

UPCOMING EVENTS

*Professional Engineer Refresher Course
Spring 2019*

February 7, 2019 – April 4, 2019

*YMG Annual Networking Event
and Billiards Tournament*

February 13, 2019

*What You Need to Know About the 2016
Modifications to the ASCE/SEI 7 Minimum
Design Loads Standard*

March 5, 2019

Further Details Inside



Construction Management Plans for Development and Public Works Projects

by Bryan Zimolka, PE, Associate, Howard Stein Hudson

As engineers, project managers, owners, and contractors, we must collectively recognize the importance of mobility to the vitality of urban areas. Movement of people, provision of public services, and the velocity of commerce must be maintained during construction. Whether the project is residential, retail, or infrastructure, construction in densely populated areas present challenges to mobility that projects in less densely developed areas may not face. Understanding these challenges and planning to mitigate them can keep projects on time and within budget. Failure to recognize and act on these challenges, can result in unanticipated costs and unpleasant owner meetings. A construction management plan (CMP) is an engineered set of plans that details how a project will be constructed while maintaining multi-modal mobility, public safety, and efficient construction practices. Below are a few construction considerations that can be incorporated into a typical CMP to help benefit a project.



Urban construction site with implemented traffic management provisions

On-Site Space Limitations

When working in urban areas, where real-estate is costly, many projects are “Zero Lot-Line” developments. These are buildings that extend to the property limits with below grade elements that may encroach into the public Right-of-Way (ROW), requiring additional permitting efforts

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President's Report

by Geoffrey B. Schwartz, PE, Sr. Project Manager, GZA



Dear Members,

Hope this newsletter finds you in good spirits and wishing you happy and healthy new year! Please check in with our events calendar and weekly email blasts to look at upcoming programs, as there should be plenty of great ones to choose from! And as always, if you would like to participate in one of our 10 committees, or our eight technical groups / institute chapters, or volunteer at an Outreach event, please visit our [website](#) and email the current committee or

group chair, or email me at the link below, and I will direct you to the right person!

It is with a heavy heart to inform the BSCES community of Steve Taylor's recent passing. Steve, who was a senior vice president in Mott MacDonald's Boston office, was very active in BSCES. He was the 2011–2012 Chair of the BSCES Structural Group, and then afterwards continued to remain involved in the activities of the SEI Boston Chapter. Sadly, I also must report the passing of Stephen McKelvie. A member of ASCE and BSCES since 2006, Steve worked for HDR.

Please join me in congratulating Dr. Heidi Nepf, PhD, who was recently selected by ASCE's Environmental and Water Resources Institute (EWRI) to receive the 2019 Hunter Rouse Hydraulic Engineering Award for “fundamental contributions to environmental fluid mechanics and ... world-renowned work on the impact of vegetation on flow, transport in rivers, wetlands, lakes and coastal zones, as well as ... efforts toward science public education and mentoring of students and young researchers.” Congratulations Dr. Nepf!

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Boston Society of Civil Engineers



Construction Management Plans

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and typically financial consideration to “rent” space or offset impacts. Occasionally, a project’s on-site space constraints are not identified until after the construction contract has been finalized which can exhaust any general site conditions budgets and other reserves, putting financial pressure on the project. Adding a consultant experienced in CMP design during permitting or pre-construction can help to answer common questions such as; “How can this building be constructed with minimal laydown area?”.

During pre-construction planning, there are certain factors that must be considered. Whether it be size and type of cranes, placement of the concrete pumper or staging for slurry plant equipment, these site features can have an adverse effect on the reduction of roadway capacity that can impact traffic operations.

For projects that cannot accommodate on-site material deliveries, public ROW must be used to create drive aisles and laydown space, allowing material loading and unloading to be conducted. For construction operations with greater safety considerations, such as demolition or blind crane picks, small project sites become even more challenging to manage. A CMP can identify and mitigate increased safety concerns.

Traffic Management

One of the primary purposes of the CMP is to provide traffic management design which helps assess and demonstrate the feasibility of the project. A CMP also helps to provide information and adequate mobility for pedestrians, bicycles, vehicles, and construction activities. Providing information succinctly, clearly, and in a timely manner will give users information to allow them to react to changed conditions safely and comfortably. Examples of a few typical traffic management items to assist all mode of transportation during construction include static and variable message signs, temporary pavement markings, temporary lighting, traffic signal modifications, and police detail officers.

Accessibility

Public expectations have changed when it comes to construction projects in urban settings. Mobility that is similar during construction as compared to the non-work condition is expected. Similarly, agencies with construction oversight have more stringent requirements for mobility during construction. When considering temporary mobility during construction, there are a number of standards that can be used. For example, engineers at Howard Stein Hudson use

three such standards including:

- American with Disabilities Title II regulations
- Pedestrian Right of Way Accessibility Guidelines (PROWAG)
- Manual of Traffic Control Devices

These standards contain the information necessary to provide consistent information and accessible travel for pedestrians, bicyclists, and vehicles. The temporary condition during construction must be equal to the permanent condition.

Transit Accommodations

Most often, projects encounter bus services as well as access and egress to light rail or commuter rail. Understanding how these public transit options operate prior to construction will allow simplified mitigation for construction.

Bus services have space requirements for boarding, alignment, and passenger waiting. For example, the Massachusetts Bay Transportation Authority (MBTA) has produced guidelines for construction around transit which include bus-stop length requirements for near-side, mid-block, and far-side stop locations. Additionally, a 5-foot by 8-foot level all-weather area at the front door location and 4-foot by 10-foot level all-weather area at the back door opening are required to allow wheelchair access.

Temporary Traffic Signal Design

Within the already limited space typical to urban areas, existing traffic signal infrastructure can impede building construction and materials movements on a project. To mitigate this, traffic signal infrastructure can be temporarily relocated. Having a CMP designer with expertise in traffic signal design is important to streamline the CMP design and avoid the need for additional consultants.

Early identification of traffic signal equipment that will need to be relocated can help avoid any unanticipated and costly relocations. For example, traffic signal controllers often have fiber-optic and copper cabling to allow interconnection and communication between adjacent traffic signals and City-wide traffic management centers. Relocating system traffic controllers typically requires additional permitting, design review and plans stamped by a professional engineer.

Safety

Worksite safety is an area that the construction industry has made great strides to improve. General contractors have dedicated safety

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Geotechnical Studies for Ground-Mounted Solar Arrays

by Bruce Fairless, PE, Principal, GZA and David Dutil, PE, Principal Structural Engineer, Borrego Solar

Perhaps disheartened by the cold and gloomy winter months, some residents in the northeast believe that solar photovoltaic (PV) systems don't make sense here. This perception is wrong and a number of companies are proving that.

For the past several years, Borrego Solar and GZA have jointly worked on over 50 solar PV systems sites totaling over 1,000 acres. These have included sites on Long Island, upstate New York and Cape Cod. GZA's role has been to serve as the geotechnical consultant, ensuring that the soils and engineered system can reliably support the loads imposed by the solar array. Borrego Solar typically utilizes pile foundation systems for their installed solar arrays because of their quick installation time and ability to withstand high lateral loads from wind. These systems are typically screw piles, pipe piles, or driven H-piles. For sites with shallow bedrock or frequent obstructions, the screw pile foundation system can be predrilled. Both axial and lateral pile testing is usually performed to maximize the pile design efficiency.

