



eNewsletter

National Capital Section

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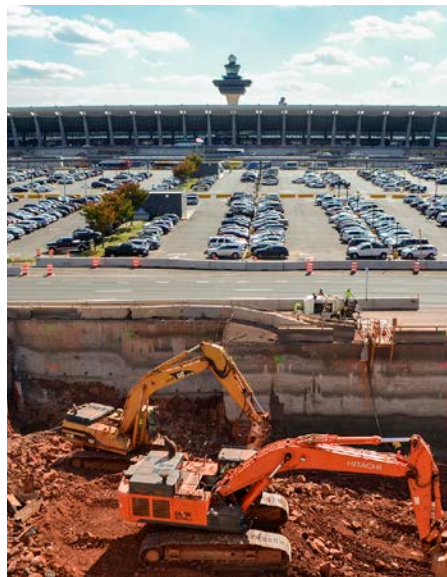
Update on Dulles Corridor Metrorail Project

Presented by **Kevin Volbrecht, P.E., M.ASCE – Project Director-Package A,**
and **Stephen Barna, P.E., M.ASCE – Director, Project Engineering**

Please join the American Society of Civil Engineers-National Capital Section (ASCE-NCS) on **Tuesday, November 17**, for an update on Phase II progress for the 23-mile-long extension of the Metrorail System. Construction of the Silver Line, which will extend Metrorail from East Falls Church to Washington Dulles International Airport and west to Ashburn, is being managed by the Metropolitan Washington Airports Authority and will be operated by the Washington Metropolitan Area Transit Authority. The project is being constructed by Capital Rail Constructors.

Phase 1 of the project opened in July 2014, and serves Tysons Corner, Virginia's largest employment center. Phase 1 runs from East Falls Church to Wiehle Avenue on the eastern edge of Reston and includes four stations. Construction began in March of 2009 and service opened in July 2014.

Phase 2 picks up at the Wiehle-Reston East station and serves the Reston/Herndon area, the state's second largest employment concentration. It will run from Wiehle Avenue to Ashburn in eastern Loudoun County and include six additional stations. Once complete, it



will provide a one-seat ride from Dulles International Airport to downtown Washington. Construction on Phase 2 began in 2013 and has an anticipated completion date of late 2019.

About the Speakers

Kevin Volbrecht was born, raised, and educated in California, where he worked in the San Francisco Bay Area for 23 years on transportation projects that included extensions on the BART system. He also worked on the Ft. Lauderdale International Airport extension and the Miami Dade Transit system. In 2007, he became the Deputy Director in charge of all the construction on Phase 1. In 2014, Volbrecht became the Project Director for the \$1.2B Package A (Mainline Stations and Systems) contract.

Stephen Barna has over 44 years of construction, construction management, design, and design management experience in the federal government and public sectors. Since joining the

Join us **Tuesday, November 17, 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 [D. Scott Wolf](#). Please click [HERE](#) to register by **November 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.

Dulles Corridor Metrorail Project as Senior Project Manager for Construction in early 2009, Mr. Barna has been responsible for the construction management of all Phase 1 design-build construction activities with specific responsibility for civil works, tunnels, aerial guideways, rail, and the West Falls Church Yard Service and Inspection Annex. For Phase 2, Barna serves as the Director of Project Engineering. He is responsible for all engineering aspects for both Package A and Package B (Rail Yard and Maintenance Facility). ■



President's Corner

The NCS Centennial year celebration is well underway with many notable events and activities coming to fruition. In October, we learned about the restoration of the U.S. Capitol Dome and participated in a walking tour of the Washington Aqueduct. Constructed more than 150 years ago under the supervision of General Montgomery Meigs, each of these iconic structures continue to serve the public today – providing a roof over the Capitol rotunda and supplying drinking water to over one million households in the DC metropolitan area. With Veterans Day approaching, we can honor these accomplishments of General Meigs, as well as the contributions of all those who serve our country in the U.S. Armed Forces.

Our November 17 dinner meeting will feature a presentation about



the Phase 2 extension of Metrorail's Silver Line to the Washington Dulles International Airport. After 30 years of discussion and planning, this vital transit connection is on track for completion in 2019. November also provides an opportunity to participate in our second Centennial tour of some well-known and maybe not-so-well known, transportation-related structures in the Palisades area of northwest Washington, DC and Montgomery County, MD. Stay tuned for more details on future monthly dinner meetings, committee events, and the many other planned Centennial activities.

