

Case study



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For immediate release

PFI Extra Care scheme benefits from Schöck and Hollow-core innovation

A £14.4m three-storey PFI Extra Care complex at Knowsley, Merseyside, is benefiting from a speedier build time by using innovative off-site manufacturing that integrates Isokorb structural thermal break units from Schöck with the Hollowcore system. Bluebell Park Extra Care Facility homes are being built on the site of the former Wingate Towers flats by contractor Bullocks Construction. It is a project designed by PRP Architects for Knowsley Housing Trust, part of the First Ark Group and is the Trust's largest Extra Care development to date. There are two blocks on site. The first provides 101 single and two-bedroom Extra Care apartments for rental; and the second, 21 two-bedroom apartments made available for purchase through an Older Persons Shared Ownership scheme. Shared communal facilities, which include a dining area, hairdressers, lounge, games and hobby rooms are located close to the main entrance and are laid out in 'village street' style, with secure restricted site only access.

To help provide lower bills, 10 per cent of the energy source for the homes will use renewable energy through Combined Heat and Power (CHP) boilers. These will capture and re-use the heat produced in day-to-day electricity usage, while all the homes will also be built to a 'very good' class from BREEAM.

Many of the apartments throughout the complex feature spacious balconies, so the prevention of thermal bridging is a critical consideration. Quite apart from heat loss, condensation can lead to structural integrity problems and worse, it encourages mould growth, which could have serious medical implications for

elderly residents in the form of possible respiratory problems and dermatitis. One of the most effective countermeasures on the market is the Schöck Isokorb structural thermal break; units that offer outstanding thermal insulation properties and unobtrusive connection detail. They dramatically reduce thermal energy loss in connective areas and enable inner surface area temperatures to remain well in excess of those likely to cause mould formation and condensation.

It is the Isokorb type KS14, for concrete-to-steel connectivity that is being installed at Bluebell Park to meet the steel cantilever requirements. This is in conjunction with the Hollowcore floor system and to facilitate the method, the precasters broke out selected cores and cast reinforcement bars in their works. The KS14 thermal breaks were then fixed to a template, so they would match the broken out Hollowcore, the complete modules supplied to site, dropped into position and the broken out Hollowcore filled with insitu concrete.

Because the Hollowcore has voids extending its full length, there is a huge weight saving over floor slabs of equal thickness or strength, resulting in both transportation and material cost efficiencies. With the slab sizes on the project being typically 1200mm wide x 4m long, they are also faster to install and provide an immediate working platform for following trades.

Whilst the Hollowcore element of the construction brings its own benefits to any project, the Isokorb type KS14 has its own proven performance values as well. It provides BBA Certification and LABC Registration, as well as comfortably exceeding the requirements of BRE IP1/06 and Part L of the Building Regulations. Here the temperature factor used to indicate condensation risk (f_{RSI}), must be greater than, or equal to, 0.75 for residential buildings. A stipulation comfortably exceeded by incorporating the Schöck product into the design.

It should be highlighted here too that there are misconceptions in some areas of the UK marketplace that certain 'common solution' alternatives for concrete-to-steel connections perform thermally just as well as the Schöck Isokorb type KS14 structural thermal break element. Additionally, claims have been made

on occasions that these alternative solutions are more cost-effective than the Isokorb. This is not true in either case and to bring clarity to the situation, an independent investigation into the various criteria concerning the effectiveness of steel balcony connections to concrete slabs, has been carried out by the Oxford Institute for Sustainable Development, at Oxford Brookes University.

The aims of the investigation were firstly to determine the heat loss, minimum surface temperature and hence temperature factor (f_{RSi}) resulting from use of Schöck Isokorb type KS14 units connecting a steel balcony support to a concrete floor slab. Secondly, to compare the calculated performance with that of structurally equivalent solutions. In the test all three alternatives to the Schöck solution failed against the criteria required for residential buildings ⁽¹⁾.

Specifiers, contractors, developers and those in procurement therefore need to be wary and question any product performance claims involving bespoke solutions. Often they will be found wanting and the lack of transparency in determining true performance values may well mean a product being installed that is simply not fit for purpose. Due to building site 'tolerances' it is vital that thermal product solutions should, at the very least, exceed minimum standards and in many cases even that may not be good enough.

A comprehensive 236 page 'Technical Guide' is available, which displays in detail the complete range of thermal break applications for all construction types – concrete-to-concrete, concrete-to-steel, steel-to-steel and concrete-to-timber.

¹⁾ *A free copy of the full Oxford Brookes report is also available (Reference: 120927SCH – 27/09/12).*

Contact Schöck on 01865 290 890 go to www.schoeck.co.uk;
or email: design@schoeck.co.uk

For further information about Bluebell Park Apartments visit
www.bluebellparkapartments.co.uk

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Press Contact for Schöck Ltd:

Michael Revans Communications
47 Barn Rise, Wembley Park,
HA9 9NH

tel: 020 8904 9733

e:michael.revans1@btinternet.com

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.

Pics and captions

[Work in progress.jpg]



The balconies under construction

[Hollowcore.jpg]



The Hollowcore system before insitu filling

[View.jpg]



Architects impression – general view of the development