Based on project experience, Borrego Solar have moved towards early characterization of subsurface conditions because these are some of the least predictable aspects of their project planning. As a case in point, at an apparently innocuous wooded area GZA discovered miscellaneous debris beneath the topsoil to a depth of about eight feet. At another site, stumps and other organic matter had been buried below the topsoil to depths of greater than 30 feet in an area that appeared to have just been cleared of trees. These conditions would have precluded the use of shallow or typical short piled systems due to the potential for large differential settlement and might have resulted in the contractor having to deal with potential contaminated soil issues due to the miscellaneous debris. Taking the time to do preliminary investigations allow the owners and consultants to assess the feasibility of using a particular site before making financial commitments to developing the site.

In another such example, existing conditions were investigated and assessed at a large open site near Cape Cod. Based on examination of historical aerial views, the site was determined to have been previously used as a gravel quarry. Based on past experience with similar sites, quarries are often backfilled with poor quality soils, demolition debris, and organic materials such as tree stumps. Since such materials would



Ground mount rack system supported on screw pile foundation



Ground mount racking system and solar module supported on driven H pile foundation

lead to differential settlement of the foundation systems, a more comprehensive exploration program was undertaken to evaluate that risk.

The main factors evaluated in subsurface investigation programs, for ground-mounted solar systems are:

1. The presence and frequency of subsurface obstructions, such as boulders and shallow competent bedrock, that will prevent a pile from reaching design depth;
2. The corrosivity and thermal resistivity of site soils via laboratory testing; and,
3. The presence of poor existing fill that may lead to unacceptable differential settlement; and,
4. The presence of compressible, organic soils that may lead to unacceptable differential settlement.

In addition to subsurface investigation programs, some jurisdictions require the completion of a preliminary foundation design for permitting purposes. The partnership between solar developer and geotechnical consultant in these situations allows the solar developer to make informed decisions about a prospective site using the geotechnical experience and understanding of similar systems provided by their consultant. The information provided by GZA in the above cases has allowed Borrego to avoid “deal-breaker” sites where subsurface conditions were less than satisfactory and would have raised the level of risk to the project’s feasibility to unacceptable levels. Taking the time to assess the geotechnical feasibility of a site for installation of ground-mounted solar arrays increases the odds of a successfully constructed array that is able to withstand design loads and avoid future settlement.

Integrated Project Delivery in Construction

by Ali Touran, PhD, PE, F. ASCE, Professor, Northeastern University

Project delivery method is the comprehensive process of assigning contractual responsibilities to project participants especially the designer and constructor. While traditionally the owner, especially public agencies, have used the design-bid-build approach for project delivery, in the past twenty years, alternative delivery methods such as design-build and Construction Manager (CM) at risk are being used by the owners with varying degrees of success.

Integrated Project Delivery (IPD), a comparatively more recent development in the field of project delivery, has been used in the past ten years to improve project outcomes. Several studies and observations found the most influential drivers to project delivery success to be communication, alignment of interests and objectives, teamwork, and gain/pain sharing. These characteristics are all incorporated in an IPD arrangement and if used effectively, it can improve safety and quality, reduce waste and increase early cost and schedule certainty. This improvement is achieved by integrating project teams to mobilize each participant's talent and skills to optimize project results and increase value to the owner.

While there are various levels of IPD adoption (the spectrum being referred to as IPD-ish to full IPD), a fully developed IPD arrangement is characterized with the following principles:

- (1) Early involvement of key stakeholders
- (2) Shared risk and reward
- (3) Collaborative decision-making and control
- (4) Jointly developed targets
- (5) Multi-party agreements
- (6) Liability waivers among key participants

In the U.S. practice, because of the fundamental importance of integration and collaboration among project team members, the use of Building Information Modeling (BIM) and Lean practices have been emphasized. Furthermore, because of the current legal impediments in contracting and developing multi-party agreements and liability waivers, the use of IPD has been limited to private owners.

This change to *relational project delivery* arrangements is a paradigm shift as it looks at sharing rather than transferring the risks, and takes the collaboration and integration within project team to a higher level. In its most complete form, the IPD attempts to encourage behavior that maximizes project performance by removing impediments to creativity and collaboration, align stakeholders' goals with project objectives, and encourage behavior that adds value to the project (Ashcroft, undated).

The use of IPD in the U.S. has not been without glitches. A large survey conducted by Kent and Gerber-Burcin (2010) showed that the number of projects using IPD remained relatively small despite the support of several organizations such as the American Institute of Architects and Associated General Contractors of America. Respondents thought major obstacles were business risk, fear of change, lack of IPD awareness and lack of appropriate legal structure. Participants in the said survey thought that IPD was more appropriate for larger projects; healthcare and civic projects were mentioned as the most appropriate for IPD implementation. Since that survey, several of the impediments to IPD implementation have been resolved. Many more projects were completed using the IPD

and legal and contractual documents are now available that facilitate the use of relational project delivery methods. Almost all case studies reporting IPD use has been on building projects (for example see Cohen (2010)) and almost all IPD case study projects report improved performance metrics.

While IPD has been used in building projects, its use has been more limited in industrial projects. For the past two years, a research team consisting of Iowa State and Northeastern universities have been working on a research effort funded by the Construction Industry Institute with the objective of developing a holistic and comprehensive IPD framework customized for industrial projects. The final report and outcomes of this effort will be available in 2019. The general approach in the research was to identify the principles that promote collaboration and integration among project team members and define and develop methods and tools that facilitate and enable team spirit and collaboration.

Ashcroft, H.W. (undated), "The IPD Framework," Hanson-Bridgett LLP, San Francisco, Calif.

Cohen, J. (2010), "Integrated Project Delivery: Case Studies," A Joint Project of AIA California Council Integrated Project Delivery Steering Committee AIA National Integrated Practice Discussion Group, Sacramento, Calif.

Kent, T. and B. Becerik-Gerber (2010), "Understanding Construction Industry Experience and Attitudes towards Integrated Project Delivery," J. Construction Management and Eng., ASCE, 136(8), 815-825.

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Would you like to contribute to the newsletter of the oldest civil engineering society in the country? The BSCES Newsletter Editorial Board is seeking members who are willing to write articles for publication in *BSCESNews* or to join the Editorial Board.

Typically 300 to 700 words, BSCESNews featured articles are about technical topics or professional matters of interest to civil engineers. The March 2019 issue of the newsletter for example, will highlight the Construction Institute Boston Chapter and feature one or more articles on the theme of Construction.

Editorial Board members meet monthly via conference call to plan upcoming issues of the newsletter. They also solicit, write and/or review newsletter articles.

For more information on how you can become a *BSCESNews* contributor contact BSCES Newsletter Editorial Board Chair Bruce Jacobs at sr.vp1@bsces.org or BSCES Association Manager Rich Keenan at rkeenan@engineers.org or at 617/305-4110.

