

## Climate Resiliency at US Diplomatic Posts

Presented by The U.S. Department of State, Bureau of Overseas Buildings Operations

We are pleased to announce John Pitts, Director of Civil and Structural Engineering, and David Keller, Structural Engineer and Natural Hazards Program Manager, both with the Department of State's Bureau of Overseas Buildings Operations (OBO), will be presenting at the January 2020 ASCE-NCS Section Dinner Meeting. Our presenters will discuss the Department of State's Bureau of Overseas Buildings Operations' work towards mitigating risk to its facilities from natural hazards, and the direction toward holistically addressing climate resiliency concerns.

### Our Speakers

#### John D. Pitts, PE, PMP

John Pitts is the Director of the Civil and Structural Engineering Division at the Department of State's Bureau of Overseas Buildings Operations (OBO). In this position, he directs the civil, geotechnical, structural and blast engineering disciplines along with the Natural Hazards Program in support of the worldwide overseas building program for the Department of State.



Mr. Pitts has extensive experience with the federal government. From 2015 to 2019 he served as a Construction Executive in OBO's Construction Management directorate with responsibility for construction projects in Lebanon, Egypt and Israel. From 2011 to 2015 he served as a Project Manager and Branch Chief for the U.S. Army's Corps of Engineers (USACE) Middle East District with responsibility for the Foreign Military Sales programs in Kuwait, Bahrain, U.A.E. and Qatar. From 2007–2011 he served as a Project Manager for the USACE Baltimore



District, on the National Geospatial Intelligence Agency's, New Campus East project at Fort Belvoir, VA. From 2005–2007 he served as Region Manager for the Department of Homeland Security's RESCUE 21 program, responsible for the planning and implementation of the nation's coastal 911 system from New Orleans to Mexico.

Prior to his service in the federal government, Mr. Pitts served from 1999–2005 with the Fairfax County Virginia Government as Program Manager for their Park Authority Bond Program and from 1991–1999 with various private consulting firms including Huitt-Zollars in Dallas, Texas and William H. Gordon Associates in Chantilly, Virginia.

Mr. Pitts served in the U.S. Navy as a Surface Warfare Officer and as an Officer in Charge of Construction for the Civil Engineer Corp from 1985 to 1991.

Mr. Pitts received a Bachelor of Science degree in Civil Engineering from Texas A&M University.

#### David Keller, PE, LEED AP

David Keller, structural engineer, manages the Natural Hazards Program at the Department of State's Bureau of Overseas Buildings Operations (OBO). In this role, he manages four contracts that, together with in-house OBO subject matter experts, support OBO and posts in identifying and reducing risks to personnel and property from natural-borne hazards such as earthquakes, extreme winds, tsunamis, geohazards, floods, and sea level rise. In addition, Mr. Keller is co-technical lead



Please join us on **Tuesday, January 21** 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 6:00 to 6:45pm, 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. For questions, please contact [Kelly Cronin](#). Please [click here](#) to register by **Wednesday, January 15**.

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

of the program's seismic component and has structural design responsibilities for numerous posts worldwide.

Prior to joining OBO, Mr. Keller worked for seven years as a structural/blast engineer at Weidlinger Associates in Washington, DC conducting vulnerability/feasibility studies, providing blast resistant designs, and offering other structural engineering services for various government agencies. He received both his bachelor's and master's degrees in Civil Engineering with a concentration in structural and earthquake engineering from the University at Buffalo. ■

## President's Corner

Happy New Year! I hope you all enjoyed spending time with family and friends over the past several weeks. One of the things I love most about this time of year is the opportunity to catch up with those who I haven't seen or spoken to in a while.



I personally enjoyed meeting new people, saying hello to familiar faces, and watching everyone mingle. Pictured below are some of our past and present ASCE-NCS leadership in attendance at the holiday party. The event also included a Toys-4-Tots drive in partnership with the US Marine

Corp. By the end of the evening, we had filled two large bins with toys. I am thrilled that NCS was able to provide this event for our members, and in return, our members giving back to our larger community.

Early in 2020 we plan to issue a member survey to the entire National Capital Section. It has been several

years since we sent a survey to our membership, so a committee of volunteers assembled a short list of questions on our members' preferences and perception on the chapter's efforts; what you would like to see from the section, what we can do to improve the section, and what is working well for our members. We strive to provide activities and events that are varied and are of interest to our members while also realizing that our busy members live and work all across the DMV. When you see the member survey, please fill it out, it will take just a few minutes of your time but will provide us with very valuable information – it is our way to catch up with you!

As always, I encourage you to reach out to me at [president@asce-ncs.org](mailto:president@asce-ncs.org) about your interests, volunteering with the section, or to express feedback or ideas about ASCE-NCS events. I am always interested to hear from our members about what we can do to provide value to our members. I wish you all the best for the New Year!

Sincerely,

*Kelly Cronin, PE*  
ASCE NCS President

Last month we hosted a holiday party at the Holiday Inn in Ballston. The event was organized by our fantastic Younger Members Forum and was open to all NCS members free of charge. The event was well attended by both members who are regular attendees at NCS events as well as members who do not have the opportunity to frequently join us.



