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## 18 CIM UPDATE

CIM ALUMNI AND PARTNER RECEPTION AT  
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Dr. Heather J. Brown

COVER: CIM at MTSU will spend 2016 celebrating our 20 year anniversary. The program began with two students in 1996 and has since graduated 824 students, with over 85 percent still working in the concrete industry across the United States. Supported from the very beginning by the CIM Patrons and later the National Steering Committee, this strong industry support makes CIM a unique academic and industry partnership—MTSU continues to tout CIM as one of its signature programs with a regional and national reputation.

COVER PHOTOS: **CIM Patrons from 1998** (*upper left*) Dr. Earl Keese, MTSU; Woody Crawley, BASF; Alan Sparkman, TCA; Ward Poston, Holcim; Julie Garbini, NRMCA; Jim Speakman, DuraFiber; Bob Elliott, Lafarge. **Coneco Small-scale Batch Plant** (*lower left*) Chris Davenport (on plant), Barnes Industrial. Member of CIM's first graduating class in 2000. **Late 2001, New Concrete Parking Lot** (*center*) From the top left: Alan Sparkman, TCA; Dr. Sidney McPhee, MTSU; Prof. Austin Cheney, CIM-MTSU; Unknown CIM student; Donna Dillon, CIM student; Dr. Kathy Mathis, MTSU; J. Wallace, MTSU; Dr. Walter Boles, MTSU; Dr. Heather Brown, CIM-MTSU; Dr. Tom Cheatham, MTSU. **CIM Department Status! 2011** (*upper right*) Dr. Brad Bartell, Provost; Dr. Heather Brown, CIM Director; Dr. Tom Cheatham, Dean; Dr. Walter Boles, MTSU. **Governor tours CIM** (*lower right*) Dr. Heather Brown, Tennessee Gov. Bill Haslam; Denny Lind, BASF; Ward Poston, Holcim; Jim Speakman, DuraFiber

2015

# A YEAR IN REVIEW



**Bate Bond**  
2015 TCA President

There have been 121 TCA events and certification classes held across the state this year with over 3,600 people in attendance—that is absolutely amazing!

It is hard to believe that another great year is coming to a close and 2016 is fast approaching. We often pause in these times to reflect back on the year's achievements and setbacks and to take what we have learned and use it to make the next year even better. 2015 has been a very busy, yet rewarding, year for us here at the TCA. There have been 121 TCA events and certification classes held across the state this year with over 3,600 people in attendance—that is absolutely amazing. I thank every one of you that attended or helped out behind the scenes to make these events a success. As all of us are spread across the state and can't attend every event or certification class TCA hosts, I decided this would be an opportune time to share some facts and figures with you all to show just how much we truly accomplished during the year.

- East Regional Seminar**
  - 5 Sessions
  - 87 in attendance
- West Regional Seminar**
  - 2 Sessions
  - 24 in attendance
- Middle Regional Seminar**
  - 5 Sessions
  - 32 in attendance

- TCA Site Events**
  - 9 Sessions
  - 153 in attendance
- Research Events**
  - 4 Sessions
  - 64 in attendance
- College Visits**
  - 11 Sessions
  - 626 in attendance
- Pervious Presentations/ Training**
  - 19 Sessions
  - 405 in attendance
- Parking Lot Seminars/ Training**
  - 2 Sessions
  - 19 in attendance
- Other Legislative Events**
  - 6 Sessions
  - 263 in attendance
- Trade Shows**
  - 4 Sessions
  - 865 in attendance
- TDOT Meetings & Events**
  - 6 Sessions
  - 108 in attendance
- Certification Classes**
  - 70 Sessions
  - 609 in attendance

In addition to these events, I had the opportunity to travel the state with Alan and visit many of your facilities. I just wanted to say it was a pleasure meeting and talking with each of you during our time out on the road. I have enjoyed being your TCA President this past year and I hope to see you all in 2016 at our annual convention in February. I would like to wish you all a very Merry Christmas and a happy New Year.

