

April 2015 Volume 61, Number 7

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NCS Sustainability Committee Presents Sustainability Keynote Speaker:

**Mr. I. Sam Higuchi, Jr., J.D., NASA Engineer, and
Co-Chair of the Federal Interagency Forum on
Climate Change Impacts and Adaptations**

Please join us on Tuesday, April 21, 2015 as we honor sustainability in civil engineering in the National Capital region. The National Capital Section (NCS) Sustainability Committee welcomes Mr. I. Sam Higuchi who will be discussing the federal policies and programs for climate change adaptation and National Aeronautics and Space Administration's (NASA's) programs for observing and understanding climate change phenomena and adapting its facilities.

The Federal Interagency Forum on Climate Change Impacts and Adaptations is an informal forum co-hosted by NASA, the Department of Interior, and the U.S. Global Change Research Program. Many agencies attend the forum while it provides a venue for presentations and discussions on issues relating to the impacts

of climate change on agency resources and operations, and adaptations of agency activities, facilities, or lands to respond to these impacts.

Climate change adaptation means adjusting to a changing climate to minimize negative effects and take advantage of new opportunities. Projected variations in future climate conditions have the potential to affect a range of federal services, operations, programs, infrastructure, and national security. Through adaptation planning, federal agencies can identify potential supply disruptions from extreme weather events, risk management, adaptation, and resiliency. By integrating adaptation strategies into its planning, the federal government can ensure that its services and operations shall withstand the damaging effects of a changing climate.

Join us **Tuesday, April 21, 2015**, at the Hilton Arlington, 950 North Stafford Street, Arlington, VA, on the second floor in the Gallery Ballrooms. Parking is available at the hotel (\$10), at the Ballston Mall garage (\$1 after 6 pm), and on the street (free after 6 pm). The Hilton is on the same block as the Ballston Station on Metro's Orange and Silver Lines. Registration and networking will be from 6–6:45 pm, followed by dinner. The program will end by 8:30 pm. The cost is \$45 for those preregistering, \$10 for students, and \$55 for walk-ins, as space allows. One Professional Development Hour is available to attendees. For questions, please contact [Christian Manalo](#). Please click [HERE](#) to register by **April 15**.

Note that no-shows will be charged the full registration fee. We welcome walk-ins, including any registrations made after the guaranteed number of guests is provided to the hotel. However, the cost for walk-ins is higher because the Section is charged accordingly by the hotel for late registrations.



At the South Pole. Sam Higuchi, Staff Engineer with "U.S. Antarctic Program" of the National Science Foundation.

About the speaker: Sam Higuchi has been a civil servant in the federal government since 1984. His experience spans working at remote Antarctic facilities and a U.S. Navy installation implementing environmental programs to headquarters experience managing agency-wide programs. Mr. Higuchi has worked as a research scientist, regulatory engineer, facility environmental coordinator, civil engineer, environmental engineer, policy & program analyst, and program manager. He holds academic degrees in engineering, science, law, and public administration. ■

President's Corner

This past month, NCS held its annual awards banquet in Arlington, Virginia. As always, it proved to be a great night for us as we reflected on the achievements of our Section members over the past year. We issued awards to individuals from the most experienced to those still beginning in their careers. We also issued project awards to DC Water, Thornton Tomasetti, and Cardno Haynes Whaley. The recognitions made at the banquet, despite being significant, are just the tip of the iceberg for our Section. Every day, we have more than 3,000 civil engineers performing great works throughout the region and around the world. One of the benefits of representing the DC area is seeing the global impact of our members. This is reflected in our numbers as



well, with nearly 20 active Distinguished Members in our Section.

It is with great sorrow that we had the passing of two of our Distinguished Members, Mr. A. James Clark and Mr. Abba G. Lichtenstein. Mr. Clark, founder of Clark Construction, was a tremendous advocate for civil engineering in our area, creating the Clark Scholars Program at George Washington University and promoting the engineering school at the University of Maryland, now named the Clark School of Engineering. Mr. Lichtenstein founded A.G. Lichtenstein & Associates, which provided national renowned expertise in the repair and rehabilitation of bridges. He received numerous awards, including the U.S. Presidential Award in 1988 and the

ASCE History Award in 1991. With the loss of these two great role models, we find ourselves now with the duty to continue their noble cause.

Looking forward, NCS is continuing its very active agenda this year. Our new transportation committee has planned a series of special speaker events over the next ten months. The Life Members forum will meet on April 10 to begin developing its agenda. The Centennial Committee continues to plan events for next year and is on track to release on our Centennial history book in a few months. The Report Card Committee is also on track to release the DC Infrastructure Report Card in six months. In addition, our Geotechnical Committee and Young Members Forum continue to host their monthly events.

*Christian Manalo
President, ASCE-NCS 2014-15*

ASCE OPAL Awards 2015

At its Annual Outstanding Projects and Leaders (OPAL) awards gala on March 26, in Arlington, Virginia, ASCE recognized Jessica Morrison for excellence in journalism, the Thermal Integrity

Profiler for construction innovation, and Anil Kar for industry advancement of research. The five lifetime award winners were Andrew Phelps (Bechtel) in Construction, Edward Schmeltz

(AECOM) in Design, Bernard Amadei (University of Colorado) in Education, Thomas Rust (Pennoni) in Government, and Nicholas DeNichilo (Hatch Mott MacDonald) in Management. From

the five Outstanding Civil Engineering Achievement (OCEA) finalists, the OCEA Winner was the [Halley VI Antarctic Research Station](#).

Scott Wolf, Jordan Pitt, and Ranjit Sahai represented NCS at the gala. Also spotted in the festivities was NCS Past President and Region 2 Governor John Casana with his lovely wife. ■



Newsletter

Rachel Schneider, Editor

May 2015 Issue Deadline: April 15, 2015

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Please refer to the [NCS website](#) for a current list of NCS committees and chairs.

