

MARCH 2022

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Lifting to accolades

Federal agencies trigger a third flourish for Environmental Product Declarations



Our coverage of Environmental Product Declarations (EPDs) for ready mixed and manufactured concrete dates to 2013. The record of producers and their national associations responding to market signals calling for such documents continues to be exemplary.

This past month saw a third turning point in EPDs' evolution from a target of green building practitioners, to data files for the Embodied Carbon Construction Calculator (EC3), to a priority of the Western Hemisphere's biggest construction buyer, the U.S. federal government. The General Services Administration conducted a two-week survey of concrete producers, formally issued as "Request for Information Regarding Concrete: Environmental Product Declarations and Low Embodied Carbon Products." The agency will now analyze responses to the nine-question survey seeking information on producers' ability to provide mix-specific, cradle-to-gate Type III EPDs and insights on concrete exhibiting low embodied carbon characteristics. GSA will especially focus on zero- to high-slump mixes presented or certified as having an embodied carbon threshold lower than industry averages. The embodied carbon metric on the most widely recognized EPD type—prepared according to the ISO 14025 standard—is global warming potential, or kilograms of carbon dioxide equivalent.

The GSA survey is part of a larger effort surrounding White House Executive Order 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability. It compels appropriate agencies to "promote use of construction materials with lower embodied emissions." The order steers the U.S. Departments of Defense and Transportation, along with the Environmental Protection Agency, to action paralleling the GSA survey.

GSA, DOT and Defense officials tasked with studying embodied carbon to drive construction materials or products procurement will be hard pressed to find stakeholders who have done EPD homework matching that of ready mixed and manufactured concrete producers. Working with certified EPD Program Operators like the National Ready Mixed Concrete Association and ASTM International, ready mixed producers have built a five-digit library of declarations. Their counterparts in precast, prestressed and building or hardscape unit masonry are likewise prepared to submit declarations on applicable public or private construction projects thanks to National Concrete Masonry Association, National Precast Concrete Association and Precast/Prestressed Concrete Institute frameworks.

Federal agency interest in EPDs follows two other milestones, both rooted in the U.S. Green Building Council's Greenbuild Conference. The event's 2019 staging saw the debut of the open-access EC3 tool, the industry's first database of digitized EPDs. Posted at the secure www.buildingtransparency.org portal, EC3 fosters embodied carbon benchmarking, assessment and reduction among architects, engineers, owners, contractors, suppliers, manufacturers and policy makers.

It emerged after EPD had firmly taken hold in the market, owing to adoption of the Leadership in Energy and Environmental Design green building rating system. The LEED v4 version premiered at the 2013 Greenbuild and was especially noted for incentivizing supplier or manufacturer EPD submittals. Among producers who anticipated the LEED v4 Material and Resources credit were California's Central Concrete Supply Co. and Angelus Block, which issued the first EPD for ready mixed and concrete masonry. Along with many other peers, they are prepared to field federal agency inquiries on high performance, low carbon concrete mixes.

Once the U.S. government absorbs the depth of EPD-backed ready mixed and manufactured concrete offerings at its disposal, the White House and agency heads should shift their focus from embodied to lifecycle carbon—an area where cast-in-place, precast and concrete masonry more than hold their own.

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Another Look at the Pandemic: How the Fed Stepped in to Save the Economy



Pierre G. Villere serves as president and senior managing partner of Allen-Villere Partners, an investment banking firm with a national practice in the construction materials industry that specializes in mergers & acquisitions. He has a career spanning almost five decades, and volunteers his time to educating the industry as a regular columnist in publications and through presentations at numerous industry events. Contact Pierre via email at pvillere@allenvillere.com. Follow him on Twitter - @allenvillere.

It is always interesting to see how quickly our attention and focus can turn from one crisis to the next, with the former being forgotten and seen only in the rear-view mirror. Of course, the media gives us no choice, as it is their focus on the story of the moment that gets the ink.

With the war in Ukraine clearly front and center, I am not surprised the Covid pandemic has dropped almost completely out of the news. In part, it is clearly because case numbers continue to drop, and at least for now, another surge has not appeared, giving hope that a combination of vaccinations and herd immunity is finally taking root. I just hope that Covid may be reduced into a lingering, but unavoidably perpetual, number of cases as with so many other diseases.

But as Covid drifts away and is no longer the story of the moment, I decided to take a dive into understanding how our leadership, and the Federal Reserve in particular, handled the economic impact of the March 2020 shutdown of global economies, and the enormous impact their swift judgement made in salvaging what could have been an economic depression.

As has been widely reported in the popular business press, the action was simple: "Get in the boats and go." As the coronavirus pandemic upended global commerce in March 2020, Fed Chairman Jerome Powell repeatedly invoked the urgent British evacuations from Dunkirk in World War II. They devised unparalleled emergency-lending backstops to stem a financial panic that threatened to exacerbate the unfolding economic and public-health emergencies. Over the week of March 16, markets experienced an enormous shock to what investors refer to as liquidity, a catchall term for the cost of quickly converting an asset into cash. The Fed had tried to get ahead of liquidity problems that Sunday, March 15, when Powell slashed interest rates to zero at a second emergency meeting in as many weeks. They were offering nearly unlimited cheap debt to keep the wheels of finance turning, and

when that didn't help, the Fed began purchasing massive quantities of government debt outright.

But that week of March 16 was a view into the economic gates of hell. Despite Fed interventions, by week's end the Dow had plunged more than 10,000 points since mid-February as investors struggled to get their arms around what a halt to global commerce would mean for businesses that would soon have no revenue. During that week, the Fed was inundated with calls urging a shutdown to trading. One Fed official called it sheer, unadulterated panic, of a magnitude that was far worse than in 2008 and 2009. Today, nearly two years later, most agree that the Fed's actions helped to save the economy from going into a pandemic-induced tailspin. The question now is what the long-term costs and implications of that emergency activism will be for the Fed, financial markets, and wider economy, but that is another topic altogether.

By Monday, March 23, the Fed announced a pledge to backstop an array of lending, and it worked. The Fed's pledge unleashed a torrent of private borrowing based on the mere promise of central bank action, together with a massive assist by Congress, which authorized hundreds of billions of dollars that would cover any losses.

No company illustrated the speed with which the Fed's announcement had buoyed investors better than Carnival Corporation, the world's largest cruise-line operator. Its business had collapsed as Covid halted cruises world-wide. Within days of the Fed's announcement, Carnival was able to borrow nearly \$6 billion from large institutional investors.

Those couple of weeks, and the fast reaction by the Fed, will be inked into the economic history books forever. I just hope in the future, as economic crises of various types rock our economy and threaten our industry's financial underpinnings, future Fed officers will look at the work of our current Fed as a guide to avoiding economic disaster.



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The Future of Batching

Producers must decide between sticking with batching systems that do a good enough job and upgrading to one that runs masterfully with improved accuracies and uptime.



Craig Yeack has held leadership positions with both construction materials producers and software providers. He is co-founder of BCMI Corp. (the Bulk Construction Materials Initiative), which is dedicated to reinventing the construction materials business with modern mobile and cloud-based tools. His Tech Talk column—named best column by the Construction Media Alliance in 2018—focuses on concise, actionable ideas to improve financial performance for ready-mix producers. He can be reached at Craig.Yeack@bcmicorp.com.

Many of us grew up with the idioms “use it up, wear it out” and “if it ain’t broke, don’t fix it.” These words of wisdom are essential for survival in a world of scarcity. They make us tough, durable and resilient—and in an industry like ready mixed concrete with razor-thin margins, that matters.

But what happens when there is a complete paradigm shift? What happens when Tesla hits the market? Even though we can keep it running, do we hang onto our favorite 2003 Ford truck? Or do we make the leap to a model with Bluetooth, adaptive cruise control, autopilot and more?

Welcome to the dilemma of concrete batching.

We use Industry 3.0 batch controllers. Prior to that, we had Industry 2.0 (electrification); batched concrete with levers, wheels and gauges. Industry 3.0’s computerized control, like programmable logic controllers (PLCs), can send a request for “recipe and quantity” and out pops a really accurate load of concrete.

With Industry 4.0, we have access to the internet of things (IoT) with artificial intelligence (AI) and machine learning. Now, we have a real-time “pulse” of anything that can be measured. With the lightspeed improvements in sensor technology, that means just about everything. Industry 4.0 warehouses and factories operate with masterful, lights-out efficiency.

And then there is batching. Do we continue to be “keyhole” thinkers, constrained by our scarcity mentality? Or do we consider what is possible with modern technology? The current batching systems work, and we can keep them trundling along for the foreseeable future. Why change?

LIGHTS-OUT BATCHING

Marcotte Systems (www.marcottesystems.com) is currently running a pilot program with seven batch plants configured in what the company’s Executive VP Alex Leblond terms “Industry 3.5.” The plants are unattended, other than a rotating maintenance crew and one person who centrally monitors all operations. He says the true economic benefits of this setup are clear.

While the details of Marcotte’s IoT and

machine-learning pilot remain confidential, let’s do some simple math and consider the economic impact of labor, batch accuracy and its associated liability:

EBITDA BOOST

ASP \$/CY	\$130
Industry 3.0 EBITDA	8.5%

Batcher Burdened Salary	\$80,000
Plant CY/Yr.	\$65,000
Labor \$/CY	\$1.23

Cement Cost, 5 Bag \$/CY	\$28.20
Average Overcement	0.50%
Cement Savings \$/CY	\$0.14

Matured Liability	0.10%
Matured Liability \$/CY	\$0.13

Total Potential Savings \$/CY	\$1.50
Industry 4.0 EBITDA Improvement	1.2%
Plant EBITDA Gain \$/Yr.	\$97,615

A fair estimate of tangible cost reduction shows around a 1 percent increase in EBITDA. Even though that’s a big number, the cost of transition will probably eat it up in the short term.

Let’s say it would take about \$30,000 to replace the more than 20-year-old batch system with a modern version supported by service-orientated architecture (SOA). Now double that number, because the electrician is bound to find all sorts of things on the plant that will need to be replaced or added.

The financial cost is why Leblond emphasizes Industry 3.5, and not Industry 4.0. He contends that the industry needs to ease toward the “lights out” model and automate the less difficult, higher-value parts first. Even so, the absolute foundational requirement is a modern, SOA-compliant batcher.

We all love manual panels with push-buttons; they put us in control. However, the reality is humans pushing buttons present the single biggest impact on poor quality and excessive cement cost. While we need the option to override when it really matters, AI is much better suited for in-spec adjustments on a routine basis.



PHOTO: Marcotte Systems

Marcotte pilot program operators remotely monitor seven plants from one location.

If you are worried about smart machines taking over the world à la “Terminator 3: Rise of the Machines,” you should be. Unfettered AI is not good. But better sensors, modern SOA, IoT and AI carefully combined with human oversight will produce significant improvements. Fortune does favor the bold, but if you are not yet comfortable with upgrading that favorite old Ford truck to a new one, then it’s absolutely time to watch closely as others take the leap.

MOBILE APP STREAMLINES COMPLEX CONCRETE TESTING WORKFLOWS

Ready mixed quality control (QC) has and remains technologically underserved. Scott Grumski and Joel Simpson are on a mission to change that. They are both principal forces at Forney LP, a material testing equipment innovator and maker of the ForneyVault integrated construction materials testing platform.

Forney’s focus is on material testing equipment for cementitious materials like cement, mortar, grout and concrete. Grumski and Simpson recently asked their customers what was needed most, and they received a surprising answer: Tell us where our test specimens are in the field.

Wow! There are so many high-tech things that can be done in the lab, yet their customers—QC experts—were still struggling to locate and track specimens.

FORNEYFIELD TO THE RESCUE

The ForneyVault platform recently launched ForneyField, a mobile app allowing concrete field technicians to capture site and sample data from the field to the lab and beyond, offering an end-to-end solution for the construction materials testing (CMT) workflow.

While basic mapping was not in the original scope, Grumski and Simpson are built to discover and focus on customer needs. Their app now allows field technicians to enter all relevant data as well as track specimens. The software developers also are pushing forward to add even more functionality to figure out where technicians will be going the next day.

Amazing. The app’s most important feature has nothing to do with the lab, but instead solves a key problem with people and how they do their work.

HOW IT WORKS

The sequential nature of the app mirrors the reality of the workflow for field technicians and allows them to quickly capture and claim sample data, then track the specimens cast from that sample and relay the information back to the lab. They can create new samples and record sample data when a new batch of concrete arrives onsite. When synced with an internet connection, the data is automatically stored in a database to inform next steps, thus streamlining complex CMT workflows.

The app prompts a chain of custody for each sample: Cast, Assigned, Claimed, Collected and Delivered. This allows technicians to claim a sample that has not been received at the lab or managers to assign someone else to pick it up. When a technician claims or is assigned to collect a sample, the app will display a map with pins that show exactly where it is, eliminating the need to search a large jobsite for the small area where the specimens are located.

With the app, there are fewer delays caused by unclaimed or missing specimens and more time saved in CMT workflows, as teams can easily validate lab testing against field work and avoid miscommunication and discrepancies. It also helps firms avoid penalties for improper curing or late or missing tests.

While ForneyField does all sorts of fancy stuff not mentioned here, the takeaway is this: Grumski and Simpson work for a capable company. They listen, and they deliver modern tools for ready mixed quality control. To learn more about the ForneyField app, visit <https://forneyvault.com/forneyfield>.



The status of a specimen logged into ForneyVault is relayed to update the five-point ForneyField chain of custody module.

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What Buy Clean means for the concrete industry

And how concrete producers can capitalize on the federal government's changing policy landscape



Eric Dunford is Senior Director of Government Affairs, CarbonCure Technologies in Halifax, Nova Scotia. CarbonCure's carbon dioxide mineralization process suits ready mixed and manufactured concrete production.

In December 2021, the White House issued an executive order focused on reducing emissions across federal government properties. The order introduces a "Buy Clean" policy meant to reduce carbon emissions arising from the production or manufacturing and use of building materials. For the first time, suppliers of concrete to federal projects will be required to report the carbon content of their bids. Just last month, it was announced that this requirement will extend to Departments of Transportation and Defense construction.

Taken together, these agencies represent a huge market for concrete. The scope and scale of federal procurement is also likely to create spinoff requirements at the state and local levels. In fact, several states have already proposed or enacted their own equivalent policies. Considering this growing attention from policymakers, it will be increasingly important for concrete producers to be able to accurately track and report on emissions associated with their products to continue to be able to access these markets.

Why focus on building materials?

