high degree of prefabrication shortens the construction time without restricting the building owner‘s freedom of design.

VST BUILDING TECHNOLOGIES AG‘s patented composite formwork system is suitable for all load-bearing and non-load-bearing structures. Construction elements such as walls (vertical or inclined), slabs (horizontal or inclined), columns, beams, stairs and special elements are tailor-made.



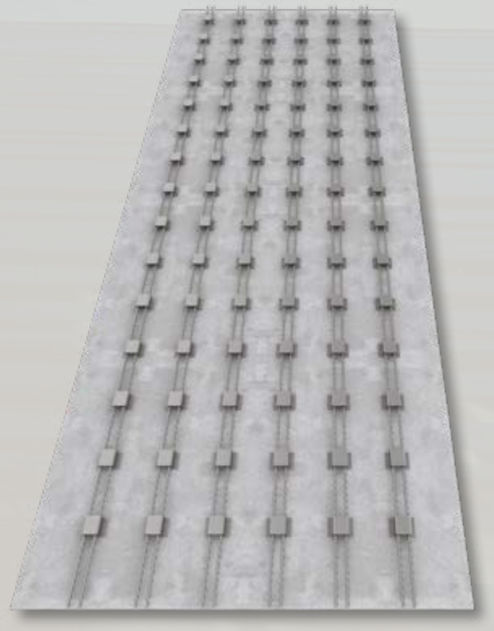
VST wall



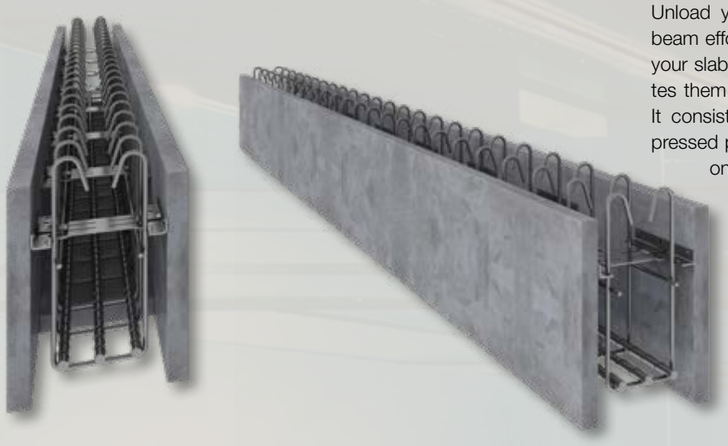
With the VST wall, there are no limits to your creativity. The element, which consists of two 24mm thick cement-bonded flat pressed panels, is tailor-made to your needs. Round designs and special shapes are possible. For a smooth installation on the construction site, all steel reinforcements are installed at the factory and all types of openings and installations (e.g. empty electrical piping) are prefabricated. The VST wall only has to be concreted on site and after the concrete core has hardened, it can also be used as a load-bearing wall both indoors and outdoors. This is how you build cleanly and quickly.

VST slab

The VST roof is the quick completion of your shell. In no time at all, the cement-bonded flap press panels with special steel hat profile supports installed at the factory, are delivered and installed. On the construction site, only the formwork elements are placed on a conventional ceiling support and then concreted after the on-site reinforcement has been installed. The height of the hat profiles is 50mm and the total thickness of the ceiling element is 75mm (regardless of the thickness of the concrete layer). Breakthroughs and openings for the VST ceiling are also carried out in the factory to allow you a simple and smooth installation process.



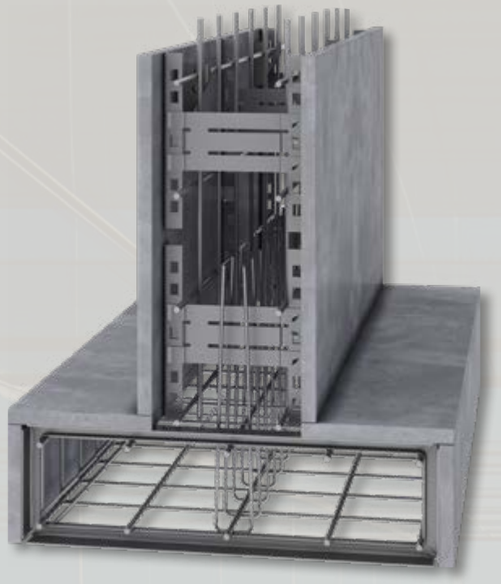
VST beam



Unload your ballast with us! The VST beam effortlessly absorbs the load from your slabs, arches or walls and dissipates them in a statically meaningful way. It consists of three cement-bound flat pressed plates, which are connected to one another by spacers or metal brackets, as well as the factory-fitted reinforcement.

The dimensions of the VST beam can be selected and even with its maximum length of 13m it is strong enough to carry any dream home.

