

PRODUCING NATURAL BIO-CEMENT BY USING MICROORGANISMS IN THE UNITED STATES OF AMERICA

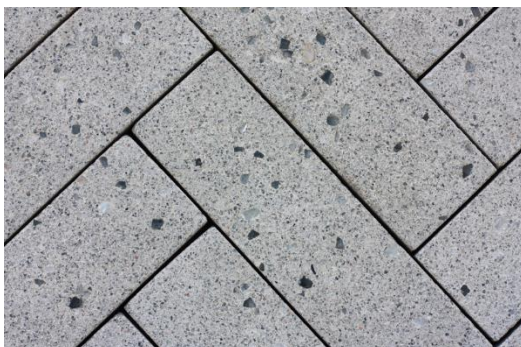
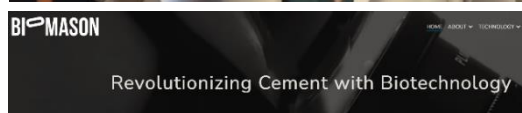
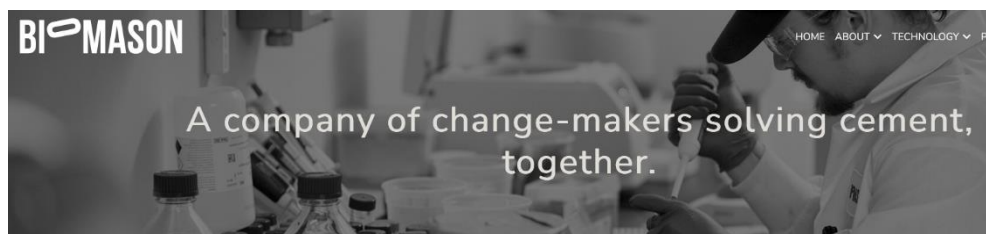
October 2025

Founded in 2012 by Ginger Krieg Dosier in North Carolina (USA), the [BioMASON Company](#) aims to reduce CO2 emissions from global cement manufacturing, which contributes to about 8% of global CO2 emissions. Inspired by coral structures, BioMASON developed a scalable, sustainable method to produce cement using microorganisms. The company began growing durable bricks comparable in strength to calcite-cemented sandstone by using bacteria, biomass, aggregate, nutrients and minerals, producing a natural bio-cement. This new natural bio-cement and the company were called BioMASON.

Over the past decade, the company has created technology to grow strong, durable Biocement®-based materials, which attracted the attention of competent institutions and investors, who supported the development of the enterprise. In 2023, BioMASON partnered with Danish manufacturer IBF to open the first Biocement manufacturing facility in Denmark, to produce Biolith tiles, marking a significant step towards reducing carbon emissions in construction. The first product successfully launched on the market and produced by BioMASON is the Biolith® tile, suitable for various construction uses like walls, floors, and facades.

According to the BioMASON website, around the world an estimated 1.23 trillion bricks are manufactured every year. This results in approximately 800 million tons of carbon emissions due to the fossil fuel required in the firing process. BioMASON's process eliminates the need for the firing process used in traditional brick and concrete manufacturing. It also allows for product customization, elimination of manufacturing waste, and utilization of input materials from either renewable sources or industrial waste streams. BioMASON has developed a unique, natural process to manufacture biological, cement-based masonry building materials. This bioconstruction company utilizes microorganisms and chemical processes inspired by a study of coral structure. Like coral, BioMASON's process forms a hard-cementitious material in ambient temperatures using low energy and material inputs. However, this North Carolina-based startup improves upon nature's timeline, producing its Biocement™ in 3-5 days, rather than over the course of thousands of years.

For more than 200 years, traditional cement production has released carbon dioxide as a byproduct of burning limestone but discarding the carbon. Instead, BioMASON learned how nature grows one of its most robust and enduring structures: coral. Taking inspiration from marine ecosystems, the company



builds calcium carbonate crystals to bind together aggregate and form natural, sustainable concrete products with high compressive and flexural strength. BioMASON uses biology to build calcium carbonate biocement. Carbon is put to work in the formation of calcium carbonate crystals in the pore spaces between aggregate particles. Enzymatic processes from microorganisms replace the need for high energy, eliminating direct emissions. The result is a concrete that sequesters carbon.

