

October Section Meeting: Offshore Wind Production Platforms

By Alex Rosenheim, Chair, Sustainability Committee

The ASCE-NCS Sustainability Committee is proud to announce that the October 2017 ASCE-NCS Section Dinner Meeting will highlight the topic of “Offshore Wind Production Platforms – Maryland, Virginia and Beyond.” Representing the Department of the Interior’s Bureau of Ocean Energy Management (BOEM), our distinguished guest speakers will be Darryl K François, Chief of the Engineering and Technical Review Branch of the Office of Renewable Energy Programs and Daniel P O’Connell, PE, GE, M.ASCE, Geotechnical Engineer with the Office of Renewable Energy Programs.

As an emerging part of the nation’s all-of-the-above energy portfolio, the BOEM’s Outer Continental Shelf (OCS) Renewable Energy Program, provides a new source of domestic energy supply with less carbon emissions, and offers the prospect of more domestic jobs and wages, and increased revenues from lease bonuses, rentals on acreage leased, and production operating fees. In the future, BOEM anticipates development of offshore renewable energy from three sources: wind energy, ocean wave energy and ocean current energy.

Our guest representatives from the BOEM will discuss the engineering design challenges, energy production technologies and ongoing and planned projects in Maryland, Virginia and



beyond throughout all the shorelines of the United States. They will be discussing their agency’s mission to manage development of U.S. Outer Continental Shelf energy and mineral resources in an environmentally and economically responsible way.

Wind energy has been used by humans for thousands of years. For example, windmills were often used by farmers and ranchers for pumping water or grinding grain. In modern times, wind energy is mainly used to generate electricity, primarily through the use of wind turbines.

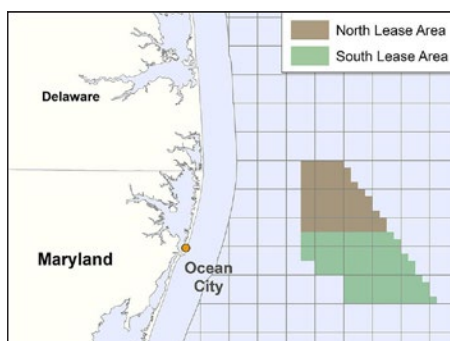
The first offshore wind project was installed off the coast of Denmark in 1991. Since that time, commercial-scale offshore wind facilities have been operating in shallow waters around the world, mostly in Europe. Wind power projects will continue to take shape offshore the United States. At the same time, the development of newer turbine and foundation technologies will allow wind power projects to be built in deeper waters further offshore, and the adaptation of standards and guidelines for national regulation will remain important for a national offshore wind energy resource and design database.

Offshore wind turbines are being used by a number of countries to harness the

Please join us on **Tuesday, October 17**, 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 [Brian Barna](#). Please click [here](#) to register by **October 12**.

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.

energy of strong, consistent winds that are found over the oceans. In the United States, roughly 50% of the nation’s total population lives in coastal areas to include counties directly on the shoreline or counties that drain to coastal watersheds. Energy costs and demands can be high, and land-based renewable energy resources are often limited in coastal areas. Abundant offshore wind resources have the potential to supply immense quantities of renewable energy to major U.S. coastal cities, such as New York City, Boston, and Los Angeles.



President's Corner

Greetings, ASCE-NCS members! We are off to another busy start in our 102nd year of the National Capital Section. First of all, I would like to thank Past President Jordan Pitt and the rest of the Board of Directors and all of our volunteers on a successful 2016–17 year. It is an honor and a privilege to be elected to serve as President, and I will work hard to ensure we have another great year in 2017–18.

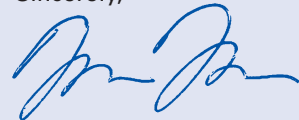


I would like to thank Ms Tiffani Jenkins for her presentation on WMATA's SafeTrack program last month. Tens of thousands of commuters in this area rely on Metrorail daily, making our rail system a critical piece of infrastructure for the Washington, DC region. I spoke with several friends and colleagues over the past year about their thoughts on the SafeTrack program. There was some frustration for sure, as no one enjoys having their daily commute disrupted, but also just about everyone I talked with understood the importance of the maintenance program and were willing to accept a short-term annoyance for a longer-term safer and more reliable transportation system. The SafeTrack Safety Surges have ended, but we hope and trust that Metro's renewed commitment to the maintenance of their system will continue.

At this month's Section meeting, we will have Darryl François and Daniel O'Connell, PE, M.ASCE of the Bureau of Ocean Energy Management to present on their studies to use off-shore wind production platforms to provide sustainable and renewable energy to Maryland and Virginia. Investing and investing in new and better green energy technologies will be key for the United States in terms of economic success, national security, and protecting the environment. Off-shore sustainable energy platforms may prove to be an important cog in the 21st century green infrastructure that will be critical to our coastal cities – to provide adequate energy resources to many of our most populous and energy-hungry cities and to try to stem the rising sea levels and extreme weather events associated with climate change. As I write this article, Houston, Miami, Puerto Rico, and many other U.S. cities and island countries in the Caribbean are dealing with the impacts of hurricanes and flooding of unprecedented magnitude and frequency. NCS pledges our support and condolences to all those affected by these weather events. Civil engineers should also see these recent events as a call to action to build infrastructure to address these issues.

