



The GRC-clad Tapestry Building surrounds a communal garden space.

(Photos: Nick Kane.)

# King's Cross T1, London

*King's Cross T1, also known as the Tapestry Building, was designed by Niall McLaughlin Architects as part of the overall Argent's King's Cross redevelopment project. The T1 block began in 2015 and was completed in 2016; since then the building has been awarded the RIBA London award and recently been named one of the best places to live in the UK. Jose Manuel Sanchez Casado of Techrete discusses the manufacture and installation of the standout GRC façade panels.*

**T**he King's Cross Tapestry Building now stands beside a relocated and restored gas holder that offers the structure an exclusive attraction.

This is perhaps one of the most distinctive buildings in the 9000m<sup>2</sup> King's Cross development set along St Pancras Lough. It is a mixed-use structure combining residential, retail, bars, cafés and a multi-storey car park. The building now houses 129 apartments over 14 floors. The Tapestry Building is not like other structures in the sense that it tapers to two acute points.

It is an elevated mid-city block that was designed and built to combine the coverage of the existing energy centre. In order to ensure the integrity of site personality, a historic gas works steel structure was restored and relocated, now standing beside the King's Cross T1 building.

## Past inspiration

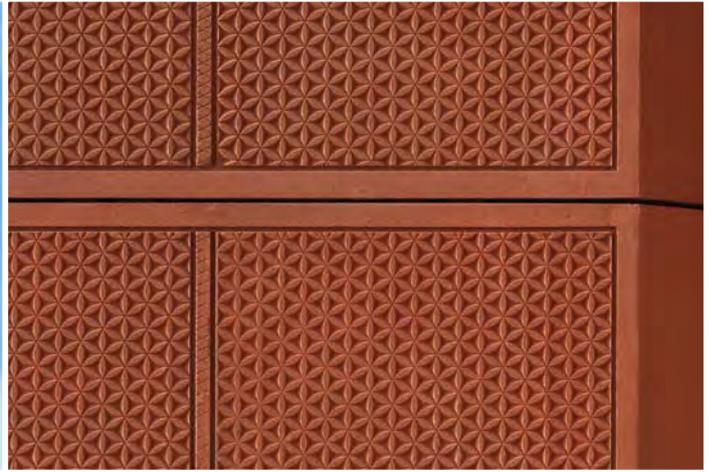
The architectural firm Niall McLaughlin Architects had designed King's Cross T1, drawing inspiration from the past when lavish tapestries would be hung on buildings to separate the outside from the inside. Kier Construction led the build alongside the architect Niall McLaughlin and structural engineer Ramboll.

The building has achieved the desired sustainability accreditation, such as the Code for Sustainable Homes level four and the BREEAM Excellent/Outstanding accreditation. The Tapestry Building's sustainability goals were achieved through landscaping design and the use of architectural precast cladding.

Techrete was subcontracted to design, manufacture, erect and seal this architectural glass-fibre-reinforced concrete (GRC)



Balconies were manufactured as a single unit off-site.



The richly ornamented GRC façade.

“The architectural firm Niall McLaughlin Architects had designed King’s Cross T1, drawing inspiration from the past when lavish tapestries would be hung on buildings to separate the outside from the inside.”

bespoke exterior. The building’s exterior is striking and distinct: the GRC is a marvellous deep terracotta colour and the concrete was acid etched and detailed with patterns that reveal a diverse pattern in the finished façade of the building.

### Construction

All these GRC panels were manufactured in Techrete’s factories and transported to site ready to be erected and sealed. During construction of the building, the on-site team had to determine the optimum and most efficient method of constructing the balconies. It was finally decided that they would be manufactured as a single unit off-site and erected on-site with the GRC panels preinstalled on a steel frame.

### Properties of concrete

The cladding on the façade of the building has been designed as a rainscreen system. The panels provide articulation between deep vertical piers and horizontal elements such as balconies. The façade meets the waterproof and thermal performances required. Each panel used in King’s Cross T1 was

manufactured as per the GRCA standards of the Grade 18P specification. The high performance of the material allows for a large panel format with reduced thickness and a ‘ribbing’ system at the back.

