



The Pittsburgh Professional Engineer
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Published by:
The Pittsburgh Chapter of the Pennsylvania Society of
Professional Engineers
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February 2010

National Engineers Week – February 14 - 20

The third full week of February is National Engineers Week. The celebration was started in 1951 in conjunction with President George Washington's birthday. He is considered the nation's first engineer, primarily for his surveying work.

The purpose of National Engineers Week is to call attention to the contributions to society made by engineers. It is also a time for engineers to emphasize the importance of learning math, science and technical skills.

The Pittsburgh Chapter's Engineers Week Banquet provides a forum for the recognition of outstanding people involved in engineering and outstanding projects in our area. Traditionally seven awards are made. The awards this year and nominees are:

- The **Engineering Achievement Award** is presented to a significant project recently completed within Pittsburgh area. This year's award recipient is **Children's Hospital, University of Pittsburgh Medical Center**. Eric Cartwright, P.E., VP UPMC will be accepting the award on behalf of the UPMC organization.
- The **Distinguished Service Award** is presented each year to recognize an individual for outstanding contributions toward the improvement of the social, economic and professional status of the Professional Engineer. It is not necessary that the recipient be an engineer. This year's award recipient is **Donald V. Gennuso, P.E.**, CEO SAI Consulting Engineers, Inc.
- The **Dedicated Service Award** recognizes continuous years of active participation in, service to, and support of the Pittsburgh Chapter, PSPE, NSPE and the engineering profession. This year's award recipient is **David J. Briskey, P.E.**
- The **Silvio Lorenzi President's Gold Star Award** is presented at the request of the Pittsburgh Chapter's current President in recognition of outstanding support extended to the President in fulfilling his/her duties to the Pittsburgh Chapter. This award is named in memory of Silvio "Sax" Lorenzi who served as Chapter President in 1974-75 and PSPE President in 1978-79. "Sax" Lorenzi is recalled in making this award for his enthusiastic work and support of this Chapter and the Society. This year's award recipient is Thomas P. Weber, P.E.
- Nominee, **PSPE State Engineer of The Year**. The Pittsburgh Chapter nominates an engineer for the PSPE Engineer of the Year Award. This annual award recognizes continuous years of active participation in, service to, and support of the Pittsburgh Chapter, PSPE, NSPE, and the engineering profession. The Award also recognizes an outstanding, distinguished engineer not necessarily only for his /her work for, or in, PSPE, but for his/her overall activities and achievements. Occupational and professional achievements, civic, political, and engineering affairs, and education represent the primary selection criteria for the Engineer of the Year Awardee. The Chapter's nominee for this award is **Ruthann L. Omer, P.E.**
- **Young Engineer of The Year Award**. The Young Engineer of the Year award is intended to identify and recognize an outstanding engineer no older than 35 as of Jan. 1 in the year following the Award year. The evaluation criteria include collegiate achievements, professional and technical society activities, engineering experience, publications/patents, major engineering project achievements, and additional activities such as civic, fraternal, or humanitarian endeavors. This year's recipient is Kelly M. Rigot-Gargan, P.E.
- The **Lawrence W. Hornfeck Award** is presented yearly to the Chapter member who is considered to have done the most for the Chapter during the preceding year. This memorial award named for Larry Hornfeck who died while serving as Chapter President in 1963. The recipient is not revealed until the award is presented.

National Engineers Week	1
Mathcounts and E-Week	2
Officers & Directors	2
Engineers Week Banquet	3
Hoover Dam Bypass	4
Apprenticeship Visit Report	5
2009 – 2010 Calendar	6



MATHCOUNTS 2010 – February 13 PLEASE VOLUNTEER

This year is the 27th year of the Pittsburgh Chapter sponsoring the local competition portion of the National Mathcounts Competition. For the third consecutive year, the competition will be held at Robert Morris University, Sewall Center. We are looking forward to another successful competition.

One thing that does not change is the Chapter’s need for volunteers and companies who are willing to donate time and financial support for the competition. We would like to extend a special thanks to the corporations and individuals for their historical support. We recognize these donations in the Mathcounts Competition Booklet and in the program during the presentations at the National Engineer’s Week Banquet.

We would like to send out a request for individuals and engineering firms in the Pittsburgh area to consider financial support for this wonderful opportunity. There are many needs for this support. If you or your company would like to make a donation to MATHCOUNTS, please contact Virginia Dailey at ddengr@city-net.com.

If you may be interested in volunteering for the February 13, 2010 Competition at Robert Morris University, please contact Tom Schwartzmier via e-mail toms@nauticom.net.



Celebrate - National Engineers’ Week and Pittsburgh Chapter Banquet

National Engineers Week, founded in 1951 by the National Society of Professional Engineers, is a formal coalition of more than 70 engineering, education, and cultural societies, and more than 50 corporations and government agencies. Dedicated to raising public awareness of engineers' positive contributions to quality of life, EWeek promotes recognition among parents, teachers, and students of the importance of a technical education and a high level of math, science, and technology literacy, and motivates youth, to pursue engineering careers in order to provide a diverse and vigorous engineering workforce. Each year, EWeek reaches thousands of schools, businesses, and community groups across the U.S.

