



# imi & CarbonCure: A Success Story

Delivering a greener concrete for today and tomorrow



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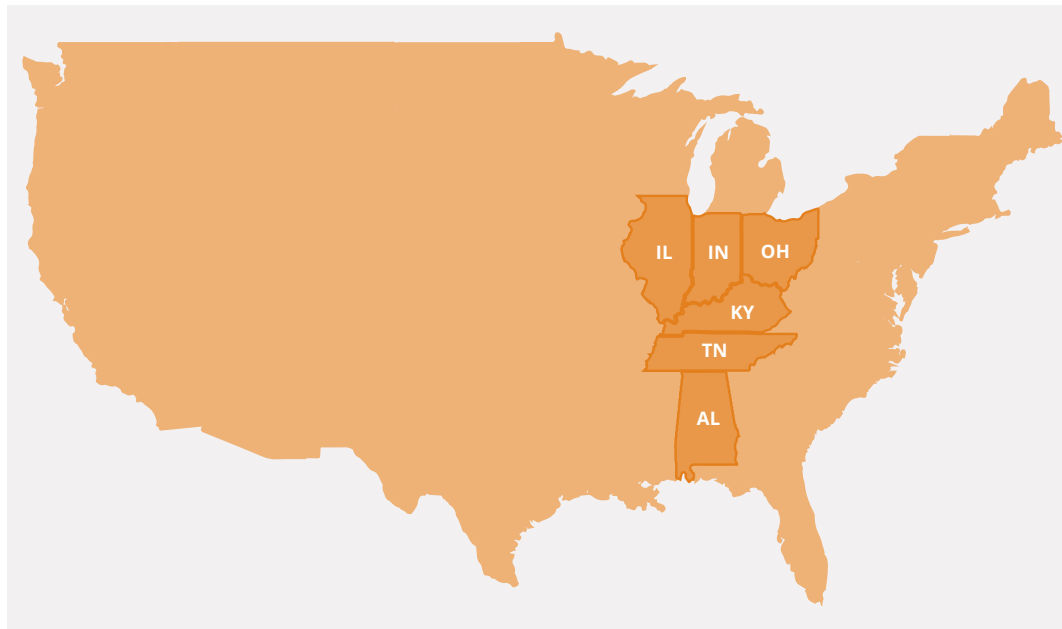
Irving Materials, Inc. (imi), a leading building materials supplier servicing Indiana, Kentucky, Tennessee, Ohio, Illinois and Alabama, has a vision: to create safe, solid structures for its community, and to become a more sustainable enterprise that leaves behind a better world for future generations. CarbonCure is one way that imi demonstrates its commitment to sustainability and to innovation. After being one of CarbonCure's early adopters in 2017, imi has expanded its use of CarbonCure into 25 of its plants across Indiana, Kentucky and Tennessee, with more structures being built with CarbonCure concrete currently underway. As of October 2019, imi has produced more than 280,000 yd<sup>3</sup> of concrete with the CarbonCure Technology, realizing carbon savings that exceed 6 million pounds.



# Customer Profile

Irving Materials Inc (imi) is a leading building materials supplier operating throughout the Midwestern and southern U.S. Trusted by customers since 1946, the company has a reputation for providing high quality building material products and services including aggregates, concrete specialties, and ready mix concrete.

As a ready mix concrete producer, imi operates approximately 160 plants servicing Indiana, Kentucky, Tennessee, southwestern Ohio, southeastern Illinois and northern Alabama. The privately-held company has a long standing commitment to innovation and community and in early 2017, a partnership with CarbonCure was formed to contribute to those goals.



## At A Glance

**Company Name:**

Irving Materials, Inc. (imi)

**Plant Locations:**

Indiana, Kentucky, Tennessee, Ohio, Illinois and Alabama

**Number of Plants with CarbonCure:**

25

**Cubic yards of concrete made with CarbonCure:**

>280,000 yd<sup>3</sup>

**Truckloads with CarbonCure Concrete Delivered:**

>31,000

**Total CO<sub>2</sub> Savings:**

>6.7 million pounds

**Key Projects:**

Infosys U.S. Headquarters, Indianapolis, IN



## The Challenge

Concrete. It's already the most abundant man-made material in the world, and global consumption is still rising. Research predicts that the 4 billion tonnes of concrete produced this year will rise by another billion over the next thirty years. And so it should: concrete improves the quality of our built environment and its qualities of strength, durability and resilience make it inherently sustainable.

