





Geiger Ready-Mix & CarbonCure: A Success Story

How a family-owned ready mix producer adopted CarbonCure at all of its plants in Kansas and Missouri to meet its community commitments.

Introduction

As a family-owned ready mix concrete producer, Geiger Ready-Mix is committed to being a pillar of the communities it serves and a good steward of the environment.

At the beginning of 2021, Geiger demonstrated that commitment by introducing sustainable, low-carbon concrete to all nine of its plants across the Midwest.

While regional ready mix producers may be skeptical about the opportunity for them in the green building space, Geiger proved that opportunities do exist — and are relatively easy to capitalize on when you invest in the right innovations.

"We felt like CarbonCure fits our industry's need to address its carbon footprint. The best part about it was we felt like you did it in a way that was beneficial to us, our contractors, owners, and developers."





About Geiger Ready-Mix

Geiger Ready-Mix is a fifth-generation family-owned business with over 70 years of experience in the ready mix business. The company's history dates back to the 1860s when Gottlieb Geiger started a small construction contracting business in Leavenworth, Kansas.

Geiger Ready-Mix was officially established in the 1940s and supplied iconic construction projects like the Centennial Bridge, Bell Hall at Fort Leavenworth, Interstate 29, Interstate 435, and several projects at KCI airport.

In 2003, the company completed its centric circle of plants around the Kansas City Metropolitan area with its newest plant at Lee's Summit, Missouri. Around this time, the fifth generation of Geigers joined the team and navigated the company through the Great Recession, setting it up for success in the years that followed.

Today, Geiger's seven Kansas and Missouri-based concrete plants and two portable plants deliver concrete to various contractors throughout the Midwestern states.

Geiger and CarbonCure

Geiger is committed to delivering high-quality, sustainable products to its community. Since 1995, one of the company's core values has been to respect the community and the environment.

Driven by the desire to deliver greener concrete, Geiger began evaluating CarbonCure's technology.

Since then, Geiger has successfully used low carbon concrete in all residential work and many commercial projects, including the Kansas City Zoo aquarium, a decorative courtyard at Garmin's international headquarters, some local schools, and a greenway trail.

"Respect for our community and the environment has been a core value of ours for many decades. We saw CarbonCure as a way to help us live up to those values. We try to adopt new technologies as they come along and CarbonCure seemed like a good fit for us."



Evaluating and Implementing CarbonCure

When the team at Geiger Ready-Mix decided to adopt CarbonCure's sustainable concrete solution, they went all-in by installing the technology at all nine of their plants across Kansas and Missouri — including their two portable plants.

Implementing any new technology to a business introduces risk — especially when you roll it out en masse. CarbonCure was able to help mitigate that risk for Geiger with its comprehensive, cross-functional action plan designed to help new customers ramp up effectively.

The team received support from CarbonCure with everything from installation and testing to sales and marketing resources and training to ensure Geiger reaps the maximum benefits from the partnership.

Installation at All Plants

Geiger often shares jobs between multiple plants for speed and efficiency. This means if any new technology or mix design is being adopted at one plant, it must be rolled out at all plants simultaneously.

The extent of such change happening at once can create its own challenges. However, thanks to the support of Geiger's executive team and CarbonCure's comprehensive onboarding processes, there was minimal disruption to plant operations.

CarbonCure's dedicated Installation and Maintenance team assisted with the quick installation of the equipment. They also worked side-by-side providing ongoing support in the form of training, maintenance and troubleshooting, and data sharing.



Thorough Mix Evaluation with CarbonCure Support

When testing any new mix design, producers want to ensure customers experience a high-performing and consistent product.

To secure the highest quality concrete, CarbonCure's Technical Services and Support (TSS) team worked with Geiger's quality control team on commissioning trials, optimizing mix designs, testing and analyzing data, and submitting mix designs.

"The TSS team is always willing to help. They're really knowledgeable and they do a lot of testing themselves right alongside you," said Chad English, Quality Control General Manager at Geiger.

