

CHALLENGES FACING THE
CONCRETE INDUSTRY TODAY

WHAT IS EMBODIED CARBON
AND WHY IT MATTERS

THE LINK BETWEEN PROFITABILITY
AND SUSTAINABILITY

THE PRODUCER'S GUIDE

TO BOOSTING PROFITS WITH
SUSTAINABLE CONCRETE



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Challenges Facing the Concrete Industry Today



DID YOU KNOW?

Concrete is the most abundant building material in the world, consumed second only to water. As a result, **the production of one of concrete's key ingredients — cement — accounts for 7% of the world's annual CO₂ emissions**, and is one of the the largest contributors to embodied carbon in construction.

Concrete is one of the oldest industries, but today it faces unprecedented change. The rising cost of raw materials has pushed concrete producers to seek out efficiencies by digitizing manual tasks and processes. The industry has also seen an increased focus on sustainability which has led to new business opportunities for innovative ready mix producers in competitive markets.

As the concrete industry evolves, it faces many challenges including:

- Rising cement costs
- Supply chain disruptions
- Prescriptive specifications
- Dwindling profit margins
- Increasing competition in the market

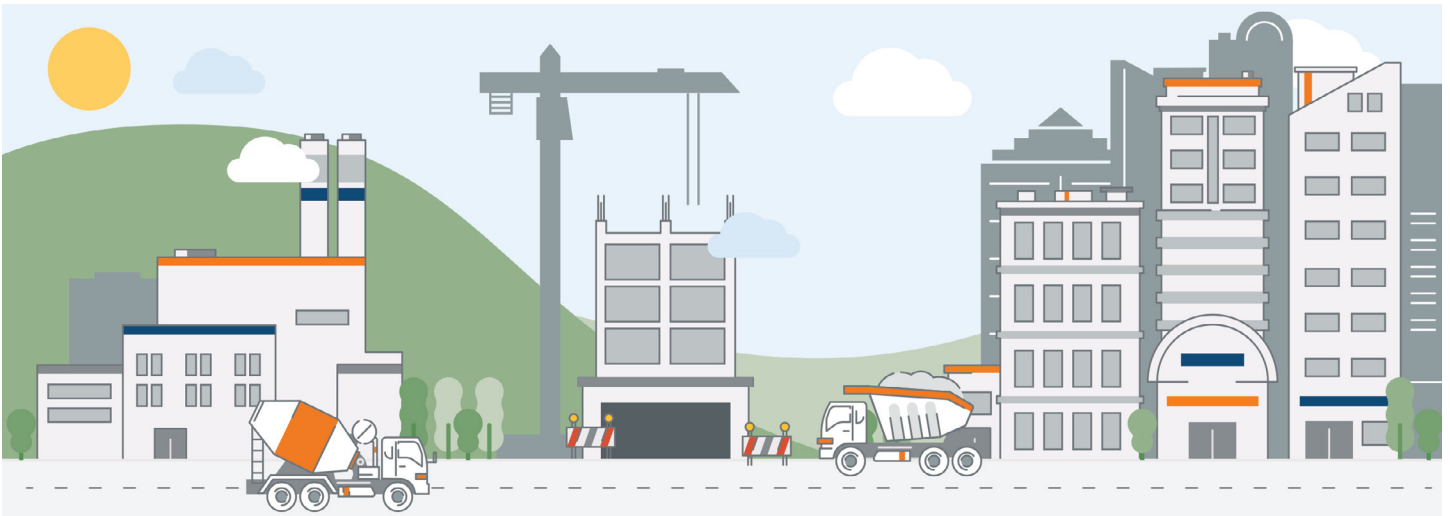
Let's Talk About Embodied Carbon. Why Does it Matter?

The construction industry has traditionally focused its climate efforts on reducing the operational emissions from the energy, heat, light etc. of buildings and infrastructure. However, there is another source of emissions that is critical we address today: embodied carbon.

Embodied carbon is the carbon footprint before a building becomes operational; while it is maintained; and eventually when it is demolished, and the waste transported and recycled.

Therefore, concrete is uniquely positioned to respond to one of the most rapidly growing trends in today's construction.

As governmental efforts ramp up to tackle the effects of climate change, sustainable construction methods and materials will soon become the industry standard. The time to act is now.



Source: Skanska



DID YOU KNOW?

50% of the construction industry has gone green. In 2005, only 2% of the construction industry was considered green. Today, 50% of commercial building developers are looking for sustainable solutions.



Linking Profitability and Sustainability

Future-Proofing Your Concrete Business

More and more industry associations and government bodies are setting standards for carbon-reducing building practices. Producers that are not thinking about developing sustainable concrete mixes will miss out on business opportunities and lose significant market share to competitors.

