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## President's Message

### Pennsylvania Professional Engineer Licensure Renewal

As most of you know, in a couple of months the notices for Pennsylvania Professional Engineer Licensure renewal will be sent out. Licenses expire every odd numbered year on September 30<sup>th</sup>. With the renewal, the law requires the completion of 24 PDHs over the 2 year period as a condition for successful renewal. So, are you ready for renewal with at least 24 PDHs?



ASCE Central PA Section as well as ASCE national as an organization tries to provide for continuing education credits that are relevant and cost effective for members. Between the free (with membership) 5 webinars provided online on-demand from ASCE and the dinner meetings that the Section schedules, you can acquire up to 11 PDHs each year. Without too much effort, that is almost half of the PDHs needed for the Pennsylvania PE renewal cycle. There are also several additional opportunities at the Section level that provide PDH credits throughout the year.

I just want to highlight a few of those Section level opportunities. I won't get into the additional opportunities from ASCE national as there are plenty of emails (you can set your preferences for correspondence from ASCE national in the member section of the asce.org website) that extoll the virtues of the webinars and conferences that are available. At the Section level, besides the monthly dinner meetings, the technical groups provide free to members lunch and learn opportunities where a recorded webinar, live webinar, or live presentation is shown or presented that are worth 1.0 or 1.5 PDHs. These events are advertised through email announcements, on the Section website, and we try to mention them at each dinner meeting and section event.

This past January, and approximately every 18 months, the Central PA Geotechnical Conference was held in Hershey, PA. This day and a half conference, which next year will be the 30<sup>th</sup> time the conference will be held, is a great opportunity to not only discover the latest technologies and information in Geotechnical Engineering, but also earn several PDHs along the way.

New for this year, the Structural Engineering Institute – Central Pennsylvania Chapter (formerly named the Structural Technical Group of the Central PA Section) is hosting the 1<sup>st</sup> Annual SEI Central PA Chapter ½ Day Conference on Tuesday, May 16<sup>th</sup>. Additional information and registration links can be found at the Section website for this conference. Four (4) PDHs will be offered for this event.

I hope you take advantage of some of the PDHs offered by ASCE (section and national) to help fulfill the continuing education requirements for Pennsylvania PE license through the multiple forms of instruction provided.

## SECTION OFFICERS

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## WELCOME NEW MEMBERS

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Benjamin Hayes  
Jeffrey Bolze, PE  
Muxi You  
Andrew Malloy  
Erik Schroeder  
John Mullen, GIT  
Jessica Novinger

## March Dinner Meeting

*Submitted by Andrew Orlovsky, P.E., Environmental and Water Resources Chair*

On Wednesday, March 8, 2017, attendees gathered to hear Mr. Joseph V. Bellini, P.E. who presented on actions taken United States Nuclear Industry concerning protection of Nuclear Power Plants from Flooding. These actions were in response to the accident at the Fukushima Dai-ichi nuclear power plant in Japan, resulting from the March 11, 2011, Great Tohoku Earthquake and subsequent tsunami. The United States Nuclear Regulatory Commission established regulatory actions for all U.S. Nuclear Power Plants to inspect credited flood protection features and strategies, comprehensively reevaluate the possible flood-causing mechanisms, and assess impacts on the plant's strategy. The presentation consisted of an overview of the post-Fukushima Nuclear flooding program, the work that's been completed to date, and generic issues identified in the process.

Mr. Bellini is Vice President and Principal Water Resources Engineer at Aterra Solutions, a small-business firm located in the Philadelphia area, and has nearly three decades of experience specializing in severe flood analyses and modeling; dam and levee engineering and inspections; and probabilistic flood hazard studies. He has a BS in Civil Engineering at Penn State University, an MS in Civil/Water Resources Engineering at the University of Pittsburgh, and is an adjunct professor at Villanova University in the Civil and Environmental Engineering Department. Mr. Bellini is also an active participant on the Nuclear Energy Institute Flooding Task Force.

## 2017 ASCE National Fly-In Update

*Submitted by: Jason Bowes, P.E., Government Relations Committee Chair*

On March 15<sup>th</sup>, with Winter Storm Stella wreaking havoc along much of the Northeast, the 2017 American Society of Civil Engineers (ASCE) Legislative Fly-In was attended by over 200 ASCE Members representing 49 different states. Many of the attendees were impacted by the storm but still found a way to DC, a testament to their passion for advocacy concerning what they know best.