To start, Geiger tested multiple loads of cement mixes — plain and air-entrained, with and without CarbonCure. Geiger noted 5 to 10% strength gains at 28 days, with no impact on workability, finishability, and set times. RCP and ACMC 1202 testing showed results in line with Geiger's original mixes.

"We wanted to compare apples to apples and see what CarbonCure might do to our mixes," said Chad. "We knew right off the bat that this was working, it wasn't affecting slump or air, and we were ready to go."

These results have remained consistent in the field — Geiger's customers have had only positive experiences with the concrete created with CarbonCure.

After its comprehensive testing, Geiger recognized the potential to reduce the cement content of their concrete mix designs to produce more sustainable and economical concrete. They started by reducing cement by 3% and then increasing to 5% with excellent results in the field and no impact on set times or permeability.

Today, Geiger is testing 7% reductions on residential 4000 psi (27.6 MPa) mixes. Other testing, including rapid chloride permeability tests (RCPT) and ASTM C1202, has also shown the lower cement mixes to be in line with the original mixes.

"We run a surface resistivity testing on all of our 28-day and 56-day cylinders and the results have stayed the same, or even slightly improved in some cases."

> Chad English Quality Control General Manager, Geiger Ready-Mix



CarbonCure's Market Development Support

Once Geiger was up and running, the CarbonCure Market Development team provided sales and marketing training to help Geiger maximize new business opportunities in the green building space.

Geiger also took advantage of CarbonCure's customer portal, myCarbonCure, which contains a host of sales enablement and marketing resources to help the team effectively market their sustainable offerings and open the door to new projects in their region. Geiger can also access production volume and environmental insights and reports within myCarbonCure, plus a carbon saving tracker and marketing materials to put on their website in order to showcase their efforts in sustainability.

"The genius of CarbonCure is how simple it really is. It just fits in with your operations and helps you have a smaller footprint in our environment."





The Results

For Geiger, the decision to implement CarbonCure was all about doing the right thing for its community and the environment. Today, Geiger's concrete maintains the same performance it is known for—but with the benefit of a 3-7% reduction in cement content for a more profitable mix and a reduced carbon footprint.

Geiger is now using CarbonCure in 100% of its residential mix designs and is actively submitting CarbonCure on commercial projects.

Since adopting CarbonCure at the beginning of 2021, Geiger has already delivered over 21,000 truckloads of sustainable concrete, which achieved carbon savings of more than 1,200 tonnes of CO_2 . That's over 1,376 acres (557 hectares) of forest absorbing CO_2 for a year.

"The way water reducers and superplasticizers changed the way we look at slump, CarbonCure is going to change the way we look at strength, shrinkage, and so on."

> Chad English Quality Control General Manager, Geiger Ready-Mix





The Future is Performance-Based

The Geiger team intends to pursue more new opportunities for lowcarbon concrete in residential and commercial projects. However, due to the persistence of prescriptive specifications in the states they operate in, commercial projects are proving to be more challenging.

Prescriptive specifications set out a maximum water-to-cementing materials ratio, which can limit the use of CarbonCure's technology by not allowing the cement content of a mix to be reduced.

Geiger now sees the bidding process as an opportunity to get in front of engineers and specifiers to open up conversations about prescriptive specifications and encourage the use of performance specifications as an alternative. "They're sometimes slow to adapt, which is okay — they have a lot of responsibility," said Jim. "But their buy-in is going to be key moving forward."

The Geiger team encourages other producers to adopt CarbonCure. "Just dive in," said Jim. "We flipped the switch with residential contractors and we haven't looked back."

"I definitely think sustainable concrete is gaining momentum in the commercial space. You can just feel it, it gets easier every day."





Build for the Future. Build with CarbonCure.

CarbonCure has been used on thousands of projects ranging from healthcare to higher education, residential developments, and corporate campuses.

For more information about building with CarbonCure concrete, visit <u>carboncure.com</u>. To get in touch with a CarbonCure representative, send us an email at <u>info@carboncure.com</u> or give us a call at +1 (902) 448-4100 (Worldwide) or +1 (844) 407-0032 (North America).