



"CarbonCure ready mixed concrete was specified on the Multi-Pad Arena in order to improve the building's environmental footprint. As the construction manager on this project, I worked with the concrete on a daily basis. The CarbonCure concrete that arrived on site had an excellent finish and met all of our fresh properties criteria."

- Roland Doucet, P.Eng.,  
LEED AP - Construction  
Manager, EllisDon  
Corporation  
Stevens

### *What is CarbonCure?*

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 or price.

The CarbonCure Technology injects a precise dose of carbon dioxide (CO<sub>2</sub>) recycled from an industrial emitter into concrete during mixing. Once introduced to the mix, the CO<sub>2</sub> chemically converts into a nano-scale calcium carbonate mineral and becomes permanently embedded in the concrete. The process improves the concrete's compressive strength, which enables concrete producers to reduce their cement content while maintaining strength requirements.

### *How does CarbonCure affect fresh properties such as workability or pump-ability?*

The addition of CO<sub>2</sub> using the CarbonCure Technology has no impact on the fresh properties of concrete, including workability or pump-ability.

### *How does CarbonCure affect hardened properties?*

The addition of CO<sub>2</sub> using the CarbonCure Technology has no impact on the hardened properties of concrete, including durability, density, pH, freeze-thaw, temperature, texture or color. CarbonCure has conducted extensive durability testing in collaboration with leading universities and found that the addition of CO<sub>2</sub> has a neutral effect on durability properties.

For more information please see [www.carboncure.com/whitepapers](http://www.carboncure.com/whitepapers) for further information on CarbonCure's effect on durability of concrete.

### *Will finishers have issues due to the reduced cementitious content and addition of CO<sub>2</sub>?*

CarbonCure has conducted blind testing with finishers and in every instance found that finishers saw no difference between concrete that has and has not been treated with CarbonCure. CarbonCure customers have shipped over 4 million cubic yards of CO<sub>2</sub> treated concrete to job sites and there have been no cases of a finisher refusing a batch of concrete due to the addition of CO<sub>2</sub>.

### *Does CarbonCure impact cycle time or set time?*

The CarbonCure Technology has no impact on a concrete producer's cycle time, which means it does not affect construction timelines. In some cases, contractors have reported a slightly faster set time with the addition of CO<sub>2</sub>, but set time is generally considered to be unaffected.

"As a concrete tilt-up contractor, the quality of concrete used in our building projects is very important to us. The concrete produced with CarbonCure arrived on site with the same high quality of standards we've come to expect from our concrete supplier. CarbonCure had no noticeable effect on the work-ability or finish of the concrete."

- Sam Parker, Project  
Manager, B.D. Stevens



### *Does the CO<sub>2</sub> pose any health implications for concrete placers?*

Purified CO<sub>2</sub> in a non-enclosed environment is a safe substance – it's the same CO<sub>2</sub> that is used to make carbonated beverages. Additionally, once injected into the concrete mix, the CO<sub>2</sub> chemically converts into a calcium carbonate mineral (commonly known as limestone) within minutes – before the truck leaves the concrete production site.

### *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, 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 other 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.

### *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).