The 2017 Legislative Fly-in program was conducted on March 14-16, 2017, and featured a day and a half of in-depth briefing sessions on the recently released [2017 Infrastructure Report Card](#) and key legislative action in Congress, training on raising awareness and influencing elected leaders, networking with ASCE peers from across the country, a Younger Members Program, tips on continuing relationships with elected officials after returning home, and culminating in one-on-one meetings on Capitol Hill with members of Congress and their staff.



**Rep. David McKinley (R-WV), one of two P.E.'s in Congress, addresses the Fly-In attendees.**

The delegation from Pennsylvania included **Mr. Jason Bowes**, Central PA Section Government Relations Committee Chair and State Advocacy Captain; **Mr. Jesse Gormley**, Philadelphia Section Member; **Mr. Joseph Natale**, Philadelphia Section Member; **Ms. Adrienne Nikolic**, Philadelphia Section Member; **Mr. John Caperilla**, Lehigh Valley Section Government Relations Committee Chair and **Mr. Gregory Scott**, Pittsburgh Section Government Relations Committee Chair and Federal Advocacy Captain.

The ASCE Government Relations staff scheduled meetings for each of the attendees with their Senate and Congressional Representatives within a short window on Wednesday afternoon. The meetings were very productive and informative and lasted 15 to 30 minutes each. A leave behind packet was given to the staff containing an overview of current issues, so that they could review it with the Senator or Representative.

After being dropped off at Capitol Hill, team Pennsylvania was off to the races to meet with every Senator and Representative on our list. As the afternoon progressed, the group had an opportunity to engage in spirited and encouraging discussions with staff and Representatives from their home Districts as well as those identified as staff of 'key' Representatives who serve on infrastructure related and appropriations committees.

Most discussions began with a brief overview of the results and conclusions of the [2017 Infrastructure Report Card](#), which assigned America an overall grade of a **D+**, unchanged from 2013 and indicating the continuing needs for infrastructure investment. The Report highlighted the benefits seen in seven categories where investments were made, three categories that continued to fall short, resulting in a lowering of grades and the remaining categories just holding steady. The focus of all discussions was the need for funding, consistent and sufficient, requiring bold leadership from all.

One of the key items discussed were the FY17 and FY18 Spending/Appropriations Bills so that the [FAST Act's](#) increased funding can take effect during this fiscal year and next. Congress passed the five-year surface transportation act in December 2015 and included an increase in funding to help improve the nation's highways, bridges and transit systems. Most of the legislators were on board with the appropriations,

however there seemed to be a lack of commitment without knowing what the new Administration's Budget would contain. If a Continuing Resolution (CR) is passed, then Pennsylvania will miss out on over \$115 million dollars for FY17 alone due to the lack of a Fast ACT Appropriations Bill ([\\$1.58 billion up to \\$1.69 billion](#)).

Additionally, the team discussed several water issues with the Representatives and staffers that included the **Clean Water State Revolving Fund (SRF) and the Drinking Water State Revolving Fund**. We asked the Representatives and Senators to reauthorize the Clean Water and Drinking Water SRF's which hasn't been done since 1990 and 1994. With most of America's drinking water and wastewater infrastructure in need of repair and many areas dependent on these funds, the team advocated for both SRF's to be tripled in appropriation from \$1.39 Billion to \$4.17 Billion for the Clean Water SRF and \$863 million to \$2.58 billion for the Drinking Water SRF in accordance with President Trump's commitment to triple the SRF's.

In 2016 after years of work the Water Infrastructure Investment for the Nation (WIIN) Act passed through Congress and was signed by the President. WIIN supported previous pieces of legislation but Congress has yet to appropriate the promised funding in any of them. In 2014, Congress reauthorized the **National Dam Safety Program (NDSP)** in the Water Resources Reform and Development Act (WRRDA) and established new High Hazard Dam Rehabilitation Program to provide grants to high hazard non-federal dam rehab repair or renewal. The NDSP program is authorized at \$13.9 million a year until 2019 and the federal rehab program is authorized at \$445 million over 10 years though neither have received any funding. In addition to dams, the team discussed the **Levee Safety Program**. With the WRDDA Act of 2014, Congress established a new levee program to promote consistent safety standards, create levee guideline, and provide funding assistance to the state for establishing participating levee safety programs. The program is authorized for \$395 million dollars over 5 years however it has not received any appropriations for funding.