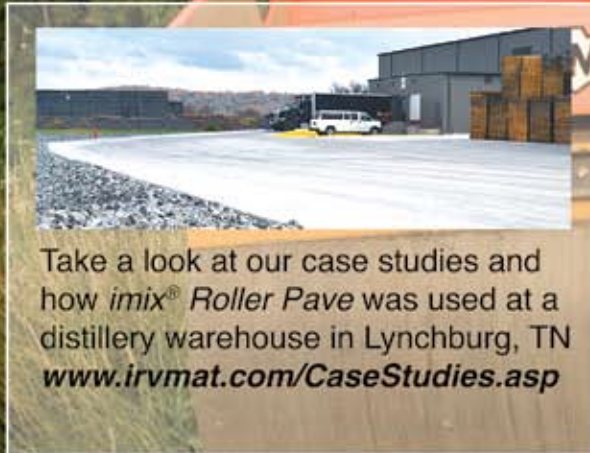
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**Alan Sparkman**  
Executive Director

Associations provide services that benefit industry members in their daily operations as well as benefits that are hard to measure on a day-to-day scale.

## THE VALUE OF ASSOCIATIONS

*“Every man owes part of his time and money to the business or industry to which he is engaged. No man has a moral right to withhold his support from an organization that is striving to improve the conditions within his sphere.” —Theodore Roosevelt*

I have always been a believer in associations, long before I ever thought I would end up working for one (and long before I came across this quote from President Roosevelt). Growing up working in our family-owned ready mix business we belonged to our state ready mix concrete association as well as the National Ready Mixed Concrete Association, and I actively participated at the state level and to a lesser extent at the national level. As I look back on my professional growth and development I can truly say that my membership and participation in my industry associations is one of the best investment decisions I ever made.

Membership in industry associations also paid great dividends for our ready mix business. The annual cost of our membership dues was paid back many times over and in a variety of ways. My exposure to industry peers gave me access to their experience and expertise and many of those connections helped me make better decisions for our business. At both the state and national level industry associations provided technical training and certifications. They were a source of important environmental, safety and regulatory information that was critical to protecting my business. Associations represented ready mix concrete to all types of end users to protect existing markets and help build new ones, creating profit opportunities for everyone in the industry, including our business.

Associations provide services that benefit industry members in their daily operations as well

as benefits that are hard to measure on a day-to-day scale. Associations represent our industry to legislative bodies and regulatory agencies at the state and national level and their efforts were (and are) vital to continuing success of our industry. A single ‘Win’ by associations in these arenas means savings (or opportunities) for the industry that reach into the millions of dollars. And this type of work usually can’t be done by a single company, regardless of their size—associations are the only ones equipped to do this kind of critically important work.

### RECENT ASSOCIATION ‘WINS’ FOR THE CONCRETE INDUSTRY

NRMCA was actively involved on behalf of the concrete industry to help pass the FAST transportation bill that provides long-term (5 year) funding for infrastructure. The bill is expected to be signed this week (early December) and includes significant wins for the ready mix industry on drivers Hours of Service rules, plus a provision to allow military veterans to obtain CDL’s at age 18. TCA’s recent wins include changes to TDOT bridge deck air requirements and improvements in concrete testing procedures, and the prominent inclusion of permeable pavements (like pervious concrete) in the new state stormwater manual.

I have come to realize that the debt the concrete industry owes to associations goes beyond membership in state and national concrete associations. We also collectively owe a great debt to organizations like the American Concrete Institute

and ASTM International whose thousands of individual and organizational members invest a tremendous amount of time, effort and money to develop and maintain the crucial underpinnings that allow concrete to be specified, tested and installed on thousands of projects every single day.

While companies obviously have pragmatic reasons to invest time and resources in these organizations, the individuals who comprise the various committees and working groups devote huge amounts of personal time to insure that specifications and standards are fair to all and that they represent the best knowledge

and practices of the day. For most of those individuals, the direct payback to them or their company will never equal the direct cost of their participation.

Like those organizations who belong to and invest in their industry associations, the individuals who devote their time and passion to the often thankless task of creating and maintaining specifications and standards clearly understand what President Roosevelt was saying, and they are acting on what they believe to be the benefit of us all.

They are my kind of people... *Alan Sparkman*



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# BAD ASH FLOWABLE FILL

## INTRODUCTION

The old proverb states “You can’t make a silk purse from a sow’s ear.” However, recent graduate Sarah Dillon had considerable success using substandard materials in both her master’s and doctoral research (1, 2, 3, 4). The first author was inspired to see if performance requirements for flowable fill in the new Tennessee Department of Transportation (TDOT) Standard Specifications for Road and Bridge Construction (5) could be met with substandard materials.