VST base



The VST base provides the solid basis for your building. It is constructed in the same way as the VST wall, this means it also consists of cement-bound particle boards, which are connected to one another by steel clips, as well as factory-installed reinforcements.

As a fence base, the VST base can be supplied with or without side shuttering - depending on whether it is connected to other elements or whether it is freestanding.

VST stairs

The VST stairs can be easily installed right from the start of the construction work. This not only saves you annoying emergency solutions but also increases safety.

The stringers and undersides of the VST staircase are made of cement-bound particle boards, the risers are made of wooden formwork. As with all of our VST elements, the reinforcement is already installed at the factory and you don‘t have to do any additional work. After moving the stairs, they only need to be filled with concrete and the wooden formwork is removed after the concrete has hardened. You can then cover, plaster or tile your stairs as you wish. The VST stairs are suitable for both indoor and outdoor use and are entirely tailored to your needs.

VST column

Whether for static or visual reasons - with the VST column you are always advised correctly. With a maximum circumference of 2.8m, it can withstand any challenge. In addition, the VST columns can be combined with punching heads, which increase the resistance to punching.

The VST column is installed quickly, easily assembled and after concreting, is fully integrated into the building.

VST roof dormer

With the VST roof dormer you can use every centimeter of your building. Regardless of whether it has a single or double kink, the VST roof dormer comes to your construction site tailor-made to your wishes and needs, eliminating annoying and time-consuming formwork construction on site. The factory-made window cut-out also guarantees that the glazing can be precisely fitted, so you do not have to be prepared for nasty surprises and laborious adjustments.

VST formwork & reveal

With VST formwork, you can give free rein to your inspiration. The 24mm thick cement-bound particle boards, which serves as the basis for all VST elements, can be used as formwork (composite shuttering or shuttering) or as an independent element, e.g., for raised beds or non-load bearing elements. Indoors, they are ready for painting after installation and do not require any further sealing.

The hobby plates are supplied as standard with a length of 100cm and a width of 62.5cm and weigh 35kg/m². Other sizes are available upon request.

VST air and light duct

Regardless of whether you want to assemble your duct during the construction phase or years after completion – VST offers you the perfect solution. Our air duct provides supply and/or exhaust air where this is not possible with windows or serves as a connection to the outside air for your intelligent living space ventilation. VST air and light ducts can also be thermally decoupled, so that there is no need for the element to be insulated, thus saving costs and time.

VST special elements

In addition to the large number of tested VST components, we also offer tailor-made special solutions. For example, our prefabricated elements can be used to create balconies, interior walls, parapets, installation walls and much more

This enables the creation of a complete shell structure with the VST system - the VST composite formwork elements can be combined with one another and allow a consistent solution.

All special elements can be individually designed and are produced in the manual area of our plant. This means that they can be manufactured and adapted exactly according to customer requirements.

Automated production line

Precise can be so easy

In 2013, VST BUILDING TECHNOLOGIES AG made significant progress in the advancement of technology: The company developed and put into practice a new process that enables the automated production of VST components. This procedure was registered as a patent worldwide.

The first automated production line at VST BUIDLING TECHNOLOGIES AG was opened in Nitra, Slovakia in the autumn of 2013. This is the most modern and the largest plant – with an area of almost 17,000 square meters – for the production of building elements such as walls and slabs in Europe. At the VST production site in Nitra, we manufacture the patented VST composite formwork system for “off-site construction” according to individual customer projects.

The automation of the production line represents a technological breakthrough in the industrialization of the production of components, because it makes the entire production process much more effective and resource-saving. On the one hand, the use of raw materials in production is reduced and, on the other hand, the need for labor is reduced. Automation has also significantly increased the overall production capacity at the plant in Nitra.

Technology transfer and plant facility sales

From an economic perspective, the innovative VST technology makes the scale of production possible in such countries where the local manufacture of components was not previously feasible. This could have been due to a lack of skilled employees or above-average wage levels. VST BUILDING TECHNOLOGIES AG supplies complete plants to customers in certain regions. The VST plants and machines are produced by selected sub-contractors according to technical plans and specifications set by VST. They are then compiled, tested and prepared for shipping in the VST factory in Nitra.

VST informs the customer, prior to the delivery of a plant facility, regarding the necessary specification for the building in which the plant facility is to be installed. As soon as the building is ready for occupation, VST assumes responsibility for delivering, installing, and commissioning the machines. Based on knowledge gained from training sessions, the customer can now manufacture VST elements. VST BUILDING TECHNOLOGIES AG grants licenses that are necessary for the production and distribution of the VST elements – this is usually in connection with exclusivity for the geographically limited market of customers.

In the field of technology transfer and plant facility sales VST has already supplied complete VST plant facilities to customers in Russia and Belarus. With this package VST offers solutions forming a uniform and integrated whole, for an extremely efficient production and the highest quality standards in the field of environmentally sustainable construction.