When adopting new initiatives, it's important to consider the following:

- Utilize low carbon cements
- Incorporate alternative materials
- Shift concrete specifications
- Adopt a permanent CO₂ storage technology such as CarbonCure

“When it comes to sustainability, we all have to think about what we’re doing and the impact that it has on the environment. It’s not about the dollars and cents, it’s about doing the right thing. With every load of concrete that leaves our plant, we’re essentially giving back to the community from a sustainability perspective.”



Collin Bender
Quality Control Manager,
Conewago Manufacturing



DID YOU KNOW?

As of March 2022, **there are over 330 active projects valued at over \$13 billion dollars** in the United States specifying low carbon concrete.

Source: Dodge Data and Analytics

Differentiate Your Concrete Business and Improve Your Bottom Line

The importance of carbon removal initiatives continues to grow as governments and industry work towards meeting ambitious sustainability goals. Focusing on low carbon concrete allows regional producers to respond to this demand and differentiate themselves while opening up new business opportunities.

3 Ways to Make Your Concrete Business More Profitable:

- Reduce concrete production costs by reducing cement quantities
- Create process efficiencies by investing in technology and retaining talent
- Adopt sustainable production methods to compete for market share



CASE STUDY

Thomas Concrete



At a Glance

COMPANY NAME

Thomas Concrete, Inc.

PLANT LOCATIONS

Georgia, South Carolina, and North Carolina

PLANTS WITH CARBONCURE

48

TOTAL CARBONCURE CONCRETE PRODUCED

4.8 million yd³

AVERAGE CEMENT CUT

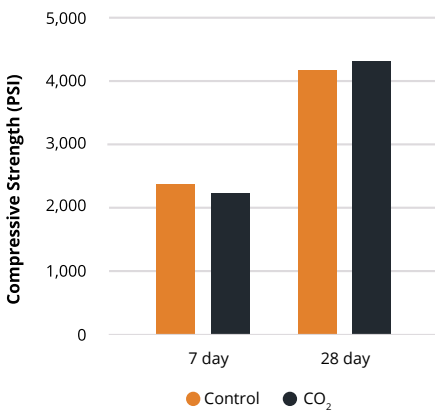
4.75%

TOTAL CO₂ SAVINGS

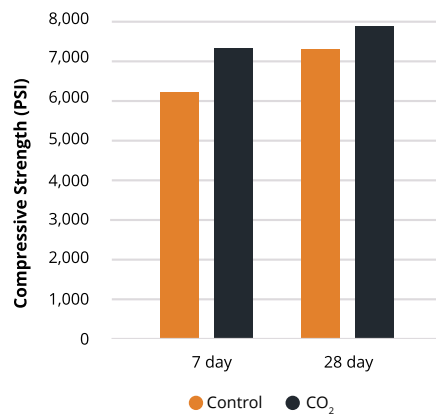
36,000 metric tons

...WHICH IS EQUIVALENT TO
43,000+ acres of trees absorbing CO₂ for a year

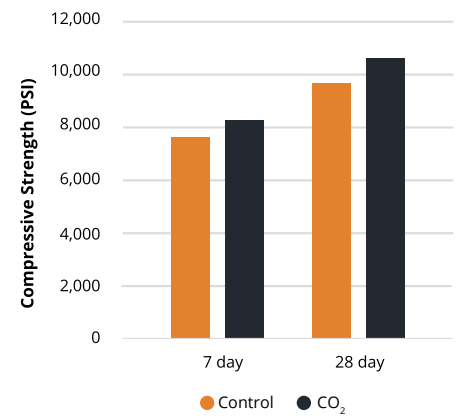
Case 1 - 16 LBS Cement Reduced



Case 2 - 47 LBS Cement Reduced



Case 3 - 30 LBS Cement Reduced



Case 1 - 3,000 PSI Mix Design

Cement	50%
Class F Fly Ash	25%
Slag	25%
Cement Reduction	16 lbs per yd ³
Average Cement Cut	5.7%
Change in Strength	None

Case 2 - 5,500 PSI HE Mix Design

Cement Type	100% Type III
Cement Reduction	47 lbs per yd ³
Average Cement Cut	6.7%
Change in Strength	None

Case 3 - 8,000 PSI Mix Design

Cement	52%
Class F Fly Ash	12%
Slag	36%
Cement Reduction	30 lbs per yd ³
Average Cement Cut	6.0%
Change in Strength	None

PROJECT PROFILE

Fox Hill Business Park

Greenville, South Carolina



Quick Facts

- In total, 8,809 yd³ of CarbonCure concrete were delivered by Thomas Concrete (the entire building)
- Applications included footings, interior slab on grade, foundation walls, tilt walls, grout
- The mixes used had a 4.6% cut to cementitious content (20 lbs of cement and 5 lbs of fly ash)
- The carbon savings achieved (60 metric tons) is equivalent to 148,883 miles of driving or 78 acres of forest absorbing CO₂ for a year.

