



"In coordination with MGM Resorts International, SmithGroupJJR specified Ernest Maier with CarbonCure concrete masonry for the MGM National Harbor because the product's reduced carbon footprint aligned with the project and client's sustainability objectives."

- Russell Perry,  
Principal  
SmithGroupJJR

### *What is CarbonCure?*

CarbonCure is leading an initiative to reduce the carbon footprint of the concrete industry. The CarbonCure Technology enables designers and developers to reduce the carbon footprint of concrete products used in construction projects without impacting the concrete's quality.

### *How does CarbonCure impact sustainability?*

The most sustainable principle of design is to construct buildings that are built to last. Concrete is crucial for the development of sustainable buildings, as it provides the strength to build tall, resilient, well-insulated structures. With CarbonCure, designers and developers can capitalize on these unique qualities of concrete they rely on—but now with a reduced carbon footprint.

On average, 25 lbs of CO<sub>2</sub> per cubic yard of concrete are saved using the CarbonCure Technology.

### *How is the CO<sub>2</sub> sourced?*

CO<sub>2</sub> is sourced from emitters by industrial gas suppliers, who collect, purify and distribute the CO<sub>2</sub>. CO<sub>2</sub> is used for a number of different applications, including carbonated beverages. In most circumstances, there is no net benefit to the environment as the CO<sub>2</sub> eventually returns to the atmosphere. Conversely, CO<sub>2</sub> injected into concrete chemically converts to a mineral and will never re-enter the earth's atmosphere.

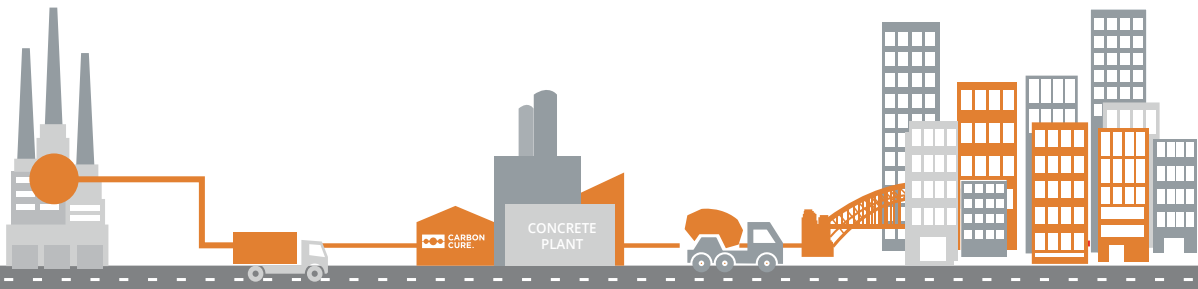
### *Can CarbonCure help obtain LEED points?*

CarbonCure helps reduce the carbon footprint of concrete by approximately 5%. This carbon footprint reduction may contribute to the LEED v4 Materials & Resources credit: "Whole Building Life Cycle Impact Reduction (option 4)." This credit asks the project team to show a 10% footprint reduction in 3 impact categories, including CO<sub>2</sub> emissions, compared to a reference building.

Concrete products made with the CarbonCure Technology that have issued third-party verified Environmental Product Declarations (EPDs) may validate this carbon reduction. The EPDs may additionally count for further LEED points under the LEED v4 Materials & Resources credit for environmental product declarations.

### *Has CarbonCure considered the "carbon costs" involved?*

CarbonCure has conducted extensive Life Cycle Analysis calculations to determine the "carbon cost" involved in its process. These "costs" include additional CO<sub>2</sub> emitted from the collection, purification and distribution of the CO<sub>2</sub>, as well as the manufacturing and shipping of the CarbonCure Technology. While the cost impact varies on a case-by-case basis, the amalgamated CO<sub>2</sub> cost is roughly 0.2 lb CO<sub>2</sub> per cubic yard of concrete (compared to total carbon savings of approximately 25 lbs CO<sub>2</sub>).



- 1 Waste CO<sub>2</sub> emissions are collected from local industrial emitters.
- 2 The purified CO<sub>2</sub> is diverted to the concrete plant using the CarbonCure Technology.
- 3 The CO<sub>2</sub> is injected into the concrete mix, where it chemically converts to a mineral.
- 4 CarbonCure's producer partner delivers its carbon-reduced concrete to local construction projects.

### *Will this affect the finish/color/texture of the concrete product?*



No, the addition of CO<sub>2</sub> in concrete using the CarbonCure Technology has no effect on the concrete's finish, color or texture. The concrete looks exactly as it would if it did not have recycled CO<sub>2</sub>.

### *Is it possible to capture carbon directly from a cement plant for use in concrete?*



In February 2018, CarbonCure demonstrated with its partner Argos, an international cement and concrete manufacturer, as well as other technology innovators, that CO<sub>2</sub> may be captured directly from a cement plant and used downstream for concrete production. Currently however, it is most cost-effective for concrete producers to utilize CO<sub>2</sub> from existing nearby emitter sources.

### *What happens to the CO<sub>2</sub> at the end of the building's life-cycle?*

Once introduced into concrete, the CO<sub>2</sub> chemically converts into a calcium carbonate mineral. This mineral is permanently bound within the concrete. If that concrete became demolished at the end of its life-cycle, there is no risk of CO<sub>2</sub> "escaping" as the CO<sub>2</sub> no longer exists. In this instance, it would simply become crushed up gravel.

### *Can CarbonCure be used on my commercial project?*



Please confirm with your local concrete supplier whether CarbonCure is available in the region that your project is located. The biggest challenge to incorporating CarbonCure on some commercial developments are prescriptive concrete specifications, such as minimum cement content and maximum water/cementitious ratio. It is recommended that engineers and contractors consult with their local concrete supplier on recommended specification alternatives that enable the producer to supply more sustainable concrete products. For guidelines on writing concrete specifications that encourage sustainable construction practices, please see [www.nrmca.org](http://www.nrmca.org).

**Want to learn more?  
Contact us!**

[www.carboncure.com](http://www.carboncure.com)  
2019 CarbonCure Technologies Inc.

**Christie Gamble**  
Director of Marketing  
CarbonCure Technologies

[cgamble@carboncure.com](mailto:cgamble@carboncure.com)  
(902) 442-4020