

Towering sustainable success

You would be forgiven for thinking that the spectacular white tower perched high above Rothesay, on the Isle of Bute, houses des-res apartments for the well-heeled. However, it is actually a social housing development by Fyne Homes, a housing association covering the Argyll and Bute area of Scotland's west coast. Knauf Insulation discusses how it was constructed.

A'Chrannag – Gaelic for crow's nest – is the latest creation from Gökyay Deveci, an architect whose name is synonymous with affordable and sustainable housing design; and Rothesay's new landmark is one of Europe's most energy efficient housing projects.

Just one of three buildings in Scotland to receive a RIBA Award in 2005 it was automatically shortlisted for the RIBA *Stirling Prize*, ultimately won by the Scottish Parliament building. A'Chrannag won the *Scottish Design Awards'* best affordable housing design; was runner-up in the Royal Incorporation of Architects in Scotland's (RIAS) best building in Scotland award, and was one of ten buildings featured in the RIAS's *10/10: Buildings That Made A Difference* exhibition.

Peter McDonald, Fyne Homes' operations director, said: "We want to overcome the differences – both real and perceived – between public and private housing, and provide our clients with homes they can be proud of."

"Buildings do not have to look sustainable to be sustainable."

Gökyay Deveci

Greenhouse gas reduction

The brief called for a new-build development of 14 innovative and energy efficient homes. The tower was selected by 80% of Rothesay residents over individual homes and terraced houses, and pupils at Rothesay Academy were invited to come up with a name.

Built by contractor, Stewart and Shields, the 20.5m-tall, seven-storey tower is based on traditional Scottish tower architecture. Each of the 14 apartments has a living room window and balcony with a stunning view across Bute towards the Island of Arran.

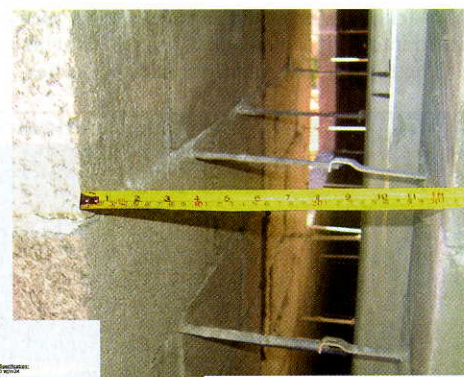
Deveci wanted the building to show how a measurable reduction in greenhouse gas emissions could be achieved. Realising that the effectiveness of the wall insulation would make a significant contribution towards this, his design featured a traditional blockwork wall with a 300mm-wide cavity.

To overcome the difficulties that installing flat insulation slabs in a curved cavity would inevitably present, he specified the cavity should be filled with Knauf Insulation's Crown Supafil cavity wall insulation, a loose glass mineral wool insulation material. More often associated with retro-installation in domestic properties, Supafil can be used to insulate any type of cavity wall and offers an alternative method of achieving high levels of thermal insulation.

Glass mineral wool is made from fibres spun from molten sand, while Supafil also contains a high proportion of recycled plate and domestic bottle glass. The material is blown, dry, into the wall's cavity, through 25mm diameter holes drilled through the mortar joints in either the inner or outer leaf. Once installed, the material neither deteriorates nor settles with age and provides both acoustic and fire insulation. (Crown Supafil is covered by BBA Agrément Certificate 88/2033).

Supafil is only available from specialist installation companies that are trained and approved by Knauf Insulation and approved and monitored by the British Board of Agrément. At A'Chrannag, a three-man team from Clyde Insulation Contracts carried out the installation over three days, installing around 300 16.6kg packs of insulation material through holes in the inner leaf.

Scott Paton, one of the technicians, said: "The cavity was so big I could almost climb into



A'Chrannag's design featured a traditional blockwork wall with a 300mm-wide cavity.

it, and the blowing machine seemed to have developed an insatiable appetite, as we seemed to be constantly feeding it."

High performance

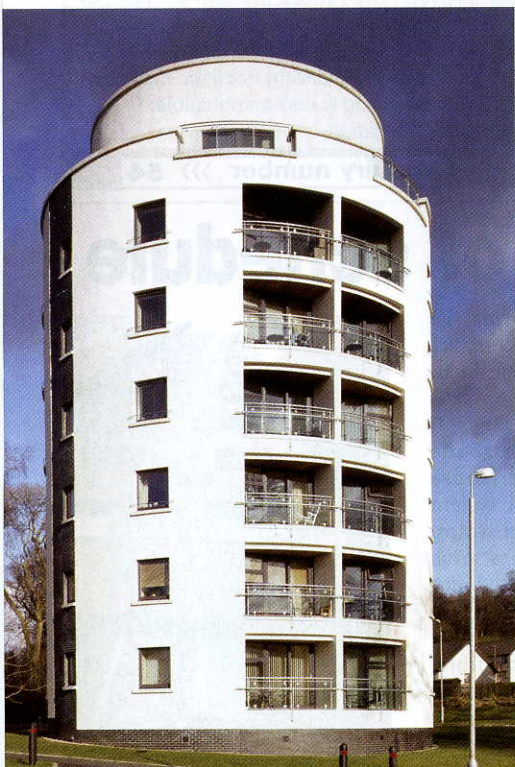
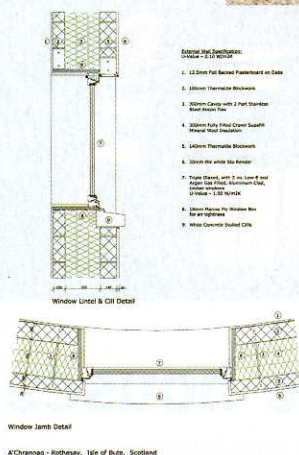
The thermal performance of a building's external walls is fundamental in the pursuit of maximum energy efficiency. A'Chrannag's walls are 600mm thick, and their construction – a plasterboard-lined, 140mm block inner leaf, 300mm-wide cavity with full-fill insulation, and a 100mm block outer leaf, finished with a 20mm-thick acrylic render – results in an elemental U-value of 0.10W/m²K.

The combination of high-performance insulation, triple-glazing, airtight construction and a heat recovery system, has eliminated the need for a dedicated heating system within the flats. Although a combined electric storage and panel heater is provided in the living rooms, no heating is needed in the bedrooms.

With the highest thermal insulation performance in the UK, A'Chrannag is one of Europe's most energy efficient social housing projects; its radical design reduces heating requirements within each of the 14 apartments to just 1.5KW, and lowers CO₂ emissions by 70%.

"Too many architects are playing a game of superficial eco-styling," said Deveci. "They're deluding clients and the public into thinking that 'sustainable architecture' means a timber building with a grass roof! A'Chrannag shows that buildings do not have to look sustainable to be sustainable, and I hope it marks a step-change in client expectation and design philosophy."

For further information about Crown Supafil cavity wall insulation, visit Knauf's website at www.knaufinsulation.co.uk or tel 01270 824024 quoting CH 476 05.



A'Chrannag won the Scottish Design Awards' best affordable housing design.