

SUSTAINABLE BRICK MADE BY RECYCLED CONSTRUCTION AND DEMOLITION WASTE IN UNITED KINGDOM

In 2020 the [Kenoteq company](#), based in Scotland (United Kingdom), launched a new technology to make a sustainable and not kiln-fired brick from 90 per cent recycled construction and demolition waste.

Called K-Briq, it looks like an ordinary brick, of the same weight and behaves like a clay brick, but it offers more effective thermal insulation properties. Moreover, this sustainable building brick generates less than 10 percent of the carbon emissions released during the manufacture of regular ones. Another aspect of great aesthetic appeal is that the K-Briq can be produced by Kenoteq in any color.



The new brick is the result of 10 years of research and development by Gabriella Medero, professor of civil engineering at [Edinburgh's Heriot-Watt University](#) and is the culmination of her quest to find a low-carbon, recyclable alternative to the traditional clay brick, reducing the environmental impact of the construction industry.



In particular, the construction industry generates a large amount of demolition waste that are already processed and reused as an ingredient in concrete mixes. The research, which also included the production of thousands of bricks, putting them through rigorous testing, was focused in developing a new process for waste recycling and a new product that would allow to reduce the negative impact of concrete which is one of the most carbon-intensive products.



Kenoteq's original invention is a new process created to produce the K-Briq, removing the need to generate temperatures of over 1,300°C in specialized ovens. Without heating involved, the process allows to produce a tenth of the CO2 emissions of a traditional fired brick and uses less than a tenth of the energy in its manufacture. K-Bric is *unifired* and the most important element of its composition is the binding agent that enables the broken-down bricks, plasterboard, concrete, gravel and sand to form a viable, new building block, compressed to size without firing. The initiative to patent the innovation represented by the K-Briq and its manufacturing process is underway.



Having completed the research and perfected the product, professor Medero co-founded the [Kenoteq Ltd company](#) in partnership with one of the former students, Dr. Sam Chapman, in order to get the K-Briq into production. All the process has been incubated at Heriot-Watt University and Kenoteq represents an exemplar and pioneering circular economy company generated by this University.



The K-Briq production is now underway and commercially available to construction clients.

The Kenoteq production plant is located at the specialist firm [Hamilton's Waste and Recycling in Edinburgh](#). Here, Kenoteq has its raw material supply, produces and delivers its bricks, further reducing its carbon footprint by minimizing the transport miles and carbon emissions. The source materials come from collection points like recycling centers and a strict selection-of-sorts is followed.

Kenoteq has invested in machinery that can produce three million bricks per year and the Company is able to respond efficiently to local demand. From receiving an order to packaging and shipping it out to customers, the production process takes just 24 hours.

In addition to saving energy in the manufacturing process by not using any heat, Kenoteq reduces carbon emissions by producing the bricks locally to Scotland, thus removing the need to import bricks for buildings. A sustainable home-grown alternative is bound to be attractive, considering that very few traditional bricks are produced locally and up to 85 per cent of bricks used in Scotland are currently being imported from England or continental Europe

Considering that Scotland offers plenty of potential for the K-Briq, Kenoteq is working to get the product out into the local market, actively seeking to develop partnerships across the supply chain, from architects right through to product distributors and waste companies. Social housing providers, house-builders and self-builders all have also shown an interest. Moreover, the Scottish government has set very high targets for housebuilding with 50,000 new homes earmarked for construction in the next three years and Kenoteq will be able to participate in these projects.

The K-Briq won important national recognitions and numerous qualified magazines have disseminated information about this important discovery that makes the construction industry more sustainable. The K-Briq modules will also be used to build [the Serpentine Pavilion](#), which has been designed by the South African architecture studio [Counterspace](#).

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[Kenoteq website](#)

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[Article in Edinburgh's Heriot-Watt University](#)

[Heriot-Watt University](#)

[Article in forbes.com website](#)

[Article in theconstructionindex.co.uk](#)

[K-Briq in Dezeen website](#)

[K-Briq and Serpentine Pavilion in Dezeen website](#)

[Kenoteq in constructionenquirer.com](#)

[Kenoteq 2018 Winner in portal.convergechallenge.com](#)



[Article in architectureanddesign.com.au](http://architectureanddesign.com.au)

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