## Newsletter

**Maria Raggousis, Editor**

**February 2020 Issue Deadline:** January 15, 2020

**To Submit Articles:** [newsletter@asce-ncs.org](mailto:newsletter@asce-ncs.org)

**NCS eNewsletter Archives:** go to [www.asce-ncs.org](http://www.asce-ncs.org) and view along the sidebar.

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

## National Capital Section

### Officers (2019–2020)

**Kelly Cronin, President**  
**Mike Venezia, Vice President**  
**Vic Crawford, Treasurer**  
**Jameelah Ingram, Secretary**  
**Emily Dean, Past President**  
**Brian Barna, Previous Past President**  
**Maria Raggousis, Newsletter Editor**  
**Joe Whartenby, YMF President**

**Norine Walker, Director**  
**Elizabeth Wheeler, Director**  
**Lisa Anderson, Director**  
**Tricia Wolfbauer, Director**  
**Shainur Ahsan, Reston Branch President**

### Committee Chairs

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

## Greetings from Oslo

### Dr. Z Visits Oslo Metropolitan University (OSLOMET) One of the Fastest-Growing Universities in Europe

This month's article is written by **Dr. Vagelis Plevris**, Associate Professor and Head of the Research Group "Structural Engineering" at Oslo Metropolitan University (**OsloMet**) in Oslo, Norway. Oslo is one of the fastest-growing capital cities in Europe and so is OsloMet, Norway's most urban and third-largest university, with more than 20,000 students and over 2,000 employees with research activities in areas that are important for welfare and value-creation, such as health, education, social sciences, technology, and design, committed to making a positive-impact in the Oslo region, in Norway and around the world.

#### Monday, November 4, 2019 Oslo, Norway

Dr. Ahmet Zeytinci (Dr. Z), my colleague and friend, arrived at my home in Oslo, Norway, as he prepared for his visit with the Department of Civil Engineering and Energy Technology of Oslo Metropolitan University (OsloMet). I would like to share with you all a brief glimpse into our adventures and experiences over the course of his week-long visit.

#### Tuesday, November 5, 2019 Oslo Metropolitan University

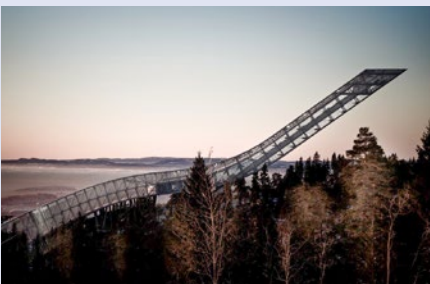
Dr. Z had the opportunity to teach students of the master's degree Program in Structural Engineering and Building Technology. He was a guest



lecturer in my class "Finite Element Method in Structural Analysis". The students were very enthusiastic to be taught by Dr. Z, learn about his special techniques and "Gorilla" formulas and listen to his amazing success stories and his advice on how to advance in the profession!

#### Wednesday, November 6, 2019 Holmenkollen, Oslo, Norway

On Wednesday we visited **Holmenkollen**, a neighborhood of Oslo, with its famous ski jumping hill, the Holmenkollbakken. Holmenkollbakken is a large ski jumping hill with a capacity for 70,000 spectators. Holmenkollen has hosted the Holmenkollen Ski Festival since 1892. The hill has great engineering



interest. It has been rebuilt 19 times. During the Second World War, the venue was used as a military installation, but upgraded in the late 1940s. Further expansions were made ahead of the 1966 and 1982 World Championships, as well as in 1991. Between 2008 and 2010, the entire structure was demolished and rebuilt. The tower construction material is steel while grandstands are made of steel and concrete. It is the only steel ski jump in the world today. A total of 1,000 tons of steel was used in the whole construction. The new design by JDS Architects won the Norwegian Steel Construction Prize and the ECCS (European Convention for Constructional Steelwork) Structural Steel Design Award in 2011.

#### Thursday, November 7, 2019 Oslo Metropolitan University

On Thursday, Dr. Z had meetings with the Head of the **Department of Civil Engineering and Energy Technology** of OsloMet, **Dr. Hallgrim Hjelmbrække**, and myself, the Head of the Research Group "Structural Engineering", where  
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we had fruitful discussions on topics related to civil engineering education and excellence in professional engineering. Dr. Z gave a very interesting and inspiring presentation to staff members of OsloMet where he spoke about the Professional Engineering (P.E.) exam of NCEES in the US, Dr Z's Corner, his university and others. Among other topics, we discussed the opportunity for OsloMet to organize local NCEES F.E./P.E. exams in Norway in the future.

**Thursday, November 7, 2019**

*Oslo Metropolitan University  
P35 Building*

On the same day we visited the climbing wall in Building P35 of OsloMet. It is a permanently installed climbing wall that students and staff can try for free. Work-life balance is very highly valued in Norway and climbing is a very good relaxation from everyday life. The climbing wall is available to all students and staff associated with all faculties. With a height of 19.3 meters (63 ft), it is among Norway's tallest indoors climbing facilities and it is divided into three sections consisting of climbing routes with



difficulty levels from 4 to 7 according to the International Climbing and Mountaineering Federation (UIAA) grading system. The grades are from 1 to 10, with grade 1 being the simplest and grade 10 being the most difficult.

**Friday, November 8, 2019**

*The Equinor building: An art of engineering. Fornebu, Oslo*

**Equinor** (previously Statoil) is Norway's largest oil and gas company. The architecture of their new office building in Fornebu, right outside Oslo, completed in 2012, is inspired by offshore steel constructions. The building is made out of five lamellae of equal size, each stacked on top of one other, with a total area of 117,000 sq. meters (1.26 million sq. feet). The concept minimizes the environmental footprint of the building and gives a generous amount of space to the park.

Each lamella is 3 stories high, 140 meters long and 23 meters (75 ft) wide. The modules are oriented differently to optimize internal daylight conditions and views towards the fjord landscape. Inside, the modules create a communal atrium, with an "urban plaza" connecting many of the social functions on the ground floor. The design is rooted in the democratic principle of bestowing all users of the building with excellent working conditions that include stunning views and good light conditions.