### Casting

In order to obtain the richly ornamented façade, the concrete used in the casting of the façade panels was a lightweight GRC. The colour chosen to give the Tapestry Building its unique colour was a mix called G171 R12000 (Techrete’s original mix) in an acid etched finish. An acid-etched finish involves exposing the finished panel to a washdown with a dilute acid-based solution, which gives the façade a textured finish.

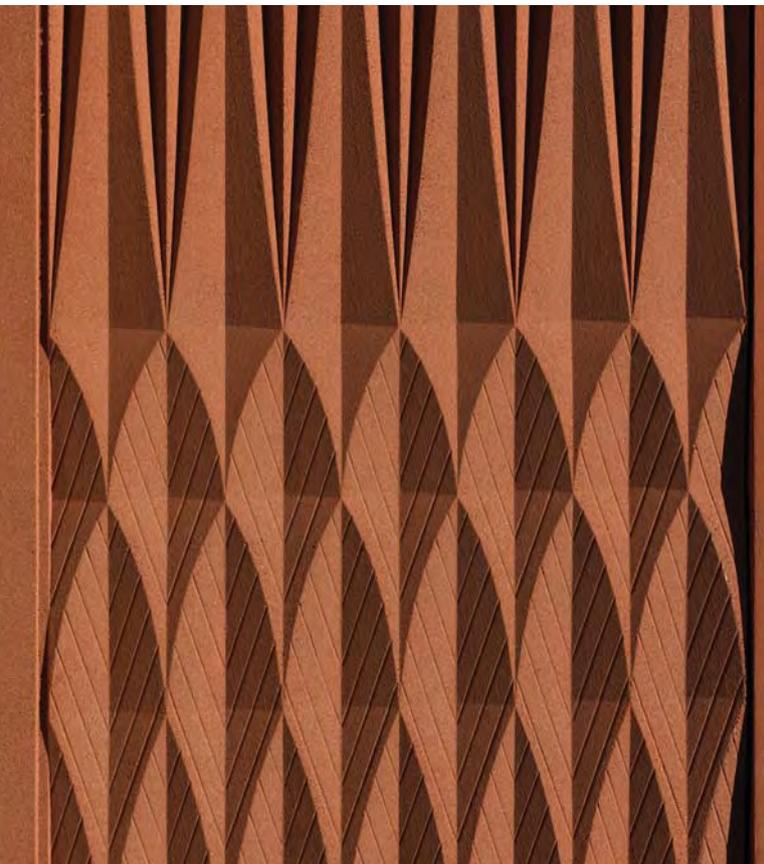
The architect acknowledges that the design of King’s Cross Tapestry Building takes its inspiration from the Guaranty Building in Buffalo, New York. When manufacturing the moulds for the GRC panels, sustainability and uniformity were paramount, therefore concrete moulds were chosen. These moulds allow for a significantly larger number of extractions versus timber moulds; this was both time efficient and sustainable as



The Tapestry Building (King's Cross T1).



One of the concrete moulds used for GRC panel manufacture.



The ornmented GRC façade.

there was less material wastage during the manufacturing process. Furthermore, this also resulted in high-quality, uniform and more affordable panels being produced for the project.

### Delivery

Once manufactured, the lightweight GRC was delivered to the site on flatbed trucks. As the panels were manufactured at Techrete's

factories, they arrived complete with no need for scaffolding was not needed and the panels being erected from trailer to building by use of a crane. Once the façade of the building was complete, this left room for the design teams to complete the landscaping, roof gardens and interior design.

Being a lightweight product, using GRC allows for more panels to be added to each load and as a result, reduces the number of trips needed by trucks. In the King's Cross T1 project alone, it was assessed that a 70% reduction in emissions was achieved using this form of concrete. As explained above, the use of concrete moulds in this project greatly reduced the number of moulds required compared with the traditional manufacturing process, making the construction of King's Cross T1 considerably more sustainable than traditional methods.

### Bespoke

Although many of the King's Cross buildings display unique attributes, the T1 building is one of the more bespoke and distinctive buildings set alongside St Pancras Lough. The building's shape is also unique; two blocks that appear to sit parallel to each other, tapering to a point.

The Tapestry Building stands alongside a relocated steel structure that represents the origins of King's Cross and its connection to the gasholders that originally stood in the area. The surrounding landscape was carefully designed by Willerby. The use of soft landscaping, consisting of plants, small trees and other flora, breaks up the industrial feel of the area, offering a peaceful communal podium garden space. ■