# Schedule at a Glance

**Sunday, April 12, 2015**

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<td>8:00 am - 9:00 am</td>
<td>Distributed Generation &amp; Combined Heat and Power (CHP) Applications for Research Labs * S. Faruq Ahmed, PE</td>
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<td>Construction Project Management I * Fredric L. Plotnick PhD, Esq. PE, PLS</td>
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<td>Navigating the Water Regulation Maze</td>
<td>Construction Project Management II * Fredric L. Plotnick PhD, Esq. PE, PLS</td>
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<td>Law for Engineers - Focus on Contracts * Fredric L. Plotnick PhD, Esq. PE, PLS</td>
<td>Stormwater</td>
<td>Case Histories of Crane Accidents * Philip J. Alterman, PE</td>
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<td>Dan Humes, PE</td>
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<td>11:20 am - 12:20 pm</td>
<td>Ethics Challenges and Implications * Rebecca Bowman, PE, Esq.</td>
<td>Capture and Reuse of Urban Stormwater Runoff * Matt Griffen, PE</td>
<td>Technical Evaluation of a Pedestrian Bridge Collapse * Philip J. Alterman, PE</td>
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<td>Integration of Pennsylvania’s Stormwater Management Program</td>
<td>Combustible Dust - A Property Insurance Perspective * Thomas Lyons</td>
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<td>Basic Solar Thermal Design* Paul Stepanoff, PE, MBA, NABCEP EL</td>
<td>Implementation of Act 162 of 2014</td>
<td>Evolution of Storage Fire Sprinkler Designs</td>
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<td>Jennifer Orr</td>
<td>Brent Wunderlich</td>
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<tr>
<td>3:45 pm - 4:45 pm</td>
<td>High Temperature Fuel Cells CHP - * Applications for Mission Critical Facilities S. Faruq Ahmed, PE</td>
<td>Soil Science – Basic and Practical Field Methodologies from the Perspective of the Environmental Laboratory * Beth Witouiski</td>
<td>Engineering Safety into the Pharmaceutical Process Bob Matje, PE, CPIP</td>
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<tr>
<td>4:50 pm - 5:50 pm</td>
<td>Green City, Clean Waters * Chris Crockett, Ph.D., PE</td>
<td>Online Geospatial Data Sources for Water Resources Engineering * Thomas Barnard, Ph.D., PE</td>
<td>Project Safety Matters (Construction Safety) * Tom Burgess, CSP</td>
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*Approved for continuing education credit towards New York Engineer’s license. Updated 4/9/2015*
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<td>8:00 am - 9:00 am</td>
<td><strong>Serving as an Expert Witness</strong> *</td>
<td><strong>Allentown Arena Foundation Work</strong> *</td>
<td><strong>FRP (Fiberglass Reinforced Polymers) for Corrosive Applications</strong> *</td>
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<td></td>
<td>Rebecca Bowman, PE, Esq.</td>
<td>John McElroy</td>
<td>William Widger &amp; Michael G. Stevens</td>
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<tr>
<td>9:05 am - 10:05 am</td>
<td><strong>Underground Stormwater Detention on Vertically Challenged Sites</strong> *</td>
<td><strong>Inspection Requirements for Anchors in Concrete in Accordance With ACI</strong></td>
<td><strong>Storage Tanks and Oil Water Separators</strong> *</td>
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<td></td>
<td>Adam Sapp, PE</td>
<td>318-11 and the 2012 IBC</td>
<td>Robert Holland</td>
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<td>10:15 am - 11:15 am</td>
<td><strong>Delaware County St. David’s Road (S.R. 1046) Over Darby Creek</strong> *</td>
<td><strong>5 Crescent Drive - Design Considerations for Constructability</strong> *</td>
<td><strong>Inspecting FRP Equipment</strong> *</td>
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<td>Michael Cuddy, PE</td>
<td>Rick Parisi, PE</td>
<td>Michael G. Stevens</td>
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<tr>
<td>11:20 am - 12:20 pm</td>
<td><strong>Subsurface Utility Engineering</strong> *</td>
<td><strong>Steel Foundation Solutions</strong> *</td>
<td><strong>Coatings and Linings for Corrosion Service</strong> *</td>
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<td>Kenneth C. Kerr, PE</td>
<td>Rey Esteban, PE</td>
<td>Michael G. Stevens</td>
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<td>1:30 pm - 2:30 pm</td>
<td><strong>Operating the Grid at Subzero Temperatures</strong></td>
<td><strong>Fall Protection for Engineers</strong> *</td>
<td><strong>Sinkholes - Formation, Prevention and Repair</strong> *</td>
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<td></td>
<td>Deepthi Jarugula, EIT</td>
<td>Nigel Ellis, PhD</td>
<td>Chris T. Kotch, P.G./Alex Ulmer, P.G., S.E.O.</td>
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<tr>
<td>2:35 pm - 3:35 pm</td>
<td><strong>Smart Grid Effort at PPL Electric Utilities</strong></td>
<td><strong>Entity Structure for Risk Management</strong> *</td>
<td><strong>Demolition Means of Operations (DMO) in Urban Environments</strong></td>
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<td>David A. Quier, PE</td>
<td>Rebecca Bowman, PE, Esq.</td>
<td>John McErlean, P.E., S.E. &amp; Andrew Angelilli, PE</td>
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<tr>
<td>3:45 pm - 4:45 pm</td>
<td><strong>Route 202 Parkway, Between Routes 63 and 611</strong> *</td>
<td><strong>A Return to Steel: Performance and Aesthetics of Steel Framing Curtain</strong></td>
<td><strong>Industrial and Commercial Cooling Towers for Engineers</strong> *</td>
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<td>Bernard Rohe, PE</td>
<td>Walls*</td>
<td>Francis J. Stanton, Jr., PE</td>
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<tr>
<td>4:50 pm - 5:50 pm</td>
<td><strong>Roadway Lighting – Design Process and New Trends</strong> *</td>
<td><strong>Fire Rated Glazing and Framing: Codes, Materials and Systems</strong> *</td>
<td><strong>Challenges Relocating a Process Plant</strong> *</td>
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<td>James E. Good, PE, LEED AP</td>
<td>Tim Donaldson</td>
<td>Francis J. Stanton, Jr., PE</td>
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<tr>
<td>Session Time</td>
<td>Track VII</td>
<td>Track VIII</td>
<td>Track IX</td>
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<tr>
<td>8:00 am - 9:00 am</td>
<td>The Boardwalk and South Street Ramp on the Schuylkill River Trail *</td>
<td>Why You Need a Safety Program and How to Develop One</td>
<td>Cyber Crime for Engineers</td>
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<td></td>
<td>Kevin Sear, PE</td>
<td>Jeff Lee</td>
<td>Mark Rutkowski PE</td>
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<td>9:05 am - 10:05 am</td>
<td>Below Grade Active Leak Control Using Polyurethane Chemical Grouts *</td>
<td>New London School Explosion *</td>
<td>Arc Flash Hazards in the Workplace *</td>
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<td>Anthony Sandone</td>
<td>Eric Tappert, PE</td>
<td>Philip Gonski, PE</td>
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<td>Tom Perry</td>
<td>Drew Scott, PE</td>
<td>Doug Kriebel, PE</td>
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<td>11:20 am - 12:20 pm</td>
<td>Online Resources for a Site Investigation*</td>
<td>Refinery 101 *</td>
<td>Electrical Safety in the Workplace NFPA 70E 2015 versus NFPA 70E 2012 *</td>
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<td>Katie Blansett, PE, Ph.D.</td>
<td>Doug Kriebel, PE</td>
<td>Joseph Maida, PE</td>
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<td>Next Generation of Concrete Masonry-Recent Changes to Codes and Standards*</td>
<td>The Pennsylvania Turnpike: Yesterday, Today and Tomorrow</td>
<td>Propane Design and Preventing a Bleve *</td>
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<td>Dominick Dowds, PE</td>
<td>Don Steele, PE</td>
<td>Don Kohn, PE</td>
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<td>Javier G. Torrijos, P.E. &amp; Barry Benton, PE</td>
<td>Brian Wolfgang</td>
<td>Tim Oliveri</td>
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<td>3:45 pm - 4:45 pm</td>
<td>Prefab Bridge &amp; Culverts</td>
<td>The Evolution of Segmental Retaining Wall Products, Design and Installation</td>
<td>Planning for the Future: Understanding BIM and the Emerging Technologies for Collaboration and Efficiency *</td>
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<td>Bill Gray, PE</td>
<td>Joe Friederichs, PE</td>
<td>Peter Marchese</td>
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<td>4:50 pm - 5:50 pm</td>
<td>Ethics Case Study: Johnstown's Flood *</td>
<td>Roundabouts: Coming Soon to a Town Near You</td>
<td>3D Laser Scanning: Capturing the Whole Picture *</td>
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Distributed Generation & Combined Heat and Power (CHP) Applications for Research Labs *
S. Faruq Ahmed, PE
Gaven Industries Inc.

The advancements in information technology have transformed many facilities into mission-critical category. Research Labs are no exception. The critical long term experiments represent very high cost research. For the mission-critical facilities, the need to provide reliable power under all situations is essential. This needs to be coupled with the environmental considerations of air pollution. The presentation will describe the on-site power generation by using micro-turbines, the use of reject heat for desiccant air conditioning and other applications. The first cost, the life cycle cost and the environmental costs for the technology will be discussed both for the system studied and the utility based power system. The material discussed will allow the attendees to advance their knowledge about CHP applications for mission critical facilities.

Faruq Ahmed is a senior engineer at Gaven Industries in Saxonburg, Pennsylvania. He has designed many HEMP shielded facilities for the United States Military and other Federal Agencies. He holds a Masters degree in Engineering from Colorado State University. Faruq had also served as solar and renewable energy consultant to the World Bank and has developed many projects for developing countries. His applied research experience is at Burt Hill. Faruq is a Past-President of PSPE.

Low Impact Development
Michele Adams, PE
Meliora Design

This session will cover concepts of Low Impact Development (also called Green Infrastructure), the reasons why LID is important for water resource protection, changing regulatory directions, and types of stormwater techniques used for LID. Focus will be on built project examples of different types.

