



eNewsletter

National Capital Section

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The Net-Zero Energy Residential Test Facility

By Alex Rosenheim, PE, LEED AP, M.ASCE, Sustainability Committee Chair

A Net-Zero Energy Residential Test Facility (NZERTF) has been constructed at the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland. The facility, completed and put into service in 2012, is being used to demonstrate that a home similar in size, aesthetics, and amenities to those in the surrounding communities can generate as much energy as it consumes on an annual basis while meeting the needs of a family of four. The facility has been subsequently serving as a test bed to facilitate the development and improvement of methods of test and performance metrics for existing and future energy efficient technologies.

Buildings account for 41% of the primary energy consumption and 74% of the electricity consumption in the United States, while accounting for 39% of the CO₂ emissions. Such energy consumption and emissions from the building sector pose a national challenge, and the Office of Management and Budget has identified two of its multi-agency science and technology priorities for the 2016 budget to be research that addresses “Clean energy” and “Global climate change.” In response to this, the building community has embraced the idea of net-zero energy buildings, which generate as much energy through renewable means as is consumed by the building.

Benefits of transitioning to Net-Zero Energy Buildings include reduced dependence on energy imports while curbing greenhouse gas emissions. This vision has been documented in a Federal R&D agenda produced by the National Science and Technology Council (NSTC) as well as by leading industry organizations such as the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). Furthermore, the United Nations Intergovernmental Panel on Climate Change reports that “buildings offer the largest share of cost-effective opportunities for greenhouse gas mitigation among sectors examined,” a charge taken up by the American Institute of Architects in its 2030 Challenge that calls for new buildings to be carbon neutral by 2030.

To minimize the costs associated with building energy consumption, NIST has developed and deployed the measurement science to move the nation towards net-zero energy, high-performance buildings in a cost-effective manner while maintaining a healthy indoor environment. The research program has been targeting the objective of net-zero operation by (1) reducing heating and cooling loads within the building, (2) developing measurement science for efficient heating and cooling equipment,

Please join us on **Tuesday, October 25**, 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 [Jordan Pitt](#). Please click [HERE](#) to register by **October 21**.

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.

(3) advancing the measurements of onsite energy generation technologies such as photovoltaics, (4) evaluating the energy consumption, greenhouse gas emissions, economics, and sustainability from a whole-building perspective and (5) aggressively promoting implementation of program results in building energy codes, standards, and practices.

The living area of the NZERTF, 252 square meters (2,713 square feet), is slightly larger than the 242 square meters (2,604 square feet) average size home currently being constructed in the United States. Additionally the NZERTF

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President's Corner

Oops; I blinked and October is here! Where did the time go!?

It has not only been a busy year for me as a new father, but with the many activities and events that have been going on in the Section over the past year. We held a highly successful Centennial Conference in June – thanks to the numerous volunteers that dedicated their time and effort to making our Centennial Celebration a successful one – and we are continuing to build on the success of the Centennial Commemorative Book – [Engineering the Nation's Capital](#), through volunteer efforts to donate copies of the book to a multitude of local libraries.

While October marks the end of our Centennial Year, it also represents the start of the next 100 years, and our focus shifts towards the future. While many of the Centennial efforts are winding down, there have been a number of exciting things taking shape over the past several months.

In September, the Reston Committee was formed which will serve to provide professional development opportunities to our members in Northern Virginia, Fairfax and Loudoun Counties. The Committee will hold monthly luncheon meetings at the ASCE Global Headquarters in Reston, VA and will provide PDHs to those in attendance. Additionally, some of our active committees have recently transitioned to Institute Chapters, highlighting the success and growth of our various technical groups, owed entirely to the continued dedication of our active members and Committee



and Chapter Chairs. Stay tuned to our website and newsletter to hear about the many events happening at the Committee level.

