

TENNESSEE CONCRETE MAGAZINE

AWARDS 2023
Volume 37, No. 1

Ultium Cells EV Battery Plant in Spring Hill, Tennessee


WINNER OF THREE CATEGORIES:

GRAND CHAMPION • BEST FINISHING COMMERCIAL • BEST SUSTAINABLE CONCRETE



Congratulations
to the Concrete Design
Essay Winners





Scratch
here and
take a
whiff.

AHHH THAT AMAZING DRY BASEMENT SMELL.

Dry basements have a very distinct scent: nothing at all.

The Form-A-Drain® Plus drainage system and Platon® waterproofing membrane work together sub-slab and between wall and foundation to keep basements dry and fragrance-free. **It even has a 30-Year Dry Basement Guarantee.**

Learn more at FormADrainSolutions.com.

Contact us at: sales@formadrainsolutions.com or 713-325-0642

30 YEAR DRY BASEMENT GUARANTEE

CONTRACTOR INSTANT REBATES

FORM-A-DRAIN®

TENNESSEE CONCRETE magazine is published for the Tennessee Concrete Association—

699 President Place, Suite 400
Smyrna, TN 37167
Phone: 615-360-7393
Fax: 615-360-6670
Website: www.tnconcrete.org

Publisher

The KaHoy Group, LLC

Editor

Alan Sparkman

Assistant Editor

Donna Thompson

Advertising Director

Morris Woods

Design Director

Donna Heninger

For advertising rates and information, contact Morris at 615.349.1890.

Subscriptions in US, free upon request. Outside US, \$12 per year. To subscribe, contact TCA at the above address.

Articles appearing in Tennessee Concrete are frequently contributed by outside, independent sources. Conclusions drawn from these articles may be at variance with the opinions of our readers.

Tennessee Concrete welcomes response and rebuttal and will make every effort to print these responses. Send comments to: Editor, Tennessee Concrete, 699 President Place, Suite 400, Smyrna, TN 37167.

Tennessee Concrete and its publishers assume no liability for errors or omissions in articles or advertisements appearing in Tennessee Concrete.

© 2023 The KaHoy Group, LLC

All rights reserved. The contents of this publication may not be reproduced by any means, in whole or in part, without the prior written consent of the publisher.



4

PRESIDENT

WORKFORCE REMAINS CHALLENGE
by Shelley Parham



6

EXECUTIVE DIRECTOR

2023 ANOTHER PRODUCTION RECORD
by Alan Sparkman



8

CONCRETE DESIGN AWARDS

SEE PAGES 8–21 FOR A COMPLETE VIEWING OF THE 2023 CONCRETE
Congratulations: Barton Malow, GM&LG, Gresham Smith, Irving Materials, Inc.



22

KEEP THE DOOR CLOSED TO —

CONCRETE MAGNESIUM CHLORIDE SALT DEICER PROBLEMS
by L. K. Crouch, Ph.D., and Robert Tyler Hughes, E.I.,



24

ESSAY AWARDS

CONGRATULATIONS —

- 1st Sophia Winauski
- 2nd Alyssa Herman
- 3rd Abigail Koczaja



Shelley Parham
TCA President

Welcome to the Award Issue

WORKFORCE REMAINS CHALLENGE

Hello and welcome to the Awards edition of Tennessee Concrete magazine! I am excited to be serving as the 2023-24 President for the Tennessee Concrete Association and looking forward to a year of accomplishments for our association.

I am pleased to say that two of my company's projects were recognized this year's Concrete Design Award competition, along with Emerald Awards for two of our concrete plants (Boones Creek and Morristown). The Scott Adams Memorial Skatepark here in Kingsport was recognized in the Speciality – Shotcrete category. In addition to being a really cool project it ties in very nicely with the recent announcement from the Concrete Advancement Foundation about their Skate4Concrete program that is rolling out to help recruit high school students to careers that involve concrete. (Check out the article on Skate4Concrete later in this magazine.) It's not too early for you to start thinking about your projects that should be entered into the 2024 Design Awards competition — it's a great way to recognize your customers and promote concrete as a building material.

TCA continues to pursue other avenues for recruiting people to careers in the concrete industry (see Alan's column about the Be Pro Be Proud program for high school students — very exciting!). Workforce remains the number one challenge for most of us. TCA is working on our behalf on this important issue.

We are also kicking off a TCA membership campaign for 2023. I would appreciate your help in recruiting contractors and suppliers to join our efforts to improve our industry in Tennessee. The TCA Marketing Committee has put together an updated Prospective Member packet to help each of us in recruiting new members, so please be intentional about asking your customers and contacts to consider membership in the TCA.

Thanks so much for the opportunity to serve as your President!

-Shelley Parham

It's not too early
for you to start
thinking about
your project that
should be entered
into the 2024
Design Awards
competition
.....
I would appreciate
your help
in recruiting
contractors and
suppliers.