Discover Engineering Family Day at the National Building Museum 2015

By Dean Westman, P.E.

Volunteers from Bechtel Corporation, the NCS, its Student Chapter members, and ASCE National Headquarters employees kicked off National Engineering Week by participating in Discover Engineering Family Day at the National Building Museum in Washington, DC on Saturday, February 28, 2015. Local society chapters and



NCS's Dean Westman shows aspiring engineers how to play in the sand, er, demonstrates earthquake liquefaction in a plastic cup.

representatives from national professional engineering societies sponsored events or exhibits (as shown in photos).

Discover Engineering Family Day introduces young people and their parents to the profession of engineering. This year's challenge was Shaky Ground, a demonstration of earthquake liquefaction in a plastic cup. A sand box provided younger aspiring engineers with a much needed late winter taste of the upcoming construction season's earthwork and summer beach vacations.

As in years past, the ASCE activity was very popular, with hundreds of children, and their parents. The activity would not have been possible without the help of numerous ASCE volunteers. A special thanks to ASCE 2016 President-elect Mark Woodson for spending the day. The NCS also thanks Bechtel Corporation for their generous support and participation at Discover Engineering Family Day at the National Building Museum. ■



AMT's exhibit: the cars that went down the flat, curved roadway flew off the track, while cars that went down the super-elevated bank followed the track and did not fall off the roadway.



A bird's eye view of the National Building Museum on Discover Engineering Family Day.



AMT's exhibit was based on the principal of super-elevation and how it helps keep cars on the road when the roadway curves. To illustrate this, AMT built two tracks: one with a curved roadway that was flat, and another with a curved roadway with a steep bank.

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A Message from Region 2 Director – Spring 2015

By Christopher J. Menna, P.E., F.ASCE

Oh, what a winter we've had. I think that we're almost out of it. It wasn't so much the moisture this time, but rather the bitter cold, ice, and frigid temperatures. Spring is upon us and this is a time to renew, reflect, and move forward.



I am happy to report that our Region 2 (R2) Board did an outstanding job this past Miami at the Multi-Region Leadership Conference (MRLC). We all participated throughout the conference, with our greatest success culminating in the R2 Breakout. The dome challenge competition was, by far, the highlight, and people are still talking about it. It was nice to see all of the fun, camaraderie, and leadership happening before our eyes during that time. If you have a moment, take the time to see a fun picture of yours truly with the Philadelphia YMF on their website. The picture is from the Miami MRLC. Since then, we have been

busy working on many issues. Some of them include:

1. Working to fine-tune our finances. Our Finance Committee will be looking to find ways to get the most out of limited allotment. In order to maintain the same level of service and value to our members, we are looking at cost cutting as well as different venues to bring in more income.
2. Establishing a new committee within Region 2, the Committee on Website Development, Student Interaction, and Diversity or (WID). New Governor Christina Casole will head up this committee, with support from Past Governor Bob Efimba, as well as some up and coming volunteers.
3. Planning our next Assembly, to be held in the fall of 2015 at Bucknell University.
4. Our Pennsylvania Legislative Committee has continuously worked to support the ongoing momentum of the 2014 PA Report Card. In addition, it will support an upcoming day on the hill on May 11, 2015.

5. Planning our Regional site visits for the remainder of this year.
6. Looking at opportunities to increase our level of participation on National Committees.
7. Considering the opportunity to combine a Region Wide YMG event with the Assembly.

On my end, I continue to gain experience as National Board Member during my second year of service. I will be presenting the Audit Report to the National Board for the second time at the end of March, and I am pleased to say that all is in order and we are quite healthy as a society.

As I prepare to represent R2 at the upcoming OPAL Celebration and the National Board Meeting, I'd like to reiterate our pledge to be the best Regional Board that we can be. Send us your questions and concerns. And, let us know about your geographic entity successes and challenges. We are here to serve you. My Governors and I hope to see you sometime soon. ■

Call for Volunteers

Annual EPA P3 Student Competition and National Sustainable Design Expo on April 11 and 12 in Alexandria, VA

We need volunteers for the ASCE informational booth at the annual U.S. Environmental Protection Agency (EPA) People, Prosperity and the Planet (P3) Student Design Competition for Sustainability Student Competition and National Sustainable Design Expo at Oronoco Park, Alexandria, VA. We need volunteers for 3-hour shifts from 9 am to 6 pm on April 11 and 12.

EPA's P3 Award Competition at the National Sustainable Design Expo brings together students, nonprofit organizations, government agencies, and businesses that are working to create a sustainable future. Sign-up directly at the [Volunteer Spot website](#) (volunteers



need to provide their e-mail addresses, but will NOT need to register an account or create a password. If you would prefer to participate without signing-up on the website, please contact [Alex Rosenheim](#).) Please email [Alex Rosenheim](#), or call (202) 412-3090 with any questions. ■



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2015 NCS Award Winners

The NCS Annual Awards Banquet is an opportunity for the Section to recognize individuals and teams for outstanding achievement. Eighty members, guests, and students converged to network and take part in the Section's signature annual event at the Hilton Arlington on March 24, 2015. *A special thank you to our photographer Julia Devine!*

Civil Engineering Student Awards

The NCS awarded **\$14,050** in scholarships to deserving Civil Engineering students from our five area schools: The Catholic University of America, George Mason University, The George Washington University, Howard University, and the University of the District of Columbia. We also honored the faculty's selection for Outstanding Graduating Senior from all five schools.