Carbon dioxide (CO₂) emissions are created during the production of building materials, such as wood, steel and concrete. These emissions arise during the extraction of raw materials from the environment, from the energy used to process or manufacture products, and from transportation of raw and finished materials. Taken together, the manufacturing of these materials is a significant emissions source—currently accounting for as much as 11 percent of global emissions.¹

Concrete's strength, resilience and versatility make it indispensable for infrastructure. As such, the government is among the biggest consumers of concrete. Combined purchasing from all levels of government account for almost half of concrete use by volume.¹ But, concrete and its critical, main binding material—portland cement—currently contribute roughly 7 percent of carbon emissions worldwide, making it one of the largest emissions sources in the built environment.¹ These statistics are what is driving federal action and are what the Buy Clean policy aims to resolve.

What do concrete producers need to know about the federal government's Buy Clean policy?

- *Environmental product declarations required.* Starting in 2023, concrete producers will be required to produce Type III environmental product declarations (EPDs) to be able to continue to bid on federal projects. A Type III EPD provides an independent life-cycle assessment

of a product and the emissions created from its manufacture, enabling transparent disclosure and reporting on the impact of the concrete proposed for use. Generating these Type III EPDs requires hiring specialized service providers to produce and independently verify declaration data. This creates a cost burden to compete, which will particularly affect independent and family-owned businesses.

- *Federal projects will prioritize sustainable concrete.* The Buy Clean policy simply requires the reporting of carbon content, but this policy could also set the stage for the preferential selection of lower-carbon products in future federal projects. This will give producers that adopt lower-carbon processes and technologies a clear long-term advantage.
- *Buy Clean recognizes the importance of climate resilient infrastructure.* On the one hand, the Buy Clean policy names concrete, along with steel, as a priority material for the reduction of embodied carbon. On the other hand, it acknowledges the need for climate resilient infrastructure. Concrete is built to last and is ideal for withstanding extreme weather and improving the safety and energy efficiency of buildings. Although this policy is targeting decarbonization of materials and products, it also acknowledges that concrete will continue to be an important material as we design and build for a more uncertain future.

How serious should concrete producers take EPDs and the federal Buy Clean policy?

If federal contracts are important to your business, EPD submittals will soon no longer be optional. Concrete producers should also expect more states and cities to follow the federal government's lead with similar requirements. Buy Clean policies are a global trend, with the private sector and federal, state, and local governments increasingly using their purchasing power to encourage a shift to lower-carbon options. The interest in industrial decarbonization is fueled by several broader trends that are not going away either.

The U.S. is among a growing movement of countries, sectors and industries around the globe that have committed to a net-zero emissions economy by no later than 2050. Construction-related organizations, including Architecture 2030, Structural Engineers 2050 Challenge, the World Green Building Council and Carbon Leadership Forum, are on a mission to usher in net-zero buildings by 2050.

Continued on page 12



MARCOTTE

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Our own industry leaders—including the Global Cement and Concrete Association, European Committee for Concrete and Portland Cement Association in North America—have mapped out plans to reduce embodied carbon in concrete by 40 percent to 50 percent through 2030 and to reach carbon neutrality by 2050. As an industry, we have recognized the global demand for greener solutions and the need for industry to be a partner at the table. The pathway to a lower carbon future for this industry is clear, but it will be key that the costs and challenges of this transition be borne proportionately.

How can concrete producers prepare for and respond to the Buy Clean Policy?

Get prepared to produce EPDs. If you currently work on federal projects, now is the time to research EPD providers and put in place the framework and resources you'll need when the new RFP requirements begin in 2023. Two well-known EPD suppliers that serve the concrete industry are Athena Sustainable Materials Institute and Climate Earth. Your local concrete or builders' association will also be able to recommend other vendors.

Analyze and optimize your production. EPDs will create new visibility into the environmental impact of concrete products. You'll want to investigate your options for being best in class in your region. Consider which processes, materials, and technologies make sense for your business; some options include optimizing aggregate gradations, using portland-limestone cement (Type IP), increasing the levels of supplementary cementitious materials (SCMs) you use, and/or incorporating innovative technologies such as CO₂ mineralization or other carbon capture, utilization and storage technologies. Many of these strategies can be combined to achieve even lower carbon products.

Support your industry associations in their efforts to inform and engage with the government. Your state and national associations are a key voice representing the industry's interests to the federal government. Considering the new cost that concrete producers must

incur to create the EPD documentation requested by the federal government, it will be important to advocate for such files to be accessible to and affordable for all producers. Ultimately, producing EPDs is for the public good, and cost barriers could create an unlevel playing field. The states of New York, New Jersey, and California, for example, have proposed providing a tax subsidy to producers to offset some of the cost of EPD preparation, which is a model we believe the federal government could and should consider. Concrete producers want to be good partners in taking positive climate action, but climate affects us all and producers should not solely bear the cost for doing the right thing.

How can you leverage Buy Clean policies and EPDs for your long-term success?

Ultimately, the sustainability of concrete will determine the sustainability of the concrete industry. The more sustainable concrete becomes, the better the industry will fare at protecting, or growing, its market share versus other materials such as lumber or steel for private sector, federal, regional and municipal projects.

At CarbonCure Technologies, we're proud to have partnered with producers around the globe who are already taking steps to improve the environmental—and economic—competitiveness of their products. These early adopters of the CarbonCure CO₂ utilization and sequestration process recognize that, increasingly, it is not enough just to get the job done. Simply getting the job will soon require all producers to adopt climate solutions. Between now and then, concrete producers have an opportunity to differentiate themselves as industry leaders and champions of innovation ahead of the impending change.

¹Carbon Leadership Forum (<https://carbonleadershipforum.org/what-is-a-buy-clean-policy/>)

²International Energy Agency (<https://www.iea.org/news/cement-technology-roadmap-plots-path-to-cutting-co2-emissions-24-by-2050>)



Ozinga Ready Mix Concrete is among CarbonCure process users issuing EPDs reflecting mixes' carbon dioxide capture and mineralization.



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ABC counters administration's PLA, union organizing push



In light of White House "Build Back Better" ambitions, Associated Builders and Contractors Vice President of Regulatory, Labor and State Affairs Ben Brubeck questions a new executive order encouraging project labor agreement (PLA) mandates on federal construction contracts exceeding \$35 million.

"The policy will not help America; instead, it will exacerbate the industry's skilled workforce shortage, needlessly increase construction costs and reduce opportunities for local contractors and

skilled tradespeople," he contends. "This anti-competitive and costly executive order rewards well connected special interests at the expense of hardworking taxpayers and small businesses who benefit from fair and open competition on taxpayer-funded construction projects.

"Research has demonstrated that government-mandated PLAs increase construction costs by 12 percent to 20 percent, which results in fewer improvements to roads, bridges, utilities, schools, affordable housing and clean energy projects—and the creation of fewer jobs. PLAs steer contracts to unionized contractors and workers at the expense of the best-quality nonunion contractors and workers who want to compete fairly at a price best for taxpayers."

"PLA mandates are bad public policy because they effectively exclude the nearly nine out of 10 U.S. construction workers who choose not to join a union from building taxpayer-funded construction projects," Brubeck continues. "These controversial agreements hold a third

of employees' compensation for ransom unless they join a union, pay union fees and prop up struggling union pension plans. PLAs also create excessive cost burdens and risks for high-performing nonunion contractors, which built more than half of the federal government's large-scale construction projects during the past decade and are more likely to be small, women- and/or minority-owned businesses."

With nearly 88 percent of the construction workforce not represented by a union and the industry facing a skilled labor shortage of 430,000 in 2021, he adds, the White House would be best served by promoting inclusive, win-win policies that welcome all of America's construction industry to realize the potential of the recently passed Infrastructure Investment and Jobs Act; increase accountability and competition; and, reduce waste and favoritism in public works project procurement. ABC and a coalition of construction industry, small business and taxpayer advocates have been asking lawmakers to oppose PLA schemes and cosponsor fair and open competition legislation (H.R. 1284/S.403) on federal taxpayer-funded construction. Similar pro-taxpayer legislation has been enacted in 24 states.

ORGANIZING PRIMER

The executive order touting PLAs set the stage for the release of a White House Task Force on Worker Organizing and Empowerment report offering upward of 70 recommendations that promote union representation pursuits and collective bargaining for public and private sector employees. Comprised of more than 20 participant agencies, offices and White House components, the task force was charged with identifying executive branch policies, practices and programs that could be used, consistent with applicable law, to raise



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Invoicing

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unionization rates.

The U.S. Department of Labor will work across agencies to implement the task force's recommendations, including the following:

- Ensuring workers know their organizing and bargaining rights;
- Protecting workers who face illegal retaliation when they organize and stand up for workplace rights;
- Establishing a resource center on unions and collective bargaining;
- Shedding light on employer's use of anti-union consultants; and,
- Collecting and reporting more information on unions and their role in the U.S. economy.

"The Department will play a critical role in helping the White House Task Force on Worker Organizing and Empowerment to achieve its mission. Workers today are demanding more from their jobs, and we know the freedom to exercise their right to collective bargaining is a key component of our efforts to improve working conditions across the economy," says Secretary of Labor Marty Walsh. "The report's recommendations put the federal government's policy of encouraging worker organizing and collective bargaining front and center, and empower workers to build a stronger economy and better quality of life for them and their families."

The task force report, counters ABC's Ben Brubeck, "Is of great concern, especially for Americans who expect the government to create and support policies ensuring fair and open competition on taxpayer-funded federal and federally assisted construction projects. The report's recommendations to expand the use of anti-competitive and costly project labor agreements will increase infrastructure project costs by 12 percent to 20 percent, reduce competition from the best quality public works contractors and exacerbate the construction industry's skilled labor shortage by discriminating against the members of the construction workforce who choose to be union-free."

UNION MEMBERSHIP SLIDE

Results of a U.S. Bureau of Labor Statistics survey on union membership and rank & file demographics scale challenges confronting the White House, Labor Department officials, and other organized labor allies. The number of wage and salary workers belonging to unions continued to decline last year (-241,000) to 14.0 million, while workers who were members of unions stood at 10.3 percent, off 0.5 percent from a 2020 union membership rate skewed by large losses in the nonunion worker ranks.

The 2021 union membership rate is nearly half that of 1983 (20.1 percent; 17.7 million rank & file), the first year for which

comparable union data are available, BLS researchers find. The data they collected on 2021 union membership are drawn from Current Population Survey, a monthly sampling of about 60,000 eligible households that obtains information on employment and unemployment among the nation's civilian noninstitutional population age 16 and over. In addition to the union membership rate returning to the 2019 level, just into the double digits, the 2021 survey data indicates:

- Among states, Hawaii and New York continued to have the highest union membership rates (22.4 percent and 22.2 percent, respectively), while South Carolina and North Carolina continued to have the lowest (1.7 percent and 2.6 percent, respectively).

- In 2021, 30 states and the District of Columbia had union membership rates below that of the U.S. average, 10.3 percent, while 20 states had rates above it. All states in both the East South
- Central and West South Central divisions had union membership rates below the national average, while all states in both the Middle Atlantic and Pacific divisions had rates above it.
- Ten states had union membership rates below 5.0 percent in 2021, led by the Carolinas and Utah (3.5 percent). Hawaii and New York are the only states with union membership rates north of 20 percent; combined, they are home to about 30 percent of the 14 million union members reflected in BLS survey results.

INDUSTRY RANK & FILE

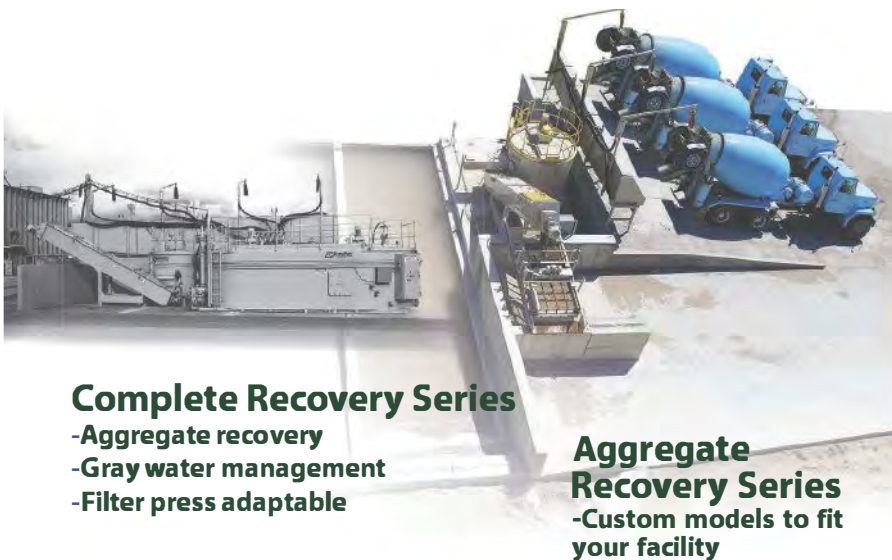
Construction and Extraction occupations

Year	Total employed	Union member	Union membership rate
2020	6,243,000	1,105,000	18.7
2021	6,528,000	1,119,000	18.4

Higher unionization rates among miners skew the union membership rates in the Bureau of Labor Statistics' combined Construction and Extraction sector figures. Nearly nine out of 10 construction workers are nonunion.

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EPA campaign targets commercial building energy efficiency

New U.S. Environmental Protection Agency initiatives will provide policymakers and commercial building owners resources to reduce emissions from more than 6 million commercial and multifamily buildings. Through decades of partnership with EPA's Energy Star program, private and public building owners have significantly reduced their emissions and energy costs by improving their properties' energy efficiency and performance. Many cities and states across the country are building on this foundation to establish benchmarking, disclosure and building performance policies. The EPA initiatives will tap into this experience to help propel the adoption of effective building performance policies, among them:

- Guidance to assist local and state governments in developing effective building performance policies;
- Enhancements to the Energy Star Portfolio Manager tool currently used by hundreds of thousands of building owners to assess their energy, water, waste, and emissions;
- Tools with which Portfolio Manager data can be used to estimate building emissions under different performance standards; and,
- Greater transparency into the data for the

hundreds of thousands of buildings in Portfolio Manager.

EPA's policy guidance includes analysis and recommendations of metrics, best practice resources including the Benchmarking and Building Performance Standards Policy Toolkit, and peer networks. The agency is also providing a framework for selecting metrics and setting performance levels for building performance standards. The guidance will highlight approaches that are aligned with multiple community objectives such as energy and housing affordability and will help policymakers establish baselines and performance levels that achieve efficiency and emissions goals feasibly and equitably.

