

ACI Student Chapter Activities

Eastern Pennsylvania and Delaware Chapter – ACI Hosts Student Beam Competition

On April 1, 2017, the Eastern Pennsylvania and Delaware Chapter – ACI held its 32nd annual Student Beam Competition at Widener University in Chester, PA. Student teams from Lafayette College, New Jersey Institute of Technology (NJIT), Rowan University, and Widener University competed for the \$1500 prizes for the beams with the largest strength-to-weight ratio and the most accurate prediction of load and deflection.

Contest rules required the beams to fit into a 40 x 5.5 x 2.5 in. (1000 x 140 x 64 mm) envelope and be reinforced with at least one but no more than two steel No. 4 reinforcing bars. The concrete mixture could contain any nonmetallic aggregate or chemical admixture, but no cementitious materials other than portland cement, blended hydraulic cement, ground-granulated slag, fly ash, or silica fume. The use of chemical admixtures was optional. The beam could contain no more than 7.5 lb (3.4 kg) of cementitious material and no fibers of any kind were permitted. A “green concrete bonus” was applied for minimizing the amount of portland cement used.

The Widener team comprised of Megan Cullison, Crystal Hershey, Isaac Higgins, and Olivia Weaver (all sophomore civil engineering students) won the most accurate predictions

of load and deflection category. M. Nazieh Jilati is the Faculty Advisor. Their predictions were within 4.2% of test results. The NJIT team won the strength-to-weight category with a ratio of 141.6.

The students gain insights on the effects of tolerances in beam fabrication, as well as concrete mixture technology and structural design parameters. It is the mission of the chapter to challenge the ingenuity of the students and to foster communication and involvement among students, faculty, and industry. If your university would like to join this regional competition, contact Vicki Brown at Widener University at vlbrown@widener.edu.

USFQ Student Chapter – ACI Visits Subway Project in Ecuador

Students from Universidad San Francisco de Quito (USFQ), through the USFQ Student Chapter – ACI, visited the Metro de Quito Project on May 2, 2017. This \$2.5 billion project will provide the city of Quito with a subway system of 22 km (13.5 miles) of tunnels and 15 underground stations for an estimated 400,000 travelers a day when inaugurated in 2021. Students visited the Solanda station, located south of the city.

Students observed the station construction and assembly of



At the Eastern Pennsylvania and Delaware Chapter – ACI 32nd annual Student Beam Competition



Students from USFQ visited the Metro de Quito Project

two of three tunnel boring machines (TBMs) to be used in the project. The TBMs were named *La Carolina*, after an emblematic city park, and *Luz de America*, in honor of the city slogan “Quito Light of America.”

During this visit, students received important information from professionals about construction processes, concrete design methods, and details on the TBMs assembly process and operation.

The visit was part of the many activities that the USFQ Student Chapter – ACI organizes on a yearly basis to promote knowledge and interest in the civil engineering field and specifically on concrete construction, methods, and technology. Follow ACI USFQ on Facebook to learn more.

AASTMT Student Chapter – ACI FRC Bowling Ball Competition

The student chapter at the Arab Academy for Science, Technology and Maritime Transport (AASTMT) in Alexandria, Egypt, held its annual Fiber-Reinforced Concrete (FRC) Bowling Ball competition May 22, 2017. Six teams comprising three to five members participated and reached the final stage of the competition.

The winning teams were:

- First place—Hesham Ashraf Ragab Mohamed, Ahmed Mohamed Abdhamid, Mohamed Ahmed El Mortada, Mohaned Ibrahim abd El Ghafar, and Karim Sherif Nafie;
- Second place—Yasmeen Mohamed Abu Halima, Mennatulla Akram Abdelrahman, and Mennatullah Mohamed El-Boulaki; and
- Third place—Mohamed Ayman Bayoumi Mohamed, Muhammad Essam Kotb ElShaer, Ahmed Osama Hamed, Malek Moustafa Ahmed, and Ahmed Essam Elsayed Shabana.

The competition was judged by Nabil H. Al-Ashkar, Head of the Construction and Building Engineering Department; Wael Kamel, former Head of the Construction and Building Engineering Department; and Abdel-Aziz Farouk, Faculty Member of the Architecture and Environmental Design Department.



AASTMT Student Chapter – ACI FRC Bowling Ball Competition participants and organizers



FIU Student Chapter – ACI teams participated in the FC&PA Concrete Bowling Ball Competition

The winning teams were awarded certificates and the first-place team received a cash prize from the judges; Amr Ali, Dean of Faculty of Engineering and Technology; and Tareq Mostafa, Vice Dean of Faculty of Engineering and Technology.