Along with opportunities to serve society on a daily basis as civil engineers, the approaching holiday season brings a myriad of ways to serve your community. Volunteering at a homeless shelter, supporting a food bank,

or donating to a charitable organization are just a few of the many ways you can make a difference. Our Younger Members Forum invites you to join in the annual NCS Toys for Tots event to collect new and unwrapped toys for less fortunate children in the Washington, DC metropolitan area. Please join us on December 2 for networking and perhaps bring engineering or construction themed toys to help make the holiday season a little brighter for children in our area.

Lastly, I want to wish each of you a joyous holiday season. Enjoy time with family and friends, share some of your new factoids about "Engineering the Nation's Capital" from NCS events, and travel safely.

D. Scott Wolf, PE, PLS, F.NSPE
ASCE-NCS President (2015-2016)

Report Card for District of Columbia's Infrastructure Arrives January 14, 2016

By Ranjit S. Sahai, PE, F.ASCE, Chair, DC Infrastructure Report Card Subcommittee, ASCE-NCS



To raise awareness about District of Columbia's infrastructure needs, ASCE will be releasing the inaugural *Report Card for D.C.'s Infrastructure*, following the methodology of ASCE National's [Report Card for America's Infrastructure](#). Using a simple A to F school report card format, the *Report Card* provides a comprehensive assessment of current infrastructure conditions and needs, both assigning grades and making recommendations for how to raise the grades. The categories that will be reported in this inaugural DC Report Card are bridges, drinking water,

energy, levees, parks and recreation, rail, roads, schools, solid waste, transit, and wastewater.

The results of this Report Card will be revealed in a news conference on January 14, 2016 in Washington, DC, as well as other media outlets with a few weeks following the release. This Report Card will also be available online at www.infrastructurereportcard.org/district_of_columbia. For more information, or to volunteer to participate in the release of this statewide leadership effort, email reportcard@asce.org. ■

Newsletter

Rachel Schneider, Editor

January 2016 Issue Deadline: December 15, 2015

To Submit Articles: newsletter@asce-ncs.org

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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](#) for a current list of NCS committees and chairs.

An Interview with Robert E. Efimba Sc.D, P.E., M.ASCE, NCS Past President, Region 2 Governor: Centennial Engineer of the Month

Editor's Note: Beginning October 2015, the NCS began publishing interviews of prominent members of our Section, asking them to reflect on their career and profession. The NCS Centennial Committee, including Dr. Phillip Melville, P.E., PhD, F.ASCE, and Ms. Lucy Menon, P.E. of the Dream Big Subcommittee, have organized the interviews. We hope you enjoy reading these interviews and gain insight from these leaders in civil engineering.

It is a pleasure to recognize our friend and NCS member Robert E. Efimba, Sc.D., P.E., M.ASCE, NCS Past President (1982–83), Region 2 Governor (2011–2014), as the Engineer of the Month for November. Dr. Efimba is an Associate Professor of Civil and Environmental Engineering at Howard University, specializing in structural engineering, mechanics, and design. Having received four degrees from MIT, he joined the Howard University civil engineering faculty in 1975, and became an Associate Professor in 1982.

Born in Republic of Cameroon in Africa, Dr. Efimba worked as an engineer in the Department of Public Works and then lectured at the University of Nigeria. Always oriented toward public service and the common good, he chose civil engineering as his profession. As a member of our Section, he made sure that his students were aware of our Society and attended the meetings. Probably nothing more clearly reflects Dr. Efimba's interest in teaching than his ongoing activities with the Honor Engineering Society Tau Beta Pi. In 2010, he was named the National Outstanding Advisor, "for his dedication to the enhancement of the Association at the

local and national levels, his personality and commitment to inspiring excellence, and an ability to steer students toward success." Dr. Efimba's enthusiasm for service continues this year with his engagement in distressed Haiti and assistance to foreign engineering students from the Brazil Science Mobility Program. We salute Robert E. Efimba, P.E. as our Engineer of the Month, as we interview him on his commitment to engineering, teaching, and helping others.

What do you consider your major achievement(s) in our section area?