Michele Adams is a Water Resources Engineer and founder of Meliora Environmental Design. For more than 28 years, her work has encompassed environmentally sensitive site design, with special focus on “water as a resource” and the integration of stormwater, wastewater, water supply needs as part of a single water resource. Her work includes Green Infrastructure and Low Impact Development projects, Master Planning and Design, and Environmental Advocacy. She has extensive built project experience in virtually every type of stormwater “best practice”, from green roofs and porous pavements to landscape restoration and water reuse, as well as small scale alternative wastewater systems. She was one of the authors of the Pennsylvania Stormwater Manual as well as the 21st Century Parks for NYC Guidelines High Performance Landscapes. Ms. Adams served for six years as a member of the U.S. Green Building Council Sustainable Sites Technical Advisory Committee (SS TAG), and currently serves on the American Rivers Science and Technical Advisory Committee.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
Electromagnetic Interference (EMI) in Healthcare Environments *
S. Faruq Ahmed, PE
Gaven Industries Inc.

Healthcare facilities are one of the applications where large number of extremely sensitive equipment is used in the most critical manner – for saving lives! In a modern facility, all the electronic equipment and the infrastructure to support the equipment and the facility operations, must not produce interference in the equipment. Often such infrastructure is designed by following the applicable codes and with little consideration for minimizing the problem of EMI. The presentation will define the various sources of EMI with reference to healthcare facilities (the information is applicable to all other facilities as well). The basis of EMI shielding will be discussed along with the techniques of mitigating various types of EMI. Recommendations will be provided for the proper design of the facilities for safeguarding against EMI.

Faruq Ahmed is a senior engineer at Gaven Industries in Saxonburg, Pennsylvania. He has designed many HEMP shielded facilities for the United States Military and other Federal Agencies. He holds a Masters degree in Engineering from Colorado State University. Faruq had also served as solar and renewable energy consultant to the World Bank and has developed many projects for developing countries. His applied research experience is at Burt Hill. Faruq is a Past-President of PSPE.

Navigating the Water Regulation Maze
Robert J. Cox, P.E., P.L.S.
Barry Isett and Associates

Attendees will begin to understand regulations related to Stormwater, working in and around Streams and Wetlands, Erosion Control/NPDES requirements - including Riparian Buffers. Attendees will learn how to tread safely through the regulation maze, and examine future hurdles such as possible NTU limitations on Construction Discharges from Stormwater.

Mr. Cox has over 35 years of multi-discipline experience in surveying, civil, and structural engineering, construction engineering and management, planning and scheduling, and feasibility studies. Bob prepares project cost estimate proposals, project presentations, construction management, as well as managing the design and approval process for projects ranging from public schools, small commercial sites of 10 to 20 acres to large residential projects with up to 400 dwelling units. Bob earned his B.S. in Civil Engineering from the University of Pittsburgh at Johnstown (1975) and studied toward his Masters degree in Structural Analysis and Design from the University of New Hampshire. Bob served for ten years as an Adjunct Professor in the Civil Engineering Department at Lehigh University where he taught “Construction Management” and “The Principles of Engineering Economic Analysis”. Bob currently teaches an intro to surveying course at Lehigh Carbon Community College.

Construction Project Management II **
Fredric L. Plotnick PhD, Esq. PE, PLS

Continuation of Construction Project Management I.
10:15 am - 11:15 am (1.0 PDH)
Law for Engineers - Focus on Contracts *
Fredric L. Plotnick PhD, Esq. PE, PLS

This course should prepare the student to understand how a contract or specification may be interpreted by a Judge, which may differ greatly from the understanding of either the engineer or contractor. Issues covered will include what actions constitute creation of a contract, how it may be interpreted, means to fulfill beyond performance, determination of breach and applicable damages, and means of enforcement.

Fredric L. Plotnick is a Professor of Engineering at Drexel University's Philadelphia Campus, where he has taught Engineering Law, Contracts Specifications and Law, Techniques of Project Controls, Project Scheduling, and several other subjects since 1979. He has also maintained a consulting practice, Engineering and Property Management Consultants, Inc., since 1983, having previously worked for several contracting, consulting, and engineering design firms.

10:15 am - 11:15 am (1.0 PDH)
Stormwater
Daniel B. Humes, PE
Urban Engineers

The challenge of improving aging infrastructure while enhancing water quality brings us the next frontier in stormwater management and civil engineering design. This presentation will focus on providing a multi-pronged design approach while creatively finding economical and aesthetically pleasing solutions to design projects in order to meet or exceed local, state and federal regulations. Each site or project we redevelop is unique and brings its own challenges, constraints and opportunities. This will be presented using projects within the Philadelphia area which required meeting the local stormwater regulations as well as federal NPDES permitting requirements.

Daniel Humes, PE, serves as the Deputy Practice Leader of Urban Engineer's Site/Land Development Division in its Philadelphia headquarters. Mr. Humes is a multidisciplinary professional engineer with experience in construction and civil engineering design. Areas of specialization include stormwater management, erosion and sedimentation control, utility coordination and relocations, and land development design and permitting.

Mr. Humes earned his bachelor of science degree in civil engineering from The Pennsylvania State University and his bachelor of arts in natural sciences degree from Lock Haven University. He is active in many national and area organizations.

10:15 am - 11:15 am (1.0 PDH)
Case Histories of Crane Accidents
Philip J. Alterman, PE

The subject covers the variety of cranes, the different causes of accidents, the unusual problems encountered in performing our duties, proposed methods for eliminating loss of life and mitigating property damage. The combination of a variety of cranes, coupled with the three general categories of accidents result in different types of crane accidents. The general categories of accidents are:

1). NATURAL CALAMITY OR ACT OF GOD
2). FAILURE OF THE CRANE
3). HUMAN ERROR

Phil Alterman graduated from Penn State University in 1952 with a B.S. degree in Civil Engineering and majored in structures. He worked for the U.S. Army, Corps of Engineers and Constructors and various general contractors performing construction estimating, management, and project supervision. In the last 35 years he has performed investigations of building failures, explosions, fires, scaffold and crane accidents, collapses of structures, moisture intrusion into buildings, and failure of marine structures. He is a registered professional engineer in Pennsylvania and New York, a fellow in the National Academy of Forensic Engineers and a member of numerous technical associations and on various committees. He was one of the authors that created Crane Safety on the Construction Site publication for ASCE.
### Ethics Challenges and Implications **
**Rebecca Bowman, Esq.**

Ms. Bowman will review recent ethics cases and court and licensing board rulings with impact on the profession. Participants will learn about 1) recent ethics cases, 2) court cases, and 3) licensing board rulings that have significant impact on the practice of engineering.

**Target audience:** All licensed professional engineers

**Rebecca A. Bowman, Esq., P.E.** is the principal of a woman-owned business in civil engineering, dispute resolution, real estate, and legal services. She is experienced in boundary law issues, engineering design and forensic analysis, construction/project management, dispute resolution, real estate, and small business start-ups. She is a registered professional engineer and a certified arbitrator, mediator, and Christian conciliator. Mrs. Bowman writes a column for the PE Reporter, “Risky Business”. She is a frequent CPE lecturer (law and engineering) for a variety of providers. She received her B.S. degree in civil engineering, from the University of North Dakota, her M.B.A. degree from Oklahoma University and her J.D. degree from Duquesne University. Mrs. Bowman is involved with many national associations and volunteers with Legal Aid, Family Promise, the Pregnancy Resource Center of the South Hills, MathCounts, and Pennsylvania History Day. She received the 2014 PSPE President’s Distinguished Service Award.

### Capture and Reuse of Urban Stormwater Runoff *
*Matt Griffen, PE*
**Contech Engineered Solutions LLC**

Stormwater runoff in the Mid-Atlantic region is traditionally treated as a nuisance. Industries and developments with high water use, eg. greywater, irrigation, vehicle or equipment washing, laundry services, evaporative cooling, or other processes are well positioned to benefit from stormwater capture-and-reuse facilities.

This presentation will review criteria for industries and developments that could benefit from reuse; modeling techniques for capture and reuse storage tanks; practical considerations for implementation, including pretreatment, storage of captured runoff, advanced treatment, and pressurization and distribution practices and technologies; and operation and maintenance of systems providing both storm water management (quality and quantity) and auxiliary water supply.

**Matt Griffin, PE** has worked in the stormwater industry since 2000, involved in project engineering, product development, business and personnel management, and technical marketing for stormwater practices and technologies used in urbanized environments. Matt is the Stormwater Consultant for central and western Pennsylvania, Maryland, and Delaware with CONTECH Engineered Solutions LLC.

### Technical Evaluation of a Pedestrian Bridge Collapse
**Philip J. Alterman, PE**

A pedestrian bridge with a nominal span of 170 feet with a 12 foot wide concrete roadway was being constructed in conjunction with a 5.5km of an interstate highway called the Utica/Rome Expressway. During placement of the concrete deck a collapse occurred causing the death of one worker and injuries to nine (9) others.

**Philip** graduated from Penn State (1952) with a B.S. degree in Civil Engineering and majored in structures. He worked for the U.S. Army, Corps of Engineers, United Engineers and Constructors, and various general contractors performing construction estimating, construction management, and project supervision. He was a construction consultant for Atlantic city Racing Association and the Delaware River Terminal Company. He performed design work for industrial building, bulk fuel oil terminals, marine structures and commercial buildings from 1974 through 1985. Investigations of building failures, explosions and collapses have been performed for the past 35 years. He is a registered professional engineer in Pennsylvania and New York, a fellow in the National Academy of Forensic Engineers.

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*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.*
### Basic Solar PV Design *

Paul Stepanoff, PE, MBA, NABCEP EL  
Boucher & James, Inc.

The Basic Solar PV design course will cover introductory design and design considerations for solar PhotoVoltaic Systems. The student will understand the fundamentals of solar PV design, understand the functionality of the individual components that comprise a system, and be able to evaluate a site and design/size a basic system.

Finally, the course will provide a summary of the National Electric Codes (NEC) specific to PV, available incentives, basic financial returns, and a look at some future trends for the industry.

