Reaping the Rewards of ASCE

As my term of Section President comes to a close and we begin the transition from the current Board to a new Board of Directors, I’d like to thank everyone who has taken the time to serve ASCE, the Lehigh Valley Section and the engineering community. Without these key individuals, we would not have the ability or resources to provide the full benefit of membership to our community. Every year, our current Board searches for qualified, willing and able individuals to take part in giving back to the engineering community by taking a proactive role in the ASCE Lehigh Valley Section. In doing so, it provides some relief to those who have dedicated the last year (or past several years) in serving their fellow engineers. However, not having new individuals willing to replace them can take its toll on those currently serving the engineering community.

It may seem obvious that ASCE is in need of volunteers to keep the train moving, so to speak. But we’re not running an “ASCE Want’s You” campaign with a patriotic figure on poster pointing at its viewers. All too often I’ve heard people say they don’t have time or don’t think taking on a leadership role within a professional organization is for them. For the many people that have served with me on various ASCE Board’s and Committee’s, I’m sure the same thought crossed their mind at one point or another.

So what exactly does this have to do with reaping the rewards of ASCE or serving on a technical committee? Because the efforts of those who take on those roles and responsibilities never go unrecognized, nor do they end their term empty handed. To show how, I decided to compiled a short list of benefits, awards and recognitions that have been realized over the last year by our members and supporting firms.

(continued page 2)
ASCE National Employee Recognition Award for Support of Younger Members – Alfred Benesch & Company

ASCE’s Edmund Friedman Young Engineer Award for Professional Achievement – Greg Kuklinski P.E., M.ASCE

2011 Lehigh Valley ASCE Civil Engineering Achievement Award – City of Bethlehem Redevelopment Authority and others

- 2011 Lehigh Valley ASCE Engineer of the Year Award – Joe Sirignano, P.E., M.ASCE
- 2011 Lehigh Valley ASCE Young Engineer of the Year Award – Mike Wunderler, P.E., M.ASCE
- 2012 ASCE Region 2 Outstanding Practitioner Advisor Award – Jacqueline Parodi, EIT, A.M.ASCE
- ASCE National Arthur M. Wellington Prize - Professor Dan Frangopol, Sc.D., Dist.M.ASCE (Lehigh University)

While this list is not comprehensive, there are other recognitions, awards and scholarships which I couldn’t list due to a lack of space. In addition to recognitions which anyone is more than willing to accept, the benefits from a personal career development standpoint are also realized. Everyone from young college graduates to experienced professional engineers have taken advantage of their connections with other ASCE member to find new jobs or advance their career, attain PDH’s for licensure at one of our webinars, attend technical seminars or a PE review course.

With that being said, I hope you’ve come to realize that there truly is more value in your ASCE membership and taking on a leadership role is worth the effort. Thank you for allowing me to serve you over the last year, it has been an honor. I am pleased to have another motivated and qualified candidate, Ben Guthrie, EIT, A.M. ASCE, take on the reigns and lead us into another productive and beneficial year.

Timothy M. Kramer
Lehigh Valley ASCE Section President

OUR 90TH YEAR
NEWS FROM LEHIGH UNIVERSITY

We are pleased to announce that Prof. Dan M. Frangopol and his former Ph.D. student Nader M. Okasha have been selected by the ASCE Awards Committee to receive the 2012 Arthur M. Wellington Prize for their paper titled "Novel Approach for Multicriteria Optimization of Life-Cycle Preventive Essential Maintenance of Deteriorating Structures", published in the Journal of Structural Engineering, August 2010

The award will be presented during the ASCE Annual Conference, October 18-20, 2012 in Montreal, Canada

The Arthur M. Wellington Prize recognizes a paper on transportation, on land, on the water, in the air or on foundations and closely related subjects.

This is a Society Award, the highest level award given. (It is not an Institute Award -- ASCE has 8 Institutes, including Structural, Geo, Environmental, Engineering Mechanics, Aerospace....). The award is not restricted to ASCE Members, and represents the best contribution to the field of transportation from all 33 ASCE peer-reviewed Journals published in the period July 1, 2010 - June 30, 2011.

Prof. Frangopol is a Distinguished Member of ASCE as well as a member of the ASCE Lehigh Valley Section. Other ASCE awards include the Nathan M. Newmark Medal, the J. James R. Croes Medal, the Moisseiff Award, the Ernest E. Howard Award, and twice the State-of-the-Art of Civil Engineering Award.

The section extends congratulations to Prof. Dan Frangopol and Nader Okasha for winning this prestigious award!