The steel superstructure enables the different modules to cantilever up to 30 meters (98 ft). The façade consists of about 1600 prefabricated elements with integrated windows, insulation and solar shading, a highly energy efficient solution with no visible fixings in the entire facade. Although an untraditional office building, the Equinor offices represent typical Scandinavian values by emphasizing democratic values and social equality.



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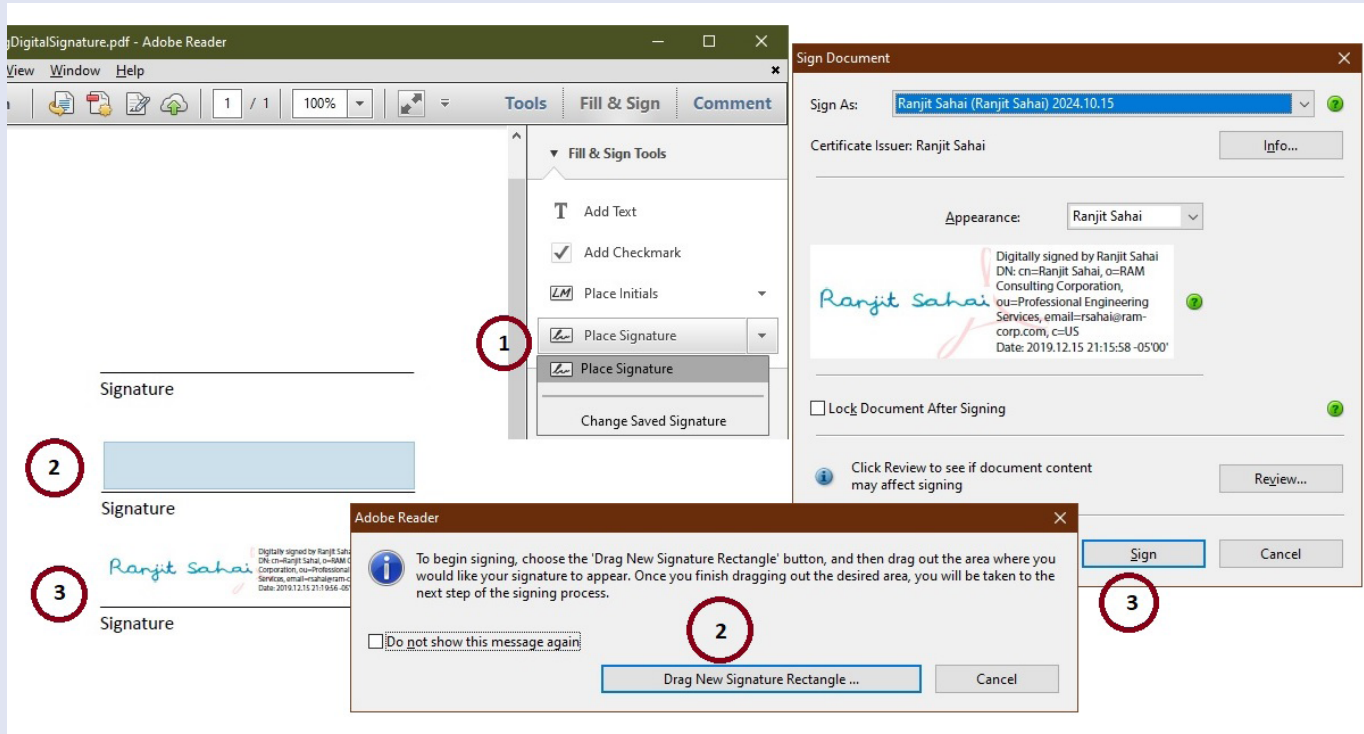
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# The Future of Professional Engineer Seals – IV

By Ranjit S. Sahai, PE, F.ASCE



## Overview

To digitally sign a document, open it, invoke Place Signature, designate signature location, click Sign, and name the signed document.

In previous articles of this series, we saw that the use of seals as a means of legal authentication dates to the earliest known civilizations; that digital seals are required to be: unique, verifiable, secure, and tamper-evident; and that electronic infrastructure that enables digital signatures includes: a Certificate authority, digital credentials, electronic content, and digital signing software.

## Applying a digital signature

Though the infrastructure underlying digital signature technology is vast and complex, applying a digital signature to a PDF file is simple:

- Open the PDF file in Adobe Acrobat (or Reader)
- Invoke the Place Signature tool from the Fill & Sign toolbox
- Designate a rectangular area for the digital signature and, on the Sign Document dialog, click Sign
- Name the PDF file for the resulting signed document

## The necessary one-time configuration

Before you can apply a digital signature, you need to create or import your unique digital credential. For high-dollar contractual relationships among business entities, it is prudent to engage a third-party Certificate Authority to create digital credentials. For internal corporate functions, such as digitally signing HR forms, organizations may choose to implement self-certification infrastructure to create digital credentials.

If you don't have a digital credential, invoking the tool to digitally sign a document prompts you to configure one. Select the option to create a self-signed credential and choose to save it to a file. Enter your name and email, then supply and confirm the password you wish to apply to the credential. You can save the resulting digital credential file to a USB drive for portability across computers.

Note that your IT department may have implemented a digital credential certificate storage vault on the corporate network. Should that be the case, your digital credential becomes

available to you from any network-connected corporate computer. In other words, regardless of the computer you login to on your corporate network, your digital signature can roam with you.

This article series will conclude next month by showcasing the implementation of and the value received from digitally sealed documents for engineering projects within an organizational setting.