In the nearly forty years that I have enjoyed membership in the ASCE



Dr. Effimba with engineering students from the Brazil Science Mobility Program visit an active construction site in 2015



NCS, I have been honored many times by ASCE, the Section, and other professional societies, and by my own students and colleagues on

the faculty at Howard University, and in the local and national engineering communities.

However, I consider my major achievement to be the promotion of collegiality and professionalism among students and colleagues and other professional contacts, and encouragement of scholarship at all levels in the National Capital Region (NCR), starting from middle school, through high school, college, and graduate school, all the way to the doctorate. The DCCEAS College Student Paper Competition that we inaugurated in 1997 as an expansion of an existing competition of a member Society is one of our proudest contributions for scholarship in the NCR.

I am also especially proud of the many former students and colleagues whom we have recommended and have received licenses to practice engineering, attended graduate school, or received prestigious scholarships, fellowships, or major national and international awards and recognition, or just advanced in the profession.

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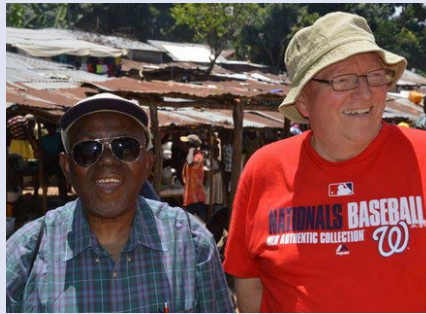
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Why did you decide on a career in civil engineering?

When I was growing up in my village in Dienyi in Mbonge tribe of the Southwest Province of Cameroon, I was fascinated with dams built by our village fishermen and women, and especially by suspension bridges that were built with cane and other forest vines. When I went to visit an aunt in Bonduma, near Buea, capital of the Southwest Province, I would use materials discarded by road crews to pave the path from the main road to our house. All around me, I saw a dire need for houses, roads, water supply, and other systems that we now know to comprise the infrastructure. I immediately developed an interest in civil engineering that grew when I went to high schools in neighboring Nigeria. When I arrived at MIT as a freshman, I already knew that I wanted to be a civil engineer, and did not have to wait two years to decide on my major. I was so focused that I was able to complete the four-year degree program



Dr. Effimba with Dave Carlson of Our Lady Queen of Peace Catholic Church in Arlington while on Haiti Technical Assistance Mission in 2015

in three years, and went on to obtain three more degrees in civil engineering at MIT.

What do you consider the best guidance to young people for a future career in civil engineering?

I challenge students to look around them to see the very important role that civil engineers play in their daily lives and in the lives of other people,

and that may motivate them to pursue studies to become civil engineers, or to grow as civil engineers to continue to impact the daily lives of other people. For those already studying civil engineering, strive to be the best that you can be, and work towards attaining professional licensure to practice and or teach and do research in civil engineering.

What do you consider a major challenge to a career in civil engineering?

Eroding emphasis on fundamental prerequisite knowledge, and over-reliance on electronic tools that are used as a crutch, rather than as an aid, could lead to civil engineers who are not well trained to practice under any circumstances. We should continue to create great civil engineering works, but we must also find a way to serve the many peoples of the world who live in abject poverty and in great need of even the most basic infrastructure components. ■

NCS Centennial Walking Tour: 200 Years of D.C. Transportation History

Join the NCS Geotechnical Engineering and Centennial Committees for a walking/driving tour on November 18, 2015, from 11–1:30 pm. We will visit some well-known and maybe not-so-well known transportation-related structures in the Palisades area of northwest Washington, DC, and Montgomery County, MD. The group will meet at the parking area along the Clara Barton Parkway, north of Chain Bridge (Lat/ Long: 38.932 N, -77.113 W). Tour

highlights include the C&O Canal, B&O Truss Bridge, Dalecarlia Tunnel, and Capital Transit Streetcar Bridge. The tour will end with lunch at the Irish Inn at Glen Echo, sponsored by GeoStructures and the NCS Geotechnical Engineering Committee. Please dress for the weather and plan to walk about 1.5 miles on unpaved trails. Bring your safety vest. There is no cost. The group limit is 15. Please sign up by Friday, November 13, to eamalley@geostructures.com. ■



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ASCE 2015 National Convention Highlights

By John Casana, P.E., D.WRE, LEED AP, M.ASCE, NCS Past President (2011–12), R2 Governor

Amid the flurry of people and flashing lights in Times Square, the ASCE 2015 National Convention was conducted in the heart of New York City from October 10 to 14. There were plenty of old friends reuniting, students, and Younger Members experiencing the annual event for the first time, and even a dancing dragon! The Welcome Reception included a New York dragon dance team.

