



TECHRETE

ARCHITECTURAL PRECAST CLADDING SPECIALISTS

Sustainability in Precast Concrete



ENVIRONMENT
I.S. EN ISO 14001:2004
NSAI Certified



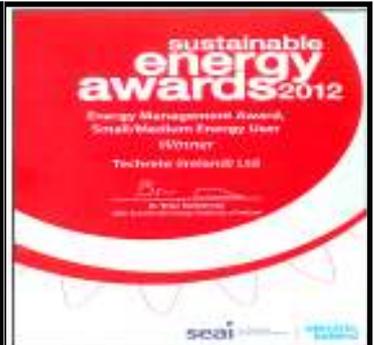
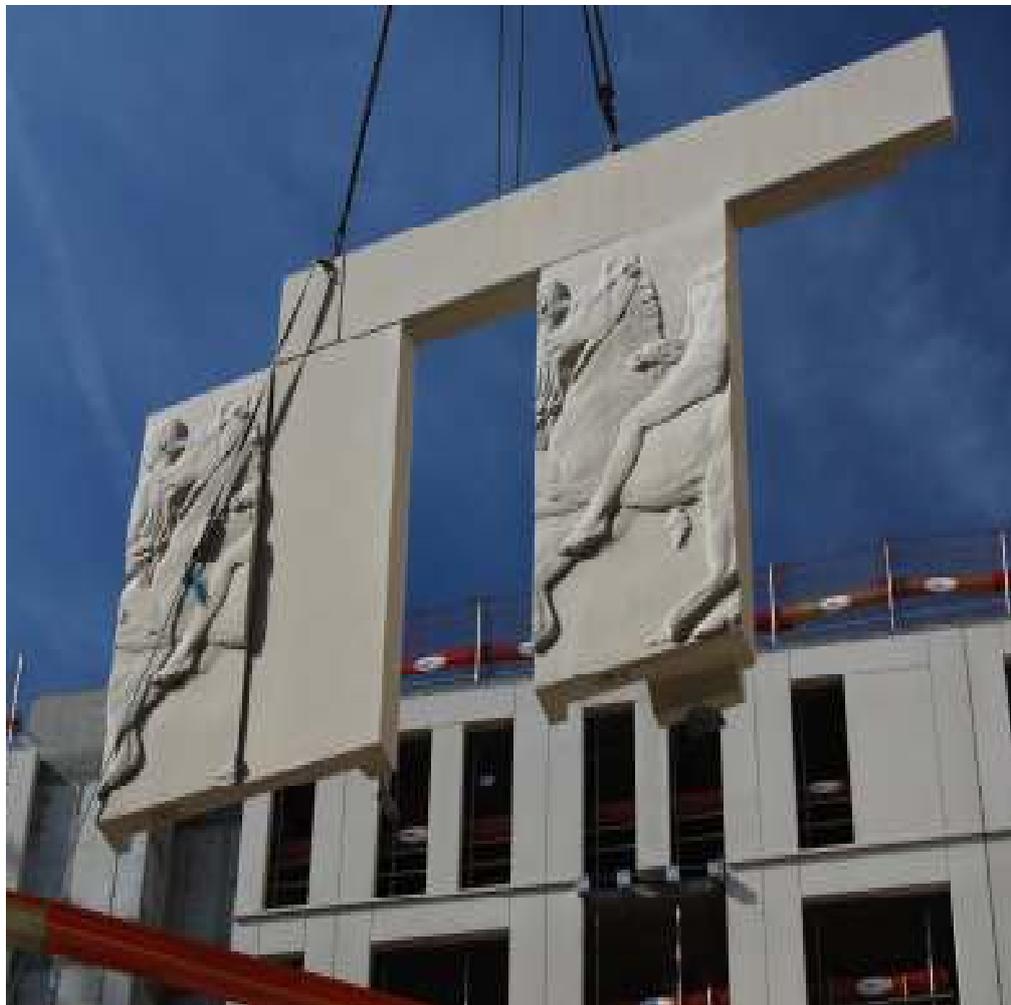
ENERGY
I.S. EN ISO 50001:2011
NSAI Certified



QUALITY
I.S. EN ISO 9001:2008
NSAI Certified



HEALTH & SAFETY
OHSAS 18001:2007
NSAI Certified





Balbriggan (IRL)

Our Policy

Founded in 1985, Techrete is a leading company in the design, manufacture and supply of architectural pre-cast cladding to the Irish and UK construction markets. Techrete promotes sustainability both in the design and function of products and in the processes used in their manufacture.

Our environmental and energy management system supports this policy and provides the framework for setting and reviewing objectives and targets.

Our commitment to sustainability is driven from the top down and is set out by the Managing Director in our Environmental, Health and Safety, Energy Management and Quality Policy Statements.

Techrete is ISO9001, ISO14001, OHSAS18001, ISO 50001 certified and Achilles accredited. Techrete is a signatory of the British Precast Concrete Federation Sustainability Charter.

Environmental Advantages of Our Product

Off site fabrication of precast concrete cladding offers significant efficiencies and advantages over traditional methods, which benefit the environment.

- Panels are manufactured concurrently with site preparation which can reduce project construction times and the impact on the local community by over 50% (source: www.buildingforafuture.co.uk).
- As much of the work is performed in the factory, panels benefit from manufacturing efficiencies, innovations and design flexibility.
- Work on a construction site is hazardous. Off site manufacturing allows work to be carried out in a controlled, comfortable and safe environment where safety requirements are much easier met and policed. Working in this environment improves quality thus reducing defects and wastage.
- Materials can be stored in safer conditions in a factory than on site, thus greatly reducing risks of pollution.
- As panels are delivered without packaging and there are no site off cuts, off site construction generates up to 90% less waste (source: WRAP (Waste & Resource Action Programme)). Any waste that we do produce is easier to segregate for recycling and collection.
- With large panels, crane time and the numbers of lifts are optimised, thus reducing energy consumption.
- Off site manufacturing uses less water than on site, even more so in the case of Techrete as we now recycle approx. 31% of water used in our factory.
- In general, off site manufacturing leads to a reduction in the number of deliveries to a site compared with traditional construction methods.
- All panels are 100% recyclable at end of life stage.