## About the Author

Ranjit, a Past President (2013–14) of ASCE-NCS, is a principal and founder of RAM Corporation, a firm serving State DOTs with a focus on traffic engineering design, stormwater facility inspections, and IT solutions for engineering workflows. He is also an [author](#) and speaker.



## Firm Spotlight: Sheladia Associates, Inc.

This month we are showcasing Sheladia, a ASCE-NCS Gold-level Sponsor. Over 40 years ago, SHELADIA was founded with a mission to develop stronger physical connectivity throughout the world. Today, with more than 1000 projects from nearly 300 clients in almost 70 countries, they continue to connect people and places. Founded in 1974, Sheladia Associates, Inc. is headquartered in Rockville, MD. Sheladia provides a full range of multi-disciplined engineering and architectural services to public agencies and private clients nationwide and Internationally.

Sheladia has an integrated team of design, planning, implementation, and a team of professionals committed to creativity for strategic and unique solutions to clients' needs. Sheladia has been providing a wide array of engineering services offering creative and innovative solutions for federal, state, and local agencies on new construction and rehabilitation projects for various facilities. They offer comprehensive design, engineering and project management services from the development of project concepts, pre-feasibility to construction management and the versatility to act as owner's designer, engineer, or program manager – to suit clients'

requirements in the pursuit of economical high-performance projects.

Sheladia currently has several job openings in their Rockville office, including Roadway Engineer (4+ years experience), Project Manager/Senior Civil Engineer (15+ years experience), and Water Resources Engineer (6+ years experience). If you are interested in joining a highly successful and growing team of engineers and planners working with some of the area's most advanced projects, send your CV to [jobs@sheladia.com](mailto:jobs@sheladia.com). To learn more about these positions, go to [sheladia.com/careers/](http://sheladia.com/careers/) ■

## Global Partnership Positions ASCE to Lead Climate Change Mitigation Effort

By Alexa Lopez

ASCE has announced a new partnership with the Global Covenant of Mayors for Climate and Energy as part of the recently launched International Coalition for Sustainable Infrastructure.

The collaboration, announced this week at the U.N. Climate Change Conference COP 25, aims to advance practical solutions to adapt infrastructure to a changing climate, close the resilience investment gap and break down barriers to action across the globe.

*"Our climate is changing before our eyes and poses a challenge to every country around the world,"* said ASCE Executive Director Tom Smith.

*"Addressing the impacts of climate change is going to require a holistic and cross-jurisdictional approach. Civil engineers are uniquely positioned to provide the technical expertise needed to make sustainable infrastructure projects a reality around the world,"* Smith said.

Over the next 50 years, the global population will face unprecedented challenges – from rising seas to more frequent extreme weather events – happening against a backdrop of significant societal changes and advances in technology. With these global trends already posing well-documented challenges, ASCE and the Global Covenant



Gregor Robertson, former Vancouver Mayor and now ambassador for the Global Covenant of Mayors for Climate and Energy, signs his support to the new International Coalition for Sustainable Infrastructure, during ASCE's 2019 International Conference on Sustainable Infrastructure. PHOTO: Jason Dixon Photography

of Mayors signed an agreement to advance a coalition focused on the following actions:

- Identify, prioritize and better understand the gaps and barriers for the planning, design, construction, maintenance and operation of sustainable and resilient infrastructure;
- Cultivate and unlock the full potential of untapped partnerships and investments to reduce the effects of

extreme weather events, create sustainable and resilient infrastructure and enable better decision-making and outcomes;

- Identify and outline practical plans of action and resources for implementing strategies that will achieve realistic short-term goals and have measurable, long-term effects.

The Global Covenant of Mayors is the largest alliance for city climate leadership in the world, uniting a global coalition of more than 10,000 cities and local governments.

The new International Coalition for Sustainable Infrastructure's 2020 activities will include:

- Recruiting additional partners that are leaders in the infrastructure resilience field;
- Sharing knowledge and training on global best key practices;
- Connecting city leaders with engineering leaders and professionals;
- Leveraging tools, standards, systems and data to measure and enhance sustainability and resilience;

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## Global Partnership Positions ASCE to Lead Climate Change Mitigation Effort

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- Working to enable critical financing and technical assistance needed to address infrastructure funding gaps for improving sustainability and resilience.

*“Through the development and facilitation of the recent global leadership summit that led to this collaborative agreement, I am proud to have played*

*a part in bringing the Global Covenant and ASCE together in a way that will serve currently vulnerable urban dwellers and infrastructure across the globe,”* said Tom Lewis, ASCE’s chair for the November 2019 Coalition for Sustainable Infrastructure Leadership Summit and a sector president from global engineering firm WSP.

*“There is no single organization that can tackle the scale of the climate emergency and infrastructure resilience challenges alone – which is why we need innovative alliances like this one to leverage the throw weight of existing organizations and lead the way.”* ■

## ASCE-NCS Committee and Branch News and Updates

### Membership Survey Committee

Please look for the Member Survey in the coming weeks. This is your opportunity to evaluate current activities of the National Capital Section and get involved in shaping the future activities of the Section. The short survey should only take a few minutes to complete. It is our “poll” of members. Thank you for your help!

Sincerely,  
Norine Walker

### Collegiate Education Committee

By Jameelah M. Ingram, P.E., M. ASCE  
**Howard University ASCE Chapter Visits ASCE NCS.** Located in the Nation’s Capital, Howard University is one of five universities under the purview of the ASCE National Capital Section. The ASCE NCS November Board and Section Meetings featured two student leaders from the Howard University ASCE Student Chapter (HU ASCE), Ms. Camille Wallace and Ms. Jhanelle Davy. Ms. Wallace serves as President and Ms. Davy serves as Vice President. The two civil engineering majors provided a Fall Review Report to the ASCE NCS Board and made a presentation to all Section Meeting attendees.