Southern New Hampshire University's Iconic Monadnock Hall

by Stephen F. Rusteika Jr., CSL, MCPPO, M. ASCE, BSCES Past President and Managing Director at PMA Consultants LLC and Mohammed Aljuboori, CCM, EIT, MCPPO and Associate at PMA Consultants LLC

Southern New Hampshire University (SNHU) is one of the fastest growing universities in the nation. Since its founding in 1932, the University has transformed from a school of accounting and secretarial science into an institution offering over 200 programs with more than 3000 on campus students. This growth required a quick response to expand and develop campus residence halls to accommodate the increasing number of on-campus students. This mission needed to be accomplished with a high quality and efficient approach that adhered to tight cost and schedule parameters.

In November of 2015, PMA Consultants LLC (PMA) was engaged as SNHU's Owner's Project Manager (OPM) and was tasked with managing this complicated, schedule-sensitive project. PMA teamed up with SNHU and assisted in the selection process of the delivery method and the design-build team. A key component of the project was making sure that all parties involved understood the programming, design and construction process for a project of this size and complexity being delivered under the design-build approach. As a result of the collaborative effort, the accomplishments of the project were recognized by three professional organizations. Monadnock Hall received the Award of Merit for Higher Education/Research from ENR New England, Merit Award for Excellence in Architecture from AIA New Hampshire, and the New Building Construction Project of the Year Award from CMAA New England.

Selecting the Right Project Delivery Approach

Project delivery is a comprehensive process including planning, design and construction essential to execute and complete a project. Choosing the right project delivery approach is one of the fundamental decisions that owners make while developing their acquisition strategy.

The selection process starts with an understanding of methods available. The Owner must have a firm grasp of the impact of each project choice, since the delivery method establishes when parties become engaged; drives the choices of contractual relationships; and influences ownership and impact of changes and modification of project costs and schedule. In all delivery systems, there are always a minimum of three parties involved: owner, designer and contractor. In SNHU's case, the designer, PMA, had the additional role as the University's Owner's Project Manager. The designer and



Monadnock Hall – South Entrance facing parking lot 26-CV

owner worked closely to select a delivery method that best achieved the unique requirements of the Monadnock Hall project.

Driven by a tight schedule, the design-build method was selected; it provided one entity (design-builder) under a single contract with the owner to provide both architectural/engineering design services, as well as construction services.

This design-build delivery method was a perfect match for Monadnock Hall due to the short project duration (18 months). The overlapping design and construction would allow for fast tracked delivery while also minimizing the prime players to be only the owner and design-build entity. This approach and work environment facilitated a cost and time efficient project with few changes that were limited primarily to changes in owner.

The Design-Build entity, Lavallee Brensinger Architects and Mackey Mitchell Architects as the designer and Whiting–Turner Contracting Company as the construction manager, was a perfect match and fit for the project. They were able to keep focus and harmony throughout the project which led to a successful project in all aspects, both under budget and within schedule. Choosing the right delivery method and team are crucial in achieving the deliberate results.

The Design Process

Located west of Tuckerman Hall and east of Learning Commons Library (Gustafson Center), Monadnock Hall was designed as a residence hall for upperclassmen. The total building square



Monadnock Hall – West Wing End Facade

footage is 97,025, with 304 beds spread through 76 units. The Hall is four stories with a lower partial story and entrances on the north façade. The Hall includes a number of different unit configuration including 15 units made up of four single bedrooms and 61 units that are double bedroom apartments each sized for four students. The Hall also contained a Resident Director Apartment, study areas and laundry and lounges at each floor which significantly increased the social aspects of the facility.

The Substructure

The geotechnical report recommended shallow spread and strip footings designed for a soil bearing pressure of 3,500 pounds per square foot, bearing on in-situ dense on a 1' layer of crushed stone over sound ledge. Footings and foundation walls are cast-in-place reinforced concrete construction.

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Monadnock Hall

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The first-floor level is a cast-in-place concrete floor slab. Grade-supported interior slabs are made up of to 8 inches of compacted gravel base course, 2 inches of rigid under slab insulation and a reinforced vapor barrier beneath the slab. The first floor at-grade slabs are 4-inch thick with welded wire fabric.

The building is surrounded by a perforated pipe sub-drain system, with underdrain system immediately beneath the lowest-level slabs and behind the interior and north side foundation retaining walls.

The Superstructure

The building is steel framed to deliver economy, performance, flexibility and speed of construction. A composite structural steel floor system was used to exhibit superior stiffness, vibrational characteristics, fire resistance and less structural depth. Floor framing is wide flange steel beams and girders, acting compositely with cast-in-place concrete floor slabs on steel deck. Shear studs are field welded to the beam/girder flanges to achieve composite action with the floor slab. The roof is steel framed as well, with the steel roof deck supported by wide flange steel beams. All framed upper floors are comprised of a 3½-inch cast-in-place normal weight concrete on a 2-inch deep, 20 gauge cold-formed composite steel deck, for a total minimum slab thickness of 5½ inches.

Exterior walls comprised of a non-load-bearing light gauge metal framing (LGMF) with

expansion head tracks. Exterior wall framing backing up masonry veneers is comprised of 6-inch deep, 16-gauge steel studs spaced at 16-inch on centers. Wall framing backing up cement fiberboard wall 6" deep, 18-gauge steel studs spaced at 16-inch on centers. Glazing and glass curtain wall assemblies. Interior partitioning consists of gypsum panel wallboard on non-load bearing light gauge steel framing. Stair and elevator enclosures are comprised of reinforced 8" thick normal weight concrete masonry.

The Mechanical/Electrical Systems

The student apartments are heated and ventilated with a forced hot water hydronic heating system and dedicated outside air system with exhaust air energy recovery. Ceiling mounted radiant heating panels provides heating to the apartments.

The common, public, meeting rooms, fitness room, and other building similar non-residential program spaces are heated, ventilated, and air-conditioned. A Variable Refrigerant Flow (VRF) system with Air Source Heat Pumps provides heating and cooling to these spaces.

A 100 KW, diesel fueled emergency generator provided as a standby source of emergency power for the building. This generator incorporated into the electrical design to provide emergency and standby power for the building, divided into two separate systems Life Safety and Optional Standby.

The Construction Process

Construction commenced in April of 2016 with tree removal followed by site work, foundation, steel erection, concrete slabs, interior and exterior framing, sheathing and AVB. MEP rough in started in early November of 2016 along with masonry work, weather tight, drywall, and painting and millwork. By March of 2017, exterior siding started along with MEP fit out and interior finishing. The project team was able to achieve substantial completion by late July of 2017 followed by the certificate of the occupancy on early August.

The tight schedule was achieved by overlapping the design with on-site activities and overlapping the installing of major mechanical and electrical systems, site finishes, furniture, and commissioning. This was a major benefit of utilizing the Design-Build project delivery approach, as it allowed the designer to work intimately with the construction team to release early and on-going packages necessary to ease the sequence of construction activities.

