

URBAN LIVEABILITY FORUM

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FEATURED ARTICLE

WORLD'S FIRST TILE MADE USING CARBON EMISSIONS

by Tejas Sidnal, CARBONCRAFT Design

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POLLUTION



THE CARBON TILE STORY : A
SOLUTION TO THE POLLUTION



UPCYCLING THE CAPTURED
CARBON



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Carbon Craft Design, a Mumbai based startup, has developed **Carbon Tile** - a first of its kind to be made using carbon emissions - that aims to offset the world's carbon emissions at scale through conventional building elements.

Movement, the very nature of human kind is extracting natural resources and consuming energy at an unchecked rate. Our perceived progress is breaking the life supporting balance on Earth, especially due to air pollution. It is the most important health risk of our time. Among the toxins present in the polluted air, Particulate Matter (PM particles) are the most dangerous. Presently, 9 out of 10 people live in places where air quality exceeds WHO limits.

Zooming in towards the causes, it can be found that the building & construction industry is the largest consumer of raw materials and responsible for 39% of total energy-related carbon emissions according to the World Green Building Council.

We are very likely to reach **9 billion** of us by **2050**. This imposes tremendous dependency on the construction sector to accommodate the increasing population. To sustain, it is important for us to shift towards a circular economy.

US\$ 140 billion per year.

This is what it would take to make the changes we need to adapt.

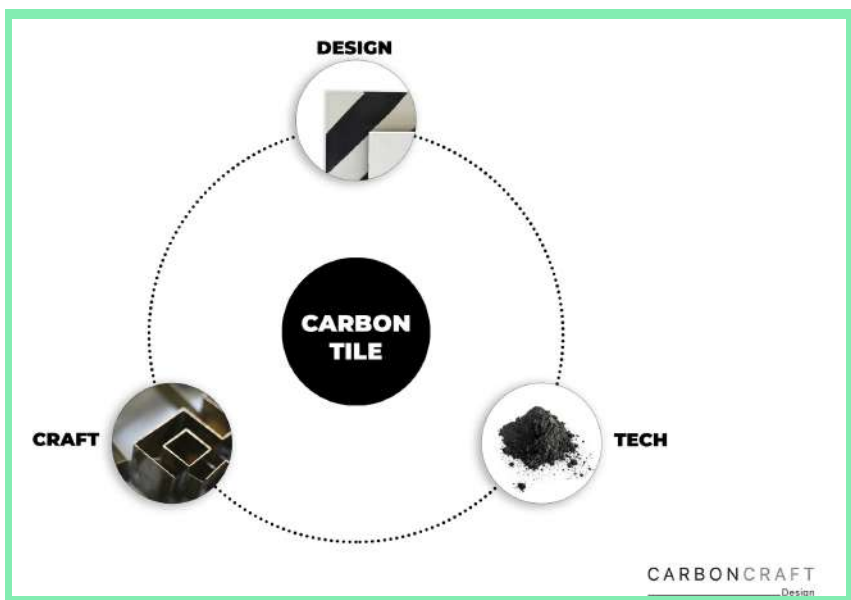
Sounds like a lot? but it's less than **0.1% of global GDP**.

Tejas Sidnal, founder of Carbon Craft Design observed that there were methods to capture pollution but the resulting question - ***what to do with the captured pollution*** - intrigued him to find a way to ***upcycle this into a new form***. He envisioned an architectural intervention that it cannot be only through technology but with the help of design & architecture, we can make a collective impact at a visible scale in solving this problem. Since 2016, the company has been designing, prototyping using local craft to figure a way to use the captured carbon as a resource in building material.

Conventional building materials are all around us due to its modularity and repeatability. So, we asked ourselves what if we infused this carbon in a building material to innovate scalable solutions.



One such material is Tile.



Tiles have been a historical significance in decorative spaces and artistic exhibitions. With the present day context, we designed Carbon Tiles to use its significance in commercialising environmental solutions. This is at the intersection of Craft, Design and Technology with the sole aim of building scalable solutions. To harvest carbon emissions, we collaborate with businesses and factories who are huge carbon emitters or looking for more ways to treat these emissions.

One of them is AIR-INK who pioneered the concept of recycling carbon emissions.

One Carbon Tile is equivalent to preventing 30,000 litres of air from being polluted.
That is how much we breathe in 1 day.



Every Carbon Tile is handcrafted right from the start. The process begins with **Cutting, Shaping, Joining, Filling** and lastly, **Forming the tile**. The captured pollution is initially processed to remove harmful heavy metal impurities, and fused with a mixture of cement and natural materials like marble derivatives to craft Carbon Tiles. The whole process **consumes lesser amount of energy** compared to the conventional ceramic tiles.

After rigorous prototyping, our tiles had passed all the standard tests of cement tiles.

Our design thinking is to communicate Climate Change issues. For us, Tile was a great way to start with. Inspired by the unique identities of the cities and the natural elements that define these cities, we created an exciting new range of flooring patterns.

It is applicable from a living space to a lobby area of an office.

**"We are on a path to address Climate Change issues through craft and design.
To achieve it - We build products by upcycling carbon emissions."**

About the Author:



TEJAS SIDNAL (Founder of Carbon Craft Design)

Tejas is an Architect | Biomimetic Designer | Researcher from Mumbai. Having a strong inclination towards Biomimicry he has been researching over this field from the past 9 years.

His passion lies in exploring sustainable innovative strategies for designing. Breathe is an international visiting school which he directs and runs at the intersection of Biomimicry - Material Science - Design.

He has completed his masters from AA School of Architecture, London as a Tata Scholar and has now set up a platform for research - Carbon Craft Design, in Mumbai to experiment challenging work at the intersection of Tech - Craft - Design.

For more information:

www.carboncraftdesign.com

info@carboncraftdesign.com; +91 9920380340



www.urbanliveabilityforum.com