Outgoing 2015 ASCE President Bob Stevens gave a farewell address. His remarks included, “As I pass the gavel to Mark Woodson, I want to assure you that the ASCE brand is strong and globally recognized,” he said. “Civil engineering is the greatest profession. We all work to make people’s lives better.”

The ASCE Board of Direction meeting covered strategic planning, policies, education, technical advancement, and Region boundaries. ASCE’s Executive Committee approved posthumous



Mark Woodson, ASCE 2015 President-Elect and “friend” at the welcome reception.

Fellow member status for [Nora Barney](#), 99 years after the pioneering female engineer was denied membership.

Luke Williams, professor of innovation at the New York University Stern School of Business, delivered the keynote speech at the opening plenary session. The bestselling author of [Disrupt](#), which describes ways “disruptive thinking” leads to innovation, shared how those concepts apply to civil engineering.

Pursuing innovation in engineering is not for the faint of heart. As engineers take on the “[Grand Challenge](#)” issued by ASCE’s Industry Leaders Council to reduce infrastructure life-cycle costs by 50% by 2025, employing innovative methods to develop new solutions will be an essential strategy.

David Durham of Walt Disney Imagineering took part in the Industry Leaders Forum at the ASCE 2015 Convention, along with Andrew Chatham of Google and David Odeh of Odeh Engineers, for a panel discussion titled *Innovation – Beyond the Concept*. Durham does not think innovation just happens. Rather, he thinks it stems from a mindset, a culture that must be developed within a project team.

ASCE also screened a trailer for *Dream Big: Engineering Wonders of the World*—images of the Hoover Dam, the Golden Gate Bridge, and the Giza Pyramids moved across the screen to music, as a voice boomed, “*The foundation of all great structures is people.*” The ASCE-produced film is in production. ■

The NCS Upgrading Website on December 1, 2015

The last time we upgraded our website was in fall 2009. To mark the NCS’s centennial year, we have initiated an upgrade of the Section’s website. The website will be more mobile device friendly and offer a modern look and feel. We look forward to continuing to serve your networking, training, and leadership development needs in the years and decades to come. ■

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](#).

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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 next monthly happy hours will take place on **November 4 at Buffalo Billiards**, Washington DC. On **December 2**, we will celebrate our **Holiday Party and Happy Hour** at [Front Page](#), Arlington VA. The YMF traditionally collects donated toys for the Toys-for-Tots Program to benefit less fortunate children in the Washington metro area. Look for emails with specific locations for future monthly happy hours!

The NCS YMF held their October Happy Hour in conjunction with the local Engineers Without Borders (EWB) at CourtHaus Social in Arlington, VA on October 7, with approximately 25 to 30 members in attendance.



Coastal Cleanup. On September 19, members of the YMF joined the City of Alexandria, with the International Coastal Clean-Up, to clean Oronoco Bay Park. Because stormwater is not treated,



NCS YMF member [Ryan Witters](#) (right) collecting trash along the Oronoco Bay

litter that on streets and parking lots can end up going down a storm drain and into our lakes and rivers. The Oronoco Bay Park cleanup helped clean the water in the City to protect our waterways and provide a safer and more enjoyable environment for the wild animals and humans that use them. The group of 123 volunteers collected 78 bags of trash, including over 800 straws, 400 plastic bottles, 300 cigarette butts, 26 sports balls, 13 shoes/boots, 1 plastic goose, and 1 tire.

If you have suggestions for professional development meeting topics, or would like to become more involved with the YMF in other areas, please contact the YMF President at ncsymfpresident@gmail.com.

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 Celebrating a Hundred Years of Service to the Nation's Capital

By [Victor Crawford](#)

We kicked off our 2016 Centennial Celebration by honoring one of our Distinguished ASCE Members, Sidney Dewberry, with an interview in the October newsletter. In addition to his many engineering accomplishments, Mr. Dewberry has played a key role in advancing engineering educational opportunities in the DC Area, which is a goal we will be continuing as part of our Centennial Celebration outreach under our Science, Technology, Engineering, and Math (STEM) Program. The speaker at the

October Section meeting continued our Centennial Celebration theme, where we are featuring speakers that present topics that celebrate our 100 years of civil engineering. Christine A. Merdon, P.E., as the Chief Operating Officer, Architect of the Capitol, discussed the Capitol Dome restoration project. The Capitol, as an ASCE Landmark, tied in to our first Centennial tour at the Washington Aqueduct since General Montgomery Meigs built both the Capitol dome and the Aqueduct. Finally, in October, we received the proclamation from the Governor of Virginia (awaiting those from the Governor's Office for Maryland and the DC Mayor) which recognizes our Centennial and the NCS's accomplishments that have benefited the public for more than a hundred years.