Brigg (UK)

Our Approach

The process of precast production begins at Techrete's design offices, which are located in Leicester and Dublin. Techrete's production facilities are situated in Brigg, North Lincolnshire and Balbriggan, Dublin. Together, they cover 22,000 m² of production space and are situated on a combined site area of 15 hectares.

Techrete has invested heavily in energy efficient and environmentally sustainable processes, equipment, workshops, office facilities and management systems.

Energy Consumption:

Energy conservation and sustainability have been a focus for Techrete for several years now.

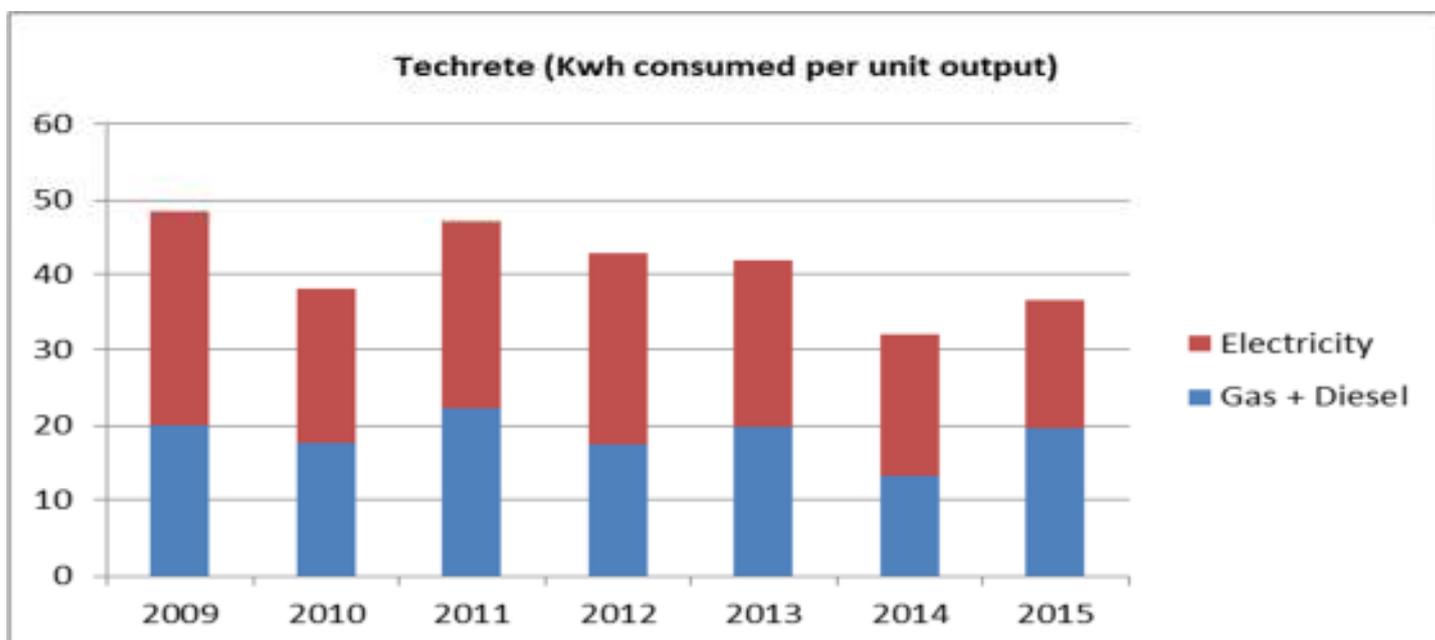


In early 2010 Techrete formally appointed an Energy Management team to monitor and manage the company's energy consumptions. In October 2010 we received ISEN16001 certification and in September 2012, successfully transitioned to ISO50001. Since 2010 we have introduced numerous energy management and energy efficient practices into our factories.

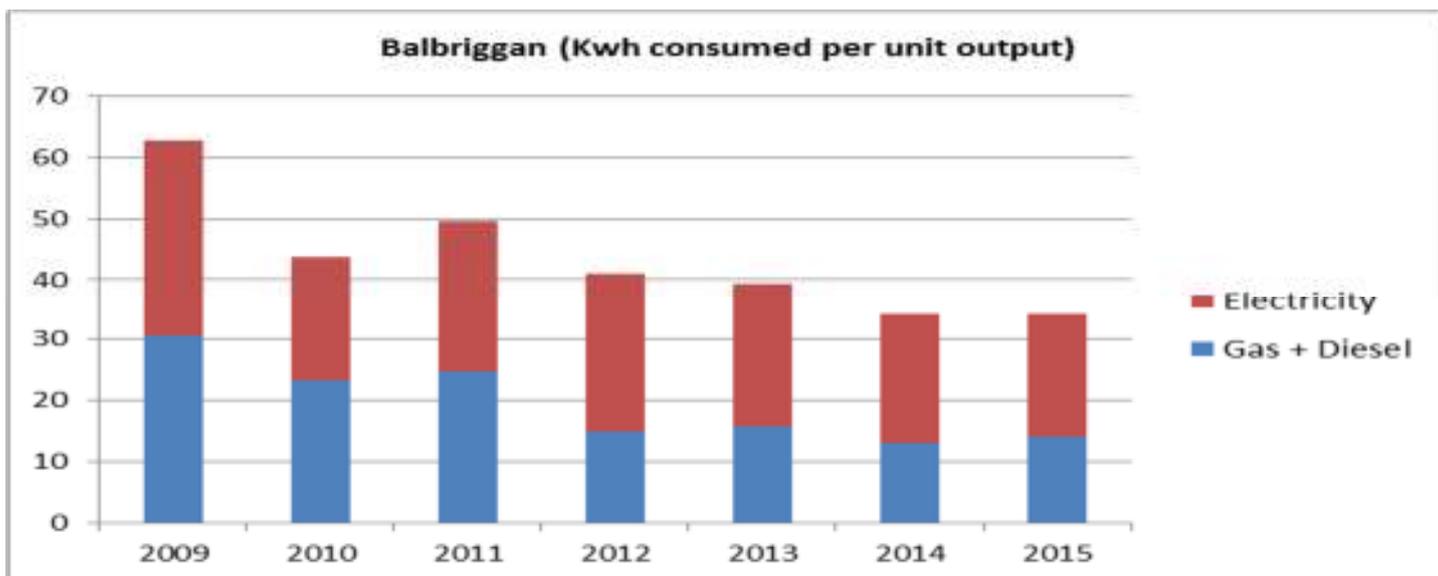
Staff awareness and induction programmes have been run to instil in staff the importance of viewing sustainability as integral to all Techrete operations. In addition to weekly reports to senior management, KPIs are posted on staff noticeboards. On-line sub meters show energy consumption in real time and allow us to identify and respond to any issues as soon as they arise.