CUA Scholarship recipient Bridget Rogers poses with NCS Past President Fady Afif and NCS President Christian Manalo



CUA Outstanding Senior Mary O'Neill poses with NCS Vice-President Scott Wolf and Christian Manalo



GMU scholarship recipients Alayna Bigalbal, Benjamin Quann, and Whitney Woodcock pose with Dr. Liza Durant, Fady Afif, and Christian Manalo



Scott Wolf and Christian Manalo pose with Dr. Liza Durant and GMU Outstanding Senior Lisa Grube



Fady Afif and Christian Manalo stand with GWU scholarship winners Allison Lau, Emily Porter, and Julian Olin, and Dr. Samer Hamdar



Scott Wolf and Christian Manalo pose with GWU Outstanding Senior Eric Prokop and Dr. Samer Hamdar



HU scholarship recipients Anna-Kaye Barrett, Mame Fall, and Aniurka Duverge pose with Fady Afif (left), Christian Manalo, and Dr. Robert Efimba



Dr. Robert Efimba poses with HU Outstanding Senior Mohamed Amine Bouzaghane and Scott Wolf and Christian Manalo



Fady Afif, Dr. Zeytinci, and Christian Manalo pose with UDC scholarship recipients Brahim Sidi M'hame, Rainer Luza-Herrera, and Niku Chudal



UDC Outstanding Seniors Jordan Matthews (left) and Curtis Day pose with Scott Wolf, Morgan Walubita, Dr. Zeytinci, and Christian Manalo

The Catholic University of America (CUA)

| | |
|---------------------|-------------------------------|
| Christopher J. Papp | Hathaway Memorial |
| Bridget M. Rogers | ASCE-NCS Scholarship |
| Mary O'Neill | Outstanding Graduating Senior |

George Mason University (GMU)

| | |
|---------------------|-------------------------------|
| Alayna R. Bigalbal | ASCE-NCS Scholarship |
| Benjamin G. Quann | ASCE-NCS Scholarship |
| Whitney P. Woodcock | ASCE-NCS Scholarship |
| Lisa Grube | Outstanding Graduating Senior |

The George Washington University (GWU)

| | |
|-----------------|-------------------------------|
| Allison M. Lau | ASCE-NCS Scholarship |
| Julian Z. Olin | Williams Memorial |
| Emily S. Porter | Hummel Memorial |
| Eric Prokop | Outstanding Graduating Senior |

Howard University (HU)

| | |
|--------------------------|-------------------------------|
| Anna-Kaye C. Barrett | Harland Memorial |
| Aniurka C. Duverge | ASCE-NCS Scholarship |
| Mame A. Fall | ASCE-NCS Scholarship |
| Mohamed Amine Bouzaghane | Outstanding Graduating Senior |

University of the District of Columbia (UDC)

| | |
|--------------------------------|-------------------------------|
| Niku Chudal | ASCE-NCS Scholarship |
| Rainer K. Luza-Herrera | ASCE-NCS Scholarship |
| Brahim S. Sidi M'hame | ASCE-NCS Scholarship |
| Curtis Day and Jordan Matthews | Outstanding Graduating Senior |

Life Member Awards

To achieve this status, a member must have reached their 65th birthday, have paid dues in any membership grade except Student Member for at least 35 years, and have had at least 10 years of continuous membership immediately preceding the attainment of Life Member. Congratulations to the following NCS members who were awarded Life Member certificates:

- | | | |
|----------------------|-------------------------|------------------------|
| ■ Mr. Vincent Berg | ■ Mr. Nicholas Marchica | ■ Mr. Thomas Thornton |
| ■ Mr. Fred Bush | ■ Mr. Steven Mc Cabe | ■ Mr. James Van Deusen |
| ■ Mr. Howard Gibbs | ■ Mr. Brian Mc Collom | ■ Mr. Michael Walsh |
| ■ Mr. James Hanlon | ■ Mr. James Murphy | ■ Mr. A. Wayne Welch |
| ■ Mr. Richard Hurney | ■ Ms. Jamee Plockmeyer | ■ Mr. Ronald Williams |
| ■ Mr. Edward Johnson | ■ Mr. Irvin Ragsdale | ■ Mr. Richard Witters |
| ■ Mr. Douglas Lamont | ■ Mr. L.J. Sauter, Jr. | |
| ■ Mr. Steven Lentell | ■ Mr. Bruce Shuckman | |



Scott Wolf and Christian Manalo present Life Member James Hanlon with his certificate



Scott Wolf and Christian Manalo pose with Life Member Vincent Berg



Scott Wolf and Christian Manalo pose with Life Member Richard Hurney



ASCE Life Member L.J. Sauter, Jr. poses with Scott Wolf and Christian Manalo

NCS Distinguished Members

Distinguished Members are our most esteemed members, having been either a Member or Fellow before being nominated for Distinguished Member. Established in 1853, ASCE has elected only 646 professionals to Distinguished Members. Honorees receive a framed certificate, 24K gold and ruby lapel pin and engraved medallion from ASCE National Headquarters. Their member status also changes in their credential; it now becomes Dist.M.ASCE. The NCS is proud to have two members receiving this prestigious title in the Class of 2014 and offers its sincere congratulations to our newest Distinguished Members.

- Dennis M. Kamber, P.E., Dist.M.ASCE
- Michael K. Loose, P.E., Dist.M.ASCE



Christian Manalo and Distinguished Member Dennis Kamber

NCS Service Award Recipients

Community Service Award – The Community Service Award recognizes outstanding contributions by an individual toward community improvement in the Washington metropolitan area. **Ahmet Zeytinci, Ph.D., P.E.** is a professor of structural engineering at UDC and Chairman of the Section's Education Committee. Dr. Zeytinci has been actively involved in research and peer-reviewed conference presentations for the last six years, publishing three papers every year regularly. Dr. Zeytinci has been teaching free engineering licensure exam preparation classes for practicing engineers and students on Saturdays for the last 10 years. It is for the classes that Dr. Zeytinci was bestowed the Community Service



Ranjit Sahai, NCS Past President, award winner Dr. Zeytinci, and Christian Manalo

Award. Check out [Dr. Z's corner](#) in the newsletter!

Meritorious Service Award – The Meritorious Service Award recognizes individual members of the NCS who have made outstanding contributions to the work of the Section. **Emily Dean, P.E.** is the current Treasurer of the NCS and has been an active member of the NCS since 2009. Emily currently works as a Project Engineer for Bohler Engineering, a land development firm located in Bowie, MD. Ms. Dean's meaningful modifications to the Section's accounting practices are one of the many reasons why she selected as the recipient of the Meritorious Service Award.