The AASTMT Student Chapter – ACI has 34 members who meet once every month, supervised by Al-Ashkar and Mostafa Nassar Mahmoud, Student Chapter President. Visit ACI AASTMT on Facebook to learn more.

FIU Student Chapter – ACI Teams Place in Concrete Bowling Ball Competition

Florida International University’s (FIU) three teams placed in the top three spots at the 2017 Florida Concrete & Products Association’s (FC&PA) fourth annual Concrete Bowling Ball Competition in Orlando, FL, in April 2017.

Eleven teams from seven universities in Florida competed, and FIU’s School of Construction team took first place and the two teams from the FIU Student Chapter – ACI finished second and third.

The objective of the competition was to demonstrate the effect of fibers in reinforced concrete, to gain experience in forming and fabricating a concrete fiber-reinforced element, and to encourage creativity in engineering design and analysis. The students learned with a hands-on approach how to select materials to meet weight limits, strength and toughness of concrete, how to cast a round object, and how to achieve uniform consolidation to ensure a straight roll.

The two teams of civil engineering students from the FIU



Ewy



Andrus



Abbott

Student Chapter – ACI overcame the odds as first-time competitors and late registrants to the Concrete Bowling Competition. ACI Team 1 won the second-place prize of \$1000 and ACI Team 2 took the third-place prize of \$750. The students have come a long way since the ACI student chapter was re-established in Fall 2016 with Alfredo Falcon, President, and David Garber, Faculty Advisor.

ACI Team 1 was comprised of Jorge Rubio (Captain), Saivy Nasser, Maria Corbeira, Alina Escoto, and Alfredo Falcon. ACI Team 2 was comprised of Michelle Garcia (Captain), Oscar Vilchez, David Rojas, Greg Arciniega, and Juan Pablo Gonzalez.

The FIU Student Chapter – ACI thanks Edgar Polo and the Department of Civil and Environmental Engineering for their continued support.

Kansas Chapter – ACI Awards \$6000 in Scholarships

Every year, the Kansas Chapter – ACI raises money through its golf tournament to provide funds for local university students with an interest in the concrete industry. The students are required to apply with a short essay. The recent awardees who received \$2000 included:

- Tiara Ewy, Pittsburg State University, Construction Engineering Technology; essay: “I am a good candidate for this award because of my love for concrete. After graduation, I want to become a project manager/estimator in commercial concrete. I am fascinated with the importance and versatility of concrete in a project. Concrete provides the base for a structure in any project but can also be used in a variety of other ways such as building structure, bridges, or dams.”;
- Becca Andrus, Kansas State University, Civil Engineering; essay: “I understand that ACI Kansas is an organization that is passionate about volunteer work. I want to dedicate my entire career to this initiative. I am willing to give up a large salary to work for a nonprofit organization. By helping me obtain my undergraduate degree, you will help citizens of third world countries gain access to their most basic needs.”; and
- Reid Abbott, University of Kansas, Architectural Engineering; essay: “I love construction. While as an engineer, I may deal with a lot more of the design work and engineering, I will never stop appreciating a hard day’s work, the diversity on a jobsite, and most importantly

seeing the results of my work at the end of every day. I know for a fact that I want to build for the rest of my life and this award would help me accomplish my goals and dreams.”

Applications are typically due March 1 of each year. To learn more about the Kansas Chapter – ACI, visit www.ACIKansas.org or contact Bill Beggs, Scholarship Committee Chair, at bill.beggs@martinmarietta.com.

Maryland and National Capital Chapters – ACI Award \$55,000 in Scholarships

In 2015, the Maryland Chapter – ACI decided to revamp its student scholarship program. This was driven by a desire to interest young people in the field of engineering, to educate future engineers in the science of concrete, and to develop relationships with graduating engineers who might want to join our industry.

The plan was to develop a competition between local universities that would drive the students to learn some basic concrete principles. Scholarships would be awarded based on the student’s grasp of these principles, on their enthusiasm, work ethic, and school spirit. To fund the scholarships, \$25,000 was set aside. Participating schools would be required to start ACI student chapters.

