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International architecture projects: Genest Concrete

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It all started in 2006 with a trip to Germany. Chris Genest, Managing Partner of Genest Concrete, was impressed by the way European buildings are constructed from concrete blocks, which is completely different from the steel and timber constructions of the New England style. The family company Genest Concrete, headquartered in Sanford, Maine/USA, was founded in 1927 and is currently in its fourth generation, being managed by brothers Chris and Matt. It is one of the leading manufacturers of concrete blocks in New England and manufactures numerous products for both the public and private sectors.

Back in Sanford, Chris Genest started to develop a hollow block for house construction based on the German model, which combines numerous advantages over traditional timber construction and is a novelty for the region.



An energy-efficient stone system with thermal insulation which, unlike wood, does not require any subsequent treatment, does not deform, is far less susceptible to fire, cannot rot or be damaged by insects and is clearly more wind-resistant than any wooden construction. In addition, a pleasant room climate is created which ensures a constant temperature regardless of the season.

After four years of research and development, the first Comfort Block™ comes onto the market in 2010 as a patented product. The air chambers of the 4, 8 or 16 inch hollow block (CB-4, CB-8 or CB-16) are filled with an insert of expanded polystyrene, which guarantees a high level of thermal insulation. The block also has cross channels for the integration of cables and spaces for the installation of switch boxes. The system is modular and can be adapted to individual conditions.

The development and design of the first concrete block molds for Tiger block production plants is carried out in close cooperation with Kobra Molds LLC. Block molds for the US market are developed by Kobra engineers and manufactured directly in Hudson/Wisconsin.

The manufacturing process of the Comfort Block guarantees high dimensional stability of the stones, which can be installed precisely and easily. All that is needed is concrete adhesive, which reduces the amount of dirt accumulation during the construction phase and increases the speed of construction. After setting, the blocks are plastered inside and outside. Chris Genest emphasises that all materials used



Comfort Block™



Comfort Block Model House

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In 1996, KOBRA had patented the »Dynamic™« vibrating mold insert. The decoupling principle enables free and, at the same time, defined vibration behaviour. Vibration energy is transferred directly and effectively into the insert and results in improved force transfer in the concrete and an optimum side finish on the block. A milestone in mold technology, of which many thousands are in use worldwide.

in the construction process are chosen with ecological considerations in mind to create a healthy environment free of chemicals and toxins.

Since the launch of the Comfort Block, building projects have been completed in the Maine area with renowned architects. Chris Genest even built his own house with Comfort Blocks. "For me, the Comfort Block System is a growth factor for commercial and residential construction. For a small company, we're pretty proud of the brand that we believe will shape the industry. The Comfort Block is the first stone system of its kind in the United States."

A model house is currently being built in Arundel, Maine, to give both business and private customers an impression of the many advantages of the Comfort Block.

The entire outdoor area will also be designed with other products from Genest Concrete. The Sebago™ paving stone system, developed in cooperation with Kobra USA and Germany, has been supplementing the Genest portfolio since 2020. The Stone & Design department at Kobra's headquarters in Lengenfeld develops the system in close cooperation with Genest and adapts formats and surfaces according to customer specifications.

It is based on an existing product and consists of a wild pattern in which individual stones are systematically interchangeable to avoid continuous joints during laying and to generate a varied view. The embossed surface in a slate look is available in different colour variations. The stone is characterised by high stability and weather resistance due to the aggregates selected for the core concrete. In order to achieve a homogeneous surface and a natural colour gradient, Genest uses Kobra concrete block molds with features adapted to the product to increase the stone quality.



Kobra concrete block mold Basicline 2™ for Sebago Stone™

The construction of Kobra molds depends on the stone systems to be produced and the individual conditions in the concrete block factory. There is a suitable technology for each type of product, which has been adapted to the specific requirements of the production process.

The Sebago block system is produced with Basicline 2™, which consists of a precisely machined mold insert made of block material with all-round cavities shaped to hold the flange assemblies including rails. Unnecessary welded joints



*Sebago Stone™ -
Laying*

Basicline2™

The mold bottom of the Basicline2 comprises a precisely machined mold insert made of block material with all-round cavities shaped to hold the flange assemblies including rails. Unnecessary welded joints in and on the mold insert are prevented through this design.

Optimill carbo 68 plus™

With Optimill carbo 68 plus, a hardness of 68 HRC is achieved in the insert and on the wear plates, as well as an all-round hardness depth of 1.2 mm, which make the concrete block mold tool particularly wear resistant. Bolted wear plates improve the reparability of the mold and extend its service life.

Facts & advantages:

- Maximum mold accuracy due to internal Kobra quality standard
- Special cavity geometry for uninterrupted hardness development
- Hardness quality up to 68 HRC, hardness depth up to 1.2 mm
- Multiple insert changes possible in old frame
- Replaceable bolted wear plates

Hotshoe™

With Hotshoe, which consists of heatable tamper shoes and an integrated temperature control device, verifiably higher surface qualities can be achieved on the concrete block. The drying of the facing concrete prevents the tamper shoes from adhering to the concrete and helps with the texture of the block surface. In this sense, Hotshoe is also a demolding aid. The control compares the target temperature with the actual value measured on the heating element and if necessary, reheats. The target value to be set depends on the respective mold, the water ratio in the concrete mix and the ambient temperature.

As a result, the water-cement content matched to the product can be used without limitation due to surface problems, since adhesion to the tamper shoes is prevented. Higher surface qualities and a refined finished surface appearance are achieved.

Facts & advantages:

- Verifiably higher surface quality on the concrete block, fewer rejects
- The temperature range with the Kobra control device can be controlled for customer-specific and individual product needs
- Prevents the adhesion of moist, fine facing concrete through controlled setting
- Shorter cycle times for products requiring intensive cleaning

in and on the mold insert are prevented through this design. In addition, the steel is specially hardened so that the mold is particularly wear-resistant with a hardness quality of 68 HRC and an all-round hardness depth of 1.2 mm.

The even surface of the Sebago paver is achieved by using the Hotshoe™ feature, which consists of heatable tamper shoes and an integrated temperature control device. The drying of the facing concrete prevents the tamper shoes from sticking to the concrete and helps to structure the stone surface.

By building the model house and designing the site exclusively with its own products, Genest offers architects, building contractors and potential homeowners the opportunity to see the company's wide range of products for themselves. There is even the option of using the property for several days. In this sense, Genest is going down presentation paths that go far beyond previous advertising measures, allowing the advantages of concrete blocks in room and area design to speak for themselves. ■



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FURTHER INFORMATION

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