We have worked with Sustainable Energy Authority Ireland, Carbon Trust UK and energy consultants to carry out product Life Cycle Assessments and identify all areas of our operation we could improve on from an energy efficiency point of view.

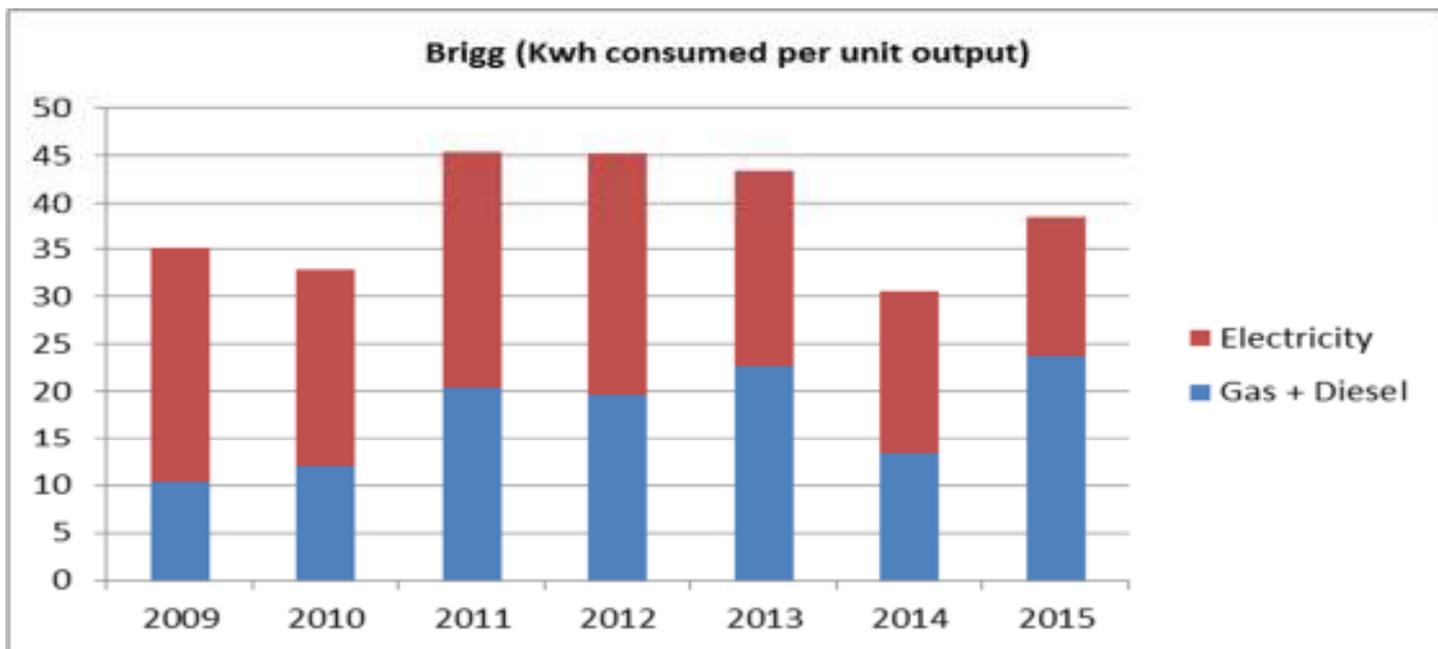
The initiatives implemented have seen us reduce our overall energy consumption, per unit manufactured, by in excess of 24% in 6 years.



Our move to a green field site in Balbriggan in 2008 allowed us to design a factory with energy efficiency in mind. The improvement here has been quite dramatic with 45% reduction in energy consumed per unit output over the past 6 years.