Lastly, with the push for tax reform and the discussion that is forthcoming including all tax exemptions, ASCE took the opportunity to remind legislators that tax-exempt municipal bonds are often relied upon for municipalities to complete infrastructure projects. The team discussed the importance of maintaining their tax-exempt status as just one of many ways to trim our infrastructure deficit.

This year will be a busy one for the ASCE PA Government Relations team, with a State Infrastructure Day (Fly-In) scheduled for May 9<sup>th</sup> and efforts for the *2018 Report Card for Pennsylvania's Infrastructure* kicking off in the fall. If you are interested in participating in either of these events, please contact the Central PA Section Government Relations Committee Chair, Jason Bowes, at [jbowes@gpinet.com](mailto:jbowes@gpinet.com).



**Advocacy panel discussion during the Younger Members program on March 14<sup>th</sup>.**

For more information concerning the ASCE National Fly-In please visit <http://www.asce.org/legislative-fly-in/>. Also, consider becoming a Key Contact at <http://www.asce.org/keycontacts/> to stay engaged with advocating for infrastructure and public policy.



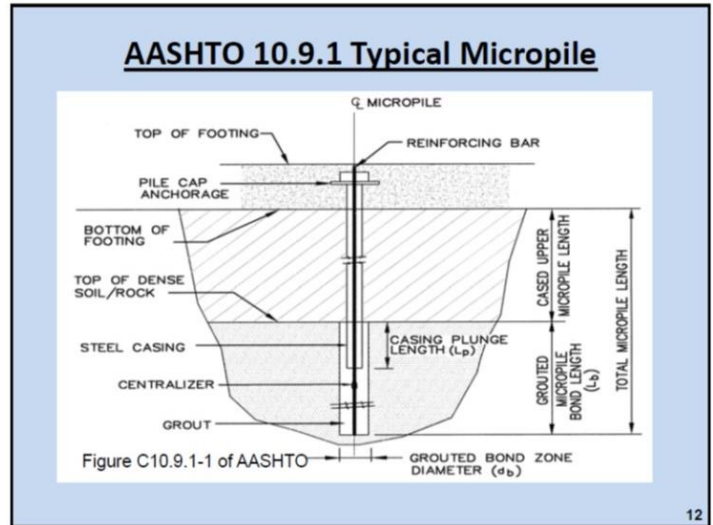
## G-I Susquehanna Valley Chapter News

Submitted By: Thomas J. Imholte, P.E., Geotechnical Co-Chair

On March 27, 2017 the G-I Susquehanna Valley Chapter hosted a webinar on LRFD Micropile Foundation Design. Nearly 30 engineers and geologists attended the event that was held at Gannett Fleming in Camp Hill, PA. The presenter was Jerry DiMaggio – retired Principal Bridge Engineer and Geotechnical and National Program Manager with the U.S. DOT.

Mr. DiMaggio’s presentation was very informative with extensive references for further study if desired by the attendees. He began with the basics as illustrated below to get everyone off on the right foot.

Mr. DiMaggio also discussed the pros and cons regarding the use of micropiles as a foundation alternative. The most notable pros include the ability to be installed in difficult subsurface conditions such



as running sands or low headroom conditions. The most notable cons being their high slenderness ratio and lateral capacity limitations for vertical micropiles. He also provided practical micropile applications for a variety of transportation foundations such as bridge foundations, support of existing footings during soft ground tunneling operations, soundwall foundations and slope stabilization.

Mr. DiMaggio’s presentation continued with a lengthy discussion on how to determine both the structural and geotechnical resistance of micropiles including extensive citing of where to find the correct reduction factors within the AASHTO LRFD Bridge Design Specifications. He also noted that of all the various design analysis software options, FB Pier gives the best micropile group settlement



results.

## Engineers Week at the Whitaker Center

Submitted by Bill Kingston, PE, CFM, Younger Member Group President

On February 18<sup>th</sup> and 19<sup>th</sup>, the Whitaker Center's Harsco Science Center hosted their annual Engineers Week Event to introduce engineering concepts to school age children and show them how math and science can be applied to solving real life problems. Each year, members of several local engineering societies get together and set up activities to supplement the science center's existing permanent displays. This year, participating organizations included the *American Society of Civil Engineers (ASCE)*, the American Institute of Chemical Engineers (AIChE), the American Society of Highway Engineers (ASHE), the Institute of Electrical and Electronics Engineers (IEEE), the Institute of Packaging Professionals (IoPP), Women's Transportation Seminar (WTS), and the American Society of Mechanical Engineers (ASME).