The SNHU capital projects team and PMA as their Owner's Project Manager (OPM) played a major role in this process as well. All entities were intimately involved from Day 1 of the Project and worked together towards the success of the Project. From the RFP being finalized and issued in December of 2015 to the completion of the project on August 26 of 2017, it took just 18 months for project completion. Additionally, there were no safety incidents, minimal changes and no disruption to campus operation.

Construction Management Plans

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officers, on-site safety meetings, and site-specific safety plans. The CMP identifies safety measures at the interface between the construction site and the public ROW. Overhead protection on pedestrian walkways, additional lighting, limited deflection concrete barriers, and crash attenuators are some examples of how the CMP can provide safety elements that are reasonable and can limit project liability.

The CMP must also provide for emergency vehicle access to the site and surrounding area. Larger urban areas typically have larger emergency vehicles. Can a ladder truck or HAZMAT vehicle maneuver around the site? Can a fire department fight a fire from multiple sides of a site? These are some of the questions a CMP can assist in identifying and answering.

In summary, building and public works projects in densely developed areas require additional consideration and preparation of a detailed CMP. Project managers for these projects will benefit from early planning, cost estimating, and engagement of a professional engineering firm experienced in CMP preparation. Understanding the need for early planning and the need to provide mobility equal to or better than existing conditions prior to construction will help to avoid schedule and budget pressures.

Update on PFAS and Massachusetts Drinking Water

by Kirsten Ryan, PG, Principal Hydrogeologist and Massachusetts Drinking Water Practice Leader, Kleinfelder

Per- and polyfluorinated alkyl substances (PFAS) are emerging contaminants of concern that are receiving scrutiny from environmental regulators, the public, attorneys, and the scientific community due to their hazardous, recalcitrant, and bio-accumulative characteristics. PFAS are a class of thousands of human-made compounds characterized by carbon-fluorine bonds. Due to properties of oil and water repellency, temperature resistance, and friction reduction, PFAS have been used by a broad spectrum of industries and in a wide-range of commercial products. Primary PFAS sources in the environment include: PFAS production and manufacturing, use of firefighting foams at fires and training facilities, specialty polymer and plastics manufacturing, waste disposal including municipal solid waste landfills, and municipal wastewater treatment effluent and biosolids. Consumer products and food are typically the largest sources of exposure to these chemicals for the general public. However, in communities where PFAS have contaminated groundwater or surface water, drinking water may be an additional source of exposure.

The presence of PFAS in drinking water in several Massachusetts communities was first discovered through testing required for water systems serving more than 10,000 people under the federal Unregulated Contaminant Monitoring Rule (UCMR). PFAS may be discovered in more locations as the recent passage of the America's Water Infrastructure Act (S.3021) will amend the Safe Drinking Water Act to expand UCMR testing to smaller water systems (3,300 people or greater).

There are currently no enforceable federal or Massachusetts standards for PFAS in drinking water, although health guidance levels have been issued and some stakeholders are calling for tougher enforceable standards. In May 2016, the Environmental Protection Agency (EPA) issued a drinking water Health Advisory (HA) value of 0.070 micrograms per liter (70 parts per trillion, or ppt) for any combination of two PFAS chemicals: perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). EPA's HA values were based on recent studies indicating linkage between exposure to elevated levels and developmental effects in fetuses and breastfed infants as well as potential effects on thyroid, liver, kidneys, and immune system function.

Recent Developments in Massachusetts:

In May 2018, the Massachusetts Department of Environmental Protection (MassDEP), in partnership with the Massachusetts Department of Fire Services, announced a "take-back" program to assist fire departments with the proper disposal of pre-2003 firefighting foams which contain PFAS. MassDEP reports having collected 128,000 pounds of contaminated foam in the first six months of the program.

In June 2018, MassDEP issued a drinking water public health guideline, known as an Office of Research and Standards Guideline (ORSG), also having a value of 70 ppt, but applying to five PFAS chemicals: PFOA, PFOS, perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), and perfluoroheptanoic acid (PFHpA). Based on this ORSG, MassDEP recommends that pregnant women, nursing mothers, and infants not consume water with levels of the five PFAS substances (either individually or in combination) exceeding 70 ppt and that public water suppliers take steps expeditiously to reduce levels of the five PFAS to below 70 ppt for all consumers. In addition, MassDEP recently began requiring testing for the five PFAS chemicals as part of its drinking water New Source Approval process and replacement well approval process. Also in June, MassDEP issued Interim Guidance on Sampling and Analysis for PFAS at Disposal Sites regulated under the Massachusetts Contingency Plan.

In late October 2018, the Conservation Law Foundation and the Toxics Action Center submitted a formal petition to MassDEP to demand rulemaking to establish a treatment technique drinking water standard for the class of PFAS substances.

In the context of drinking water regulations, a treatment technique is an enforceable procedure

or level of technological performance set by EPA (or state authority) in lieu of a numerical maximum contaminant level. This is used in place of a numerical standard when there is no reliable and economically and technically feasible method to measure a contaminant at concentrations to rule out a public health concern. For example, it is currently used with the Lead and Copper Rule, in which optimized corrosion control is the enforceable technique, along with an action level which triggers certain compliance actions.

MassDEP held meetings in January 2019 to consider the petition in accordance with M.G.L. C.30A, s.4. Meanwhile, in response to the petitioners, MassDEP has indicated it is considering a number of agency actions related to PFAS including: revision of the current drinking water public health guideline, possible establishment of an enforceable drinking water maximum contaminant level, and updating hazardous waste site clean-up regulations.

There are many resources available to learn more about this complex and rapidly changing topic. Here are just a few sources:

- [EPA's website](#) with basic information as well as tools and resources.
- [The Interstate Technology Regulatory Council \(ITRC\)](#) has developed a series of multiple Fact Sheets providing a comprehensive overview of PFAS information.
- MassDEP's website provides a [Fact Sheet](#) for PFAS in drinking water.
- More information on the [Conservation Law Foundation Treatment Technique petition](#) to MassDEP.
- MassDEP's [Interim Guidance on Sampling and Analysis for PFAS at Disposal Sites](#).

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Recognize your Peers by Nominating Recipients of the 2019 BSCES Annual Awards

by Mike Cunningham, BSCES Vice President and Awards Committee Chair, Kleinfelder

The Awards Committee is soliciting nominations for the **2019 Individual Section and Employer Awards**. This is an excellent opportunity to recognize individuals and employers that have made significant contributions to the civil engineering profession and their communities. Included in the annual awards this year is the **2019 Sustainability in Civil Engineering Award!** There are also several new awards this year to take note of, including the **Engineer of the Year Award** intended to recognize outstanding professional achievement and leadership and the **Project of the Year Award** for projects taken on within the Commonwealth that exhibit innovation in addressing complex conditions. We have also broadened the criteria used in determining the winners of the employer recognition awards and simplified the process of nominating prospective employers.

Please consider nominating your project, company, co-worker, friend, or someone who you think deserves special recognition due to their exceptional talent and dedication to the profession. The awards will be presented at the BSCES Annual Awards Dinner in June.