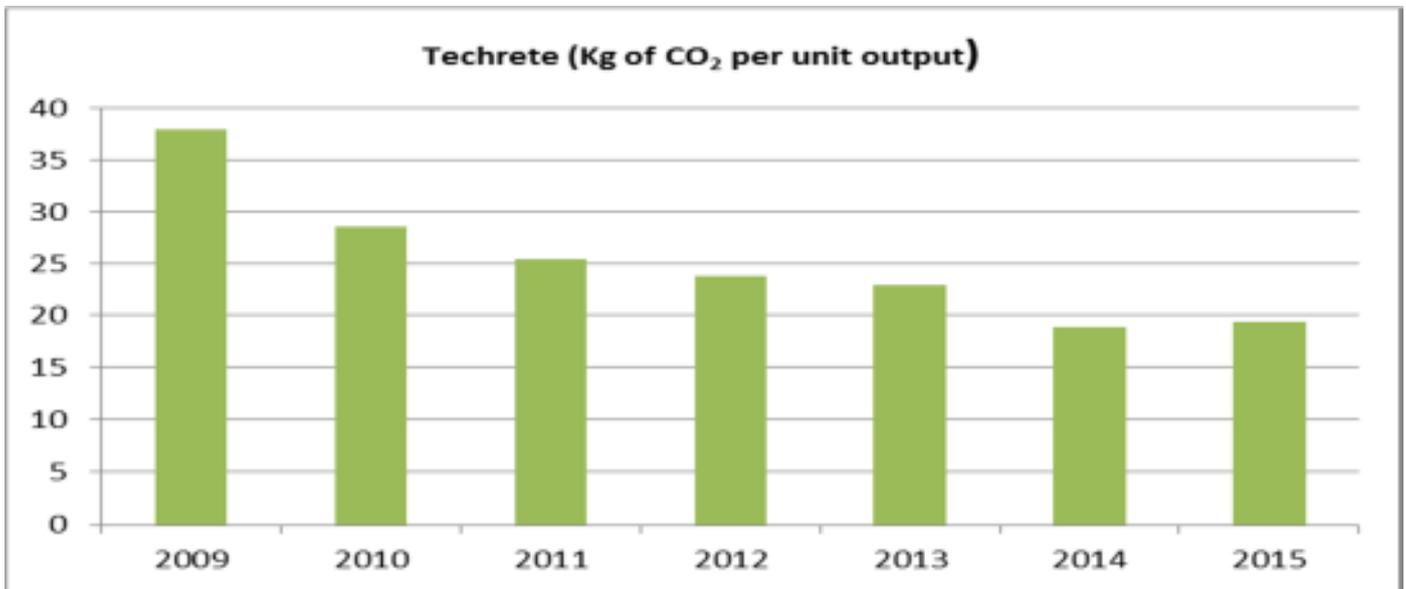
Our factory in Brigg posed a different challenge as much of the work involved retrofitting an older factory. The effects of our changes were immediately apparent as we saw a 7.5% reduction in kWh consumption per unit output in 2010. However, severe winters in 2011, 2012 and 2013 in the North of England greatly increased our gas consumption as aggregates and sands froze in our silos. We have since insulated all our silos and saw a decrease in consumption in 2014. Gas consumption rose again in 2015 due to production output increasing.



In addition to reducing energy consumption, Techrete has actively been investigating green energy sources to replace existing ones and, using 2008-2009 as a base year, has targeted a 35% reduction in CO₂ emissions per unit output by 2020



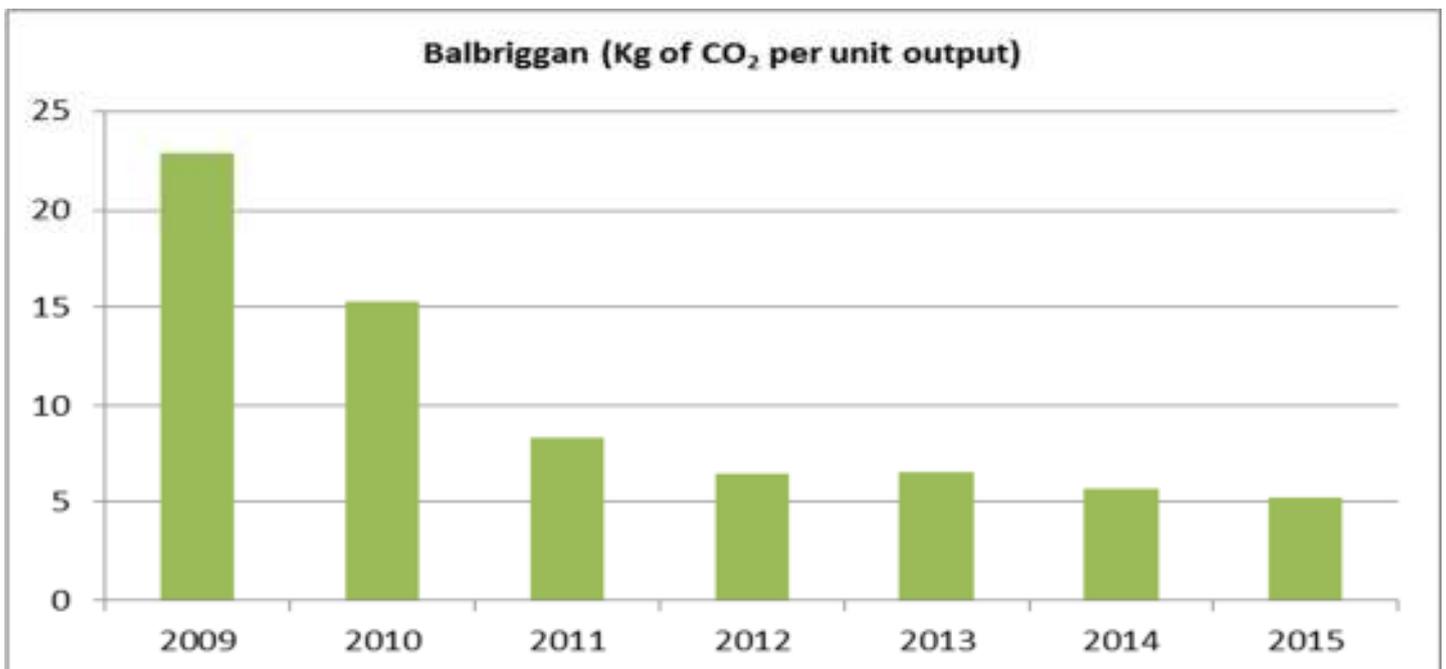
The initiatives introduced to date have seen us achieve that target some 4 years early as Techrete's CO₂ emissions per unit output have fallen by 49% over the past 6 years.