Energy Star Portfolio Manager is an online energy measurement and tracking tool that serves as a trusted platform for building performance policies. Each of the roughly 40 state and local benchmarking and disclosure policies in the United States uses it as an implementation platform. The agency will continue to provide technical assistance and software updates to help state and local governments administer benchmarking and Building Performance Standards policies.

EPA is also set to release a new web-based

tool that allows building owners to use their energy benchmarking data to estimate emissions under local building performance standards. Known as the Energy Star Portfolio Manager Building Emissions Calculator, it will project the impact that changes in a building's efficiency, fuel mix and renewable energy use will have on their emissions over time.

Later this year, the agency will launch a tool providing access to aggregated, anonymized energy data from the hundreds of thousands of buildings in Portfolio Manager, enabling policymakers, building owners, and others to quickly understand how energy use varies based on the type of building, where it is located, how it is used, and other factors. These initiatives support EPA's goals to accelerate emissions reductions and generate local jobs through increased energy efficiency and beneficial electrification across the residential, commercial, and industrial sectors.

STRAW: CARBON CAPTOR

Verdant Structural Engineers, a Berkeley, Calif. developer of a natural fiber alternative to conventional foam-filled structural insulated panels, is one of nine small business to

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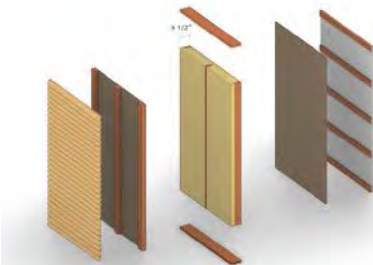
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receive funding from a \$3.6 million Environmental Protection Agency program to further develop and commercialize technologies to protect the environment and public health.



Carbon-storing straw structural insulated panel design developed by Verdant Structural Engineers in Berkeley, Calif.

GSA TAKES STOCK OF LOW CARBON MIXES

The agency overseeing much federal building development and construction has formally issued "Request for Information Regarding Concrete: Environmental Product Declarations and Low Embodied Carbon Products," inviting EPD data and responses to a nine-point questionnaire at a dedicated portal. The General Services Administration aims to gather information on concrete producers' ability to provide mix-specific, cradle-to-gate Type III EPDs and insights on concrete exhibiting low embodied carbon characteristics. Candidate mixes for agency review are those whose embodied carbon threshold have a reduced global warming potential—expressed on EPD as kilograms of carbon dioxide equivalent per cubic meter—when measured against industry averages.

Along with the Request for Information, GSA has engaged trade associations, architectural firms specializing in sustainable construction, U.S. Department of Transportation, U.S. Environmental Protection Agency, plus state and local governments on the topic. Low embodied carbon concrete mixes for buildings and pavements may be readily available and cost-competitive, with regional variation, the agency finds. GSA seeks to learn more regarding any barriers to the production of sustainable concrete and any opportunities to more consistently use such products in the future. The agency's survey of low carbon concrete mixes aligns with White House Executive Order 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability. It compels appropriate agencies to "promote use of construction materials with lower embodied emissions."

"These companies' efforts to bring their technologies to market will pave the way for advances in energy efficient construction, water reuse and environmental monitoring," says EPA Pacific Southwest Regional Administrator Martha Guzman.

"[Our] safe, durable, structural, carbon storing straw wall panel made from natural agricultural byproducts replace[s] plastic foam-filled structural insulated panels," adds Verdant Structural Engineers Principal Anthony Dente. "This will be one of the few

products storing carbon in buildings with biogenic materials, which is essential to lowering the carbon emissions of the building industry."

Verdant and the eight other funding recipients were previously awarded a Phase I contract of \$100,000 by EPA's Small Business Innovation Research program to develop innovative environmental technologies. Each is receiving a Phase II award of up to \$400,000 to further advance and commercialize the technology.

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3D concrete printing on full display at International Builders' Show

Black Buffalo 3D, a global provider of construction-scale printers and proprietary structural concrete ink, demonstrated the capabilities of its 40-ft. Nexcon model at last month's International Builders' Show in Orlando. The device occupied much of a 60- x 80-ft. Orange County Convention Center outdoor booth, placing a low-slump, fine aggregate mix layer by layer to yield load-bearing wall assemblies.

"The premier home-building show in the U.S. gives us a great opportunity to demonstrate our game-changing technology to developers and contractors," said Black Buffalo 3D CEO Michael Woods. "3D printed buildings using our equipment and materials are stronger, safer and more cost effective than any traditional construction methods. Our customers are able to build faster and create custom designs on demand."

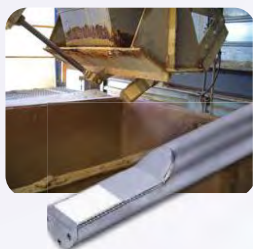
Joining Black Buffalo 3D at the International Builders' Show were representatives from charter Nexcon user Alquist 3D, an affordable-home builder serving rural U.S. markets.



The Nexcon printer and a schedule for 3D-printed concrete on a model Black Buffalo project.

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3D Home Facts*

Serving Size: 1 tiny house
Printing time: 10-12 hours

Amount Per Serving

Area	335 square feet
Quantities	

3D Printing Material

12 supersacks 2,000 lbs.

Ready Mix Materials 6 cubic yards

Number of workers 4

Silo, mixer and pump 2

Control 1

Project Manager 1

Materials Cost

3D printing material/supersack

\$300/supersack x 12 **\$3,600**

Ready mix per cubic yard

\$130/ready mix/cubic yard x 6 **\$780**

*based on use of NEXCON™ 3D printers and Black Buffalo Concrete Ink Mix.

VETERAN BUILDER OFFERS WORKFORCE RECRUITMENT ROADMAP

During an International Builders' Show briefing, Home Builders Institute CEO Ed Brady dubbed the industry's chronic labor shortage as a "long-term structural crisis" and issued a "call to action for an all hands and industry-wide effort to increase training, compensation, diversity and productivity."

"We need to take a look at the traditional business model of home builders and ask ourselves whether it is properly structured to attract, retain and build the next generation of the nation's construction labor force," said Brady, a past National Association of Home Builders chairman and second-generation builder with 30-plus years in the field.

The Institute is a leading skilled labor training services provider and aligned with the NAHB and Home Depot Foundation. Its most recent Construction Labor Market Report shows that to meet the nation's housing demand, the residential construction industry will need to train and onboard 2.2 million new workers within the next three years. In Orlando, Brady laid out steps to attract more workers into home building:

- Recruit more women;
- Train and place more minority, lower-income and second-chance youths and adults;
- Provide trade skills education and training to veterans and transitioning military;

- Develop a national immigration policy that works; and,
- Change entrenched and misguided perceptions of careers in construction.

On the latter bullet, he noted that a top priority for builders and their industry representatives is to reach out to educators, middle and high school students, and those who influence their decisions. "Working together to engage with local schools, we can get hands-on, trade skills training curriculum into our educational institutions that will inspire thousands more young people to pursue post-graduation work in residential construction," he affirmed.

Brady added that home builders should consider the behaviors that the labor market is displaying in this era of the so-called Great Resignation: "The nature of the workforce is changing. And it is not just about higher compensation, although builders will have to stay vigilant on that score to remain competitive in the labor market, while balancing the need to keep housing and homeownership affordable. Beyond better paychecks, people are looking for the best overall workplace environment when they choose what careers to pursue. Today's workers want greater respect, stability and opportunity."

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Veneer stone nails top award criteria at International Builders' Show

Evolve Stone Mortarless Series manufactured stone veneer, cast to enable installation with pneumatic nail guns, took Most Innovative Building Material and Best of Show honors in the National Association of Home Builders' Best of IBS Awards program. Awards in eight categories were presented to 2022 International Builders' Show exhibitors with a product embodying "the best combination of design, functionality and innovation, as well as its usefulness to consumers and/or home builders." The show drew 40,000-plus to the Orange County Convention Center in Orlando, Fla.

"Given the shortage of skilled masons, and demand for realistic stone for both interior and exterior use, manufacturers have been scrambling to develop an authentic-looking, easy-to-install, jobsite friendly 'stone' siding product," observed one IBS panel judge. "In my opinion, Evolve Stone checks all the boxes. It looks and feels like real stone. It is easily installable with a nail gun and finish nails. It cuts like wood and is impervious to moisture. A beautiful product that, provided the price is right and is readily available, will likely be a big hit."

"The innovation and sustainability of the entries were evident in all aspects of products and services, but the biggest take away I saw from a judging standpoint was the efforts to create products that were easy to install for contractors and the ease of use for the end user," noted Pat Coveny of Illinois' Arch Construction Management Inc.

"This year's winners represent innovative and aesthetically-pleasing designs and functions," affirmed fellow judge Tom Wong of Danielian Associates, Irvine, Calif. "These products enhance building procedures and solve solutions in all aspects of residential construction."



The IBS Awards/Most Innovative Building Material recipient installs with finish nails in a sequence up to 10 times faster than conventional masonry methods. Evolve Stone produces its namesake veneer in five patterns and four colors, including Capital Sky and Phantom Shadow shown here.

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WESTLAKE FINISHES BORAL BRAND TRANSITION

Two years of strategic geographic and category acquisitions across North American residential and commercial building markets—capped by a \$2.15 billion deal in October 2021 for the Boral Building Products business—has culminated in the Westlake Royal Building Products launch by Houston-based Westlake Chemical Corp. The business spans precast Cultured Stone, Eldorado Stone and StoneCraft veneer series for exterior and interior conditions; Boral concrete and clay tile roofing; windows, siding and trim; plus, DaVinci Roofscapes. The brand's early-February debut timed with the International Roofing Expo, New Orleans, and International Builders' Show, Orlando.

Westlake
Royal Stone Solutions

"Westlake Royal Building Products represents our depth of experience and ongoing commitment to quality, innovation and customer relationships," says Vice President of Marketing Steve Booz. "We go to market with a broader, more diverse range of products, services, and solutions that meet the needs of architects, builders and homeowners throughout North America." — www.WestlakeRoyalBuildingProducts.com

EXPANDED DISTRIBUTION

York, Pa.-based Wolf Home Products, an innovator and leader in the building products industry, has secured exclusive distribution of Evolve Stone throughout its Northeastern and Mid Atlantic network of independent dealers. Wolf Home will initially be offering the manufactured stone veneer in 13 states from Maine to Virginia, adding the series to a broad portfolio of home envelope building products.

"With demand for low maintenance building products greater than ever, we are thrilled to add Evolve Stone to our lineup of innovative products," says Wolf Home Products CEO Craig Danielson. "By adding this product category, we are better positioned to serve contractors and homeowner's building and remodeling needs."

"We are proud to be partnering with Wolf Home Products to bring consumers in some of the harshest weather climates a realistic stone veneer they can rely on for years to come," adds Evolve Stone CEO Greg Fritz. — www.evolvestone.com; www.BuildersShow.com/bestofibs

MODULAR CONCRETE

A precast concrete building system specialist and technology licenser earned the Global Innovation Award at the International Builders' Show in Orlando. Hüga Technology promotes its modular construction method for home, school, hospital and retail projects, underscoring finished structures' affordable and sustainable characteristics. The Córdoba, Argentina company cites North American installations and representation. — www.hugat-ehnology.com



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National Steering Committee books another record CIM Auction

The National Steering Committee for the Concrete Industry Management program reports \$1.74 million-plus in gross revenue from its annual auction, staged during World of Concrete 2022 at the Las Vegas Convention Center. Fueling the record kitty were winning bids for an Kenworth T880-mounted Alliance boom pump; Mack Granite-mounted McNeilus mixer; Con-Tech Mfg. High Performance Mixer package; Somero S-485 Laser Screed; and, Shumaker Load and Go Ready Mix Truck Wash System.

"This year's auction was a tremendous success, both in terms of the value of donated items and participants," says CIM Auction Committee Chairman Ben Robuck (Cemex USA). "The results are indicative of the high value the concrete industry places on the CIM program. We thank the concrete industry for their tremendous support."

Along with big-ticket and smaller equipment, the National Steering Committee also saw auction pool donations of cement and admixtures from brands serving concrete producers throughout North America: Cemex USA, Chryso, GCC of America, GCP Applied Technologies, Holcim (US), Lehigh Hanson, Martin Marietta, Master Builders Solutions, Roanoke Cement, St. Marys Cement and Sika Corp.

CIM Auction proceeds support undergraduate and graduate degree programs at Middle Tennessee State University, Murfreesboro; California State University, Chico; New Jersey Institute of Technology, Newark; South Dakota State University, Brookings; and, Texas State University, San Marcos.



The Alliance Concrete Pumps, Kenworth Truck and Norcal Kenworth donation drew a \$540,000 winning bid. Photo: Kenworth Truck

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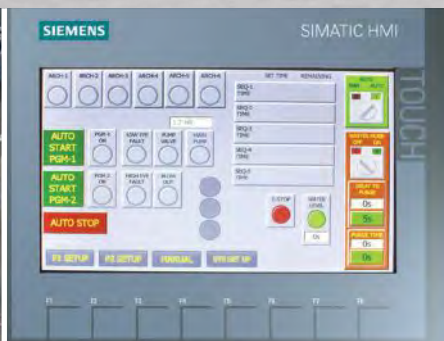
The Load & Go uses a consistent volume of water, calculated time, point of entry, and mixer position. A series of infrared lasers track the mixer as it pulls through the Load & Go, communicating this information to the driver via red/yellow/green lights and a touch screen PLC.

Reduce Water.

A manual washdown with a 1-inch hose can take about 10-minutes and produces over 300 gallons of water. By automating the process with the Load & Go, the wash time is reduced to under one minute, using less than 40 gallons of water. The Load & Go pump is rated at 45 gallons per minute and a standard wash takes 40 seconds.

Upgrade Safety.

When using the Load & Go ready mixed truck wash system, the driver is located safely inside the truck cab while over 70 nozzles direct water at 1200 psi to thoroughly clean the mixer after it is batched. This eliminates manual washdown procedures, that often result in injured employees and workers compensation cases.



Integral dx calculates optimal timing for Schwing Legacy Mixer debut

Minnesota-based Integral dx consummated the rollout of its namesake series mixer truck and component line at World of Concrete 2022. A Las Vegas Convention Center booth featuring two mixers and a drum extended an official market introduction that kicked off during the National Ready Mixed Concrete Association's 2021 ConcreteWorks Expo.

