Thomas Concrete & CarbonCure: A Success Story
Creating a greener future, one truck at a time
Thomas Concrete is a leading supplier of high-quality concrete in the Southeast U.S. Family-owned and headquartered in Sweden, the company’s environmental policy is at the heart of its identity. The Thomas Concrete mandate is to “continuously strive to develop solutions for a sustainable society of tomorrow” and to “integrate all business measures to reach this goal.” The company’s work with CarbonCure is a fine example of the mandate in practice.

Thomas Concrete was the second ready mix company in the U.S. to install the CarbonCure Technology, and the first to use it operationally. Today, CarbonCure is used in 26 Thomas Concrete plants, which have produced 1.8 million yd³ of concrete made with the technology as of November 2019. This has saved more than 60 million pounds of carbon dioxide (CO₂) from entering the atmosphere, which is equivalent to 28,000 acres of trees absorbing carbon for a year.
Customer Profile

Thomas Concrete is known for being progressive, innovative, and sustainable. The parent company, Thomas Concrete Group, was established in 1955 and the U.S. team has been serving customers for more than 30 years. The company prides itself on its long-standing specialization in concrete and providing effective solutions for its customers' construction projects.

Thomas Concrete’s reputation as an industry innovator prompted CarbonCure’s research and development team to reach out in 2015. They were seeking concrete producer partners to conduct trials of the pre-market CarbonCure technology for ready mix.

From initial testing to supplying major commercial construction projects, the partnership has come a long way.

At A Glance

Company Name: Thomas Concrete

Plant Locations: Georgia, South Carolina, and North Carolina

Number of Plants with CarbonCure: 26

Cubic yards of concrete made with CarbonCure: >1,800,000 yd³

Truckloads with CarbonCure Concrete Delivered: >228,500

Total CO₂ Savings: >60 million pounds

Key Projects:
- 725 Ponce de Leon Avenue
- Georgia Aquarium Predator Exhibit
- Kendeda Building at Georgia Tech
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 each year will rise to become 5 billion over the next thirty years.

And so it should. Concrete improves the quality of our built environment and its 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 CO₂ greenhouse gas emissions.

The path towards significant carbon reductions has been unclear—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$_2$ as an admixture in concrete production. Once injected, the CO$_2$ chemically converts into a mineral and becomes permanently embedded in the concrete. The mineralization process improves concrete’s compressive strength, enabling producers to 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 promise resonated with Thomas Concrete and the company’s own commitments to environmental sustainability. A team led by John Cook, Director of Technical Services, and Justin Lazenby, Georgia Manager of Technical Services, took part in the first industrial trials. The results gave cause for excitement: an average 28-day strength improvement of 10 percent.
Implementation

CarbonCure officially launched its ready mix technology at the 2015 National Ready Mixed Association’s ConcreteWorks conference. While others in the industry were skeptical, Thomas Concrete took a different approach. The team was convinced of CarbonCure’s benefits from the initial testing and as Alan Wessel, CEO, puts it, “We take a long-term view of taking care of each other and the communities we are part of.”

This trust in the technology drove the company to become one of CarbonCure’s earliest adopters, with the technology installed in their plant in Doraville, Georgia, in February 2016.

Thomas Concrete immediately began realizing savings from using less cement in their mixes. Lazenby was also impressed by CarbonCure’s reliability. He remembers, “We continued to test and the results became so repeatable month after month. For a quality guy that’s huge—it means it’s working.”

This was the data the team needed to move forward with a rollout of four plants across Atlanta, making Thomas Concrete the first repeat CarbonCure customer.
Adjusted Mix Designs - Case Studies

The strength improvement from CO₂ enabled Thomas Concrete to reduce cementitious content in their mixes while maintaining compressive strength. These adjusted mix designs were used in commercial and residential projects.

Case 1 - 16 LBS Cement Reduced
- Cement: 50%
- Class F Fly Ash: 25%
- Slag: 25%
- Cement Reduction: 16 lbs per yd³
- Average Cement Cut: 5.7%
- Change in Strength: None

Case 2 - 47 LBS Cement Reduced
- Cement Type: 100% Type III
- Cement Reduction: 47 lbs per yd³
- Average Cement Cut: 6.7%
- Change in Strength: None

Case 3 - 30 LBS Cement Reduced
- Cement: 52%
- Class F Fly Ash: 12%
- Slag: 36%
- Cement Reduction: 30 lbs per yd³
- Average Cement Cut: 6.0%
- Change in Strength: None
The Results

Plants selected for CarbonCure installations received a positive reception from their respective employees. Cook describes implementing CarbonCure as very smooth. “The plants themselves embrace the technology. There's no impact to their daily business,” he says.

