

# Bendable Concrete

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**In news**— Engineers are developing CO<sub>2</sub>-infused concrete that locks up the greenhouse gas and can be stronger and even bendable.

## What is Bendable Concrete?

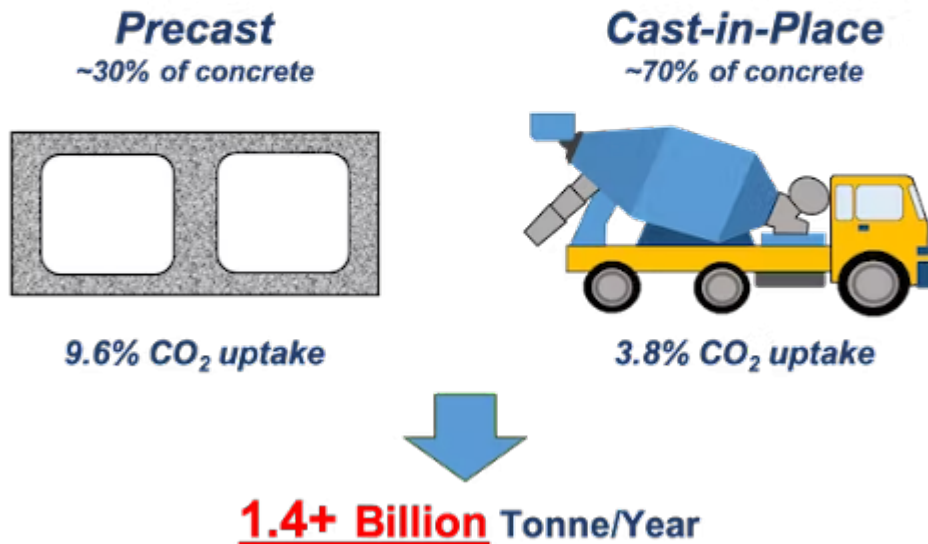
- It is a special type of concrete that can take the bending stresses. It consists of special type of materials that makes it flexible.
- It is filled with small fibers, generally polymer-derived, organized into a microstructure that helps give the material increased ductility in comparison to traditional concrete, which is prone to cracking and failure under strain and long-term use.
- The CO<sub>2</sub>-based bendable concrete can be used for general buildings, water and energy infrastructure, as well as transportation infrastructure.
- Where standard cement only has a strain capacity of around .01 percent, bendable concrete's can be as much as 7 percent, meaning it is hundreds of times more flexible.
- Its fibrous structure also means it breaks in a safer, slower way—generating many “microcracks” instead of the large cracks seen in traditional concrete.
- This means wear leads to smaller deformations, rather than full-on shattering or structural failure.

## Note:

The production of cement, the binding element in concrete, accounted for 7% of total global carbon dioxide emissions in 2018. Concrete is one of the most-used resources on Earth, with an estimated 26 billion tons produced annually worldwide.

## How much CO<sub>2</sub> can concrete store?

Carbon dioxide uptake refers to the total amount of CO<sub>2</sub> that a concrete mix can sequester through carbonation. The percentages, based on laboratory testing at the University of Michigan, describe how much of the concrete's total mass can be made up of CO<sub>2</sub>.



**1.4+ Billion Tonne/Year**

**CO<sub>2</sub> Sequestration Potential with Bendable Concrete**