Fazlur R. Khan Distinguished Lecture Series

By Kenneth A. Heaton

On April 20, 2012 Lehigh University’s Department of Civil Engineering hosted the final Fazlur Khan lecture for this spring. Ted V. Galambos, Professor Emeritus, spoke on the topic of the safety of bridges. Dr. Galambos is highly regarded in the field of modern bridge design and helped establish many of the safety standards in use today. He presented a history of bridge failures starting with some of the early bridge failures at a time when there was almost no design code to present failures that still occur even though today’s codes are very robust. His presentation was very interesting and entertaining as he emphasized the human side of bridge design using several anecdotes from the past including bridges in his home country in Europe.

A lively discussion followed during the course of which Dr. Galambos showed slides of his days as a graduate student at Lehigh University. Several of these slides had pictures of former staff and faculty of Lehigh University, a few of whom were in attendance. This was definitely one of the more memorial Kahn Lectures that I attended.
SPECIAL EVENT

JUNE DINNER MEETING

Buried No Longer, Confronting America’s Water Infrastructure Challenge

Presenter: Aurel Arndt, General Manager, Lehigh County Authority

Topic: Mr. Arndt will review the American Water Works Association’s (AWWA) recently published report, “Buried No Longer, Confronting America’s Water Infrastructure Challenge,” which assesses America’s water utilities water main replacement need over the next 40 years. He will also address the AWWA’s ongoing effort to enact legislation creating a supplemental water infrastructure funding program for the unprecedented investment need faced by our nation.

Location: Allentown Brew Works
812 West Hamilton Street
Allentown, PA 18101

When: Wednesday June 20, 2012
Networking - 5:30 pm
Dinner – 6:30 pm
Presentation – 7:30 pm

Menu: Pulled Pork
Salad Bar

Price: $30
$10/student

Come attend this special event by our Environmental & Water Resources Committee

Reserve: RSVPs must be submitted by June 18, 2012 to Ben Guthrie at: BGuthrie@TrafficPD.com
or call 610-625-4242

See the Chapter website at http://www.lvasace.org
for more information on the chapter's programs and news/events articles.
Great accomplishments are being made by the Lehigh Valley Professional Chapter of Engineers Without Borders USA on their project to restore the infrastructure of the Centennial Secondary School in Sierra Leone (West Africa). Founded in 1955, the Centennial Secondary School (CSS) educated students in the 7th through 12th grades in the sciences, establishing a regional reputation for excellence. The school is a complex of 30 buildings.

CSS graduates include engineers, doctors, professors and government leaders. That legacy has been seriously compromised by the Civil War in Sierra Leone that lasted from 1991 to 2002 – a lost decade of education in that country. Rebels occupied the school and destroyed its infrastructure. A school that once had central water and power supplies with western style flush toilets now has no power, no access to an adequate supply of clean water, and has only the most rudimentary of pit latrines for sanitation. A school that was built to educate 500 students with about 300 borders now tries to educate 1,500.

In 2009, the Lehigh Valley Professional Chapter of Engineers Without Borders USA (EWB-LVP) began a partnership with CSS and its international Alumni Association to rebuild the school’s infrastructure. An EWB-LVP team first visited CSS in February 2010 to develop relationships and gather data. A program was developed to improve all facets of the school’s infrastructure.

Sanitation – In February 2011, an EWB-LVP team returned to CSS to convert the existing bath houses into an urinary. The existing wastewater system at the school is undersized to handle the total load of 1,500 students + staff that live on campus, however it was determined that the existing system could handle liquid waste. The EWB-LVP team worked beside students, parents, faculty, and other local volunteers to refurbish the girls bathhouse. They built a urinary and a hand washing station that utilizes water brought from a nearby river in buckets each morning. Based on this example, the school successfully refurbished the boys bathhouse in the absence of the EWB-LVP team – a great achievement in them taking ownership and responsibility for the project. A second phase of improvements will be made in early 2012 to begin construction of waste treatment capacity to handle solid waste. Testing for these facilities was completed during the February 2011 trip with an army of students carry 5 gallon
jugs of water on their heads to do a capacity test on the future system. In a future phase, a piped potable water supply will be re-established.