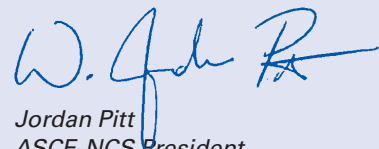
The Section was fortunate to have ASCE Past President Bob Stevens present at the NCS September meeting, where he not only spoke about ASCE's strategic initiatives, global reach and life as an ASCE presidential officer, but also led the induction ceremony for the new NCS Board of Directors, giving charge to the new leaders of our ASCE Section. While he expressed bittersweet feelings about nearing the end of his "three year term" as an ASCE President, I was inspired to see the same drive that I saw when first meeting him several years earlier as he campaigned to become the ASCE President-Elect – still excited to spread the word about Civil Engineering around the world and the need for investment in our education and our infrastructure.

I recently had the privilege of attending the ASCE Presidents and Governors Forum in Reston, where over 120 local, regional, national, and international ASCE members gathered to share their experiences and learn how to become a better leader within their Section or Branch. It was exciting and uplifting to be surrounded by so many others that are helping to promote and enhance Civil Engineering within their communities across the country and around the world. Also in attendance were incoming ASCE President Norma Jean Mattei and President-Elect Kristina Swallow, who will both follow in the footsteps of Bob Stevens to be the face of ASCE and help lead our industry into the future.

It is easy to forget that ASCE is founded on the basis of volunteer efforts. The fundamental mechanism behind all the work we do, and all the successful activities, events and projects, are the people that work hard to make them happen, and the relationships that exist between us. Our inspiration comes from the positive leadership of others around us, and our success comes from the collective success of everyone in our community. We as Civil Engineers owe it to ourselves and our peers to live and work with purpose and drive, remembering that each day we make decisions that, in some way, make a difference in the world around us.

The Centennial Celebration allowed us a time to look back on the history and successes of Civil Engineering in the nation's capital over the past 100 years. By doing so, we now look toward the future with hopes of making the next 100 years even better. My charge to each of you for this coming year is this: what can you do within our organization to better your life and those around you?

I am honored to be taking the reins as your Section President for the coming year, and I look forward to helping provide valuable and accessible opportunities for professional development, networking, and community service for ASCE members within our region. Here's to the next 100 years of Engineering in the Nation's Capital!



Jordan Pitt
ASCE-NCS President

Newsletter

Jim Palmer, Editor

November/December 2016 Issue Deadline: October 26, 2016

To Submit Articles: newsletter@asce-ncs.org

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

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

National Capital Section

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Ranjit S. Sahai, Previous Past President

Committee Chairs

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

The Net-Zero Energy Residential Test Facility

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is providing experimental data for computer model validation studies and to quantify the energy impact of mechanical ventilation.

The purpose of Dr. Fanney's presentation to ASCE-NCS will be to describe the design of the facility, the virtual family that resides in the facility, the instrumentation used in the experiment, to present data collected during the

first year of operation and to discuss a number of lessons learned.

Dr. A. Hunter Fanney is a Senior Research Scientist in the Engineering Laboratory (EL) at the National Institute of Standards and Technology (NIST). Dr. Fanney joined NIST in 1977. He initially led a team in



conducting experimental and analytical studies of solar water-heating systems. In 1984 he became leader of the Heat Transfer and Alternative Energy Systems Group. He was selected to lead NIST's Energy and Environment Division in 2007, a position he held until being appointed as a Senior Research Scientist in 2013. ■

The NCS Scholarship Trust – Your Section Voluntary Contribution

By Bernie Dennis, NCS Past President (1996–97), NCS Scholarship Trust

Many of you know that our Section's Scholarship Trust annually awards scholarships to high-academic civil engineering students at the five universities in our Section boundary: Howard University, Catholic University, the George Washington University, University of District of Columbia, and George Mason University. We need your help with this effort, and it is easy.

You will be receiving your annual ASCE membership dues request soon. On the

form, the block for Section Voluntary Contribution allows you to contribute directly to our NCS Scholarship Trust. Your contribution will have a direct impact on the future of the civil engineering profession. Please be generous in your contribution, no contribution is considered too small.