In November, we have continued to honor our engineers in the newsletter by featuring an interview with one of our outstanding educators, Professor Efimba. We are also touring the C&O Canal, a major historical engineering accomplishment. Following the winter break, the Committee has plans for additional tours including tentatively the new Smithsonian African-American Museum, a boat tour along the Potomac River of the area bridges, and a tour of Washington Dulles International Airport. These tours provides an excellent opportunity to promote our accomplishments in the nation's Capital. Since these tours are one-time events, we are continuing to develop an interactive map that highlights our engineering accomplishments. This map will be constructed so that the public can, by clicking on an internet accessible map, obtain descriptions for our engineering achievements around the Capital area. A click will bring up photos and fun facts that can be used by the public touring the DC Area.

Other Centennial Celebration activities will include participation in the USA Science and Engineering Festival and other engineering events. These events allows us to reach out to the students in our area to highlight the benefits of pursuing engineering careers. We will also be releasing our Centennial Commemorative Book early in our 2016 Centennial Year. Another major Centennial event will be our Conference planned for June 3, 2016.

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This Conference will have morning and afternoon sessions, which will highlight our accomplishments and future prospects.

As the representative of the ASCE, the Committee continues to strive to promote our civil engineering profession and honor the civil engineers from our area that have not only played key roles building infrastructure in the Washington, DC area but also around the world. Therefore, please join us since 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 century. We have many activities where your assistance will help make the Centennial Celebration a success. So, whether you are a Young Member, a Life Member, or somewhere in between, we need your help. So please join us by contacting the Centennial Committee at vicris51@verizon.net.

Transportation Committee

By Ranjit S. Sahai, PE, F.ASCE, Chair, Transportation Technical Committee, ASCE-NCS

The NCS Technical Committee on Transportation meets every other month over a free pizza lunch at George Washington University on a transportation-related theme. These are typically educational events and attendees receive 1 professional development hour (PDH) certificate. Watch our Member Communications email, for more details and to registration information.

How Will Vehicle-to-Vehicle Communication Impact You?

Join us on November 10 at the GWU Washington, D.C. campus over pizza lunch to discover how your next car is likely to communicate with other cars on the road. Will this speed you up to your destination? Will it make your trip safer? Our speaker, Dr. Samer Hamdar, an assistant professor at the George Washington University (GWU) and the Director of the Center of Intelligent Systems Research (CISR – www.cisr.gwu.edu), will help answer these questions. Dr. Hamdar has worked on research projects funded by the Federal Highway Administration and the National Science Foundation. His latest National Foundation Award is titled: "CAREER: Collision Prediction

and Vehicular Control Using an Episode-Based Modeling Framework." His primary research interests include Driver and Pedestrian Behavior Modeling, Traffic Flow Theory, Transportation Safety, Intelligent Transportation Systems, Evacuation Modeling and Disaster Management. He has an international research background having participated in projects in Germany, Saudi Arabia, and the USA. He is a member of the Transportation Research Board (TRB) Traffic Flow Theory and Characteristics Committee (AHB45) and the Committee on Emergency Evacuations (ABR30).

Watch for emails for information on registering for upcoming Transportation Committee events. We look forward to seeing you. If you have a transportation engineering topic in mind and know of a knowledgeable speaker on that topic, let Ranjit know on the Contact Us page on the [website](#).

Construction Committee

By Jeff Tan, PE, PMP, Chair of ASCE-NCS Construction Committee



Introduction of Construction Committee.

We are pleased to announce the establishment of the Construction Committee in ASCE-NCS. There has long been the need for a committee in the Section to offers individuals working in all sectors of the construction industry the opportunity to network with other professionals, sharpen skills, and shape the future of the industry. Jeff Tan, PE, PMP, Construction Management Consultant for District Department of Transportation, is appointed the chair of this new Committee.