For the competition, students were provided with a three-point curve that they used to develop a mixture design to meet a specified strength. They were taught the basics of running a trial batch and trained in all the ACI Concrete Laboratory Testing Technician – Level 1 tests for plastic concrete—temperature, air, slump, unit weight, and molding cylinders. Lectures focused on concrete design, strength, and durability were provided.

The National Ready Mixed Concrete Association (NRMCA) allowed the use of its lab for the test day and Stuart Sherman, NRMCA’s Lab Manager, helped with the judging. The University of Maryland fielded a team and Morgan State University fielded two teams of five people each. The winning team for 2016, Morgan State University’s “Morgan Nation,” came within 20 psi (0.14 MPa) of the required strength. The trophy “The Maryland Cup,” a chrome-plated slump cone atop a mahogany base, was awarded. The members of the Maryland Chapter – ACI were so impressed with the students from both schools that it increased the scholarship amount to \$38,000.

Earlier this year, the Maryland Chapter – ACI and the National Capital Chapter – ACI decided to combine resources to promote the competition. Yvonne Nelson, National Capital Chapter – ACI President, helped with the judging and the National Capital Chapter – ACI added \$10,000 to the scholarship fund. The Maryland Chapter – ACI voted to award \$35,000 and then added an additional \$10,000 after witnessing the superior caliber of the students in the competition (total scholarship award was \$55,000).

This year, the University of Maryland fielded two teams, the “Diamondbacks” and the “Terps,” and Morgan State University came back with the “Morgan Nation” and the



Morgan State University Student Chapter – ACI members Emanuel Chinaka, Courtney Russell, Shane Mitchell, Dmitri Clemons (deceased), and Monique Hart won The Maryland Cup in 2016



Nebraska Chapter – ACI scholarship winners Mohammed Sadegh Amrollahi (left) and Reza Behzadpour (right), with Chapter Officer Jereme Montgomery

“Morgan Bears.” All four teams were extremely strong and, at the end of the day, Maryland’s “Diamondbacks” won the cup for their university.

For the past 3 years, the Maryland Chapter – ACI has also awarded scholarship money to the Roland Park Country School (RPCS) as part of an outreach to high schools. This school performs research projects in concrete and the top students are awarded scholarships. The award is called the “Miran Award of Excellence,” after Blaire Miran, who was the first recipient. Miran is now a freshman at Villanova University and is assisting in research on deflection of fiber-reinforced polymer concrete sections. This year, seven students from RPCS received awards.

Putting this program together was one of the hardest things the chapter has ever done, but it was also one of the most rewarding. Next year, Howard University has expressed interest in participating and Johns Hopkins University may be interested as well.

On a sad note, Dmitri Clemons, one of the founding members of Morgan’s Student Chapter – ACI and a member of the 2016 winning team, passed away at the beginning of the school year. He had a great sense of humor and an incredible competitive spirit. He would have made a great engineer and we are shocked and saddened at his passing.

Nebraska Chapter – ACI 2017 Richard T. DeLorm Scholarships

Each year, the Nebraska Chapter – ACI provides scholarships to deserving students based on their interest and ability in concrete design, construction, and materials. The scholarships, named in recognition of Nebraska Chapter retired Executive Secretary Richard T. “Dick” DeLorm, are awarded at the annual Awards of Excellence Banquet in January. This year, the scholarship committee awarded two \$1500 scholarships.

Mohammed Sadegh Amrollahi is a graduate student at the University of Nebraska working on his PhD in construction

engineering and management. He received his BS in civil engineering and his MS in environmental engineering while studying in Iran. Amrollahi has displayed his involvement and leadership by being active with student groups and organizations. He is a graduate teaching assistant for reinforced concrete design and a graduate research assistant for research on the assessment of inverted-T bridge systems.

Reza Behzadpour is a graduate student at the University of Nebraska working toward his PhD in civil engineering. He received his bachelor’s and master’s degrees in civil engineering with a major in materials with an emphasis on concrete and a minor in geotechnical. Behzadpour believes a successful engineer should have a solid understanding of material properties and be able to apply this knowledge in a design to satisfy both mechanical and construction requirements. His current research includes self-consolidating concrete and using fiber-reinforced concrete for bridge decks.

Learn more at www.ACINebraska.org.

2017 ACI Student Concrete Cylinder Competition in Qatar

For the first time in Qatar, ACTS and the Qatar Chapter – ACI organized a Student Concrete Cylinder Competition. The contest attracted 10 competing teams from Qatar University. Supported by Chryso and United Readymix, the winning prize was a trip to attend The ACI Concrete Convention and Exposition – Fall 2017 in Anaheim, CA. The team of Rabeih Almashhadani and Mohamed Abdelsalam emerged as the winning duo. The announcement was made at the Future Concrete conference in Doha, a premier annual learning event for the construction industry organized by ACTS.