— 1225 Parkway —
Sevierville, TN 37862

DENNIE UNDERWOOD

(865) 453-4433 (phone)
(865) 428-6083 (fax)
(865) 654-2912

SICALCO, LTD is your concrete industry partner for the 2014 Turning Point in Tennessee Concrete as it has been since 1979



Contact our service center @ 800-435-1919 or general offices at 630-371-2655 for customer service



Corporate Office: (731) 968-2537
P.O. Box 1090 • Lexington, TN 38351



Radio Dispatched GPS Trucks
for Fast Dependable Service



- Bolivar (731) 658-6105
- Dyer (731) 692-3462
- Humboldt (731) 784-5696
- Henderson (731) 989-9723
- Jackson (731) 422-3358
- Lexington (731) 968-2537
- Milan (731) 686-2288
- Paris (731) 642-6672
- Union City (731) 885-7060

"Building the South with top quality ready mix concrete & masonry products at a reasonable price."

**THIS IS THE SPACE YOU'VE
BEEN LOOKING FOR**



Thank you for Supporting Your
Association by advertising with
TNConcrete Magazine



FOR ADVERTISING RATES AND INFO
Email Morris at jmwoods@q.com

Durafiber
Durafiber
We're
reinforcing
our reputation
one job
at a time!
Durafiber
Durafiber

DurafiberTM inc.
 4825 Trousdale Drive, Suite 205 • Nashville, TN 37220
 (615) 333-9882 Fax

(615) 333-9883



2023 ANOTHER PRODUCTION RECORD PRODUCTION CONTINUES

TCA has moved into our new space!

TCA continues to work on Workforce on behalf of all our members.

TCA is also kicking off a Membership Drive for 2023

Tennessee set another production record in 2022

Welcome to the Awards issue of Tennessee Concrete Magazine! Be sure to check out all the category winners who were recognized at TCA's Annual Convention in February. Start making plans now to enter your projects for next year's competition.

Since our last issue TCA has completed our move into new space, complete with an excellent space for meetings and classes. We are using it regularly! Plus, it is a great space for our new concrete lab. See John's article for more details on that.

TCA continues to work on Workforce on behalf of all our members. One exciting item here is TCA's participation on the Founding Council for the Be Pro Be Proud Tennessee program. Be Pro Be Proud (BPBP) will focus on reaching high school students with a positive message about seeking careers in the trades, including concrete and construction. TCA is a financial sponsor of this program. This allows any TCA member to become a partner of BPBP and be listed as a potential employer in the BPBP directory. We expect to reach more than 30,000 high school students each year with this program — look for a link to the Partner Intake form in TCA's regular Member Updates to get your company on this list.

BPBP will officially launch in the fall of 2023 and will visit dozens of high schools across Tennessee with a very impressive variety of trade careers featured in an 18-wheeler rig. TCA will be sponsoring the CDL simulator housed in the tractor-trailer. Interested students will be

able to scan TCA's QR code and go directly to our TCA Workforce page on www.tnconcrete.org. From there, students can select from a variety of concrete and construction focused career opportunities, and navigate to the jobs page of any of our member companies. Be on the lookout for a TCA survey that will allow you to customize a profile for your company on our website.

TCA is also kicking off a Membership Drive for 2023. We want to grow our membership and we need your help to get the word out about the many advantages of being a TCA member. The Membership Drive will kick off on May 1. We will be honoring the Top Recruiters with a new award at our Annual Convention in 2024.

Final note: Tennessee set yet another annual production record in 2022, marking three years in a row of record concrete production in our state. Our total yardage for 2022 was 9,258,000 cubic yards, up about 1.5% over 2021 in spite of cement allocations and other supply chain issues for the concrete industry. 2021 was the first year ever that Tennessee production exceeded 9 million cubic yards, and it followed a then-record production of 8,383,000 in 2020, the first year since 2007 and the Great Recession that our production was over 8 million cubic yards.

I hope to see you at our Summer Meeting in June at the beach!

—Alan Sparkman

Placing Pervious Concrete

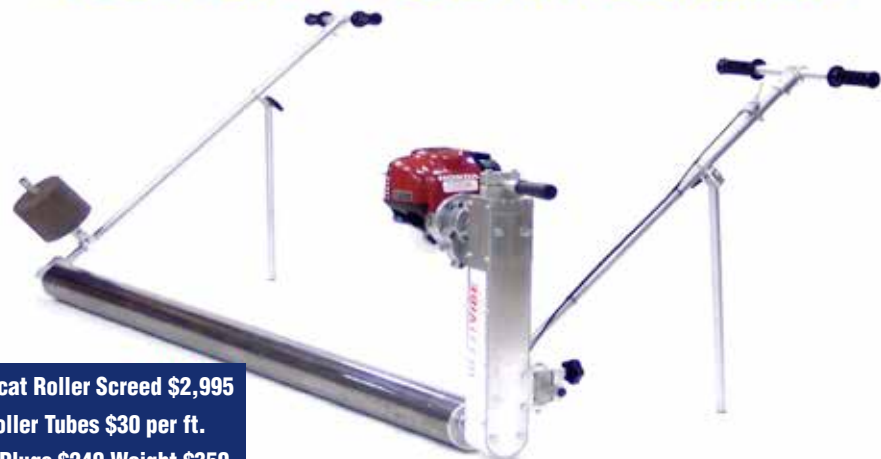
Pervious Concrete Allows Rainwater to seep into the ground. It is instrumental in recharging groundwater and reducing storm water runoff.