**Potable Water** – Solving the potable water supply problem has been arguably the most challenging for the EWB-LVP team. They identified several potential water sources, including: pumped surface water extraction from the Jong River that abuts the school property; gravity flow from the Sowa Creek about a quarter mile from the school, and groundwater extraction with a well. The topography prohibits the establishment of a gravity flow to the school. Pumped extraction from the Jong River was seriously considered but ultimately discarded in favor of a well option because there were concerns about the long term operations and maintenance (O&M) costs of the river extraction system as well as concerns about contamination from upstream mining operations that are not well regulated. Use of surface water is considered an optional alternative for non-potable use and will be reassessed for that purpose at a future date. The well presents its own challenges as the school is founded on about twenty feet of soil underlain by igneous rock. EWB-LVP consulted with several drilling companies and has determined the groundwater option to be feasible and have the potential to be the most cost effective option when taking into account long term O&M costs.

The next step will be to drill the bedrock well during the upcoming dry season in the March-April 2012 time frame. Initially, the well will be equipped with a hand pump. Point of use potable water disinfection, if necessary, will be set up at the same time. Testing of the well when installed will give a good indication of what the expected yield of the well will be. After the installation, EWB — Lehigh Valley will work with the school to determine the best options for pumping and distribution of the water. Potable water, sanitation and hand washing will be the initial primary uses for the water. Other uses will be dependent on the availability of water, equipment cost and sustainability of operations.

**Classroom Lighting** – When the CSS students were initially polled by EWB-LVP on what their first priority was in rebuilding the school, their response was overwhelmingly in favor of establishing lights for evening study – there is no central power in the region and the sun sets promptly at seven pm. Evening study would have an enormous impact on the students’ education as most have chores to do at home to support their families during daylight hours. They need time to study for exams that permit them to advance to successive years of high school as well as for college eligibility.

The EWB-LVP Team developed a context-oriented solution for the school with battery system charged by photovoltaic panels. This solution was arrived at after careful consideration of alternatives such as standard gas/diesel generators, wind and hydro power, and even a human-powered bike-generator. Wind and hydro were found to be unfeasible. Gas/Diesel generators are typical in Sierra Leone, however the cost of fuel is the same as here, creating an enormous challenge of keeping up with O&M costs for a country where the average annual income is less than $700 per year. The EWB-LVP team chose to pursue the photovoltaic option because the parts and equipment can be procured in country and there is little operational cost once it is installed.
In November 2011, a third EWB-LVP team traveled to Sierra Leone to install a pilot photovoltaic installation. This project provides light for three classrooms. Not only does this project have an immediate impact on the student’s education, but it also affords EWB-LVP the opportunity to measure the school administration’s capacity to operate and maintain this type of system before making a commitment to increase the scale of the system to expand access to lighting and electricity throughout the campus. The installed system consists of two 185 watt solar PV modules, one charge controller, one 225amp-hour battery and one 220 VAC inverter. Each of the three classrooms has four 11 watt CFL lights. There are also three security lights on the classroom building and one at the Administration Building where the PV modules and the rest of the equipment are housed. The system is designed to provide light for 3 hours a night, 7 nights a week, 52 weeks a year. When fully charged, it can run for two days with little or no sun. The battery should last for five years based on the environmental conditions and operating parameters. The system was installed ahead of schedule and is working very well. It was tested for several days and then officially commissioned with a formal lighting ceremony.

Education – In addition to infrastructure improvements, EWB-LVP members have volunteered their efforts to boost the quality of education at CSS. Bethlehem middle school teacher Lori Cirruci spent time giving classes during the time the team was there this past November. Various groups are helping to equip chemistry labs, workshops, and home economics classrooms. Quilting bees have donated money to purchase sewing machines. The Easton Rotary Club is helping to collect and refurbish music instruments to establish a marching band – something the students want nearly as much as electricity and water. All in all, there is a project for almost anyone to get involved in and EWB-LVP could use all of the help, no matter how small, to keep the mission moving forward.

You are Invited to get Involved – Many people and organizations contributed to the success of EWB-LVP: Rotary International, which provided much of the funding for the hardware and in-country travel; members of the CSS Alumni Association who volunteer their time to travel and work with us in-country; the CSS administration, teachers and students; Energy for Opportunity, an NGO bringing solar power to Sierra Leone; and the many members of EWB-LVP who worked on the project.

April-May 2012 Trip
More progress was made on a recently completed trip. A new water well was drilled at the school. The well is a 6” diameter borehole that was drilled to a depth of 47 meters below ground surface. A hand pump was installed with the well. A video of the well drilling, sanitation and other cultural aspects of Sierra Leone can be found at: http://www.youtube.com/watch?v=prNCpAd2PU4&feature=g-upl
Future plans include installing a solar powered electric pump and appropriate treatment and a water distribution system for the school. In addition to the well, toilets were installed for the faculty and assessments were made of where additional solar panels might be installed. The community in Mattru has become engaged in the work underway for their school. EWB thanks LVASCE for their support in this work. The support from LVASCE members at the recent silent auction fund raiser is also appreciated.
LVASCE Technical Committee Reports

Environmental & Water Resources (EWR) – Aaron Frantz: The EWR committee will be featured at the June Dinner meeting.

