



# Techrete at Kings Cross

Kings Cross, Architectural Precast Concrete Cladding



FIVE PANCRAS SQUARE

# Introduction

Construction work began on the Channel Tunnel Rail Link in 2001 and the associated expansion and restoration of St. Pancras Station. This was a catalyst for the landowners, London & Continental Railways and DHL (formerly Excel), to develop the land. With Argent as their development partner they undertook a long process of consultation upon which they based their master plan prepared by Architects Allies & Morrison and Porphyrios Associates. Outline planning permission was granted in 2006.

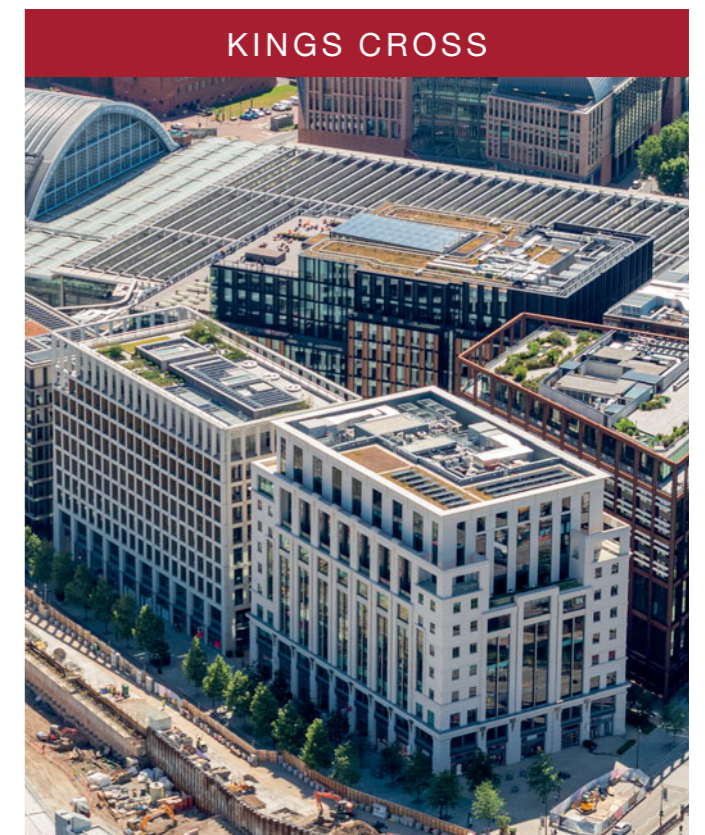
The significant investment in the regeneration of Kings Cross and the developments in the transport sector is driving the rejuvenation of the area. The regeneration of the 67 acre site incorporates retail offerings, hotels, apartments, restaurants, public amenities, office buildings and civic amenities. The area is densely populated and the value of land is very high. The perception of the area has been changed thanks to new businesses, the new buildings

and the marrying of the old and new structures. These mixed uses support each other and the area is fast becoming one of the best known quarters in Europe.

Techrete have been responsible for the supply and installation of architectural precast cladding on a substantial number of the projects in this development. The versatility of the facades allowed them to fuse the new contemporary buildings with the old restored buildings in a seamless and complementary manner. Working in this location was not without challenges. Restrictions were placed on them working in such close proximity to the rail lines. Techrete have been involved in the design, manufacture and installation of the architectural precast panels on buildings B2, B3, B4, B6, T1, T6, KX200 and the paving on KX0. This brochure has been compiled to demonstrate how Architectural Precast Concrete Facades were used in Kings Cross and why they are the façade of choice for other large scale projects.

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KINGS CROSS

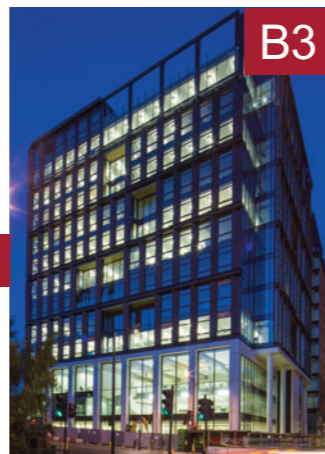
Photo: John Sturrock



B2

**B2 Gridiron - One Pancras Square**

1,048 Techrete Panels including 398 cast iron column cladding  
**Area:** 3,600m<sup>2</sup>  
**Architect:** David Chipperfield  
**Main Contractor:** BAM



B3

**B3 - Five Pancras Square**

2,787 Techrete Panels  
**Area:** 8,801m<sup>2</sup>  
**Architect:** Bennetts Associates, Weedon Partnership, LA Architects  
**Main Contractor:** Kier Construction



