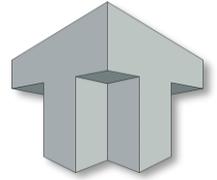


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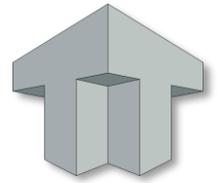
ARCHITECTURAL PRECAST CONCRETE  
CLADDING SPECIALISTS



# About Techrete



- ↑ Founded in **1985** - celebrating **35** years
- ↑ **350** employees across the UK and Ireland with offices in London, Leicester, Brigg and Dublin
- ↑ Leading company in the design, manufacture and installation of architectural precast cladding
- ↑ Complete precast solution from bespoke design through to manufacture and installation
- ↑ **21,000m<sup>2</sup>** of combined production space
- ↑ Can facilitate **175,000m<sup>2</sup>** of cladding per year
- ↑ Reputation for successful delivery of challenging and complex projects, through a combination of industry leading knowledge and experience and by employing a proactive approach to design, manufacture and installation



# Iconic Techrete Projects



1



2



3



4



5



6

1. St. Peter's Square, Manchester



2. Victoria Gate, Manchester



3. Victoria & Albert, Dundee



4. Tapestry, Kings Cross, London

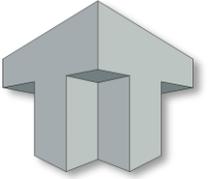


5. Lombard Wharf, London



6. Tottenham Hotspur Stadium, London





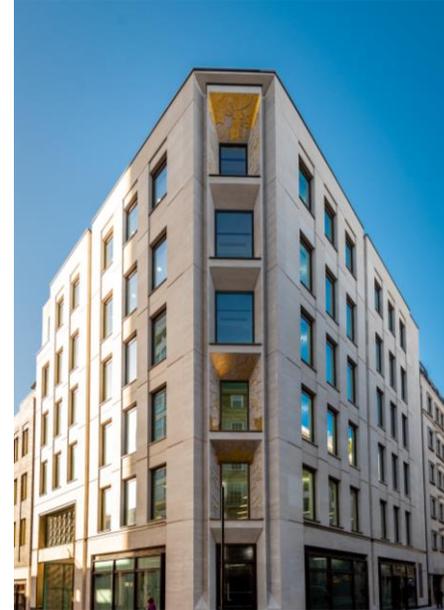
# Latest Completed Projects



Southbank Place,  
London



Wembley E05,  
London

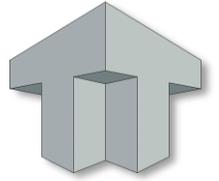


Dukes Court,  
London



Duncan House,  
London





# Latest Completed Projects

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Newcastle Biosphere,  
Newcastle



Visual Control Tower,  
Dublin Airport

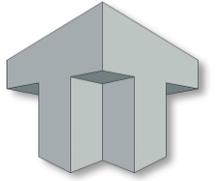


Local Blackfriars,  
Manchester



Project Capella,  
Cambridge University





# Upcoming Projects



Victoria & Albert,  
London



UAL School of Fashion,  
London



BBC Music Hall,  
London

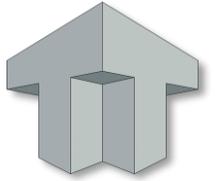


Brazenose House,  
Manchester



UCL, Pool Street,  
London





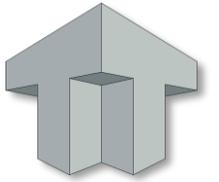
# Company Update - Factory Extensions



Dublin factory recently extended to **10,700m<sup>2</sup>** facilitating **75,000m<sup>2</sup>** of cladding per year.



Brigg factory recently extended to **10,900m<sup>2</sup>** facilitating **100,000m<sup>2</sup>** of cladding per year.



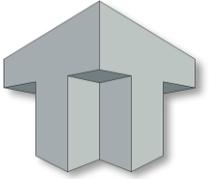
# Recent Factory Improvements



Newly extended gantry crane in Dublin to facilitate an extra **1,350m<sup>2</sup>** of storage.



Newly installed filter press separating solids and liquids from the concrete waste.



# Technology – BIM

## ↑ Increasing Implementation of BIM Practices

90% of all projects are now created in a model environment with increasing levels of sophistication in terms of the information being contained in the digital environment. The goal is to produce a “digital twin” of our works for approval, manufacture and installation.