HU ASCE had an active fall semester as they aimed to increase chapter visibility on Howard University’s campus and in ASCE Region 2. Other objectives included increasing student participation and providing opportunities for professional development. The chapter began the semester by hosting a Welcome Mixer to introduce ASCE to new civil engineering students. Then, HU ASCE organized activities to help guide members through their CEE degree and beyond. Activities included: design competitions with the American Society of Mechanical Engineers; company information sessions; and the ASCE 2019 Region 2 Assembly at Drexel University in Philadelphia, PA. The HU ASCE Faculty Advisor, Professor Hessam Yazdani, PhD, organized technical events with university personnel to discuss civil engineering research and phenomena as well. In the spring semester, HU ASCE looks forward to organizing a Revit and SketchUp class for students.

HU also engaged with their community, embodying the “in truth and service” spirit of Howard University. This included a partnership between HU ASCE and the HU Water and Environment Association and Climate Change Club to promote sustainability

while cleaning up the campus. Through the Ambassadors of Engineering Program, members of HU ASCE also participated in the annual Noche de Ciencias program hosted by the Society of Hispanic Professional Engineers (SHPE) at the U.S. Patent and Trademark Office. HU ASCE introduced students to earthquake and coastal engineering and techniques engineers use to mitigate the effects of seismic activity and tsunamis on infrastructure.

### ASCE NCS & George Mason University ASCE Resume Workshop

References: Written feedback from volunteers as indicated below

This fall, the ASCE National Capital Section hosted a resume workshop with the George Mason University ASCE Student Chapter (GMU ASCE). Keith Foxx, P.E., PMP, CCM, Manager in Transportation of the Washington, DC office of RK&K and Jameelah Ingram, P.E., M. ASCE, Lead Structural Engineer at WSP USA presented useful tips to students, from the networking stages to the interview. After the presentation, ASCE NCS professionals reviewed resumes and offered advice to students by appointment.

The professionals who volunteered their time to review resumes included:

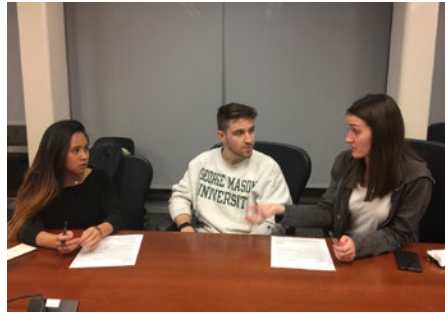
- Shainur Ahsan, P.E., Project Engineer, Whitman, Requardt & Associates;
- Brian Barna, P.E., LEED AP, Structural Engineer, Whitman, Requardt and Associates;
- Norelis M. Florentino, P.E., PMP, M. ASCE, Senior Manager, Shrewsberry;
- Min Lu Kelly-Durham, Structural Engineer, WSP USA;
- Lynn Mayo, P.E., CEO of RePicture Engineering;

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- Sarah Shay, Assistant Engineer, Hazen and Sawyer;
- Naveen S. Thakur, P.E., Geotechnical Department Manager – Building & Construction, Intertek-PSI;
- Michael D. Venezia, P.E., Senior Project Engineer, ECS MID-ATLANTIC, LLC; and
- Norine M. Walker, P.E., F. ASCE, Vice President, Metropolitan Washington, DC, SYSTRA, USA.

ASCE NCS students had an opportunity to ask detailed questions and receive tailored advice about what to include (or exclude) from their resumes. Brian Barna mentioned that students were often under-selling their abilities. One young woman could speak four languages – but this was nowhere to be found on her resume! He could see students’ confidence growing as he encouraged them to add skills that could differentiate them from other candidates – skills that they previously thought of as irrelevant for a resume.

The feedback was personalized as each student discussed their career goals one-on-one with a professional. One student was transitioning from a career in film to civil engineering and requested advice on how to best reflect this on a resume. Shainur Ahsan also helped a student with a strong insurance sales background to tailor his resume for strong candidacy at a civil engineering firm. He encouraged the student to highlight his past accomplishments and leadership skills. Norelis Florentino helped a student, currently



in the interview stages, to fine tune his resume for upcoming interviews.

As professionals provided advice, they were also impressed by the endeavors of talented students. For example, Lynn Mayo met students who volunteered on infrastructure projects in developing countries with GMU Engineers for International Development. Norine Walker was impressed that even Sophomores and Juniors sought assistance with their resumes, not just the Seniors. This showed her that students are thinking of their futures. She also noted that students were quite responsive to constructive criticism.

Thanks to strong participation, the resume workshop was a success. It was especially gratifying to see GMU ASCE graduates, Min Lu Kelly-Durham and Sarah Shay (former GMU ASCE President), return to their alma mater to volunteer as professionals.

**2020 ASCE NCS Scholarship Application.** In Winter 2019, ASCE-NCS announced a call for nominations for the 2020 ASCE-NCS Scholarship Application to Faculty Advisors and Civil Engineering Department Chairs. Students should consider reaching out to the Faculty Advisor at their college or university for the application package and eligibility requirements. Applications will be due on February 7, 2020 and scholarships will be awarded at the ASCE NCS Annual Banquet in March 2020.