We inducted our new Board of Directors at the September meeting that will serve through 2018. This Board and our other volunteers have the responsibility to maintain the excellent level of service that we provide to our Section members. Our Section consists of almost 20 committees, 5 Universities, a Younger Member Forum, a newly-formed Life Member Forum, and we are in the process of converting the Reston Committee into our first ever Branch. We have eight section meetings per year, volunteer and educational outreach events, Branch meetings, committee meetings, monthly YMF Happy Hours, and much more. All of these events are organized entirely by volunteers. Our volunteers do a great job, but we can always use more help. Even if you only have a few hours a month to spare, we can use you. If you are interested in the opportunity to help our Section and to become more engaged with the local civil engineering community, please contact me at president@asce-ncs.org.

Sincerely,



Brian M. Barna, PE
ASCE-NCS President

Newsletter

Jim Palmer, Editor

Sumon Chatterjee, Editor-in-Training

November 2017 Issue Deadline: October 18, 2017

To Submit Articles: newsletter@asce-ncs.org

NCS eNewsletter Archives: go to www.asce-ncs.org and view along the sidebar.

Address Changes: Call 1-800-548-ASCE, e-mail member@asce.org, visit www.asce.org, or write: ASCE – Membership, 1801 Alexander Bell Drive, Reston, VA 20191. Include your membership number.

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Please refer to the [NCS website](http://www.asce-ncs.org) for a current list of NCS committees and chairs.

October Section Meeting: Offshore Wind Production Platforms

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Offshore winds tend to blow harder and more uniformly than on land. The potential energy produced from wind is directly proportional to the cube of the wind speed. As a result, increased wind speeds of only a few miles per hour can produce a significantly larger amount of electricity. For instance, a turbine at a site with an average wind speed of 16 mph would produce 50% more electricity than at a site with the same turbine and average wind speeds of 14 mph. This is one reason that developers are interested in pursuing offshore wind energy resources. The U.S. Department of Energy (DOE) provides a number of maps showing average wind speed data through its Resource Assessment & Characterization page and through National Renewable Energy Laboratory (NREL) (see link below).

Wind speeds off the Southern Atlantic Coast and in the Gulf of Mexico are lower than wind speeds off the Pacific Coast. However, the presence of shallower waters in the Atlantic makes development more attractive and economical for now. Hawaii has the highest estimated potential, accounting for roughly 17% of the entire estimated U.S. offshore wind resource. Maps of renewable energy potential for multiple technologies, or state-by-state analyses.

The Outer Continental Shelf (OCS) Lands Act requires the BOEM to award leases competitively, unless BOEM determines there is no competitive interest. In and around 2010, the Bureau of Ocean Energy Management (BOEM) initiated the leasing process offshore Maryland by issuing a Request for Interest (RFI) to gauge industry's interest in obtaining commercial wind

leases in many offshore areas including Delaware, Maryland and Virginia.

About the Speakers:



Darryl K François
Chief of the Engineering and Technical Review Branch of the Office of Renewable Energy Programs

Mr François is responsible for managing the regulatory framework that governs the development of renewable energy projects on the US outer continental shelf. His responsibilities include policy development and management oversight of the review of technical and engineering design aspects related to offshore renewable energy projects. In addition to the Bureau of Ocean Energy Management, Mr. François' 37 year career with the US Department of the Interior includes service with the US Geological Survey, Minerals Management Service and Indian Affairs in the analysis of energy, environmental, technology, and economic development issues across the Department's spectrum of public land management. He received his BS in Physics from Bradley University and his MS in Geophysics from the Pennsylvania State University.



Daniel P O'Connell, PE, GE, M.ASCE
Geotechnical Engineer with the Office of Renewable Energy Programs

Mr O'Connell has been with the Bureau of Ocean

Energy Management since 2013 and is responsible for reviewing engineering studies and plans for offshore renewable energy projects on the Outer Continental Shelf, updating federal regulations and managing research activities. With a BS Civil Engineering from Brown University, O'Connell had 38 years of experience as a Geotechnical Engineering consultant in New England, California, and the Mid-Atlantic prior to joining Federal Government. O'Connell has been an American Society of Civil Engineers member since 1981 and is now Life Member.

Additional Information:

- 2016 Offshore Wind Energy Resource Assessment for the United States (NREL): <https://www.nrel.gov/docs/fy16osti/66599.pdf>
- US Renewable Energy Technical Potentials: A GIS-Based Analysis (NREL): <https://www.nrel.gov/docs/fy12osti/51946.pdf>

Videos (from US Department of Energy):

- America's First Offshore Wind Farm: <https://www.youtube.com/watch?v=gmhdFkrDyZs>
- Energy By The Numbers: Wind Power: <https://www.youtube.com/watch?v=z2cWfsQguHI>
- GoPro Tour (Wind Turbine): <https://www.youtube.com/watch?v=5vj6GwVhQT0>

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George Mason University Wins NCEES Award for Third Year

For the third year, George Mason University's Sid and Reva Dewberry Department of Civil, Environmental and Infrastructure Engineering's Engineers for International Development (EfID) has won a Second Place National Council of Examiners for Engineering and Surveying (NCEES) Engineering Education Award and a \$7500 cash prize. The NCEES Engineering Education Award recognizes college engineering programs for engaging their students in collaborative projects with licensed professional engineers. This is the third consecutive year that George Mason has won the second place prize. This year's award submission entitled "Design and Construction of a Reliable Drinking Water System for an Orphanage in Central America" brought 60 students together with licensed professional engineers and faculty to design and implement a drinking water storage, disinfection and distribution system to serve an orphanage home for 150 children in a remote community in Nicaragua.