Pervious is a Special Mix... It Requires Special Tools to Place It



WILDCAT ROLLER SCREED



Wildcat Roller Screed \$2,995
Roller Tubes \$30 per ft.
End Plugs \$240 Weight \$350



GROOVING
ROLLER

PCRG
\$790

CROSS COMPACTION
ROLLER

PCR
\$600

COMPLETE PERVIOUS PACKAGE

"The Wildcat Screed has become my preferred placement method because of it's lightweight, easy to use, and produces a great finish."

Sarah Egan
TN Concrete Association
NRMCA Certified Pervious Concrete
Installer

The Wildcat Roller Screed is the easiest to use on the market and the most economical. It is also an ideal tool for concrete sidewalks, walking trails and golf cart paths.

We welcome comparison to any other brands.

For More Info Call Toll Free 877-220-6652

www.multivibe.com

2023 CONCRETE AWARD WINNERS



**GRAND
CHAMPION**

NIGHTSKY • ULTIUM 2
ULTIUM CELLS EV BATTERY PLANT

Barton Malow • GM & LG
Gresham Smith • Irving Materials, Inc.



Grand Champion

Best Finishing Commercial

Best Sustainable Concrete

.....
WINNERS:

- Barton Malow
- GM & LG
- Gresham Smith
- Irving Materials, Inc.

Each year one project from all of the winning categories is selected as our Grand Champion. This year's winner pulled off a Triple Crown performance by winning two individual categories as well as the coveted Grand Champion. This is a large project by any measurement. More than 100,000 cubic yards of concrete was used and that concrete was placed with excellence (recognized by the Best Commercial Finishing Award). Plus, the concrete mixes were designed to lower the embodied carbon in the concrete, producing a significant decrease in embodied carbon in the concrete on this project (recognized by winning the Sustainable Concrete Award). Achieving this level of excellence in both execution and sustainable construction practices made this project an obvious choice for the 2023 TCA Grand Champion.

2023 CONCRETE AWARD WINNERS

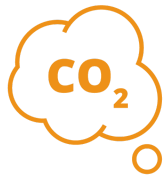


ID 93d6c4209c
December 07, 2022

Carbon Savings Estimate

For the Ultium Cells EV Battery Plant in Spring Hill, Tennessee
Estimate assumes 105,139 yd³ of concrete

Concrete for this project made with CarbonCure can potentially save:



1.4M
Pounds of CO₂

...which is equivalent to:



815
Acres of trees absorbing CO₂ for a year



1.5M
Miles of driving in a gas-powered car

About CarbonCure

Our Impact With CarbonCure

BEST SUSTAINABLE CONCRETE & GRAND CHAMPION
Ultium Cells EV Battery Plant

WINNERS:

- Barton Malow
- GM & LG
- Gresham Smith
- Irving Materials, Inc.

Owners and constructors are increasingly aware of building projects that have less impact on our planet. Part of that is reducing the embodied carbon in the materials used to construct projects. This project achieved impressive

reductions in the embodied carbon in the concrete through a team effort that included the owners, designers, constructors and the ready mix supplier.

❖ 2023 CONCRETE AWARD WINNERS



.....

BEST FINISHING COMMERCIAL & GRAND CHAMPION

Nightsky - Ultium 2



Consistent results on a project of this size require attention to detail, skill, and hard work from all the team members. Thoughtful design, consistent concrete mixes, skilled installers and excellent project management produced excellence from start to finish. The results achieved on this project demonstrate what can be done when a great team comes together.

WINNERS:

- Barton Malow Company
- General Motors & LG
- Gresham Smith
- Irving Materials, Inc.

2023 CONCRETE AWARD WINNERS



.....

BEST FINISHING ARTISAN

Hutchison School

WINNERS:

- Baltz & Sons Concrete
- Grinder
- Memphis Ready Mix

Concrete was the canvas for a unique decorative statement on this project to promote school spirit.

❖ 2023 CONCRETE AWARD WINNERS



.....

BEST FINISHING RESIDENTIAL DECORATIVE EXTERIOR

Browne Residence

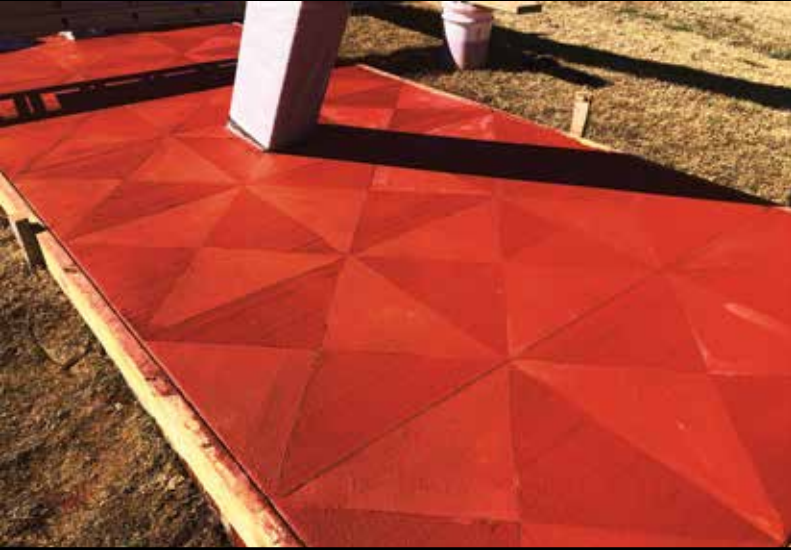
WINNERS:

- Baltz & Sons Concrete
- Terri & James Browne
- Delta Industries

This project highlights concrete's ability to perform as a high aesthetic material, especially when combined with a highly skilled concrete craftsman.