## Corporate Relations Committee

**Call for Sponsors!** It’s a new year and time to become an ASCE-NCS sponsor! You’ll receive your benefits (e.g., recognition in our newsletter to over 8,000 engineers in the greater Washington, DC area) for 12 months after the start of your sponsorship. Now is a great time for companies to become ASCE-NCS sponsors since all sponsors will be recognized at the March awards banquet. Go to [https://asce-ncs.org/images/sponsors/ncs-sponsorship\\_2019-20.pdf](https://asce-ncs.org/images/sponsors/ncs-sponsorship_2019-20.pdf) for more information, or email Lynn Mayo at [Lynn@RePicture.com](mailto:Lynn@RePicture.com).

## Does your company reimburse you for ASCE Section Meeting attendance?

By Lynn Mayo, PE, Corporate Relations Committee Chair

You may be surprised about your company’s policy for reimbursing you for your attendance at ASCE Section Meetings.

ASCE-NCS does a good job of keeping the cost of attending section meetings low, so it’s affordable for you or your company. We recently asked meeting attendees if their company pay for, or reimburse them, for section meeting attendance. We’re happy to report that the majority of companies recognize the value of ASCE-NCS section meetings and cover the cost for attending all or some meetings. These companies know the meetings help their staff stay technically up-to-date. The meetings are also a cost-effective way for civil engineers to maintain required continuing education requirements for professional licensing. In addition, section meetings provide great opportunities for networking with potential clients and teaming partners.

A surprising result of the survey were several cases where two people from the same company indicated different company policies. In these cases, one employee of the company said the company reimbursed them for the cost of attendance, while a second person from the same company said the company did not reimburse them. Therefore, some of you are missing out on having your company pay for section meeting attendance!

Don’t assume that your company won’t reimburse you to attend section meetings. If you are not being reimbursed, we suggest you ask your manager about

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the policy. You can remind them of the benefits (technical, continuing education requirements, networking) of these section meetings. You may be surprised that your company will cover the cost to attend at least some of the meetings. We hope see you at upcoming meetings, including climate resiliency at State Department buildings overseas (January), the new Spy Museum (February), and architectural engineering committee speed talks (May).



### Younger Members Forum

By Sarah Shay, YMF Secretary/Newsletter

**Monthly Happy Hour:** The NCS Younger Members Forum (YMF) holds monthly happy hours, alternating between Arlington, VA and Washington, DC. Happy hours are usually the first Wednesday of each month unless a holiday falls during that week.

In November, the NCS YMF enjoyed an eventful evening of fun and conversation at [Crafthouse](#) in Arlington, VA.



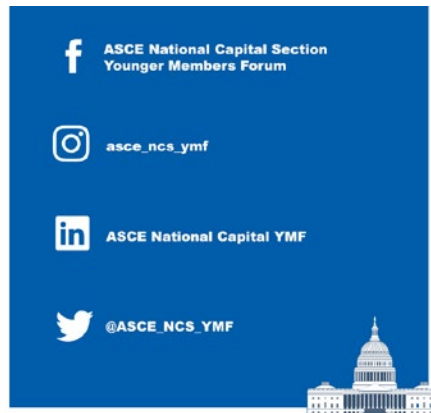
In December, the annual holiday party was hosted with the ASCE National Capital Section, where many members donated to the Toys for Tots charity drive. The ASCE NCS YMF would like to thank all of the 2018 leadership who made this year's events so fun and memorable – we are looking forward to what the new year holds!



The group will host their next happy hour starting at 6PM on January 8th at [Penn Social](#) near the Gallery Place/Chinatown metro stop in Washington, D.C. The NCS YMF will be bringing a professional photographer to take updated headshots, so look your best and hope to see you there!

**Professional Development:** 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](mailto:ncsymfpresident@gmail.com).

**Stay Connected!** Check out photos and stay up-to-date with YMF events by visiting the new YMF Facebook page (ASCE National Capital Section Younger Members Forum), following us on Twitter (@asce\_ncs\_ymf), connecting with us on LinkedIn (ASCE National Capital YMF), and following us on Instagram (@asce\_ncs\_ymf)



**Get Involved!** Are you interested in getting involved with more Younger Members activities? Do you have ideas for social events or volunteering activities? 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.

### Geotechnical Committee & Geo-Institute

On Wednesday, January 15, 2020 from 11:30 am to 1:30 pm at Maggiano's Little Italy – Tysons Corner (2001 International Drive Tysons, Galleria, McLean, VA 22102), **Chula Ellepola, PE** will be discussing the *Determination of Design Parameters for the design of Drilled Shafts and Retaining Walls from a Large Data Set*.

### I-635 Managed Lanes, Segment 1:

The project consisted of increasing the capacity of a segment of an existing, congested Interstate Highway by adding multiple overhead lanes beside the at-grade, existing lanes. The elevated lanes were supported on drilled shafts with MSE retaining walls at the abutments and at the start and at the end of direct connectors. The site was underlain by an old, closed land fill and by soft alluvial soils and shale with a tributary creek of the Trinity River flowing beside the roadway alignment. A total of 113 borings were drilled for the project and thousands of classification, strength, consolidation, swell, triaxial, direct shear, and other types of tests were performed for this investigation. A statistical method of analyzing the large data set was developed as part of the investigation. The statistical method was instrumental in determining the design parameters and a spreadsheet was created to check the in-situ strength of the soils and to verify that the lower of the design parameters or the in-situ strength was used in the design of the drilled shafts. The project was constructed and commissioned by 2013 and has been in operation ever since.