Mr. Stepanoff is Director of Environmental Services at Boucher & James, Inc. He received a BS in Chemical Engineering (PSU 1980), MBA (PSU 2007– EMBA class valedictorian), Licensed PE in PA since 1987, NABCEP EL Certificate, PA Certified Photovoltaic and Thermal Installer. Awarded 3 US and 1 Foreign Patents.

He has 20+ years’ experience in Renewable Energy For Air Products and Chemicals, Inc., and designed, developed, constructed and commercialized a Vacuum Swing Adsorption process for producing non-cryogenic Oxygen and started more than 22 commercial plants in 12 countries. In 2008 became founder of a full-service Renewable Energy EPC and consulting company with over 100 completed Renewable Energy Projects in PA and NJ.

### Integration of Pennsylvania’s Stormwater Management Program

Jennifer Orr  
PA Department of Environmental Protection

This session will discuss stormwater management in Pennsylvania from a holistic perspective. Integration of key Department programs, interaction with municipal requirements, incentives for using green development techniques, and other issues will be discussed.

*Jennifer Orr is the chief of the NPDES Construction and Erosion Control Section in the Bureau of Waterways Engineering and Wetlands with the Pennsylvania Department of Environmental Protection. Her section manages construction NPDES, erosion and sedimentation, and post construction stormwater management programs statewide. In addition, her section is the primary point of contact for the Chapter 102 regulations. Jennifer earned a Bachelor of Science in Biology from Bloomsburg University and a Master of Science in Wildlife and Fisheries Science from the Pennsylvania State University. She has worked for the Susquehanna River Basin Commission as a Water Quality Specialist, and for the Department as a both Water Pollution Biologist and a Water Program Specialist.*

### Combustible Dust - A Property Insurance Perspective

Thomas Lyons  
FM Global

Dust explosions have resulted in a significant loss history that has been covered by the media as well as having captured the attention the Chemical Safety Board and OSHA. The discussion will focus on the idea that the majority of loss is preventable. This begins with the recognition of what is a combustible dust, the application of available dust testing and interpretation of the results. After recognition of a dust hazard the next step is to control the fugitive dust and develop solutions to reduce the hazard. Dust hazard recognition and mitigation/elimination are key to preventing loss.

Tom Lyons is Group Manger, Field Engineering, Washington, D.C., operations. Based in the company’s Malvern, Pa., USA, office, Tom contributes to the quality and scope of engineering services for all FM Global clients within Washington, D.C. operations. Prior to his current appointment in 2013 he has served as Operations Chief Engineer since 2007 and has held several engineering positions with FM Global, including account engineer and field engineer. He joined the company as a loss prevention consultant in 1995. Tom holds a bachelor of science degree in electrical engineering and MBA in finance from Temple University, Philadelphia, PA.
2:35 pm - 3:35 pm (1.0 PDH)

Basic Solar Thermal Design *
Paul Stepanoff, PE, MBA, NABCEP EL
Boucher & James, Inc.

The Basic Solar Thermal design course will summarize the basic design considerations for solar thermal hot-water systems. The course will include theory and nomenclature, system types, performance characteristics of different thermal panels, evaluating a site for sun exposure, mounting options, freeze protection, financial considerations/available incentives, and balance of system components.

After attending the course, the participant will understand the fundamentals of solar thermal design, understand the components that make up a system, be able to evaluate a potential site, and design/size a basic system.

Mr. Stepanoff is Director of Environmental Services at Boucher & James, Inc. He received a BS in Chemical Engineering (PSU 1980), MBA (PSU 2007– EMBA class valedictorian), Licensed PE in PA since 1987, NABCEP EL Certificate, PA Certified Photovoltaic and Thermal Installer. Awarded 3 US and 1 Foreign Patents.

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2:35 pm - 3:35 pm (1.0 PDH)

Implementation of Act 162 of 2014
Jennifer Orr
PA Department of Environmental Protection

This session will discuss implementation of Act 162 of 2014 by the Department of Environmental Protection. Act 162 of 2014 amended the Pennsylvania Clean Streams Law to give applicants additional flexibility in meeting the regulatory requirements related to mandatory riparian buffers as required in 25 Pa. Code 102.14. Tools for completing an equivalency demonstration and offsetting will be discussed.

Jennifer Orr is the chief of the NPDES Construction and Erosion Control Section in the Bureau of Waterways Engineering and Wetlands with the Pennsylvania Department of Environmental Protection. Her section manages construction NPDES, erosion and sedimentation, and post construction stormwater management programs statewide. In addition, her section is the primary point of contact for the Chapter 102 regulations. Jennifer earned a Bachelor of Science in Biology from Bloomsburg University and a Master of Science in Wildlife and Fisheries Science from the Pennsylvania State University. She has worked for the Susquehanna River Basin Commission as a Water Quality Specialist, and for the Department as a both Water Pollution Biologist and a Water Program Specialist.

2:35 pm - 3:35 pm (1.0 PDH)

Evolution of Storage Fire Sprinkler Designs
Brent Wunderlich
FM Global

Business and industry have evolved significantly since the first automatic sprinklers were designed and installed in the late 1800’s. Changing business needs have resulted in more complex and challenging storage arrangements that require fire protection solutions to prevent catastrophic fires. FM Global and others have conducted extensive research focused on developing fire protection solutions for new storage challenges as they have emerged. This presentation will cover the evolution of fire protection designs for storage occupancies with a focus on FM Global’s latest research.

Brent Wunderlich is the Operations Chief Engineer for FM Global’s Washington D.C. and Philadelphia offices. In this role, Brent is a technical resource for approximately 40 field engineers and 12 account engineers that provide property loss prevention evaluations and risk management solutions to FM Global’s clients. Prior to his current role, Brent was an account engineer in FM Global’s Washington D.C. office. Brent started his career at FM Global as a field engineer in FM Global’s Chicago office after graduating from Valparaiso University with BS in Electrical Engineering.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
**High Temperature Fuel Cells CHP - Applications for Mission Critical Facilities** *  
S. Faruq Ahmed, PE  
Gaven Industries Inc.

On-site power generation coupled with the use of reject heat is called Combined Heat Power (CHP) technology. The efficiency of fuel use with CHP technology is over 70% compared to less than 35% for central power generation. One of the on-site power generation technology is high temperature fuel cell. The fuel source is natural gas although any other source that can provide the reactant gas can be used. The high temperature reject heat is utilized in a cascade manner. Such a cascade heat utilization has been evaluated for use in a mission critical facility – the research lab. The applications for such system will be presented for ten different climates across the United States. The environmental impact of using CHP fuel cell system is extremely small compared to the central generation of power.

*Faruq Ahmed is a senior engineer at Gaven Industries in Saxonburg, Pennsylvania. He has designed many HEMP shielded facilities for the United States Military and other Federal Agencies. He holds a Masters degree in Engineering from Colorado State University. Faruq had also served as solar and renewable energy consultant to the World Bank and has developed many projects for developing countries. His applied research experience is at Burt Hill. Faruq is a Past-President of PSPE.*

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**Soil Science – Basic and Practical Field Methodologies from the Perspective of the Environmental Laboratory** *  
Beth Witouski  
Suburban Testing Labs, Inc.

A discussion of basic and practical field methodologies from the perspective of the environmental laboratory. Successful laboratory analysis and data starts with successful collection of samples in the field.

*Beth Witouski, Business Development Manager, Suburban Testing Labs – Ms. Witouski received her B.S. degree in biology with a minor in chemistry from Marietta College in Ohio, and has pursued significant coursework toward her M.B.A. with a focus on Marketing through the University of Phoenix. She has 23 years of hands-on experience working in the environmental laboratory field, including working as a bench chemist in the metals, microbiology, extractions, and wet chemistry departments. Additional pertinent industry knowledge has been gained through other positions she has held within the environmental laboratory, including supervision of supply purchases, quality control & data validation, sample receipt & computer login, hazardous waste disposal coordination and project management. Ms. Witouski actively participates in mentoring programs, lunch & learn seminars, and hosting Hot Topic webinars.*

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**Engineering Safety into the Pharmaceutical Process**  
Bob Matje, PE, CPIP  
Qualitest

This course will focus on the unique aspects safety in the Pharmaceutical Industry and the conflicts that may sometimes develop between ensuring the safety and efficacy of the products that are produced for therapeutic effect and the health and welfare of the workers that manufacture them. The course will highlight compliance requirements from the FDA as well as OSHA and will discuss common design practices for various facility designs as well as operational considerations and common equipment used in pharmaceutical manufacturing.

*Robert “Bob” Matje, PE, CPIP, is currently the Vice President and General Manager of Qualitests’s Huntsville Tablets Oral Solid Dosage Facility in Huntsville, AL. In this role, Bob has full responsibility for an 800 person workforce and all manufacturing, packaging Reliability and Process Excellence activities. Bob Matje has been a Member of the International Society of Pharmaceutical Engineers (ISPE) for 13 years and is Past President of the Delaware Valley Chapter. Robert Matje earned a BS in Engineering at Lafayette College, and an MS in Engineering at Villanova University. He is a Registered Professional Engineer in Pennsylvania and was awarded his Certified Pharmaceutical Industry Professional (CPIP) certification in 2012.*
**Green City, Clean Waters** *  
**Chris Crockett, Ph.D., PE**  
**Philadelphia Water Department**  

Green City, Clean Waters is Philadelphia’s 25-year plan to protect and enhance our watersheds by managing stormwater with innovative green infrastructure. The Philadelphia Water Department developed Green City, Clean Waters to provide a clear pathway to a sustainable future while strengthening the utility, broadening its mission, and complying with environmental laws and regulations.

Over the past decade, PWD has created, tested and implemented new strategies to promote the economic and social growth of the City and meet environmental, ecological and business missions.  

**Chris Crockett, Ph.D., P.E., is the Deputy Commissioner of Planning and Environmental Services at the Philadelphia Water Department (PWD).** Chris has over 19 years of experience in the water, stormwater, and wastewater industry participating and leading innovative projects to improve customer service, performance, revenue, and regulatory compliance. His teams have won numerous local, state, and federal awards. He currently oversees PWD’s Bureau of Laboratory Services, the Office of Watersheds (Green City, Clean Waters program), and the Planning & Research Sections. Chris’ long term goal is to demonstrate the innovative and adaptive water resource approaches in Philadelphia to serve as a catalyst for national changes in how municipalities manage “One Water”.