Merit Service Award Winner Emily Dean proudly displays plaque with Ranjit Sahai and Christian Manalo

Lifetime Excellence in Service

Award – The awardee must be an active member who has contributed significant time and talent to the Section over at least ten years and who sets a high standard of professionalism through service. **Dean Westman, P.E.** is a Past President of NCS and is currently very involved with the Section’s pre-college outreach efforts. An Associate at Whitman, Requardt & Associates, Dean has been involved in the Section’s pre-college outreach programs for at least the past decade with events such as Discover Engineering Family Day, Boy Scout Day, and Girl Scout Day. These



Congratulations Lifetime Excellence in Service Award winner Dean Westman!

events allow NCS to demonstrate various engineering principles through hands on activities. Mr. Westman is being awarded the Lifetime Excellence in Service Award for a decade of STEM awareness, outreach to elementary, and middle school kids.

President’s Appreciation Award – Vic Crawford, P.E. was bestowed the President’s Appreciation Award for outstanding service as Secretary of the NCS Centennial Commemorative Committee. Always willing to help the out the Section, Vic represented NCS at the Region 2 assembly in Harrisburg and DCCEAS Proclamation luncheon and volunteered his time at Discover Engineering Family Day at the National Building Museum.



NCS President Christian Manalo and Vice-President Scott Wolf present the President’s Appreciation Award to NCS member Vic Crawford

Sustainability Project Award

DC Water’s innovative \$400 million biosolids program at the Blue Plains Advanced Wastewater Treatment Plant, the world’s largest advanced treatment facility. The program will implement Cambi thermal hydrolysis, a process that typically doubles digester throughput, making digesters more economically viable, for the first time in North America. Built on only six acres, the completed facilities will provide one of the most extensive sludge digestion systems ever developed, constructing four Cambi thermal hydrolysis trains, four digesters, new dewatering equipment, and a 13megawatt combined heat and power system. With Cambi, DC Water will require fewer digesters, cut greenhouse gases, produce more



Alex Rosenheim, NCS Sustainability Committee Chairman (left), and Christian Manalo present the Sustainability Award to Chris Peot who accepted the award on behalf of DC Water

energy and create higher quality biosolids – all combining to save DC Water millions of dollars annually.

Outstanding Civil Engineering Project Award

This year, the **Marriott Marquis Convention Center Hotel** and the **Tyson’s Corner Center – Office Tower and Residential Phase I** were nominated for Outstanding Civil Engineering Project of the Year. Both project teams made a brief presentation, after which the NCS Awards Committee presented the award for Project of the Year to the **Marriott Marquis Convention Center Hotel Project**. The **Tyson’s Corner Center-Office Tower and Residential Phase I** received the Award of Merit.

Marriott Marquis Convention Center Hotel – Thornton Tomasetti and A+F Engineers

NCS newsletter readers are well acquainted with this important project, which was the lead article in our [November 2014 issue](#).

The Marriott Marquis was a complicated project that presented many new challenges, which required a great deal of safety planning. Due to local zoning height requirements building one hundred feet underground was the only option for the construction of the hotel. The combination of extreme depth; the tight, complicated site and the need for large column-free ballrooms demanded the use of top-down construction and compelled the team to devise solutions to a number of challenges. The design-build team collaborated to devise a



NCS 2015 Outstanding Civil Engineering Award Winners pose with their plaques; left to right: Mark Tamaro (Thornton Tomasetti (TT)), Christian Manalo, Chris Crilly (TT), Dimitrios Franztis (A+F Engineers), Wayne Stocks (TT), Neil Satrom (TT), Scott Wolf

unique solution to control settlement and tilt of the tower as construction progressed. The solution consisted of preloading two of the girders to remove the initial camber by jacking against column anchored in bedrock below with hydraulic jacks. The complex project required top-down construction, held an aggressive schedule, was situated on a compact site, was to comply with robust employment regulations, and required unique engineering solutions to satisfy program needs. The extraordinary result achieved was 15 stories of construction above grade, and the deepest excavation in Washington, DC. More than 100,000 square feet of event space was designed below grade, which resulted in the largest underground column-free ballroom in the city.

Tyson's Corner Center – Office Tower and Residential Phase I – Cardno Haynes Whaley

Tyson's Corner Center is comprised of a 20-story office tower, a 31-story residential tower, and a 7-level parking podium. Cardno Haynes Whaley's creative structural design played a key role in the innovative design and construction of Tyson's Corner Center. The office and residential towers sit on a raised podium that extends out toward the beltway and features an outdoor plaza that connects with the Metro station and shopping mall, as well as a cantilevered loop trail that wraps around the podium as it ramps down to the street level. The office building responds to two different

planes with a split-level, 55-foot wide by 100-foot long glass enclosed atrium with two entries; one at the plaza level for pedestrians walking across a pedestrian bridge from the Metro station and the other at the base of the building for those entering from the street level.

Designed to achieve LEED Gold, Tyson's Tower office building offers a green roof, floor to ceiling windows and solar shades on the southern exposure to capitalize on natural sunlight for energy management. The Residential Tower is designed to achieve a minimum of LEED Silver. At the heart of Tyson's Corner Center is The Plaza, a 1.5-acre outdoor destination with ongoing events and

activities for visitors and residents year round – a genuine gathering space.



NCS Project of Merit Award winners. Back row, left to right: Christian Manalo, Craig Myers, Brian Barna, Brian Cornell, Bob Pronier, Scott Wolf. Front row, left to right: Larisa Ramich, Julia Jiang

The NCS wishes to extend its sincere congratulation to all the 2015 award recipients!