Unfortunately, the process of making cement, the key ingredient that gives concrete its strength, accounts for about 7% of the world's CO<sub>2</sub> greenhouse gas emissions. Limited innovation in the concrete industry has made it challenging for ready mix producers to reduce the impact of their emissions — until now.



## The Solution

CarbonCure is leading a global mission to minimize the concrete industry's carbon footprint by reducing embodied carbon, the carbon emitted from building materials and construction.

This is done through a process of introducing recycled CO<sub>2</sub> as an admixture in concrete production. Once injected, the CO<sub>2</sub> chemically converts into a mineral and becomes permanently embedded in the concrete. The mineralization process improves concrete's compressive strength, so producers can adjust cement content while maintaining the quality of the concrete.

### The results?

In addition to producing simply better concrete, CarbonCure's partners achieve manufacturing efficiencies, while gaining the competitive advantage of being a sustainable concrete leader.

The CarbonCure story struck a chord with imi and their ambition to deliver quality and reliability through technology. Plans were made to test this innovation that promised to improve concrete while reducing its impact on the environment.



# Implementation

Drive around imi's hometown of Greenfield, IN and you'll often see their logo adorning a ball field, or hear about the latest recipient of one of their multiple scholarships. The company prides itself on being involved in the communities in which they operate. "Our industry and our society depends upon the sound education of the next generation."

This eye on the community — as well as tomorrow's workforce — also applies to how imi validates its adoption of innovation. As Jeff McPherson, VP Sales & Marketing puts it, "We pride ourselves on innovation, not just the newest thing that comes down the pipe, but the things that actually impact our customers and impact our communities." On both fronts, CarbonCure looked like it fit the bill.

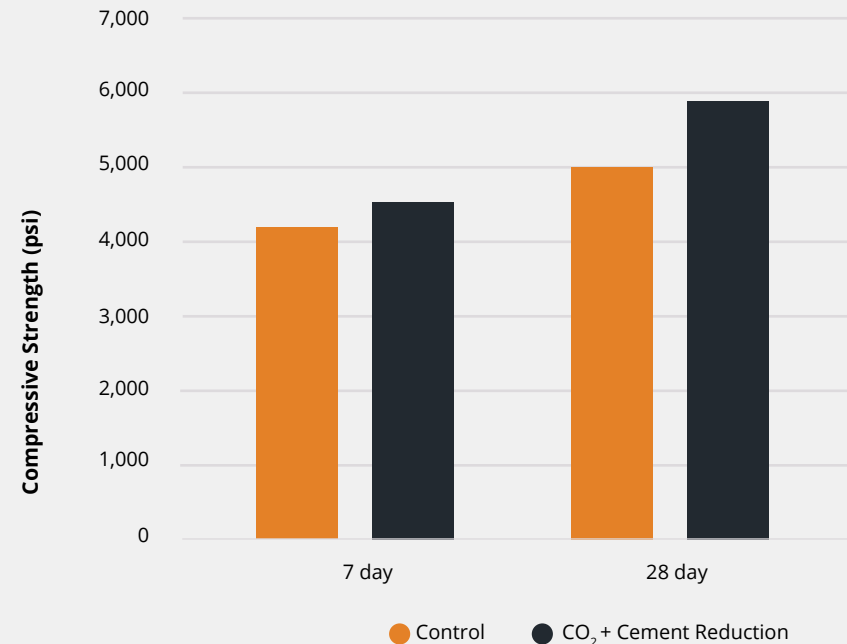
imi first installed CarbonCure in its Whiteland, IN plant in July 2017, under the direction of Quality Control Manager, Darrin Litteral. He led a team conducting an extensive 12 month testing process, where they gathered strength and durability data, and tested fresh properties such as finishing and set-time with concrete placer customers.

imi needed to confirm that CarbonCure was viable for use in different seasons, and particularly compatible with its freeze-guard admixture, which prevents freezing at temperatures as low as 20°F.

The following year, in the summer of 2018, imi was able to conclude that CarbonCure provided an effective method of reducing cementitious content without compromising fresh and hardened properties, including strength and durability.

The next step was easy: installing CarbonCure in 9 more ready mix plants across Indianapolis, IN.

## Case Study: 4000 psi imi mix before and after CarbonCure



Graph Description

In this case study, historical strength data for a 4000 psi-design mix (orange) is compared to the average strength data of the mix using a precise dosage of CO<sub>2</sub>, with a 5.5% cementing materials reduction (black). On this sample mix, imi saves 31 pounds of embodied CO<sub>2</sub> per cubic yard of concrete produced with CarbonCure's technology; while maintaining compressive strength requirements.