Other sources of funding for our Trust include the Past Presidents Annual Contributions, Memorial Contributions, and Corporate Contributions. ■

Save the Date! ASCE Region 2 Assembly

**Saturday, November 12, 2016
at Morgan State University**

All Sections, Branches, Younger Member Forums, Student Chapters, Faculty Advisors and Practitioner Advisors are strongly encouraged to attend the 2016 Region 2 Assembly which is scheduled for Saturday November 12, 2016 in Baltimore, Maryland at Morgan State University.

There will be professional developments 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.

Interest and information inquiries please contact [John Casana](#). ■

Editor's Correction

The Summer 2016 (Vol 62 No 9) NCS eNewsletter [Article](#) "Bridges from the District to NOVA: Where We Are Today and Challenges that Lie Ahead DDOT Bridges" mentions the "DDOT is responsible for 232 bridges (six of which are historic) and 15 tunnels and underpasses." In fact, the DDOT is responsible for a total of 243 bridges, pedestrian bridges, tunnels and underpasses (six of which are historic bridges).

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2016 ASCE Presidents and Governors Forum

By Brian Barna, PE, LEED AP, ASCE-NCS Vice President

Jordan Pitt and Brian Barna attended the 2016 ASCE Presidents and Governors Forum at ASCE Headquarters in Reston, VA on September 18–19. Section, Branch, and Region leaders from all across the country came for training on how to manage their local ASCE organizations more effectively. Also in attendance were leaders from several international sections, including Costa Rica, Nigeria, and Australia. This two-day training featured several speakers from ASCE's Executive Board and Leadership including Executive Director Tom Smith as well as other leaders from Sections and Branches that have had recent successful initiatives. Jordan gave a presentation on the National Capital Section's Centennial Year activities and initiatives, including the Centennial Conference, our Centennial Commemorative Book – [Engineering the Nation's Capital](#) – the USA Science

and Engineering Festival, and the DC Bridges boat tour.

ASCE 2016 President Mark Woodson, ASCE 2017 President Norma Jean Mattei, and ASCE 2017 President-Elect Kristina Swallow were all in attendance and spoke to the group. One of the highlights of the conference was an energetic speech by Jim O'Brien, ASCE's Managing Director of Leadership Development, on how to become a better leader in ASCE and your workplace. His leadership keys: "Be Intentional" in everything you do, and when it comes to developing leadership – "Practice, Practice, Practice." Meggan Maughan-Brown, ASCE's Director of Global Programs, highlighted ASCE's rapid international expansion in recent years. Currently, ASCE has approximately 27,000 international members, with 17,000 of these members being

students. Attendees also got to view the latest trailer for *Dream Big*, an IMAX film highlighting civil engineering achievements that will be released nationwide in February 2017. This film's views of the world's greatest civil engineering accomplishments will inspire people of all ages and will be used as an educational and outreach tool to get students interested in the field of civil engineering.

The Forum included roundtable discussions and break-out sessions to discuss how different Sections and Branches operate. This was a valuable way to gain fresh perspectives on what works well, what doesn't work as well, and new initiatives that could be explored adding to our Section's efforts. This conference is a valuable experience for anyone interested in being a leader within their local ASCE organization. ■



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NCS Education Committee Defines Primary Areas of Focus for New Year

By Mike O'Connor, Education Committee Chair

The Education Committee is working to reinvigorate itself for the upcoming year. Mike O'Connor, a life member will be taking over as chairman. The committee will focus in three major areas: K-12 outreach; University/College Outreach; and Raise the Bar.

As part of NCS' centennial year program, Vic Crawford has been working with the American Association for the Advancement of Science (AAAS), (<http://www.aaas.org/senior-scientists-and-engineers/programs-dc>) to promote STEM education in DC area schools. The NCS continues to recognize the importance of this STEM effort for the continuance of the civil engineering profession by embracing the AAAS outreach program as part of its 2016/2017 program. Civil engineering volunteers use their experience and knowledge to assist K-12 teachers in bringing civil engineering concepts to young students. This program works particularly well for retirees that can devote time for volunteering, whether it is once per week or once per month. NCS and its Education committee are focusing on schools where expertise in civil engineering would be very welcome by teachers introducing science concepts to young students. There are also many programs at all class levels including Project Lead the Way, which

has a civil engineering component. Civil Engineering professionals interested in giving back to the community and sharing the joy of engineering with eager young minds should please contact Victor Crawford at vicris51@verizon.net.