2023 CONCRETE AWARD WINNERS



.....

BEST FINISHING COMMERCIAL DECORATIVE

Lynn Public Sculpture

WINNERS:

- Baltz & Sons Concrete
- Terry Lynn
- Memphis Ready Mix

Concrete provided the foundation for this public art installation and thanks to the creativity and skill of the installer it also provided a unique appearance to compliment this public sculpture.



❖ 2023 CONCRETE AWARD WINNERS

.....

BEST SPECIALTY SELF-CONSOLIDATING Blount Mansion, Obelisk

WINNERS:

- Paulk & Company
- Johnson Architecture
- Harrison Construction

This small-in-size-only project is another highlight to concrete's versatility as a construction material. Combining ease of placement in a complex shape with a high-aesthetic value finish for the exterior of the monument, concrete was a great solution for this project.



2023 CONCRETE AWARD WINNERS



.....

BEST PRECAST

MTSU School of Concrete

WINNERS:

- Hoar Construction/Charter Construction
- Orcutt Winslow
- Gate Precast

Attention to detail was obvious in this well executed precast panel that welcomes students and visitors to the new MTSU School of Concrete and Construction. Very fitting!

2023 CONCRETE AWARD WINNERS



.....

BEST ARCHITECT/ENGINEER COMMERCIAL BUILDING

Wilson County Jail

WINNERS:

- R.G. Anderson
- Kaatz, Binkley, Jones, Morris Architects
- R.G. Anderson
- Irving Materials, Inc.

Concrete provides all the qualities needed in this type of facility: Economical construction cost, low long-term maintenance in a high-use environment, and resilient performance.



2023 CONCRETE AWARD WINNERS



.....

BEST ARCHITECT/ENGINEER NON-BUILDING Brentwood Equalization Facility No. 1

WINNERS:

- Cumberland Valley Constructors
- Crom Corporation (Engineers)
- Irving Materials, Inc.

Concrete often makes complex projects look easy once they are completed. This project required complex engineering, skilled formwork, and high-performance concrete mixes to construct an important and long-lasting infrastructure improvement.

2023 CONCRETE AWARD WINNERS

.....

BEST SPECIALTY RENOVATION

Neyland Stadium South Renovation

WINNERS:

- Blount Contractors, Inc.
- Cope Associates, Inc.
- Ready Mix USA

While much of the concrete utilized in this project is hidden from view it was vital to the successful completion of this project at a beloved Tennessee icon.



Concrete Pour



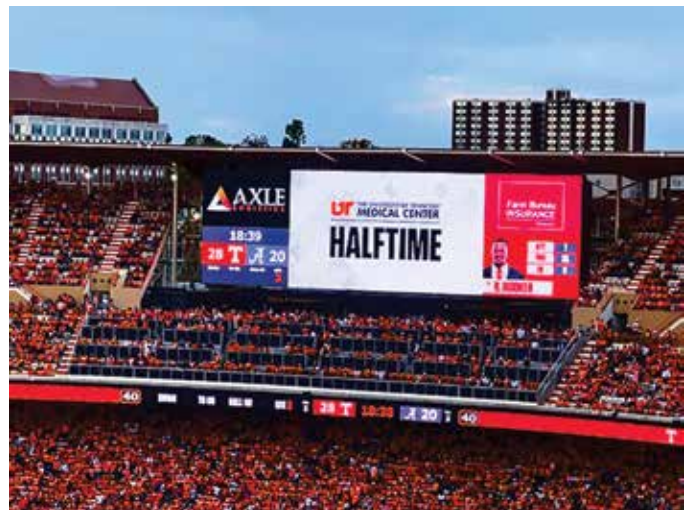
In Progress



Near Completion



Progress Continues



Kick Off!

2023 CONCRETE AWARD WINNERS



.....

BEST CONCRETE PARKING LOT

Bristol Ridge Apartments

WINNERS:

- Reyes Concrete Construction
- Belew Rental Construction
- Screaming Eagle Ready Mix

This project highlights how concrete makes your project look better and it will serve as a low maintenance amenity for many years to come. Residents benefit from increased lighting at night, contributing to a safer neighborhood for all residents.

❖ 2023 CONCRETE AWARD WINNERS

BEST SPECIALTY SHOTCRETE

Scott Adams Memorial Skate Park

WINNERS:

- HardCore Skateparks
- City of Kingsport
- Ready Mix USA

This project in Kingsport, TN highlights the unlimited creative potential of concrete. Concrete can be constructed with flowing lines, curves and complex shapes and this project is a testament to that flexibility.