Construction & Engineering

With planning & system to the goal

With the takeover of Premiumverbund Group in 2019, a general contractor operating in several European countries was integrated into the VST Group. The highly specialized company has concentrated entirely on VST composite formwork technology and offers the maximum in experience and know-how. Inspired by customer requirements, there are no limits to planning and implementation. From high-rise to single-family homes – the goal is 100% satisfaction and maximum efficiency from an economic and ecological point of view. The range of services is extensive and working hand in hand offers another advantage, which is a guarantee for optimal target achievement.

Equipped for the future with BIM

Due to different planning programs and insufficient planning accuracy before the construction phase, there are always supplements on construction sites, with the associated additional costs and an extension of the construction time.

VST BUILDING TECHNOLOGIES ,therefore, started expanding BIM (Building Information Modeling) implementation years ago. As a result, the production of the components is precisely calculated and planned, which means that both costs and the schedule can be calculated even more precisely.

At the same time, construction planning using BIM also enables paperless work, thereby protecting the environment.

Our Services

We accompany you from the first idea to successful implementation - and even beyond if you wish. In detail, the service profile includes the following service phases:

- Construction work - general contractor, shell construction, assembly
- Development of construction projects according to your ideas and key figures
- Control of your construction project up to the transfer of use, including billing
- Advice on various issues before, during and after project implementation
- Determination of base position
- Pre-planning
- Conceptual design
- Approval planning
- Execution planning
- Preparation of contract award
- Participation in the awarding of contracts
- Site supervison - construction supervision and documentation
- Property support
- Preparation of feasibility studies
- Preparation of economic feasibility studies

Lighthouse projects

FOLKHEM MUSEUM

Sven Harry's art museum, designed by Swedish star architect Gert Windgardh and Anna Höglund, opened in 2011. It is housed in a multi-purpose 5-storey building alongside apartments, an art gallery, a restaurant and other businesses.

Project type: Museum
VS elements: 3,482m² VST walls

SUEDERFELDPARK

In the central and popular Hamburg district of Eimsbüttel, six apartment buildings with underground garages, a kindergarten and a large public park with VST elements were built as part of the large-scale "Quartier Suederfeld Park" project.

Project type: Residential
VST elements: 10,500m² VST walls

SIEMENSSTRASSE

The 3 buildings of the VST project Siemensstrasse were completed in 2020 with 102 residential units in Vienna. Premiumverbund acted as general contractor and was responsible for all construction activities up to the turnkey property.

Project type: Residential
VST elements: 9,770m² VST walls

DEN RUNDE KARRE

The architecturally unique building in Aarhus is optimally aligned to the position of the sun and offers space for 100 residential units for young people on 8 floors. Completion of the residential complex is planned for September 2021.

Project type: Residential
VST elements: 9,385m² VST walls
6,520m² VST slabs

BLA JUNGFRUN

Sweden's first multi-storey passive house. In 2008, the VST system was certified as a component suitable for passive houses and in the same year the production of the VST elements for Bla Jungfrun began. The housing project with 97 apartments commissioned by Skanska is located in the south of Stockholm and consists of four buildings, each with a facade painted in earth tones. In Sweden, as in other regions, there is now an increasing demand for passive houses, as these require approx. 75% less heating energy than low-energy houses.

Project type: Residential
VST elements: 12.496m² VST walls
10.252m² VST slabs

GREEN TECHNOLOGY

Key Markets

Formwork system for quick shell construction

VST BUILDING TECHNOLOGIES AG has many years of experience in the market for composite formwork systems and provides building owners with the specific component solutions for modern building thanks to its innovative, patented technology. VST technology is used primarily in residential construction.

In addition to the delivery of construction elements, VST also offers shell construction and engineering services for building construction projects. In Germany and Austria, VST also offers all construction services up to turnkey buildings.