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**Online Geospatial Data Sources for Water Resources Engineering** *  
**Thomas E. Barnard, Ph.D., P.E.**  

Engineers now have access to numerous online geospatial data sources that provide high quality data for stormwater, flooding, water quality and watershed management projects. This session reviews the USGS national map viewer, digital elevation models, hydrography, flood insurance maps and topographic maps that are available. Procedures for querying and downloading custom data packages are presented. The use of Google Earth for providing base layers, as a platform for integrating spatial data sets and for creating customized maps is reviewed. The use of KML files to manage data layers and move data between users and various online mapping sites is also presented.

**Dr. Barnard has over 25 years of experience in solving environmental problems related to water quantity and water quality. He is an expert in the application of hydrologic and hydraulic numerical models to water resources infrastructure and regional watershed management, including modeling building, geospatial data integration, alternatives evaluation, documentation, training and presentations. He has authored numerous technical books and articles on the use of models in engineering practice. His experience includes the design & implementation of surface water quality monitoring programs, data analysis, environmental restoration, & radioactive waste management.**

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**Project Safety Matters (Construction Safety)** *  
**Tom Burgess, CSP**  
**T&M Associates**  

What really impacts safety on a construction job site? What are the greatest risks and how can they be addressed? What are trends and best practices like Prevention through Design? The presenter will draw on his experience, elements of the T&M “Project Safety Matters” process, and practices and trends in construction safety. Practical tools and ideas will be included that can help improve safety on any size project.

**Mr. Burgess is a Certified Safety Professional with 27 years of experience in safety and industrial hygiene management and projects for a variety of industrial, construction and environmental operations both in the private and public sectors. Experienced in field oversight on construction, remediation and brownfield projects, and managing contractor safety programs, Mr. Burgess also has safety design and planning experience including Prevention through Design initiatives.**
Serving as an Expert Witness **
Rebecca Bowman, Esq.

Analyzing the process of becoming an effective expert witness. Participants will learn about 1) dealing with attorney who don’t understand the science, 2) preparing effective expert reports, and 3) providing effective testimony.

Target audience: All professional engineers who might be retained to provide expert testimony.

Rebecca A. Bowman, Esq., P.E. is the principal of a woman-owned business in civil engineering, dispute resolution, real estate, and legal services. She is experienced in boundary law issues, engineering design and forensic analysis, construction/project management, dispute resolution, real estate, and small business start-ups. She is a registered professional engineer and a certified arbitrator, mediator, and Christian conciliator. Mrs. Bowman writes a column for the PE Reporter, “Risky Business”. She is a frequent CPE lecturer (law and engineering) for a variety of providers. She received her B.S. degree in civil engineering, from the University of North Dakota, her M.B.A. degree from Oklahoma University and her J.D. degree from Duquesne University. Mrs. Bowman is involved with many national associations and volunteers with Legal Aid, Family Promise, the Pregnancy Resource Center of the South Hills, MathCounts, and Pennsylvania History Day. She received the 2014 PSPE President’s Distinguished Service Award.

Allentown Arena Foundation Work
John McElroy
Langan Engineering & Environmental Services

Between 12:30 and 1:00 am on February 24, 1994, operators of Allentown’s East Side and Huckleberry reservoirs noticed a 2-foot drop in water levels. At 4 am a city sanitation employee found the leak on 7th street. At 6:30 am, one of the mammoth support pillars under Corporate Plaza, a 7-story office building instrumental to Allentown’s downtown revitalization, sank into a growing sinkhole under the structure. The sinkhole was estimated to be 50 feet wide and at least 18 feet deep. Allentown officials dealt with the collapse and it’s years-long ripple effects, and are back in revitalization mode. PPL Center is an arena under construction where Corporate Plaza was previously located.

After lengthy study of the collapse of the foundation of the Allentown Arena, Langan recommended use of a micropile foundation system, buried in the bedrock, bypassing the erosion-prone, overburdened soil. This session will explore implementation of the micropile system.

FRP – (Fiberglass Reinforced Polymers) for Corrosive Applications
William Widger & Michael G. Stevens
Ashland Performance Materials (APM)

Ashland’s Corrosion Team will present a seminar focusing on FRP (fiberglass reinforced plastic) made from vinyl ester resins. This corrosion-resistant (CR) material of construction has been used to fabricate structures (tanks, pipes, ducts, etc.) whose service is subject to attack from acids, bases, salts and solvents. Performance and cost comparisons to alternative materials of construction such as stainless steel or high-nickel alloy will be made.

Bill Widger is a Business Development Manager within the specialty resins business. He concentrates on developing opportunities for corrosion resistant composites in the fields of oil & gas, chemical processing and wastewater treatment. Bill has developed an extensive background in thermoset resins over the last 25 years for both composite and adhesive applications. Bill has a bachelor's degree in chemistry from Hillsdale College and a master's degree from Central Michigan University.

Michael G. Stevens is currently a Principal Scientist in the Ashland Performance Materials commercial unit of Ashland Inc. He has worked on various projects developing new fire retardant and corrosion resistant resins for use in the fiberglass reinforced polymer markets. Mr. Stevens obtained his BS degree in chemistry from Virginia Tech in 1979.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
Session Abstracts - Monday

Underground Stormwater Detention on Vertically Challenged Sites *
Adam Sapp, PE
CONTECH Engineered Solutions

When site conditions make it impractical to manage stormwater runoff with surface infiltration strategies such as rain gardens or permeable pavers, it is possible to use underground infiltration or detention. If infiltration is not feasible, water can be stored in a wide variety of underground detention systems and either reused or released at a controlled rate. Many sites in NJ and PA have very little vertical space available for underground storage. This presentation will focus on the Innovative Terre Arch underground storage system. The Terre Arch is a modular, multi-chambered, precast concrete stormwater storage system that is engineered specifically for underground installation.

This presentation will provide detailed information on underground infiltration practices including project design examples, and highlight the various underground stormwater management treatment strategies that provide pretreatment and also TSS and enhanced nutrient removal.

Adam Sapp, PE, is the Regional Stormwater Consultant for Contech Engineered Solutions, LLC. Adam earned his B.S. degree in Civil Engineering Technology from the University of Pittsburgh.

9:05 am - 10:05 am (1.0 PDH)

Inspection Requirements for Anchors in Concrete in Accordance With ACI 318-11 and the 2012 IBC
Onalee Finio and Lizanne Pepin
Hilti North America

The inclusion of adhesive anchors in ACI 318-11 Appendix D was accompanied by enhanced inspection requirements. In addition, the IBC has undergone changes to Chapter 17 inspection requirements that affect both cast-in and post-installed anchors.

This discussion will focus primarily on the changes to the inspection requirements as they affect post-installed anchors.

This seminar assumes familiarity with ACI 318-11 Appendix D and Chapter 17 of the IBC.

Onalee Finio is the Director Technical Services, East Market Organization Hilti North America, responsible for all field engineers and product specialists for the Eastern United States. She serves on Hilti’s Code Curriculum Committees as well as Continuing Education Development Committee. She received her BSCE and MSCE from the Pennsylvania State University.

Lizanne Pepin has been a project manager/field engineer for Hilti North America covering the Greater Philadelphia area for over eight years. She is responsible for technical support and continuing education for designers using the Hilti specified product lines. She received her BCE and MCE from Villanova University.

9:05 am - 10:05 am (1.0 PDH)

Storage Tanks and Oil Water Separators **
Robert Holland
Modern Welding Company

Course assists engineers in properly specifying underground and aboveground storage tanks and oil water separators.

Mr. Holland is a 1970 graduate of Johns Hopkins University, majoring in Social and Behavioral Sciences and minoring in Mechanical Engineering. He continued his studies in 1987 at West Virginia University in Corrosion Engineering.

He currently is employed in corporate sales with Modern Welding Company of Owensboro, KY, covering the northeastern US from Virginia to Maine.

Bob assisted in the development of Modern’s Aboveground Fueling Systems for commercial installations, and of the Kleerwater™ oil water separator technology. Previously, Bob was Vice President/Manager of Modern Welding Company of Ohio, a subsidiary of Modern Welding Company, Inc.

With eleven locations, nine of them tank plants, Modern is America’s largest supplier of underground steel storage tanks and also manufactures aboveground tanks, fueling systems, pressure vessels, structural steel and other weldments. The company employs over 400 people at its 11 locations plus general offices.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
5 Crescent Drive - Design Considerations for Constructability *
Richard Parisi, PE
W.J. Castle, P.E. & Associates, P.C.

A new earthquake-resistant office complex near the Philadelphia Navy Yard did not have specific construction methods provided in the contract. This presentation will review the constructability analyses that were performed on behalf of the contractor. All phases of construction were designed and are presented with lessons learned.

Richard A. Parisi, P.E., is a Professional Engineer Licensed in Pennsylvania, New Jersey, New York, Rhode Island, Colorado, Florida and Massachusetts. Mr. Parisi has over 30 years of experience in the field of structural engineering and has worked for W.J. Castle, P.E. & Associates, P.C. as Lead Project Engineer for over seven years. He received his Bachelor of Science degree from Cornell University.

Mr. Parisi has extensive and varied experience in the field of engineering which enables him to successfully transition between office and field aspects of the job. Mr. Parisi duties include; Project Management, Quality Control Review, Develop and Review Designs, and Preparation of Bids/Proposals. Mr. Parisi also performs bridge inspections, hydrographic surveying and sonar imaging. Mr. Parisi specializes in construction contractor support engineering. Designing erection plans, cofferdams, crane lift plans, temporary sheeting and shoring and temporary structures for various local contractors.

Delaware County St. David’s Road (S.R. 1046) Over Darby Creek *
Michael Cuddy, PE
Tran Systems

The Pennsylvania Department of Transportation, saddled with an overwhelming inventory of structurally deficient bridges, has long sought means to streamline the project delivery process. PennDOT’s Engineering District 6-0 developed a repair program that not only provided for an expedited design process and a cost effective repair methodology, but also preserved and renewed the cultural legacy that these structures bring to the region.