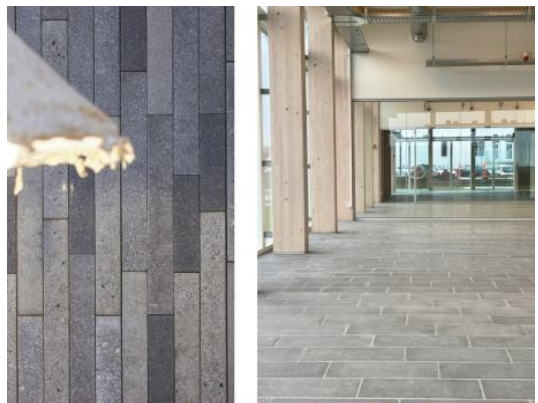
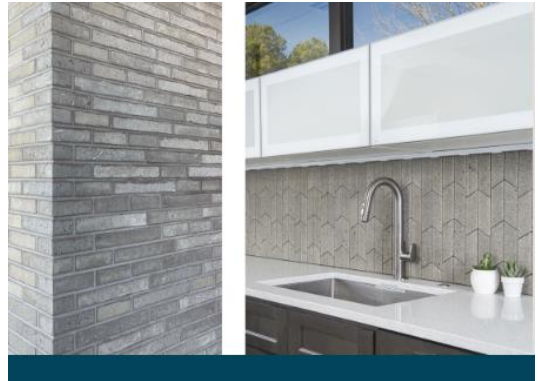
The BioMASON innovative process to create bricks that are strong enough for use in all regular commercial applications, is a better solution to reduce CO₂ emissions generated by global masonry manufacturing. BioMASON employs bacteria to grow a durable cement in ambient temperatures, producing building materials without emitting greenhouse gases and without the depletion of non-renewable resources. The nutrients and minerals required are globally abundant renewable resources and may be also extracted from industrial waste streams, making this mode of brick production even more ecologically beneficial. The process takes less than three days in ambient temperatures.

BioMASON offers an alternative production method to concrete producers, who are essential to the economy, but are squeezed into the middle of the supply chain between cement producers and customers. BioMASON and IBF, the largest precast concrete producer in Denmark, developed the Biobeton factory in Denmark, where BioMASON's products are currently manufactured. The factory, which was qualified in 2023, uses the same industrial equipment found in paver and block factories, including a mixer and a press, with feeding and curing systems adapted so that biocementation can occur. Biobeton's products contain zero ordinary Portland cement. The factory has been in continuous production since its qualification in July 2023, with product distribution to the European market.

The Biomason's current product, the Biolith tile, is the first step toward Biomason's revolutionary path to minimize carbon emissions. Biolith tiles consist of 85% natural locally sourced aggregates and 15% Biocement and can be used in various construction applications, including walls, floors and facades.

Biolith tiles are a revolutionary material that is made by harnessing the power of biology to form Biocement®. Biocement technology uses bacteria and nutrients to produce calcium carbonate, which cements aggregate together. This process happens in ambient temperatures, without the use of a kiln, and produces little to no carbon dioxide.

The Biolith tile can be used in vertical facing assemblies, installed on a support wall with adhesive or mechanical systems, or used on a substrate in horizontal conditions. These tiles exceed the physical properties of standard materials for compressive strength, absorption, freeze-thaw, adhesion, and dimensional tolerance. Biolith tiles are perfect for exterior or interior use in commercial, institutional, and residential building projects. Additional products, including pavers and walls are currently in development.



Biolith consists of approximately 85% granite from recycled sources and 15% Biocement material. Each kilogram of Biocement used in place of Portland cement has the potential to eliminate 1 kg of CO₂ emissions. The Biolith tile is an example of a product developed through biomimetic methodologies, which seek ecological solutions to human needs by emulating natural processes.

To know more

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[BioMASON history](#)

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