This year, our celebration of National Engineers’ Week will take place at the Club at Nevillewood, on **Saturday, February 27, 2010**. Some of you may ask, “why then?” In order to be able to hold our Mathcounts competition at RMU, the competition needs to take place on February 13, 2010. As one of our special recognitions during our banquet is of the wonderful Mathletes who are the top team and individuals at our Chapter competition, we needed to be flexible and make our banquet on February 27th.

Mark your calendar for that Saturday evening. It is always a wonderful event and one of the times when we can recognize those within our profession who have excelled.

2009-2010 Chapter Officers

President – Dave Samek, P.E.	Executive Secretary – Jon Drosendahl, P.E.
President Elect – Joe Garlicki, P.E.	Treasurer - John Broscious, P.E.
Vice President – Brian Schull, P.E.	Financial Secretary - Reyman Branting, P.E.
State Director - David Briskey, P.E. 2008-2011	Immediate Past President – Tom Weber, P.E.

2009-2010 Chapter Directors

Kirk Thompson, P.E. 2007 – 2010	Virginia Dailey, P.E. 2009 - 2011
	Doug Beitko, P.E., 2009 - 2011



**PENNSYLVANIA SOCIETY OF PROFESSIONAL ENGINEERS
PITTSBURGH CHAPTER**

**Invites ALL Engineers and their guests to the Annual
NATIONAL ENGINEERS' WEEK BANQUET**

On Saturday, February 27, 2010

At The Club at Nevillewood, 1000 Nevillewood Drive, Presto, Pa. 15142

Please join us for a wonderful evening of fellowship, great food
and the presentation of the 2010 Engineers' Week Awards

Engineering Achievement Award – Children's Hospital, University of Pittsburgh Medical Center,
Eric Cartwright, P.E., VP UPMC accepting
Distinguished Service Award - Donald V. Gennuso, P.E., CEO SAI Consulting Engineers, Inc.

Cocktails: 6:30 p.m. (Cash bar)

Welcome & Presentation of Mathcounts Awards: 7:00pm

Dinner: 7:30 pm

Presentation of Awards: 8:30pm

You may make your reservation by filling in the form below and mailing or faxing it to the Chapter office. You may also phone in all of this information to us. If you opt to make your reservation via e-mail, do not e-mail your credit card info. Payment may be made by calling in your credit card info, faxing this filled in form, or mailing this form with credit card info or enclosing a check. **Cost of Dinner is \$60.00/person if reservations are made by February 13, 2010.** After that, the cost is \$65.00/person.

Office Phone number (412) 391-0615 e-mail: PSPE@PittsburghPE.Org
Office fax (412-261-1606) Mailing Address: PSPE, 337 Fourth Avenue, Pittsburgh PA 15222

Dinner Choice : Choose one of the following:

- Sonoma Stuffed Breast of Chicken**, stuffed with spinach, toasted pine nuts, tomatoes and cheese
- Honey and Soy Brushed Atlantic Salmon**, served with pineapple salsa
- Roast Tenderloin of Beef**, with mushroom sauce

Name : _____ Dinner Choice: _____

Name : _____ Dinner Choice: _____

Payment Options:

Credit Card: MASTERCARD VISA Card Number: _____ Exp. Date _____

Name (as it appears on the credit card): _____

Check enclosed payable to PSPE Pittsburgh Chapter & mailed to 337 Fourth Ave., Pittsburgh, PA 15222
Directions: On Mapquest.com, enter this address: The Club at Nevillewood, 1000 Nevillewood Dr., Presto, PA 15142

APPRENTICESHIP PROGRAM VISIT – URS



Kevin Koontz
Group 3
Keystone Oaks High School

Though most people may be unaware, URS Corp maintains ranking as one of the largest engineering corporations in the world! Our trip, taken to a URS division office located in Green Tree, PA, was certainly a well planned treat for our entire engineering group. However, before I get into any big details about our visit, I'd like to give a quick summary of what URS does for our society on a daily basis.

URS, one of the three subdivisions of the larger URS Corp, specializes in several fields of engineering needed on a daily basis. Power, infrastructure, industrial and commercial, and other specialty services are all fields that URS offers guidance for governments throughout the globe, including our own.

Now then, after a warm greeting from the office secretary, the first person to offer a firm handshake to myself simply gave his name as Tom, and happened to be the manager of the entire office. He did not stay long, however, and I did not expect him to, due to the fact that we were visiting an active office, and he was at the top of the ladder there. Once our group was settled in a conference room, our first speaker was a geologist who worked in the office, introducing himself as Jim. Jim told us much about what he has done since working in his field; starting out in the open field, but eventually working himself into an office position. He also described to our group how his job is necessary to ensure that any engineering project goes off without a hitch, from analyzing terrain, to working around the terrain once the best possible solution to any problem is found.