Stone arch bridge technology represents the earliest extant bridge type in the Commonwealth. Remaining examples in the five county Philadelphia area date from 1697 through the early 20th century, and represent the largest collection of stone arch bridges in the Commonwealth and one of the largest in the nation.

Michael J. Cuddy, PE is a Principal/Senior Vice President with TranSystems and is responsible for the firm’s transportation work throughout Pennsylvania. He is responsible for many of its major bridge design, rehabilitation and inspection programs, particularly those involving historic bridges and complex structural systems. A graduate of The University of Pennsylvania, he is a registered professional engineer and is noted for his innovative and practical approach to the evaluation and rehabilitation of historic bridges.

Inspecting FRP Equipment
Michael Stevens
Ashland Performance Materials (APM)

This class goes over When to Inspect--1) Pre-inspection Requirements, 2) Inspection During Fabrication, 3) Inspection before shipment, 4) Inspecting at installation;
Quality issues, Inspecting in service, Common Inspection Methods, Visual Inspection, What to do Next if Problem Found from Visual Inspection, Types of Flaws from Visual Inspection, Destructive Inspection Techniques, Non-Destructive Inspection Techniques

Michael G. Stevens is currently a Principal Scientist in the Ashland Performance Materials commercial unit of Ashland Inc. He has worked on various projects developing new fire retardant and corrosion resistant resins for use in the fiberglass reinforced polymer markets. Mr. Stevens obtained his BS degree in chemistry from Virginia Tech in 1979.
11:20 am - 12:20 pm (1.0 PDH)
**Subsurface Utility Engineering** *
Kenneth C. Kerr, PE
InfraMap

Ken will be presenting on subsurface utility engineering including InfraMap’s technology to provide information on existing surface, subsurface, aerial, and/or submarine utilities necessary for the design of projects including highway improvements, bridge replacements, utility relocations, storm water conveyance systems, and site improvement projects.

*Ken Kerr is an accomplished Professional Engineer in eleven states including Pennsylvania with over 18 years of engineering design and project management experience. Ken is a graduate of the University of Massachusetts at Amherst. After consulting as a Municipal Engineer and Planner for multiple towns in New Jersey, Ken took a position as the Northeast Regional Director of InfraMap Corp., one of the leading subsurface utility engineering firms in the United States for over 25 years.*

Ken has managed hundreds of projects and administered Subsurface Utility Engineering contracts for the PA Turnpike, SEPTA and Delaware River Joint Toll Bridge Commission, and PennDOT, as well as several projects for agencies in New York and New Jersey and private site development projects.

11:20 am - 12:20 pm (1.0 PDH)
**Steel Foundation Solutions** *
Rey Esteban, PE
Skyline Steel

A general overview of steel foundation solutions including the design and use of steel H, Pipe and Sheet Piles will be provided. Manufacturing, material selection and material properties will be presented along with applications and case studies to help attendees better understand the utilization of each solution. Skyline Steel is a wholly-owned subsidiary of Nucor Corp., the largest producer of steel in the United States.

*Rey Esteban, PE, is the Skyline Steel Business Development Manager for the Northeast Region. Rey has more than 20 years of extensive service in the construction industry providing engineering technical services to his clients. Prior to Skyline Steel, he has worked for CONTECH Engineered Solutions and Hilti Construction Products in various positions. Rey earned his BE degree in Civil Engineering and MS degree in Technology Management from Stevens Institute of Technology. He is a registered professional engineer in PA and an active participant in professional engineering associations.*

11:20 am - 12:20 pm (1.0 PDH)
**Coatings and Linings for Corrosion Service**
Michael Stevens
Ashland Performance Materials (APM)

This class looks at the
- Pros/cons of resin choice (looking at Polyester resin, Epoxy vinyl ester resins, and Epoxies)
- Coatings and Linings Fabrication Processes
- Permeation Theory
- FRP Corrosion Resistance vs Steel
- Common Materials in Lining Systems Applications
- Case Histories

*Michael G. Stevens is currently a Principal Scientist in the Ashland Performance Materials commercial unit of Ashland Inc. He has worked on various projects developing new fire retardant and corrosion resistant resins for use in the fiberglass reinforced polymer markets. Mr. Stevens obtained his BS degree in chemistry from Virginia Tech in 1979.*

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.  

12:25 pm - 1:25 pm LUNCH
Operating the Grid at Subzero Temperatures
Deepthi Jarugula, EIT
PJM Interconnection

An arctic air mass called the Polar Vortex moved into the lower 48 states in early January 2014, causing rarely-seen sustained, frigid temperatures in the Northeast and Midwest regions of the United States.

PJM and most of its neighboring balancing authorities experienced sub-zero temperatures and high-speed wind conditions from Jan. 6–8, 2014. As a result, there was a significant increase in the demand for electricity in several transmission zones in the region PJM serves.

This presentation covers the system conditions during the event, various factors that impacted operations and electricity prices, as well as an overview of extreme weather/energy demand operation of the grid.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.

Fall Protection for Engineers *
Nigel Ellis, PhD
Ellis Fall Safety Solutions, LLC

Recognizing hazards and reducing those hazards is the joint duty of safety managers and engineers. Engineers have a great opportunity to create more value by reducing access hazards at heights. Making safer choices for designs or maintenance at height is a great opportunity for structural, civil and mechanical engineers to help safety departments eliminate hazards and not be forced to apply temporary harness systems.

This session is intended to update attendees on current standards in OSHA and ANSI and to interact on Horizontal Lifeline Systems, which are mandated PE designs to help answer questions and know where to find further information.

Dr. Ellis has more than 40+ years of safety engineering experience and is an internationally renowned expert in the fall protection field. He is the CEO and founder of Dynamic Scientific Controls (DSC) and its division, Ellis Fall Safety Solutions. His lifelong mission and that of the business is focusing on the elimination or control of fall hazards.

A native of Middlesbrough, UK, Dr. Ellis earned three degrees at the University of Manchester, including a doctorate in chemistry. He is a Registered Professional Safety Engineer in Massachusetts and California, a Board Certified Safety Professional and a Board Certified Professional Ergonomist. (Human Factors)

Sinkholes - Formation, Prevention and Repair *
Chris T. Kotch, P.G./Alex Ulmer, P.G., S.E.O
Barry Isett and Associates (BIA)

The presentation will discuss the basics of karst (carbonate) geology and topography, common indicators of karst activity, dynamics of sinkhole formation within karst geology, including the roles of fracture traces, ground water flow, and man-made influences. Also discussed will be common exploration and investigative practices regarding sinkhole formation and resultant property damage and various methods of sinkhole mitigation and repair, as well as smart construction and maintenance practices to reduce potential for sinkhole development.

Case studies and photographs will be used and how the fields of geology and civil, structural, and geotechnical engineering are all linked in the process of studying and repairing sinkholes will be explored.

Chris Kotch joined BIA in 1996 and is a licensed Professional Geologist in PA. He oversees and manages the activities of his department, which include sinkhole investigations and remediation, geologic and hydrogeological studies.

Alexander Ulmer joined BIA in 1989 and is also a licensed Professional Geologist in PA. He is the technical expert for environmental services, including geological and hydrogeological studies. Mr. Ulmer has performed countless numbers of carbonate geologic assessments.
2:35 pm - 3:35 pm (1.0 PDH)

**Smart Grid Effort at PPL Electric Utilities**
David A. Quier, PE
PPL Electric Utilities Corp.

PPL Electric Utilities is in the midst of a Smart Grid program that will add automation to their distribution grid to improve reliability and operational effectiveness. As part of this effort, they have installed a Distribution Management System to control the distribution automation devices being installed over the next 3 years. This presentation will cover the Smart Grid program, the distribution automation equipment and software being deployed and the advanced applications to be used to improve reliability and operational effectiveness.

David Quier is an Engineering Manager with PPL Electric Utilities who leads an internal Smart Grid Committee to determine overall strategy, implementation, and R&D for both Transmission and Distribution. He received his undergraduate degree in Electrical Engineering from Lehigh University, an MBA from Penn State University, and is a registered Professional Engineer in Pennsylvania. David is the current Chairman of the Reliability First Protection Sub-Committee and has acted as an instructor to PJM for System Operators. His career experience includes time in Design, Protection, Relay Test, and now Smart Grid.

2:35 pm - 3:35 pm (1.0 PDH)

**Entity Structure for Risk Management**
Rebecca Bowman, Esq., PE

This session involves explaining and comparing entity structures for protection of clients and protection of P.E.s. Participants will learn to compare 1) corporation, 2) professional corporations, and 3) limited liability companies as tools to protect both clients and P.E.s

Target audience: All professional engineers in private practice

Rebecca A. Bowman, Esq., P.E. is the principal of a woman-owned business in civil engineering, dispute resolution, real estate, and legal services. She is experienced in boundary law issues, engineering design and forensic analysis, construction/project management, dispute resolution, real estate, and small business start-ups. She is a registered professional engineer and a certified arbitrator, mediator, and Christian conciliator. Mrs. Bowman writes a column for the PE Reporter, “Risky Business”. She is a frequent CPE lecturer (law and engineering) for a variety of providers. She received her B.S. degree in civil engineering, from the University of North Dakota, her M.B.A. degree from Oklahoma University and her J.D. degree from Duquesne University. Mrs. Bowman is involved with many national associations and volunteers with Legal Aid, Family Promise, the Pregnancy Resource Center of the South Hills, MathCounts, and Pennsylvania History Day. She received the 2014 PSPE President’s Distinguished Service Award.

2:35 pm - 3:35 pm (1.0 PDH)

**Demolition Means of Operations (DMO) in Urban Environments**
John J McErlean, P.E., S.E., SECB and Andrew Angelilli, PE
Plan B Engineering

The partial and complete demolition and removal of buildings in dense urban environments is a careful and precise orchestration of several factors involving the protection of adjacent properties, protection of the public, and the maintenance of the structural stability of the property under deconstruction throughout all stages of the project. Chapter 33 of the NYC Building Code will be highlighted. Project examples will be displayed identifying the highlights in situ. A project example of how the provisions of the NYC Building Code can be applied in other urban environments where the existing codes and regulation thereof are non-existent or less stringent than those used in NYC.

John McErlean, PE, SE, SECB is principal at Plan B Engineering and is a registered PE in all 50 states. He graduated from Drexel University with a BS in Civil Engineering and is pursuing an MS in Civil and Mechanical Engineering.

