

Case study



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For immediate release

Schöck Isokorb for demanding Luxembourg passive house

The Grand Duchy of Luxembourg has been promoting thermal insulation and energy efficiency on a timescale way ahead of most European countries. And passive house construction techniques already constitute the minimum standard for domestic new builds. Every new home in Luxembourg since 2017 has to meet the requirements of energy class AA, which corresponds to a building with virtually zero energy consumption. And one recently completed residential building at Burden, in the north of the country, has gone even further and achieved an AAA Luxembourg Passive House classification. For this to be possible, the primary energy demand must be below 45 kWh/m²a, the heat demand below 22 kWh/m²a, and the CO₂ emissions below 11 kg CO₂/m²a.

“In order to achieve these values, we conducted a thermodynamic simulation using the 3D model of the house,” explains architect Serge Schmitgen from OBLIK. “We wanted the building envelope to let in plenty of daylight and offer a panoramic view across the countryside. At the same time, we also wanted to distribute solar gains over the course of the day in a way that meant the building could be heated and cooled using as little energy as possible. By using the computer to simulate the temperature development inside the building, we were able to ensure our architectural designs were also optimised in terms of their solar protection”.

Minimal thermal bridging was critical

The balcony on the building serves to provide shade, which minimises the need for protection against the sun, but at the same time exploits the maximum amount of daylight. The specification was demanding and eliminating any risk of

thermal bridging at the balcony connection was critical. The architect had no hesitation in turning to Schöck and Serge Schmitgen commented: "In the world of thermally isolated building component connections, Isokorb is as much of a household name as Gillette," With the Burden project, two types of Isokorb variants were used on the front and on the sides of the 1.60m x 4.00m concrete balcony. With their pressure bearings made of microfibre-reinforced high-performance fine concrete and an insulating element measuring 120 mm thick, the certified passive house components fitted together seamlessly without expansion joints into the reinforced concrete inner slab layer. The installation involved first placing the balcony cladding and floor slab into position. Then the load-bearing thermal insulation elements were secured to the steel reinforcements using binding wire. The floor slab and balcony could then be covered with concrete in a single pour, with the balcony being thermally isolated from the building with the help of the Isokorb.

The Schöck range of structural thermal break units allows connections to be made between concrete-to-concrete, concrete-to-steel and steel-to-steel. Product performance is totally verifiable and the range meets full compliance with the relevant UK building regulations, has NHBC approval and offers LABC Registration. There is also the security of independent BBA Certification.

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For a free copy of the Schöck Thermal Bridging Guide and / or the Thermal Bridging Solutions brochure contact the company on 01865 290 890 or visit www.schoeck.co.uk. The website also features an extensive range of downloadable software.

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Notes to the editor

A leading European supplier

Schöck has grown to become Europe's leading supplier of innovative structural load bearing insulation products. The main product is the Schöck Isokorb – a thermal break for various types of cantilever constructions in new buildings and for renovation. Its headquarters are at Baden-Baden in southern Germany and there are subsidiary companies in Great Britain, France, Austria, Switzerland, Italy the Netherlands, Belgium, Poland, Hungary, Russia, Japan, Canada and the USA. Sales teams and partners operate in many other European countries and also Australia and South Korea. Schöck is committed to providing the highest level of technical back up and comprehensive customer service to the construction industry.

Images and Captions

[Passive house 1.jpg]



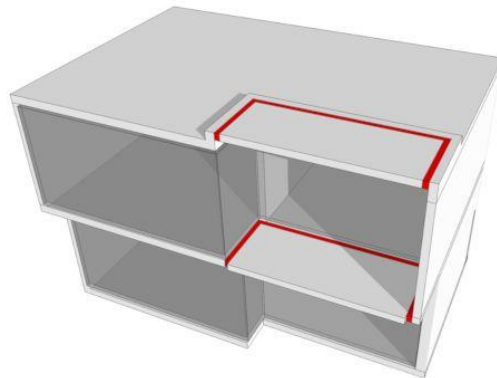
Large insulated glass windows let in plenty of daylight and a panoramic view of the countryside. The protruding edges, recesses and cantilevered components provide the ideal amount of shade. Image: Jessica Theis for Schöck

[Passive house 2.jpg]



The residential building in Burden, Luxembourg, achieves the AAA energy efficiency class. Image: Jessica Theis for Schöck

[Connection of the balcony and canopy.jpg]



Measuring 1.60 m x 4.00 m, the balcony and its canopy were connected to the building in a way that is both stable and thermally separated using the Schöck Isokorb. Image: OBLIK.

[Installation Isokorb.jpg]



The Schöck Isokorb makes it possible to connect the balcony without the need for expansion joints. The balcony is ready to bear loads as soon as the in-situ concrete has hardened. Image: OBLIK.

[Balcony covered with concrete.jpg]



The reinforcements were laid and connected to the Schöck Isokorb. The floor slab and balcony could then be covered with concrete in a single pour. Image: OBLIK.