2023 CONCRETE AWARD WINNERS



TCA EMERALD AWARD FOR ENVIRONMENTAL EXCELLENCE SMALL 25,000 YD3 OR LESS

WINNERS:

- Ready Mix USA Boone's Creek Plant

Commitment to excellence in environmental performance is obvious at this ready mix plant as they have won multiple awards for their efforts in keeping their operation clean as well as contributing important habitat for a threatened species at their plant site.



TCA EMERALD AWARD FOR ENVIRONMENTAL EXCELLENCE MID: 25,001-75,000 YD3

WINNERS:

- Ready Mix USA Morristown Plant

Batch plants that are managed this well make good neighbors as they protect the environment and the surrounding neighborhoods. Taking the extra step of creating habitat for a threatened species is icing on the cake.



KEEP THE DOOR CLOSED TO — Concrete Magnesium Chloride Salt Deicer Problems

We have all heard keep the door closed so bugs won't get in. We can close the door to problems with magnesium chloride deicing salts in our concrete by using low chloride permeability concrete mix designs. TCA has sponsored three phases of research at TTU on minimizing damage due to deicing salts containing magnesium chloride. What have we learned? In short, lower chloride permeability is the key to a longer concrete service life.



1. How do we achieve lower chloride permeability concrete?
 - ACI 332-20 requires using a lower water-to-cement ratio. The research team agrees a w/c ratio less than 0.4 is needed for RF4 (most severe exposure).
 - Unfortunately, ACI 332-20 does not require low chloride permeability or supplementary cementing materials. Low chloride permeability is the key. Therefore, the research team recommends using SCMs to produce a low chloride permeability concrete mixture. The use of high dosage ($\geq 30\%$) of fly ash or slag plus a low dosage (3 or 4%) of metakaolin or silica fume provides excellent results.
 - Low chloride permeability can also be achieved using a penetrating sealer (following manufacturers recommendations) on the concrete.
2. How does lower chloride permeability help?
 - Low chloride permeability concrete retains much more of its strength (compressive and tensile), static modulus of elasticity (stiffness), lower absorption, and appearance after prolonged exposure to magnesium chloride deicing salts compared to moderate or high chloride permeability concrete mixtures.
 - Lower chloride permeability concrete mixtures are far more tolerant of common construction mistakes such as addition of water and/or lack of curing than higher w/c or higher chloride permeability mixtures. All concrete mixtures should be placed as designed and cured properly. But it is nice to know that if something happens, the mixture still has the capacity to perform well.
3. Does lower chloride permeability cost more?
 - Yes. The use of high-range water reducer and metakaolin (or silica fume) makes the initial cost of concrete mixture higher. However, better cars, trucks, and houses also have higher initial costs.
 - Maybe not. Keep in mind that the lower chloride permeability concrete has a much longer service life (less need for repairs, much longer time before it needs to be replaced). True economy may be a much longer service life.
4. Who can help me obtain lower chloride permeability concrete for my project?
 - Your local TCA ready mix concrete producer, TCA executive director Alan Sparkman, or TCA technical director John Pearson can all steer you in the right direction.
 - They can also determine your need for lower chloride permeability concrete mixture. ■



HOME, SWEET HOME

The new year is well underway, and TCA has been working hard to outfit our new concrete laboratory. We have long wanted to have a space of our own to provide education, training, certification exams, research, and other endeavors important to our members and the concrete industry. I am very excited about the new space and the opportunity that it will give us to engage with the industry in new ways.

The laboratory provides over 1200 square feet of space for hands-on learning and performance exam demonstrations, complimenting the adjacent similar-sized training room. The laboratory is currently equipped to accommodate ACI performance exams, which require performance testing on concrete, concrete aggregates, and soil/aggregate base and masonry materials. We plan to add new capabilities over time, as needs are identified. We decided to put many of our workstations on wheels. This makes the lab more versatile to meet changing training and certification needs, as they arise. Plus, it gives us the ability to quickly rearrange the lab to meet the needs of the session and to move set-ups between the classroom and the laboratory.

We hope that our new facility will also be a place where our members can come check out industry advancements that could have the potential to improve their operations and the industry. As an example, we have two concrete compression machines: a traditional manually operated machine and a newer “automatic” machine intended to reduce human error and variability. Visitors to our laboratory will have the chance to see the advantages and disadvantages of each type of set up so they are better informed to make decisions for their projects and operations.

The TCA laboratory is a teaching laboratory and not a commercial testing laboratory for the purpose of providing independent QA/QC testing. The TCA has many member companies that offer these services. Contact information for these companies can be found in our Membership Directory that is published annually in the *Tennessee Concrete Magazine*.

We could not have assembled this stellar laboratory without the support of the TCA membership and especially those members

who answered the call to become TCA Laboratory Sponsors/Donors. We would like to take this opportunity to thank everyone for their generous support in making the TCA laboratory a reality.

LABORATORY SPONSORS

- GEOServices, LLC
- ECS Southeast, LLP
- WAP Sustainability Consulting

IN-KIND DONORS

- Cane Ridge High School
- Harrison Construction Co.
- IMI - Irving Materials, Inc.
- S&ME, Inc.
- TTL, Inc.