In developing countries, children under five years of age are the most severely affected by the lack of access to safe drinking water. Without clean water, children may develop diarrheal diseases that can lead to fatal illnesses. Through a series of assessments, the Mason "Student Engineers" for International Development determined that an orphanage located in a remote region of Nicaragua was dependent on a deficient and contaminated water supply system. With little water and pressure in the system, the orphanage experienced many shortages, especially in the middle of the day when water was needed for cooking and cleaning purposes. The low flow rate was not only inconvenient, but led to the development of mold in many of the water lines. Unfortunately, filtration and disinfection methods were unavailable to the community further exacerbating the growth of additional microorganisms. Additionally, the onsite clinic at the orphanage, which provided aid to the children affected by water-borne illnesses, obtained its water supply from the same source as the orphanage, exacerbating the children's health issues.



Michael Zmuda of Johnson, Mirmiran and Thompson, Inc, representing the Virginia Board of NCEES, presented the award to the student President of Engineer's for International Development, Michael Schindler, the Department Chair and EfID Faculty Advisor Liza Wilson Durant, the Dean of the Volgenau School of Engineering, Kenneth Ball, EfID Director Matt Doyle and the students of EfID.

To address these challenges, Mason EfID dedicated their engineering skills and time to help improve the safety and quality of life for the community. Working alongside professional engineers, EfID students designed and implemented an Ultra Violet (UV) Disinfection System capable of processing the water demand for approximately 150 orphaned children. In addition to the UV system, a new, pressurized, looped water distribution network was installed, which encompassed the existing facilities and replaced the broken, cracked, and moldy infrastructure. The replacement and expansion of the distribution, disinfection, and storage systems were planned and designed over two academic years, totaling thousands of man-hours by EfID students. Several multi-disciplinary aspects of engineering were involved in the design and implementation of the remedy including hydraulics, water resources and environmental engineering, electrical engineering, mechanical engineering, and structural analysis, with an emphasis on a sustainable design that requires minimal maintenance. Throughout the assessment, design and implementation phases of the project, students were sensitive to the cultural norms and practices of the community.

The contribution of 60 engineering students, as well as 10 technical advisors and practicing professional engineers, has made a significant improvement in the protection of public health, safety, and welfare in this remote Nicaraguan community. In addition, the project created a collaborative experience for students and industry leaders, who experienced intangible rewards through their interaction with the community.

The NCEES cash prize will be reinvested in future Engineers for International Development projects which seek to enable Mason students to contribute to the development of sound infrastructure in the developing world while gaining professional experience in all aspects of civil, environmental, construction engineering and project management.

To join us in future projects and to get involved, please contact the Mason faculty advisor Dr. Liza Wilson Durant at ldurant2@gmu.edu. For more information about Mason's Engineers for International Development please see <http://www.gmu-efid.org/>. ■

2017 ASCE Presidents and Governors Forum

By Emily Dean, PE, ASCE-NCS Vice President

On Sunday, September 17th Brian Barna (ASCE-NCS President) and Emily Dean (ASCE-NCS Vice President) attended the annual ASCE Presidents and Governors Forum held at ASCE Headquarters in Reston, VA. The forum was an opportunity for incoming Section, Branch, and Region leadership from across the country to share ideas, strategies, and best practices for the upcoming year. ASCE's Region 10, the International Region, was also represented by members from as far away as Sri Lanka, the United Arab Emirates, and Israel.

The Forum featured presentations by ASCE's Leadership Training Committee, Executive Board, and Geographic Services Unit. ASCE President Norma Jean Mattei, ASCE President Elect Kristina Swallow, and ASCE Executive Director Tom Smith all addressed the group throughout the day offering words of encouragement and support and sharing how ASCE benefits from strong leadership at the Section level. The Leadership Training Committee presented on resources available to Section and Branch leadership at the Regional level. ASCE Region Governors and Directors serve as a conduit between the Sections and National Headquarters and we are fortunate to have John Casana (ASCE-NCS Past President) serving as the Region 2 Director this year. Following the Leadership Training Committee presentation, the

group divided into small groups for a Roundtable Discussion focusing on membership engagement, Branch logistics, sponsorship, and incorporation of the Institutes.

After lunch, Jim O'Brien, Managing Director of Leadership Development energized the room with an interactive speech during which he shared tools that incoming presidents should use

on utilizing life members, a member of the Dallas Branch sharing tips for utilizing social media, and Jane Howell, ASCE Chief Communications Officer, providing an update on Dream Big.

At the completion of the training the group went to the nearby Sheraton Hotel for a Networking Social and Dinner where connections made over the course of the day were strengthened



to become great leaders. Then, Nancy Berson and her team in Geographic Services shared the extensive ways they support the local sections and encouraged everyone to utilize their network and resources for everything from updating bylaws, to financial and legal advice, to learning about best practices from other sections across the nation. The training concluded with a member of the Sacramento Section sharing tips

over dinner and drinks. This Forum proved to be a valuable resource for incoming Section, Branch, and Regional Leadership. We look forward to utilizing ASCE Headquarters' resources and the skills we learned to better serve our membership here in the National Capital Section over the upcoming year. ■

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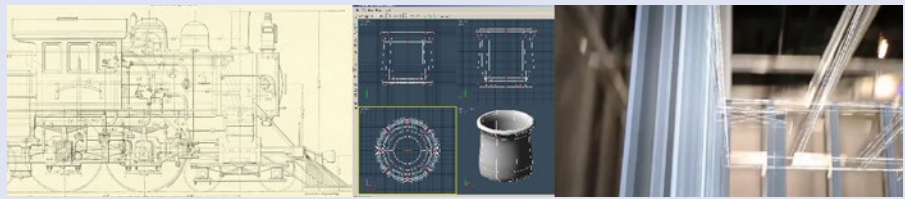
By Ranjit S. Sahai, PE, F.ASCE

The emerging revolution in engineering design is, as we saw last month, transforming how we model design and how we use it to construct the design. See an 80-second video clip at this link to experience the revolution: <https://vimeo.com/189961433>. I'll refer to this 80-second video clip in the rest of this article as "the video clip."