## ↑ Continual Investment in Software and Training

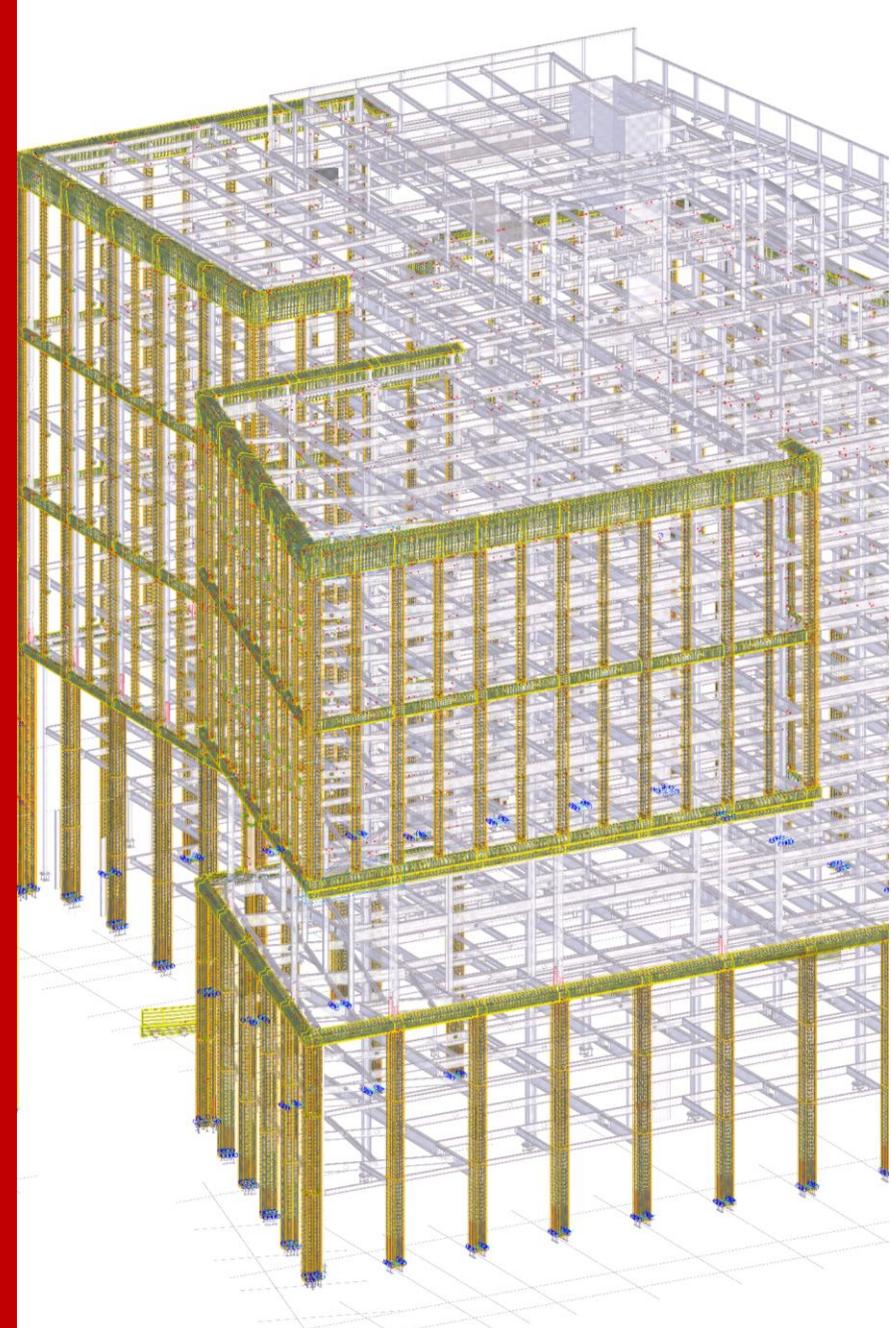
We have increased the number of Tekla (primary modelling software) and Revit users within the design process and we are currently trialing internal model exchange software across the business with a view to migrating to digital working. We have also added more capability for our design and analysis software package.