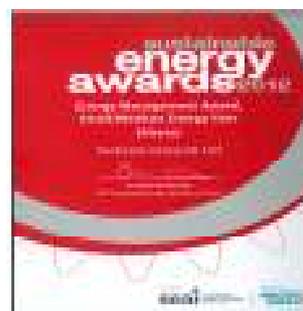
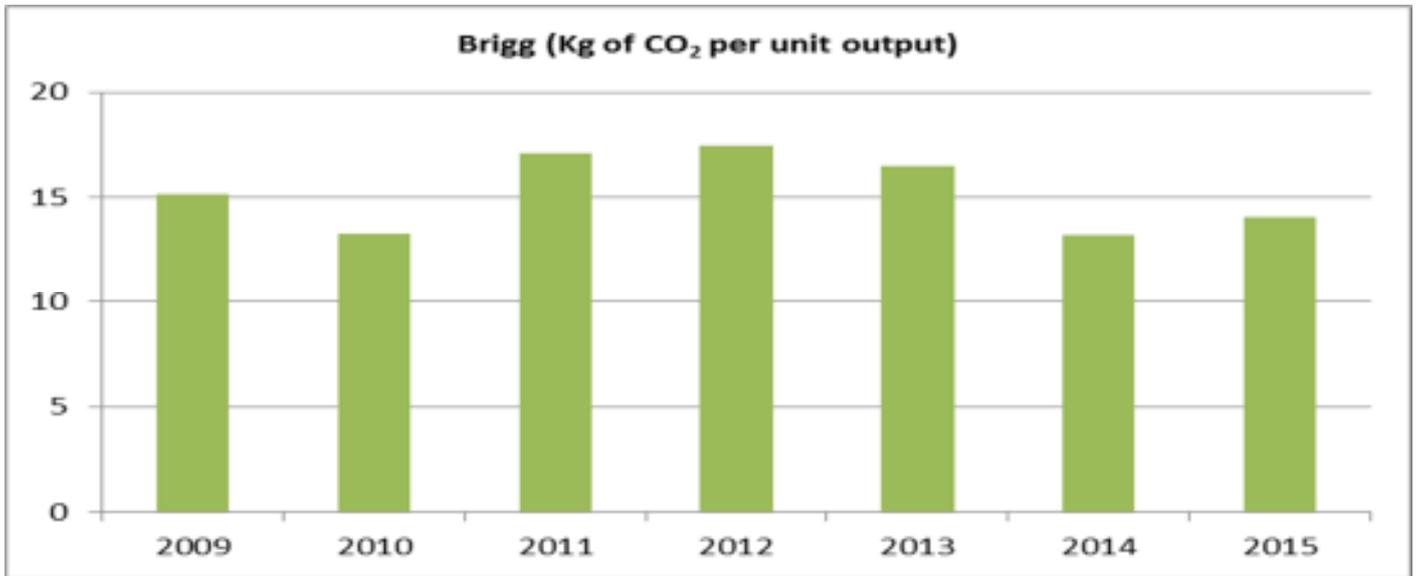


In our Dublin office, geothermal energy is used for heating and cooling through an exposed flooring system using cast in piping. Exposed concrete surfaces maximise the thermal capacity of the office. Passive ventilation in lieu of air conditioning and PIR controlled lighting all help to reduce our energy consumption. The insulated concrete panels used in the construction of the facility were designed with a large thermal mass within the insulated portion of the building. As the concrete absorbs energy when surrounding temperatures are higher than the mass and gives back energy when the surroundings are cooler, this serves to flatten out daily fluctuations in temperature, improving comfort levels and reducing energy requirements.

Analysis of energy consumption and statistics from Sustainable Energy Authority of Ireland and Carbon Trust show that energy consumption in our office is some 70% below levels required in a typical office. The panels used in the construction of our offices were designed and manufactured by Techrete.

Dublin has seen the CO₂ produced per unit output fall by 72% over the last 6 years. For the reasons mentioned earlier, Brigg has seen a slight increase. Our aim is to hit the 35% reduction target for our factories both cumulatively and individually.





In 2012, our progress in energy and emissions reductions was officially recognised when we were named winners of the SEAI Energy Management Award 2012. Following this up in 2013, Techrete were awarded Green Small Sized Organisation of the Year and in 2015 were awarded Green Medium Sized Organisation of the Year.

Techrete won the awards above and have been shortlisted in many others for the manner in which the company has embraced energy management, has taken steps to incorporate it in the day-to-day running of their business and, has involved employees in supporting effective energy-efficiency initiatives and recognises the significant reductions in energy usage and CO₂ emissions achieved.



