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JANUARY 2010

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Chameleon cladding

Lincoln's award-winning architectural development, the Think Tank, is full of innovative features, but it was value engineering that inadvertently led to the specification of its iridescent exterior from Rockpanel...

The development of Lincoln's Innovation Centre has already achieved official recognition for its architectural excellence. It has won several regional awards including the Chairman's Award at the East Midlands Local Authority Building Control (LABC) Building Excellence Awards in June, and two East Midlands RIBA awards for Design and the Low Carbon Environmental Initiative.

Indeed, it certainly has a number of pioneering and imaginative features: The building's two wings have been connected up to increase accessibility for its inhabitants and encourage internal networking – a key requirement of the brief. The building is also a case study in sustainable construction with several novel environmental features that contribute to its overall green credentials, including a passive heating/cooling system and a green roof which houses solar panels and reflects natural light into the rooms below.

But, perhaps its signature characteristic, certainly to the first time visitor, is its iridescent exterior. The building's façade changes colour, depending on its exposure to sunlight or the angle upon which it is viewed. While the façade panels seem mainly grey and green from one angle, viewed face on they have a bronze appearance, and in the sun they take on an orange glow.

The cladding product which produces this stunning effect, is created by compressing mineral wood fibres under high pressure – a process which gives it its unique characteristics. The mineral fibre façade boards are combined with a crystal layer underneath a high-gloss coating. This kind of coating has been commercially available for a considerable time and was first used in the automotive industry on the Alfa Romeo 156.

Depending on the colour of the base coat, the crystal layers refract light into a range of different colours, in this case from orange ochre through green to brown. This crystal layer also has an interesting impact on how colour is perceived, by changing colour when struck by natural light. This allows its colour to change at different times of day, when viewed from fresh angles, and after different amounts of exposure to sunlight.

While architect, Marks Barfield, had fulfilled its brief to introduce creativity and innovation into the original design, the specification of this cladding product, the first time it had been used in the UK, was actually a result of the value engineering process that took place during the planning stage.

"Originally we had planned to use a combination of timber and Fibre-C cladding to give the building a layered, organic yet crisp, panelled feel," says architect Julia Barfield.

Fibre-C is a flexible concrete-based cladding product which has been produced in flat panels since 1991. It is extremely durable and at just 13mm width is light and easy to install.

However, at the budget design stage it was considered to be too expensive and since Fibre-C is made-to-order, with a lead-time of four months, this would have disrupted the build-schedule.

"Together with the building contractor, Kier Marriott, we invited SBS Exteriors to source an alternative," explains Julia, "They suggested using Rockpanel Chameleon as a cost efficient alternative which was readily available in the volumes required."

Moreover, at 8mm width it was 5mm thinner than Fibre-C and therefore offered greater flexibility for the installation process – requiring a less robust fixing structure and able to be cut and shaped on-site. The product was also commensurate in terms of durability.

The cladding product's environmental attributes were also consistent with the original brief to make the building carbon neutral. The panels are made from at least 30% recycled material and the production process means that 400m² of finished product can be manufactured from just a single cubed metre of basalt rock, a very sustainable natural resource. The boards are fully reusable and recyclable with no downgrade in any of the recycling or re-using stages. This contributed to the overall sustainability of the development which is expected to achieve a BREEAM rating of excellent.

The installation system used to fix the cladding to the building also had an influence on the naming of the Centre. The installer, SBS Exteriors, devised a central fixing system which consisted of a large rivet to attach the cladding at the back of the framing. Project manager for Lincoln Council, Philip North, when first seeing the design remarked that it looked like a tank, making a connection with the history of the site. Subsequently the Innovation Centre has become affectionately known by its nickname, the Think Tank.

Rather appropriately, the Centre is built on the site where the world's first military tanks were tested. The building's iridescence also provides a nod to army camouflage, again appropriate given the area's historical military connections.

The 3,500m² development was completed on time (14 months) and to budget (£7.1m) thanks, in part, to the specification of its signature cladding.

For more information about Rockpanel use any of the four enquiry methods below **quoting number AG299**

Send in a response **claire.mackle@centaur.co.uk**