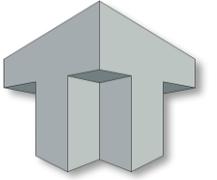
## ↑ Transfer of Digital Information to Manufacture

We are increasing the transfer of model data directly to the production halls, such as directly exporting reinforcement schedules to the reinforcement processing equipment and to return QA data to the design office.

## ↑ Transfer of Digital Information to Site

We have recently upgraded our site engineers with robotic total stations which have the capability to survey and check builders work items from the digital models to improve productivity on site. This is also to accurately position units on the building during installation which reduces delays onsite.





# Innovations - Concrete

## ↑ High Performance Concrete

Techrete worked on an EU funded project (IMPRESS) with Queens University, Trinity College and UCD. The project focused on developing thin, lightweight, energy efficient sandwich panels incorporating non-corrosive reinforcement and phase change materials. We are continuing to develop these areas of research into practical applications which can be offered to our clients.

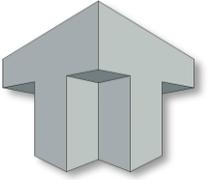
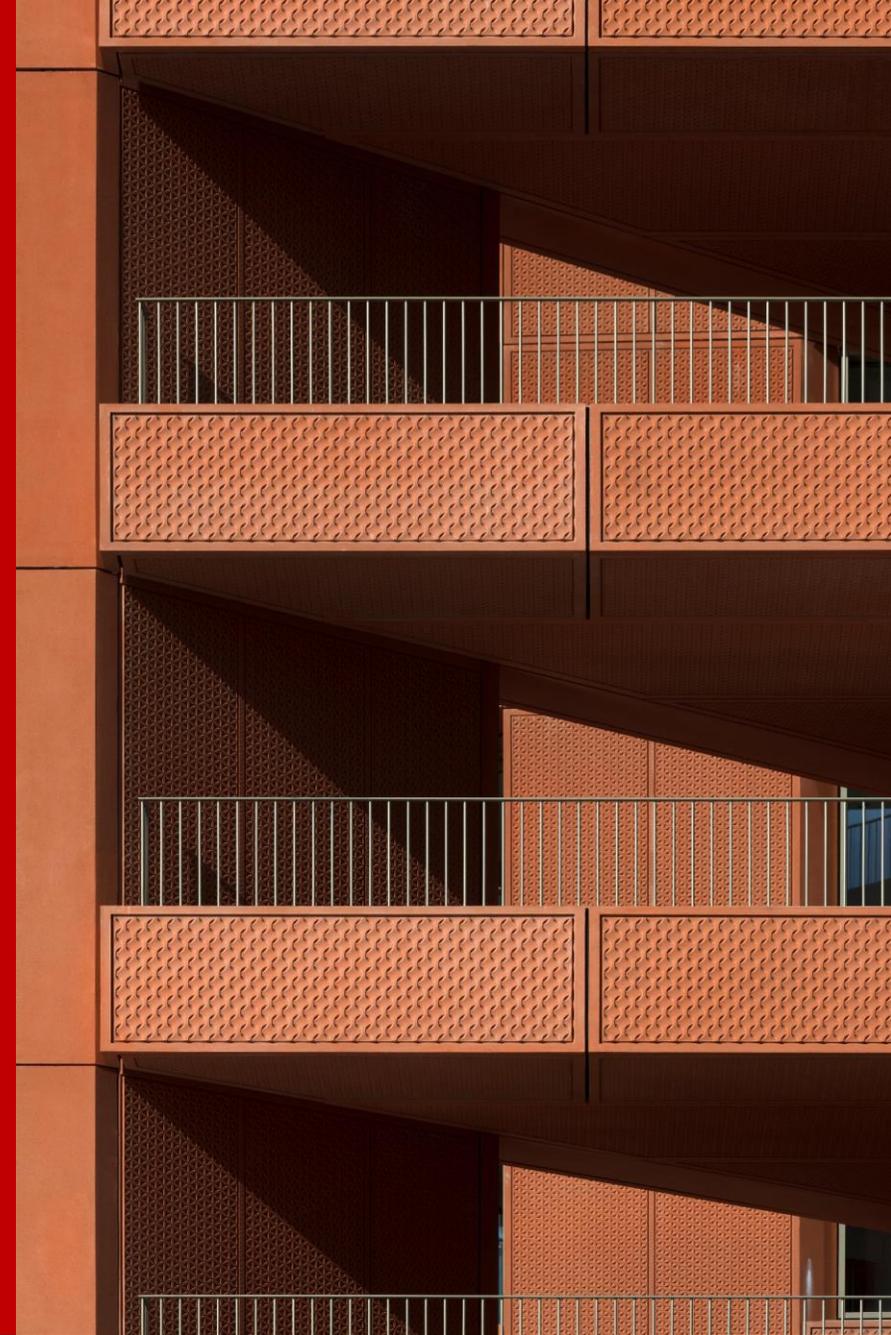
## ↑ Minimizing Embodied Carbon Through Mix Design