Let's walk down the halls of history of engineering drawing. A glance over time at key technological breakthroughs in the field provides the benefit of the full view to infer emerging engineering design workflows that will require new skills and processes.

The first significant breakthrough in documenting design was the development of Descriptive Geometry by Gaspard Monge (1746–1818). It solved the engineer's age-old problem of communicating design for construction unambiguously and with precision. His work ushered in the era of standardized engineering drawing, and paper remained the medium of choice for communicating design through manually drafted plans until the late 1970s and early 1980s.

The second significant breakthrough was the shift from manual drafting to geometric modeling. It led to the switch in medium from paper to digital storage. Computer-aided design and drafting (CADD) software stores geometric shapes digitally as coordinates (X, Y, Z), and attributes, both graphic (ie color) and non-graphic (ie data). Geometric



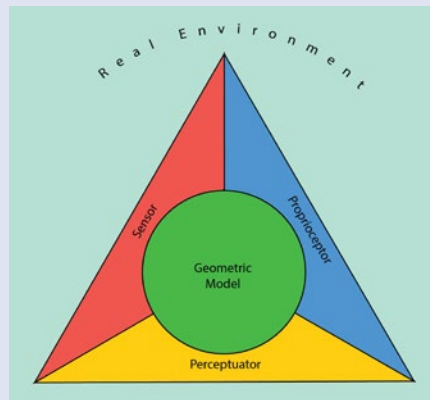
Engineering design: From paper to geometric model to sensory-spatial model

modeling systems can automatically generate and print engineering plans to support paper workflows.

The third significant breakthrough is sensory-spatial modeling. It is an evolution of geometric modeling that incorporates sensors for adaptive response. Let's examine what this means in more detail.

The setup to construct the bathroom pod in the video clip required sensors in the worker's headset and around his working area. The passive and active sensors detect not only shapes of surrounding objects but also distances; thus, the term *sensory-spatial*.

The term *perceptuator* (see diagram) refers to devices such as the Microsoft HoloLens seen in the video clip. These



devices actuate the geometric model so it can be perceived. In other words, the HoloLens actuates the geometric model by projecting holograms so the model can be seen in space by the worker.

The term *proprioceptor* refers to the actuated model's awareness of its position in relation to its surroundings in the real environment. Thus, even though the worker (with headset that projects holograms) is moving in the video clip, the actuated model remains stationary in space at its location of construction. Put another way, the actuated geometric model demonstrates adaptive response to the real environment.

When you combine sensory-spatial modeling with technologies such as computer-aided manufacturing (CAM), embedded sensors in infrastructure components, and the Internet of Things (IoT), it becomes possible to infer emerging engineering design workflows.

Examples of a few emerging workflows include: in-field conflict detection between design and existing conditions; use of LiDAR survey techniques on even typical projects; and gesture-based design-update. We'll explore the gesture-based design-update workflow in detail next month.

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ASCE 2017 Younger Member Leadership Symposium

By Jon Pink & Rebecca Starosta

The ASCE Younger Member Leadership Symposium (YMLS), a three-day leadership workshop hosted by the Committee on Younger Members at ASCE Headquarters in Reston, Virginia, was held on August 4–6. Approximately 50 civil engineers from across the nation came together to explore professional development concepts that will help them develop the skills needed to succeed as leaders in the work place and network with other Younger Members.

The weekend was full of highly interactive and engaging workshop sessions, presentations, and a panel discussion. With topics ranging from communication styles, to engaging in difficult conversations, to managing problem projects, participants worked within peer-groups to explore new concepts. ASCE President-Elect Kristina L Swallow gave a relatable and encouraging talk on the challenges of finding your own work-life balance. The weekend also included a mentorship panel discussion, which was moderated by Robert D Wolff, an active member of ASCE-NCS and the ASCE Committee on Leadership



and Management. The panelists included industry-leading experts who offered lessons learned from their own careers, candid advice, and words of encouragement to the group of young leaders.

Prior to the workshop, the attendees had an opportunity to partake in a guided tour of DC, including stops at the Capitol, National Mall, and Lake Anne, Virginia. A small group of attendees,

including two from ASCE-NCS, participated in a brainstorming session for ASCE's Raise the Bar initiative. Participants weighed in on the dynamics of the future of Civil Engineering education and professional licensure requirements.