Although our lab is currently set up with the essentials, there is still an opportunity to help with acquiring additional items as we continue to expand the TCA laboratory capabilities. Some of the items that we still have a need for include:

- Lightweight Flexural Beam Attachment
- Block Platen Assembly
- Thermostatically Controlled Curing Box
- Large Forced Convection Oven
- Gilson Style Screen Shaker and Screens
- Coarse Aggregate Splitter
- Fine Aggregate Splitter
- Super Air Meter

If you would like to donate or contribute towards the purchase of any of these or other items, please contact Alan Sparkman or John Pearson.

—John Pearson

TENNESSEE
CONCRETE
ASSOCIATION

SEVIER COUNTY: A CONCRETE COMMUNITY

by Sophia Winauski



Resilience. The ability to come back after disasters that impact everyone. I am from the beautiful Sevier County Community in East Tennessee

and I could not be prouder of the comeback my community has made. In 2016, Gatlinburg, TN was torn apart due to the wildfires that swept through the Great Smoky Mountains. Oftentimes, when we think about our communities, we think about the buildings, the people, and the businesses that make up our area. However, we never think about the building materials that actually go into the businesses that make up our community. Concrete is one of the leading materials that build the buildings in our communities. Concrete is also known for one thing: its resilience. So, when tasked with this question, the first thing that came to mind was the comparison between concrete and my community.

In 2016 the wildfires that swept through Gatlinburg were unimaginable. Family homes were torn down, businesses were lost, and lives were changed forever. However, one of my favorite parts about living in Sevier County is our insane ability to come back from a disaster stronger than ever. Our community banded together and found out how to help Gatlinburg in any way we could. For example, we collected monetary donations to help families build back their lives, we collected food and drinks and even clothing for people, and slowly, our community found a

way to make a comeback. Through the generous donations and kind hearts of Sevier County, our area was able to face adversity with resilience.

So, you may be wondering. How is concrete resilient and how did it help my community during the 2016 Gatlinburg fires. Concrete provides resiliency through the forms of weight and mass. During the 2016 fires, the majority of the homes left standing were made of concrete. Also, after the tragic fires, many of the people of Gatlinburg who were rebuilding their homes, decided to rebuild their homes using fire-resistant concrete to keep the things in their home safe. Another example of concrete resilience was in the 2018 Hurricane Michael. This hurricane was devastating as many people in Mexico Beach, Florida were left without homes and their lives were changed forever. However, one house was left standing after this natural disaster. This house was named the “Sand Palace” and its walls made of poured reinforced concrete were the key factor in this marvelous house surviving the storm. So, just like my community is resilient, so is concrete.

How has my community been shaped by concrete? We often don’t think about the building materials used to make up the businesses in our community or the houses in our community that are left standing despite these natural disasters. However, my community is shaped by the businesses that work day in and day out to make sure that our community is supported and successful, the homes that provide shelter and comfort for the people that are so beautifully resilient after tragedy. None of these things would be possible without concrete. These people and these buildings are what holds my community up and keeps us resilient, but concrete is the building block to all of this.

As we have seen, the beautiful Smoky Mountain community is resilient and strong as we band together and come back stronger and braver than ever.

Concrete is one of the leading building materials in the world and my community could not be as resilient as it is without it. So, let me ask you, are you resilient? What’s holding you up?

WRITTEN IN CONCRETE

by Alyssa Herman

2ND



In front of my house, you can see four sets of handprints in concrete, two large and two small, with names above: Dad, Mom, Alyssa, and Lance.

For as long as I can remember, concrete has been the bond between me and my father. From an early age, my brother and I have been his constant companions on countless visits to job sites, client meetings, and construction expos, because of my dad’s profession as a concrete contractor specializing in Insulated Concrete Forms (ICF). Though I have learned so much from these experiences beyond the importance of concrete— customer service, leadership, and the value of hard work among them— I am most grateful for all the opportunities concrete has provided for me to connect with and understand my father.

ICF contractors utilize a specific type of styrofoam form to create structures that are eco-friendly, long-lasting, and resistant to harsh weather, like hurricanes or tornados. When I was younger, these forms were literally my building blocks. My dad works primarily in residential construction; I take pride in the fact that he helps build people’s forever homes—including our own. I got to experience this firsthand, helping him as young as

age eight, running trowels over the slab, retrieving tools, and leaving my handprints in the corners when given permission. However, my concrete education didn't stop there; everywhere we went, it seemed, there was something new to learn: the specs of the structure, how the concrete was likely poured, and roughly how old it was. I thought it was incredible that my dad could simply look at the wear patterns on a sidewalk—any cracks or discoloration—and tell me apparently everything there was to know about it, as if reading an open book. Even today, every time I see a concrete truck going down the road, or hit a pothole, I think of Dad telling me how the rotation of the drum helps keep the mixture at the proper slump, and how changes in temperature lead to the road cracking—and me hitting my head on the roof of my car. The greatest thing I have taken away, however, is the importance of always making the customer happy, always doing my best work, and inspiring my peers to do the same. I do my best to carry these lessons with me throughout my experience as a student, daughter, and an employee.