Call for Members! The Construction Committee is currently actively seeking interested individuals. We would be honored to have you apply to be on our committee. As with all committee members, you need to be able to commit to regular meeting attendance, have the ability to receive communication by phone and/or e-mail and have some comfort in communicating ideas in a group setting. Please contact sunjeffsun@gmail.com if you are interested, or if you need further information. This is an exciting time of diversification. Please take a moment to consider being a part of it.

Professional Development Session.

The Construction Committee held the first education session at 6511 Princess Garden Pkwy, Lanham, MD on October 17, and twenty-seven attendees received the professional development hour certificate. Dr. Shen Wang, PE, who is Senior Civil Engineer and Technical Specialist, in Bechtel Power Corporation, discussed Working in Nuclear Power Projects. Dr. Wang had shared his experiences of involving in various nuclear safety-related structures in 15 nuclear power plants and numerous papers published in fracture mechanics, nuclear structure design and missile impact analysis.



Planning Meeting. The Construction Committee proposes to hold its first planning meeting in early November to discuss the past events, plan for upcoming events, and assign the committees for the 2015–2016 year. We very much hope you can join us and share your ideas. There is no expected commitment from you if you do attend – we would just like an opportunity to broaden our network and identify people who may be interested. Please contact sunjeffsun@gmail.com if you are interested, or if you need further information. ■

Three Es & Statistics: Journey to Become a P.E.

Quite often engineering students ask us why engineering graduates with engineering degrees need licensure to practice. The answer is quite simple: to protect the public health, safety, and welfare. To ensure the protection, the practice of engineering has been entrusted by various governmental entities only to those persons duly licensed and registered. To become a licensed Professional Engineer, commonly called the three Es: approved *Education*, appropriate *Experience*, and *Examination* is required.

For the last five articles of Dr. Z's Corner, we focused on the PE exams to answer some of our readers' questions – mostly senior engineering students. This month, we will talk about the Fundamentals of Engineering (FE) Exams and provide some basic facts and statistics.

- The FE exams are designed for recent graduates and students who are close to completing an undergraduate degree in engineering.
- Passing the FE exam is an important first step in the engineering licensure process.
- The National Council of Examiners for Engineering and Surveying (NCEES) administers the FE exam throughout the year, during the months of January, February, April, May, July, August, October, and November.
- NCEES policy allows an examinee to take the FE exam once during a two-month window, and no more

than three times during a twelve-month period.

- NCEES is a national nonprofit organization composed of engineering and surveying licensing boards representing all 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands.

Many schools realize that engineering positions at all levels of industry and government increasingly require licensure and because of that, they promote the benefits of licensure to their students and encourage their students to take the FE exam.

According to the American Society for Engineering Education:

- The total number of engineering bachelor's degrees awarded in 2013 was 93,360, and among those, the total number of FE exam takers was about 50%, or about 45,362.
- The pass rate of all first-time FE exam takers was about 70%.
- The total number of the first time takers with EAC/ABET Bachelor's Civil Engineering degrees in the same year was about 9,650, with the pass rate of 72%.
- There were 3,180 repeat takers, with a pass rate of 31%.
- The average age of FE exam takers was about 27.5 in 2010, while in 2014 the average age of the FE exam takers dropped to 25.

The FE exam fee is about \$225. It consists of 110 questions, and you have 5 hours and 20 minutes to complete the entire exam. The latest version of the appropriate NCEES *Reference Handbook* (Currently version 9.3, Computer Based Test) 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 question and the reference handbook.

Those preparing for the FE exam are strongly advised to use a self-study approach and review subject areas with which you are familiar or you know best. This will give you more time and build your confidence. For many students, reviewing the problems given in the NCS archives for "Dr. Z's Corner" monthly articles was very helpful (available on our [website](#)).

As we always remind our readers, FE is a very fast-paced exam and you will have little time to look up information. Knowing the locations of the various formulas in the FE *Reference Handbook* is a crucial time saver. Also, remember to consider reverse engineering the problems by substituting the answers and seeing which one works. To help prepare for the exam, [Click Here](#) for this month's problem set.

As we always advise, stay relaxed and confident. Keep a good attitude and remind yourself that you are going to do your best!