NCS Water Resources and Sustainability Committees Present: Mr. Kent Hansen on Benefits and Design Considerations of Porous Pavement – Recap

By NCS Sustainability Committee

On March 10, 2015, the NCS Water Resources and Sustainability Committees welcomed Kent R. Hansen, P.E., Director of Engineering, National Asphalt Pavement Association, to present on the *Benefits and Design Considerations of Porous Pavement* as a strategy for reducing water runoff. Mr. Hansen has over three decades of experience on sustainable methods for reducing surface runoff through increased pavement water infiltration.

Mr. Hansen explained the differences between conventional pavements and porous pavements, especially as it relates to subgrade preparation/compaction and base strength. Removal efficiencies were discussed for pollutants such as total suspended solids, total petroleum hydrocarbons-diesel, total nitrogen (NO₃, NO₂, NH₄, TKN), and total metals (Zn). Design constraints include location of site, hydraulic conditions of the ground and structural needs of the project.

He discussed specific designs, including applications incorporating coordinated outlet structures with overflow weirs. Selection of appropriate surface layers is necessary for uses ranging from walking paths and parking lots to heavy



NCS members enjoying dinner meeting with Kent Hansen, P.E. on the Benefits of Design Considerations of Porous Pavement for reducing water runoff.

truckloads. Key properties to consider in specifications include air voids, drain-down performance, and asphalt content for durability and aggregate sizes. Using a polymer binder with fibers is critical, but standard plants are capable of producing modified mixes suitable for porous asphalt pavement. He provided an overview on construction methods and techniques, with case studies from around the nation to highlight the use of porous pavement in multiple climates and usages.

Finally, Mr. Hansen reported that Low Impact Design options had a 6% reduction in site development expenses due to reductions in drainage, site clearing and erosion control, which exceed the increased costs of the pavement itself. Long-term operation and maintenance costs are significantly less over the lifecycle of the pavement. Although maintenance costs were comparable in the first 5 to 10 years, the overhead and maintenance costs by year 20 and beyond were approximately four times higher.

View the full presentation at the [NCS website](http://www.ncs.org). ■

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NCS Committee News and Updates



Younger Members Forum

Monthly Happy Hours. The NCS Younger Members Forum (YMF) holds monthly happy hours in Arlington, VA or Washington, DC. Happy hours are usually the first Wednesday of each month unless a holiday falls during that week. The NCS YMF held their March Happy Hour & Annual St. Patty's Day celebration at *Ireland's Four Courts* in Arlington, VA on March 4. Approximately 20 members attended the event.



Younger Members enjoying happy hour and St. Patty's Day celebration at Ireland's Four Courts

The April monthly happy hour will take place in Arlington, VA at *Carpool* (4000 Fairfax Drive, Arlington, VA) at 6–8 pm on Wednesday, April 1, 2015. Join younger members from the area for complimentary appetizers and drink specials. Look for emails with specific locations for future monthly happy hours!

Stay Connected! Check out photos and stay up-to-date with YMF events by visiting the new [YMF Facebook page](#). Also, follow us on [Twitter](#) (@asce_ncsYMF).

Get Involved! Are you interested in getting involved with more Younger Members activities? Do you have ideas for social events or volunteering activities? Would you like to be a board member? The NCS Younger Members Group is always looking for new members! Let us know if you are not already on our mailing list! If you would like to become more active with the YMF or would like more information on our events, please email the [YMF President](#).

Centennial Committee

Engineering the Nation's Capital.

Join our Centennial Celebration, which will promote the civil engineering profession and the NCS's accomplishments since 1916. As the representative of the ASCE in the region, our Celebration affords an excellent opportunity to promote and honor the civil engineers from our area that have served the nation and the public for the last century by building not only the infrastructure in the Washington, DC area but supporting the nation's civil engineering profession around the world.



Committee membership has grown from our outreach efforts to federal, state, and DC organizations in our region, and local government organizations. However, we always have room for more members so that we can expand our plans for promoting civil engineering accomplishments and reaching out to the students in our area to highlight the benefits of pursuing engineering careers. These plans include contacting engineering firms to solicit their involvement in our promotional activities, and working with local schools and universities to obtain their support in promoting the benefits of a civil engineering education.

Your participation will allow the NCS to fulfill our Centennial goals to promote our profession, to steer students into civil engineering, and to recognize our members' accomplishments over the last hundred years. We have many activities planned and your assistance will help make the Centennial Celebration a success. The Centennial Committee needs volunteers with the following:

- Researching projects for the Centennial Commemorative Book,
- Conducting tours of select regional engineering achievements,
- Participating in outreach program to students and the public, and
- Assisting with the Centennial Gala Celebration.

So, once again, whether you are a Young Member, a Life Member, or somewhere in between, please join us by contacting the [Centennial Committee's Secretary](#).

History & Heritage Committee Field Trip in May

The History & Heritage Committee is planning a field trip to the Government Island Park and Historic Quarry in Stafford, VA. Why, you ask? Well, much of the stonework found in buildings throughout Washington, DC, namely Aquia Creek Sandstone, came from this quarry. This includes our DC Boundary Stones. You are no doubt familiar with the Section's efforts, led by Stephen Powers, to repair and repaint the cages protecting many of the boundary stones. Stephen will lead us on a tour of the quarry so we can see where these stones originated. The field trip will be either Saturday May 16 or May 23. If you are interested in joining us, please email [Bernie Dennis](#).

An Update from the Water Resources Committee

Upcoming events include a committee meeting in April (details TBD) as well as a luncheon/dinner event in the late spring/early summer. Check your email and the newsletter for more details. Anyone interested in becoming involved in the Water Resources Committee should email [Piers Causton](#) or call (202) 210-1103.