This year's event coincided with the release of the IMAX film *Dream Big: Engineering Our World*, which the Center debuted on the 18<sup>th</sup>. ASCE organized a sponsorship of the film with the Center and the first 250 kids who completed at least four of the engineering activities were given a free voucher to view the film, which will be running at the Center through June.

Several members of the ASCE Central PA Section volunteered to help educate children and their parents about the engineering of structures. Volunteers helped facilitate two activities. The first involved constructing stacked platforms out of Dixie cups and cardboard squares. The activity aimed to convey the concept of weight distribution and about how something as flimsy as a paper cup could be used to hold a person's weight. Participants laid out arrays of cups on the cardboard squares and then stood on their platforms to load test them. Participants went through several rounds, each one involving the removal of more cups until the platforms failed. They got to experience just how few cups were necessary to actually hold their weight, if arranged correctly.



The second activity involved constructing towers out of spaghetti, masking tape, string, and marshmallows, with the goal of building as high as possible while being able to support the weight of a large marshmallow on top without buckling. Both children and parents had their go at tower construction, with the highest reaching over 42 inches!

Many thanks to all those who helped out and made it such a great event! Be on the lookout for other volunteering activities in the coming year!



**Michelle Madzelan, PE, ASCE Central PA Section Past-President & Director of Member Services (Top Photo), and her daughter Emily Madzelan (Middle Photo) helping to teach participants about the engineering of structures.**



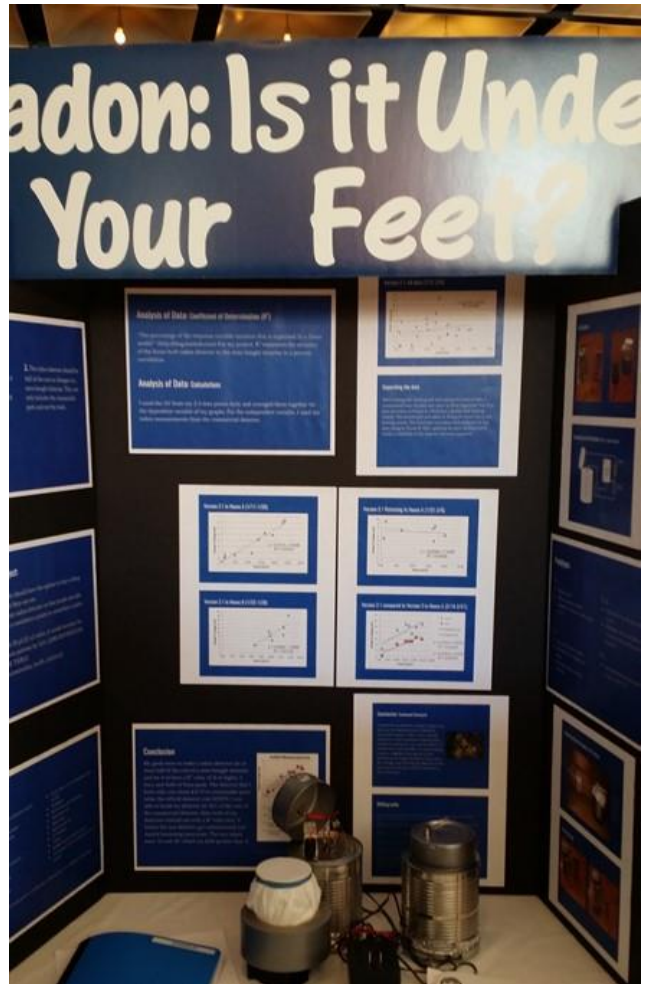
## 2017 Capital Area Science and Engineering Fair

Submitted by Bruce Stegman, PE

The 2017 Capital Area Science and Engineering Fair (CASEF) was conducted at the Whitaker Center on Thursday March 23. There were over 350 projects, and 450 students. CASEF now encompasses middle schools, junior and senior high schools from the Maryland border to the New York border. There were 150 judges. Of the junior engineering entrees and senior engineering entrees, four were considered particularly outstanding from a civil engineering perspective. These were:

### Junior First Place \$200 - Radon: Is it Under Your Feet? - Engineering Alan Everett, Greenwood MS/HS

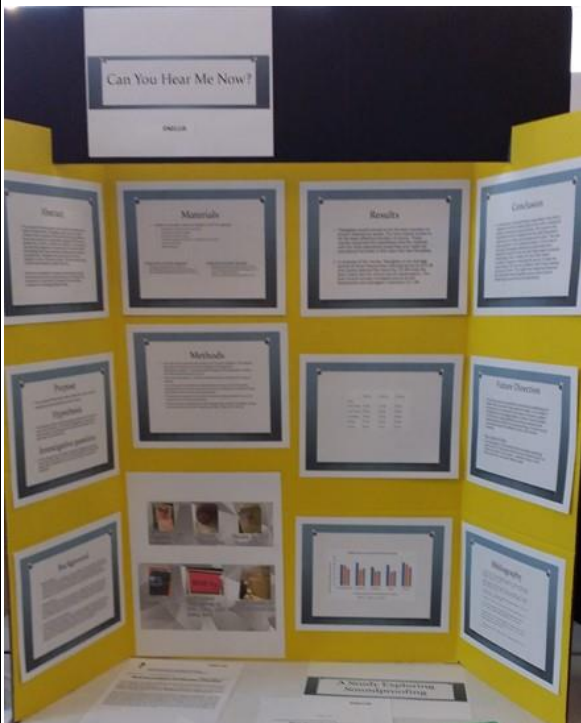
This project goal was to build an accurate radon detector for a lower cost than a store-bought detector. Accuracy being defined as a coefficient of determination value of 0.8 or higher compared to a store-bought detector. The radon detector was built using a transistor with an extended base lead through the bottom of a large opened can. This part measures the radiation from the collector, which pulls the radon from the air. For the collector, a fan was attached to a soup can with some tissues on the end to collect household radon and its decay products. Initial data analysis, the data as a whole had almost no correlation. But when split into



three different groups based on certain events, the first group had an  $r^2$  (coefficient of determination) value of 0.92, the second had an  $r^2$  of 0.67. The first group was at a house with moderate radon levels. The second group was at a dusty house with high radon levels. The first goal was met; store detectors cost about \$200, while this detector cost about \$60. For the second goal, the first and least affected table fits the requirements with an  $r^2$  of .92, but the other tables do not.

### Junior Second Place \$100 - Can You Hear Me Now? - Engineering Alek Panchik, St. Joan of Arc

The purpose of this study was to find out which insulators were best for soundproofing. Fiberglass, carpet, and foam board insulation were compared for their soundproofing capabilities. Sound was produced in a controlled environment (a wooden box) at 500 Hz, 1000 Hz, and 1500 Hz. The intensity of the sound was measured in decibels.

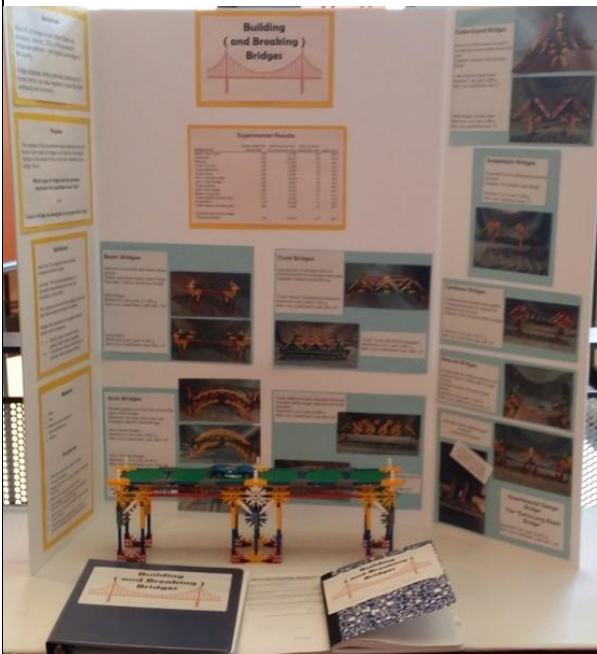
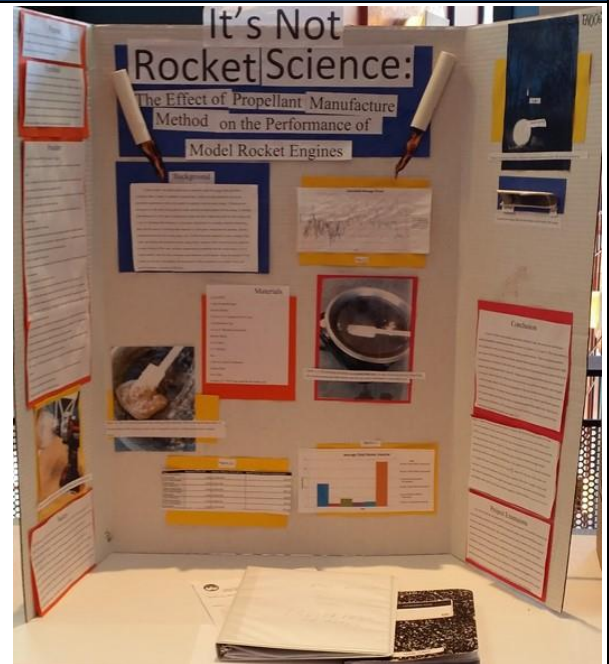