## MATERIALS (SOW’S EAR)

Figure 1 shows fine aggregate washing as per ASTM C 117 (6). Table 1 shows average results from the triplicate washed sieve analysis (6, 7). Table 1 also shows TDOT specifications for flowable mortar aggregate (8), TDOT No. 10 coarse aggregate (screenings) specification (9), TDOT fine aggregate for concrete specification (8), and a typical middle Tennessee river sand gradation for comparison. The project screenings did meet TDOT specification for No. 10 coarse aggregate (screenings). However, the project screenings failed to meet the TDOT Specifications for fine aggregate for flowable mortar or concrete. The high fines content of the screenings, determined by the amount of material passing the No. 200 (0.075-mm) sieve, makes them undesirable for most applications and therefore underutilized.

Table 2 shows project fly ash chemical composition. Table 2 also shows ASTM C 618 requirements (10), AASHTO M 295 requirements (11), and a typical middle Tennessee Class F fly ash for comparison. TVA was contacted and requested to provide the highest loss-on-ignition (LOI) fly ash available. TVA provided a fly ash from the Colbert Plant in Northwestern Alabama that is reported to have an LOI that sometimes reaches 12%. The project fly ash failed to meet the ASTM or AASHTO specifications. The high LOI of the fly ash makes it unacceptable for most applications and is therefore underutilized (aka bad ash).

Other materials used that were not substandard included portland cement and water. Type I portland cement for the project was donated by the Tennessee Concrete Association. Local tap water was also used for all mixtures in the study.



Figure 1: Washing Screenings for Sieve Analysis

## PROCEDURE

### *TDOT Specification Selection*

Three types of controlled low-strength materials (CLSM) mixtures are specified by TDOT depending on the specific application: General Use Flowable Fill, Excavatable Flowable Fill (EFF), and Early Strength Flowable Fill (ESFF). The required proportions for the 2015 General Use Flowable Fill Specification are shown in Table 3. Table 4 shows property requirements for TDOT General Use CLSM. The General Use Property Requirements were chosen as the easiest of the three to meet with substandard materials.

The 24-hour maximum suitability for load application requirement ASTM D 6024 (12) presented a small problem since space or materials were not available for test trenches. However, previous Tennessee Technological University (TTU) research (13) showed that there was a good chance of passing the ball drop test if compressive strength was between 6 and 10-psi. Therefore, the research team assumed that there would be a very good chance of the mixture meeting the suitability for load application requirement if the compressive strength exceeded 10-psi.



**TABLE 1. AVERAGE RESULTS FROM WASHED SIEVE ANALYSIS**

Sieve Size	Sieve Size (mm)	Project Screenings Percent Passing	TDOT 903.01 Flowable Mortar Aggregate Specification	TDOT 903.22 No. 10 Coarse Aggregate (Screenings) Specification	Typical River Sand Percent Passing	TDOT 903.01 Fine Aggregate for Concrete Specification
0.5 in.	12.7	100	100	-	-	-
0.375 in.	9.5	100	-	100	100	100
No. 4	4.75	95	-	85-100	97	95-100
No. 8	2.36	53	-	-	91	-
No. 16	1.18	31	-	-	83	50-90
No. 30	0.6	25	-	-	65	-
No. 50	0.3	23	-	-	9	5-30
No. 100	0.15	23	-	10-30	1	0-10
No. 200	0.075	23	0-20	-	0.3	0-3

**TABLE 2. CLASS F FLY ASH CHEMICAL COMPOSITION**

Component	Bad Ash Percent Composition	Typical Tennessee Class F Fly Ash Percent Composition	ASTM C 618-08a Requirements	AASHTO M 295-07 Requirements
Silicon Dioxide	47.5	47.6	-	-
Aluminum Oxide	21.3	18.8	-	-
Iron Oxide	8.7	17.3	-	-
SiO <sub>2</sub> + Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub>	77.5	83.8	70% minimum	70% minimum
Calcium Oxide	6.8	7.9	-	-
Magnesium Oxide	2.4	1.0	-	-
Sulfur Trioxide	0	2.4	5% maximum	5% maximum
Moisture Content	26.0	0.1	3% maximum	3% maximum
Alkalis as Na <sub>2</sub> O	1.3	0.8	-	1.5% maximum
Loss-on-Ignition	11.1	1.0	6% maximum	5% maximum

**TABLE 3. 2015 TDOT 204.06B GENERAL USE FLOWABLE FILL PROPORTIONS**

Component	Amount
Portland Cement, Type 1	100 lbs.
Fly Ash, Class C of F	250 lbs. minimum
Fine Aggregate	2800 lbs.
Water	60 gallons (approximate)