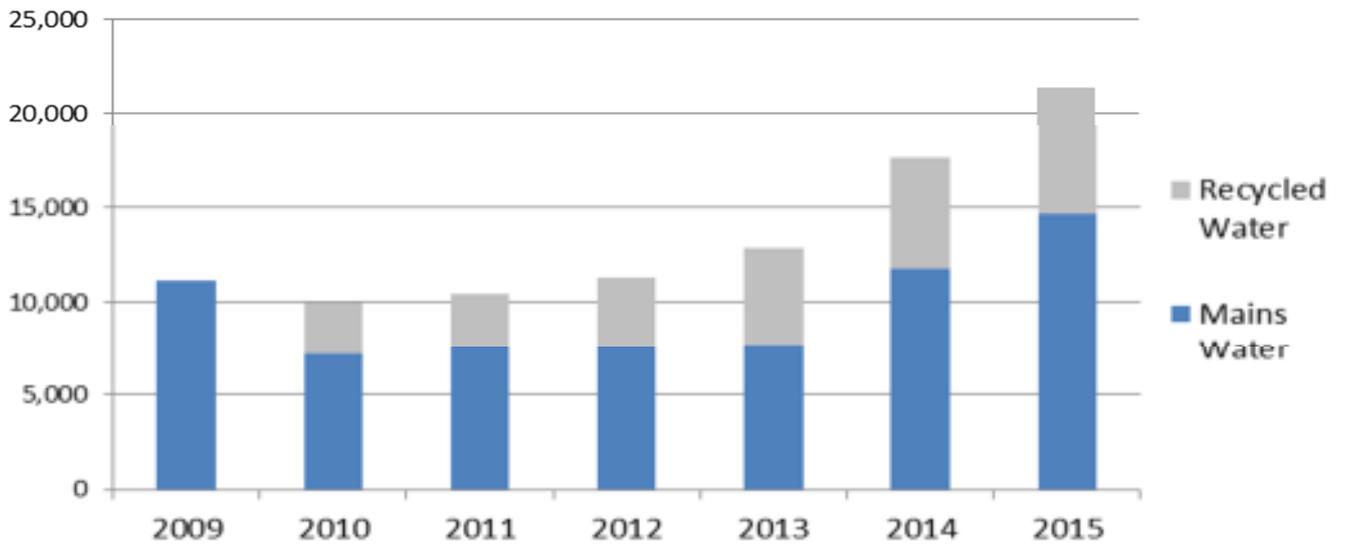
Techrete consumes a significant volume of water in the manufacture of pre-cast panels. The water is used not just in mixing the concrete but also in washing, polishing and acid etching panels.

Water and waste concrete produced by our Balbriggan factory is passed through our modern recycling plant where waste water is separated from aggregates, treated and pumped back into our factory to be reused. The separated aggregates can be recycled and used as hardcore.

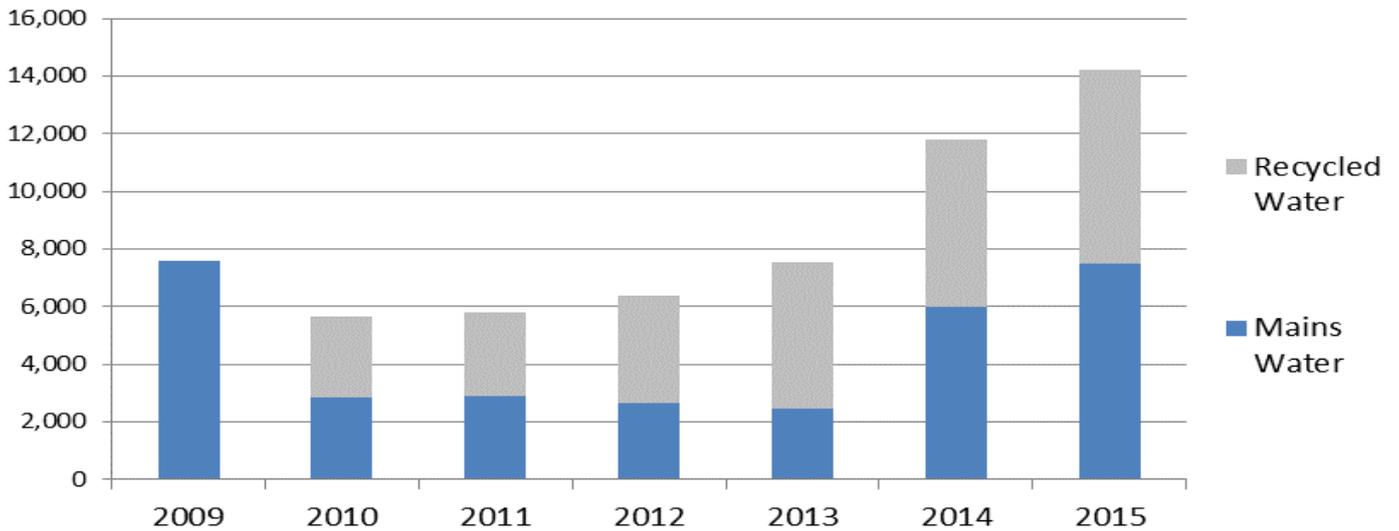
Techrete's Balbriggan plant was designed and built so as to maximise our ability to recycle and re-use water. All rain water is drained from hard surfaces to our 2,500m³ attenuation pond where it can be treated and used on our manufacturing process. Over 70% of water now used in Balbriggan is recycled water.

A rain water harvesting facility and borehole is in the process of being installed in our factory in Brigg. This will reduce our consumption of potable water by over 90% which will take significant demand off the public water mains.