Until next time,
Ahmet Zeytinci, P.E.,
(Dr. Z.)
az@alfam.com



Editor's note: All of the past problem sets are available on our [website](#).

October Meeting Recap – U.S. Capitol Dome Restoration Project

At the meeting on October 20, 2015, the NCS commenced the Centennial year with a presentation on the history and restoration of the U.S. Capitol Dome, the iconic symbol of American democracy and freedom that stands at the core of our Nation's Capital. The Architect of the Capitol (AOC) recently began a multi-year project to repair the more than 1,000 cracks and other deficiencies

plaguing the Dome, restoring the Dome to its original, inspiring splendor and ensuring it can safely serve future generations of visitors and employees as the roof of the Capitol.

Christine Merdon, PE, CCM, AOC Chief Operating Officer, began her presentation with a brief history and background on the roles and responsibilities of the

AOC. She discussed the history of the U.S. Capitol Dome, from the original wooden and copper dome completed in 1824 to the present cast iron dome constructed in the 1850s under the supervision of General Montgomery Meigs. Ms. Merdon shared images of Meigs' name found stamped on bolt heads and other cast pieces of the dome.

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October Meeting Recap – U.S. Capitol Dome Restoration Project
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Next, Ms. Merdon discussed details of the restoration project and provided photos and videos of various facets of the restoration work. The project is addressing deterioration of the Dome, the interstitial space between the Dome and the Rotunda, and the Rotunda interior. The authorized budget for the project is \$59.55 million, which includes construction costs, contingency, and project support.

Restoration work includes lead paint abatement and removal, application of a primer coat, lock and stitch cast iron repairs, ornamentation restoration, window repair and replacement, repainting the dome with an estimated 1,215 gallons of paint, and finally, installation of fall

protection and bird deterrent systems. As the work is completed, the scaffolding currently surrounding the exterior of the dome and the Rotunda interior will be removed. Exterior work is expected to be completed this winter while interior work is expected to be completed in the fall of 2016. At that time, the AOC will begin preparing the Capitol for the presidential inauguration in January 2017.

The restoration project is expected to provide the Capitol Dome protection from the elements for the next 50–75 years, preserving one of the nation’s most iconic structures for generations to come. For more information on the U.S. Capitol Dome restoration project, please visit www.aoc.gov/. ■



Region 2 ASCE Fall/Winter Continuing Education Seminars and Workshops

Geographic Services is proud to announce the Continuing Education schedule of seminars and workshops for fall and winter schedule in your area. Visit mylearning.asce.org to browse the course catalog.

Program	Date	City, State
Structural Engineering of a 4-Story, Combined Material Building Using the 2015 IBC – NEW	November 5–6, 2015	Baltimore, MD
November 5–6 – Design of Anchors, Embedments, and Foundations to Resist Horizontal and Vertical Forces	November 5–6, 2015	Pittsburgh, PA
Instrumentation and Monitoring Bootcamp: Planning, Execution, and Measurement Uncertainty for Structural and Geotechnical Projects	December 3–4, 2015	Washington, DC
HEC-RAS Computer Workshop	March 2–4, 2016	Washington, DC
Design of Foundations for Dynamic Loads	March 2–4, 2016	Baltimore, MD
Risk-Based Seismic Design and Evaluation	March 10–11, 2016	Philadelphia, PA

Upcoming Live Webinars:

Cost-Effective Treatment Methods to Control Reflective Cracking in Pavements – NEW!
 November 2, 2015 – Online – [Read More and Register!](#)

Redeveloping Roadways for the Urban Core within Constrained Right-of-Ways – NEW!
 November 9, 2015 – Online – [Read More and Register!](#)

Curtainwall Primer for Design Professionals
 December 10, 2015 – Online – [Read More and Register!](#)

Sight Distance – Newly Updated!
 December 11, 2015 – Online – [Read More and Register!](#)

ASCE-NCS Newsletter Patrons



November 4

YMF Monthly Happy Hour, 6–8 pm, at **Buffalo Billiards**, Washington DC. Join other younger members from the area for while you enjoy free appetizers and drink specials. Watch for upcoming emails for more information.