The nominations deadline is **Monday, March 11**. [Click here](#) for the 2019 nomination forms and descriptions of the awards.

The following is a summary of the BSCES Annual Awards:

1. The **Sustainability in Civil Engineering Award** is to recognize civil engineering infrastructure projects that embody the principles of sustainability espoused by the BSCES Committee on Sustainability, ASCE, and the Institute for Sustainable Infrastructure (ISI). Such projects prominently and creatively incorporate the five sustainability indicators of quality of life, leadership, resource allocation, natural world, and climate risk. In 2019, awards will be offered in two categories differentiating project scale.

2. The **Citizen Engineer Award** is presented to a BSCES member or registered professional engineer for outstanding public involvement in local or national legislation, education (at any level), nonprofit volunteer organizations, community activities, or similar activities improving the image of ASCE, BSCES and the civil engineering profession.

3. The **Horne/Gaynor Public Service Award** is presented to a BSCES member or registered professional engineer for unpaid public service in a municipal, state or federal-elected or appointed post for philanthropic activities in the public interest.

4. The **Government Civil Engineer Award** is presented to a BSCES member who is serving as a paid public-sector engineer at a federal, state, or municipal agency, department, or authority in Massachusetts.

5. The **Clemens Herschel Award** recognizes an individual who has published a paper that “has been useful, commendable, and worthy of grateful acknowledgment.”

6. The **Journalism Award** is presented to a journalist or other author who has published one or more articles, papers, books, social media blogs, or film for a non-technical audience that raises awareness of the contributions of the civil engineering profession.

7. The **Pre-College Educator Award** is presented to a member of the K–12 educational community who integrates engineering topics, particularly civil engineering, in a manner that benefits the profession and may promote students to pursue an engineering career.

8. The **College Educator Award** is presented to a member of the academic community who inspires and encourages civil engineering students through exceptional teaching and mentorship. Candidates shall be actively teaching in a classroom setting at a college or university in New England.

9. The **Younger Member Award** is intended to recognize a BSCES member, 35 years of age or younger on February 1 in the year of the award, who has made an outstanding contribution to BSCES and/or the civil engineering profession.

10. The **Engineer of the Year Award** is presented to a BSCES member, with 15 years or more professional experience, who has exhibited extraordinary leadership in the form of managerial leadership, technical excellence, professional integrity, and mentorship of other engineers.

11. The **Project of the Year Award** is presented to a BSCES member and her/his project team who has served in a major role on an innovative, challenging, unique, and/or complex project located in the Commonwealth of Massachusetts.

12. The **Employer Recognition Awards** were created by the BSCES Board of Government to recognize those employers who commit to providing exceptional opportunities to their engineers. Special recognition will go to those organizations who exhibit exemplary support as evidenced by: encouraging technical and professional growth through continuing education, training, mentoring, project experience, participation in development of technical papers or presentations, and other means; tackling staff quality-of-life issues in the modern workplace; contributing to the community to make a positive impact; encouraging active participation in professional societies such as ASCE/BSCES. There are two types of employer recognition awards: the Small Employer Recognition Award is given to deserving organizations with less than 50 employees and the Large Employer Recognition Award is given to organizations with more than 50 employees.

Featured Group

BSCES Engineering Management Group

by Cody Gibb, EIT, Engineer I, GZA GeoEnvironmental, Inc., and Engineering Management Group Chair

The Engineering Management Group's (EMG) mission is to host two to three events each year. Historically, topics have ranged considerably from Public Private Partnerships, engineering at the National Aeronautics and Space Administration (NASA), and the expansion of the Panama Canal. The aim of these events is to cast a wide net to draw as many different types of professionals as possible.

Our first event of the current fiscal year, which was held on October 12, 2018, was a co-sponsored social with the Geo-Institute Boston Chapter at Somerville Brewing Company—Slumbrew in Somerville, Massachusetts. The focus of the social was to network Engineering Management Group professionals with Geo-Institute professionals. It was a laid-back atmosphere and engineers of different disciplines were able to relax and enjoy the company of fellow professionals.

Our second event is tentatively scheduled in February 2019. Last year's February event

focused on the infrastructure program in Somerville, Massachusetts. Jessica Fosbrook, utilities project manager for the City of Somerville Department of Capital Projects and Planning, discussed the current challenges facing Somerville. Jessica presented the proposed projects, which ranged from the planning phase (Spring Hill Sewer Separation, Poplar St Stormwater Pump Station) to completed design (Nunziato Stormwater Storage) and construction bid phase (Somerville Ave Utility and Streetscape Improvements). The Engineering Management Group is still coordinating with prospective speakers for this year's event.

The final event of the season will be the highly acclaimed Joseph C. Lawler Lecture, which is tentatively scheduled for mid-June 2019. The lecture is held annually in honor of Joseph C. Lawler, CDM Smith's first president. Each year, EMG is given the responsibility of selecting a prominent leader with significant ties to the engineering community to present the lecture. The 2018 Lawler Lecture presenter was John

Reilly, P.E., C.PEng, B.E., MS, president of John Reilly Associates International. The event focused around the delivery of megaprojects and the processes and tools necessary for success. The presentation also provided information. The Engineering Management Group is still coordinating with prospective speakers for this year's event. Check the BSCES website for more details as spring 2019 approaches.

Hopefully many of you have time and interest to attend this year's EMG events. If you have an interest in engineering management, engineering leadership, or associated topics related to either, I encourage you to participate and become involved with the EMG. We typically convene in downtown Boston on the second Wednesday every other month to coordinate and plan our event calendar. Please contact me if you would like to become involved, have any questions, or would like to register for an upcoming EMG event. I can be contacted via e-mail at EMG@bsces.org or by phone at 781/278-5797.

President's Report

continued from page 1

As a reminder, the BSCES Awards Committee will be soliciting nominations for a variety of annual awards through March 2019. This is an excellent opportunity to recognize individuals and employers that have made significant contributions to the civil engineering profession and their communities, so if you know of a worthy candidate, please don't hesitate to fill out a nomination! The Awards Nomination Forms are available [here](#).

The January *BSCESNews* theme is Engineering Management & Policy. This issue's featured group is the Engineering Management Group (EMG). Please read the article by the chair of EMG, which can be found on page 9. If you are interested in submitting an article, please contact our Newsletter Committee chair, Bruce Jacobs, at st.vp1@bsces.org.

We at BSCES respectfully request that if you enjoy our programming or our publications,

and would like to support the Society, that you would make a personal donation (no donation is too small!). Please consider making a tax-deductible donation by [clicking here](#).

Please do not hesitate to reach out with comments, questions, and feedback, so that we may continue to serve you.

Respectfully submitted,
Geoffrey
president@bsces.org

Recent News and Updates

BSCES Awards Nominations Deadline is March 11

Do you know a worthy award recipient? If so, then download, complete and submit the 2018 BSCES Employer Recognition and/or Section Awards form contained in this newsletter by the Monday, March 11, 2019 submission deadline. The Large and Small Employer Recognition Awards are given to those organizations who exhibit exemplary support of ASCE and BSCES. The recently revamped BSCES Section Awards are given to individuals who have made significant contributions to the civil engineering profession and their communities. Please see the awards nomination forms at the end of this month's newsletter for further details.

