Technical Release

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For immediate release

Schöck's latest thermal break innovation for Parapet Walls benefits architects and developers

The innovative Schöck Isokorb type AXT structural thermal break is verifiably a more thermally efficient alternative to wrapped parapets, offers a number of additional benefits to architects and developers – and saves on construction costs.

As with balconies, continuous parapets are prone to the problems of thermal bridging, because energy is transferred through the thermal barrier. The conventional method of insulating parapets is to wrap the perimeter of the wall with an insulation barrier and, by wrapping the parapet it becomes part of the heated building mass. However, the Schöck Isokorb type AXT provides a more thermally efficient and cost-effective alternative. If a parapet is thermally separated at ceiling level, it sits outside the heated building mass and with its insulation thickness of 120mm, achieves low psi values and a significant reduction in heat loss. Its performance is also certified as suitable for Passive House design, therefore satisfying the most stringent energy standards.

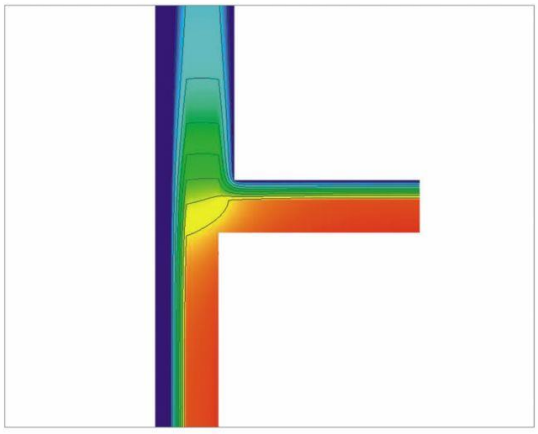


Fig. 1 A: Heat loss through a parapet connection wrapped along its entire length. Image: Schöck Ltd.

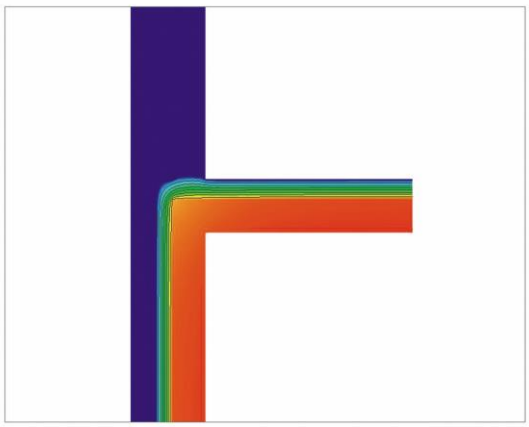
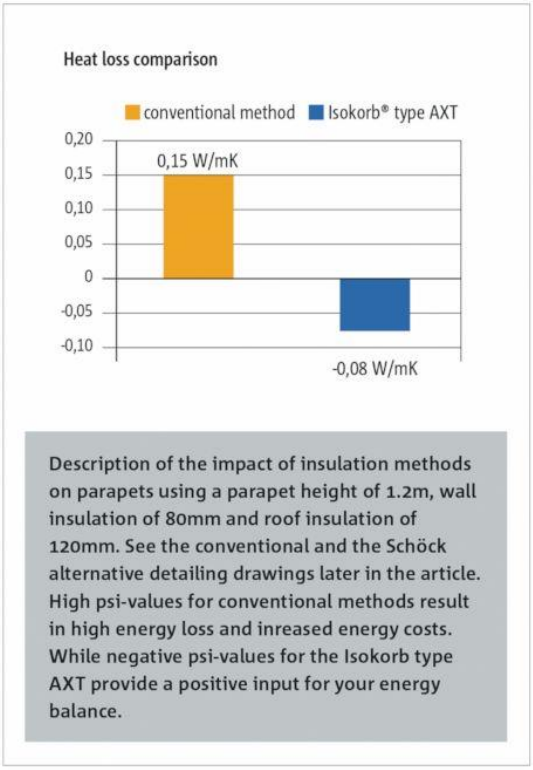


Fig. 1 B: Parapet with Schöck Isokorb type AXT structural thermal break. Image: Schöck Ltd.