**TABLE 4. 2015 TDOT 204.06B GENERAL USE FLOWABLE FILL PROPERTY REQUIREMENTS**

Property	General Use Flowable Fill
Consistency by Inverted Slump Flow (inches)	15 minimum
Load Application by ASTM D6024 Ball Drop (hours)	24 maximum

Continued from page 8—

## Bad Ash Flowable Fill

by L. K. Crouch, James Locum, Caleb Smith, Blakeslee Eagan, Sarah Dillon, Daniel Badoe and Heather P. Hall

### *Bad Ash Flowable Fill (BAFF) Mixture Designs*

Table 5 shows proportions of the mixtures used in this study. Both mixtures were designed by trial batching. The mixture designs should be considered approximate since the fly ash moisture content (added at the facility to minimize wind erosion and transport) probably varied by location in the sample and over time. Percent paste values in the table were calculated as the sum of the volumes of portland cement, fly ash, and water by total mixture volume expressed as a percent.

### *Mixing, Sample Fabrication, and Testing*

Ten 0.55-cubic foot validation batches of each mixture were produced in a 1-cubic foot electric mixer. Material addition and mixing procedure were as per ASTM C 192 (14). Figure 2 shows the addition of the portland cement and bad ash to the mixture. The TDOT inverted slump flow test was performed on each batch. Figure 3 shows the inverted slump cone full, lifting the inverted slump cone, and measurement of the resulting patty.

Seven 4x8-inch cardboard cylinders were fabricated from each batch of BAFF as per ASTM D4832 (15). Only six cylinders (three per testing date) were required. However, an extra cylinder was made since demolding at 24-hours can prove challenging. Three cylinders were tested at 24-hours (as a substitute for suitability for load application) and three cylinders were tested at 28 days. The 28-day compressive strength test is not required by TDOT General Use CLSM Specifications but might provide insight into the later possibility of excavatability. The cylinders were tested in accordance with ASTM D 4832 with the following exception: TDOT preferred wet suit neoprene in steel retainers was used for capping. Compressive strength testing is shown in Figure 4.



**Figure 2: Loading PC and Bad Ash into the Mixer**



**Figure 3: Inverted Slump Flow Testing of Bad Ash Flowable Fill**



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**TABLE 5. BAD ASH FLOWABLE FILL MIXTURE DESIGNS**

Component	General Use BAFF	Lower PC BAFF
Type I PC (dry lbs./CY)	104	62
Bad Ash (wet lbs./CY)	466	455
Screenings SSD (lbs./CY)	2517	2596
Water (lbs./CY)	466	455
Total Cementing Materials (dry lbs./CY)	477	426
Percent Paste	43.9	42.2

**TABLE 6. GENERAL USE BAD ASH FLOWABLE FILL TEST RESULTS**

Batch	TDOT Inverted Slump Flow (inches)	24-hour Mean Compressive Strength (psi)	28-day Mean Compressive Strength (psi)
1	18.50	18	283
2	18.25	18	261
3	18.75	18	283
4	17.75	21	305
5	18.75	20	298
6	18.50	20	305
7	18.75	20	340
8	18.75	20	324
9	18.75	19	301
10	19.25	18	303
Mean	18.6	19.2	300.3
Range	1.5	3	79
Std. Dev.	0.40	1.14	21.95
COV (%)	2.1	5.9	7.3

Continued from page 10—

## Bad Ash Flowable Fill

by L. K. Crouch, James Locum, Caleb Smith, Blakeslee Eagan, Sarah Dillon, Daniel Badoe and Heather P. Hall



Figure 4: Compression Testing of Bad Ash Flowable Fill

### RESULTS (SILK PURSE?)

Table 6 shows results for inverted slump flow, 24-hour compressive strength, and 28-day compressive strength for General Use BAFF. Similarly, Table 7 shows test results for Lower PC BAFF. ASTM D 4832-07 states that no precision information is currently available since a ten laboratory test is either not feasible or too expensive. These results show that the estimated coefficient of variation (COV) for each investigated property of the General Use Bad Ash Flowable Fill was below 8% while those for the Lower PC Bad Ash Flowable Fill were below 9%. This suggests that for both mixtures, the sample values for each property and for each mixture were clustered closely about the mean value. In particular, the estimated COV for the Inverted Slump Flow for both mixtures showed the lowest relative dispersion of the three properties for which COVs were determined.