Andrew Angelilli, PE is Senior Engineer at Plan B Engineering and graduated with a BS from Drexel University in Architectural Engineering.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
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| **Route 202 Parkway, Between Routes 63 and 611 *  
Bernard Rohe, PE  
Hill International, Inc.** | **A Return to Steel: Performance and Aesthetics of Steel Framing Curtain Walls *  
Chuck Knickerbocker  
Technical Glass Products** | **Industrial and Commercial Cooling Towers for Engineers*  
Francis J. Stanton, Jr., PE  
The ENC Group LLC** |

The 202 Parkway Project, Section 700, delivered a new, $200 million, 8.6-mile long roadway between Route 63 and Route 611. The road is located in Upper and Lower Gwynedd Townships, Montgomery Township, Warrington Township and Doylestown Township. The project included nine separate contracts to improve and widen the route to provide two lanes in each direction, improve a number of local roads that either intersected or passed above or below the Parkway and created a 9.3-acre wetland replacement project.

This presentation details the design, construction, stakeholder coordination, cost and schedule management, environmental issues, community concerns and safety protocols and procedures on the project, as well as lessons learned from the work, and specifics on the features and challenges of each project component and aspect. Presenter and Project Manager Bernard H. Rohe, PE, CCM, oversaw construction on the Section from conception to completion.

**Bernard H. Rohe has over 30 years of managing the construction of million dollar road and bridge projects for public agencies throughout PA, Bernie holds a B.S., in Civil Engineering Technology from Point Park University, is a registered, licensed PE in PA, NJ, DE and MD, and is a registered Certified Construction Manager (CCM).**

This session will be a review of traditional curtain wall practices, and application of two generic steel framing options, reviewing their technical specifications, performance, general costs, as well as their advantages over other traditional glazing frame options. Applicability and coordination required to use these framing systems as building frame structural components will be discussed, along with the coordination and division of work required to execute such projects.

*Chuck Knickerbocker is the curtain wall manager for Technical Glass Products (TGP), a supplier of fire-rated glass and framing systems, along with specialty architectural glazing products. With 30 years of curtain wall experience, Chuck has successfully worked with numerous architects, building owners and subcontractors from development of schematic design through installation.*

**His accomplishments include leading the design, engineering and shop and fabrication drawings for eight custom wall systems in the Clinton Presidential Library, along with work on various condominium, office, and other domestic and international projects.**

**Chuck currently chairs the Glass Association of North America (GANA) Building Envelope Contractors (BEC) Division’s Technical Committee. His work includes editing and writing design manuals and study guides.**

**Cooling towers are used in commercial buildings and industrial processes to provide cold water to mechanical systems, and to conserve water resources.**

This course will provide fundamental basics for the engineer and architect so that they are more familiar with cooling towers in commercial and industrial applications. Engineers will obtain an understanding of their function, construction, key elements, and the state-of-the-art.

**Francis J. Stanton, Jr. PE received his mechanical engineering degree from Villanova University. Mr. Stanton has been involved with heat transfer since 1981 and has worked with cooling towers since 1986.**

He has designed field erected cooling towers for improved thermal performance, corrected structural design flaws to meet CTI specifications and client requirements.

He consults for multiple power plants in several states, and is the consultant to cooling tower contractors on numerous high profile projects. He has consulted with several industrial companies for cooling tower failure analysis, performance upgrades, bid evaluations, field tests and recommended structural repairs to provide life extensions to several key processing units.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
James E. Good, PE, LEED AP
JE Good Consulting Engineers

This course will enable attendees to understand the fundamentals of roadway lighting and the process of designing roadway lighting, as well as introduce new trends in roadway lighting technology.

Mr. Good’s 20 years of lighting and electrical design encompasses preparation of construction documents for interchanges, roadways, highways, bridges, overpasses, pedestrian and biker pathways, trails, pedestrian tunnels, streetscapes, parks, athletic fields, landscapes, sites and areas, building façades, open parking lots, parking garages, bus stops, and intersection lighting projects.

His previous project experience includes work for DDOT, Maryland SHA, MdTA, Maryland Port Authority, MAA, MNCPPC, NVRPA, MWAA, VDOT, DelDOT, PennDOT, PA Turnpike, Montgomery County, Arlington County, Virginia, and Baltimore County, Maryland. In addition to large interchanges he has completed numerous major and collector road projects where lighting was replaced and upgraded as part of roadway improvement and widening projects. These include recent projects in Arlington County, Virginia and Newark Delaware.

Fire Rated Glazing and Framing; Codes, Materials and Systems
Tim Donaldson
Technical Glass Products

This course discusses new trends in fire-rated glazing, and what to look for when specifying fire-rated glass. Active vs. passive fire protection systems will be explored, as well as fire-rated glazing system testing, including the fire, impact and hose stream tests. How to meet codes without compromising aesthetics and fire-rated glazing systems and sustainable design will also be addressed.

Tim Donaldson is a Territory Manager for Technical Glass Products, a pioneer and leader in the fire rated glazing and framing industry. Tim works with Architects to identify and specify appropriate materials and systems that achieve the required fire and human impact ratings. He also assists glaziers, general contractors and building owners with budgeting for projects that are facing fire rated conditions. Tim is based in Washington DC and works with architects and glaziers from Philadelphia PA to Charlotte NC.

Challenges Relocating a Process Plant *
Frank J. Stanton, Jr., PE
The ENC Group LLC

Process Plants are used to produce, refine, blend chemical products and industrial gases. This session will provide an overview of relocating a 30 year old process plant from the southwest United States to a smelter in Africa. The pitfalls, design and construction challenges and experience will be presented.

Francis J. Stanton, Jr., PE received his mechanical engineering degree from Villanova University. His experience includes product design for Alfa-Laval Thermal, Inc. and Tower Performance, Inc. He designed and managed capital projects at Domino Sugar and Linde (formally BOC Gases) and served as Vice President of IES Engineers and Maitra Associates, a 120 person multi-discipline firm located in New Jersey. In 2001 he co-founded The ENC Group with his mechanical engineering partner Ann Marie K. Stanton. ENC is recognized as a DBE/WBE and is part of the Pennsylvania uniform certification system. ENC has developed expertise engineering, design, construction and management in complex projects covering capital improvement projects and facilities, including preparing construction documents for the installation of new production equipment, process plant relocations, production improvement studies, cost estimates, failure analysis, equipment life extensions, inspections and analysis.
8:00 am - 9:00 am (1.0 PDH)
The Boardwalk and South Street Ramp on the Schuylkill River Trail *
Kevin D. Sear, PE
AECOM

The Schuylkill River Trail has been a tremendous success, as evidenced by the volume of users since the portion of the trail downstream from the Art Museum, branded as Schuylkill Banks, was opened in 2000. The trail ended at Locust Street where the distance between the river and CSX railroad property was inadequate to allow continuation. Extending the trail to South Street was accomplished with a boardwalk structure that extends into the river, meanders vertically and laterally along, and comes back to land at the South Street Bridge stair tower. This 2,000 foot structure creates a wonderful experience of floating above the river while providing breathtaking vistas of the city skyline, University of PA athletic facilities and the recently reconstructed South Street Bridge. Significant engineering expertise was required to provide a structure that balanced the desire for users to emotionally connect with the river and for a low maintenance facility that would withstand the unique river forces.

Mr. Sear obtained a Bachelor of Science Degree in Civil Engineering from Villanova University in 1975. He has been a Registered Professional Engineer in Pennsylvania since 1979 and employed as a Structural Engineer for 35 years. Mr. Sear has managed design-build projects involving bridge replacements and sound wall installations.

8:00 am - 9:00 am (1.0 PDH)
Why You Need a Safety Program and How to Develop One
Jeff Lee
Jeff Lee Safety Services

This session will discuss why a ‘company safety program’ is an important piece of managing your company’s safety risks in 2015. Additionally, we will discuss a number of aspects that may be influenced by your Safety Committee. We will also discuss the impact work-related injuries have on operating costs, your MOD Rate, and insurance costs. This session will also touch on getting the best return on your investment in Safety and employee training. Jeff’s 35 years of experience in the world of safety, along with his entertaining presentation style will make this a session that you do not want to miss!  
STAY SAFE!!!

Jeff Lee has been involved in ‘Safety, Consulting and Training’ since 1980 and has assisted many companies over the past 35 years in the Mid-Atlantic region with safety compliance support involving program development, site inspections, citation consultations, and customized training services. In 2014, Jeff opened his own safety consulting and training firm. To incorporate safety in Marcellus Shale gas business, he has upgraded many safe work processes through JSA’s. Jeff is an OSHA Construction Outreach and Medic First Aid® Instructor. In 2011, Jeff was voted onto the Advisory Board of the PA Governor’s Health & Safety Conference. Be sure to connect with him on “Linked-In,” STAY SAFE!!!

8:00 am - 9:00 am (1.0 PDH)
Cyber Crime for Engineers
Mark Rutkowski PE
Luzerne County Community College

This session will provide an overview of current threats to computer systems including embedded systems. Specific vulnerabilities of concern to engineers, both personally and professionally, will be described. More importantly, recommendations to mitigate risk for the individual and the systems that engineers oversee will be presented.

Mr. Rutkowski holds Bachelor’s and Master’s Degrees in electrical engineering from Wilkes University. He has approximately 20 years of industrial experience in communications engineering prior his current position as Professor of Engineering Technology at Luzerne County Community College. During his time with the college, Mr. Rutkowski was responsible for developing programs in Nanofabrication Manufacturing Technology, Sustainable Energy Technology and Cyber Security Management. He has been teaching cyber crime for 10 years. He regularly assists and advises area high schools with science and technology curriculum development.
9:05 am - 10:05 am (1.0 PDH)

Below Grade Active Leak Control Using Polyurethane Chemical Grouts *
Anthony Sandone
Resiplast US

This presentation will be on the different ways to stabilize soil and stop water infiltration in below grade structures such as tunnels, manholes, mining, excavation along with metro and municipal systems using water activated polyurethane low viscosity chemical grouts. Mr. Sandone will present how grouting is preformed and why it is needed.