## The Results

For Litteral, the importance of what they were doing really hit home when his daughter made a special request: “She’s a High School senior and in Earth Sciences, they’re focused on ideas that can help the environment. When I mentioned CarbonCure, she asked me to talk to her class about what we do to help the community and help reduce carbon emissions. Climate is a hot topic for these kids and it becomes a bigger deal when they get to college. These are tomorrow’s voters and it’s good to know we’re doing something positive for their future.”

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*Jeff McPherson,  
VP Sales and Marketing, imi*

Looking back on that first foray into their CarbonCure partnership, McPherson recognizes that imi was ahead of the game. He says, “I think we had the foresight to get ahead of the direction our industry is inevitably headed.”

The value of the partnership was beginning to be validated — and it was nothing compared to what was to come next.

With CarbonCure implemented in 9 plants, imi began to explore the value of promoting its sustainability attributes to local contractors and specifiers. While imi values environmental sustainability, there was initial skepticism about how it would resonate with customers and what new business it could actually bring in.

As CarbonCure contributes to LEED points, imi knew that any commercial construction projects seeking LEED certification would be interested. However, such projects are not plentiful



in the region and it was far from clear that the sustainability messaging would be of value to non-LEED projects, which make up the majority of imi's commercial work.

Starting in February 2019, CarbonCure worked with imi on a promotional blitz among leading specifiers and contractors in the Indianapolis area.

McPherson remembers being shocked by the results, "Once we decided to go all in, the enthusiasm level in the marketplace was surprising. It was phenomenal — it blew my mind."

Almost immediately, imi began to secure projects because of CarbonCure's value to end users: reduce the carbon footprint of concrete, without compromising the quality of the concrete.

As of October 2019, CarbonCure's technology has been installed or is slated for installation in 25 of imi's plants across Indiana, Kentucky and Tennessee.

With the concept proven over a year of testing, roll-out is straightforward.

Litteral says "It's like doing an install of any admixture, you have to find the right place for it at every site. Beyond that, the process is fairly simple." The technology is fast and non-disruptive to implement: installation takes place over the course of one day and then becomes seamlessly integrated into existing software and operations.

The introduction of CarbonCure has been an overwhelming success for imi. While imi had initially believed that structural engineers would be hesitant to alter specifications and use CarbonCure,





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Bob Haldrup, Senior Vice President of imi, says it has become “a simple and honest conversation based on the science that indicates which concrete mix can best meet the needs of the project team.”

Going forward, imi will continue using CarbonCure in all non-specified work while building on positive word of mouth toward the goal of acceptance into specified commercial work by structural engineers.

This is just the beginning of the story and imi has ambitious plans for the role of CarbonCure in the future of its business. Haldrup envisions CarbonCure becoming a mainstay of all imi’s products within five years, summing it up by saying: “I can’t imagine why every cubic yard of concrete we produce wouldn’t be CarbonCure — it’s the right thing to do.”

*“I can’t imagine why every yard of concrete we produce wouldn’t be CarbonCure – it’s the right thing to do.”*

*Bob Haldrup,  
Senior Vice President, imi*



# Reference Projects



## Infosys U.S. Headquarters Indianapolis, IN

- Owner: Infosys Limited
- Developer: Browning Construction
- Concrete Contractor: Lithko Contracting
- Total CarbonCure Concrete Used: 8,000 yd<sup>3</sup> (1st Phase)
- Mixes Used: 3000, 4000, and 6000 PSI
- CO<sub>2</sub> savings: 240,000 pounds



## IUPUI Multidisciplinary Research Building Indianapolis, IN

- Owner: Indiana University
- General/Concrete Contractor: FA Wilhelm
- Total CarbonCure Concrete Used: 6,000 yd<sup>3</sup>
- Mixes Used: 3000, 4000, 4500, 5000 and 6000 PSI
- CO<sub>2</sub> savings: 180,000 pounds



## Wilshaw-Speedway Hilton Tapestry Hotel Speedway, IN

- Owner: Hilton Hotels and Resorts
- General/Concrete Contractor: FA Wilhelm
- Total CarbonCure Concrete Used: 2,500 yd<sup>3</sup>
- Mixes Used: 3000, 400 and 5000 PSI
- CO<sub>2</sub> savings: 75,000 pounds



CarbonCure is the leading provider of carbon removal solutions for concrete production, with its technology installed in nearly 300 concrete plants across the globe. For more information, visit [carboncure.com](https://www.carboncure.com) or contact a CarbonCure representative at [info@carboncure.com](mailto:info@carboncure.com) or call +1 (902) 442-4020.