### ANALYSIS

TDOT's requirement on the Inverted Slump Flow for Generable Flowable Fill, as stated earlier in Table 4, is a minimum of 15 inches. Both mixtures had mean Inverted Slump Flows that were significantly greater than the 15-inch minimum at the 5 percent level of significance.

Because of the findings of earlier TTU research (13) which showed that there was a good chance of passing the ball drop test if the 24-hour mean compressive strength was between 6 and 10-psi, a statistical test was conducted to determine whether the 24-hour mean compressive strength of the two mixes exceeded 10 psi. The results showed both mixtures had a 24-hour mean strength that significantly exceeded 10 psi at the 5 percent level of significance.

### OBSERVATIONS (NO FIELD DATA FOR CONCLUSIONS)

Based on the limited data available from this preliminary study, the following observations are offered:

1. Bad ash (substandard fly ash) and screenings can be used in flowable fill mixtures to meet the 2015 TDOT 204.06B General Use Flowable Fill Specification for inverted slump cone flow.
2. Bad ash (substandard fly ash) and screenings can be used in flowable fill mixtures that have a good chance of meeting the 2015 TDOT 204.06B General Use Flowable Fill Specification for suitability for load application.
3. Bad ash (substandard fly ash) and screenings can be economically attractive if the ready mix producer is located close to sources for these materials.
4. The use of bad ash (substandard fly ash) and screenings in flowable fill mixtures is environmentally friendly (green) since these materials have very few (if any) current applications and tend to accumulate or require disposal and subsequent monitoring (bad ash).

### DISCLAIMER

The opinions expressed herein are those of the authors and not necessarily the opinions of the Tennessee Department of Transportation or the Tennessee Concrete Association.

### ACKNOWLEDGEMENTS

The authors wish to gratefully acknowledge the support of TVA, Denny Lind of BASF, and Alan Sparkman of the Tennessee Concrete Association for their extensive donations of materials to the project.

In addition, the authors would like to thank Mark Davis and Perry Melton for their patience and skill in fabrication, maintenance, and repair of the equipment.

Further, we appreciate the support of the TTU Department of Civil and Environmental Engineering.

**TABLE 7. LOWER PC BAD ASH FLOWABLE FILL TEST RESULTS**

Batch	TDOT Inverted Slump Flow (inches)	24-hour Mean Compressive Strength (psi)	28-day Mean Compressive Strength (psi)
1	17.50	17	135
2	18.00	19	135
3	18.25	17	126
4	18.50	19	144
5	18.25	16	137
6	17.75	19	154
7	17.50	20	162
8	17.75	19	161
9	18.00	19	145
10	18.75	16	139
Mean	18.0	18.1	143.8
Range	1.125	4	36
Std. Dev.	0.42	1.45	11.90
COV (%)	2.3	8.0	8.3



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## Bad Ash Flowable Fill

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ASTM D 4832-10, “Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders<sup>1</sup>,” **2012 Annual Book of ASTM Standards**, V.04.08, ASTM, West Conshohocken, PA, 2012, pp. 958-963.

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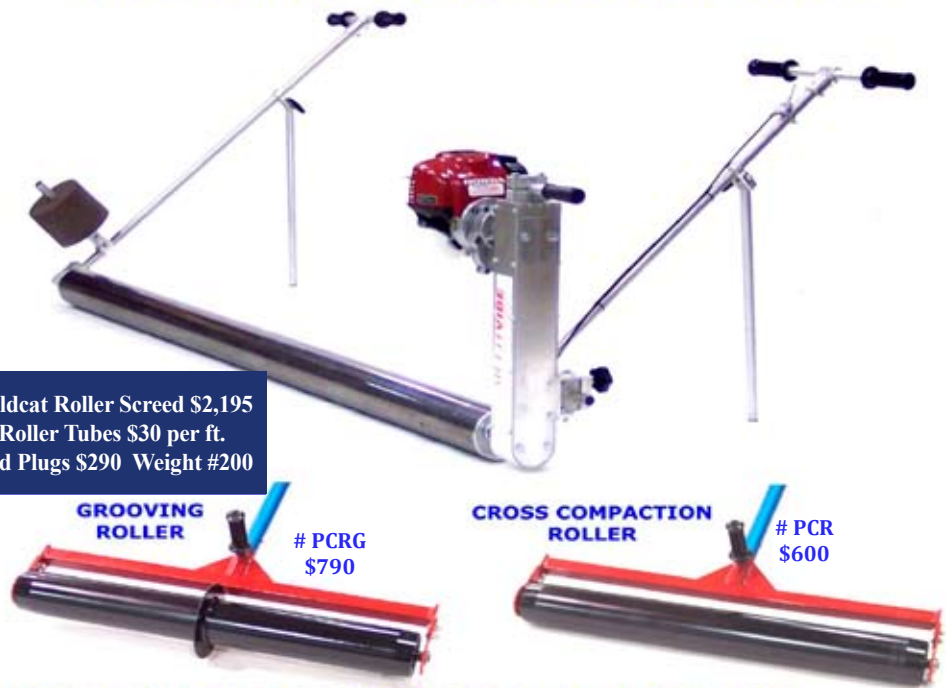