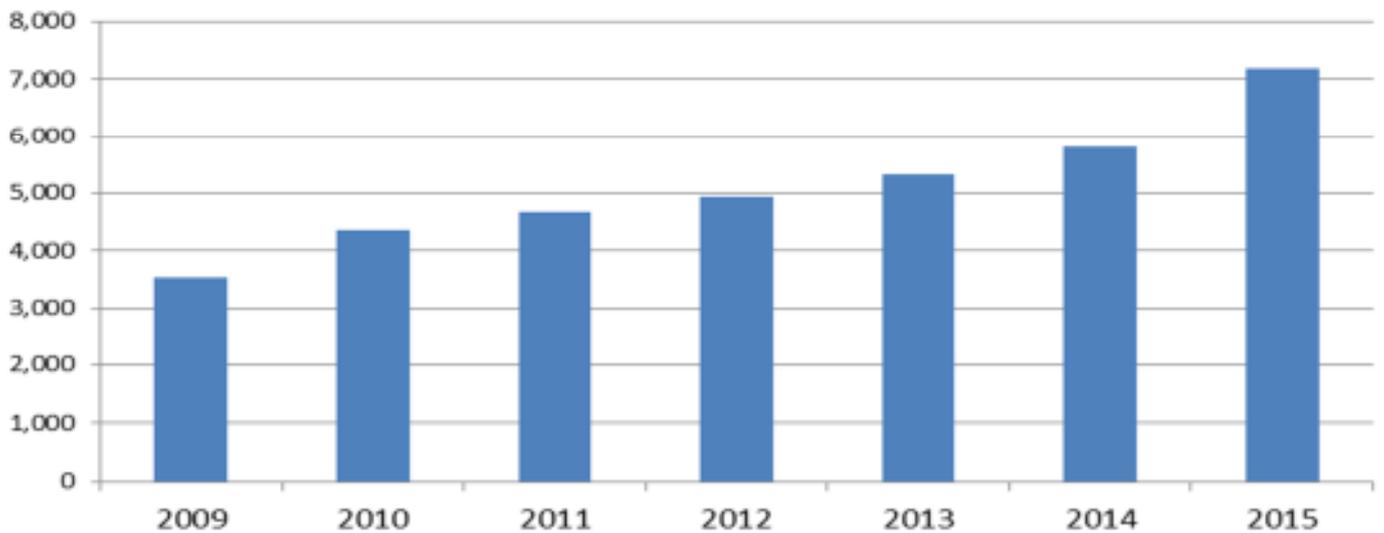
Techrete Water Consumed (m³)



Balbriggan Water Consumed (m³)



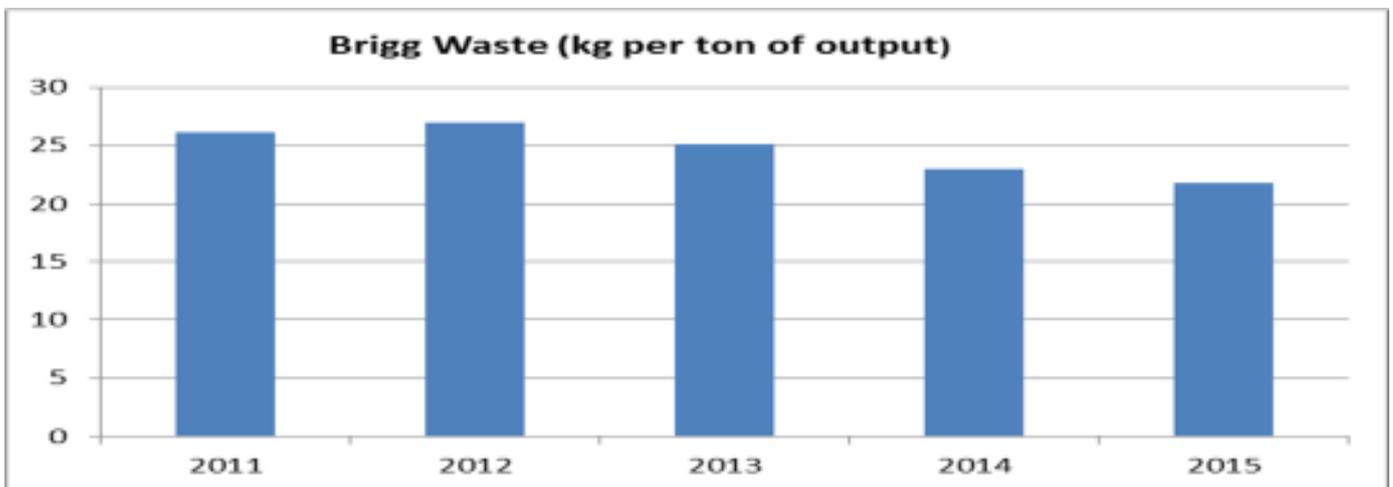
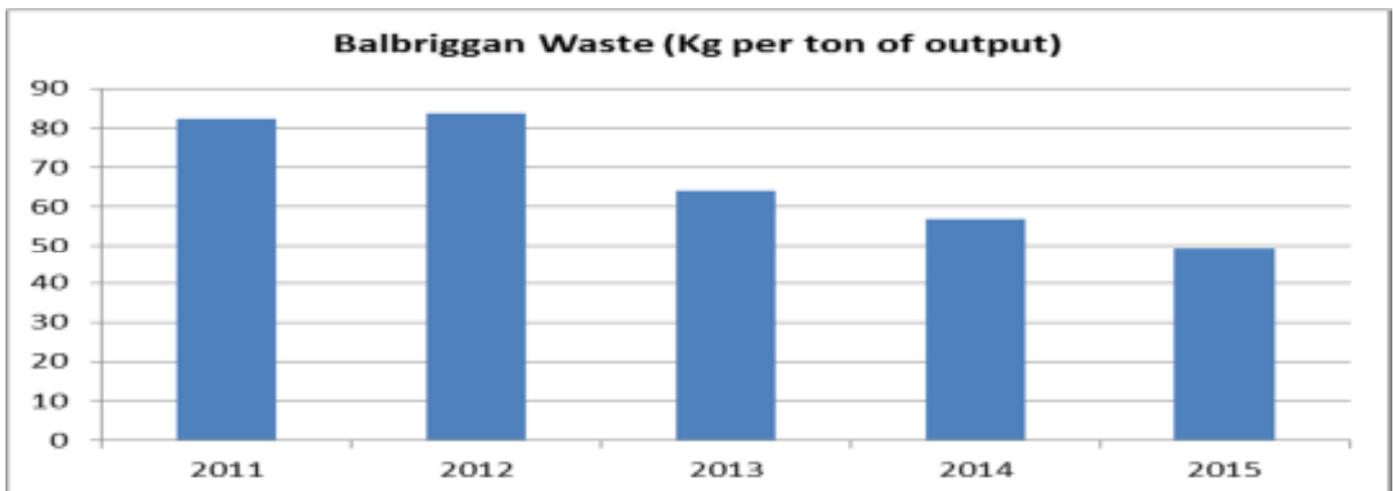
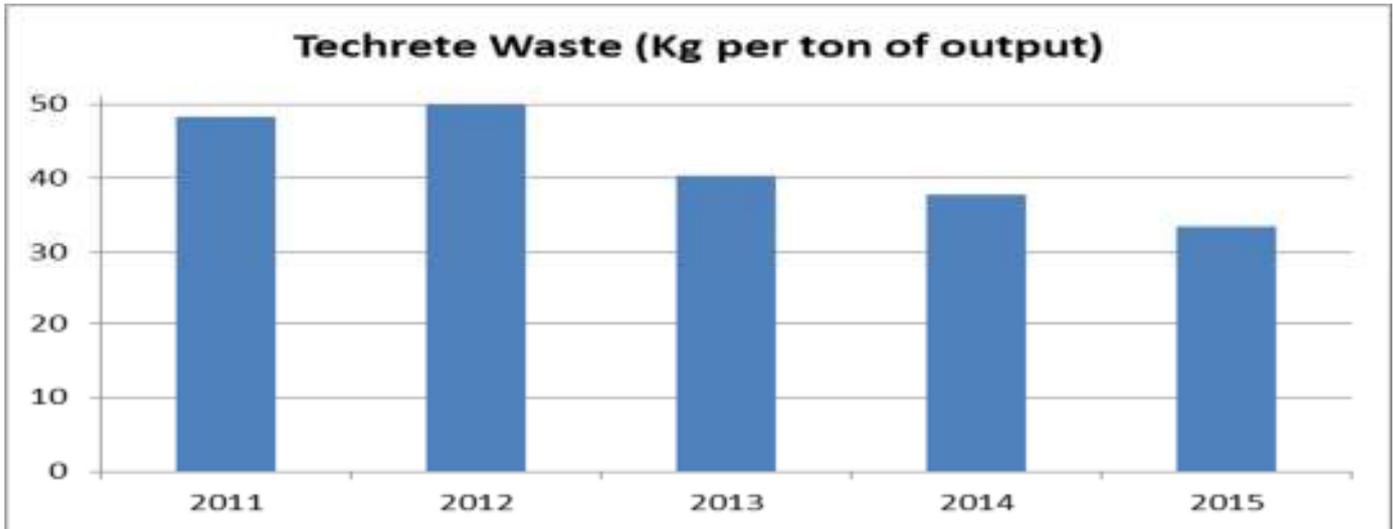
Brigg Water Consumed (m³)



