

PRESS RELEASE

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Modular bathrooms efficiently and variable produced

Finnish building materials specialist Rakenusbetoni- ja Elementti expands its capacities in production of serially pre-fabricated bathroom modules. High-performance room mould by concrete specialist Vollert ensure high-quality surfaces and watertight room cells. The bathroom installation takes place very quickly, since the electrical and sanitary devices are already pre-installed.

Paving and concrete bricks for the horticultural and landscape gardening, room cells for civil defence shelter or AKO hollow-core separation walls are produced in Finnish Hollola, near Lahti. "Many of our high-quality special concrete products are found in building projects across Scandinavia today. We say that quite proudly," reports Sami Konsti, General Manager of building material specialist Rakenusbetoni-ja Elementti. "Demand in modular room cells specifically is increasing right now." The decision to expand the capacities in production of modular, pre-produced sanitary modules was made in 2017. They are in great demand not only in Finland, thanks to their many advantages. Completely pre-installed with interior development, sanitary and electrical installations, they can be installed as self-supporting structures right on the construction site.

High-performance battery moulds for room cell production

"We dealt with the requirements to the construction system in detail during the pre-planning phase already, while also considering the room situation in the existing factory halls in Hollola," Alexander Kaspar, formwork specialist at Vollert, explains. Serial pre-production of the bathroom modules will use a new L-angle battery mould and a room cell mould in future.

For the basic module with slab and side walls, the room cell mould has a square 6 mm thick steel-covered core and movable L-shaped side moulds. The floor mould is height-adjustable. Up to four differently sized inner modules up to 3.60 m high can be produced at the same time. For this, the L-walls can be moved sideways by up to 24.50 m, which makes it possible to remove the hardened raw modules to the side. "This was a necessity since the factory hall has a limited height," explains Alexander Kaspar. To avoid tripping hazards, the running rails for electrical movement are recessed into the base. A sophisticated hydraulic system tensions the L-walls after supplying and absorbs the hydrostatic pressure when concreting. For optimal compaction of the fresh concrete in the chambers, high-frequency vibrators are installed for extreme compaction and the best surface quality. Heating spirals integrated in

the inner core and side moldings ensure short hardening times. The installation pattern and system developed by Vollert ensures extremely efficient and even heating of the concrete elements at minimal energy expenditure. The heating pipes are installed according to the Tichelmann principle, which leads to constant water pressure and always consistent volume flows.

In order to supplement the basic module into a complete room cell, the inner walls are produced on an L-angle battery mould. The L-battery mould is made of 6 separate, steel-paneled molding chambers with a total chamber length of 16.5 m. The outer and bulkhead walls have a siderail that can be customized in height and inclination. Each wall can be moved with an integrated electro motor-powered circulation chain. Special reinforcements and interim shutter profiles can be installed easily, as in the basic module, along with insulations, window and door cut-outs. The walls are hydraulically clamped with coupling rods during concreting and compaction. The high-frequency vibrators are integrated fully reversibly in the walls of the battery mould, making their effect 3-dimensional and active concurrently in two chambers. This arrangement is much less noisy than battery moulds with outside vibrators would be. Wall elements with smooth surfaces on either side can be produced this way. Circulating work platforms with a central stair permit additional or maintenance work that may be required.

With a view to the future

The accessible Avaava Elementtikylpyhuone bathroom module is a fully mature building element. Tests have shown that it is entirely water-tight and resists even high humidity for a long time. "All production processes, including sanitary and electrical installations, take place industrially and in a controlled factory environment. Outer influences such as weather, or a complex construction site situation, are excluded from the beginning. This way, we can supply our customers in a timely manner and meet their high demands," Sami Konsti explains.

The extremely robust structure of the high-performance battery moldings also ensures that standstill or maintenance times are minimized. The entire battery unit is made of steel profiles welded together and applied with 8 mm rolled steel sheets according to DIN 17100 and Euro standard 2969.

About Vollert Anlagenbau GmbH

With more than 370 built precast concrete plants, Vollert Anlagenbau GmbH has become worldwide one of the leaders in technology and innovation in the precast concrete industry since 1925. Vollert always offers its customers state-of-the-art technology, from simple start-up concepts to highly automated multifunctional plants and systems for large and structural concrete elements or prestressed concrete sleepers for tracks and rail networks.

The specialists provide manufacturers of construction materials, construction companies, and property developers with advice on the latest developments in precast concrete manufacturing technology and devise customized, turn-key plant and machine concepts, ranging from high-performance tilting stations and battery moulds for stationary production to automated circulation systems and special formwork, for example, for columns, beams, and prefabricated staircases.

Vollert's plant and machine solutions are deployed in more than 80 countries around the world and in Asia and South America the company's own subsidiaries strengthen in addition the sales activities. Vollert employs more than 300 people at its company headquarters in Weinsberg. **www.vollert.de**

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Image 1

For production of the slab and side walls, the room cell mould has a square steel-covered core and L-shaped side moulds.



Image 2

In order to supplement the basic module into a complete room cell, the inner walls are produced on an L-angle battery mould.



Image 3
The accessible Avaava Elementtikylpyhuone bathroom module is a fully mature building element.



Image 4
All production processes, including sanitary and electrical installations, take place industrially and in a controlled factory environment.