Structural – Cheryl Rishcoff & Transportation: The local structural committee has been meeting on a regular basis and has decided to concentrate on bringing continuing education opportunities with a structural emphasis to our section members. If you would like to be on the e-mail list for the structural committee, please e-mail Cheryl Rishcoff at crishcoff@trcww.com to be added to the contact list. You will receive notification of local events of interest to structural engineers.

LVASCE MAY DINNER MEETING

On Thursday, May 17, 2012 LVASCE’s monthly dinner meeting was held at the Allentown Brew Works. Our speaker for the night was Richard Young, Director of Public Works for the City of Allentown who gave a talk on “The Bridges of Allentown”. Mr. Young gave a slide presentation of the state of Allentown’s many bridges starting with the oldest, Schreibers Bridge, a stone arch bridge built in 1828, up to the latest bridges built in the city. One of the more recent bridges built is on Ott St at the Rose Garden Park, this bridge was able to be completed in record time because the city provided the funding. Using state or federal funds can add years to a project. He showed some startling photos of cracking and corrosion that has occurred in several of the city’s bridges. Mr. Young also gave an update on the new bridge to be built starting later this year over the Lehigh River for the continuation of the American Parkway.

Although the numbers attending the dinner were few it was a nice evening and everyone enjoyed the time there. In addition to the presentation by Mr. Young, the results of the election for new board members was announced. The following is a list of LVASCE Officers:

- President 2012-2013 Ben Guthrie
- Vice President 2012-2013 Phil Gauffreau
- Secretary 2012-2013 Ken Heaton
- Treasurer 2012-2013 Charles Snyder
- Secretary Elect 2012-2013-Newsletter Editor Donovan Hayes
- Member Director 2012-2014 Scott Stenroos
- Member Director 2011-2013 Dion Campbell
- Associate Member Director & YMF President 2012-2014 Bethany Ashman (YMF President)
- Associate Member Director 2012-2013 Muhannad Soleiman
- Past President 2012-2013 Tim Kramer

There is one spot missing, that is for President Elect. We hope to fill this position soon.
YOUNGER MEMBERS BRIDGE TOUR

BY Bethany Ashman

On November 2, 2011, the Lehigh Valley ASCE Younger Members Forum (YMF) and students from Lehigh University and Lafayette College attended the 3rd Annual Allentown Bridge Tour. The tour was led by Dr. Ben Yen, from Lehigh University, with guest speakers Greg Kukinski and Jim Pudleiner. The tour consisted of various types of bridges including the 8th Street Bridge, a concrete open spandrel arch bridge, the Ward Street Bridge, a steel bridge with a metal grate deck, and the 15th Street Bridge, the oldest operational prestressed concrete bridge in Pennsylvania.

Greg Kuklinski added to the bridge tour by explaining the environmental impact studies and the complex hydrological analysis that is often needed when designing bridges. Mr. Kuklinski is currently working with the contractor for the Ward Street Bridge to replace the current bridge. The insight of Greg allowed everyone on the tour to have a greater understanding of everything that is involved with bridge design.

The last stop on the tour this year was Bogert’s Bridge on the Lehigh Parkway. Bogert’s Bridge is the oldest covered bridge in Lehigh County, built in 1841. Jim Pudleiner recently inspected the bridge and had everyone fascinated by the different rehabilitation methods used to keep the bridge operational for the numerous runners and bikers that use it every day.
ALFRED BENESCH & COMPANY ANNOUNCES STAFF ACHIEVEMENTS
Employees Earn New Licensure, Promotions

Andrew P., Derr, PE
Gregory J. Kuklinski, PE
James E. Bainbridge, CET
Jessica B. Rehrig, PE

Nicole M. Caffrey, PE

ALLENTOWN, PA (March 2, 2012) – Alfred Benesch & Company (Benesch), a multi-faceted engineering firm with regional offices in Allentown, Pottsville and Hazleton, PA, is proud to announce new staff licensing and promotion achievements.