The second area of the committee's efforts focus on the Colleges and Universities with civil engineering programs in the NCS. Recently, Ranjit Sahai and Mike O'Connor participated in practice advisor training at ASCE Global. This intensive one-day training class focused on boosting student membership in ASCE and getting them into the lifelong habit of ASCE membership. Currently, only 25% of student members go on to become professional members of ASCE after graduation. The training also discussed ways that local sections can help students make the most of transitioning into the engineering workforce. This is an area that professional members can make a big impression on young students and will be a focus for the outreach efforts. We will be contacting different members about collaborating in this effort as we go into the program year. Civil engineering professionals interested in working with young engineers should please contact Ranjit Sahai at rsahai@ram-corp.com or Mike O'Connor at mike@fplmuseum.org

The last area of focus is a major policy initiative for ASCE which is the "Raise the Bar" for Engineering program or RTB. Mike O'Connor recently participated in an ASCE training workshop at Saint Louis, Missouri on this topic. For some engineers, it is difficult to comprehend how the process and requirements for Bachelor's degrees in Civil Engineering and PE licenses have changed over the past several decades but they have. Whether one agrees with ASCE's policy or not, despite the cost of higher education in today's market, the profession is facing a series of challenges. These challenges share similarities with those ASCE has faced in the past while remaining unique. The Committee's goal will be to educate our local colleges and universities on RTB. We encourage any member that has questions to approach the committee and we will try to engage them in a dialogue. This is a very complex subject with a number of possible actions at the local and State level. The Committee hopes to start the dialog with briefing materials developed by ASCE Global and then to "think locally."

Civil Engineering professionals interested in joining the Education Committee should contact Mike O'Connor at mike@fplmuseum.org. ■

DISCOVER
ENGINEERS WEEK
FEBRUARY 19-25, 2017



NCS Committee News and Updates



Younger Member Group Updates

Happy Hours. The ASCE-NCS Younger Members Forum (YMF) holds monthly happy hours in Arlington, VA or Washington, D.C. Happy hours are typically held the first Wednesday of each month unless a holiday falls during that week.

The ASCE-NCS YMF held their September Happy Hour at Whitlows on Wilson in Arlington, VA on September 7th. Approximately 15 members attended the event.



The next monthly happy hour will take place in Washington DC at Sauf Haus Bier Hall at 6pm on Wednesday, 5th, followed by World of Beer in Arlington, VA on Wednesday, November 2nd. Look out for emails with specific locations for future monthly happy hours!

Stay Connected! Check out photos and stay up-to-date with YMF events by visiting the new YMF Facebook page: <http://www.facebook.com/ASCENationalCapitalYMF>. Also, follow us on Twitter (@asce_ncsYMF) at https://twitter.com/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 ASCE-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 contact the YMF President (ncsymfpresident@gmail.com).

Centennial Committee Updates

By Victor Crawford, PE, M.ASCE, Centennial Committee Chair

Our centennial celebration will soon end; time to prepare for the next hundred years. As we wind down our Centennial, I would like to begin by thanking our many volunteers on the Centennial Committee, on our Technical Committees and our Board of Directors; their hard work has allowed us to pay tribute to the National Capital's civil engineering accomplishments over the last hundred years. In addition to our excellent Centennial Conference, we have toured the Washington Aqueduct, the C&O Canal and the DC bridges, received Proclamations from the Commonwealth of Virginia, the District of Columbia, and the State of Maryland, and recognized Centennial Engineers through our excellent Monthly Series. We continued to highlight our profession while reaching out to students and the public by showing civil engineering

accomplishments at the Discover Engineering Family Day at the National Building Museum and at the USA Science and Engineering Festival, where we connected with over 350,000 students and their parents.