Although the heat outflow is reduced when a parapet is wrapped, the loss of energy is still several times higher than when a Schöck Isokorb type AXT thermal break is incorporated. The two diagrams demonstrate: *(Fig 1A)* the heat loss from a parapet with insulation wrapped along its entire length; and *(Fig 1B)* a parapet using an Isokorb AXT thermal break. The colour gradient illustrates the temperatures in the component, showing how the heat flows from the warm (red) area to the cold (blue) area. Clearly the parapet connection insulation along the circumference *(Fig 1A)* suffers high heat energy loss through the parapet, which causes low interior surface temperatures. In contrast, using the thermal break (*Fig 1B),* barely any thermal energy escapes through the load-bearing thermal insulation element.

The reasons for this

By wrapping a parapet, it becomes part of the heated building mass. However, if a parapet is thermally separated at ceiling level, it sits outside of the heated building mass. An added advantage of using the Isokorb is that it structurally connects only at specific points where structurally required. The areas in-between being designed as an uninterrupted insulating plane. In such cases, the parapet is not heated and therefore the loss of energy is significantly reduced.



Description of the impact of insulation methods on parapets using a parapet height of 1.2m, wall insulation of 80mm and roof insulation of 120mm. See the conventional and the Schöck alternative detailing drawings later in the article. High psi-values for conventional methods result in high energy loss and inreased energy costs. While negative psi-values for the Isokorb type AXT provide a positive input for your energy balance.

This is demonstrated in the heat loss comparison chart. With the conventional method, when compared with the Isokorb type AXT, the reduction so significant that the solution is certified as suitable for Passive House design, meeting the most stringent energy standards.

Other functional advantages

Wrapped components are similar in principle to an insulated flat roof, with many of the associated problems. They are prone to damage and almost inevitable repair and maintenance outlay. Particularly where railings or covers pierce the insulating layer. With thermally separated parapets however, railings and covers can be attached directly into the concrete. A significant point too, is that because there is no thermal insulation on the internal surface, useable terrace area is released which can enhance the value of the property. There are a number of other functional advantages when incorporating the Isokorb type AXT and in addition it permits a more sophisticated construction opportunity for greater freedom of design.

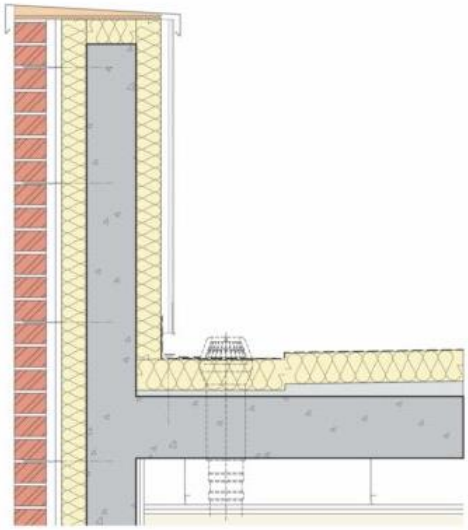
Other key factors are that there is no risk of any additional thermal bridging through balustrade fixings and the AXT solution is both durable and water impermeable. Therefore, it does not require maintenance and there is no risk of expensive restoration due to waterproofing problems.