**Senior First Place \$200 - It's Not Rocket Science  
Samuel Haseman, Carlisle HS**

The project studied the effect of propellant manufacture method on the performance of model rocket engines.

**Senior Second Place \$100 - Building (and Breaking) Bridges  
Isaac Heil, Immaculata Home School Academy**

The purpose of this project was to determine which of six bridge types could hold the most weight relative to the weight of the construction materials (Lego bridge kit).



Awards were presented on Saturday, March 25 by Paul Lewis at the Whitaker Centers Sunoco auditorium. Each of the awarded students will receive a check for \$200 for First Place or \$100 for second place from ASCE. The senior grand champions will attend the International Fair in Los Angeles in May. Engineering projects were judged by Bruce G. Stegman for ASCE. Anyone wishing to be a category judge or ASCE special award judge for next year's CASEF, please contact me at 717-870-5918 (c), 717-458-0800 (o), [bstegman@advantageengineers.com](mailto:bstegman@advantageengineers.com), **Advantage Engineers**, 435 Independence Ave, Suite C, Mechanicsburg, PA 17055. Mark your calendars, next year's International Fair will be held in Pittsburgh May 14-18<sup>th</sup>, 2018.



## ASCE Student Chapters Participate in the 2017 Mid-Atlantic Conference Steel Bridge and Concrete Canoe Competitions

*Submitted by: Tom Skibinski and Christopher Smith*

On April 8<sup>th</sup> and 9<sup>th</sup>, 2017, the ASCE/AISC Steel Bridge and Concrete Canoe competitions were conducted as part of the 2017 Mid-Atlantic Student Conference and were held at the University of Maryland. The steel bridge competition had seven Student Chapters participate and they were: Penn State Harrisburg, Drexel University, University of Pittsburgh at Johnstown, Lafayette College, Lehigh University, University of Delaware, and University of Maryland. Four bridges were disqualified due to technical issues and the three remaining teams placed as follows: 1<sup>st</sup> Place – Lafayette College, 2<sup>nd</sup> Place – University of Maryland, and 3<sup>rd</sup> Place was Lehigh University. PSU University Park did not participate in the bridge competition this year. The top two teams will be invited to the National Steel Bridge Competition held at Oregon State University at the end of May.

The concrete canoe competition had five Student Chapters participate: Penn State University Park, University of Maryland, Drexel University, US Naval Academy and University of Pittsburgh at Johnstown (UPJ). Final scoring yielded UPJ in 1<sup>st</sup> Place, Navy in 2<sup>nd</sup> and Penn State University Park in 3<sup>rd</sup>. The top two teams will be invited to the National Concrete Canoe Competition held at the Colorado School of Mines in mid-June.



**Penn State University Park Concrete Canoe – the theme this year was a race car**

**ASCE** *ASCE/AISC Student Steel Bridge Competition*



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# New and Events

<b>Event</b>	<b>Date</b>	<b>Location</b>
Central PA SEI ½ Day Technical Conference	May 16, 2017	Gannett Fleming West – Rm W270
Dehart Dam Site Tour	May 19, 2017	Dehart Dam
Annual Harrisburg Senators Baseball Game and Picnic	June 9, 2017	City Island, Harrisburg
Annual Knoebel’s Picnic	July 22, 2017	Knoebel’s Grove Amusement Park

For more details on events, please visit <http://sections.asce.org/central-pennsylvania> for more information.

## Address Change? Questions About ASCE?

If you are an ASCE member, and wish to update your address information, please visit: [www.asce.org/myprofile](http://www.asce.org/myprofile).

If you are a member of ASCE, and have questions, please email them to: [centralpa.asce@gmail.com](mailto:centralpa.asce@gmail.com).

Questions about the ASCE Central PA Section Newsletter? Send an email to Jason Taylor, Newsletter Editor, at [jtaylor@sqcivil.com](mailto:jtaylor@sqcivil.com).