Integral dx is initially focusing on Conventional Series II and Booster Series II models, each based on mixer technology assets and related intellectual property acquired in 2020 from concrete pumping equipment leader Schwing America Inc. The manufacturer is offering packages with 10-, 10.5-, 11- or 12-yd. drums and ZF P7300 or CML12 gearboxes. Among top features differentiating the Integral dx-Schwing Legacy model from other market offerings, the company cites:

- Precision mix function that monitors a load's progress and automatically adjusts drum rpm;
- Optional inclinometer that works with angle sensors to optimize drum speed; and,
- Load function that senses a new batch, keeping the truck and drum rpm running independently and lowering overall revolutions.

Integral dx is part of Ritalka Inc., a Montvideo, Minn. family of businesses performing contract engineering and manufacturing services for mobile equipment manufacturers. Ritalka President Kevin Wald leads a five-member Integral dx management, engineering and sales team. — www.integraldx.com

Integral dx teamed with Kenworth Truck Co. and Ohio dealer Hissong Group to dispatch a signature Schwing Legacy Booster Series II mixer to Las Vegas. The Kenworth T880-mounted truck is bound for a customer of Hissong, whose dealerships serve markets from Columbus to Toledo to Youngstown. A second Booster Series II, mounted on a Western Star 4700, will join the fleet of one of Ohio's oldest ready mixed operators, Carr Bros.



President Bill Murray (left) and Ritalka Inc. President Kevin Wald made the Schwing America Inc. asset transfer official at World of Concrete. The event capped a 16-month transition enabling Ritalka to establish Integral dx as a new concrete mixer entity built on the established Schwing design.



PHOTOS: Concrete Products

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Concrete Reinforcing Steel Institute initiative instills value proposition



The Concrete and Reinforcing Steel Institute has launched a landing page, anchored by the new "Safe and Sound: Steel Reinforced Concrete" tagline. The page provides a quick snapshot of the world's most common building material and acts as a vehicle to address, inform and respond to pressing industry topics. Several issues have been addressed with the page launch, and CRSI officials plan additional content of use to architectural, engineering, and construction (AEC) professionals, plus their clients.

"The creation of the 'Safe and Sound: Steel Reinforced Concrete' tagline and corresponding landing page allows us to

provide quick responses and commentary to issues such as corrosion protection/durability, sustainability, as well as claims/rebuttals to competing materials," says CRSI CEO Danielle Kleinhans.

A social media and email awareness campaign kicked off earlier this year, allowing the Institute to reiterate the inherent benefits of steel reinforced concrete design and construction: resiliency, durability and sustainability. CRSI also has a nationwide network of Region Managers that promote the benefits of building with steel reinforced concrete to the AEC community and serves as a technical resource on design and construction. — www.safeandsoundsrc.com



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Using reinforced concrete helps to reduce noise from outside and adjacent compartments, be it in an office, apartment, or patient room.



Steel Reinforced Concrete is Sustainable

Reinforced concrete typically is cast to precise specifications with little excess, reducing waste and resulting in a greener and more flexible product.

SURVEY FINDS SKILLED CRAFT SALARIES ON THE RISE

Skilled craft professionals' wage trajectory continues upward, according to the NCCER 2022 Construction Craft Salary Survey—a sampling of 135-plus commercial, industrial and residential construction contractors employing nearly 340,000.

Individual craft areas reported provide average annual salaries, not including overtime, per diem, bonuses or other incentives. Of the 41 construction positions surveyed, average annual salaries ranged from \$49,920 to \$98,965. Project supervisors and project managers topped the list, earning over \$90,200 and \$98,900 respectively. Professions earning more than \$65,000 include HVAC technician, commercial electrician, instrumentation fitter, boilermaker, industrial maintenance mechanic, pipefitter, rigger, millwright, industrial electrician, pipe welder, surveyor, construction site safety technician, electronic systems technician, mobile crane operator, plumber, combo welder, tower crane operator, instrumentation technician and power line worker.

Additionally, eight more craft areas made more than \$60,000 per year. The most significant pay increase in the 2022 survey involved power line workers, where wages are up 25 percent from previous years, with plumbers a close second at +23 percent. Since many craft professionals receive additional pay incentives, NCCER reports, their take-home pay is typically much greater than the incomes reflected.

The Construction Craft Salary Survey is one of many resources Florida-based NCCER and its Build Your Future initiative offer to promote construction careers and help build a pipeline of qualified craft professionals. Complete results are available at www.nccer.org/research.

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IIJA, M&A prospects shape advisor FMI's Construction Materials Outlook

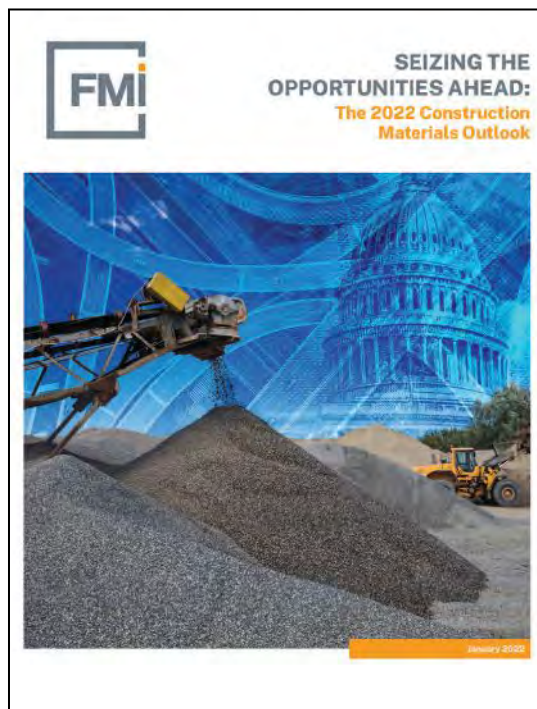
North Carolina-based FMI Capital Advisors, a leading investment banking firm for aggregate, concrete, asphalt producers and their customers, examines key drivers and challenges its 2022 Construction Materials Outlook. Themed "Seizing the Opportunities Ahead," the report also assesses 2021 producer and contractor merger & acquisition activity.

"[Last year] presented an acquisition-rich environment for Construction Materials. Cash on hand, solid earnings and the labor challenge poised the industry for continued consolidation. Going into 2022, we see twin tailwinds of cash-rich investors and prolonged government investment leading to further acquisitions across all three types of deals: bolt-on, platform transactions and 'thunderclap' consolidations," authors note. For this year and beyond, they also find:

- The Infrastructure Investment and Jobs Act (IIJA) will continue to fuel the construction materials space. Strong, sustained demand is likely as projects to repair, maintain and modernize infrastructure kick off in 2022 and continue past a 2026 funding horizon. IIJA funding for highways is projected to increase by as much as 55 percent over the previous FAST Act baseline.
- Labor shortages, inflation and supply chain issues will all impact construction materials production; plant owners and operators will need to address these factors when planning work and contracts.

"2021 was a very good year for producers. Passage of the IIJA will mean a significant increase in highway and street funding, which will support continued M&A activity," says FMI Capital Advisors Managing Director George Reddin. "While the infrastructure bill presents many opportunities, we are also faced with the reality that we don't have enough skilled laborers needed for production."

"Companies will need to evaluate resources and figure out their right approach moving forward. The 2022 Construction Materials Outlook is intended to shed light on the opportunities and challenges they face in the coming years, and how they navigate them in order to succeed," adds Director Rob Mineo.



The report is posted at www.fmcorp.com/insights.

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RMC Foundation studies rebar optimization in low-rise C-I-P walls

A new RMC Research & Education Foundation report states the case for engineers, practitioners and code officials to consider design loads versus prescriptive reinforcement requirements for concrete walls framing low-rise buildings in moderate or lower seismic zones.

"Simulation-based Investigation of the Performance of Low-rise Concrete Walls with Low Reinforcement Ratios" covers RMC Foundation-funded research at the University of Washington. Department of Civil and Environmental Engineering investigators aimed to identify opportunities for achieving target wall performance and load capacity while using less and more widely spaced steel reinforcement than ACI 318, Building Code Requirements for Structural Concrete allows.

The report represents a first step toward re-evaluation of standards for lightly-loaded concrete bearing walls. "Once combined with experimental data, we believe it will help provide the basis for important changes to ACI 318," say authors and lead researchers Dr. Dawn Lehman and Dr. Laura Lowes.

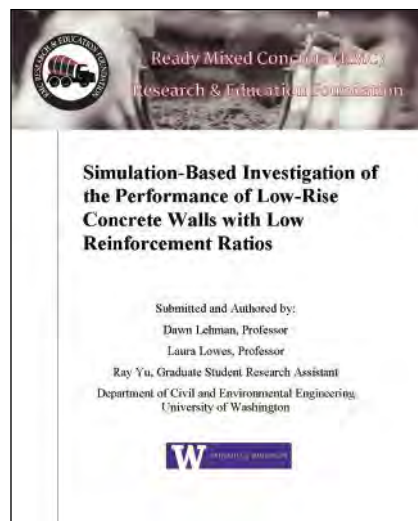
In "Simulation-based Investigation," they note: a) lightly-reinforced concrete walls,

including insulated concrete formwork (ICF) walls, are used commonly for residential and low-rise construction; b) ICF construction can be advantageous because the insulating formwork provides a higher level of insulation than traditional construction and results in greater energy efficiency; c) rebar placement is a primary cost of low-rise reinforced concrete and ICF construction; and, d) in regions of low-to-moderate seismicity, ACI 318 Code requirements for minimum reinforcement, rather than design loads, typically determine rebar volume.

"Reducing reinforcement requirements for low-rise walls in regions of low to moderate seismicity would provide both cost and sustainability benefits for reinforced concrete wall construction," affirms National Ready Mixed Concrete Association Senior Vice President of Structures and Codes Dr. Scott Campbell, who served as technical reviewer for the report.

"Our mission includes improving quality and sustainability in the concrete industry," adds RMC Foundation 2022 Chairman Rodney Grogan (MMC Materials) "Reducing our embodied carbon impacts through optimized

design and making the energy advantages of ICF construction more financially accessible are right in line with that mission. We're pleased to make this important research available to influencers of the ACI Code." — www.rmc-foundation.org



The report is posted at www.rmc-foundation.org.



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Cemex concentrates solar heat for calcining, clinker production feat

In a joint project at the Very High Concentration Solar Tower of Spain's IMDEA Energy, Cemex S.A.B. de C.V. and Swiss sustainable fuels specialist Synhelion report processing of the world's first "solar clinker." Research and development teams set up a pilot batch production unit to weigh and transfer limestone, clay and other raw feeds through calcining and clinker phases at 1,500°C or higher temperatures. The two phases typically represent 40 percent of carbon dioxide emissions linked to finished portland cement.

The pilot marks the first successful portland cement calcination and clinkerization ever achieved using only solar energy. Next up in their agenda, Cemex and Synhelion aim to produce solar clinker in larger quantities as they work toward a cement plant scale pilot.

"The production of the first solar clinker is an exciting milestone for this transformational technology. It is proof of our commitment to deliver tangible outcomes through innovation to achieve our goal of delivering only net-zero carbon dioxide concrete by 2050," says Cemex CEO Fernando Gonzalez.



Sun rays plus conventional raw kiln feeds equals solar clinker.

"Our technology converts concentrated sunlight into the hottest existing solar process heat—beyond 1,500°C—on the market," adds Synhelion CEO Dr. Gianluca Ambrosetti. "We are proud to demonstrate with Cemex one specific industrially relevant application of our fully renewable, high-temperature solar heat."

The initiative is part of Cemex's Future in Action program, which focuses on reducing the carbon footprint of its operations and

products. An essential part of the strategy is the work of Cemex Ventures, a global investment arm supporting construction-aligned start up technology developers, and the producer's R&D Center in Switzerland. Through them, Cemex is discovering and investing in the companies with the potential to provide proven, scalable technologies to achieve carbon neutrality.

DIGITAL SUPPORT

Software from Pittsburgh-based Ansys is helping Synhelion steer clients toward net-zero emissions by augment solar fuels development. The solar energy specialist became a member of the Ansys Startup Program in the beginning of 2020 when cooperation with the Swiss Elite Channel Partner CADFEM started. As global pioneer in the field of sustainable solar fuels, Synhelion uses Ansys' multiphysics simulation solutions and high-temperature solar heat to convert carbon dioxide and water into solar gasoline, diesel or aviation fuels that are compatible with conventional internal combustion engines and aircraft turbines.

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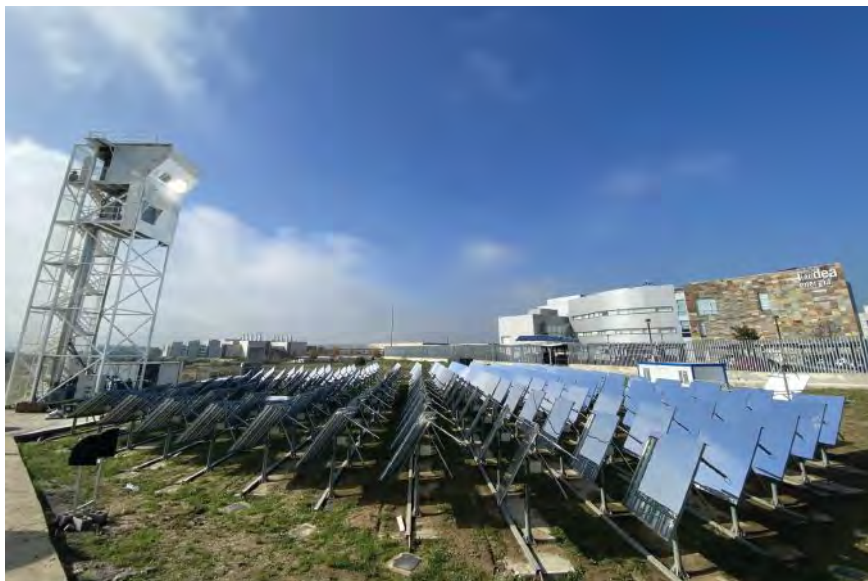
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To perform the conversion, mirrors reflect the sunlight and concentrate it directly onto a solar receiver where a heat-transfer fluid is heated to temperatures up to 1,500°C, or 2,732°F. The solar heat is then used to drive a thermochemical reactor that produces sustainable fuel. Synhelion leverages Ansys' computational fluid dynamics and finite element analysis software entrusting Fluent and Mechanical platforms to understand the complex flow and replicate thermo-fluid dynamics to validate capable equipment amid scorching temperatures.

By capturing concentrated solar energy directly in a thermochemical process, Synhelion can exploit 100 percent of the light spectrum, rather than employing photovoltaic panels, where only 20 percent of the light spectrum can be utilized. Further, Synhelion's thermal energy storage technology enables low-cost solar heat round-the-clock—a significant advantage over methods requiring expensive electricity storage for continuous operation.