2019 BSCES Sustainability in Civil Engineering Award—Call for Entries

The BSCES Committee on Sustainability is accepting Nominations for the 2019 Sustainability in Civil Engineering Award until Monday, March 11, 2019. The purpose of this award is to recognize civil engineering infrastructure projects that embody the principles of sustainability espoused by the BSCES Committee on Sustainability, ASCE, and the Institute for Sustainable Infrastructure (ISI). To be eligible, a project must demonstrate adherence to the principles of economic, social and environmental sustainability as identified by ASCE/ISI criteria for sustainable infrastructure. The project must have been designed by a team of civil engineers based in Massachusetts and must have been constructed within the last five years. For more information, please see the insert at the end of this newsletter.

Renew Your BSCES Membership Today!

As an ASCE member you received a notice to renew your society membership. When renewing your ASCE membership, please don't forget to also renew your BSCES membership to continue to receive the numerous member benefits that BSCES has to offer and be among the leaders of your profession who make a difference. Thank you for your contribution.

Dr. Heidi Nepf wins 2019 Hunter Rouse Hydraulic Engineering Award

The BSCES Board of Government would like to congratulate Dr. Heidi Nepf for receiving the 2019 *Hunter Rouse Hydraulic Engineering Award*. This award recognizes outstanding contributions to hydraulics and waterways. Dr. Nepf was selected by the Environmental and Water Resources Institute to receive the award for her "fundamental contributions to environmental fluid mechanics and world-renowned work on the impact of vegetation on flow, transport in rivers, wetlands, lakes and coastal zones, as well as her efforts toward science public education and mentoring of students and young researchers."

Apply for 2019 ASCE Leadership Awards

ASCE invites you to submit nominations for awards recognizing ASCE members as outstanding leaders and managers. Nominations are due by March 1, 2019. The five awards are the [Civil Engineering Entrepreneur of the Year Award](#), the [Edmund Friedman Professional Recognition Award](#), the [Government Civil Engineer of the Year Award](#), the [Outstanding Public Official Award](#), and the [Parcel-Svedrup Civil Engineering Management Award](#).

Structures Congress 2019—Register Today

Schedule to occur April 24-26 at the Hyatt Regency in Orlando, FL, the Structural Engineering Institute's 2019 Structures Congress is the premier event in structural engineering. Experience all that's NEW to lead and innovate: learn from the experts on Performance-Based Design Trends, New Smart Technologies, Career Development, and Leadership Skills; special sessions include Grenfell Tower, Workshop on Conceptual Design, and Improve your Communication/Presentation Skills; featured keynote addresses are SE in Regenerative Medicine, Indispensable Structural Engineering, and Reimagining Fantasyland at Magic Kingdom. [Click here](#) for more information.

Update Your ASCE Profile

Have you moved lately, changed jobs, or do you have a new email address? It is very important that we receive your updated contact information. Please make sure you update your profile at ASCE National. Every month BSCES receives updated member information from ASCE that we utilize for all BSCES correspondence. You have a personal profile that you can access and update your contact information. Simply go to the ASCE "[Membership & Communities](#)" page and click on the "Log in..." bullet under the Already a Member section. Once you've logged in, you can edit your contact information. Members can also always call 800/548-2723 and have someone in Customer Service make updates for them over the phone.

TranSystems Promotes Farhad Panthaki to Assistant Vice President and Senior Professional

TranSystems announces the promotion of BSCES member Farhad Panthaki, PE, of the firm's Boston, MA, office to assistant vice president and senior professional. Farhad has over 26 years of bridge engineering experience with load rating, inspection, design and rehabilitation of various types of simple and complex highway, transit and rail bridges. He has served as a project manager, project engineer or structural engineer on projects for a variety of clients, including, Massachusetts DOT, Connecticut DOT, Maine DOT, Rhode Island DOT, Alabama DOT, Texas DOT, Massachusetts Bay Transportation Authority, U.S. Army Corps of Engineers, City of Boston and Massport.

Malone & MacBroom, Inc. Opens New Office in New Haven

Milone & MacBroom, Inc. is excited to announce it has opened its eighth office to accommodate the company's continued growth and expansion plans. The new space, located at 195 Church Street and overlooking the historic New Haven green, affords the firm the opportunity to stay invested in the community and remain a hands-on resource for transportation, planning, engineering, and environmental initiatives in the city and surrounding areas.

Upcoming Events

For more information and to register for events, please visit www.bsces.org

To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information, call 617/227-5551.

Professional Engineer Refresher Course Spring 2019

Sponsored by the Program Committee

Tuesdays and Thursdays
February 7, 2019 – April 4, 2019
 Northeastern University, Boston, MA
 7:30 PM – 10:00 PM February 7, 2019
 7:30 PM – 9:30 PM All Other Nights

Are you or is someone you know preparing to take the Civil PE Exam? Then plan to attend BSCES' highly regarded Professional Engineer Refresher Course. The BSCES PE Refresher Course features 12 sessions covering all aspects of the Civil Professional Engineer Exams. Taught by leading authorities in their fields, session engineering-related topics include exam review, hydraulics, hydrology, engineering economics, construction management, water supply, wastewater, highway design, geotechnical, structures, and transportation

Please see the Insert at the end of this month's newsletter for further details.

YMG Annual Billiards Tournament and Networking Event

Sponsored by the Young Member Group

Wednesday, February 13, 2019
 Scholars Boston Bistro, Boston, MA
 5:30 PM – 6 PM Registration
 6 PM – 9 PM Event

Join YMG for our annual billiards tournament at Scholars Boston Bistro. Participants will compete in teams and prizes will be given to 1st, 2nd and 3rd place winners.

Please see the Insert at the end of this month's newsletter for further details.

What You Need to Know About the 2016 Modifications to the ASCE/SEI 7 Minimum Design Loads Standard

Sponsored by the Structural Engineering Institute Boston Chapter

Tuesday, March 5, 2019
 Tufts University, Medford, MA
 6:30 PM Social/Registration/Pizza
 7:15 PM Presentation

ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures is a nationally adopted loading standard for the analysis and design of buildings and other structures. The 2016 edition of this consensus standard has been adopted into the 2018 International Building Code. This lecture will provide an overview of the significant changes and much needed updates incorporated in the 2016 edition. The new ASCE 7 Hazard Tool will also be demonstrated. The presentation will also inform the audience about the ASCE/SEI standard development process and future of performance-based codes, as well as promote opportunities to get involved in the process.

Please see the Insert at the end of this month's newsletter for further details.

Suggest a Seminar Topic

Is there an engineering topic that you would like BSCES to feature in an upcoming seminar? If so, members of the BSCES Program Committee would like to hear from you.

Charged with developing technical training programs that address members' professional development needs, the Program Committee oversees the Society's National Highway Institute training, spring and fall Professional Engineer Refresher Courses and other topical workshops. If you have a technical topic that you would like the Program Committee to consider, send your suggestion to BSCES Program Committee Chair Jeff Lewis at jlewis@garofaloassociates.com or BSCES Association Manager Rich Keenan at rkeen@engineers.org.

