



Central Concrete & CarbonCure: A Success Story

Delivering sustainable concrete in the San Francisco Bay Area

Introduction

Central Concrete Supply Co., Inc. (“Central Concrete”), a northern California business unit of U.S Concrete, has been serving the San Francisco Bay Area for more than 70 years. Central Concrete has 19 plants across 11 locations, offering the largest capacity and depth of coverage in the Bay Area.

Central Concrete is recognized for leading the way in designing and delivering higher-performing concrete, while significantly reducing construction projects’ environmental impact with low-carbon mixes. To achieve these high-performance standards, the company’s Quality Assurance Lab collaborates with owners, architects, structural engineers, and contractors to evaluate a project’s requirements and identify solutions that match strength requirements, environmental standards, and constructability needs.

In 2013, Central Concrete was the first company in the United States to offer Environmental Product Declarations (EPDs), and the first ready mix concrete supplier to produce an EPD for every product, online, in real-time using Climate Earth’s EPD Generator. At Central Concrete, every mix carries a verified EPD and each mix design includes sustainability as a standard performance metric, just like PSI or slump.

Four years later, Central Concrete took another big step toward low-carbon concrete – investing in CarbonCure, a technology that introduces recycled CO₂ into fresh concrete to reduce its carbon footprint without compromising performance.

Since becoming a CarbonCure producer, Central Concrete has reached many milestones. Not only are they the largest supplier of CarbonCure concrete on the West Coast, but in April 2019, the Company supplied the largest continuous placement of CarbonCure concrete in a single day.



The Opportunity

Construction in the Bay Area is increasingly concerned with reducing its environmental impact. In response, Central Concrete chose to adopt CarbonCure's technology, recognizing it as the first solution available for ready mix concrete products to sequester recycled CO₂ and to further reduce the carbon footprint of its mix designs, while maintaining compressive strength requirements.

Immediately after adopting the technology, owners and its architecture, engineering, and construction (AEC) partners requested information on the mix designs and the first projects were set in motion.



At A Glance

Company Name:

Central Concrete, a Northern California business unit of U.S. Concrete, Inc.

Plant Locations:

San Francisco Bay Area

Number of Plants with CarbonCure:

8 plants in 6 locations

Total concrete made with CarbonCure:

267,297 yd³ or 204,363 m³

Truckloads with CarbonCure Concrete Delivered:

33,924

Total CO₂ Savings:

2,833 tons or 2,570 metric tonnes

Key Projects:

Lawson Lane, Santa Clara

LinkedIn Middlefield Campus

University of California's Hastings College of the Law



Data current as of: January 2021

Evaluating CarbonCure's Technology

CarbonCure first began working with Alana Guzzetta, Manager of U.S. Concrete's National Research Laboratory in 2017. Alana and her San Jose team conducted a comprehensive testing process at one of Central Concrete's batch plants, which included:

- CO₂ dosing curves and 3-point curve analyses
- Fresh concrete properties including slump, unit weight, air content, and pH
- Durability data, including shrinkage and rapid chloride permeability (RCP)
- Compressive strengths at 1, 3, 7, 14, 28, 56, 90, and 365 day breaks
- Compatibility with various admixtures and materials

As an early adopter of the technology, the testing process was more extensive than it is today. The results gave U.S. Concrete the confidence to move to a full installation at three of its Central Concrete plant locations in 2018. In 2019, Central Concrete expanded the adoption of CarbonCure across its West Bay plants.



Ease of Implementation

Guzzetta noted that the implementation process was quite straightforward: “CarbonCure worked closely with our operations team to get it all set up, resulting in a smooth process.”

This was thanks to the close collaboration of CarbonCure’s Technical Services and Support (TSS) team. For example, when a system’s issue occurred in Central Concrete’s San Francisco plant, technical specialists worked on the problem remotely, visited when necessary, and the issue was resolved with the learning applied to other plants.

Juan (Johnny) Gonzalez, Manager of Strategic Development & Sustainability at Central Concrete, noted that it was reassuring to have such a fully engaged CarbonCure team who provided constant support both in person and remotely. They were able to work hands-on with Central Concrete, watching injections and offering advice, while also notifying the team if the CO₂ was running low and needed to be restocked.

“CarbonCure is aligned with our approach to the market — to meet the sustainability goals of our customers by delivering high-quality, low-carbon concrete.”

*Juan (Johnny) Gonzalez,
Manager of Strategic Development & Sustainability, Central Concrete*

Reflecting on why Central Concrete expanded from its one testing plant to full adoption across eight plants, Guzzetta said, “One plant would have really limited our use and market opportunity. The expansion allows us to respond broadly across the entire Bay Area — meeting the needs of our diverse markets and projects, while establishing ourselves as a leader in the market. As a result, we can say yes when people ask if we can supply a solution for their big projects.”

And when it comes to big projects, Central Concrete has certainly delivered.



The Results

In 2019, the first commercial application of CarbonCure on the West Coast was placed by Central Concrete. This was at the New Academic Building at the University of California's Hastings College of the Law.

This was organized in collaboration with the structural engineer, Skidmore Owings Merrill (SOM). SOM was open to new ideas and had seen the data proving CarbonCure's strength performance. This smoothed the resubmittal process with the customers, Conco and Clark Construction, and an additional 14,000 pounds (6,350 kilograms) of carbon emissions were saved in the project by the inclusion of CarbonCure.

Shortly after, Central Concrete supplied concrete at the new LinkedIn Middlefield campus in Mountain View – the result of a conversation facilitated by CarbonCure's executive team. In partnership with the general contractor, Devcon, and subcontractor, Joseph J. Albanese, the placement went very smoothly and the inclusion of CarbonCure provided an additional 5% carbon footprint reduction (240,000 pounds or 108,862 kilograms) to an already sustainability-focused project, creating a total carbon saving of 4.8 million pounds or 2,177,243 kilograms. For more information, watch [CarbonCure's on-demand webinar](#) with LinkedIn.



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Not only is Central Concrete currently the largest CarbonCure producer on the U.S. West Coast —with more than 470 projects and 290,900 cubic yards (222,409 cubic metres) completed as of January 2021—but the company also supplied the largest continuous placement of CarbonCure concrete in a single day in partnership with Joseph J. Albanese and Devcon Construction. To achieve this milestone, Central Concrete deployed 195 trucks from multiple plant locations to the commercial project in Santa Clara, California. The result: 7,665 cubic yards (5,860 cubic metres) in just under 11 hours.

Continuous interest and the operational ease of adopting CarbonCure has resulted in its use across a wide range of everyday concrete applications. Today, Central Concrete delivers an exceptionally high volume of CarbonCure concrete from its designated plants.

Testing Results from U.S. Concrete's National Laboratory Evaluation



The same concrete performance with reduced carbon footprint at optimum CO₂ dosages.



A potential to boost early-age strength



No change to pumping, placing and finishing





“More than 10 years ago, our lab began engineering higher performing concrete with a lower carbon footprint, recognizing the growing demand by owners, architects and engineers to reduce the embodied carbon of the built environment. Partnering with CarbonCure Technologies furthers our ability to meet the demands of the design community and brings forth an exciting movement. Together we are not only reducing carbon in the built environment but also sequestering carbon.”

Herb Burton, Vice President and General Manager
Northern California Business Units of U.S. Concrete