So how are we preparing for the next hundred years? We begin by leaving a legacy. If you have not purchased our commemorative book, [Engineering the Nation's Capital: A Century of Innovation and Promise for the Future](#), you should place your order now. This book will show family, friends, and colleagues what your profession has done for the National Capital over the last hundred years. This book, which truly exceeded all our expectations, has become such a source of inspiration that we have placed copies of the book in public libraries throughout our area. But as our Book highlights the last hundred years, we are looking to the future by reaching out to students to highlight what a great future they can have by pursuing civil engineering in the next hundred years. That's where we need your help.

We need volunteers to participate in our Science, Technology, Engineering, and Math (STEM) outreach program. Partnering with the American Association for the Advancement of Science (AAAS), we are using this superb student outreach program to bring your knowledge and experience into the classroom. Our STEM volunteers will receive three copies of *Engineering the Nation's Capital: A Century of Innovation and Promise for the Future* to leave in the science/ engineering classes rooms. As the book

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highlights our legacy, it also supports our future, for today's STEM student will be tomorrow's civil engineer. Please see the write-up on this exceptional program to get involved.

The other legacy project from the Centennial will be our interactive map. This map, called a StoryMap, can be used by tourists and students visiting the Nation's Capital to virtually interact with engineering accomplishments. This interactive map will provide extracts from our Book, historical photographs, and interesting facts that highlight how these civil engineering accomplishments have improved the Nation's Capital. Please consider joining our team developing this very interesting map.

Our Section represents the American Society of Civil Engineers in the Capital Area. In celebrating our Centennial we have recognized our Section's first hundred years. Now we need to work on the next hundred years through our STEM outreach to schools and our interactive map to highlight our profession's accomplishments. We also need volunteers for reaching out to the libraries in the District and Prince Georges County. These ongoing endeavors need your assistance to make them successful. Whether you are a Younger Member, a Life Member, or somewhere in between, we need your help; please join us by contacting the Centennial Committee at vicris51@verizon.net.

Construction Committee Updates

By Jeff Tan, PE, PMP, LEED AP, Construction Committee Chair



We're celebrating the Committee's First Anniversary! September marks one year since the Construction Committee officially launched. The establishment of the Construction Committee in 2015 fulfilled the long-standing need for a committee in ASCE-NCS for individuals in construction to network with other professionals, sharpen their skills, and shape the future. We have come a long way in a short time and I am so thankful for the many people who have given their enthusiastic support to the Committee.

Professional Development Session.

In celebration of our anniversary, the Construction Committee will meet on **October 6th, 2016 from 6:00 pm**

to 8:30 pm at Reston Regional Library, Meeting Room 1 (11925 Bowman Towne Drive, Reston, VA 20190). Michael O'Connor will present Henry Campbell who was one of the amazing, early 19th century American civil engineers who not only located the railroad, built track and bridges but also designed steam locomotives. Campbell designed the classic and wildly popular "American" (4-4-0) steam locomotive. It was the most famous design of the 19th century.

Call for Committee Members.

Please join our mailing list at this link: <https://groups.google.com/d/forum/asce-ncs-cc> and we will share information such as professional development events, job openings, and construction news. Please contact the Committee Chair at sunjeffsun@gmail.com if you need more information or wish to serve on the Committee's leadership team. Committee members commit to regular meeting attendance, have the ability to receive communication by phone and/or e-mail and are comfortable communicating their ideas in a group setting. We'd be delighted if you considered being a part of it.

Transportation Committee Updates

By Shri Yamijala, PE, M.ASCE, Transportation Committee Chair

The ASCE-NCS Transportation Committee held its planning meeting on August 30. In attendance were Shri Yamijala (Chair), Stuart Crooks (Vice Chair), Ranjit Sahai (Past Chair), and Dr. Samer Hamdar (Member). After a brief introduction, the following items were discussed:

Assessment of last year's sessions: Innovative Intersections (5/2015); Railroad Picnic (7/2015); Risk Informed Project Delivery (9/2015); Traffic Mobility V2V (11/2015); NDE Techniques

for Rehab (1/2016); Airport Pavement Design Innovations (3/2016)

Upcoming Calendar Commitments:

The calendar of events at the bottom of this page was developed for the coming year (Sep 2016 – May 2017) of NCS activities:

Mark your calendars, and we look forward to seeing you at these events. Remember, pizza is served at no cost and you earn PDH to help fulfill your PE renewal requirements.