We are working to develop low carbon façade panels using a combination of high-performance concrete, employing low carbon cement replacements, while also exploring accelerated curing methods which will enable the continuation of current panel turnaround times.

## ↑ Air-Entrained Concrete & GRC Reducing Panel Weights

Techrete are exploring other ways of reducing the weight of our product. Air entrained concrete and glass reinforced concrete have the potential to reduce panel weight by up to **25%**.





# Innovations - Production

## Achieving Complex Geometries

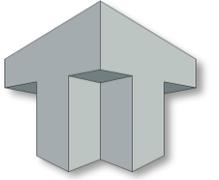
Our ability to achieve complex unit geometries is reliant upon our in-house design and manufacturing expertise, developed over **35** years, which allows us to both optimize material usage and minimize waste throughout the production process.

## Increasing Production Efficiencies through Self Compacting Mixes

We continually reassess all current mixes and are developing a SCC of each mix, in line with EU recommendations to ensure they are as efficient and environmentally responsible as possible.

## Heat Sensors for Overnight Temperature Monitoring

A host of temperature, humidity and CO<sup>2</sup> sensors have been installed in both factories to monitor the factory's indoor environment. This allows us to optimize our energy and carbon consumption as we work towards our target of reduced carbon.



# Innovations - Waste

## ↑ Incorporating Waste Products to Create a Circular Economy

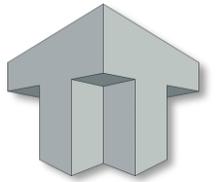
Solid waste is separated in two phases. Firstly, the larger particles get separated under the batching plant using a proprietary piece of equipment (Eco Frog). We are collaborating with DIT to test how much of this material can be introduced into the concrete.

## ↑ State of the Art Filter Press to Minimize Waste

During the second phase, the separated water from the Eco Frog is then pumped through the filter press along with waste from the polishing process to extract the remaining solids. We are exploring the possibility of re-introducing these solids into the manufacturing process.

## ↑ Water Management

Techrete only use mains water for concrete production and our canteens. Rainwater is collected from our facilities and stored in our lagoons for use in the finishing processes such as polishing and general wash-down. Waste-water from our facilities is separated into two streams - alkaline from concrete production and acidic from etching. These streams are processed separately to ensure each receives the appropriate treatment prior to being recycled.



# Extending Serviceable Life of Precast Facades

## ↑ Precast Concrete is Inherently More Durable than Alternative Materials

Compared to other facade typologies, precast concrete panels have better durability because they require less joints and framing and because concrete itself exhibits greater durability properties than steel, wood and composite aluminium facades.

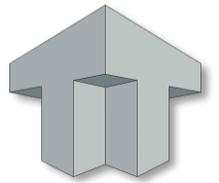
## ↑ Lifespan for Precast Concrete

The current standard for precast concrete is approximately 50-60 years, however relatively minor changes to specification in cover and cement type could extend this considerably beyond 100 years, thereby reducing the whole life-cycle carbon impact.

## ↑ Strategy to Increase Service Life Through Mix Enhancements

Techrete aim to further increase the durability of our own products by experimenting with non-corrosive reinforcement and incorporating durability-enhancing supplementary-cementitious materials into our mixes e.g. GGBS.





# Extending Serviceable Life of Precast Facades

## ↑ Reducing Quantity of Joints and Sealants

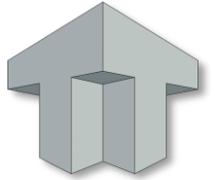
Joints, connections and sealers are typically the first things to deteriorate in all façade systems. However, precast façade systems if optimized, can significantly reduce the quantity of joints and seals on a façade. In addition, the use of a double seal means that the primary seal is protected from effects of weather and UV light which can break down sealants.