Don't miss out on this opportunity next year! Registration for YMLS 2018 will open in May 2018. For more information, contact youngermember@asce.org. ■

September Meeting Recap: WMATA SafeTrack

By Stephen Powers, PE, Boundary Stones Committee Chair

Tiffany Rhodes, Acting Deputy Director Maintenance of Way Engineering Work Planning Group, presented to NCS membership the success of the recently completed WMATA SafeTrack. This program accelerated track work to address safety recommendations and rehabilitate the Metrorail system to improve safety and reliability. Tiffany's presentation included statistics of the regional impacts of the program and how that information was used during the program to let the local jurisdictions fully understand the impacts to commuters to the various lines. Key planning initiatives lead to the development of highly coordinated and detailed work plans broken down to allow multiple crews and trades access to the same locations in an organized manner resulting in increased production. SafeTrack began in June 2016 with a goal of achieving three years' worth of maintenance work in a single year, and Tiffany showed how WMATA was able to surpass that goal. The program provided expanded



maintenance windows on weeknights, weekends, midday hours and through a series of 16 "Safety Surges" – long duration track outages for major projects in key parts of the system. By the conclusion of the SafeTrack program WMATA was able to renew over 1/3 of the Track and Structures infrastructure significantly reducing rail defects, providing a noticeably smoother and

quieter ride for customers. Tiffany broke down the number of cross ties, grout pads, fasteners, insulators, and rail sections were rehabilitated as a result of this aggressive work campaign which allowed WMATA to provide access for improvements of other critical components such as its tunnel lighting, signaling systems and power cable upgrades. Statistics were shown that highlighted the benefits of the program results in reductions in smoke/fire incidents and Rail Service Interruptions. In closing, Tiffany apprised the group of the lessons learned from the SafeTrack program which WMATA has begun the work to incorporate the improvements in work planning and execution through the generation of six new preventative maintenance programs as well as the annual maintenance and construction planning processes. Thank you Tiffany for the presentation and all your hard work on SafeTrack as well as laying the groundwork for Metro's "Back2Good" program! ■

Only one thing is better than being an engineer: being a Professional Engineer (PE)

Every month Dr Z's Corner receives many questions from students and engineers about the Fundamentals of Engineering (FE) and Professional Engineer (PE) exams and this month we would like to give a brief overview of these exams, including some new test formats.

Clean water, sound structures and safe power. Professional Engineers are charged with preserving these and many more fundamentals that protect the health, safety, and welfare of the public. In other words Professional Engineers help make us healthier, keep us safer and allow all of us to live better lives than ever before. Earning your license and joining the community of professionals committed to excellence will definitely change your life! And the first step in this journey is to take the FE exam. The National Council of Examiners for Engineering and Surveying (NCEES) develops and scores all the FE, PE, and SE exams for engineering licensure in the United States.

Fundamentals of Engineering (F.E.) Exam

The Fundamentals of Engineering (FE) exam is generally your first step in the process to becoming a professional licensed engineer (PE). It is designed for recent graduates and students (seniors) who are close to finishing an undergraduate engineering degree from an EAC/ABET – accredited program. The FE exam is a computer-based test (CBT) administered year-round at NCEES-approved Pearson VUE test centers.

The FE exam is closed book with an electronic reference and includes 110-questions. The exam appointment time is 6 hours long and includes: Nondisclosure agreement (2 minutes), tutorial (8 minutes), and actual exam (5 hours and 20 minutes). There is also a 25-minute scheduled break. For FE exams, the most current version of the appropriate NCEES-supplied reference handbook (v.9.4) will be supplied onscreen as a searchable PDF. All

NCEES examinees will use a 24-inch monitor while testing to allow sufficient space to display both the exam questions and the reference handbook.

FE Exam Disciplines

The FE is offered in seven disciplines as follows: FE Chemical, FE Civil, FE Electrical and Computer, FE Environmental, FE Industrial and Systems, FE Mechanical and FE Other Disciplines.

Starting July 1, 2017, the computer-based FE introduces a new testing component called Alternative Item Types (AITs). AITs are questions other than traditional multiple-choice questions. The exam fee is \$225 and payable directly to NCEES.

Registering for the exam is quite simple: You can register for the FE exam by logging in to your MyNCEES account and follow the onscreen directions.

Professional Engineering (PE) Exam

The PE license is the highest standard of professionalism in engineering.

The PE exam is designed to test for a minimum level of competency in a particular engineering discipline. It is designed for engineers who have gained a minimum of four years of work experience in their chosen engineering discipline. The SE exam is designed for engineers who practice in jurisdictions that license structural engineers separately from other professional engineers.

In order to become a Professional Engineer and earn a PE seal engineers must complete the following steps: Earn a four-year degree in engineering from an EAC/ABET accredited engineering program, pass the Fundamentals of Engineering (FE) exam, complete four years of progressive engineering experience under a PE, and pass the Principles and Practice of Engineering (PE) exam. The PE Exam is also created and scored by

the National Council of Examiners for Engineering and Surveying (NCEES).

PE Civil Engineering Exam

The Principles and Practice of Engineering (PE) exam tests for a minimum level of competency in a particular engineering discipline. It is designed for engineers who have gained a minimum of four years' post-college work experience in their chosen engineering discipline.

The PE Civil exam is an 8-hour exam with 80 questions. It is administered in pencil-and-paper format twice per year in April and October. See all of Dr Z's Practice Problem Sets, including October's, [here!](#)

The PE Civil exam is a breadth and depth examination. This means that examinees work the breadth section in the morning and one of the five depth modules in the afternoon. The breadth section contains questions from all five areas of civil engineering such as Construction, Geotechnical, Structural, Transportation and Water Resources & Environmental. The depth section focuses more closely on a single area of practice.

Finally, we have to remind our readers that FE and PE 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. Also, 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, P.E.
az@akfen.com



September Section Meeting Recap

ASCE-NCS Board of Directors Swearing-In Ceremony

By Jordan Pitt, ASCE-NCS Past President

The ASCE National Capital Section kicked off the 2017–2018 season on September 19th with our first Section meeting of the year. The meeting included the Swearing-In Ceremony for the new ASCE-NCS Board of Directors, and featured a wonderful presentation on the WMATA SafeTrack program presented by Tiffani Jenkins (Rhodes), who worked as a Project Manager for the successful delivery of the Metro SafeTrack program (see the summary of the lecture in the above article).