“With some of the world’s largest companies announcing their climate pledges, Sudler wants to put their foot forward as well, and say that we’re a leader and we have always been a leader in this industry. And if we’re going to be leaders, then we need to look for more sustainable solutions, and in doing so, we came across CarbonCure.”



Brian Sudler
Principal, The Sudler Companies

Project Summary

CONCRETE SUPPLIER

Thomas Concrete, Inc.

BUILDING DESCRIPTION

206,410 ft² distribution center

CONSTRUCTION MANAGER

The Sudler Companies

CEMENT CUT

4.75%

OWNER

Pattillo Construction Corporation

CO₂ SAVINGS

60 metric tons

COMPLETION

2021



CASE STUDY

Lauren Concrete

"We tested CarbonCure with cement and ash to see how reactive it would be. After that, we found our dosage rate. We are seeing significant strength increases from our standard control mix with CarbonCure, and I'm confidently reducing cement content by 6%. Even with this reduction, we are still achieving overdesign."



Cory Miller
Quality Control Manager, Lauren Concrete

At a Glance

COMPANY NAME

Lauren Concrete

PLANT LOCATIONS

Central, East and West Texas

PLANTS WITH CARBONCURE

12

TOTAL CARBONCURE CONCRETE PRODUCED

487,725+ yd³

AVERAGE CEMENT CUT

6.0%

TOTAL CO₂ SAVINGS

5,800+ metric tons

...WHICH IS EQUIVALENT TO
6,970 acres of trees absorbing CO₂
for a year



PROJECT PROFILE

H-E-B Lake Austin

Austin, Texas



In December 2020, one of the Lauren Concrete trucks delivering concrete to the H-E-B Lake Austin project held the distinction of being the one millionth truckload of CarbonCure concrete to be delivered to a jobsite!

"We were proud to get the millionth truckload — I know producers all over the country wanted that," said Renee Drosche, Key Account Manager and CarbonCure Specialist at Lauren.

The team used the event as an opportunity to create engaging marketing initiatives with H-E-B, a beloved grocery store chain in Austin that has ambitious sustainability goals.

"We were able to shift our focus from selling to the marketing team to selling to the actual construction team and showing them that the product is breaking higher and helps meet sustainability goals," said Renee, adding that H-E-B is interested in using CarbonCure concrete again for the construction of future stores.

"I was sold on CarbonCure after the strength testing. Hearing our customer's saying that the concrete pumpability and finishability is the same or better just sold me even more."



Cory Miller
Quality Control Manager, Lauren Concrete





More Ways to Generate Revenue With Green Concrete

Carbon removal credits can be generated by concrete producers when they use CarbonCure's technology in their concrete mixes. These credits can result in a significant revenue share opportunity for producers.

Carbon dioxide removal (also known as "carbon removal") involves the removal of CO₂ emissions by one party, which can be sold to another party that is unable to reduce or remove enough of their own emissions. Typically, when one metric ton of CO₂ is removed (i.e. tCO₂e), one carbon removal credit is created.

As well as reducing the operational and embodied carbon of their own operations, companies like Microsoft, Amazon, Stripe, and Shopify are seeking to purchase carbon removal credits to counterbalance their remaining carbon footprint to reach net zero emissions. The moment you start using CarbonCure in your

concrete production and that data is transmitted to our digital team, you start generating credits. Once you agree to a data exchange process as part of CarbonCure's Carbon Removal Credit Program, we will handle the rest!

"It's near impossible to find credits in the market with this level of permanence and verifiability at the quantities that CarbonCure has available right now."



Stacy Kauk
Shopify Sustainability Fund



How CarbonCure Helps to Link Profitability and Sustainability: One Truck At a Time

Join the Hundreds of Concrete Plants Using CarbonCure's Solution

With CarbonCure, you can produce and deliver the same reliable concrete, but with a reduced carbon footprint. Lower your production costs through reduced cement quantities and increase your profitability by creating new revenue streams.

“CarbonCure is the most practical way for us to make our concrete more sustainable as it comes at it from both sides of the equation — it traps the carbon dioxide in the concrete and it allows us to reduce the cement content. That’s what fires me up about it.”



Nate Tarbox
General Manager, Bay Ready Mix
(an Ernest Maier Company)



Build for the Future. Build with CarbonCure.

Interested in discovering how lowering your carbon footprint can improve your bottom line?

Give us a call at **+1 (844) 407-0032** (toll-free), email us at **sales@carboncure.com**, or visit **carboncure.com** for more information.