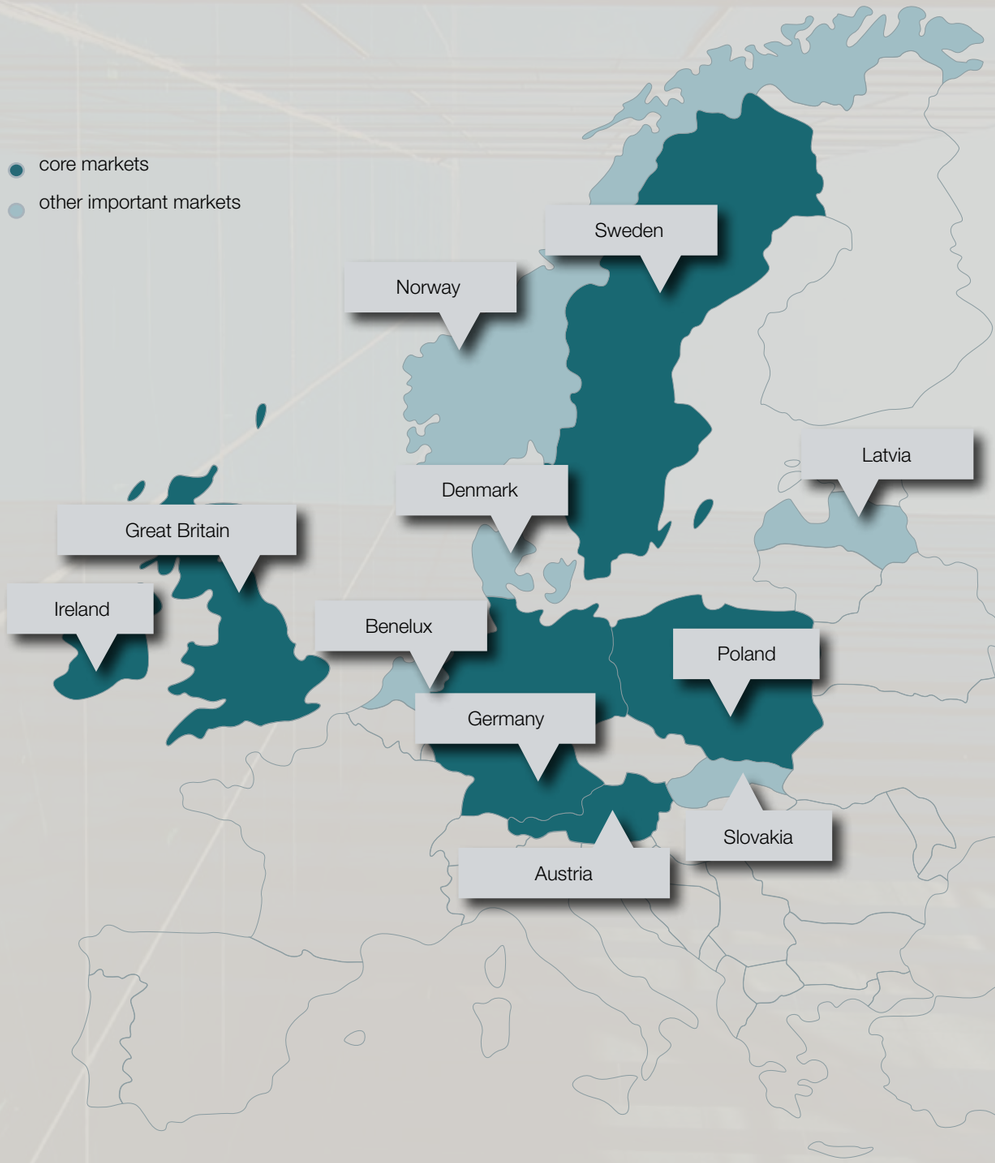
For example, a construction project in the Universumstraße in Vienna – 46 suites were built with VST technology – was awarded the Austrian State Prize for Architecture and Sustainability in 2012. This demonstrates the competence of VST BUILDING TECHNOLOGIES AG in producing high-quality components while promoting environmentally sustainable construction.

46 residential units on Universumstrasse in Vienna, Austria

36 residential units in Slagelse, Denmark

In Sweden, a further core market, VST BUILDING TECHNOLOGIES AG is present through its affiliated company VST Nordic AB. This company assumes partial general contractor projects in Sweden. The VST components are manufactured in the factory in Nitra and delivered to Sweden. Further construction works such as the assembling and concreting of the elements in the field, are provided by the subsidiary VST Nordic AB.

Skanska, one of the largest construction companies in Europe, is one of VST's customers in Sweden. Skanska has already implemented more than 30 project using VST components. This includes the largest hotel project in Scandinavia, the Clarion Sign in Stockholm with 558 rooms. VST has supplied a total of 19,500 square meters of walls and 23,200 square meters of slabs for this project. VST BUILDING TECHNOLOGIES AG has reached a leading market position in residential construction in Stockholm.



VST Group & Partners

Headquarters

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Louth, A92 W18X, Ireland

Premium Formwork Ltd.
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London, WC1A 2RP
Great Britain

VST on the capital market

Stock exchange listing	”direct market plus“ on Vienna Stock Exchange m:access on Munich Stock Exchange Open Market on Frankfurt Stock Exchange
Initial listing	January 21, 2019
ISIN	AT0000A25W06
FISN	VST BUILD/SHS
CFI	ESVUFB
Ticker symbol	VST

You can find more information on investment opportunities as well as current stock exchange and bond data for VST BUILDING TECHNOLOGIES AG at https://vstbuildingtechnologies.com/investment-highlights/

Imprint

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