Geotechnical Engineering Committee

Please join us for our next lunch meeting on Wednesday, April 15, 2015, from 11:30–1:30 pm at *Maggiano's* in Tyson's II Mall in McLean. Rick Ellman, PE, of Mueser Rutledge Consulting Engineers and Ian Chaney of Parsons Brinkerhoff present, "Design and Construction of New VDOT Downtown Midtown Tunnel." The Virginia Department of Transportation (VDOT) has undertaken the Downtown Tunnel/Midtown Tunnel/MLK Expressway Project, a critical and complex undertaking that is central to addressing the Hampton Roads area's transportation needs. The project is a \$2.1 billion dollar mega Design/Build/Finance/Operate project involving the construction of a new two-lane vehicular tunnel utilizing the Immersed Tube Tunnel method under the Elizabeth River parallel to the existing Midtown Tunnel between Norfolk and Portsmouth, VA. It is the largest Design-Build project constructed in the history of the Hampton Roads District, extending 6,450 feet along the north side of the existing tunnel. Contact asce.ncs.gec@gmail.com for more information. ■

A New Era for the PE Exams: Are You Ready for the New Specifications?

Civil Breath and Geotechnical Depth Exams

April 2015 is an important month for all engineers who are planning to take their PE exams. Why? Because effective April 2015, the new PE exam specifications will be implemented. [Last month](#) we discussed in detail the new specifications for the "Construction Module" and this month we are going to talk about the "**Geotechnical Module,**" afternoon depth exams.

PE civil exam basics:

- Offered twice a year; in April and October;
- Designed for engineers with FE (EIT) certificates who have gained at least four years' post-college work experience in their chosen engineering discipline;
- Multiple-choice questions, lasting 8 hours;
- Split into a morning and an afternoon session (4 hours each; 40 multiple choice questions each);
- Both sessions use SI units and the US Customary System; and
- Morning and afternoon session exam results are combined for final the score.
- The [February issue](#) of our column details the morning *breath* session of the exam.
- The afternoon *depth* section focuses on a single area of practice in civil engineering to test an engineer's ability to practice competently in one of the

five sub-disciplines of the civil engineering.

- The exam is scored based on the afternoon module selected during *registration*.

PE Civil Geotechnical – Afternoon Depth Exam Specifications

The afternoon session of the *PE Civil Geotechnical* has questions that require a variety of approaches and methodologies, including design, analysis, and application. Some problems in the afternoon session may require knowledge of engineering economics. A typical breakdown with approximate number of questions:

- **Site Characterization:** 5 questions,
- **Soil Mechanics, Laboratory Testing, and Analysis:** 5 questions,
- **Field Materials Testing, Methods, and Safety:** 3 questions,
- **Earthquake Engineering and Dynamic Loads:** 2 questions,
- **Earth Structures:** 4 questions,
- **Groundwater and Seepage:** 3 questions,
- **Problematic Soil and Rock Conditions:** 3 questions,
- **Earth Retaining Structures (ASD or LRFD):** 5 questions,
- **Shallow Foundations (ASD or LRFD):** 5 questions,
- **Deep Foundations (ASD or LRFD):** 5 questions

The PE exam is an open-book exam. According to NCEES, you can bring bound reference material, loose paper bound with ring binders, plastic snap binders, and spiral-bound notebooks to the exam. All paper must remain bound during the exam, and sticky notes and flags must remain attached to book pages.

Finally, these are very fast-paced exams and you will have little time to look up information. Therefore, make sure you are familiar with your reference material and begin with the subject areas you know best. This will give you more time and build your confidence. Remember, it is always good idea to consider reverse engineering the problems by substituting the answers and seeing which one works. To help prepare for the exam, [here](#) is this month's problem set.

Most importantly, stay relaxed and confident. Always keep a good attitude and remind yourself that you are going to do your best.

Until Next Time,

Ahmet Zeytinci, PE
– Dr. Z.
drz@alfam.com



NCS congratulates Dr. Z on his Community Service Award!

ASCE-NCS Newsletter Patrons



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100 YEARS



1st ANNUAL ASCE NCS GEC STUDENT PRESENTATION COMPETITION

Sponsored by:

American Society of Civil Engineers

National Capital Section

Geotechnical Executive Committee

Students, please consider taking advantage of an opportunity to compete in the first annual ASCE NCS GEC student presentation competition to be held at the ASCE NCS GEC meeting on May 20, 2015 at Maggiano's in Tysons Corner, Virginia. This competition is an opportunity to plan, research, and develop a 10-minute presentation covering a geotechnical or geostuctural engineering topic of your choice. Students will be able to improve their public speaking skills, network with local engineering professionals and experts in their fields, and potentially win a cash prize. To be considered, students should be enrolled full-time in an accredited civil engineering degree program and be recommended by a civil engineering professor (geotechnical or structural). Undergraduate and graduate students from the following universities are eligible:

Catholic University of America

University of the District of Columbia

George Mason University

University of Maryland

George Washington University

University of Virginia

Howard University

Virginia Tech

Johns Hopkins University

Presentation abstracts of approximately **200** words and recommendation letters should be emailed to Edward S. O'Malley, P.E. at omalley@geostructures.com by **Friday, April 3, 2015** for consideration. Students will be notified regarding the acceptance of their abstracts by Friday, April 17, 2015. Candidates submitting accepted abstracts will receive certificates of recognition, as well as complimentary attendance at the lunch meeting. The accepted abstracts will be reviewed and ranked. Three abstracts will be selected for presentation at the meeting. The three presentations will be judged and ranked by a panel of practicing engineers considering a rubric of criteria including originality, technical competence, quality of delivery, and local relevance (Washington Metropolitan area geologic conditions, projects, etc.). The first place presenter will receive a cash prize of \$1,000. The two runners-up will each receive cash prizes of \$500. Please contact Ed O'Malley at the above email address or at 540-751-5000 with any questions.

