

## Case study

### Living in a hexagon

**Schöck Isokorb ensures reliable and energy-efficient balcony connection in Munich's 'honeycomb house'**

Screen façades with a honeycomb structure are a familiar feature in architecture. With the 'honeycomb house' in Munich's Riem district, however, the architectural practise Peter Haimerl Architektur is extending the concept to the inside of the building. The architect has shifted the hexagonal structure inwards and adopted it as the construction principle: intersecting hexagonal tubes stacked in a large cluster to form a kind of beehive. The reliable connection of the precast balconies to the honeycombs is ensured by the Schöck Isokorb load-bearing thermal insulation element. It also separates the structural components thermally and minimises thermal bridges. It is therefore indispensable in constructing the building to the passive house standard.

For the construction site in Munich's Den-Haag-Straße the principal, Wogeno München eG, had set itself the goal of making a special contribution to urban planning and architecture: The creation of an experimental residential building at this location that would contrast with the existing uniform building typology in the neighbourhood. The modern, provocative design by award-winning architect Peter Haimerl interprets this in an unusual way and radically breaks with the cuboid, standardised building structure - the 'box structure', as he calls it: "We consciously chose to design a range of different living and spatial configurations. The

hexagonal structure that is widely found in nature allows for a large variety of possible combinations of room units, clusters and interconnected spaces”.

### **Honeycomb structure satisfies new residential needs**

The honeycomb as a symbol of communal living lends itself to revitalising and interweaving residential landscapes. “Times have changed, and with them our way of living. It’s no longer just about putting up bookshelves, but about creating atmospheric living spaces that work well,” says Haimerl. The use of the space in the honeycomb house is therefore innovative and fluid: each room extends into another, walls disappear or become connecting staircases and pockets of space. There are no vertical walls or conventional staircases in the honeycomb house – as standard, each honeycomb forms an apartment. There are also larger apartments that extend over two floors. These house smaller residential units and a large, shared apartment. A shop is planned on the ground floor for the building community and the neighbourhood, which will be run and used by the residents.

### **Split-level construction with a difference**

“The hexagonal form results in a split-level construction with several levels offset from one another at half-floor height. Due to the hexagonal form, the staggered half-floors are separated by sloping and not vertical walls,” explains Thomas Beck, project manager and managing director of the planning office a.k.a. ingenieure Beck Hintermann v. Kameke PartGmbH in Munich. The honeycombs consist of horizontal in-situ concrete slabs and inclined hybrid precast elements. There are practically no limits to the variety and variability. The honeycomb house was built using conventional solid construction methods. Only the connection of the balconies on the west and east side of each honeycomb cell, required a special construction solution.

### **Schöck Isokorb – the right solution for every challenge**

The precast balconies are 3 metres wide and 1.50 metres deep. “In order to anchor them to the honeycomb structure, we had to design them with ‘legs’,” explains Thomas Beck. These extend downwards to the right and

left, over a depth of 1.50 metres and a length of 2.70 metres. However, this reduced the normal joint length and increased the total weight of the balcony – with far-reaching consequences for the balcony connection, as Thomas Beck reports: “The classic Isokorb that we otherwise always use in our projects was therefore not sufficient to transfer the forces.” Various ideas of constructing the balconies in steel instead of concrete, for example, were rejected for both economic and aesthetic reasons.

The structural engineers finally found the solution by using the Schöck Isokorb XT Type Q-P load-bearing thermal insulation element in combination with Isokorb XT Type H. Isokorb XT Type Q-P absorbs positive shear forces with point support, while Isokorb XT Type H is designed to absorb horizontal forces parallel and perpendicular to the insulation plane. Type H may only be used in conjunction with other Isokorb types that transfer moments or shear forces. Some 200 Isokorb units in total were used to connect the 22 balconies and canopies.

### **Insulation to passive house standard**

In addition to the structurally secure connection of the balconies, Schöck Isokorb also acts as a load-bearing thermal insulation element to ensure thermal separation of the structural components in the honeycomb house. This minimises thermal bridges and the resulting increased heat losses and structural damage caused by damp walls and mould. Together with the conventional insulation, Schöck Isokorb thus makes an indispensable contribution to energy efficiency and to achieving the passive house standard for the building.

### **Honeycomb house ‘Mama’ as a pilot project**

Even though the honeycomb house in Den-Haag-Straße in Munich already stands out due to its unusual architecture – the conventional solid construction method was planned “only” as a pilot project from the outset and therefore bears the name ‘Mama’. Series production is being planned. And that gives joy and hope to all those who want to get out of the box and into the honeycomb because all the apartments in the ‘Mama’ pilot house have already been reserved.

[www.schoeck.com/en/isokorb](http://www.schoeck.com/en/isokorb)

## Project information

**Location:** Den-Haag-Straße, Munich – Riem South

**Construction period:** 2021-2023

**Principal:** Wogeno eG München

**Architecture:** Peter Haimerl Architektur, Munich (all construction phases)

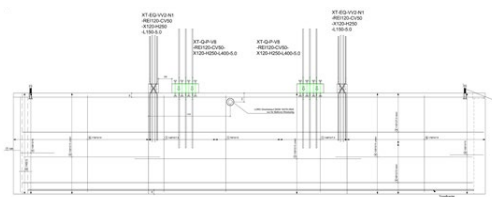
**Structural engineering:** a.k.a. ingenieure - Beck Hintermann v. Kameke PartGmbB München