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# Luring Today's Workforce: Catching & Keeping the Best

TENNESSEE  
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ASSOCIATION

**2016 ANNUAL  
CONVENTION**

Franklin, TN

Seminars  
Awards  
Luncheon  
Networking  
Exhibits

February 17-19

Marriott Franklin Cool Springs



### Millennials in the Workforce

Cara Silletto will help us understand how to attract people to power our workforce and keep them.



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### Fuel Tax & Infrastructure Funding

**Alan Sparkman, Executive Director TCA**

Where is the Funding? Alan gives an update on Tennessee's infrastructure & what our legislators are doing (or not) on this important issue.

### Convention Schedule of Events

#### WEDNESDAY, FEBRUARY 17

Eats & Drinks in the Bar - 5:30pm

#### THURSDAY, FEBRUARY 18

Registration opens - 7:30am

Annual Membership Meeting - 8:00am

Fuel Tax & Infrastructure Funding - 8:15am

CIM Program Update - 9:00am

Cyber Security - 9:45am

NRMCA Update - 10:45am

Concrete Excellence Awards Luncheon - 11:30am

Millennials in the Workforce - 1:30pm

AFTER PARTY - 5:00pm

#### FRIDAY, FEBRUARY 19

Board Meeting & Breakfast - 8:00am

Presenting  
Sponsors



Registration Form [www.tnconcrete.org](http://www.tnconcrete.org)

Tennessee Concrete Association (615) 360-7393



# 2016 ANNUAL CONVENTION

"Luring Today's Workforce: Catching and Keeping the Best"

February 17-18, 2016

Marriott Franklin Cool Springs

Registration  
Form

Tennessee  
Concrete  
Association



<b>Company:</b>	<b>Contact:</b>		
<b>Address:</b>	<b>City:</b>	<b>State:</b>	<b>Zip:</b>
<b>Phone:</b>	<b>Email:</b>		

List the contact person's email in the box above for confirmation of registration .

List all registrants names exactly as you would like them to appear on the name badges.

**Meal Functions:** For accurate meal function counts, write # of individuals attending each meal function.

**Emergency Contact Information:** Please list an emergency contact and phone number that is accessible 24 hours a day for each registrant.

<b>Attendee(s):</b>	<b>Title:</b>
<b>Email:</b>	<b>Special Diet/Allergies:</b>
<b>Emergency Contact Name:</b>	<b>Phone:</b>
<b>Number attending Meal Functions (for food count):</b>	
<b>Wed. Eats &amp; Drinks:</b>	<b>Thur. Luncheon:</b>
	<b>Thur. After Party</b>
	<b>Fri. Board Brkfst &amp; Lunch:</b>

## REGISTRATION FEES:

Regular Fees apply until Friday, February 5, 2016. \$50 late fee after Feb.5.

**Attendee Registration** includes Eats & Drinks on Wednesday evening and ALL DAY Thursday including Awards Luncheon.

**Additional Concrete Excellence Awards Luncheon tickets** may be purchased for **Concrete Excellence Award winners only**.

**Contractor Registration** includes the Awards Luncheon & afternoon session.

**Exhibitor/After Party Sponsor:** Exhibit during convention and host the After Party to provide a place to build new connections & reconnect with old friends in a relaxed lounge atmosphere.