Independent Cost Comparison

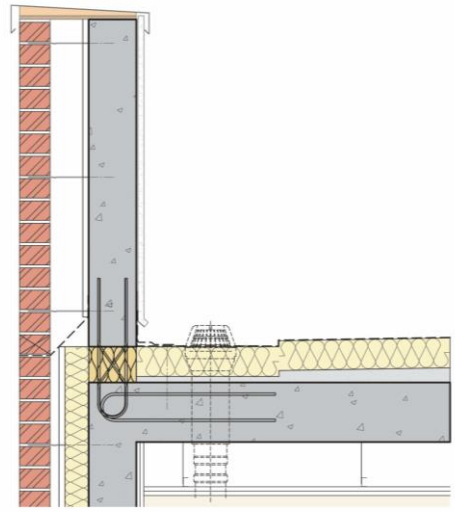
Recently, an independent cost comparison was undertaken, involving two 12.5m long parapet constructions. A conventional parapet construction detail and a second detail incorporating the Schöck Isokorb type AXT with a spacing of 1.25m. *(See the detailing comparisons below)*. This demonstrated that in construction cost terms alone, depending on the structure, the Schöck alternative comfortably achieved savings of up to 10%. The reason for this is, the Isokorb AXT allows simplification of the formwork process, as well as the detailing of the rear of the parapet. In arriving at the financial comparisons, the

independent surveyors priced each element with reference to Spon's Architects and Builders Price Book. Appropriate adjustments were made for inner London costs and inflation at the time of publication.

The detailing is shown here:



Conventional construction method of insulating parapets.



Efficient solution with Schöck Isokorb® type AXT.

Verifiable performance

For complete reassurance, the Isokorb type AXT is assessed as a 'Certified Passive House Component', provides BBA Certification, LABC Registration and NHBC approval and meets full compliance with the relevant UK building

regulations. The temperature factor used to indicate condensation risk for occupants in residential or commercial buildings – the (fRsi) value that must be equal to, or greater than 0.75 or 0.50 respectively – is comfortably met by incorporating the Isokorb. In addition, there is also compliance with the Government Standard Assessment Procedure, SAP 2012, concerning CO2 emissions from buildings and respectively heat losses through non-repeating thermal bridges.

For a free copy of the new Schöck AXT Parapets Brochure – contact the company on 01865 290 890 or visit www.schoeck.co.uk

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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

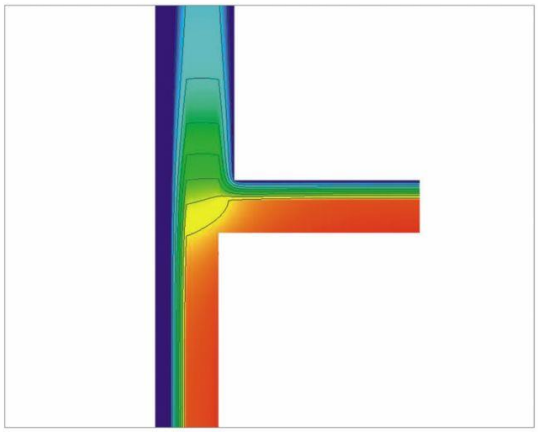


Fig 1A: Heat loss through a parapet connection wrapped along its entire length. Image: Schöck Ltd.