- **Recycling, reuse and waste minimisation**



Significant investment, financial and non financial has been made to introduce systems, processes and equipment to recycle and re-use as much material as possible. Waste skips were placed around our factories with separate skips for steel, plastics, rubble and general waste. Recycling bins were also placed in our offices and canteen.



In addition to promoting sustainable practices within Techrete we work with our suppliers to promote sustainability within our supply chain.

- **Minimising traffic / use of vehicles**

A formal Green Travel Policy Statement was signed in September 2012, issued to all staff and is displayed on staff noticeboards. This policy limits emissions allowed on company cars, encourages meetings by video conference as opposed to travelling, promotes sharing of taxis / rental cars (which we manage through one central booking system), encourages staff to participate in the Bike to Work Scheme (currently availed of by 20 employees for whom Techrete has built a bike shed and storage facilities).

We use just in time deliveries and GPS tracking on our trailers to avoid unnecessary traffic congestion with deliveries booked in at the construction site and communication between the wagon driver and Techrete installation teams allowing the wagon to be met and offloaded as it arrives on site.

We have invested in new "Tech Trailers" which allow the transport of larger panels and reduces the number of loads needed for a job. These larger panels also reduce the number of crane lifts needed, speed up the erection process and minimises any traffic disturbances in the local area.

Weekly monitoring of load to capacity statistics for each job allows us to set load to capacity ratio targets. We aim for a 90% load to capacity ratio. Last year we achieved 83.3%.

Techrete also monitors the delivery distances and tonnage of raw materials used in the production of our products. In 2015, the average distance per delivery was 154km for Balbriggan and 230km for Brigg.

- **Bio-diversity / improving natural habitats**

Techrete has spent over €300,000 was spent on the creation of berms and planting of 8,000 trees in and around our factory perimeters. With an ongoing spend of over €20,000 per annum on landscape management, not only has this greatly enhanced the aesthetic impact of our factory but by enclosing the site, the population of hares and birds has been allowed to flourish, free from dogs or other predators.

In Balbriggan, our attenuation pond and rain water harvesting system was designed to efficiently and sustainably drain surface water, while minimising pollution and managing the impact on water quality of local water bodies. This benefits the local area through:

- Reducing run off which would otherwise increase pressures on sewers during periods of heavy rain / floods.
- Through careful monitoring of pH levels we protect water quality
- Provide a habitat for birds.

- **Community involvement and support for the local economy**

Our approach to sustainability is not just limited to how we produce our product but also focuses on integration into our local community. We have invested in our local community to create a positive relationship by donating to primary schools, sports clubs, a gardening association, the local scout group and are corporate members of the Lion's Club. In addition, Techrete are an active member of Balbriggan Chamber of Commerce.

In 2015 Techrete donated a total over €90,000 into the local communities it operates in.

A large portion of our staff live close to our factories thus helping with local employment. Employment at a manufacturing facility is generally more stable and long term than site based employment, which is intrinsically transient.

*All data in this report has been independently verified