ASCE Webinars

ASCE WEBINARS

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Use WEBBOSSEC to have
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Are you planning to take an ASCE webinar? Sign up with the code WEBBOSSEC and 20% of your registration fee will be donated to the Boston Society of Civil Engineers Section/ASCE.

For a full listing of ASCE Webinars, [click here](#).

2018–2019 BSCES Program Sponsors

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2019 SUSTAINABILITY IN CIVIL ENGINEERING AWARD

Call for Entries

The purpose of the Sustainability in Civil Engineering Award is to recognize civil engineering infrastructure projects that embody the principles of sustainability espoused by the BSCES Committee on Sustainability, ASCE, and the Institute for Sustainable Infrastructure (ISI). Such projects prominently and creatively incorporate the five sustainability indicators of quality of life, leadership, resource allocation, natural world, and climate risk.

In 2019, awards will be offered in two categories differentiating project scale.

Eligibility

To be eligible, a project must demonstrate adherence to the principles of economic, social and environmental sustainability as identified by ASCE/ ISI criteria for sustainable infrastructure. **The project must have been designed by a team of civil engineers based in Massachusetts, and must have been constructed within the last five years.**

Rules for Submission

1. Entries for the award must include:
 - A completed Entry Form ([BSCES Sustainability Award Form](#))
 - A printout of the Envision™ project assessment scoring table from the ISI website completed by an Envision Sustainable Professional (ENV SP).
2. **Entries must be submitted no later than March 11, 2019.** The winner will be announced at the BSCES Annual Awards Dinner event in 2019. Entries may be submitted electronically to bsces@engineers.org.

2017 BSCES Sustainability in Civil Engineering Award Winner

The 2017 award (small project category) was presented to the Town of Wilmington for the Yentile Farm Recreational Facility project. The Yentile Farm Recreational Facility features a multi-use turf field, basketball courts, open green space, playground, concessions building, parking, landscaping, and a hard-surfaced path. The design incorporated multiple social, environmental and economic sustainable principles allowing an abandoned, environmentally degraded site to become an energetic community space that meets the triple-bottom line of sustainability.

Prior project award winners:

- 2016 - Massachusetts Port Authority, *Logan International Airport Consolidated Rental Car Facility (ConRAC)*
- 2015 – City of Cambridge, *Alewife Stormwater Wetland*

Each year, BSCES presents awards to deserving individuals in the Section or in the community who are nominated by their peers in recognition of their service. Here is your opportunity to nominate a co-worker, friend, or someone who you think deserves special recognition. Please see the following awards descriptions and page 2 of this form for nomination instructions.

The Nominations Deadline is **Monday, March 11, 2019**. The Awards Committee will review all nominations and present a list of candidates for selection by the Board of Government. Awards will be presented at the 170th BSCES Annual Awards Dinner.

I would like to nominate _____ For the:

_____ **CITIZEN ENGINEER AWARD:** This award is presented to a BSCES member or registered professional engineer for outstanding public involvement in local or national legislation, education (at any level), non-profit volunteer organizations, community activities, or similar activities improving the image of ASCE, BSCES and the civil engineering profession.

_____ **HORNE/GAYNOR PUBLIC SERVICE AWARD:** This award is presented to a BSCES member or registered professional engineer for unpaid public service in a municipal, state or federal-elected or appointed post for philanthropic activities in the public interest.

_____ **GOVERNMENT CIVIL ENGINEER AWARD:** This award is presented to a BSCES member who is serving as a paid public sector engineer at a federal, state, or municipal agency, department, or authority in Massachusetts.

_____ **CLEMENS HERSCHEL AWARD:** This award recognizes an individual who has published a paper, not necessarily published in the BSCES Journal, that has been useful, commendable, and worthy of grateful acknowledgment. If nominating for the Clemens Herschel Award, please attach the name of the paper and names of all authors, if co-authored.

_____ **JOURNALISM AWARD:** This award is presented to a journalist or other author who has published one or more articles, papers, books, social media blogs, or films for a non-technical audience that raises awareness of the contributions of the civil engineering profession.

_____ **PRE-COLLEGE EDUCATOR AWARD:** This award is presented to a member of the K-12 educational community who integrates engineering topics, particularly civil engineering, in a manner that benefits the profession and may promote students to pursue an engineering career. The Public Awareness & Outreach Committee reviews these nominations and recommends the recipient to the Board.

_____ **COLLEGE EDUCATOR AWARD:** This award is presented to a member of the academic community who inspires and encourages civil engineering students through exceptional teaching and mentorship. Educators empower students to realize full potential and exemplify the profession in their classroom. Candidates should be actively teaching in a classroom setting at a college or university in New England.

_____ **YOUNGER MEMBER AWARD:** This award is intended to recognize a BSCES member, 35 years of age or younger on February 1 in the year of the award, who has made an outstanding contribution to BSCES and/or the civil engineering profession.

_____ **ENGINEER OF THE YEAR AWARD:** This award is presented to a BSCES member, with 15 years or more professional experience, who has exhibited extraordinary leadership in the form of managerial leadership, technical excellence, professional integrity, and mentorship of other engineers.

_____ **PROJECT OF THE YEAR AWARD:** This award is presented to a BSCES member and her/his project team who has served in a major role on an innovative, challenging, unique, and/or complex project located in the Commonwealth of Massachusetts. The majority of the work should have been completed by engineers located within Massachusetts.

To submit a nomination, complete this form and return it by the nomination deadline via email, fax, or mail to bsces@engineers.org, 617/227-6783, or BSCES Awards Committee, Boston Society of Civil Engineers Section/ASCE, The Engineering Center, One Walnut Street, Boston, MA 02108-3616, respectively.

Name and Company Address of Nominee(s)*:

Is this a re-nomination? Yes _____ No _____

**Please attach a brief (no more than one page) explanation of the candidate's qualifications for nomination.*

Your Name: _____ Daytime Telephone: _____ Email: _____

NOTE: *If you nominated someone last year who was not selected, you may re-nominate the individual(s).*

QUESTIONS: *Contact BSCES Awards Committee Chair Michael Cunningham at 617/498-4773 or Vice.President2@BSCES.org.*



Professional Engineer Refresher Course

Spring 2019 Schedule

The BSCES Professional Engineer Refresher Course consists of twelve classes covering both the breadth and depth portions of the five Civil Professional Engineer Exams. Course lectures will be held at Northeastern University, Boston, MA (still tentative). All lectures are presently scheduled for Tuesday and Thursday evenings from 7:30-9:30 PM except for the initial session which runs from 7:30-10:00 PM. Due to inclement weather or changes in instructor availability it may be necessary to schedule make-up sessions on prearranged "Open" dates, which are show below.