While this date marked the final meeting of the 2016–2017 Board of Directors, the new slate of Directors for 2017–2018 were officially instated during the meeting through the formal swearing-in ceremony. The NCS was pleased to have ASCE Region 2 Director, John Casana, PE, in attendance to conduct the swearing-in ceremony and charge the new Board of Directors with the responsibility of leading the Section throughout the coming year.

The roster of the ASCE-NCS Board of Directors for 2017–2018 is as follows:

- President – Brian Barna
- Vice President/President-Elect – Emily Dean
- Treasurer – Piers Causton
- Secretary – Kelly Cronin
- Past President – Jordan Pitt
- Previous Past President – Chris Manalo



Pictured (from Left to Right): John Casana (Region 2 Director) conducted the swearing-in ceremony. Brian Barna (President), Emily Dean (Vice President), Piers Causton (Treasurer), Jordan Pitt (Past President), Kelly Cronin (Secretary), Chris Manalo (Previous Past President), Jim Palmer (Newsletter Editor), Mike Venezia (YMF President), Vic Crawford (Director), Stuart Cooks (Director). Directors Not Pictured: Jeff Tan, Rachel Schneider

- Newsletter Editor – Jim Palmer
- YMF President – Mike Venezia
- Director – Victor (Vic) Crawford
- Director – Rachel Schneider
- Director – Stuart Cooks
- Director – Jeff Tan

This year brings two new members to the Board – Stuart Crooks and Jeff Tan. Jeff previously served as the Chair of the Construction Committee and Stuart serves as the Chair of the Transportation Committee and active member of the Meeting Planning Committee. Both

individuals will bring great dedication and experienced knowledge of the Section’s operations, so please join us in welcoming them to the Board! Our previous Director, Alex Rosenheim, moves on from his Board position to focus more on his involvement in the Sustainability Committee. Please join us in sharing our gratitude to Alex for his past commitment to the Board while we look forward to his continued active involvement in the Section to lead the Sustainability Committee! ■

ASCE-NCS Committee News and Updates



Younger Member’s Forum

By Haley Carpenter, EIT

The NCS Younger Members Forum (YMF) holds monthly happy hours, generally alternating between Arlington, VA and Washington, DC. Happy hours are usually the first Wednesday of each month unless a holiday falls during that week. On August 2, the YMF held their August happy hour at Uncle Julio’s Arlington, VA with about 20 members. The NCS YMF enjoyed some time outside during their September happy hour on the roof of Whitlow’s on Wilson

in Arlington, VA on September 13. Approximately 15 members attended the event. The next monthly happy hours will take place on October 4, at Sauf Haus Bier Hall in Washington, DC, to celebrate Oktoberfest.

2017–2018 Planning Meeting. On August 29, the YMF held its annual planning meeting at Fire Works Pizza in Arlington, VA. During the meeting, YMF officers and members discussed the successful events from last year, made plans for upcoming YMF events, and voted on new YMF officers for the 2017–2018 year. Topics of discussion included monthly YMF happy hours, professional development meeting potential topics/

speakers, YMF participation in local volunteering events, and involvement with local university student chapters. In addition to the monthly happy hours, the YMF is planning to hold two professional development meetings and increase involvement with college students and local ASCE student chapters.

The 2017–2018 YMF Officers include:

- President, Mike Venezia, PE
- Vice President, Joe Whartenby
- Secretary/YMF Newsletter, Haley Carpenter

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- Happy Hours/Social Chair, Elizabeth Wheeler
- Professional Development, Caroline Byrne and Olivia DeCarlo
- Outreach, Sumon Chatterjee and Rebecca Starosta

Reston Committee

By Lisa Anderson, PE, LEED AP, M.ASCE, Reston Committee Chair

On September 11th, Wayne R. Bergstrom, Ph.D, PE, D.GE, F.ASCE, Principal Engineer and Assistant Chief Civil Engineer at Bechtel Infrastructure, presented a “Case History – Mitigation and Allocation of Unusual Design/ Construction Risk.”

The next meeting of the Reston Committee will be held on October 10th at ASCE Headquarters in Reston, VA starting at 11:45am. Michael L. Scott, Ph.D, PE, Founder and President of ADOJAM, LLC will present “Emerging Airborne Nondestructive Testing Capabilities for Civil Infrastructure Capabilities.” One PDH will be awarded to attendees.

To be added to the Reston Committee distribution list, please contact Lisa Anderson: lmanders@bechtel.com or 703-429-6631.

EWRI Chapter

By Sara DeGroot, PE, CFM, ENV SP, EWRI-NCS Chapter Chair

Volunteers from the ASCE-NCS EWRI chapter joined other volunteers at the 32nd annual International Coastal Clean-Up on Saturday, September 16 at Oronoco Bay Park in Alexandria,



Virginia. Volunteers helped clean the Potomac River and picked up more than 75 bags of trash, and found a tire and air mattress!