B4

**B4 - Two Pancras Square**

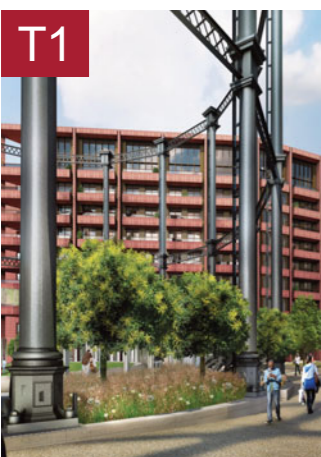
427 Techrete Panels  
**Area:** 5,907m<sup>2</sup>  
**Architect:** Allies & Morrison  
**Main Contractor:** BAM



B6

**B6 - Three Pancras Square**

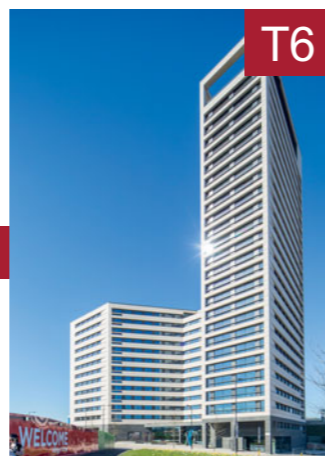
593 Techrete Panels  
**Area:** 7,725m<sup>2</sup>  
**Architect:** Porphyrios  
**Main Contractor:** BAM



T1

**T1 - Tapestry**

2,400 Techrete Panels  
**Area:** 9,000m<sup>2</sup>  
**Architect:** Niall McLaughlin Architects  
**Main Contractor:** Kier



T6

**T6 - Urbanest**

1,000 Techrete Panels  
**Area:** 8,140m<sup>2</sup>  
**Architect:** Glenn Howells  
**Main Contractor:** Mansells (Balfour Beatty)

# An Overview of Techrete's Work at Kings Cross, London





Techrete were engaged in 2012 to supply and erect the external façade of this 55,000 sq m office building. In addition to supplying the precast cladding panels, balconies and GRC soffits, Techrete were also engaged to design, coordinate and erect the cast iron columns, due to the proximity and interface with the cladding. These were manufactured by Hargreaves at their facility in Halifax, West Yorkshire and were then transported on specially adapted trailer frames and were subsequently painted and erected by Techrete.

The precast cladding and other features were to be erected outboard of the completed curtain wall cladding and this presented handling challenges and also required a bespoke fixing system. Due to its proximity to the rail lines, Techrete had to contend with a

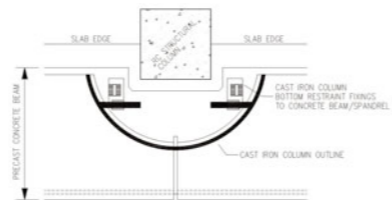
downgrading of all craneage by 25%. The windows were pre-installed and external access for this installation was via MEWPs. Above level 6 mast climbers were used. The GRC soffits were up to 2.8m wide and specially adapted trailers, frames and lifting equipment were used to assist site handling of the panels in under-slung areas which were not accessible by the tower crane. Trial lifts were carried out at the factory, prior to delivery to site. A tower crane was used for the majority of the installation with the exception of the balconies which, due to their weight, were hoisted by a mobile crane. To ensure the uniformity of finish Techrete undertook to construct the paving and steps beneath the colonnade.

The reconstituted stone mix chosen was to complement the adjacent building B4 and a warm acid etched finish was used to achieve this.

"Argent have always valued their supply chain and fostered a collaborative environment. Techrete as a key member of our supply chain have delivered a number of different buildings for us at King's Cross, all with varying architectural styles.

Argent have found Techrete very easy to work with. Their professionalism has resulted in the projects being a success in terms of safety, quality, delivery and budget. This success is testament to how collaborative working produces world class results."

**Tom Callaway**  
Senior Development  
Manager, Argent.



PLAN ON TYPICAL  
CAST IRON COLUMN





B3 - Five Pancras Square

## B3 FIVE PANCRAS SQUARE

This unique building has won many accolades for its design including the RIBA London Regional Award 2015, The RIBA London Sustainability Award 2015, and most recently, the Prime Minister's Better Public Building Award. Furthermore it has achieved the BREEM level of 'Outstanding'.