ASCE-NCS Reston Committee

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

The inaugural meeting of the Reston Committee was held on Thursday, September 15, 2016. Norma Jean Mattei, PH.D., P.E., F.ASCE, 2017 ASCE President, Professor and Past Chair at the University of New Orleans Department of Civil and Environmental Engineering spoke on ASCE's Strategic Initiatives: Infrastructure and Sustainability. The meeting was well attended, including some representatives of ASCE staff, Region 2, and NCS leadership.

The Reston Committee will join the Construction Committee for their professional development meeting on Thursday, October 6, 2016. Please contact [Jeff Tan](#), Construction Committee Chair, for more information. The next Reston Committee meeting at ASCE headquarters will be on Tuesday, November 1, 2016. Leo J Titus, Jr, PE, President of ECS Mid-Atlantic, LLC will be speaking on Geotechnical Aspects of the September 11th Search and Rescue Mission at the Pentagon.

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

Transportation Committee Calendar of Events

10/04/2016	Innovative Ground Penetrating Radar (GPR) Applications to Civil Infrastructure That Add Value and Minimize Risk	GWU DC Campus	Champion: Michael Scott	1 PDH
11/8/2016	Social Networks and Demand/Evacuation	GWU DC Campus	Champion: Dr. Hamdar	1 PDH
1/10/2017	Transportation & Drainage topic	GWU DC Campus	Champion: Shri Yamijala	1 PDH
3/11 or 12/2017	Family-oriented social trip over weekend	Social Venue (TBD)	Champion: Stuart Crooks	-
5/10/2017	Technical Trip to a DOT Office	DOT Office (TBD)	Champion: Ranjit Sahai	1 PDH

ASCE Past President Bob Stevens Addresses National Capital Section

By Chris Manalo, PE, BCEE, M.ASCE, NCS Past President

Past ASCE President Bob Stevens was the special guest speaker at NCS's monthly dinner meeting held at the Arlington Hilton on September 20. President Stevens discussed his experience serving as President of our 144,000 member organization. During his tenure, significant strides were made in successfully making ASCE the world's most recognized civil engineering society. One out of every six ASCE members is located outside the United States, and half of our many technical journals are sold internationally. Given tremendous growth in



the development of emerging geographies, ASCE has naturally responded by welcoming those who demand the very best technical and professional resources and network. President Stevens discussed his travels to Lebanon, United Arab Emirates, India, and elsewhere where he was warmly welcomed at the highest levels of government.

In addition to his presentation, President Stevens led the installation ceremony for the new 2017 Board of Directors. Past NCS President Christian Manalo provided an overview of NCS' past

year's achievements, including the January release of the Infrastructure Report Card for Washington, D.C.'s Infrastructure, our May release of the award-winning book, [Engineering the Nation's Capital](#), and the very successful Centennial Anniversary Conference held at the National Press Club in June. Introductions were also made of our new ASCE Region 2 Director John Casana and Region 2 Governor Khaled Alamdeen. Many past NCS Presidents were also in attendance.

Our September monthly meeting will be one that many attendees will not soon forget. It has been an honor to have such distinguished members together to kick off NCS' next hundred years. ■



Architectural Engineering Institute – National Capital Chapter Interest Survey

By Moses DF Ling, PE, RA, LEED AP, President: Architectural Engineering Institute

The Washington DC area is blessed with an active building and construction industry, the Headquarters of ASCE (home of AEI), and a large concentration of AE professionals. The Architectural Engineering Institute – National Capital Chapter (AEI-NCC) is in a position to complement ASHRAE, SEA



or IES by providing a forum for conversation and collaboration engaging design and construction professionals in the discussion of "integrated building solutions" and sharing information that some persons/practices might see success in. The Chapter itself would not participate in institutional

administrative tasks, but would instead attempt to interface the various engineering disciplines and pull our industry closer together. We would like to gauge interest in establishing AEI-NCC. Help us by taking the 5 question [survey](#) by **Friday, October 14**, to determine interest in this organization. ■

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](#).