The Solar Tower equipped Cemex to match at laboratory scale the high temperature calcining and clinkering phases typical of its cement operations across the globe. The mirror field concentrates heat driving the thermochemical processes for Synhelion's production of solar gasoline, diesel and aviation fuel.



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PRODUCERS

Vulcan Materials Co. has appointed Vice President – Finance Mary Andrews Carlise as successor to Senior Vice President and CFO Suzanne Wood, who has announced a September 2022 retirement. Also within the producer's C-suite, Vice President – Human Resources Darren Hicks has been named to a newly created post, senior vice president and chief human resources officer, effective this month.

"Suzanne's leadership has played an important role in our success, including our ability to deliver growth and enhanced profitability, despite inflationary pressures and challenges from the pandemic. Our sound financial position reflects her close attention to balance sheet strength, cash generation and return on invested capital," says Vulcan Chairman Tom Hill. "Mary Andrews has been a standout leader in our Finance group and deeply involved in all aspects of our business for the past 16 years."

"Darren brings to this new role a wealth of experience, and importantly, a deep understanding of Vulcan's culture from his 27 years with the Company," he adds. "We believe strongly that our culture and our people are key to our success. During his tenure, Darren has been a champion of mentoring and diversity and inclusion initiatives."

"Our Board and management team understand the importance of succession planning across all senior leadership positions in order to develop talented leaders and deep bench strength," Hill concludes. "With Mary Andrews as our chief financial officer and Darren Hicks as our chief human resources officer, we will move forward with our aggregates-focused strategy without missing a beat."

Brickworks North America Corp. subsidiary **Glen-Gery Corp.**, Wyomissing, Pa., has acquired one its top architectural customers: Upper

Marlboro, Md.-based **Capital Brick**, a leading masonry products distributor serving the Washington D.C. metropolitan area since 1981. The bolt-on deal expands Glen-Gery's Maryland and Virginia footprint, dovetails the recent opening of a design studio in Baltimore's Fells Point neighborhood, and coincides with the building of a Manassas, Va. masonry supply center.

"The acquisition of Capital Brick supports our strategic investment in the architectural and design community," says Brickworks N.A. President Mark Ellenor. "This long-established and well-known business will help drive sales of our premium architectural products."

Since entering the North American market in 2018, Australia's **Brickworks Ltd.** has acquired three major producers, along with 17 Illinois and Indiana masonry supply centers in a 2021 deal with Southfield Corp. Capital Brick expands the producer's North American network of integrated distribution locations to 27.

Eagle Roofing Products is expanding production capacity and preparing launch of a refreshed color palette for the Arizona, California, Nevada and Western Canada markets. The Rialto, Calif. producer's 2022-2023 Western offering will span approximately 100 flat concrete roof tile choices, including 35 new products and 80-plus high or medium profile selections.

"Eagle Roofing Products has thrived for over three decades because of our commitment to unparalleled craftsmanship and excellence in customer service. We also have a relentless drive to keep evolving by exploring opportunities to expand and renew our concrete roof tile collection, supporting the beauty in exterior design while delivering high-performing roofing products that our customers can count on," says Director of Marketing Lissette Pamplona. "Over the past two years



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Eagle's efforts to refresh its color and profile offering aligns well with a strategy to expand production capacity in the West to meet the mounting demand for concrete roof tile in current markets while capitalizing on new growth opportunities. "Our best customers have expressed great confidence that they expect continued growth in the U.S. residential housing market in 2022 and beyond," notes Southwest Regional Director Dave Skierkowski. "We assessed our business in 2021 Q4, made some difficult decisions and executed a forward-looking approach that will enable us to significantly increase our manufacturing capacity in an effort to take care of the builders who have committed to grow with us."



New Jersey-based low carbon cement and concrete developer **Solidia Technologies** has named Fred Dunand as vice president of Engineering. He arrives with 20-plus years of international experience in ceramics design, project management, plant construction, engineering, and low carbon concrete production—the latter gained during a tenure with Mississippi's **Saturn Materials**, successor to the **CalStar Products** brand of fly ash-based masonry units. Prior to the ownership transition, he served as CalStar director of Operations and special project manager. As a site superintendent for **Keyria Inc.** (successor to Ceric Inc.), he oversaw construction of a brick, paver and block facility for CalStar, plus clay product plants for **General Shale** and **Brampton Brick**.

California-based heavy-civil contractor and ready mixed and aggregates producer **Granite Construction Inc.** has announced several actions to grow its core businesses. The company has entered into a definitive agreement with Inland Pipe Rehabilitation, a portfolio company of investment affiliates of J.F. Lehman & Co., to sell Inliner for \$160 million. It also intends to divest the two remaining businesses within its Water and Mineral Services operating group. During 2021 Q4, Granite Construction reorganized groups to improve operating efficiencies and better position the company for long-term growth in alignment with a new strategic plan. The new groups are California; Mountain (formerly Northwest operating group), which includes offices in Alaska, Nevada, Utah and Washington; and Central (formerly Heavy Civil, Federal and Midwest operating groups), which includes offices in Arizona (formerly in the Northwest operating group), Colorado, Guam, Florida, Illinois and Texas. As a result of the above changes to its operating groups and shift in strategy to refocus on its core civil construction and materials business, its new reportable segments will be: Construction and Materials.

"[This] marks a significant step in the implementation of our new strategic plan," says Granite Construction CEO Kyle Larkin. "The divestiture of Inliner and the planned divestitures of Water Resources and Mineral Services reflect our strategy to refocus on our civil construction and materials business, streamline operational support functions, improve overhead efficiency and better leverage economies of scale. Our vertically-integrated business has been Granite's strength for decades."



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Sakrete has crowned Kenyon Taylor (left) and Mike McMurray of **Concrete Mike LLC** the winners of Concrete Combat Season 1, featured on YouTube, after a live showdown at World of Concrete 2022 in Las Vegas. The season finale pitted them against Mike Hill and Dave Rose of **Rose & Son Concrete** in a head-to-head challenge in front of a live audience of concrete professionals and fans. In the final challenge, competitors were tasked with repairing a damaged precast concrete culvert.

Season 1 judges Dirk Tharpe, Sakrete concrete expert, and Mike Day of Day's Concrete Floors were joined by special guest judge Dave Endres of **Oldcastle APG** to oversee the competition and decide who would be dubbed Concrete Combat champions. Reality show host Britany Goodwin presided over the twists and turns of the competition.

"World of Concrete is the biggest concrete event of the year, so filming the live finale of the biggest concrete competition series at the tradeshow was a must," says Sakrete Senior Brand Manager Dave Jackson.

ORGANIZATIONS



Timothy Cullen

Timothy Cullen has joined the **Precast/Pre-stressed Concrete Institute** as director of Technical Activities, tasked with developing and disseminating the PCI Body of Knowledge necessary for designing, fabricating, and constructing precast concrete structures. Before joining PCI, he was vice president of Blue Ridge Design, a structural engineering consulting firm in Winchester, Va., and was previously a design engineer with High Concrete Group in Denver, Pa.

Among his PCI activities, Cullen has been a voting member on the Industry Handbook and Joint and Connection Design Committees, and a member of the Blue Ribbon Review Team for the Eighth Edition of the PCI Design Handbook: Precast and Prestressed Concrete. He holds a Bachelor of Science in Civil Engineering and Master of Science in Structural Engineering, both through Lehigh University in Pennsylvania. Cullen is also a licensed professional engineer in 14 states and Washington D.C.

The Seattle-based **Northwest Cement Council** has named Antara Choudhary a market development manager. She holds a bachelor of technology degree in Civil Engineering from the Indian Institute of Technology, Delhi; a master's in Civil and Environmental Engineering from Stanford University; and, a doctorate in Civil and Construction Engineering from Oregon State University. Her doctoral studies focused on the impacts of portland cement heat of hydration, drying, shrinkage and flexural strength.



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EUCLID CHEMICAL TAKES FIBER PROJECT AWARDS

Euclid Chemical took first place in the micro-synthetic and macro-synthetic categories of the Innovative Fiber Project of the Year Awards, announced at World of Concrete. In the former category, the company was recognized for supplying its PSI Fiberstrand micro-synthetic fiber for the 2021 New American Home project in Winter Park, Fla., built in conjunction with the International Builders' Show in Orlando.

Euclid Chemical took the Macrofiber category on the strength of Tuf-Strand SF macro-synthetic fibers for a Habitat for Humanity insulated concrete form project in Joplin, Mo. The builder teamed with the National Ready Mixed Concrete Association on a home for local Marine Corps veteran Tim Peay and his son. Key project suppliers include Joplin Concrete, Monarch Cement and ICF manufacturer Nudura, Euclid sister company.

The Fiber Reinforced Concrete Association awards recognize distinguished projects that involve the specification and/or use of fibrous mixes by a contractor, architect, engineer, facility owner or precast producer. Along with micro- and macro-synthetic fibers, the program honors glass, natural and steel fiber categories entries.

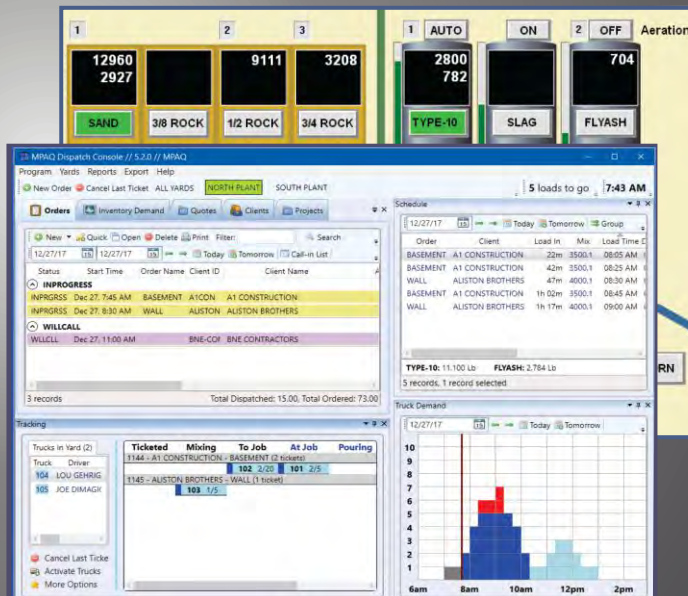


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The **American Society of Concrete Contractors** has elected its 2022 officer slate: President Bill Branschreiber of Pankow Builders; First Vice President Chris Klemaske of Sundek; Treasurer Aaron Gregory of Gregory Construction; and, Vice Presidents Paul Albanelli of Albanelli Cement Contractors, Cory Lee of Martin Concrete, and Maizer Oujidani of Conco. New and re-elected 2022 ASCC Directors are Heather Brown of Middle Tennessee State University; Peter Emmons of Structural Group; Keith Wayne of Wayne Brothers Cos.; Greg Hryniewicz of Hyde Concrete; T.R. Kunesh of Somero Enterprises; Marc Ness of DPR Construction; and, Ashley Stamper of Danko Concrete Construction.

The **National Academy of Engineering** has elected Franz-Josef Ulm, professor of civil and environmental engineering at the Massachusetts Institute of Technology and faculty director of the **MIT Concrete Sustainability Hub** (CSHub), for contributions to nanoscale improvement of concrete and other materials and structures important for sustainable development of infrastructure and energy resources. Academy membership honors those who have made outstanding contributions to “engineering research, practice, or education, including, where appropriate, significant contributions to the engineering literature” and to “the pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education.”

Dr. Ulm helped establish the MIT CSHub and has served on its four-person Board since its inception. The MIT CSHub is co-funded by the **RMC Research & Education Foundation** and **Portland Cement Association**.

The **International Concrete Repair Institute** has announced its 2022 officer slate: President John McDougall of Baker Roofing Co.; President-Elect Pierre Hébert of Sika

Canada; Vice President Brian MacNeil of Mac & Mac Hydromedemolition; Treasurer David Karins of Karins Engineering Group; Secretary Gerard Moulzolf of American Engineering Testing; and, Immediate Past President Elena Kessi of Aquafin Building Product Systems.

Skilled construction craft education and certification specialist **NCCER** has appointed Tim Taylor, P.E., Ph.D., to director of Research. He

will oversee a department whose mission is to bring more awareness and prestige to construction craft careers by establishing NCCER as the source for research on the industry workforce. Taylor previously had a leadership role in an industry-driven research team led by NCCER and the Construction Industry Institute, resulting in publication of “Restoring the Dignity of Work: Transforming the U.S. Workforce Development System into a World Leader.”



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Well Governed

A VISIT WITH 2022 NRMCA CHAIRMAN JOHN HOLLIDAY

The National Ready Mixed Concrete Association annual convention in San Antonio this month will build on momentum from the fall 2021 ConcreteWorks Conference and Expo, the group's first major in-person gathering in 18 months. Incoming Chairman John F. Holliday, chief executive officer and third generation principal of Holliday Rock Co., is set to reflect on NRMCA deliverables through two years of business and travel disruption, then call for decisive industry moves.

"2020 Chairman John Carew and 2021 Chairman Abbott Lawrence and NRMCA President Michael Philipps successfully navigated challenging pandemic times and showed leadership throughout," he says. "Our association not only survived, but thrived due to their efforts." To continue the progress of his Carew Concrete and Martin Marietta Materials peers, Holliday embraces these directives:

- **Ensure a sustainable, well governed leadership team.** Maintain good Association governance, review bylaws for their effectiveness, and leverage what members and staff have learned from meeting and communicating during the pandemic. "A strong governance model and collaboration are paramount," he says. "I have seen this over the years through serving in many NRMCA capacities, and working with organizations outside our business."
- **Develop a strong strategic plan diving into Association activities.** The plan will be informed by work already done on the Value Proposition initiative and the subject of mid-May meetings in Chicago. The strategic planning process charts a future course and then drives the actions that move the organization forward. NRMCA Executive Committee, directors, members and staff leaders will confer on a path to 2030, to include an alignment of committee and task force objectives.
- **Demonstrate membership as a necessity for ready mixed producers.** Continue to develop and use a targeted campaign regarding the NRMCA Value Proposition that makes membership a necessity and joy for concrete producers large and small across America. Emphasize the four pillars they observe or realize as NRMCA members: 1) Growing market share and increasing sales; 2) Networking among a diverse group of managers, chief executives, company owners and hourly staff; 3) Driving operational excellence through education and certification; and, 4) Understanding today's materials and construction markets to stay "current, competitive and effective."