## ↑ Improving Durability of Joints and Sealants

Techrete actively engage with leading sealant manufacturers to continually review improved products which are being developed. We are also investigating durable gasket joint solutions which would match the long lifespan of our panels themselves.

## ↑ General Maintenance and Cleaning of Panels

General maintenance and the periodic cleaning of panels once erected, is an important preventative measure in terms of maintaining a water-tight and durable façade, thereby allowing it to achieve its intended design life. This is also fundamental to maintaining the aesthetics of the façade.



# Techrete 2025 5 Year Plan

🏠 Our ambitious target is to reduce our carbon footprint below the current British Precast generic architectural panel by **50%** within **5** years.

🏠 We are in the process of developing a range of Techrete product specific EPD's to benchmark our current products and to monitor our progress towards this ambitious target carbon reduction.

🏠 We have two primary goals to achieve our reduced carbon footprint and these are:

## Goal One

Aim to make all areas of the business apart from the materials consumed, carbon neutral by **2022**.

- ✓ Energy
- ✓ Waste
- ✓ Off-set transport emissions

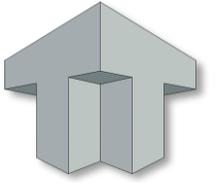
## Goal Two

On the materials used (primarily cement) adopt two approaches :

- ✓ Use less materials – thinner, more efficient sections.
- ✓ Use materials with a lower carbon content – cement replacements.



# Achieving Goal 1



## Green Energy

The production of our concrete from the mixing, compacting, finishing and right to craneage, is all powered by **100%** renewable energy.

## Energy Efficiency

Our facilities are designed with a large thermal mass, reducing energy requirements. Geothermal energy is used to heat and cool our offices through an exposed flooring system. Solar panels on our Brigg facility have generated **817,000Kwh** since **2016**. We are reviewing the potential to upgrade the heat pump system to supply heat to the factory.

## Use of Low Carbon Transport

We are aiming to use low carbon transport where possible. Our green travel policy limits emissions allowed on company cars. GPS tracking on trailers avoids unnecessary trips.

## Water Efficiency

Both facilities are designed to maximize water recycling and re-use. Rainwater is captured from the factory roofs and all hard surfaces and fed into attenuation ponds for re-use in our wash-down and polishing processes.

## Bio-Diversity and Improving Natural Habitats

We have made a significant investment in the planting of trees around our factory perimeters and in the landscaping of our sites, allowing flora and fauna to flourish.





**WINNER**

**Green Medium Sized  
Organisation of the Year**

## Achieving Goal 2



### ↑ Minimizing Material Usage Through Efficient Design

We are aiming to reduce the volume of concrete used per meter squared of façade coverage. This can be achieved through efficient design and constant review of production processes.

### ↑ Minimizing Use of High-Carbon Materials

Replace cement with low carbon alternatives and incorporate chemical admixtures to maintain current production rates. This is particularly challenging when trying to achieve an architectural grade concrete finish.

### ↑ Use of Green Suppliers and Materials

Techrete strongly promotes sustainability through our supply chain. We hold a BES 6001 Certification achieving a rating of 'Very Good'.

### ↑ Use of Local Materials

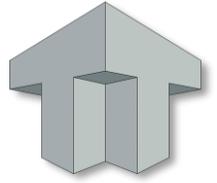
We use local materials where possible to offset transport associated carbon.

### ↑ Recycling, Reuse and Waste Minimizations

As previously outlined, we are currently looking at ways of incorporating our waste materials into our products, thereby minimizing both the quantity of waste from our factories and the virgin materials required.



# Techrete Certifications



ISO 50001  
2018



ISO 14001  
2015



ISO 9001  
2015



ISO 45001  
2018



Conformity of Factory  
Control



Health &  
Safety



Building Regulations



Responsible Sourcing of  
Construction Products



Achilles

Building Confidence



Authorized Economic  
Operator in UK and Ireland





Leicester : +44 1 162 865 965



Brigg : +44 1 652 659 454



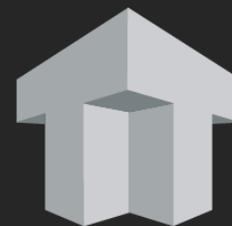
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