It was built as the new headquarters for Camden Council and is clad at the lower levels with Techrete precast concrete panels. There were a lot of constraints encountered on site and the ground to 3rd floor cladding had to be installed in advance of the super structure. Due to the site logistics and proposed crane sizes and positions, normal installation hours could not be accommodated on site as these would have blocked deliveries and affected progress on site. There was also site off-loading restrictions. To avoid these issues, Techrete

panels were installed between 7pm and 7am using the site tower cranes. The line and level works were carried out during the day. Another challenge faced was the installation of the circular columns. This proved interesting as they were underslung units and there was reduced headroom available.

As with other projects in the Kings Cross area, there were network rail restrictions which required the downgrading of all craneage by 25%. This problem was alleviated by using mobile cranes where appropriate, although there was some back propping required to the slab during this operation.

A reconstituted stone mix was chosen in an acid etched finish which gives the building a regal finish, allowing it to blend effortlessly with the prestige of the neighbouring buildings and surroundings.



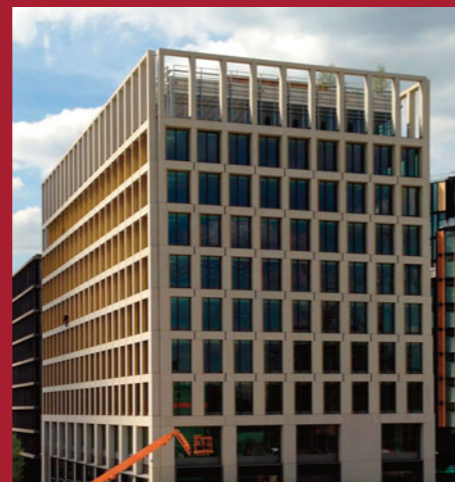
## B4 TWO PANCRAS SQUARE

This 11 storey, 130,000 sq ft office building was designed by Allies & Morrison. The design of the architectural precast cladding gives it an interesting rhythm. As the building rises, the precast mullion sections reduce in width but deepen in depth. This was achieved by specially designed adaptable moulds. The curtain walling / glazing was prefixed to the frame, above level 2, in advance of the cladding. A delicate installation operation ensued and the fixing system had to be adjusted to the depth of the reveals. In order to increase the speed of erection, reduce cost and improve general efficiency, some of the panels were 2 storey high "F" panels. This allowed for a rapid rate of enclosure to be achieved.

The immediate impression of this building is of mullions and spandrels but a keen eye can see upon closer inspection that the mullions actually decrease in width towards the top of the building and the windows at these levels

are set back further to create deeper reveals and create greater solar shading. The key to the manufacture of this was mould adaptability. To ensure minimal staining from rainwater on the face of the building, the spandrels were designed to guide the water towards a vertical drainage system in the mullions, which keeps the water off the face of the building. The concrete mix contains some Spanish Dolomite aggregate which adds a sparkle to the façade.

The uppermost level has an unusual feature of a winter garden. This comprises of 3 storey high colonnades with free standing cantilever structures. This is a very uncommon feature and structural modelling was utilised in the design process. Due to the size of the panels, some challenges were encountered during the installation process. Prior to installation these panels (10m in length) had to be rotated with the use of the tower crane and then hoisted into position.



B4 - Two Pancras Square



B6 - Three Pancras Square

Photo: John Sturrock

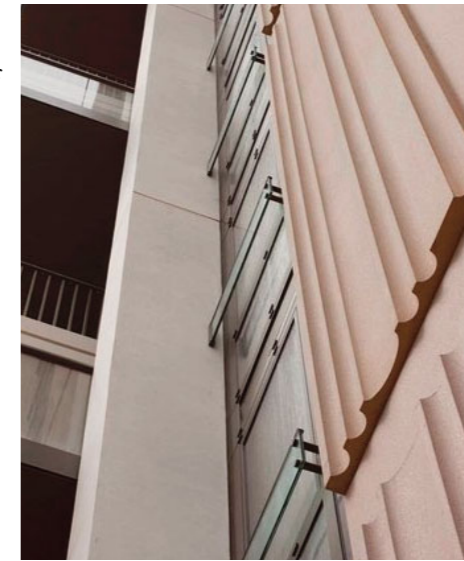
## B6 THREE PANCRAS SQUARE

Techrete were awarded the contract for the design, manufacture and installation of the pre-cast elements of number 3 Pancras Square. The building comprises of an architecturally complex pre-cast concrete facade which attaches to a steelwork frame over 10 floors. The building blends effortlessly with the other projects in the Kings Cross area, complementing the other Techrete buildings surrounding it. Production began at our facility in January 2015, with the first panels arriving on-site in July 2015. The project completed in December of that year.