**Precast plant:** Sager Fertigteile GmbH, Bodenkirchen, Germany

**Construction firm:** Baugesellschaft Rank GmbH, Munich, Germany

**Products:** Schöck Isokorb XT Type Q-P, Schöck Isokorb XT Type H

## Drawing



*a.k.a. ingenieure - Beck Hintermann v. Kameke PartGmbB*

## Images

[Schoeck\_Wabenhaus-Muenchen\_1]



*With the 'honeycomb house' in Munich's Riem district, Peter Haimerl Architektur is projecting the hexagonal structure into the building. Stacked together in a large cluster, the intersecting hexagonal tubes form a kind of beehive.*

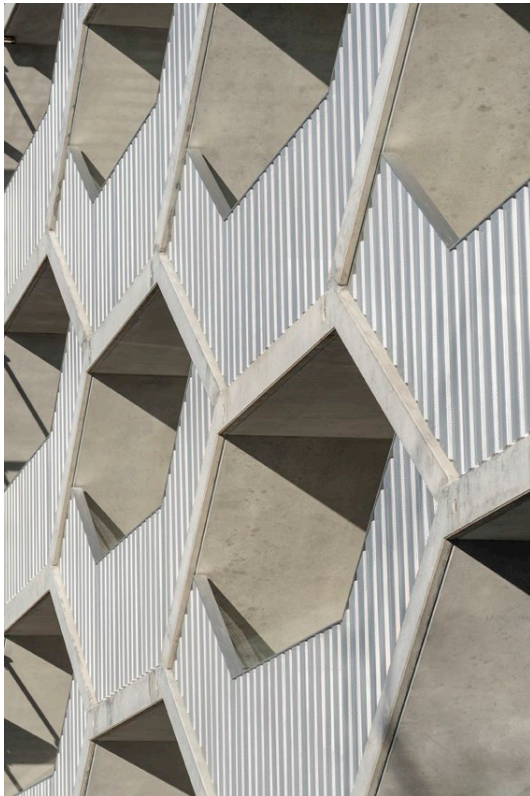
*Photo: Edward Beierle*

[Schoeck\_Wabenhaus-Muenchen\_2]



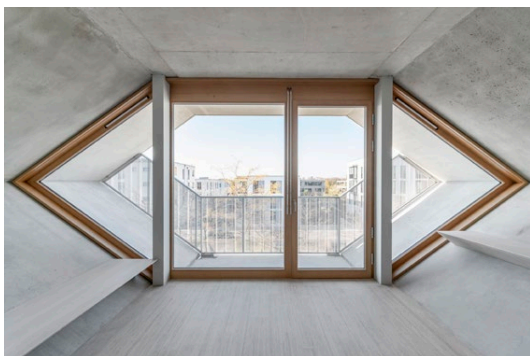
*The provocative design by award-winning architect Peter Haimerl radically breaks with rectilinear standardised building structure.  
Photo: Edward Beierle*

[Schoeck\_Wabenhaus-Muenchen\_3]



*The honeycomb symbolises communal living where residential landscapes are revitalised and interwoven.  
Photo: Edward Beierle*

**[Schoeck\_Wabenhaus-Muenchen\_4]**



*Each honeycomb has a balcony to the west or east. Schöck Isokorb XT Type Q-P and Type H provide the thermal separation at the joint.  
Photo: Edward Beierle*

**[Schoeck\_Wabenhaus-Muenchen\_5]**



*The use of the space in the honeycomb house is innovative and fluid: each room extends into another, walls disappear or become connecting staircases and pockets of space.  
Photo: Edward Beierle*

#### **[Schoeck\_Wabenhaus-Muenchen\_6]**



*The honeycombs consist of horizontal in-situ concrete slabs and inclined hybrid precast elements.  
Photo: Edward Beierle*

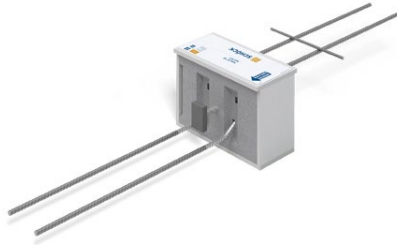
#### **[Schoeck\_Wabenhaus-Muenchen\_7]**



*The honeycomb house was built using conventional solid construction methods.  
Photo: Edward Beierle*

## Product photos

### [Schoeck\_Isokorb-XT-Typ-QP]



*Schöck Isokorb XT Type Q-P absorbs positive shear forces with point support.  
Photo: Schöck Bauteile GmbH*

### [Schoeck\_Isokorb-XT-Typ-H]



*Schöck Isokorb XT Type H is designed to absorb horizontal forces parallel and perpendicular to the insulation plane.*

*Photo: Schöck Bauteile GmbH*

## About Schöck:

Schöck Bauteile GmbH is a subsidiary of the multinational Schöck Group with 14 international sales offices and approximately 1,000 employees. The company's success story started in 1962 in Baden-Baden at the edge of the Black Forest. The company's founder Eberhard Schöck applied his knowledge and construction site experience to develop products that streamline construction and solve complex problems in building engineering. This mission has formed the foundation of the company's philosophy to this day. It has made Schöck into one of the leading providers of reliable and innovative solutions to reduce thermal bridges and impact sounds, and to create thermally insulating and secure facade fasteners and reinforcement technology. Schöck products make smart construction methods possible and ensure consistent construction quality. Addressing building engineering and energy efficiency are the company's top priorities. To meet the construction needs of tomorrow, Schöck is driving the adoption of digital technologies in all areas, from workflows and planning to the construction site.