Andrew P. Derr, PE, and Nicole M. Caffrey, PE, have passed the Pennsylvania engineering licensing exam and are now licensed Professional Engineers. Mr. Derr holds a Bachelor of Science degree in Civil Engineering from Lehigh University, Bethlehem, PA, and is a member of Benesch’s structures group. Ms. Caffrey earned a Bachelor of Science degree in Engineering Science from Smith College, Northampton, MA. She specializes in site design and permitting. Both Derr and Caffrey have been promoted to Project Engineers. Other staff promotions include: Jessica B. Rehrig, PE, and Gregory J. Kuklinski, PE, have been promoted to Project Managers; and James E. Bainbridge, CET, has been promoted to Senior Technologist.

About Alfred Benesch & Company

Alfred Benesch & Company (Benesch) specializes in providing quality civil, structural, geotechnical and environmental engineering services to clients in transportation and infrastructure development. Since 1946, the firm has successfully completed thousands of design and engineering projects throughout the United States and is consistently ranked
among the top 500 consulting engineering firms in the country by Engineering News Record. Benesch employs more than 375 professional and support personnel including engineers, construction managers, planners, designers and scientists. Headquartered in Chicago, Illinois, the company operates 17 locations in ten states, including: Illinois, Wisconsin, Pennsylvania, Michigan, Nebraska, Kansas, Iowa, Colorado, Ohio and Tennessee. To learn more about Benesch, visit www.benesch.com.
2012 Fly-In Focuses on Surface Transportation

The Lehigh Valley Section was represented at this year’s ASCE Fly-in (March 20-22) by Bill MacNair and Pete Terry. The Fly-in included training on the issues from ASCE Staff, a reporter from Politico, and US Secretary of Transportation Ray LaHood. Visits were made with Congressmen Dent, Shuster, and Barletta as well as Senators Casey and Toomey. The current surface transportation legislation expired in the fall of 2009 and is on its eighth short term extension. It looks like the ninth extension will occur by the end of March. The Senate has passed a two year bi-partisan bill but its funding mechanism relies on some creative accounting. The House has been working on a five year bill but has not been able to develop enough Republican support to pass a bill.

Meanwhile, the extensions have continued funding levels slightly less than in 2009. PennDOT Secretary of Transportation Barry Schock indicated that because of the expected lower funding levels, their accelerated bridge rehabilitation program will fall behind in 2013 with more bridges being added to the list than being repaired.

We need to tell our legislators that this is not acceptable. It all comes down to the lack of available funding for infrastructure. Please share your thoughts with your Representative and Congressmen. For more information please contact Bill MacNair (billmacnair@gmail.com) or Pete Terry (peter.terry@bencivil.com).

YOUNGER MEMBERS GROUP ACTIVITIES

By Ben Guthrie

On February 27 the ASCE Younger Members Group hosted a bowling night at Jordan Lanes. It was a great chance to meet up with other younger members and show off our bowling skills. The most exciting moment came at the end of the night, when Bethany Ashman had a chance to finish with a turkey and just barely missed her third straight strike. The Younger Members Group hosts events throughout the year, and they are always open to everyone. Keep an eye on the events page of the ASCE-LV website for more upcoming events.
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Job Postings

Other Announcements to our Members
Architects and engineers are among the most fortunate of men since they build their own monuments with public consent, public approval and often public money.

- John Prebble -

Nothing is so inspiring as seeing big works well laid out and planned and a real engineering organisation.

- Frederick Handley Page -
is a unique partnership of schools and universities, architects, engineers, construction companies, professional organizations, and related corporations.

These community minded companies all share the desire to provide career direction to interested high school students. The companies donate the time of selected employees, who serve as mentors, and other resources on an as needed basis.

ACE makes a special attempt to reach students that otherwise may not become aware of the challenges and rewards of a career in the design and construction industry, and to reach them while they still have an opportunity to alter their course of study.

The companies join into teams and "adopt" a group of twenty to thirty high school students for the duration of a school year and meet with them on a bi-weekly basis. The teams are organized such that they contain firms from complementary disciplines, thereby exposing the students to a wide range of fields. This enables us to offer hands on design experience in a project selected by the student team members.

The Lehigh Valley ACE Mentor Program is searching for area professionals for the 2011-12 school year. If you would like more information or would like to participate in this year’s program, please contact Jason Engelhardt (Langan Engineering) at (610) 984-8500 or jengelhardt@langan.com.

For more information on ACE, please visit: http://www.acementor.org/
Check out www.lvasce.org under “Resources” and LVRIPI to find out what we are doing for the Lehigh Valley infrastructure.

A good scientist is a person with original ideas. A good engineer is a person who makes a design that works with as few original ideas as possible. - Freeman Dyson
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