Class	Day	Date	Time	Subject	Instructor	Email
1	Thursday	02-07	7:30-10:00 PM	Geotechnical & Exam Review	Jim Lambrechts	lambrechtsj@wit.edu
2	Tuesday	02-12	7:30 - 9:30 PM	Geotechnical	Jim Lambrechts	lambrechtsj@wit.edu
3	Thursday	02-14	7:30 - 9:30 PM	Construction Management	Cristina Cosma	cosmac@wit.edu
4	Tuesday	02-19	7:30 - 9:30 PM	Transportation	Jack Martin	jack.martin@stantec.com
5	Thursday	02-21	7:30 - 9:30 PM	Engineering Economics	Cristina Cosma	cosmac@wit.edu
6	Tuesday	02-26	7:30 - 9:30 PM	Wastewater	Annalisa Onnis-Hayden	a.onnis-hayden@northeastern.edu
7	Thursday	02-28	7:30 - 9:30 PM	Open		
8	Tuesday	03-05	7:30 - 9:30 PM	Highway Design	Peter Reed	preed@bscgroup.com
9	Thursday	03-07	7:30 - 9:30 PM	Open		
10	Tuesday	03-12	7:30 - 9:30 PM	Water Supply	Annalisa Onnis-Hayden	a.onnis-hayden@northeastern.edu
11	Thursday	03-14	7:30 - 9:30 PM	Hydrology	R. Edward Beighley	r.beighly@neu.edu
12	Tuesday	03-19	7:30 - 9:30 PM	Hydraulics	R. Edward Beighley	r.beighly@neu.edu
13	Thursday	03-21	7:30 - 9:30 PM	Open		
14	Tuesday	03-26	7:30 - 9:30 PM	Structures	Ann Mercado	andrea.mercado@mottmac.com
15	Thursday	03-28	7:30 - 9:30 PM	Structures	Ann Mercado	andrea.mercado@mottmac.com
16	Tuesday	04-02	7:30 - 9:30 PM	Open		
17	Thursday	04-04		Open		
18	Friday	04-05	8:30 AM - 5:00 PM	State Exam		

Registration deadline is Friday, February 1, 2019 [Click here](#) to register for this program and pay by credit card online. To register online at the BSCES member rate you must use your BSCES-assigned user name and password. Call 617/227-5551 if you do not know your username or password. You may also register by completing and returning this registration form and including payment by check (made payable to BSCES) or credit card. Mail your completed registration and payment to: BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108-3616. Email or fax your registration to bscesreg@engineers.org or 617/227-6783, respectively. If you register in this manner and are paying by check, you must also mail a copy of this form with your payment. No phone reservations will be accepted. Registrations canceled after Friday, February 1, 2019 will be charged the full program registration fee. For more information, call 617/227-5551.

Registration Fees: (Please check the box to the left of the appropriate per person registration fee below):

\$525 BSCES Member Rate
 \$610 Non-Member Rate
 \$525 Quantity Discount Rate*

Name: _____ Day Phone/Fax: _____

Organization: _____ Address: _____

City: _____ State: _____ Zip Code: _____

Email Address: _____

Please bill my: (Check one)
 Visa
 MasterCard
 American Express

Name on Credit Card: _____

Credit Card Number: _____ Expiration Date: _____

Credit Card Billing Address: _____

Signature: _____

* Individuals are eligible to register at the Quantity Discount Rate when five or more individuals from the same organization are paid registrants for this Professional Engineer Refresher Course. If this is the case, please include the names and email addresses of the other individuals from that organization who are attending this course. Complete and attach an additional registration form if more than five individuals from the same organization are registering.

Course attendees may visit [The Power to Pass](#) website to order copies of *Civil Engineering Reference Manual for the PE Exam* and *Practice Problems for the Civil Engineering PE Exam: A Companion to the Civil Engineering Reference Manual*. Send an email to bsces@engineers.org requesting the promotional code that will enable you to receive a 15% discount on the cost of these and other PPI-published materials.

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 and Environmental Engineering, Northeastern University | Patrick Engineering Inc. | Perry Associates | PMA Consultants | Skanska | Stantec
 Subsurface Constructors, Inc | Tufts University | VHB | Wentworth Institute of Technology B.S. and M. Eng. in Civil Engineering Programs
 Weston & Sampson | WSP



Please join us!

Annual Networking & Billiards Tournament

Wednesday, February 13th, 2019

6:00 PM – 9:00 PM

(Registration: 5:30pm-6:00pm)

Join the Younger Member Group for the annual billiards tournament and networking event at Scholars! Participants will compete in teams and prizes will be awarded to 1st, 2nd, and 3rd place winners.

Cost:

Students \$25, Members \$30, Non-Members \$35

*Registration includes tournament entry and appetizers.

Online Registration Deadline:

February 8, 2019

Scholars Boston Bistro

25 School Street, Boston, MA 02108

Register online: <http://bit.ly/YMGBILLIARDS2019>

Information/Registration:

To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617-227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions.

For more information, please contact YMG@BSCES.ORG

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What You Need to Know About the 2016 Modifications to the ASCE/SEI 7 Minimum Design Loads Standard

Made possible by the [SEI Futures Fund](#) in collaboration with the ASCE Foundation

Greg Soules, P.E., S.E., P.Eng, SECB, F.SEI, F.ASCE

Senior Principal Structural Engineer, McDermott International

Serves as the Technical Authority for Seismic and Wind Engineering for McDermott International in Houston, Texas. He is Past Chair of the Energy Division of ASCE, Vice Chair of the ASCE/SEI 7 Main Committee, and Chair of the ASCE/SEI National Technical Program Committee for the ASCE/SEI Structures Congress.

Tuesday, March 5, 2019

Tufts University, Robinson Hall Room 253, 212 College Ave., Medford, MA 02155

6:30 PM Social/Registration/Pizza, 7:15 PM Presentation

ASCE/SEI 7 Minimum Design Loads and Associated Criteria for Buildings and Other Structures is a nationally adopted loading standard for the analysis and design of buildings and other structures. The 2016 edition of this consensus standard has been adopted into the 2018 International Building Code. This lecture will provide an overview of the significant changes and much needed updates incorporated in the 2016 edition. Some of the significant changes to be discussed are the new state snow load tables, the new tsunami provisions, new seismic ground motion maps, new site factors, important changes for nonstructural components and nonbuilding structures, new diaphragm procedures, new wind maps and the updated G_Cp values for components and cladding. The new ASCE 7 Hazard Tool will also be demonstrated. The presentation will also inform the audience about the ASCE/SEI standard development process and future of performance-based codes, as well as promote opportunities to get involved in the process.

Registration Deadline: Friday, March 1, 2019

\$25 Members, \$30 Non-Members

\$20 Public Sector Members, \$25 Public Sector Non-Members

\$10 Senior Members (65+), Students

Information/Registration:

Register to attend this meeting and pay by credit card online at <http://bit.ly/2CV2ric>. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. Cancellations received after Friday, March 1, 2019 and no-shows will be billed.

Directions to Lecture Hall and Parking:

Lecture Hall: [Tufts University, Robinson Hall Room 253, 212 College Avenue, Medford, MA](#)

Parking: [Tufts University, Dowling Hall Garage, 419 Boston Avenue, Medford, MA](#)



This presentation provides (1.5) Professional Development Hours (PDH)

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