Boundary Stones Committee

By Stephen Powers, PE, Boundary Stones Committee Chair

On September 16th, from 9:00 am to 12:00 noon, the Boundary Stones Committee partnered with the DC DAR to perform site cleanup at the East Cornerstone located at the intersection of Eastern Ave & Southern Ave NE, Washington DC. Work consisted of cutting back vegetation, brush and



Left to Right: ASCE-NCS and DCDAR volunteers Whitney Bonenfant, Stephanie Green, Richard Popp, LJ Sauter, Jr, Kara Westercamp, Stephen Powers, Rod Belcher, Mahogany Morris, Dr Robert Efimba, Sigmund Skinner, Tim Garland, Sarah Garland, Alfred Ajani Walfall, Ali Al-Humud. Not Shown: Swarnjm Bhandari and Bob Fuller

limb pickup, clearing trash, some minor grading, and spreading mulch to restore the trail into the woods to this historic monument. This effort was in support of the ribbon cutting ceremony planned for Saturday September 23, 2017 at 11:00 am to celebrate the restoration of the 100 year old fence which ASCE-NCS took a lead in installing back into the ground during the summer of 2017. ASCE-NCS’s volunteer efforts first began at this site in May 2010, and since that time over 175 volunteers have helped restore 22 of the Boundary Stone sites. ASCE-NCS continues to partner with stakeholders to designate the East Cornerstone site as a local community park and is looked to a leader in this effort. Boundary Stones Chairman Stephen Powers wishes to thank all the volunteers over the years, especially LJ Sauter Jr, Bob Fuller, Tim Garland, Dr Robert Efimba and the Howard University students who have made it a point to always participate with this community service and make this program such a success.

Education Committee

By Jameelah M Ingram, PE, M.ASCE and Vic Crawford PE, ASCE-NCS Director

The ASCE-NCS Education Committee will enhance our relationship with all five ASCE Student Chapters under our purview during the 2017–2018 School Year. ASCE Student Chapters include the Catholic University of America, George Mason University, George Washington University, Howard University, and the University of the District of Columbia. Please consider joining the ASCE-NCS Education Committee as a Practitioner Advisor and liaison for one of our ASCE Student Chapters. Together, we will ensure that each chapter enjoys maximum benefits of membership with ASCE. Let’s work as a team to guide our students as they pursue degrees in Civil Engineering!

The 2017–2018 School Year is already off to an excellent start. ASCE Student Chapter planning for the ASCE National Concrete Canoe Competition, ASCE National Student Steel Bridge Competition, and ASCE Student Conference are currently underway. The ASCE-NCS Education Committee will plan engaging events as well, to foster interaction between students and professionals. ASCE Student Chapter leaders will also have opportunities to present updates to ASCE-NCS Chapter Leaders at board meetings throughout the year, which serves as a great way for students to sharpen their public speaking skills.

Please contact Jameelah M Ingram at jameelah.muhammad@wsp.com if you would like to become a Practitioner Advisor for an ASCE-NCS Student Chapter or join the Education Committee to plan exciting engineering events!

In addition to supporting our future civil engineers in College, we are also seeking volunteer opportunity for Supporting Science, Technology, Engineering, and Math (STEM) at the K-12 levels.

Therefore, we are continuing to support the American Association for the Advancement of Science (AAAS) program for STEM, which has been bring engineers and scientists into our classrooms for over eleven years (<http://www.aaas.org/senior-scientists-and-engineers/programs-dc>). NCS has embraced this educational outreach being conducted through this AAAS structured program, since recognizing

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the importance of STEM for the continuance of our Civil Engineering profession has become a key goal for ASCE. As a result, the NCS has been working with AAAS in supporting STEM in the school districts in the DC metro area, including surrounding counties in both Virginia and Maryland.

But we need you as a volunteer to assist K-12 teachers in bring civil engineering concepts to young students using your experience and knowledge. This program works particularly well for retirees that can devote one day a week to volunteering. Understanding the needs of the educators, we are focusing on the elementary schools where your expertise in civil engineering would be very welcome by teachers introducing science concepts to young students. Supporting you, the AAAS program has a Volunteer Handbook and provides trainings for STEM volunteers, and has assigned coordinators for each school district to help place the STEM Volunteer into the classroom.

In addition, working with ASCE Headquarters folks, we have developed or obtained several tools to support your volunteering, such as Handouts provided by ASCE and a video that shows how recent civil engineering graduates are making the world better. NCS will be sending along copies of our excellent and award-winning

Book, Engineering the Nation's Capital to donate to the STEM program at the school where you volunteer or make a presentation during a STEM event.

So, if you are interested in giving back to the profession while sharing the joy of engineering to eager young minds, please contact Victor I Crawford at victor.crawford51@gmail.com.

Construction Committee

By Kunqi Zhang, PE, Vice Chair, ASCE-NCS Construction Committee

The Construction Committee met at Panera Bread, 8365 Leesburg Pike, Vienna, VA on Sunday, September 17th, 2017 and elected new leadership to fill the vacancy left by Jeff Tan as he joins the ASCE NCS Board of Directors. Ryan Witters will serve as the new committee Chair, while Kunqi Zhang and Alex Wang provide support as committee Vice Chairs. Jeff provided insight and advice from his year as the committee



Left to Right: Ryan Witters, Jeff Tan, Alex Wang, and Kunqi Zhang

chair and answered questions regarding the day-to-day operations. The meeting also clarified the responsibilities and expectations of the new leadership.

The committee discussed several items going forward including the continuation of professional development workshops, local happy hours, and community outreach. Be on the lookout for upcoming dates and information for Construction Committee sponsored events.

Next Professional Development Workshop. The committee is planning the next professional development workshop and will send out details in the near future.

Call for Committee Members. Please reach out to Ryan (rwitters@litcon-group.com) for information regarding the Construction Committee and how to join. Also, please join the committee mailing list at this link <https://groups.google.com/forum/#!forum/asce-ncs-cc> to stay up to date on events, job openings, and construction news etc. The committee is seeking individuals interested in joining the leadership team. Prospective individuals should be able to regularly attend meetings in person or by phone and should be comfortable sharing ideas in group settings.