Civil Engineering and You: Infrastructure and Science

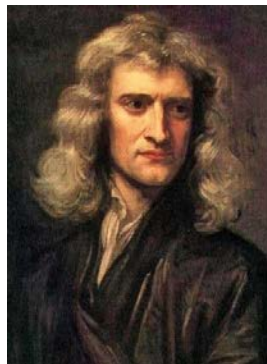
By Ranjit S. Sahai, P.E., F.ASCE

If your planned event succeeds, you feel efficacious; the outcome demonstrated the validity of your methods. You also feel serene; there was no challenge – you repeated the given and the known. What if your event fails? You are in shock! When you channel that shock to purposeful and systematic inquiry, you take the path of significance that can uncover the reasons why. Your inquiry is thoughtful, engages your creativity, and can lead you from one milestone to the next to resolution.



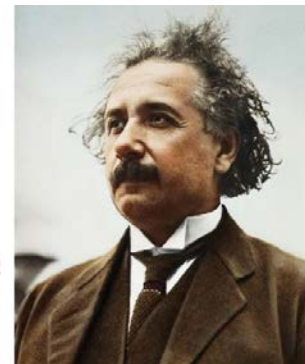
Throughout human history, the development of new scientific concepts overcome failures of established ones to explain human observations and leads to progress.

Failure is not, in scientific terms, an accident caused by a random event. It is the ruined outcome of planned purposeful action based on known scientific concepts you believed would deliver the outcome you sought. Unanticipated infrastructure failure is the spark that ignites scientific progress. Science develops concepts to explain the laws of nature. Engineering rearranges nature



$$F = ma$$

$$E = mc^2$$



Einstein's theory of relativity was conceived in the twentieth century when Newton's seventeenth century laws of motion for terrestrial mass (m) failed to explain aspects of motion of planetary mass (m) that became observable in modern times.

in accordance with scientific principles to create artifacts that enhance human life. The fact that catastrophic failures are rare implies that humans understand nature well enough to rearrange it successfully. That failures attract worldwide professional attention implies that an infrastructure failure may have stretched existing scientific concepts to their limits. The failure may be setting the stage to uncover new concepts better suited to evolving our designs for purposes that necessitate the stretching of limits of existing knowledge.

Science is a collection of logical and proven concepts derived from axioms, i.e., irrefutable sensory observations that explain our world. Infrastructure is a fabricated artifact that enhances human life. It requires focused attention, problem-solving skills based on science and a productive sequence of steps. When struck by failure, take heart and make the resolve to forge ahead with purposeful and systematic inquiry. Could this be the next breakthrough-awaiting discovery? ■

It is time for the next Potomac Piranhas™ Hackathon

Hackathons are key events for networking, brainstorming, and collaboration on solutions that will improve the health of our watershed. While they take liberties with the traditional definition of "hackathon," these events were inspired by this term from the computer science field. This collaborative, fast-paced model helps generate and vet ideas

that can eventually turn into real-world solutions, while drawing from a broad range of disciplines and individual experiences.

Join the Potomac Piranhas™ on Thursday, April 23 from 5–9 pm at the World Resources Institute in Washington, DC. The building is

immediately adjacent to Washington Union Station, and is easily accessible by the Metro Red Line, VRE, and MARC. There is also ample paid parking in the Washington Union Station garage.

The Potomac Piranhas™ Hackathon is an important step to help develop ideas that could potentially earn funding and support at Potomac Piranhas™ Pitch events. Take advantage of the opportunity to network and generate innovative ideas by [registering now!](#) ■



POTOMAC PIRANHAS™ HACKATHON
THURSDAY, APRIL 23, 2015
at the WORLD RESOURCES INSTITUTE
10 G STREET NE, SUITE 730, WASHINGTON, DC 20002

ASCE NCS Loses Two Distinguished Members

Obituary for a Noted Civil Engineer

By Bernie Dennis

ASCE NCS Distinguished Member Abba G. Lichtenstein, P.E., passed away on Friday, March 13, 2015, at the age of 92.

He was a Civil Engineering graduate of Ohio State University, which granted him an Honorary Degree of Doctor of Engineering in 1963. Abba founded A.G. Lichtenstein & Associates, a consulting firm and was a nationally known expert in the repair and rehabilitation of bridges, particularly historic bridges.

Mr. Lichtenstein was an expert witness on the [Silver Bridge collapse in Ohio](#) and testified before Congress to mandate historic bridge inspections. In 1986, Mr. Lichtenstein turned the ownership of the firm over to the Associates, and started his own one-man consulting

firm specializing in historic structures. In 1988, he was accorded the Presidential Award for his work on the Roebling Aqueduct. He received the ASCE History Award in 1991 and the State of New Jersey's Lindbergh Transportation Award.

In 1994, he became associated with the structural engineering firm of McMullan & Associates, Inc. in Vienna, VA, as a Senior Bridge Engineer/Canal Specialist. This led to his involvement with the NCS's support of the National Park Service restoration of the Monocacy and Catoctin Aqueducts on the C&O Canal. He also helped on our Section's efforts with Prince George's County on the Queen Anne Road Bridge in Bowie, MD.



Denis McMullan said that Abba, "was still working for me a few hours each week and sharp and witty." He was a true civil engineer and model for us all; he will be missed.

A. James Clark, Engineer, Philanthropist, and Clark Enterprises Founder, Dies

By Jeanne Hamrick, ASCEnews

Honorary Member A. James Clark, Hon.M.ASCE, NAE, who owned one of the country's largest general contracting firms, Clark Enterprises, died March 20 at his home in Easton, Maryland. He was 87.

Clark was well known for his philanthropy and gave generously to universities, medical facilities, and other organizations that helped veterans, the homeless, and the disadvantaged. Clark served on a number of corporate boards, including the Samaritan Inns.