John F. Holliday

RESULTS SPEAK

This month's convention agenda and likely discussion topics reinforce the 2022 NRMCA Chairman's directives. The NRMCA Workforce Development Committee, for example, will unveil a Driver Recruitment/Retention branding effort. It provides assets producers can personalize for their businesses and use to attract the ready mixed concrete delivery professionals needed to keep fleets rolling. Additionally, the Workforce Development Financial Performance Improvement Group has scheduled a Digital Transformation and Process Improvement Task Group charter meeting. Members will respond to the industry's information technology challenges, from providing peer support to addressing emerging issues like eTicketing.

Driver Recruitment/Retention and Digital Transformation speak to the committee and task force alignment that John Holliday prioritizes. "Our members take full advantage of the growing catalogue of education and business support offerings that the Workforce Development team has put together," he says. "We were forced to go virtual two years ago and are now doing both in-person and online training events. This has expanded our reach and given members the opportunity to take advantage of NRMCA offerings from their home office, plant or at a separate location."

As Workforce Development members tend to educational and support activities underpinning operational excellence in ready mixed, the Concrete Promotion and Government Affairs Committees, along with NRMCA-aligned Build With Strength Coalition, have producer members uniquely

positioned to respond to recent measures affecting concrete mix design selection in federally funded building and nonbuilding work. Just last month, the White House Council on Environmental Quality announced a Buy Clean Task Force to "harness the federal government's massive purchasing power to support low-carbon materials." The Department of Transportation, meanwhile, signaled plans to use low-carbon concrete in Infrastructure Investment and Jobs Act-funded projects. And, the General Services Administration issued "Request for Information Regarding Concrete: Environmental Product Declarations (EPD) and Low Embodied Carbon Products."

Thanks to Concrete Promotion Committee and NRMCA Sustainability and Structures Department staff work dating back nearly a decade, federal officials will find the ready mixed concrete industry harboring far and away the deepest EPD library among construction material or product categories. The Build With Strength Coalition leverages that library in one its top references, "Strength Through Transparency," affording architectural, engineering and construction interests proof of cast-in-place concrete's sustainability attributes in low- to mid-rise structures.

"NRMCA is working with a growing number of ready mixed producers to increase Environmental Product Declaration awareness and uptake," Holliday explains. "This will allow the concrete industry a better opportunity to compete on projects where sustainability metrics must be defined and met." EPDs and other data tools from the NRMCA Structures and Sustainability Department, he notes, will augment ready mixed producers' participation in the Roadmap to Carbon Neutrality by 2050. NRMCA is a charter signatory to the October 2021 document, where Portland Cement Association issues a sweeping call to stakeholder action or scientific accounting across a Clinker, Cement, Concrete, Construction, Carbonation value chain.

Beyond Roadmap to Carbon Neutrality efforts, the NRMCA Structures and Sustainability and Local Paving Departments continue to uphold the Concrete Promotion Committee mission. "We remain very bullish on market development," says Holliday. "Department teams are driving real success by bringing new projects to members. They are also engaging project teams with NRMCA State Affiliates and a variety of professional organizations like the American Institute of Architects. The result: Our market share is trending up."



Alongside its primary commercial market thrust, the Build With Strength Coalition is expanding a Habitat for Humanity International partnership to advance insulating concrete form (ICF) or other cast-in-place concrete methods among the home building giant's North American chapters. "We had 18 houses under way at the end of 2021; another 20 are on this year's slate. Our goal is to provide Habitat families the most resilient and energy efficient homes, regardless of region," says Holliday, whose home state yielded the partnership's first deliverable: An ICF home in Paradise, the northern California town ravaged by a 2018 wildfire.

Although Build With Strength is focused on multifamily, commercial, lodging, school and other low to mid-rise market projects, he adds, NRMCA sees the Habitat partnership as an opportunity to address affordable housing needs and showcase how concrete can deliver improved building performance at a competitive cost. The Habitat model allows the Coalition and local stakeholders to make concrete building methods more accessible to the general public than larger commercial jobs.

Continued on page 40



One of the key Build With Strength focus areas in 2022 is a partnership with Habitat for Humanity International, spawning projects coast to coast. The 2021 roster included an insulating concrete form home (top) with Athens Area Habitat for Humanity and the Georgia Ready Mixed Concrete Association, plus key suppliers Thomas Concrete and Quad-Lock Building Systems (ICF). The Habitat partnership extends design assistance that has helped secure major ICF installations, including developer Urban Waters' Bungalows on the Lake at Prairie Queen (above) planned community in Omaha, Neb.

FIRMLY GROUNDED

Holliday Rock is a mid-sized concrete and aggregate producer in a sprawling population center where a handful of larger, fully integrated operators account for most of the competition. The producer is based in Upland, Calif., about midway between downtown Los Angeles and the heart of the Inland Empire spanning San Bernardino and Riverside counties. With 30 locations and a payroll of 700, it operates a fleet of 250 mixer trucks, plus 100 additional power units for aggregate and cement hauling.

NRMCA's 2022 Chairman has been involved with his family business for 35 years. Working through the ranks to the helm, John Holliday operated heavy equipment, loaders, bull dozers and ready mixed plants, but left concrete deliveries to team members holding CDLs. He treats this year's milestone for Holliday Rock—80 years serving southern California agencies, builders and contractors—as even more cause to “work hard and keep our eye on the ball.”

“We take great pride in the safety of our people and aim to provide a high level of quality and customer satisfaction,” he affirms. “In many of our locations, we have been part of the community for years and enjoy the relationships we have with neighbors, residents, organizations and governing bodies.”

“We are in an interesting space as a strong player in a major metropolitan market,” he adds. “One of the rewards of NRMCA membership has been meeting other companies like ours. We gain insight on navigating a business or market with mostly larger competitors. NRMCA is a group of many different companies from around North America and the world. The range and depth of member perspectives are among our strengths as an association.”

Like many producers across the industry, Holliday views potential concrete and aggregate demand this year approaching the record or near-record 2004-2005 levels. Strong residential building activity is converging with stepped heavy/civil work thanks to the impending flow of Infrastructure Investment and Jobs Act transportation and environmental construction funds.

This year's market opportunities don't mask inflation, plant and fleet equipment part sourcing, new truck commitments from OEM and body builders, and driver shortages. “These are challenging, but positive times,” Holliday concludes. “But we're a nimble industry with a resilient group of companies. We should have a safe and prosperous 2022.”



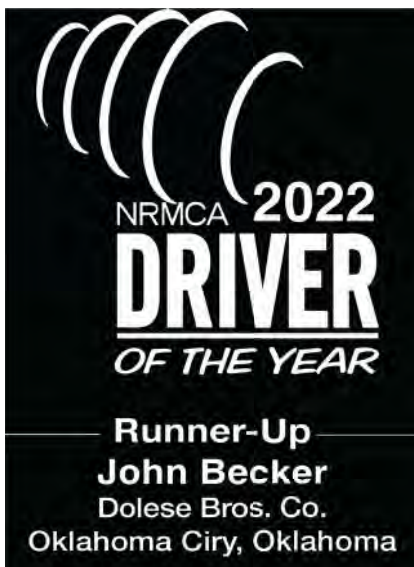
Holliday Rock Co. is one California's top independent operators. Its integrated aggregate and ready mixed concrete operations serve markets along the Interstate 10 corridor from eastern Los Angeles and Orange counties to western Riverside and San Bernardino counties, and the Interstate 5 corridor from Bakersfield to Irvine.



Front Line Excellence

The 26th Ready Mixed Concrete Delivery Professional Driver of the Year program recognizes three industry veterans from a pool of outstanding nominees. The National Ready Mixed Concrete Association Safety, Environmental and Operations Committee assembled a panel of judges to weigh their competence, driving skills, safety records, and colleague or customer testimonials.

The NRMCA Truck Mixer Manufacturers Bureau will present checks of \$5,000 to Driver of the Year Edward Folkersma (page 43) and \$1,500 to Runners-Up John Becker (below), and Adam Kasztelewicz, Jr. (page 42 this month during the NRMCA Annual Convention. As Driver of the Year program cosponsor, Concrete Products joins the Association and SEO Committee in congratulating all nominees.



John Becker was named Dolese Bros. 2022 Driver of the Year, an honor following Dolese Bros. Safe Driving Awards he earned in 2017, 2019 and 2020. Over an 11-year tenure, he has never had vehicle accident or rejected load. During each of the past three years, he has delivered on average 6,000 yards from his Weatherford, Okla. home plant. Along with ready mixed delivery professional skills, Becker exhibits product knowledge equal to ACI Concrete Field Technician – Grade 1 certification.

"Over the years, John has received nothing but praise and compliments from customers for his positive attitude, friendly demeanor, and attentiveness," says Dolese Bros. Western Oklahoma Area Supervisor Joe Howell. "As commendable as his on-road performance has been, for a mixer truck driver the real work begins upon arrival at the construction job site. He must quickly determine the best and safest way to access various off-road locations, and how to position and unload the concrete to make it as easy and efficient as possible for the crew."

"John Becker is an excellent driver, employee and all around great guy," adds customer Jason Yoder. "On our jobsites, he's



always smiling, friendly and professional. He's always proactive when pouring concrete, making it easier on the whole crew. He's looking ahead, lowering, raising, locking or unlocking the chute without having to be told ... willing to help in any way he can."

"He makes our jobs much easier with his attitude and work ethic," affirms contractor

Billy Karlin. "My employees are excited to see John Becker pull up on the job site; when they are happy, I am happy. He is one of the most professional drivers we've ever worked with and it is a pleasure to call him a friend. If any company had John Becker as a role model for all employees, we would love our jobs more every day!"



Through 36 years in ready mixed concrete—27 of them with Holliday Rock—and 200,000-plus yards delivered, Adam Kasztelewicz, Jr. has maintained a driving record free of vehicle accidents or rejected loads.

“Adam is a leader in every aspect of his job, command[ing] respect at the plant, from other drivers and at sites, where he provides a professional delivery experience for our customers but also has the fortitude to stop when things are unsafe,” affirms Holliday Rock Area Manager Jeremiah Castano. “He is recognized by everyone at Holliday Rock as not only the best driver at our company, but the entire industry.”

“I have had the pleasure of working side by side with Adam on many public works projects, and witnessed his ability and strength as a concrete truck driver. He is diligent in timely deliveries and correct product delivery. Crews understand the devastating impact a late delivery or incorrect product can have on our production schedule,” observes Irwindale, Calif. customer Steve Gentry, who also credits Kasztelewicz for displaying “an awareness and aptitude for job safety.”

“We have operated a concrete construction business for over 35 years and understand how important a good ready mix driver is to successful jobs,” adds Chris Constant, general manager of Southwest V-Ditch Inc., Riverside, Calif. “Adam has a long history of safe and consistent work process when delivering to our jobsites. He will drive in a safe and professional manner and is ready with the desired slump when we are ready to discharge.”



"Eddie began working for our family business in 1987, when he was just 18 years old. He has poured in the wind, rain, and snow, in heat waves or blizzards, off barges or ferries, and on remote Great Lakes islands," says Northern Sand & Gravel and VanSloten Enterprises Inc. owner Kathleen VanSloten. "He

works on trucks and equipment when they break down, drives a dump truck when we're busy and trains new drivers when they arrive. He has been known to climb silos, drive the loader, get into the drum to chip, and even batches his own concrete in a pinch. He'll jump out of his truck to help a customer screed, rake, or float. We think Eddie should be the NRMCA Driver of the Year!"

The NRMCA Safety, Environmental and Operations Committee judges for the 2021 Driver of the Year entries concurred, factoring employer observations and those of customers like K&K Concrete Construction owner Dane Kuusinen. "Without the hard work and dedication of professional truck drivers like Eddie, my line of work as a concrete contractor would come to a grinding halt," he affirms. "Operating a large, complex vehicle is hardly an easy task. Ed has the skills and experience needed to handle each job safely and professionally."

"Concrete mixer drivers don't have the luxury of a 9-5 job. That kind of schedule comes with some major sacrifices to make my business and the industry successful," Kuusinen continues. "Ed's dedication to his job, from getting up at the crack of dawn for early morning pours, getting home late,

long hours on the road in the hot summer months, or Michigan's cold, windy, winter months does not go unnoticed."

Darling Concrete chief Mike Darling shares his K&K Concrete peer's sentiments about the 2022 NRMCA Ready Mixed Concrete Delivery Professional Driver of the Year: "Ready mix drivers just deliver concrete, right? Not this one. He places concrete to grade every time. Coaches young men on how to place concrete. Has been asked to put concrete trucks where they don't belong. Has helped screed, rake and bull float so many times I can't count. I've been in the trade 26 years and poured in many different places. Every time Ed Folkersma shows up I know the project just got easier. If there is a Hall of Fame for mixer drivers, 'Fast Eddie' better be in it!"



The NRMCA Safety, Environmental and Operations Committee honors 35-year Northern Sand & Gravel veteran Edward Folkersma for professionalism, customer service skills and career achievements—the latter reflected in a driving log exceeding 675,000 miles and 125,000 yd. of delivered concrete.

Safety Always

BEST IN CLASS PERFORMANCE NETS TEXAS READY MIXED AND AGGREGATE OPERATOR PREFERENTIAL TREATMENT AT INSURANCE POLICY RENEWAL TIME

This past year has been extremely difficult for industry producers aiming to control insurance costs, with many experiencing dramatic increases in premium renewals and coverage. Umbrella policy spikes of 100 percent to 400 percent have not been uncommon.

Then there's Permian Basin Materials in West Texas, whose Property and Casualty renewal premium went up only 6 percent. According to Marsh McLennan Agency broker Jeremy Sandusky, "PB Materials is operating in the top 1 percent for the ready mix and aggregate industry. We appreciate their passion and how they embrace technology. Their investments in safety pay. We are thoroughly impressed with the 'Safety Always' culture that is embraced by all employees, from the management and leadership down."

So how has the integrated producer been so successful in keeping rates down? "It needs to become a way of operating from the



National Safety Council recognition

top, once you believe that Safety Pays and embrace what it means to truly be a safe company you can have dramatic improvement," says PB Materials CEO Chris Crouch. "We operate under the watchful eye of OSHA, MSHA

and the DOT, and by doing our job well, we have made their job easier."

Health, Safety and Environmental Manager Doug Larch assesses PB Materials' safety history and accident prevention methods producing results that matter to a broker like Marsh McLennan. "Chris and I started the same day back in 2017, and that day we sat down to talk about our safety culture. We decided our approach wasn't just 'Safety First,' but rather 'Safety Always.' We initiated the program with signage and a renewed commitment throughout the company promoting 'Safety Always – An Adventure in Culture Change.' We actually changed the company logo that day."