Anthony Sandone is the East Coast Regional Manager for Resiplast US. Resiplast has more than 40 years of experience and is a market leader in the manufacture and development of resins for the construction industry Worldwide. Spetec Chemical Grouts which falls under the Resiplast umbrella, has been around for 25 years. This is the chemical grout line that Anthony is currently managing on the East Coast.

Anthony is a Senior Account Executive with over 20 years of sales experience and management. He possesses an extensive knowledge of the concrete restoration industry, chemical grouting industry and related products and services in a variety of sectors.

He received his Bachelor of Science in Business Administration degree from Delaware Valley College in 1990.

9:05 am - 10:05 am (1.0 PDH)

New London School Explosion *
Eric Tappert, PE
Tappert Engineering

The afternoon of March 18, 1937 saw the 3rd deadliest disaster in Texas history as the New London school exploded, killing more than 295 students. The natural gas explosion was linked to a faulty gas hookup to a Parade Gasoline Company's residue gas line, a widespread but not explicitly authorized practice. As a result of this catastrophe, the Texas legislator passed its first engineering licensure law, and more importantly, mercaptans (thiol) was required to be added to natural gas to aid in identifying leaks. This seminar will explore the incident with special regard to the ethics involved.

Eric Tappert received the B.S. degree in electrical engineering from the Moore School of the University of Pennsylvania and the MS degree in telecommunications from the University of Colorado. He retired in 2001 from the former Bell System companies. Since retirement he has served as a part-time faculty member for Penn State University Berks campus, teaching a variety of courses in the engineering department. He is a professional engineer in both Pennsylvania and New Jersey and a life member of NSPE.

9:05 am - 10:05 am (1.0 PDH)

Arc Flash Hazards in the Workplace **
Philip Gonski, PE
Keystone Engineering Group

Nearly 80% of all electrical related incidents in the industrial sector are the results of an electrical arc flash, resulting in over 600 fatalities and 30,000 injuries every year. The basics of arc flash incidents will be discussed, with an emphasis on the risk factors. Furthermore, industry standards will be examined to determine employer liability and usage of IEEE task tables. The presentation will examine the steps required to perform an analysis, interpret results, as well as steps necessary to implement a plant wide safety program. A special emphasis will be placed upon real world application, project case studies, as well as specific do's and don'ts of arc flash studies encountered in the field.

Philip M Gonski, PE (IL, PA, WV, MI) graduated with a B.S degree in Electrical Engineering from the University of Illinois-Urbana, specializing in Power System Design. He completed a M.E degree in Energy & Power Engineering from the University of Illinois-Chicago. In 2011, Mr. Gonski moved to Philadelphia and currently works for the Keystone Engineering Group, a leading design firm in Frazer, PA. There he has led design of new electrical substations, transit upgrades, as well co-generation power plants. Mr. Gonski has written and presented several technical articles, and is the current Treasurer of the IEEE Philadelphia Section.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
10:15 am - 11:15 am (1.0 PDH)
21st Century Solutions for 19th Century Sewer Systems *
Tom Perry
Multi Utilities Ventures

As America’s wastewater and storm water systems age, the risk of failures increases. The structural integrity of pipes, manholes, pump stations, wet wells, etc. within these systems is severely compromised by corrosion causing premature replacement of failed structures. This presentation details technology available to both rehabilitate failed structures and prevent future corrosion-induced degradation.

Tom Perry is Director of Marketing at Multi Utilities Ventures. He graduated in 1984 from Montclair State College with a business degree and has twelve years of experience in marketing Trenchless Solutions for the Infrastructure. Mr. Perry also is a member of the NJWEA Collection Committee.

10:15 am - 11:15 am (1.0 PDH)
Philadelphia Dilworth Plaza Renovation Project *
Drew Scott, PE
Urban Engineers

Dilworth Park, on the west side of Philadelphia City Hall, is the city’s new public venue, incorporating improved access to public transit via two structural glass pavilions, a programmable fountain, a lawn and tree groves, and a José Garces cafe. At Philadelphia’s Center Square, it is designed to function not only as a gateway to public transit, but as an active civic place with ongoing programming events.

This presentation will address planning goals, the evolution of the design on a challenging site, project management issues, and how the project team dealt with unforeseen conditions and weather impacts.

Andrew J. Scott, PE is Senior Vice President of Urban Engineers, Inc, and is General Manager of Special Initiatives. Mr. Scott has 40 years of progressive experience as a consulting engineer specializing in the management, planning, design, and construction of transportation and facilities projects. He is currently managing projects that include the public infrastructure for the Ardmore Transit Center in Lower Merion Township.

A registered PE in PA and eight other states, holds a bachelor’s degree in Civil Engineering from the University of Calgary, and a Management Development Certificate from the University of Alberta.

10:15 am - 11:15 am (1.0 PDH)
Alternative Energy Sources for Electric Power Generation *
Doug Kriebel, PE
Kriebel Engineered Equipment, Ltd.

Energy, Economy, Environment are three major issues we need to address. All three are connected. As engineers, we are better suited to solve these problems than anyone else.

The talk will cover current and future energy sources and systems for the generation of electric power. Its intent is to offer facts, in order to understand the benefits and costs of various options so that we can be better informed about this critical issue.

Doug Kriebel, PE is a Principal at Kriebel Engineered Equipment, Ltd., which he founded in 1989. He has a BS Chemical Engineering from Michigan Tech. His previous work experience includes the Philadelphia Electric Company and Ingersoll-Rand Company. Doug is a Professional Engineer; on the board of directors Delaware Valley AIChE; charter member of the Chemical Consultants Network; a member of International Society of Pharmaceutical Engineers; and a Fellow of the America Institute of Chemical Engineers. He has authored technical papers and has lectured on pumps, pumping systems, air pollution control systems and other process equipment related topics. He was named the 2011 Delaware Valley Engineer of the Year by the technical and professional societies of Philadelphia.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
11:20 am - 12:20 pm (1.0 PDH)

**Online Resources for a Site Investigation** *

*Katie Blansett, PhD, PE*

Pennsylvania Housing Research Center (PHRC) at Penn State University

Many engineering projects begin with the need to conduct research on the project location, both the general area and the specific site. Many resources that previously were referenced through paper copies, such as the NRCS Soil Surveys, are now online in interactive mapping programs. This session will cover a variety of online resources for gathering the background information as part of a site investigation. Export of relevant data into GIS software or maps for inclusion in reports will also be covered. Attendees may be wise to bring a laptop to this session and demo resources during the presentation.

Dr. Katie Blansett is the Assoc. Director of the PA Housing Research Center (PHRC) at Penn State University. She manages the technical and administrative staff, and oversees the outreach activities at the PHRC. Her project work focuses on stormwater management and other land development activities. Dr. Blansett is a licensed PE and Building Code Official in PA. She is a LEED Green Associate and an Envision Sustainability Professional through the Institute for Sustainable Infrastructure. She holds a B.S. degree in Environmental Systems Engineering, a M.Eng. degree in Civil Engineering (Water Resources) and a Ph.D. in Agricultural and Biological Engineering (Natural Resources Engineering).

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11:20 am - 12:20 pm (1.0 PDH)

**Refinery 101** *

*Doug Kriebel, PE*

Kriebel Engineered Equipment, Ltd.

One of the fastest growing Industrial Sectors is Oil and Gas. It currently supports 9.8 million workers with more jobs being added. A key part of this are refineries, which turn crude oil into transportation fuel, heating oils, waxes, lubricants, and an entire host of petrochemicals, which in turn become just about everything we use: plastics, medicines and medical devices, cosmetics, furniture, appliances, TVs and radios, computers, parts used in every mode of transportation, solar power panels and wind turbines Industry.

A Refinery can appear overwhelming. There are tanks, pipes, pumps, heat exchangers, instruments, controls and other equipment. The purpose of this talk is to explain what a refinery does, and how the major units, processes and equipment make it happen.

Doug Kriebel, PE is a Principal at Kriebel Engineered Equipment, Ltd., which he founded in 1989. He has a BS Chemical Engineering from Michigan Tech. Doug is a PE, on the board of directors Delaware Valley AIChE; charter member of the Chemical Consultants Network, a member of International Society of Pharmaceutical Engineers, and a Fellow of the America Institute of Chemical Engineers. He was named the 2011 Delaware Valley Engineer of the Year by the technical and professional societies of Philadelphia.

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11:20 am - 12:20 pm (1.0 PDH)

**Electrical Safety in the Workplace NFPA 70E 2015 versus NFPA 70E 2012** *

*Joseph Maida, PE*

Maida Engineering Inc.

NFPA 70E 2015 takes a new approach to using PPE for electrical arc hazards as compared to NFPA 70E 2012. Arc flash labels created based on NFPA 70E 2015 will no longer include the Arc Flash Hazard Category or the Prohibited Shock Protection Boundary, which, as of the 2015 edition, are no longer defined in NFPA 70E.

NFPA 70E 2015 also states the following: “Labels applied prior to September 30, 2011 are acceptable if they contain the available incident energy or required level of PPE”

NFPA 70E 2015 does not address why NFPA 70E -2012 compliant labels are not acceptable or if they could be acceptable.

This course is intended to discuss the changes and to show that labels that were properly developed after September 30, 2011 can be used until personnel have been trained in the new approaches to selecting and using PPE for arc flash hazards.

Joseph Maida received his BSEE in 1971 and MSE in 1976 from Drexel University and has been LEED Accredited Professional from June 2009 to the present. He has his PE license in PA, NJ, DE, NY, GA, FL, TX, MA, ID, IA, NC, WV, AR, MD, TN, and ALBERTA.

Joseph Maida provides engineering and design services for large and small projects.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
Next Generation of Concrete Masonry—Recent Changes to Codes and Standards *
Dominick Dowds, PE

The past three years have been witness to significant changes to the design codes and standards addressing concrete masonry construction. Included in these changes are revisions to ASTM C90 for load bearing concrete masonry units that incorporates new options to make the unit more energy efficient, lighter, and more versatile to meet project requirements. Additionally, the masonry design standard (TMS 602/ACI 530.1/ASCE6) was modified. The net result was a baseline increase of about 33% on design strengths – without any changes to the materials or design methodology. The new changes, benefits, and opportunities with these new requirements will be reviewed.