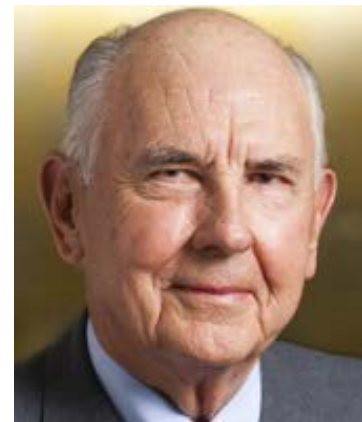
Mr. Clark, born in Richmond, Va., was hired by the George Hyman Construction Company and was named its president in 1969. In 1996, he merged George Hyman with a subsidiary construction firm he owned (Omni Construction) into the Clark Construction Group. His companies built more than 1,200 projects in the Washington, D.C., metro area during his tenure and many more nationwide; among these are his most recognizable landmarks in Washington, the Dirksen Senate Office Building, Nationals Park,

and the Verizon Center, as well as Milwaukee's Miller Park and San Diego's Petco Park.

Clark earned a bachelor's degree in civil engineering from the University of Maryland in 1950, and was the benefactor of the university's A. James Clark School of Engineering in 1994. He also established a scholarship endowment fund to enrich the undergraduate engineering experience and to help solve the nation's shortage of highly trained engineers. In addition, Clark was a trustee emeritus of Johns Hopkins University and the George Washington University (GW), where he endowed the Clark Scholars Program for GW's School of Engineering and Applied Science. He was bestowed a Doctor of Engineering honorary degree from GW in 2010.

In 2002, Clark was named an ASCE Honorary Member, and in 2006 he received ASCE's OPAL Lifetime Achievement Award for Construction for innovation and excellence in construction of civil engineering projects and/or programs.

The University of Maryland included a timeline of Mr. Clark's accomplishments on its website: <http://www.eng.umd.edu/Clark-tribute/timeline>. ■



Upcoming Events *(Also available on the NCS website under the [Events tab.](#))*

April 1, 2015

Join the NCS Younger Members Group for their monthly happy hour from 6–8 pm at Carpool in Arlington, VA. Join other younger members from the area for while you enjoy free appetizers and drink specials. (See newsletter brief.)

April 6

The NCS Centennial Committee will meet from 11:30–1 pm in Washington, DC. Please email Committee Secretary [Vic Crawford](#) for additional information.

April 10

The NCS Life Members Forum will meet from 11:30–1 pm in Washington, DC. Please email [Chris Manalo](#) or call (703) 377-1697 for additional information.

April 11 and 12

Annual EPA P3 Student Competition and National Sustainable Design Expo in Alexandria, VA from 9 am to 6 pm. We need volunteers for 3-hour shifts throughout the event. Sign-up directly at the [Volunteer Spot website](#) or email [Alex Rosenheim](#), or call (202) 412-3090 with any questions. (See newsletter brief.)

April 15

The NCS Geotechnical Executive Committee presents “Design and Construction of New VDOT Downtown Midtown Tunnel” by Rick Ellman, PE of Mueser Rutledge Consulting Engineers and Ian Chaney of Parsons Brinkerhoff., at *Maggianno’s* Tysons II Mall from 11:30–1:30 pm. Contact asce.ncs.gec@gmail.com for more information. (See newsletter brief.)

April 21

Join NCS for our monthly meeting at the Arlington Hilton. The NCS Sustainability Committee welcomes Mr. Sam Higuchi, NASA engineer and co-chair of the Federal Interagency Forum on Climate Change Impacts and Adaptations. (See lead article.)

April 23

It is time for the next Potomac Piranhas™ Hackathon. Join the Potomac Piranhas on Thursday, April 23 from 5–9 pm at the World Resources Institute in Washington, DC. [Register now!](#)

April 23–25

At the [SEI Structures Congress in Portland, OR](#), you can gain understanding of what affects Bridges and Transportation Structures, Buildings, Forensics, Non-building & Special Structures, Nonstructural Systems and Components, Blast and Impact Loading and Response of Structures, Business and Professional Practice, Education, Research and Natural Disasters Program Focus – Sustainability, Environment, while learning from some of the leading experts and practitioners in the industry.

May 6

The YMF happy hour will be held at Local 16 in Washington, DC from 6–8 pm. Join other younger members from the area for while you enjoy free appetizers and drink specials. Watch for upcoming emails for more information.

May 17–21

Austin, Texas will host the [World Environmental and Water Resources Congress 2015](#). Created in 1999, the Environmental & Water Resources Institute is the recognized leader within ASCE for the integration of technical expertise and public policy in the planning, design, construction, and operation of environmentally sound and sustainable infrastructure impacting air, land, and water resources.

May 19

Join NCS for our monthly dinner meeting at the Arlington Hilton from 6–8:30 pm. Visit our [website](#) and look for more information in upcoming emails.

August 5–7

50th EWRI/ASCE Watershed Management Symposium in Reston, VA. This multidisciplinary event unites engineers, hydrologists, soil scientists, foresters, environmentalists, and other disciplines for technical presentations and networking opportunities in the midst of the Potomac and Chesapeake watersheds. For more information, visit the [website](#).

August 23–26

ASCE will sponsor **Pipelines Conference 2015** at the Baltimore Marriott Waterfront Hotel in Baltimore, MD. The conference will focus on recent advances in underground pipeline engineering and construction. Registration opened in March 2015. For more information, click [HERE](#).

Employment Clearinghouse

Position Available

Senior Traffic Engineer – RAM, a transportation engineering firm that serves MD SHA and VDOT, has an immediate opening for an experienced traffic engineer at its Dulles, VA office. Three to five years of meaningful experience designing traffic signals, lighting, signing, pavement marking, maintenance of traffic, and field work associated with traffic count data collection is required. A PE license in MD and VA is desired. Must be well versed in design standards of MD SHA, VDOT, and MicroStation. Familiarity with transportation asset management using GIS is a

plus. Salary range from \$65–75K, depending on experience with full benefits. To apply, submit your resume to hr@ram-corp.com. EEO.

The NCS provides the Employment Clearinghouse as a free service to its membership. The Clearinghouse allows members to post short notices for available positions or candidates seeking employment. All employers listed herein are equal opportunity employers. If you have questions, are seeking employment or would like to post a position please contact the [newsletter editor](#) and visit our [jobs page](#).