<u>Registration Category:</u>	<u>Reg. Fee</u>	<u>Late Fee</u>	<u>#Attending</u>	<u>TOTAL DUE</u>
Attendee Registration:	\$495	\$550		\$
Award Winner Lunch Ticket:	\$125	\$150		\$
Contractor Registration:	\$225	\$245		\$
Exhibitor(After Party Sponsor):	\$1250	\$1300		\$
<b>GRAND TOTAL</b>				<b>\$</b>

**Membership Meeting:** The annual membership meeting will take place on Thursday, February 18, 2016 at 7:30am at the Marriott Franklin Cool Springs.

### Brief Schedule of Events:

**Wednesday, February 17 @ 5:30pm - Eats & Drinks**

**Thursday, February 18**

7:30 am - Registration Opens

8:00 am - Annual Membership Meeting

8:15 am-11:30 am - Seminars

11:35-1:15 pm - Concrete Excellence Awards Luncheon

1:30-4:30 pm Keynote Address, "Millennials In the Workplace"

5:00-6:30 pm - After Party

**Friday, February 19@ 8:00am - Board Meeting & Breakfast**

### METHOD OF PAYMENT:

CHECK  VISA  M/C  AMEX

Name on CC: \_\_\_\_\_

CC Number: \_\_\_\_\_

Exp. Date: \_\_\_\_\_ CVV: \_\_\_\_\_

Email for receipt: \_\_\_\_\_

### CANCELLATIONS:

To cancel your registration, please notify TCA by Friday, Feb. 5. Cancellations and no shows after this date are nonrefundable due to fees already incurred by the association.

### HOTEL RESERVATIONS:

Hotel reservations can be made by contacting the Marriott Franklin Cool Springs at 1-888-403-6772 and ask to be included in the Tennessee Concrete Association room block, code TN Concrete Assn. The room rate is \$163/night plus applicable taxes and fees. Rates are guaranteed until January 27, 2016 or until the room block is full. Please call early to make your reservation.

**REMIT PAYMENT TO: TCA 705 Fort Negley Court, Nashville, TN 37203 or register online at [www.tnconcrete.org](http://www.tnconcrete.org)**

**Complete & Return to TCA via fax: (615-360-6670) or email [dsparkman@tnconcrete.org](mailto:dsparkman@tnconcrete.org)**

**Questions: Call Tennessee Concrete Association office (615) 360-7393.**

## CIM UPDATE

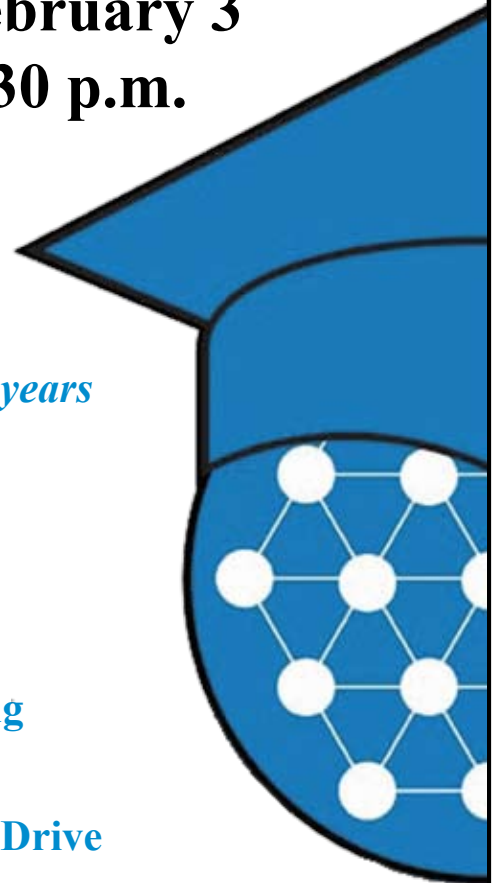
Come join MTSU CIM to celebrate our 20-year anniversary at World of Concrete. We will celebrate Wednesday evening, after the CIM auction, from 3:30-5:30 in LVCC N263. Dr. Brown will give a brief program update at 4:30 including some upcoming plans for growth as well as a new Patron's membership drive with new Patron's membership levels. Come sign up to be a CIM Patron and celebrate with us!

# CIM Alumni and Partner Reception at World of Concrete

**Wednesday, February 3  
3:30 p.m. to 5:30 p.m.  
LVCC, N263**

*Stop by to celebrate 20 years  
with MTSU CIM!*

**4:30 p.m. –  
Brief update, upcoming  
plans for growth, and  
Patron's Membership Drive**



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