Our next speakers, Ryan and Bryan, spoke to use about highway utilization, and how highway paths are determined, putting into the development process, and eventually built. Sarah and Anne, two engineers who specialized in planning, discussed with us the importance of analyzing many possible outcomes of a project before actually beginning construction. The main lesson was that some ways come cheaper, and that other ways come more efficient. Jane, a structural engineer, shared with us the fine details (and many large books) in constructing bridges. Each book we looked through was filled with hundreds of pages of diagrams, equations, and other measurements and notes needed in order to successfully construct any bridge. Our final presenter in our first location seated in the office was Walter, a geotechnical engineer. Aside from having many hands-on examples of types of earthy material for us to examine, Walter made known to us that in his field, he needs to design practical solutions using the limited resources made available to him.

Once we left our first conference room, we took a quick trip around the office, seeing a typical office setting that relied heavily on computer equipment and other measurement and analytical tools. We then headed down one floor to a back conference room, and engaged in an activity on planning with Sarah, whom we had met earlier. We had to design our own town, and zone specific areas as residential, industrial, and commercial, along with having roads, and providing the common elements seen in livable communities. Next we met Kelly, a traffic engineer, whom along with Ryan and Bryan from earlier, engaged us in an activity on determining traffic patterns, speed limits, and minimums and limitations on roads.

As we ate lunch and continued our activities, we did see some familiar faces as they stopped in and thanked us for coming, and we were able to thank them for having us. There was one fact that we had heard multiple times from several different engineers throughout the day as well; that being that the longer you work in your field, the more expensive your services are. We were informed that right out of school, an engineer in any field can expect to be out on the job, as opposed to in an office setting, due to how much they are paid. At the end of our trip, my group and I all knew that we had been exposed to a well prepared and informative experience, and that we could not wait for our next trip out!

Radiator Roads Too Hot for Ice to Handle



BLIZZARD-bound motorists
or snow plough to clear the way

won't have to wait for a salting truck
if a "self-heating" road takes off.

While salting disperses ice and snow, the salty run-off corrodes the steel rods that reinforce roads and bridge decks, and also damages vehicles. With the US government striving to improve its road infrastructure after a fatal bridge collapse in Minnesota in 2007, new methods to clear snow without damaging structures are being sought.

One such method, being developed by Christiana Chang at the University of Houston, Texas, and colleagues is to incorporate electric heating elements into concrete roads or bridge decks. When cold weather is forecast, the element can be fired up to heat the road and prevent ice forming.

There are various methods to make a slab of concrete that can be heated electrically. One way is to pepper the mix with an electrically resistive material that will convert electric current into heat, like the element of a kettle.

To start with, the team tried this approach, using fly ash, a waste product of burning coal in power stations, as the element, followed by steel shavings. Both options had the desired effect.

Then they tried an alternative method, using sheets of carbon nanofibres to heat the concrete, and found it was much faster.

Nanofibres comprise lengths of cone-shaped nanotubes nested "like paper cups stacked on top of each other", says Chang. She bonded multiple layers of nanofibre-embedded paper beneath a chunk of road concrete that was 10 centimetres thick and 25 square centimetres in area. It warmed from -10 °C to 0 °C in 2 hours while consuming just 6 watts of electrical power ([Smart Materials and Structures, DOI: 10.1088/0964-1726/18/12/127001](https://doi.org/10.1088/0964-1726/18/12/127001)). Heating the block slowly reduced power consumption.

"It's an interesting technique, but scaling it up to cover whole roads will require enormous power," says Derek Carder, an engineer with the [Transport Research Laboratory](https://www.trl.co.uk/) (TRL) in Wokingham, UK. Indeed, overly high power use was a problem for a self-heating road trialed by TRL itself in 2007, he says.

In a process called interseasonal heat transfer, TRL's system stored summer heat in water kept in insulated reservoirs. In cold weather, this warm water was pumped through a grid of pipes beneath the road to prevent icing. But the pumps proved too power-hungry. "Ideas like these don't seem viable for whole roads, but they may work for known cold spots or bridge decks," Carder says.

The Houston team, however, say that their method is less complex and that as sheets of paper embedded with nanofibres are already used to make electronic components, they are readily available and cheap. They add that savings made on salting and snow plough labor could make their low-maintenance design viable.

(<http://www.newscientist.com/article/mg20427366.600-radiator-roads-too-hot-f...>)

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2009-2010 CALENDAR

MEMBERSHIP EVENTS & MEETINGS

Date	Time	Description	Location
February 11, 2010	5:30pm	Board of Directors Meeting	ESWP
February 13, 2010	8:00am	MATHCOUNTS	RMU
February 27, 2010	6:30pm	Engineers Week Banquet	Nevillewood
March 11, 2010	5:30pm	Board Of Directors Meeting	ESWP
March, 2010	TBD	Monthly Meeting	TBD
April 8, 2010	5:30pm	Board of Directors Meeting	ESWP
April, 2010	TBD	Monthly Meeting	TBD
May 13, 2010	5:30pm	Board of Directors Meeting	ESWP
May, 2010	TBD	Monthly Meeting	TBD
June 10, 2010	6:00pm	Installation of Chapter Officers, & Recognition of Apprenticeship Participants	ESWP

All BOD meeting are to held @ 5:30PM @ the ESWP Building pending further notice.