It breaks my heart to hear about the supposed public perception of people who work in concrete; while it is not a glamorous profession, it is the very thing holding together our society. Without people like my dad, there would be no school for anyone to attend, no work to go to, and no place to call home. For me, it has an even greater importance, as Dad's work is the only thing putting food on the table in the house that he built. I remember holding his hand at dinner—both of us looking at his cracked palms—and him telling me that "I do this so you can have the opportunity to follow your dreams." Together, we are saving up for me to go to college, and I hope to earn a good amount of academic and merit scholarships so I can follow my dreams of studying architecture. Dear Dad, if you're reading this: thank you so much for not only building my future, but also literally building the future of the world around me. Our love is written in concrete.

CONCRETE ≠ CEMENT

by Abigail Koczaja



Concrete is like a cell: useful, overlooked, and shrouded in hidden complexity. Both concrete and cells come in many forms, and both are

used in the composition and construction of pretty much everything living (in the case of cells) or man-made (in the case of concrete). It is highly likely that every building around is constructed with concrete. Even other inanimate objects around you, such as the computer on your desk or the pen you're holding, was likely manufactured in a factory constructed with concrete.

Cells are specialized to a function. Red blood cells are donut-shaped so they can carry oxygen; however, they would not be suited to work as muscle cells. Their shapes and properties make them blood cells, while simultaneously making them incapable of functioning as muscle cells. Concrete works in a very similar way. While the tension, compression, toughness, and/or strength of one particular concrete may be well-suited to build the foundation of a skyscraper, these properties may make it a poor building material for a dam or bridge.

Concrete is particularly useful because of its durability and permanence, making it a popular choice as a building material for projects that are under stress or particularly need extra strength. This, coupled with the variance in capabilities of different concrete, enables the material to perform a variety of functions, many of which feature prominently in our daily lives. Much like how many types of cells are needed to construct an organism, many types of concrete are used to construct our surroundings. Everything from the building you stand in to the bridge you crossed on the way to work

to the purified water you drink is made possible with concrete. The ability to work with concrete is a major dividing factor between first-, second-, and

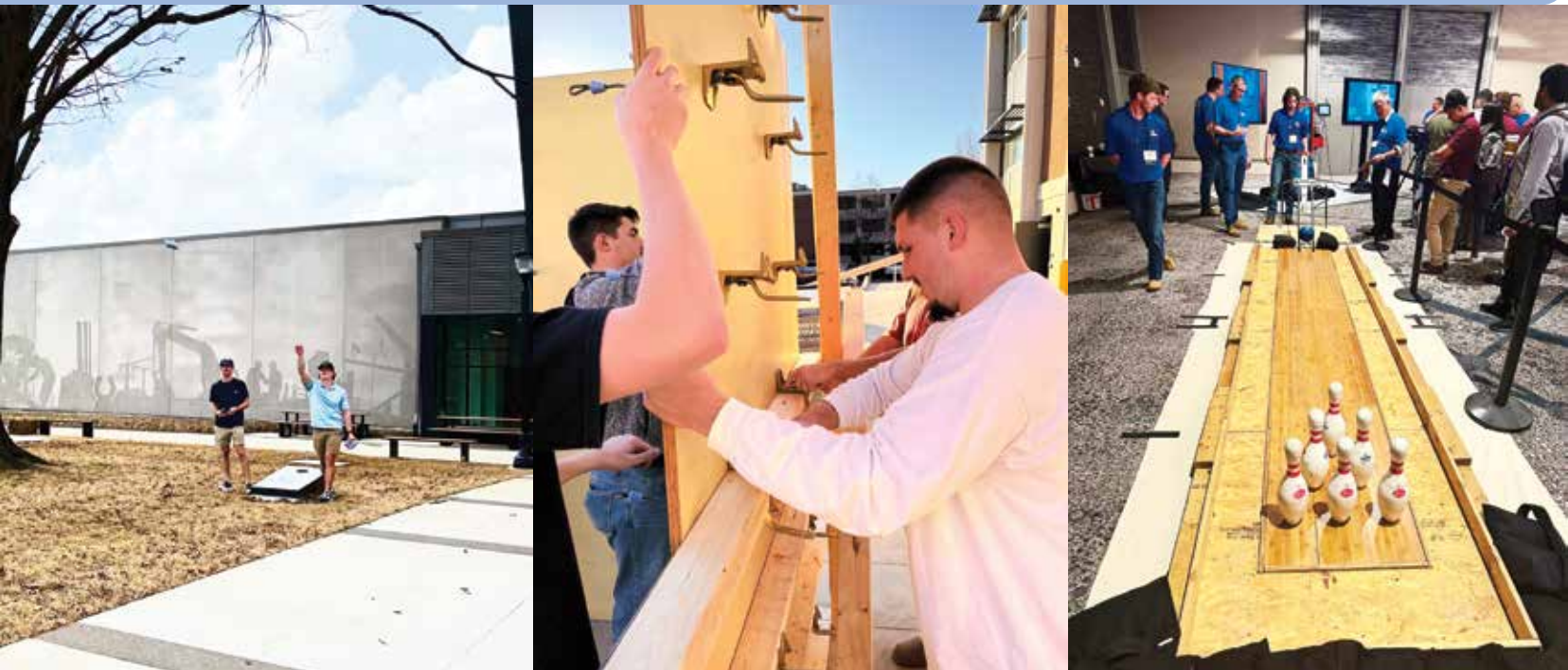
third-world countries for exactly this reason. Without concrete, transportation, water purification, and the construction of buildings and dams is less efficient. Concrete is so important to the lives of first-world countries that the lack of it places countries at economic disadvantages.