Why Do You Need a PE License?

Quite often we get questions from our readers about the importance of the PE license. For engineers, the PE license is the mark of a professional. It's a standard recognized by all employers and their clients, by governments and by the public as an assurance of dedication, skill and quality.

For consulting engineers and private practitioners, licensure is a virtual necessity. In fact, it is a legal requirement for those who are in responsible charge of work, be they principals or employees. The PE license is also very important for other institutions. For example, government agencies, educational institutions and private industries are increasingly requiring that they hire and contract only with licensed professional engineers. This is a trend that is almost certain to continue in the future.

According to the National Society of Professional Engineers, an engineer needs a license for various reasons including prestige, career development, authority, flexibility, and of course money:

Prestige: PEs are respected by the public and are seen in the same light as licensed professionals in other fields. PEs are also held in high esteem by their peers within the engineering community, who see the PE as part of an elite group.

Career Development: Employers are impressed with engineers who have their PE license. Licensure not only enhances your stature, it shows commitment to the profession and demonstrates heightened leadership and management skills. Licensure is also a necessity for rising to increased levels of authority and responsibility.

Authority: Only PEs can sign and seal engineering drawings; and only PEs

can be in responsible charge of a firm in private practice or serve as a fully qualified expert witness. Also, many government agencies and educational institutions are emphasizing licensure among their engineers as well.

Flexibility: Having a PE license opens up your career options. You can become a specialist, or establish your own business. It also protects you during industry downsizing or outsourcing. The PE license allows you to go as far as your initiative and talent will take you.

Money: Studies have shown that most PEs earn higher pay throughout their business careers. Having your PE allows expanded opportunities beyond a company structure – as an independent consultant for example.

The Latest NCEES-FE Reference Handbook (Version 9.4)

Last month we promised our readers to talk about the latest FE Reference Handbook (Version 9.4) that is available from The National Council of Examiners for Engineering and Surveying (NCEES).

As before, the new FE Reference Handbook (version 9.4) is supplied electronically to FE examinees during the exam and displayed on their exam computer monitors as a searchable PDF file. All examinees will use a 24-inch monitor while testing to allow sufficient space to display both the exam question and the reference handbook. It is very important to become familiar with the latest version of the FE Reference Handbook prior to taking the computer-based test (CBT). I also recommend my students to own a hard copy of the handbook. When studying, remembering the page numbers of some important formulas may also help.

To pass the exam, you need to get about 77 questions right or 70% of the whole test. To achieve that, you have to get to the proper formulas, relationships and tables as fast as you can without wasting time. For example, just to give you an idea, if you need the Modulus of Elasticity of Aluminum (E_{alum}) for a problem on the test, the answer will be on page 84 of the reference manual and you have to go to that page in less than ten seconds. If you need the dimensions and properties of W-Shapes you need to turn to page 159. I'll never forget when, during one of my pro-bono Saturday classes at the University of the District of Columbia in Washington, DC, we needed the properties of a W 12 x 50 shape and a student in the class spent more than five minutes to get to the right page instead of a few seconds.

Finally, the FE is a fast-paced exam and you will have little time to look up information. Therefore, make sure you are familiar with your reference material and you always begin with the subject areas you know best. This will give you more time and build your confidence. Remember, it is always a good idea to consider reverse engineering the problems by substituting the answers and seeing which one works (try your hand at this month's [practice problems!](#)).

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

Until next time,
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Upcoming Events *(Also available on the NCS website under the Events tab.)*

October 5

YMF Monthly Happy Hour, 6–8 pm, at [Sauf Haus](#), in 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.

October 6

Construction Committee Meeting, 6–8 pm, at [Reston Regional Library, Meeting Room 1](#). Michael O'Connor will present Henry Campbell who was one of the amazing, early 19th century American civil engineers who not only located the railroad, built track and bridges but also designed steam locomotives. Campbell designed the classic and wildly popular "American" (4-4-0) steam locomotive.