"Safety Always" has paid off, garnering PB Materials numerous accolades, 14 Mine Safety & Health Administration Certificates of Safety among them.

Continued on page 46

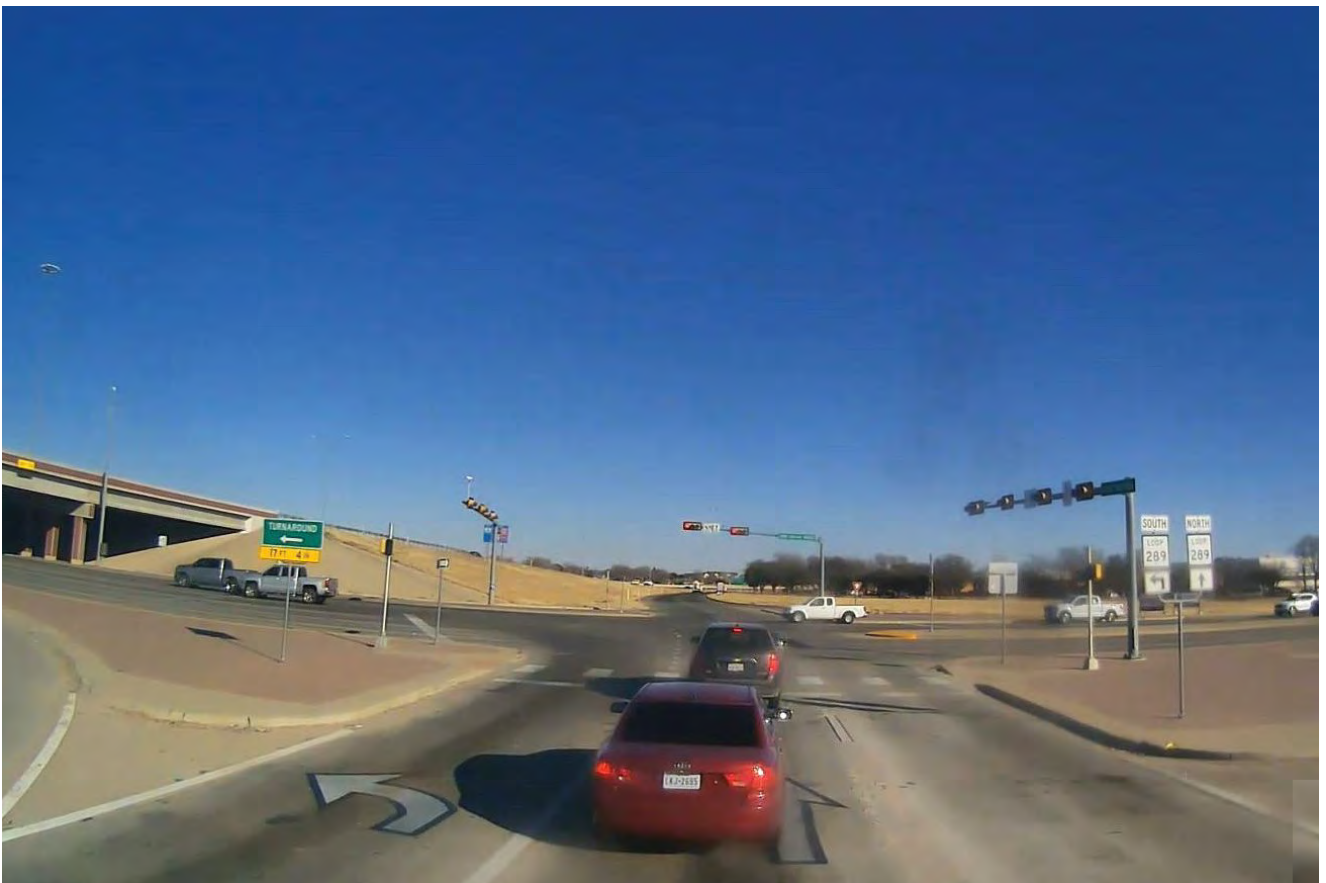


PHOTOS: PB Materials

Permian Basin Materials has emerged in the past decade as a key ready mixed and aggregate player in energy-rich west Texas.



The Pro-Vision Fleet Dash Camera deployment has yielded mixer drivers exoneration and clarification regarding road incidents, while also contributing to PB Materials' insurance premium cost management. The Pro-Vision hardware captures a 175-degree field of view.



The producer has likewise earned National Safety Council recognition for reaching over 1 Million Safe Work Hours from late 2018 to the end of 2019. On the heels of the 1 Million Hours award was recognition for operating over 500 consecutive days without a lost time accident. With company statistics that rival those of larger producers, PB Materials has undoubtedly remained on the right track.

DELEGATING RESPONSIBLY

Looking at what works, Chris Crouch and Doug Larch both point to empowering everyone in the organization with regard to safety. The idea that safety is everyone's job has been the key. It means when something is unsafe, the employee in the field can stop work, no questions asked. Training, both formal and on the job, is another key. Employees in all work groups receive regular training in the form of daily focused safety topics, Monthly Safety meetings, and Annual Safety training. Even orientation of new employees is two days and heavy on safety training. New team members are trained on company trends, initiatives, and industry best practices. Ideas are shared and incorporated into the "Safety Always" approach that PB Materials takes with regard to their work. New Defensive Driving programs have recently been added for both commercial and non-commercial company drivers, which only serves to bolster the already outstanding training protocol.

Other innovative programs are also a part of the safety success at PB Materials. Each employee receives training in the field on assigned tasks. Mining team members receive task training for all equipment and processes they are exposed to. Ready mix division

counterparts receive task training and the required over-the-road Certificate of Road Test. Another groundbreaking and wildly successful approach to accident prevention is the G.O.A.L. (Get Out and Look) card. Drivers actually fill out a card that requires them to inspect the area in which they will drive or dump at the customer site. The idea that the driver "gets out and looks" is key to enhanced safety and performance, notes Larch, adding "This has saved the company from countless incidents on customer jobs."

Another improvement to safety operations and performance is the use of onboard cameras, capturing video footage on both sides of the windshield, in all of the company's over-the-road commercial trucks. Crouch had used the technology at another producer and notes how well the cameras have worked at PB Materials, and their immediate impact on insurance claims and liability reduction. He took the implementation personally and introduced the technology to the drivers.

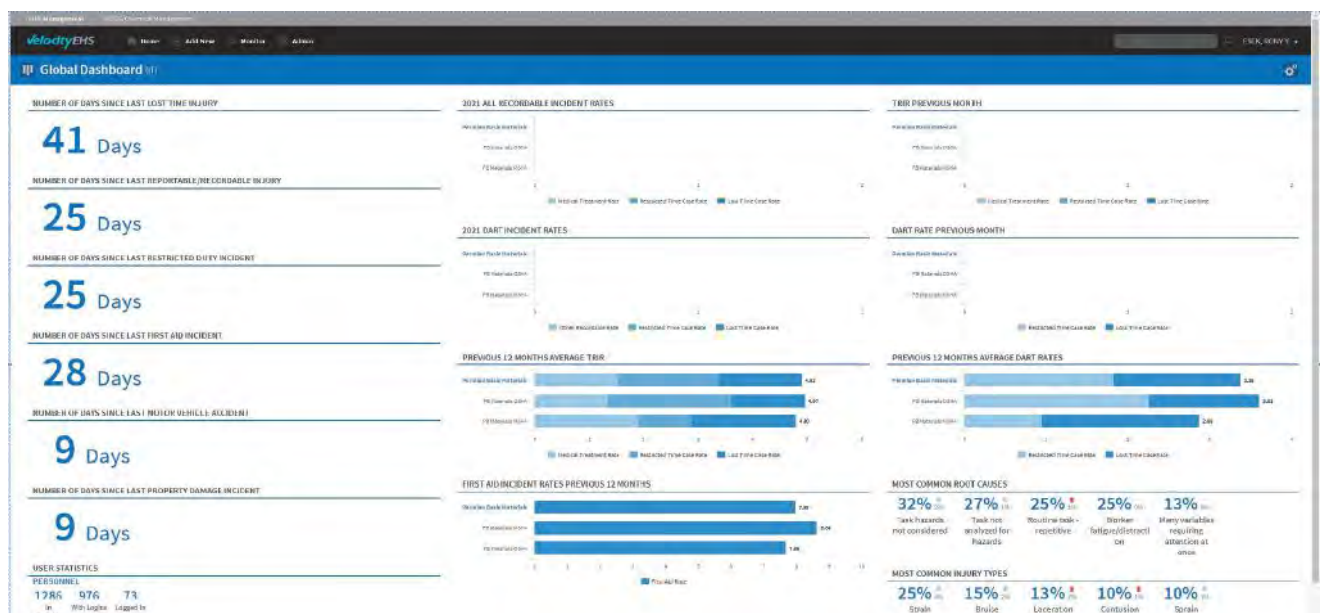
There was some initial pushback, but quickly the drivers were able to see how video footage can save them from a ticket or court appearance. Video captures are also used in safety training. "In the past, the big company truck is usually targeted as the one at fault at the scene of the accident," Crouch observes. "Now we can go to the tape. Having our drivers cited has been dramatically reduced and providing clear evidence to the insurance company has helped as well."

PB Materials also uses a system called Velocity EHS to catalog, track and analyze safety throughout aggregate and ready mix

operations. The system generates dashboards for management and creates transparency where all incidents are immediately circulated through email alerts. "Having such a granular approach to what's happening within the company on a daily basis continues the development of awareness and operational improvement," Crouch affirms.

PB Materials also works with a number of local medical clinics and occupational medicine practitioners to build health and safety awareness throughout its workforce and to get employees the very best care if they are injured at work. "It is common for us to escort an injured employee in need of medical attention to provide extra support from trained staff and work with the medical community on potential light duty options," Larch explains. "We found many doctors or clinicians are quick to send an employee home not knowing we have light duty options. We have found this has dramatically improved our Lost Time incident profile that insurance companies use in their evaluations."

The bottom line with regard to PB Materials' safety performance is a vision for innovation and commitment to raising the bar every day. As the producer looks to the future, the picture is bright. Management is committed to excellence and innovation throughout the company. The PB Materials safety team is very capable and continues working on great things. Last year was not the first where it saw insurance premium increases set below those of its contemporaries. With the safety performance demonstrated in recent years, PB Materials remains a concrete and aggregate operator to watch.



The Velocity EHS platform provides the PB Materials safety team a full accounting of ready mixed concrete and aggregate operation metrics.

Command Alkon taps cloud to bring real-time dispatch views to the field

Command Alkon kicked off 2022 with the World of Concrete unveiling of CONNEX Dispatch, a cloud-based offering that provides heavy building materials producers' employees, suppliers, and customers with access to receive up-to-date statuses of tickets anywhere, and at any time. CONNEX Dispatch for Ready Mix is the first milestone in the company's pursuit of enabling cloud-based dispatch for all industry-leading point of sales solutions. Consequently, COMMANDseries and Integra users can handle day-to-day activities through mobile access from any device.

"One of the most critical success factors within a construction project is cost and time management," says Ready Mix Market Manager Matt Brinker. "CONNEX Dispatch is designed to increase productivity levels and create unprecedented results across project performance, schedule, and workforce management. When connected to a cloud-based network, there is true visibility across the enterprise because field personnel and dispatch are operating with one single version of the truth."

Making the shift from on-premise solutions to CONNEX Dispatch, he adds, can greatly reduce operational costs; expedite integrations and updates; deliver better

support and a proactive approach to system issues; simplify accounting processes; and, greatly improve driver experience. Integration with tracking devices allows drivers to operate with one app instead of flipping between solutions. Drivers are notified of their next steps in the delivery process in real time, while providing all order stakeholders visibility into the progress being made on their deliveries.

Operations, Quality, Production, and Sales team members have immediate access to what is happening on every order with CONNEX Dispatch. None need stop on the side of the road to pull up a VPN for access to their dispatching solution; instead, they can easily log into the dispatching application either from the CONNEX mobile app or the web. — www.commandalkon.com/getconnexdispatch

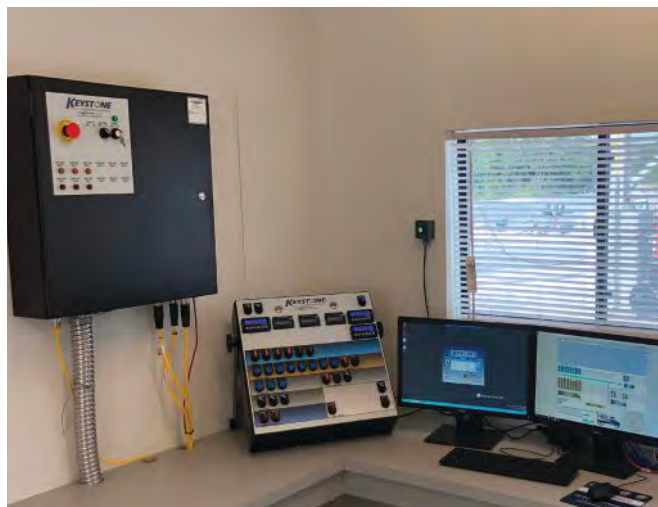


BATCH CONTROLS

GivenHansco

Keystone Batch offers a compact, quality and easy-to-use system suiting concrete plants of any size. It provides the accuracy, consistency, and efficiency to meet all customer demands and exceed batch plant operator expectations. Users have constant and instant knowledge of load status, and remain in complete control of every order, even at remote batch sites. The batch interface is easy to understand and includes elements on the screen that are color coded by groups such as admixes, water, cements, and aggregates. Loads are tracked from weigh-up to discharge with easy-to-read graphical displays and numeric readouts.