**Architect:** Porphyrios

**Engineer:** AKT II

**Main Contractor:** BAM



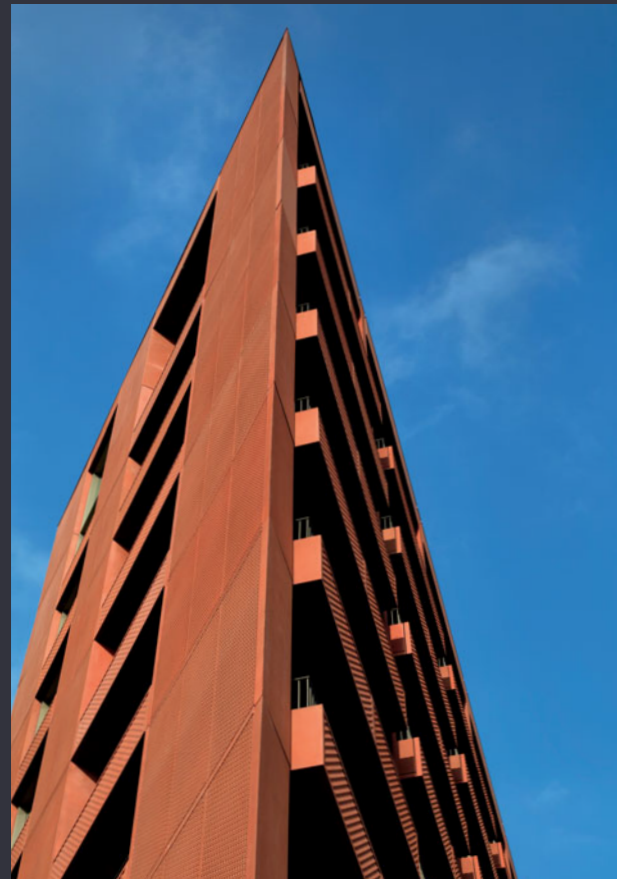
## T1 TAPESTRY - ONE - THREE CANAL STREET

This is perhaps one of the most distinctive buildings in the Kings Cross development set along St. Pancras Lough. It is a mixed use structure combining, residential, retail, bars, cafes and a multi-storey car park.

The influence for the design of this building comes from ancient Assyrian textiles, along with other patterns from ancient Egypt right up to the twentieth century. In addition, the building features intricate tapestry like grooves, which draws inspiration from the past when lavish tapestries would be hung on buildings to separate the outside from the inside.

Techrete have a long established relationship with the architect. This was developed when they worked on the Olympic Athletes Village together and created reproductions of the Elgin marbles. The process Techrete developed involved using CNC machines to create the moulds and the methodology developed on the Olympic Village project was employed in this project. This method allowed Techrete to create sharp formal patterns using concrete moulds and the resultant intricate pattern on the panels, gives them an almost sculptural quality. The precast elements were created with a Techrete bespoke deep red mix of GRC.

The balconies were manufactured off site and were erected as individual complete units.



T1 Tapestry - One Canal Street



T6 - Urbanest

## T6 URBANEST

This 26 storey student accommodation dominates the Kings Cross skyline. Techrete designed, built and installed, 1,000 precast panels covering 8,000 sq m of the facade.

The lower levels, in a dark acid etched grey, are complemented by the Portland look-a-like, with two varying depths of a grit blasted finish to the panels at the upper levels.

The installation of the precast took only 34 weeks. The overall construction time was reduced as the installation of the panels (using a telescopic crawler crane) allowed an earlier site start date, whilst the reinforced concrete frame was still under construction.

The downgrading of craneage due to the proximity of the Channel Tunnel Railway Line (CTRL) on the northern boundary of the site was an added constraint for the project. A monorail was required for the installation of the panels on the north elevation immediately adjacent to the boundary fence of the CTRL. This was also undertaken whilst the frame was being constructed above.

The tower crane had a stability tie which was tied to the structure of the building at level 17. This occasioned a panel being temporarily omitted until the tower crane was removed. The panel was then installed from within the building using chain hoists.





**B2**

**ONE  
PANCRAS  
SQUARE**



**B3**

**FIVE  
PANCRAS  
SQUARE**



**B4**

**TWO  
PANCRAS  
SQUARE**



**B6**

**THREE  
PANCRAS  
SQUARE**



**T1**

**TAPESTRY  
CANAL  
STREET**



**T6**

**URBANEST  
CANAL  
REACH**





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