Universidad de Sonora Student Chapter – ACI Concrete Plant Tour

On April 20, 2017, the Universidad de Sonora in Mexico conducted the first edition of the “Day of Concrete” in

association with the Department of Civil Engineering and Mines. Students participated in several activities related to construction materials. Event sponsors included ACC Lab, Holcim México, SIKA, Concretos Pitic Cabox, Ingeniería Benesto Lespi, Northeast Mexico Chapter – ACI, and the university community.

The tour started with a visit to the Trabis concrete plant with Oscar Ramirez Arvizu after a technical conference on the “Use of Additives” presented by Erik Colonel. A presentation on the “Manufacture of Cement, Types, and Their Secrets” was given by Juan Carlos Rocha Romero, President of the Northeast Mexico Chapter – ACI. The day continued with a workshop on quality testing of concrete by Jesus Humberto Martinez, Benesto Engineering. At the end of the workshop, students interacted and networked with concrete professionals, including Cain Navarro, Manuel Guereña, Fernando García, and Manuel Ramirez Celaya.

Université Laval Student Chapter – ACI Conference on Concrete Expertise

The Université Laval Student Chapter – ACI hosted a conference day on concrete expertise on June 2, in Quebec City, QC, Canada. Shotcrete, standardization, and the development of new products for concrete were the topics presented at the event held in the collaboration with the Quebec and Eastern Ontario Chapter – ACI.

The event helped civil engineering students improve their knowledge about the state-of-the-art procedures and standards in concrete construction and repairs. The conference day also offered an opportunity for both students and professional engineers to meet and discuss their respective experiences. The event was significant for the Université Laval Student Chapter – ACI because it is the first major event held by the newly formed student chapter.

The conference started with Claude Bédard, President, Adjuvants Euclid Canada Inc., who presented a history review of the Canadian concrete standards CSA A23.1-A23.2 and his 25-year involvement on the CSA committee. Bédard shared his experience in the development of new admixtures and the process of implementation on the construction market.

Charles Hanskat, Executive Director of the American Shotcrete Association, introduced the audience to the general topic of shotcrete and its various fields of application, both structural and geotechnical. Then, more specific technical aspects were discussed with the presentation of “Guide to Fiber-Reinforced Shotcrete (ACI 506.1R)” and how it serves as a companion document to “Specification for Shotcrete (ACI 506.2).”

With two expert lecturers and about 40 students and professionals attending, the event was a successful first one according to Thomas Jacob-Vaillancourt, Student Chapter President. The student chapter aims to organize more events in the future to offer its members a deeper knowledge of practices and development in the field of concrete.



Presentation of the winning prize in the Qatar Chapter – ACI Student Concrete Cylinder Competition



Students from Universidad de Sonora at a lecture during “Day of Concrete”



Participants at the Université Laval Student Chapter – ACI conference

Recent Award-Winning Student Chapters



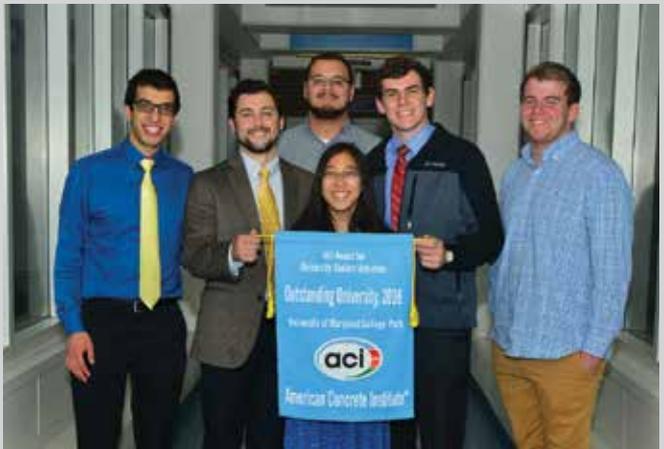
University of Victoria Student Chapter – ACI



University of North Carolina at Charlotte Student Chapter – ACI



University of Wisconsin Platteville Student Chapter – ACI



University of Maryland Student Chapter – ACI



Universidad Peruana de Ciencias Aplicadas Student Chapter – ACI