On Wednesday, April 15, 2020 from 7:30 am to 5:00 pm at Tysons Corner Marriott (8028 Leesburg Pike, Tysons, VA 22182), we proudly present the *Geotechnical Symposium on Innovations and Lessons Learned in Ground Improvement*. This year's symposium will focus on Ground Improvement. Topics for this event include, but are not limited to, recent innovations in ground improvement technologies, lessons learned, project case studies, design topics, monitoring and performance, numerical analysis and ethics.

### Reston Branch

By Christopher J. Friend, P.E., Reston Branch Vice President

On November 4th, the Reston Branch hosted Brian Pailles (Principal Engineer for Vector Corrosion Services) for a technical lunch presentation. The meeting discussed corrosion mitigation and repair techniques for concrete structures. Corrosion mitigation techniques included discussion regarding different forms of cathodic protection, which reduce the susceptibility of reinforced concrete elements to corrosion. The presentation also highlighted projects in the Northern Virginia area that Brian's company, Vector Corrosion Services,

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has assisted in providing corrosion mitigation and concrete repairs – including the Arlington Memorial Bridge.

On December 12th, the Reston Branch hosted its annual Winter Social. The social was at Crooked Run Brewing in Sterling, VA. It was a great opportunity for our members to network and have fun before the holidays!



The Reston Branch has recently launched a [group](https://www.linkedin.com/groups/13759693/) on LinkedIn to provide regular updates for the branch as well as offer a place for branch members to connect. See the following link for additional information: <https://www.linkedin.com/groups/13759693/>

### **Architectural Engineering Institute**

On November 4th, the Architectural Engineering Committee hosted a presentation on the design and construction of the Museum of the Bible, located in Southwest DC. The presentation included discussion on the architectural goals of the project, the unique challenges presented by the building's location, unique program, and aggressive schedule, and how the project team embraced collaboration through all stages of the design and construction to solve those challenges. We would like to extend a huge thank you to our presenters, including Sarah Ghorbanian, Kenz Meliani, and Ionel Petrus from SmithGroup, who provided the architectural design and mechanical engineering for the project, along with Rick Yezzi from Clark Construction and Palas Sarkar from Tadjer Cohen Edelson Associates, the structural engineer-of-record.

On November 12th, the Architectural Engineering Committee partnered with the Younger Members Group from SEA-MW (Structural Engineers Association of Metropolitan Washington) for a volunteer event at DC Central Kitchen, a "community kitchen," which prepares meals for shelters and



schools. Volunteers on our shift performed a myriad of cooking and prep tasks, from cooking breakfast potatoes or macaroni and cheese, to sorting miscellaneous chicken, to counting and packaging biscuits, butter, and jam for breakfast at a shelter. Consistent with the AE Committee's interdisciplinary mission, attendees represented a diverse range of fields, including structural, mechanical, construction, electrical, and building technology. Tentative plans are in the works to join SEA – which volunteers at DC Central Kitchen every fall – for a similar event next year. If you are interested in learning more about DC Central Kitchen and their work since 1989 to provide fresh meals to those in need in the DC region, check out their website at: <https://dcentral-kitchen.org/>.

**COMING SOON** – an ASCE-NCS Section Meeting like you've never experienced before. On May 19th the Architectural Engineering committee is hosting a series of fast-paced, engaging presentations by members of the civil and building engineering community. We're looking for presenters with all levels of experience who are interested in giving a 5 minute presentations, with the option to follow the PechaKucha



style. The presentation can be on anything related to the presenter's career as an engineer, including collaborative project experiences or knowledge gained. If you have a topic you think would benefit from this fast-paced presentation style, please fill out the [form](#) to let us know. Please contact Camille Stefani at [cstefani@wje.com](mailto:cstefani@wje.com) with any questions.

To find out more about PechaKucha, visit the link below: <https://www.pechakucha.com/about>

To learn more about upcoming events and information please check out our website or email us at [aei.washingtondc@gmail.com](mailto:aei.washingtondc@gmail.com). For your dose of interdisciplinary design and engineering in your feed, don't forget to follow us on Instagram @aei\_dc!

### **Transportation Committee Can You Replace a Bridge in 54 Hours?**

By Norelis M. Florentino, P.E., PMP, M.ASCE

Gary Runco, VDOT NOVA District Structural and Bridge Engineer, and Kelly Guild, PE, WSP Lead Design Engineer impressed the audience at the September 24th ASCE Capital Section Transportation Committee Meeting by presenting how the eastbound Wilson Boulevard over Arlington Boulevard bridge was replaced in 54 hours. The bridge was built in 1958 in Falls Church, Virginia and had to be replaced because it was in poor condition. The superstructure concrete was deteriorated due to continuous exposure to the environment and deicing chemicals. Timber debris shields were being used

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to prevent concrete from falling onto traffic below.

The bridge was in the Sevens Corners area, one of the busiest and most complicated intersections in Northern Virginia. It carried two lanes of east-bound Wilson Boulevard, was approximately 80' long, included a 5' wide sidewalk, and had a minimum vertical clearance of 14'11". VDOT tasked WSP with the bridge design and Martins Construction with the replacement of the bridge the weekend of August 2nd – 5th. To meet the schedule, an Accelerated Bridge Superstructure Replacement methodology was used because it allowed the superstructure to be built offsite, reduced construction time, and minimized traffic delays.



Gary Runco (VDOT) and Kelly Guild (WSP) facing the audience as they explain the project.

WSP's superstructure design took into consideration several important factors such as the use of Preconstructed Composite Units (PCUs) and lightweight concrete. The bridge was divided into three 87' long individual PCU segments. Each PCU consisted of two plate girders (27" web depth) and 8" deck slab separated by a 3'-7" opening to allow for the deck closure pour. Lightweight concrete (116 lb/ft<sup>3</sup>) was used to reduce the weight of the largest PCU by 14 tons and make the new superstructure easier to transport and lift into place.