Keystone Batch is highly configurable and customizable based on plant operator needs. It provides personalized visuals that adjust while users batch, displaying accurate aggregate, cementitious material, and admixture inventories. Sequencing of materials is easily adjustable and can be modified to be added at any point during the load. — *GivenHansco Inc., Columbus, Ohio, 614/310-0060; www.givenhansco.com*



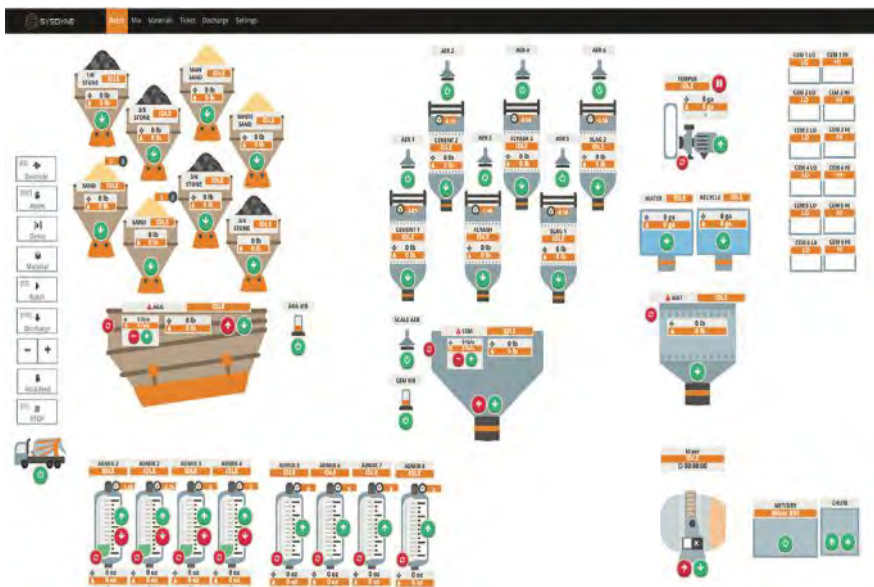
Archer concrete batch control system

Jonel

Company cites five-plus decades of reliability, flexibility and customization in concrete plant controls. Jonel engineers can tailor panel and control solutions for almost any style of operation, from basic transit mixed to large scale custom plants. Each system is designed from the ground up to scale the needs of the most demanding concrete operation. Using state of the art symmetrical processing, Jonel offers one of the most responsive, accurate, extensible reporting and open application interfaces to allow concrete producers to easily report on critical plant performance, batching analysis and inventory control. — *Jonel Engineering, Fullerton, Calif., 800/432-4567; www.jonel.com*

Sysdyne

The latest Pioneer Cloud batch control system takes advantage of cloud computing technology to minimize batch personnel and improve efficiency. Designed and developed as an integral part of Sysdyne's ConcreteGO Cloud dispatch, it updates inventories in real-time with material usage and documents receipts. Pioneer users can access batch plant controls anywhere, anytime by logging onto the ConcreteGO.com portal, maintaining consistency of the mix designs between dispatch and batch without manually downloading. The system breaks the "silo" and brings batch plant operation visibility, enabling ready mixed producers to quickly identify problems, such as overuse of cement, and take immediate action. — *Sysdyne Technologies, Stamford, Conn., 877/797-3963; https://sysdynetech-nologies.com*



Holcombe welds, programs next generation volumetric mixer



Holcombe Mixers arrived at World of Concrete 2022 with the G2, one of the Las Vegas show's major equipment introductions and representing what Managing Partner Brent Holcombe frames as "the new frontier of volumetric concrete. The G2 is breaking boundaries with the first-ever moisture control system with dynamic calibration, plus a cement speed responsive gate optimization aggregate system. These next-generation technologies, coupled with premium features including belt changes in under four hours take this mixer to another level, including a class-leading digital touchscreen to keep operations automated."

The G2 offers the most advanced features to simplify mixer operations, he adds, with Intellicrete technology anticipating concrete operators' every need. New features for the G2 include:

- **Intellicrete Control System.** Keeps admixtures and additives consistently in sync with the concrete production rate yielding mix quality. Equipped with onscreen calibration and mix design programming in addition to a pre-pour checklist to verify batch accuracy and promote safety.
- **WaterSmart Moisture Control System.** The first of its kind to drive concrete slump with dynamic calibration flow control and an electronic proportional water valve.
- **InsightFlow Cement Feed.** Precision cement feed control optimizes aggregate gate positioning to provide reliable and consistent aggregate brick strike off and dispensing.

- **Load Sensing Variable Displacement Hydraulic System.** Reduces system temperature and extends the life of components.
- **Patented Modular Cassette Conveyor System.** Easily removable modular conveyor cassette with engineered roller chain enables belt changes in under four hours.

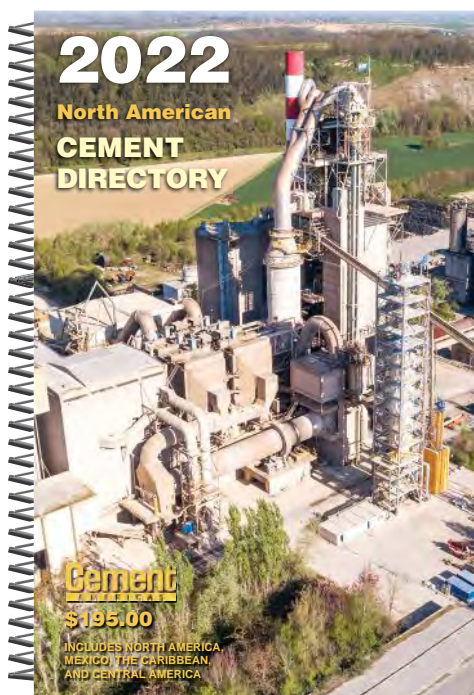
G2 standard features include 7-in. PLC color touchscreen; CAN Bus joystick auger and chute controls; CAN Bus button and redundant

on-screen control of PTO, RPM, and all mix functions; electric roll tarp for aggregates; electric vibrators on the aggregate and cement bins; one low and two high-flow admixture systems; and, wireless remote. Options available include fiber and color dispensers, 360-degree swivel chute, and pneumatic cement fill bin with venting system. — Holcombe Mixers, Ault, Colo., 970/221-5007; www.holcombe-mixers.com



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Dashboard device hardware

The TAB4METKL Aluminum Locking Tablet Mount is built to withstand tough construction materials delivery conditions and secure devices measuring up to 10-1/4- x 8-5/8- x 7/8-in., including Samsung Galaxy Tab A 8.0, Galaxy Tab 3 7.0 and 8.0, Galaxy Tab Pro 8.4, Galaxy Note 10.1, Galaxy Tab 4, Galaxy Tab Pro 10.1, Galaxy Tab S 10.5; LG G Pad 7.0, 8.0, and 10.1; Nexus tablets; plus, Apple iPad 2nd to 7th Generation and iPad Mini to Mini 5. The mount features multiple horizontal and vertical adjustment points along both sides of the holder; its four-hold mount base can be screwed or drilled into any flat surface (screws not included). A key lock keeps tablets in place. — *Arkon Resources, Arcadia, Calif., 800/841-0884; www.arkon.com*

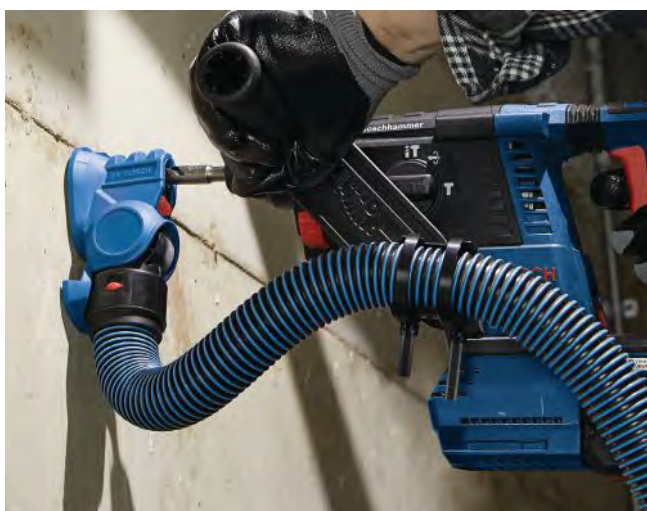


Rotary hammer

The GBH18V-28DC 18V Brushless Connected-Ready SDS-plus Bulldog 1-1/8-in. Rotary Hammer and GDE28D SDS-plus Dust-Collection Attachment are equipped for drilling energy and precision, plus particle extraction. The tool measures 17.2 in. and weighs 6.7 lbs. Among key features of the hammer and attachment combination:

- **KickBack control.** Helps reduce the risk of sudden tool reactions when the hammer is used in binding conditions;
- **Reverse setting.** Provides easy removal if the tool bit gets jammed in concrete;
- **Anti-vibration system.** Helps reduce vibration due to the tool's longer air cushion in the hammer tube and dampeners in the handle;
- **Mobile dust extractor design.** Built to deliver maximum mobility when used with the cordless GBH18V-28DC Bulldog; and,
- **Removable dust container.** Provides capacity for up to 20 holes using a 1/2-in. diameter bit drilling 1-1/2-in. deep into concrete.

— *Robert Bosch Tool Corp., Mt. Prospect, Ill., 877/267-2499; www.boschtools.com*



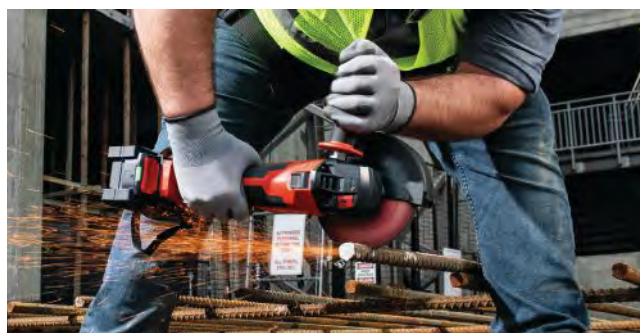
22V cordless battery

Hilti Group presents Nuron as a 22V cordless battery platform, introducing "technologies to reinvent how construction professionals work daily on jobsites, tackle health and safety challenges, and manage their businesses—giving them the power and confidence of being safer, smarter, and more efficient. Connectivity is at the core, making it part of every tool, battery, and charger now and well into the future."

Launching with more than 60 tools, Nuron enables heavy-duty applications that were once restricted to corded, gas-powered or higher voltage battery systems. All the battery packs and chargers work interchangeably under a single ecosystem to help reduce complexity for tool cribs and cost for business. The redesigned battery interface ensures higher performance and longer operating times by allowing a significantly higher power transfer.

Tool usage, utilization, charging location and battery state-of-health data is stored on the Nuron batteries and sent securely to the cloud during every charge without any operator interaction. The information can be used to alert individuals if action is needed

immediately or can be accessed on-demand as required and is available on mobile and desktop via Hilti's ON!Track software platform. Together with services like Hilti Fleet Management tool data can be used to reduce downtime and optimize tool cribs to boost customer productivity. — *Hilti Group, Plano, Texas, www.hilti.group*



1,200-lb. power cart

With an all-electric drivetrain powered by a robust rechargeable battery pack, the 1400 series has joined the Overland Cart portfolio of site and plant material handling equipment. The heart of the new series is the new high performance 36V 1,400-watt transaxle, with nearly four times the power of the company's standard 400W motor. Overall speed has improved from 3 mph on the 400W carts to 3.5 mph on the 1400 series. On hard flat surfaces the latter is capable of hauling 1,200 lbs. and 1,100 lbs. on grassy inclines up to 15 degrees.

The battery pack affords up to 14-16 hours of real world use or

an estimated 18-19 miles on a single charge. The 1400 Series comes standard with 18-in. Kenda all terrain tires, built to withstand the rigors of construction sites and provide maximum traction on a variety of surfaces. The 10-cu.-ft. wheelbarrow style hopper is made from a heavy gauge, but lightweight HDPE free of rust or corrosion potential. Standard on all 1400 series carts is a power dump feature that uses an electric lifter to assist in dumping hopper contents. A quick release pull lever is also standard. — *Granite Industries, Archbold, Ohio, 877/447-2648; www.graniteind.com*



GROUT ANCHORS STABILIZE STAIRCASE

Cintec Cementitious Grout Anchors were used to secure the deteriorating staircase of the Morris Island Lighthouse, located off the South Carolina coast. Stabilization efforts included anchor tying to the inner and outer lighthouse walls, plus a beam. Buffalo, N.Y. engineering and installation specialist ICC – Commonwealth performed the work. Project specs called for 1-3/8-in. diameter stainless steel rebar, Grade 2205 in 44-in. lengths and long socked 41-in. bar with 3 in. of exposed threads to attach to the bracket beam.

The 161-ft. structure was opened in 1876, decommissioned in 1962, and listed on the National Register of Historic Places 20 years later. After the decommissioning, the circular staircase was showing advanced deterioration due to the chloride-heavy marine environment. Absent the lighthouse wall anchoring, officials feared the staircase would collapse. — *Cintec North America, Hunt Valley, Md.; 410/761-0765; www.cintec.com*



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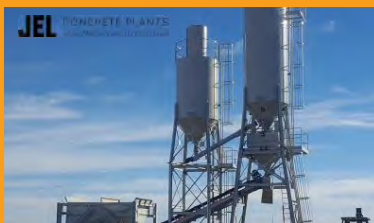
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Lifting to accolades

Design-build specialist Keystone Construction Company has received the St. Louis Concrete Council's 2021 Quality Concrete Award for work at The Factory entertainment venue in Chesterfield, Mo. The 52,000-sq.-ft., tilt-up building is the first performance venue to be built from the ground up in the region in over 20 years.

The venue was constructed using more than 50,000 square feet of interior slabs and more than 40,000 square feet of concrete tilt-up wall panels. In total, 6,346 cubic yards of concrete and more than 300,000 lbs. of rebar were used in nearly every structural application possible. Fenix Construction Company and Kienstra Ready Mix, both of St. Louis, were the project's concrete subcontractor and ready mixed concrete supplier, respectively.

"The Factory is a great example of how tilt-up can be used to provide a high quality, low maintenance product with a modern aesthetic that is built to last," says Bill Hardie, president of Keystone Construction. "It was an honor to work on this complex project and to bring a unique, live entertainment destination to St. Louis."

The multi-tier facility, which developer Staenberg Group opened in mid-2021, features a large center stage, open general assembly and a second-floor balcony with an open area and seating. Due to multiple elevations within the space, the tilt-up panels were all formed and poured on casting slabs. Concrete for the mezzanine areas was pumped from inside the building.

The Factory is an anchor in the redevelopment of an outlet mall on the north side of Highway 40 in Chesterfield into The District at Chesterfield entertainment complex. The venue has capacity for 3,400 guests and features unique, movable partitions that create a range of seating configurations. The industrial style of The Factory is reminiscent of old manufacturing spaces with finishes including weathered wood, open metal work stairs, exposed brick and stone, industrial lighting fixtures and polished concrete.



PHOTOS: Fenix Construction Company



The primary challenge faced during The Factory's construction involved tracking the panels, which measured up to 100 tons and 60 feet tall, from the casting slabs. A 440-ton crawler crane was used to erect the panels.

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