

Sustainability statement for Ketley quarry tiles

Background

Ketley Brick is part of Hinton Perry & Davenhill Ltd, specialist clay manufacturers of long-life building products including engineering bricks, clay pavers, clay roof tiles and quarry tiles. The company was established in 1805 and has operated from the same site in the Borough of Dudley in the UK throughout its history. The company developed its quarry tile range for the 1st Phase of the Podium refurbishment project at the Barbican London in 2012 when it was established that all quarry tile production in the UK had ceased and alternative sources were only available from abroad principally from Spain and Italy.

Manufacturing at Ketley Brick

The company is accredited and audited to the Quality standards ISO 9001, Environmental Management ISO 14001 and the BDA Brickmakers Quality Charter. The factory is subject to the UKETS scheme which defines the carbon emission regime, this audited scheme demonstrates that the company has so far reduced its carbon emissions by 30% since the 2008 benchmark. This has been achieved by investments in energy saving technologies and through efficiency measures in production.

The company operates its own quarry close to the factory where all its clay is responsibly sourced, the quarry is also accredited to ISO 9001 and ISO 14001. The quarry is managed with a view to sustaining conservation, wildlife and biodiversity.

The company is set on a path towards Net Carbon Zero 2050 and has been awarded a Special Recognition Award for Decarbonisation 2023 by British Ceramics. It is currently engaged in a number of projects to dramatically reduce its CO₂ emissions. The first is a significant investment into energy saving technologies, waste reduction, micro metering and productions rationalisation to ensure that every step of the current process is as efficient as possible.

The second is a project to collect and reuse all available heat from the firing process for the drying of products through heat exchangers. With support from the Industrial Energy Transformation Fund Ketley has been undertaking studies to assess the techno-economic viability of using waste heat exchangers as well as looking into potential collaborative carbon-capture and use projects.

Ketley is also part of the British Ceramic Federation's hydrogen research project and have already demonstrated a successful firing of their bricks with hydrogen. This project is now exploring the practical and commercial aspects of firing with hydrogen.

Ketley is fully engaged in forming a clear pathway to radical decarbonisation of its manufacturing process on its journey to Net Carbon Zero 2050.

Natural raw materials and natural clay colour

The tiles are made from Etruria Marl clay, natural gas and water. Their colours are generated naturally through the interaction of the kiln atmosphere and the minerals within the clay. No surface pigments or stains are added and this gives a natural clay colour with subtle colour variation which enhances the tile's character. This process also produces a VOC free material and Ketley quarry tiles are often specified in Passivhaus projects where healthy air quality is a key consideration.

Durability and maintenance

Ketley quarry tiles are highly durable, frost resistant and hard wearing. They are also maintenance free. The quarry tiles have very low water absorption; they do not allow water to pass through them and their durability has been demonstrated through Abrasion Tests.

There is no need to seal the tiles and periodic sweeping is the main maintenance requirement.

Carbon

Life cycle analysis commissioned by the Brick Development Association and carried out by the BRE for the average UK brick demonstrates cradle to grave performance of 0.43kg per annum of CO₂ per installed m², based on a 60 year life cycle analysis and covering raw material extraction, manufacture, distribution, construction, in use, end of life and re-use/recycling. The equivalent figure for Ketley quarry tiles is 0.12kg/CO₂/m² per annum.

For the life of the tiles, on-going maintenance is limited to replacement of tiles damaged by accident. No cleaning products or other products are required to be used over the life of the product. This maintenance free aspect means there is zero operational carbon over the life of the product.

Reuse and recycling – circular economy

Experience shows that 60 years is at the low end of the life expectancy of quarry tiles which can be up to 150 years. Reclamation yards are stocked with quarry tiles that have been removed and are now sold on for re-use.

Ketley Quarry tiles are VOC free, they do not leach any hazardous substances and can be returned to the ground at the end of life with no environmental impacts. The inputs for the manufacture are Etruria Marl clay, natural gas and water.