The design also considered the vertical clearance, existing abutments, deck slab extensions, backwalls, and deck closure pours. The vertical clearance was increased from 14'11" to 15'-2". The existing abutments were rehabilitated because some areas had localized cracking, spalling, and delamination. The deck expansion joints at the abutments were eliminated to prevent water infiltration and to accommodate expansion/contraction on the roadway side of the backwalls. The challenge involved

constructing the deck slab extensions offsite while modifying the backwalls at the bridge location to account for a variable slope due to the roadway crown, cross slope, profile grade, and skew. The backwalls were poured utilizing Latex Modified Concrete, Very Early Strength (LMC-VE) after placing the PCU segments to form an accurate interface between the top of each backwall and bottom of deck slab extensions. Two 3'-7" deck closure pours using LMC-VE were designed to make the deck continuous. In both instances, LMC-VE was used because it was flowable, cured quickly, and met the compressive strength requirements in 4 hours.

Martins Construction seamlessly executed the Accelerated Bridge Construction by securing an offsite casting yard just off Arlington Boulevard upon VDOT's suggestion. The yard eased the transport constraints and allowed for quick verification that the bridge would fit. The appropriate Maintenance of Traffic (MOT) for Route 50 was also provided because this major thoroughfare into Washington D.C. was closed for the weekend.

The Seven Corners area is fortunate to claim the first Full Accelerated Bridge Construction Superstructure Replacement using PCUs in Northern Virginia. The replacement took place in 54 hours over a single weekend. The existing bridge was demolished, three superstructure segments were lifted into place, a backwall was formed, and the LMC-VE closure pours were completed just in time for the roads to open Monday morning. The bridge design and construction were efficiently executed to improve the traffic safety in the extremely busy area. According to the project team members, the collaboration between VDOT, WSP, and Martins Construction was the key to completing this project successfully.

### **Order of the Engineer – Ring Ceremony**

By Phillip Melville

ASCE-NCS is hosting a Ring Ceremony for the Order of the Engineer on February 18, 2020, at 6 p.m. at the Arlington Hilton. The Order was initiated in the United States to foster a spirit of pride and responsibility in the engineering profession. The goal is to bridge the gap between training and experience, and to present to the public a visible symbol identifying the engineer.



Participants take the Obligation of the Engineer and receive a steel ring to be worn as a reminder of their commitment to high ethics and professionalism.

Member eligibility requirements are established by the Order of the Engineer organization, which governs the program. Anyone who meets one of the following criteria may be inducted into the Order:

- Graduate in engineering from an engineering program accredited by the Engineering Accreditation Commission of ABET, Inc. (EAC of ABET) (Check to see if your school is included.)
- Senior in EAC of ABET-accredited engineering program within one academic year of graduation
- Professional Engineer licensed in the United States
- Member of the Canadian Calling

If you are interested in becoming a member, [email](#) us with the following information:

- Your name
- Your mailing address
- Professional credentials (PE, PLS, EIT, PhD, Other \_\_\_) to appear on your certificate
- Identification of the criteria (from the above bulleted list) and name of school or state of registration that qualifies you to receive the ring.
- Ring size. A ring sizing tool is provided below; or click [HERE](#) to download it.



## Upcoming Events

### January 8

#### YMF Happy Hour

- Wednesday, January 8th at 6 PM
- [Penn Social](#) near [Gallery Place/Chinatown Metro](#)
- Happy hour networking will include a professional photographer!

### January 14

#### Reston Branch Lunch Technical Meeting

- Tuesday, January 14th at 11:45 AM to 1 PM
- [ASCE National Headquarters](#)
- Speaker and Topic TBD

### January 15

#### Geotechnical Committee & Geo-Institute Lunch Meeting

- Wednesday, January 15th at 11:30 AM to 1:30 PM
- [Maggiano's Little Italy - Tyson's Corner](#)
- *Determination of Design Parameters for the design of Drilled Shafts and Retaining Walls from a Large Data Set* presented by Chula Ellepola, PE

### January 21

#### ASCE January Dinner Meeting

- Tuesday, January 21st at 6:00 to 8:30 PM
- [Hilton Arlington](#) (950 N. Stafford Street, Arlington, VA)
- *Climate Resiliency at US Diplomatic Posts* presented by The U.S. Department of State, Bureau of Overseas Buildings Operations

### February 7

#### ASCE-NCS Scholarship Application Deadline

- Friday, February 7th
- Reach out to your Faculty Advisor for application package

### Upcoming

#### Architectural Engineering Institute Ice Skating

- Date TBD, watch for an email!
- [The Washington Harbour Ice Rink](#), [Georgetown Waterfront](#)

## Let's Give Every Child an Engineering Experience

DiscoverE issued the first of its kind nationwide call asking engineers to visit with students in K-12 classrooms 30 years ago.

84% of educators say a visit from an engineer or technical professional helps students learn about engineering careers, **but more needs to be done**, 74% also tell us that their students do not have many opportunities to meet an engineer or technical professional.

Let's change that this Engineers Week and give every child an engineering experience.

### Download the Ultimate How to Guide

- [Volunteer and Technical Professional Version](#)
- [Teacher and Informal Educator Version](#)

### New! Small Outreach Grants

This year DiscoverE is offering small grants to support Engineers Week outreach efforts that target underserved communities. [Apply here.](#) ■



FEBRUARY 16–22, 2020

## 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](#).*