In The News

Construction Mental Health Alliance launches industry pledge

The Construction Mental Health Alliance (CMHA), a newly formed 501(c)(3) nonprofit, has launched its industry pledge, available at https://www.constructionwellness.org/cmha-industry-leader-pledge/. The pledge includes measurable goals and invites construction leaders across North America to protect the physical and mental health of their workforce by committing to preventing traumatic brain injuries (TBIs) and head injuries; improving mental health and reducing suicide in construction; managing fatigue and reducing mental and physical stress; and improving health, wellness, and fitness.

"For too long, our industry has asked workers to power through pain, both physical and mental, without the support they deserve," says Scott Greenhaus, president of the CMHA.

CMHA leaders say they hope that the pledge will serve as a cornerstone of building awareness about mental health in the industry. A digital media toolkit is available on CMHA website at https://www.constructionwellness.org/. Other recommendations include downloading resources for a toolbox talk or safety meetings covering mental health, opioid misuse, head injury prevention, fatigue management, and wellness strategies. —Source: Construction Mental Health Alliance

Study reveals how CO_2 drives early strength gains in cement, concrete at molecular level

The Massachusetts Institute of Technology's (MIT's) Masic Lab and CarbonCure researchers have published direct evidence of a novel hydration pathway in carbon dioxide (CO_2)-activated cement, providing new insight into the molecular mechanisms of carbon mineralization in cement.

The new peer-reviewed study published in the *Journal of the American Ceramic Society* has, for the first time, captured in real time the precise chemical mechanism by which CO_2 injected during cement paste mixing enhances early hydration and produces a more evenly distributed, tightly woven microstructure.

The team of researchers from Masic Lab and CarbonCure Technologies used advanced in situ Raman microspectroscopy, a technique capable of identifying individual chemical phases as they form at the micron scale, smaller than a human hair. Observing CO_2-activated cement hydration unfold hour by hour over 24 hours, the researchers uncovered the molecular sequence behind the early strength-enhancing effects of CO_2 in cement, concrete's key ingredient. Rather than disrupting the material's chemistry, CO_2 in early-stage hydration creates a tightly-linked binder microstructure.

For concrete producers, engineers, and builders, this study provides a molecular-level explanation of how CO_2 mineralization works in manufacturing, which could help optimize concrete mixture designs, reducing the amount of cement required while protecting its strength. It represents an important step toward the production of lower-carbon concrete to meet market demand while also delivering operational savings.

When CO_2 is injected into cement paste during mixing, the research team found that it does not simply fill pore space with calcium carbonate particles, as previously theorized. Instead, CO_2 triggers a fundamentally different three-stage hydration sequence:

In the initial mineralization stage (within four hours of the CO_2 injection), CO_2 rapidly forms nanosized calcium carbonate particles, temporarily diverting calcium from its usual role and allowing a smooth, evenly distributed silica gel network to develop.

In transition, the second stage (four to eight hours), once CO_2 is consumed, normal hydration resumes as calcium hydroxide reacts with the silica gel network to form evenly distributed calcium–silicate–hydrate (C–S–H), the material that gives cement its strength.

During the stabilization stage (more than 8 hours), hydration continues in a conventional manner, filling in the structure and producing a more-uniform, interconnected binder that sets faster and achieves about 13% higher early strength. Critically, the study also provides the first direct visual evidence of early-age CO_2 mineralization, with calcium carbonate particles remaining chemically stable over time, "permanently sequestered within the matrix."

"For years, researchers have observed that CO_2-activated concrete is stronger at an early age, but the precise mechanism has remained elusive because the phases involved are transient and difficult to observe directly," says Admir Masic, a professor in the MIT Department of Civil and Environmental Engineering and corresponding author of the study.

The paper is available at https://ceramics.onlinelibrary.wiley.com/doi/epdf/10.1111/jace.70825.
—Sources: Massachusetts Institute of Technology and CarbonCure

CIM celebrates 30 years

This year, the Concrete Industry Management (CIM) program reaches its 30th anniversary. As a business-intensive college degree program designed specifically for the concrete construction industry, CIM has spent three decades preparing students with the technical, operational, communication, and management skills needed to address critical talent shortages.

The need for a specialized curriculum was recognized in 1994 when the concrete industry faced a growing demand for skilled professionals to replace retiring team leaders. This led to a partnership between industry leaders and Middle Tennessee State University in Murfreesboro to create the CIM program. First introduced in 1996 with just two enrolled students, the program has grown to more than 1800 graduates working in various management positions across the concrete industry.

To meet industry demands, CIM has expanded through partnerships with several institutions. The four-year bachelor of science degree is now available at Middle Tennessee State University; California State University, Chico; Texas State University in San Marcos; New Jersey Institute of Technology in Newark; and South Dakota State University in Brookings. The curriculum pairs business administration with hands-on concrete technology experience and boasts a nearly 100% job placement rate for its graduates.

—Source: Concrete Industry Management

Industry Calendar

Event details are subject to change.

North American Modern Building Alliance Building Fire Safety Symposium Hyatt Regency O'Hare, Chicago, Ill.	September 9–10, 2026
CAMX Atlanta, Ga.	September 21–24, 2026
PTI 2026 Committee Days Cancun, Mexico	September 29–October 2, 2026
ACI Concrete Convention Hilton Atlanta, Atlanta, Ga.	October 11–15, 2026
Greenbuild New York, N.Y.	October 20–23, 2026
2026 Design-Build Conference & Expo Cleveland, Ohio	November 4–6, 2026
38th Annual ASBI Convention Grand Hyatt Riverwalk, San Antonio, Tex.	November 8–12, 2026
AASHTO Annual Meeting Louisville, Ky.	November 15–18, 2026
2027 TRB Annual Meeting Walter E. Washington Convention Center and Marriott Marquis, Washington, D.C.	January 10–14, 2027
World of Concrete Las Vegas, Nev.	January 18–21, 2027
6th Annual Construction Mental Health and Wellbeing Conference InterContinental Chicago Magnificent Mile, Chicago, Ill.	February 22–25, 2027
ASCE2027 Philadelphia, Pa.	March 1–5, 2027
ACI Concrete Convention Caesars Palace Las Vegas, Las Vegas, Nev.	March 21–24, 2027
PTI Convention Lake Buena Vista, Fla.	May 3–6, 2027
***fib* Symposium 2027** Dresden, Germany	June 7–9, 2027