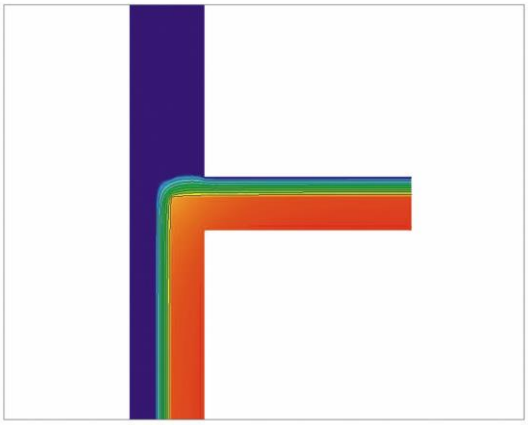
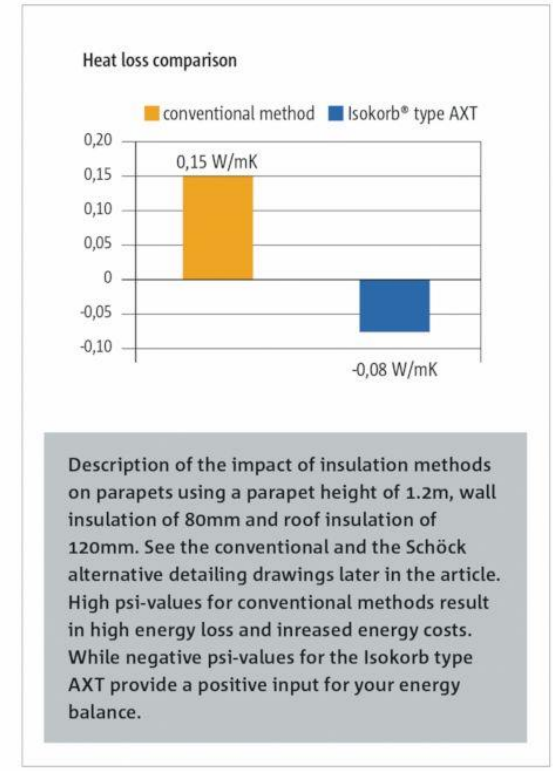
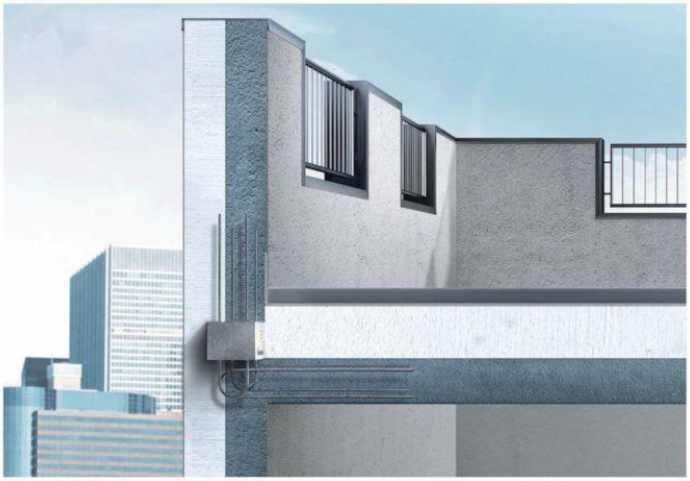


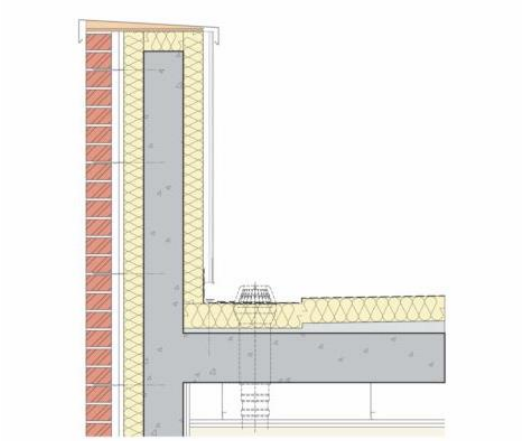
Fig 1B: Parapet with Schöck Isokorb type AXT structural thermal break. Image: Schöck Ltd.



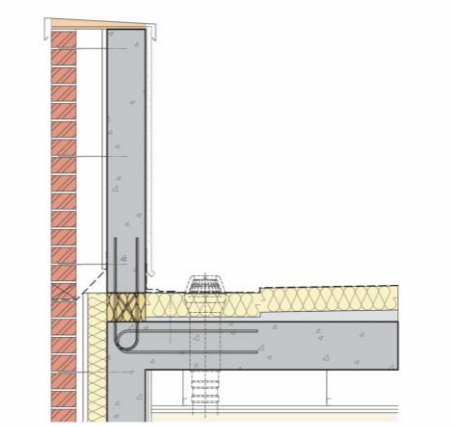
Heat loss comparison chart. Image: Schöck Ltd.



Schöck Isokorb type AXT shown in position. Image: Schöck Ltd.



Conventional construction method of insulating parapets. Image: Schöck Ltd.



Efficient solution with Schöck Isokorb type AXT. Image: Schöck Ltd.