Life Members Forum: Reflections

Beginning with our October Newsletter, NCS is publishing biographies and interviews to profile members within our civil engineering community. This initiative has been organized by our newly formed Life Members Forum (LMF). As appropriate, for this first segment, NCS is truly honored to have our LMF President, Phillip Melville, introduce himself to our membership. We are certain you will find his history and background extraordinarily captivating.

Phillip L Melville, PE, Life Member and Fellow ASCE, PhD, is our current leader of our Forum of Life Members. When speaking with him, you may notice a French accent, which is not surprising since he was born and went to school in Paris. His schooling was bluntly interrupted in 1942 with the Nazi occupation of France. His dreams of being a civil engineering student from the French Ecole Polytechnique ended but he was very lucky to find his way out of France to Morocco hidden in a troop transport. Remember the old movie Casablanca? He says that this is the way it was but he never met Ingrid Bergman. Thankful that Portugal was neutral, he sailed to the Azores,

Bermuda and eventually New York! His goal was to rejoin some relatives in New Mexico but where could that be? A long train journey led him to Albuquerque which was a wonderful change from occupied France. While awaiting a possible Army draft he attended the University of New Mexico to pursue his dream to become a civil engineer. His only problem was not that UNM had no idea of French university programs (he was offered entry as a "junior" which did not sound like much), but that the US was using strange units of measure instead of the metric system. After graduation, he decided to pursue a graduate degree. Though MIT accepted him he opted

for Purdue University and a Fellowship strictly for financial reasons! His first job in Richmond VA was with the Virginia Department of Transportation (Then VDOH) as a lowly research engineer in the concrete lab. A few years later he grabbed an opportunity to move up to the new Research Council for transportation at the University of Virginia adding a teaching responsibility in the Graduate School in Civil Engineering as a Lecturer. After a few years, recently married, during the Cold War, he had the opportunity to work for the US Army Corps of Engineers in Military Construction (as a civilian) in DC. He was involved in airbase construction worldwide and then in the missile program. He enjoyed the challenges. As politics changed, he moved to the Federal Aviation Administration where he was in charge of airport R&D and then named International Officer for Airports. Following his retirement

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

October 4

YMF Happy Hour, 6:00–8:00 pm, Sauf Haus Bier Hall, Washington DC. Celebrate Oktoberfest at the YMF monthly happy hour. Look for an email announcement with more details.

October 10

Reston Committee Meeting, 11:45 am, ASCE Headquarters, Reston, Va. Michael L. Scott, Ph.D, PE, Founder and President of ADOJAM, LLC will present “Emerging Airborne Nondestructive Testing Capabilities for Civil Infrastructure Capabilities.” One PDH will be awarded to attendees.

October 8–11

ASCE 2017 Convention, New Orleans, LA. Visit www.asceconvention.org for more information on registration, speakers and technical session details.

October 17

Section Meeting, 6:30–8:30 pm, Hilton Arlington. The Dinner meeting will highlight the topic of ‘Off-Shore Wind Production Platforms – Maryland, Virginia and Beyond’ by the Bureau of Ocean Energy Management.

November 4

Region 2 Assembly, University of Pittsburgh, PA. All Sections, Branches, Younger Member Forums, Student Chapters, Faculty Advisors and Practitioners Advisors are encouraged to attend the 2017 Region 2 Assembly. There will be professional development opportunities through presentations on current engineering design practices, a chance for interaction between students, professors and practitioners.

November 5 to 8

Emerging Leaders Alliance Conference, Falls Church, VA. The Emerging Leaders Alliance is a partnership among leading engineering organizations that promotes interdisciplinary leadership training for select professionals.

February 9–10

Regions 1, 2, 4 and 5 Multi-Region Leadership Conference in Buffalo, NY. The conference includes Workshop for Section and Branch Leaders (WSBL), the Eastern Region Younger Member Council (ERYMC) and the Workshop for Student Chapter Leaders (WSCL). More information will be available in October.

ASCE-NCS Committee News and Updates

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from the FAA like many government engineers, he then met the challenge of being a consultant in the private sector, representing a French industrial firm in the US and Canada. Retiring a second time, he lives as a widower in Alexandria busy with professional activities, travel, Smithsonian programs and classical music (he said he built his own harpsichord!) and even as a volunteer docent at the Alexandria Carlisle Museum. His two daughters are married and live in Baltimore; one

is a management consultant and the other has her own architectural firm. His four grandchildren are scattered around the country and overseas. Over his career, he boasts over 30 published engineering papers and can't begin to speak to the many awards he has received. He is also a past president of the Virginia State NSPE and currently a Life Member of NSPE.



He has no regrets about his past and tells young people (he remarks that everybody is younger than he): “Civil engineering is a very wonderful and rewarding profession; a chance to do some good. And when it is your turn to retire [you must] remain actively involved and show them how proud you are of it in addition to other activities.” ■

Call for Volunteers

The National Capital Section will hold its next Engineering Management Seminar in the Spring of 2018. This occasional program is a one-day seminar intended to provide leadership and management training for engineers making the transition from technical to business management roles in their employment. The Engineering Management Committee will plan, organize, and put on the event. This year's seminar will be co-sponsored by the Baltimore-Washington Section of the Society of Women Engineers (SWE). The committee will develop the program (speakers), secure the venue, and plan the event logistics. If you would like to assist with the event, please contact Mark Leeman at mark.leeman@mosaiceng.com. ■

Employment Clearinghouse

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](#).