To promote the availability of CarbonCure, Thomas Concrete began speaking to engineers, architects, and contractors. The team met with Uzun+Case, an engineering firm they had partnered with on previous projects.

Trusting Thomas Concrete’s progressive approach, and sharing an interest in advancing sustainability, Uzun+Case proposed to collaborate on an ambitious new project: 725 Ponce.
Thomas Concrete & CarbonCure: A Success Story

725 Ponce de Leon Avenue, also known as 725 Ponce, is located in one of Atlanta’s trendiest neighborhoods. Its construction utilized 48,000 yd³ of CarbonCure concrete across a wide range of mixes and applications. These included high-strength concrete mixes and mixes with color pigmentation. In all cases, Thomas Concrete found that CarbonCure was compatible.

The project reduced more than 1.5 million pounds of embodied carbon and became CarbonCure’s largest project at that time. The remarkable achievement drew media attention and the project, along with Thomas Concrete and CarbonCure, was featured on CNN.

Project Summary:
725 Ponce built by Thomas Concrete

- **48,000 cubic yards** of CarbonCure concrete used
- **1.5 million pounds** of carbon emissions saved
- **Carbon savings equal** to 800 acres of forest

“Uzun+Case, with input from Thomas Concrete, specified the CarbonCure Technology to reduce the carbon footprint of 725 Ponce. We’re proud to have saved 1.5 million pounds of CO₂ while maintaining our high quality standards for concrete.”

Rob Weilacher,
Engineer of Record, Uzun+Case
Expansion

At the beginning of 2018, Thomas Concrete installed CarbonCure in 16 additional plants. This made the company the world’s largest supplier of concrete made with the CarbonCure Technology.

The expansion was necessary to keep up with the demand for CarbonCure that earlier projects had generated. Lazenby says “We've done work with the majority of large engineering firms in Atlanta and now they're super ready to keep going because the building owners fall in love with it.”

One such customer is the Georgia Institute of Technology (Georgia Tech).

The university was granted $30 million to design and construct the first building in Georgia that met Living Building Challenge Standards, the world’s most rigorous green certification. Now operational, the Kendeda Building for Innovative Sustainable Design is one of the greenest educational buildings on the planet.

CarbonCure was used in all mixes to achieve over 40,000 pounds of CO₂ reductions. Thomas Concrete won a Swarm Changemaker Award for the project—and learned a valuable lesson. The team discovered they could push CarbonCure further and reduce cement content more than was previously thought. They are now looking at adapting their everyday mixes.

**Project Summary:**
Kendeda Building built by Thomas Concrete

- **1,600 cubic yards** of CarbonCure concrete used
- **40,000 pounds** of carbon emissions saved
- **Carbon savings equal** to 21 acres of forest
Thomas Concrete has seen impressive results with CarbonCure on even the most complex of projects. Working on the Georgia Aquarium Predator Exhibit expansion, the Aquarium team saw CarbonCure as an opportunity to support its own sustainability mission.

Some of the concrete was designated as a C-3 exposure class, for the exhibit had to withstand exposure to saltwater and required corrosion inhibitors. Thomas Concrete successfully produced concrete to the specification required while using CarbonCure to reduce cementitious content, including the C-3 concrete applications. The project saved more than 300,000 pounds of CO₂ from entering the atmosphere, equivalent to the amount sequestered by 175 acres of forest in a year.

More than four years of partnership with CarbonCure has given Thomas Concrete a unique perspective on shifts in the market. Lazenby says that where once there was skepticism, engineers and contractors now see opportunity. Questions have gone from “Does this work?” to “How far can we go, how far can we push this?”

**Project Summary:**
Georgia Aquarium built by Thomas Concrete

- **5,000 cubic yards** of CarbonCure concrete used
- **330,000 pounds** of carbon emissions saved
- **Carbon savings equal** to 175 acres of forest

“Where once there was skepticism, engineers and contractors now see opportunity.”

Justin Lazenby, Georgia Manager of Technical Services, Thomas Concrete
CarbonCure has contributed positively to how Thomas Concrete is perceived as a company. Wessel notes that “We have become the leader in Atlanta in a lot of aspects. The CarbonCure partnership is part of that, as is our team and our network expansion. It all ties together: thinking long-term, doing the right thing, taking care of your people, taking care of your communities, and being sustainable.”

A particular point of pride is that as the word about CarbonCure has spread—through word of mouth as well as high profile media appearances—even the most traditional contractors have started to ask about using it. This is, Wessel says “the real home run for us.”

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Allen Wessel, CEO, Thomas Concrete