



Concrete Solutions

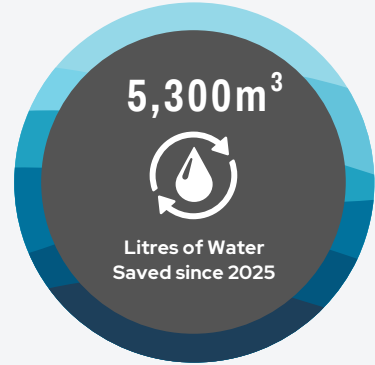
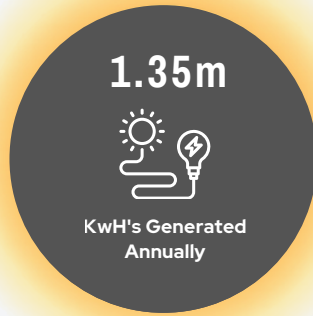
for Sustainable Developments

Techrete provides **tailored concrete solutions** to meet the unique demands of architectural precast concrete applications.

Our product range addresses **sustainability requirements**, while also achieving high performance in our products.



LOW CARBON ACHIEVEMENTS AT A GLANCE



ALIGNING WITH THE UN'S SUSTAINABILITY GOALS



We have aligned our initiatives & targets to the UN's Sustainable Development Goals which underpins the urgency & ambition of our strategy to significantly reduce our carbon emissions.

6 CLEAN WATER AND SANITATION



The Collection & Recycling of Rainwater

Rainwater is captured from our factory roofs & used in our manufacturing processes. Two **350ft** deep water wells supply our Dublin factory with 100% of its needs.

7 AFFORDABLE AND CLEAN ENERGY



Operational Efficiency & Renewable Energy

In 2023, we doubled our solar arrays & the combined **1,140kw** arrays are generating up to 50% of our energy requirements, while a **45kw ground source heat pump** provides thermal energy for our Dublin office.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Investment in Research & Development

We are **investing significantly in R&D** to improve our manufacturing processes & to reduce the volume of concrete used in our products. We are committed to staying at the forefront of sustainable practices & embracing future innovations.

11 SUSTAINABLE CITIES AND COMMUNITIES



Offsite Manufacturing for Cities & Urban Areas

Precast concrete offers durability & high thermal performance. It increases construction speed & **reduces the impact to local environments**. The lifespan is greater than the often specified 60 years for no extra carbon load & if the initial embodied carbon is written off over the full lifespan, precast concrete provides better value in terms of carbon.

ALIGNING WITH THE UN'S SUSTAINABILITY GOALS

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Responsible Sourcing & Recycling of Waste

We are certified to level **'Very Good'**, with BES6001 for our responsible sourcing.



The use of sustainably sourced timber, 100% recycled steel & various other manufacturing components is imperative to Techrete.



We use partial **cement replacement** in all of our mixes & are continuously aiming to increase the proportion of cement replacement in line with European, British & Irish Standards.



Part of our strategy is to maximise **our circular economy** & we are developing novel products that incorporate waste material, reducing the quantity of waste that leaves our factories & the quantity of virgin materials that we use.



We are a key participator in the CIRCON project in association with the LIFE programme which focuses on transforming waste streams into concrete binders.

13 CLIMATE ACTION



EPDs & Our Commitment to Sustainability

We have published third-party verified EPD's for all five of our product families: White Cement-Based, Grey Cement-Based, Sandwich Panel, Brick-Facing and Natural Stone-Facing.



Our EPD's are based on data that confirms up to **48.7%** reduction in GWP, depending on the product category, compared with Techrete's original baseline EPD published in 2021.



We hold certifications for our Energy Management (ISO 50001), Environmental Management (ISO 14001) & we are audited annually for our British Precast Sustainability Charter membership.

15 LIFE ON LAND



Biodiversity & Improving Natural Habitats

We have **planted thousands of trees** around the perimeters of our factories & invested significantly in landscaping which allows flora & fauna to flourish. We have plans to expand this further.



THE EMBODIED CARBON REDUCTION OF OUR PANELS

We have a clear strategy for the carbon reduction of our precast cladding panels, which aligns with the very latest guidance from the IStructE, ICE, Concrete Zero & the MPA. This strategy is centred around two distinct drivers:

1. We Will Use Less Concrete

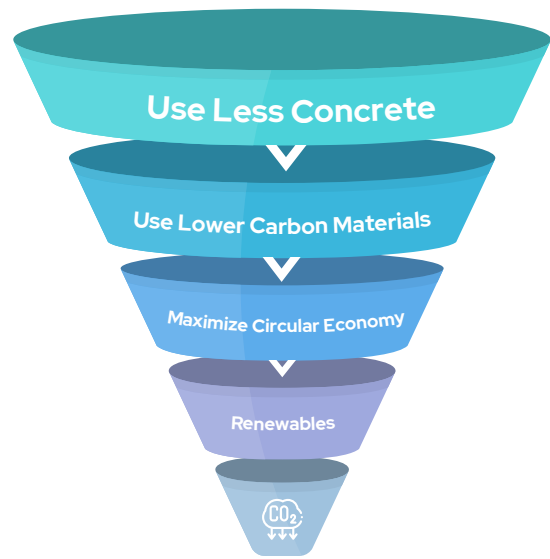
Reducing the volume of concrete used relies on several factors such as panel design, unit geometry & depth & degree of repetition. Rationalising panel design & optimising depth requires early engagement & collaboration with stakeholders & is crucial to achieve the lowest carbon concrete possible.

We can offer reduced panel thicknesses by up to 50% from traditional panels by using higher strength concrete, which not only results in significant embodied carbon savings, but also reduces craneage & transport costs. Furthermore, this can result in a **lighter structure** and increased zones for insulation, improving thermal performance and further contributing to the **overall carbon reduction** of the project.

We can achieve a panel thickness of 100mm (from 150mm) with the use of **High Performance Concrete (HPC)**, which exhibits a compressive strength of 50-100 MPa, without compromising structural integrity.

Ultra-High Performance Concrete (UHPC), incorporates high concentrations of fibres & exhibits exceptional compressive strength at 100-150 MPa, allowing the design of 50mm panels. However, these strength characteristics require increased cement content, resulting in higher embodied carbon & increased production costs.

On balance & taking a holistic approach, we believe we will achieve our goals with the use of **HPC**.



2. We will Reduce the Embodied Carbon of our Mixes

We will achieve this while maximising the performance, by reducing the percentage of carbon-heavy clinker employed in our mixes, as far as permissible under current standards. By also employing supplementary cementitious materials (SCMs), we have successfully reduced the load by **50%**.

There are several SCMs available today, including GGBS, fly ash, and limestone filler. While GGBS has long been the “go-to” replacement material, there is growing recognition that its availability is limited and that it should therefore be used responsibly and in appropriate quantities.

As advocates of responsible sourcing, we recommend using GGBS only in small proportions. Fortunately, we have a wider range of options for reducing the carbon footprint of our concretes. These opportunities have expanded significantly with the introduction of the next generation of concrete standards in 2023.

By combining these newer standards with a broader suite of SCMs, we can deliver lower-carbon concrete solutions without over-reliance on any single material.