This introduces one of the fundamental downsides of our dependence on concrete. The production of cement, a fundamental ingredient in concrete, is very tightly controlled. There are very few manufacturers, making the industry almost cartel-like in nature, as I've heard it described. This tight control over such a crucial material makes it more difficult to obtain, further amplifying the problems faced by third-world countries. Additionally, the production of cement is not very environmentally friendly, nor is its transportation. While research is in progress to create a process to produce cement that reduces greenhouse gas emissions, we likely still have a ways to go before such a process is widely implemented.

Concrete has also had quite an impact on my family and my personal life. Many in my family, myself included, grew up reminded constantly that under no circumstances is it okay to use the words "concrete" and "cement" interchangeably. My grandfather is a civil engineer with a master's in concrete engineering who built and raced concrete canoes. My uncle did his master's thesis on self-consolidating concrete. Their company built Purdue University's Bowen Lab, a civil engineering testing lab that often works with testing concrete's durability. Growing up in a family with such an appreciation for this material (enough to make special sets of concrete drink coasters) has allowed me to recognize its importance both in the world around me. Though progress stands to be made to minimize its environmental impact, the impact of the material on our society is unmistakable in the developments in construction, sanitation, and resource management it enables. ✨

CIM UPDATE

by Jon Huddleston, Associate Professor & CIM Director



SETTLING IN THE NEW BUILDING — THANK YOU FOR YOUR SUPPORT!

When Alan emailed me for this issue’s CIM update I had every intention of sitting down and picking out a few key activities that students had participated in, and writing based on those topics. However, I decided that it was time for a formal written thank you. We all know that construction is a whirlwind of excitement and headaches and the new building for MTSU’s CIM program has been no exception. From weather delays to supply chain issues and even a busted pipe during the subzero week of Christmas, bringing this dream to fruition has not been a walk in the park. Yet, we have all been there, especially the past couple of years. Seeing the excitement in our students, growth of the program, and the endless hands-on student opportunities—that continually present themselves—make it all worth it.

In the six short months since the building opened, we have hosted technology such as robotic jobsite layout printers, mobile 3D concrete printers, and formwork design and construction demonstrations. Within these walls we have entertained numerous industry events, guest speakers, and countless job fairs and student interviews. Our students have made this grand structure home. Since moving in they have constructed their own concrete ping pong table, concrete cornhole court, and are currently designing a concrete firepit and stamped patio area. The ACI student club has been reenergized competing in the ACI pervious cylinder competition and, most recently, the concrete bowling ball competition. They even worked hard enough to achieve ACI’s designation of “Excellent University” based on their quantity and quality of activity as a student chapter—something they haven’t achieved since 2013.

I could ramble on about all the amazing things that are happening at MTSU CIM. All of you are welcome to stop in anytime to tour, talk with, or mentor our young people. Most importantly, I want you to know from reading this update that you are appreciated. Without the TCA and all its members this building and continued success would not be possible. CIM’s future, your company’s future, and the concrete industry’s future are all bright because of your donation of time, talent, and treasure. Once again, I offer a resounding THANK YOU!



READY MIX USA

We gladly service
areas in Alabama,
Florida, Georgia,
and Tennessee.

www.readymixusa.com

EAST TENNESSEE REGION

2209 W Blount Ave • Knoxville, TN 37920
(865) 573-4501

Commitment
is in everything we do

At Lafarge, our commitment goes far beyond the raw materials we produce. We bring together the best solutions and materials to build more durable, compact and connected cities. And when you build better cities you get buildings, roads and infrastructure that truly reflect the changing needs of today's communities.

It's this kind of ongoing dedication that's an integral part of the Lafarge culture. And it shows. Whether it's our focus on safety, the well-being of our employees, or the satisfaction of our customers – it's all about ensuring a better quality of life for everyone involved.

To learn more about Lafarge solutions and products, including cement, concrete and aggregates, contact:

Heath Rogers, Middle Tennessee
Christopher.Rogers@Holcim.com
www.Holcim.US

Benoit Cotnoir, Area Sales Manager
Benoit.Cotnoir@Holcim.com
www.Holcim.US

Info Link

AWARDS 2023 VOL. 37, NO. 1

Blalock Ready Mix	5
Durafiber, Inc.....	5
Form A Drain.....	3
Lafarge North America	27
Multi-Vibe.....	2
Ready Mix USA	26
Sicalco, LTD.....	5
Southern Concrete.....	5
Vulcan Material	27

For advertising rates and information, contact Morris at 615.349.1890.

Vulcan Materials Company

Outstanding Quality & Customer Service

Crushed Stone
Kingsport
(423) 245-4136

Knoxville
(865) 577-2511

Chattanooga
(423) 510-2600

Nashville
(615) 361-8550

Jackson
(731) 668-7357



Tennessee Concrete Association

699 President Place, Suite 400

Smyrna, TN 37167