October 10–12

The GeoVirginia 2016 Conference in Williamsburg, VA is just around the corner – [Register Now!](#) Contact [Sara Phillips](#) if you have any questions.

October 17–19

International Conference on Sustainable Infrastructure, 2016 in Shenzhen, PR, China. [Register](#)

by October 15. Note, no on-site registration!

October 24–26

Arctic Technology Conference 2016 in St John's, Newfoundland and Labrador, Canada. The Arctic Technology Conference is a multidisciplinary conference with 14 technical societies and organizations working together to deliver the world's most comprehensive Arctic event. [Register Now!](#)

October 25

NCS Section Meeting, 6:30–8:30 pm, Hilton Arlington. Dr A Hunter Fanney will share with us the details (design specifications, instrumentation and modeling results) on the Net Zero Energy Residential Test Facility (NZERTF), constructed at the National Institute of Standards and Technology in Gaithersburg, MD. Look for more information in emails and on our [website](#).

November 1

Reston Committee Meeting, 11:45 am–1:00 pm, ASCE Headquarters 1801 Alexander Bell Dr #100, Reston,

Virginia. Leo J Titus, Jr, PE, President of ECS Mid-Atlantic, LLC will be speaking on Geotechnical Aspects of the September 11th Search and Rescue at the Pentagon.

November 2

YMF Monthly Happy Hour, 6–8pm, [World of Beer](#) in Arlington, VA. Join other younger members from the area for free appetizers and drink specials. Look for an email announcement with more details.

November 8

Transportation Committee Meeting on GWU DC Campus. The topic is Social Networks and Demand/Evacuation. Contact [Shri Yamijala](#) for more information.

January 20–21, 2017

Regions 1,2,4 & 5 Multi-Region Leadership Conference in Newark, NJ. The conference includes the Workshop for Section and Branch Leaders (WSBL), the Ester Region Younger Member Council (ERYMC), and the Workshop for Student Chapter Leaders (WSCL). More information available [here](#).

Volunteer Opportunities

American Association for the Advancement of Science Volunteer Programs

Volunteer to Support Science, Technology, Engineering, and Math (STEM) for the Next Generation of Civil Engineers. The Fall 2016 Semester has begun and we need your help. You could assist K-12 teachers in bringing civil engineering concepts to young students using your experience and knowledge. This program works particularly well for retirees that can devote one day a week to volunteering. We are focusing on the elementary schools where your expertise in civil engineering would be very welcome by teachers introducing science and engineering concepts to young students.

We are partnering with the American Association for the Advancement of Science (AAAS) program as we seek volunteers for our outreach to the next

generation. AAAS has been bringing engineers and scientists into the classrooms for over ten years, <http://www.aaas.org/senior-scientists-and-engineers/programs-dc>. NCS has embraced this educational outreach program by working with AAAS in supporting STEM in the school districts in the DC metro area.

If not retired, we still have opportunities for you to use your experience and knowledge to support our next generation. This includes Project Lead the Way (PLTW), which has a civil engineering component.

As a volunteer for these programs, you will be provided with three copies of *Engineering the Nation's Capital: A Century of Innovation and Promise for the Future* to leave in the science/engineering classes rooms. If you are interested in giving back to the profession

while sharing the joy of engineering with eager young minds, please contact Victor I Crawford at vicris51@verizon.net.

ASCE-NCS Newsletter Editor-In-Training: Get Involved in your Local Section!

The NCS is looking for an energetic professional to contribute to the Section while developing technical communication skills and professional relationships with local civil engineers and ASCE-NCS Board members. Duties include helping to produce eight newsletters annually; volunteer hours do not exceed five to eight hours per month. Editors-In-Training typically go on to be Newsletter Editors and hold NCS Board Positions. *A great way to get more involved!*

Email Jim Palmer, Newsletter Editor at newsletter@asce-ncs.org with "Editor-In-Training" in the subject line. ■