November 10

Connected Vehicle Infrastructure, George Washington University, over pizza lunch. Discover what the US Department of Transportation has in the works for connecting vehicles to surface transportation infrastructure to improve driver safety, vehicle efficiency, and enable autonomous vehicle usage a reality over the next few years and decades. Learn how Vehicle to Vehicle Communication will Impact You! **This is a free event and 1 PDH (Professional Development Hour) will be provided to attendees. Pizza lunch will be served.**

November 14

ASCE Region 2 Assembly. Mark your calendar for this all-day event on Saturday at Bucknell University, PA. All Sections, Branches, Younger Member Forums, Student Chapters, faculty advisors, and practitioner advisors are strongly encouraged to attend. There will be professional development opportunities through presentations on current engineering design practices, a chance for interaction between students, professors, and practitioners and the opportunity to learn more about what ASCE can do for you. **Everyone is invited!** For more information, contact [John Casana](#).

November 17

NCS Monthly Meeting, 6–8:30 pm at Arlington Hilton. Join us for an update on the Dulles Corridor Metrorail Project. Learn about project highlights and scheduled project end dates. Visit our [website](#) and look for more information in upcoming emails.

November 18

NCS Centennial Walking Tour: 200 Years of DC Transportation History, 11–1:30 pm, meet at the parking area along the Clara Barton Parkway, north of Chain Bridge (Lat/Long: 38.932 N, -77.113 W). Tour highlights include the C&O Canal, B&O Truss Bridge, Dalecarlia Tunnel, and Capital Transit Streetcar Bridge. Please dress for the weather and plan

to walk about 1.5 miles on unpaved trails. Bring your safety vest. There is no cost. The group limit is 15. Please sign up by **Friday, November 13**, to eomalley@geostructures.com.

December 2

YMF Monthly Happy Hour & Holiday Party, 6–8 pm, at **Front Page**, Arlington VA. Join other younger members from the area for while you enjoy free appetizers and drink specials. The YMF traditionally collects donated toys for the Toys-for-Tots Program to benefit less fortunate children in the Washington metro area. Watch for upcoming emails for more information.

January 2016

Recent Innovations in Bridge Inspection Techniques, George Washington University. Learn about non-destructive monitoring and inspection techniques that have emerged in the bridge industry.

January 14

DC Report Card for Infrastructure release. For more information, or to volunteer to participate in the release of this statewide leadership effort, email reportcard@asce.org.

January 19

NCS Monthly Meeting, 6–8:30 pm at Arlington Hilton. Mr. Jeff Seltzer from District Department of Energy & Environment (DDOE) will tentatively present on the Anacostia River cleanup history and status. Visit our [website](#) and look for more information in upcoming emails.

February 11–13

Regions 1, 2, 4 & 5 Multi-Region Leadership Conference 2016, Pittsburgh, PA. Visit www.asce.org and look for more information in upcoming emails.

February 21–27

Discover Engineers Week, Share your enthusiasm for engineering and make a difference in a young person's life. Visit the website for related events.

February 24

Global Day of the Engineer, Pledge to celebrate and share how engineers make a world of difference. Global Day of the Engineer brings together the international community to celebrate

the accomplishments of engineers, give students around the world a chance to experience engineering, and share the amazing innovations engineers create every day.

February 25

Introduce a Girl to Engineering Day started in 2001 as a joint effort between the National Society of Professional Engineers, IBM, and National Engineers Week Foundation. "Girl Day" 2016 marks the 15th year whereby women engineers, and their male colleagues, have the opportunity to introduce more than one million girls and young women to engineering.

February 27

Discover Engineering Family Day, at the National Building Museum in Washington DC, 10 am to 4:30 pm. Last year, the NCS and our partner Bechtel conducted the popular "Shaky Ground" demonstration of earthquake induced soil liquefaction in a plastic cup. For our youngest engineering students Bechtel also provided a sand box loaded with construction equipment. For more information, contact [Dean Westman](#).

March 8

Recent Innovations in Airport Pavement Design, George Washington University. Hugh Weaver, PE, an expert on aviation pavements with over 30 years of experience at airports across the country discusses modern airport pavement design methods, which provide increased safety, longevity, constructability, and sustainability.

March 8–10

Global Marathon For, By, and About Women in Engineering and Technology provides global and regional opportunities for women and provides a place to put forward ideas, solve common problems and come together.

April 16 and 17

USA Science & Engineering Festival at the DC Convention Center. NCS and ASCE World Headquarters sponsors a booth. The Festival is held every other year and includes hundreds of sponsors and thousands of visitors of all ages. Contact [Dean Westman](#) for more information.