Mr. Dowds serves as the Manager of the Research and Development Laboratory and develops technical publications pertaining to the structural design and construction of masonry. He is an associate member of ASCE 7, a member of the TMS, and a registered PE. He has a Bachelor of Science Degree with honors in structural engineering from the University of California San Diego and a Master of Science in Civil Engineering from the University of Illinois at Urbana-Champaign. He has also served as a research engineer for the U.S. Army Corps of Engineers.

Mr. Dowds presentation is sponsored by the Pennsylvania Concrete Masonry Association and the Delaware Valley Masonry Institute.

The Pennsylvania Turnpike: Yesterday, Today and Tomorrow
Don Steele, PE
Pennsylvania Turnpike

Take a stroll through the history of the Pennsylvania Turnpike starting with the creation of the Turnpike Commission in 1937, opening the first section of roadway in 1940, all the way through the present day and look into the future to see what the Turnpike will look like in the years ahead.

Don Steele graduated from Lehigh University in 1993 with a degree in Civil Engineering and is a registered PE in PA. He worked for 7 years at McTish, Kunkel and Associates and was the Traffic Engineer for the City of Allentown for five years. Mr. Steele has been with the Pennsylvania Turnpike Commission for 10 years, serving as the Roadway Engineering Manager for the past year. He is a past-president of the East Penn Section of ASHE and a past-president of the Lehigh Valley Section of ASCE.

Propane Design and Preventing a Bleve *
Don Kohn, PE
Kohn Engineering and Kohn Consulting

Large above-ground propane tanks are found in many places. Propane is transported in rail cars and tank trucks through our towns. At a minimum, propane presents a fire hazard, and at worst case scenario, the propane containers can BLEVE (Boiling Liquid Expanding Vapor Explosion). The hazards and protection schemes will be discussed in this session.

Mr. Kohn has practiced fire protection engineering for over 40 years. His first 3½ years were spent with a major insurance company and involved inspecting factories to ensure compliance with fire safety standards. The next 22 years were spent in the engineering department for a major electric utility and included responsibility for fire protection design for oil-fired, coal-fired and nuclear power plants. In 1995, Mr. Kohn formed Kohn Engineering to provide fire protection consulting. Mr. Kohn is a life-time member of NFPA and is a past member of NFPA code committees on Flammable liquids, laboratories and nuclear facilities.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
2:35 pm - 3:35 pm (1.0 PDH)

I-495 Emergency Repairs *
Barry Benton, PE & Javier G. Torrijos, PE
DelDOT

The closing of a major interstate with over 90,000 vehicles per day in Delaware was described as a national issue by U.S. Secretary of Transportation, Anthony Foxx. The bridge on I-495 over the Christina River in Delaware was closed on June 2, 2014, due to damage to the substructure caused by a large pile of dirt that was placed on very soft soils adjacent to the bridge. Four of the 37 piers on the 4800 foot long bridge were leaning by as much as four percent, causing deformations to the superstructure of nearly one foot in some places. This presentation investigates the cause of the problem and documents the operational, design and construction challenges encountered in handling this emergency.

Barry Benton, PE is State Bridge Engineer for the Delaware DOT. Barry has 22 years of experience in the bridge section, most of it managing and designing bridge replacement and rehabilitation projects in Delaware. He received a B.S. degree in Civil Engineering from the University of Delaware in 1992.

Javier Torrijos, PE is the State Construction Engineer for the Delaware DOT. He has over 27 years of experience in roadway and bridge construction management. He received his Bachelors of Science in Civil Engineering from Drexel University in 1987.

2:35 pm - 3:35 pm (1.0 PDH)

Residential Slab Insulation: Why, What, and How? *
Brian Wolfgang
Pennsylvania Housing Research Center at Penn State University

The building envelope is made up of a series of assemblies and systems through which energy is lost and therefore consumed. In order to comply with existing energy codes and improve the overall energy efficiency of residential structures, it is important to understand the behavior and composition of each specific assembly. Concrete slabs have long been an assembly that would be considered a weak link in the building envelope. Emerging building codes have addressed this issue, however construction methods have not evolved to the point of full code compliance. This session will analyze the implications of slab insulation on building energy consumption and occupant health, identify critical building code requirements that address slabs, and discuss challenges that arise with the design and trade-offs that occur in slab insulation and construction.

Brian Wolfgang has been with the Pennsylvania Housing Research Center as the Housing Systems Specialist since 2013. He develops training programs and research policy reports/briefs aimed at builders, remodelers, design professionals, and code officials. He graduated from Penn State University with a Bachelor of Science degree in Civil Engineering and a Master of Science degree in Architectural Engineering.

2:35 pm - 3:35 pm (1.0 PDH)

3-D Printing
Tim Oliveri
Prism Engineering, Inc.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
Prefab Bridge & Culverts
Bill Gray, PE
Contech

The goal of the seminar is to provide attendees with a comprehensive understanding of the state of the art in modular bridge and associated structures technologies. Included will be examples of types of structural plate systems, open-bottom, precast structures and truss bridges, both pedestrian and vehicular and how the systems are being used today, as well as a review of environmental impact, hydraulics, foundations, bridge layout and siting considerations, fabrication and construction.

We will then discuss the latest in bridge foundation protection technologies, and retaining wall systems. Topics covered include rehabilitation of existing piers and abutments as well as new construction. A discussion of the latest PA-DEP policies and the challenge to meet these policies while providing adequate protection will also be covered. The seminar will conclude with the construction process related to these systems.

Bill Gray serves as the eastern Pennsylvania Bridge Consultant for CONTECH Engineered Solutions. He supports the consulting engineering community, regulatory agencies and contractors, in the development of solutions that are favorable to Contech’s modular bridge, scour protection and walls systems technologies. Bill has served in this position for over 14 years and holds a B.S. in Civil Engineering from Rochester Institute of Technology.

The Evolution of Segmental Retaining Wall Products, Design and Installation
Joe Friederichs, PE
Keystone Retaining Wall Systems

This session will provide an historical overview and update the audience on the ongoing evolution of engineered segmental retaining wall solutions. There will be a discussion of Keystone systems and how they are used in unique applications. The structural line has been used extensively for tall walls with high load applications. Case studies will also be provided.

Joe has worked in the retaining wall industry for 20 years. He began his career in retaining walls as a project engineer for a geotechnical engineering firm where he gained experience in field monitoring and inspection of retaining wall installations. He has been with Keystone Retaining Wall Systems for the last 18 years, starting as a design engineer and moving into positions including regional technical manager and national product manager. Joe’s primary area of focus is in the transportation market.

Planning for the future; Understanding BIM and the Emerging Technologies for Collaboration and Efficiency *
Peter Marchese
Microdesk

Over the last several years, BIM methodology has taken hold and progressed from being something a few firms were doing to something starting to be mandated. But what does BIM really mean, and how can it and the other new technologies be used to enhance project collaboration, efficiency and success?

The session will go over what the BIM process is, explaining what it means, not just for the design and construction teams, but how it and other new technologies like mobile and augmented/virtual reality can be used to generate new opportunities.

Peter is a Senior Consultant at Microdesk, specializing in assisting organizations implement Building Information Modeling processes. This includes providing on-site assistance, custom content, training and creating goals and roadmaps to integrate technology and workflows into their long-term plans. Peter has also assisted companies to understand and apply new technologies like UAV’s and Augmented and Virtual Reality with the goal of enhancing coordination and visibility with tools such as cloud-based services.

Peter holds a Bachelor of Science degree in Architecture from Drexel University in Philadelphia, PA.

*Approved for continuing education credit towards New York Engineer’s license. ** Material under review; approval anticipated.
Ethics Case Study: Johnstown’s Flood *
Eric Tappert, PE

On May 31, 1889 the South Fork Dam failed, unleashing a wall of water 40 feet high down the valley destined to destroy the already flooded city of Johnstown, PA. The dam had a long history of problems and this seminar will examine the various human failures that lead up to the dam’s failure and subsequent loss of more than 2000 lives, not to mention a city. The roles of various people and organizations will be examined with particular emphasis on the NSPE code of ethics and the ethics behind the decisions that were made.

Eric Tappert received the B.S. degree in electrical engineering from the Moore School of the University of Pennsylvania and the M.S. degree in telecommunications from the University of Colorado. He retired in 2001 from the former Bell System companies. Since retirement he has served as a part-time faculty member for Penn State University Berks campus, teaching a variety of courses in the engineering department. He is a professional engineer in both Pennsylvania and New Jersey and a life member of NSPE.

Roundabouts: Coming Soon to a Town Near You
Jeffrey S. Todd, PE
Traffic Planning and Design, Inc.

Modern roundabouts are becoming more widely used as an alternative to standard intersection designs. Love them. Hate them. They’re coming and may already be scheduled for an intersection in your area. This presentation will provide a general understanding of what roundabouts are, what they are not, and will cover the potential uses, benefits, and limitations of the modern roundabout.

Mr. Todd has been working with TPD for 18 years and serves as a Senior Project Manager for the Operations and Permitting Department. His responsibilities include the review of State and Municipal Plans, the preparation of Construction Plans, Maintenance and Protection of Traffic Plans, Drainage Plans, Pavement Marking and Signing Plans, and Right-of-Way Plans.

Mr. Todd possesses extensive experience in roundabout design. He is well versed in the industry’s and PennDOT’s standards and has worked on multiple conceptual and final designs for roundabout projects in Pennsylvania.

3D Laser Scanning: Capturing the Whole Picture
Shaun Higgins, P.L.S.
Langan Engineering & Environmental Services, Inc.

The course will provide an overview of advanced surveying techniques and the use of 3D laser scanning technology as these relate to the engineering and architecture fields. The course provides a basic description of how laser scanning works and provides examples showing the potential uses of laser scanning for various projects. Recommendations will be provided to course participants that will aid in the contracting of a successful laser scanning project. Real life examples of past projects will be shown to provide examples of deliverables, success stories and potential limitations of this technology.

Shaun F. Higgins, P.L.S. is an Associate with Langan Engineering & Environmental Services Inc. and is responsible for the surveying service groups in Langan’s Pennsylvania and Ohio offices. He has over 22 years of experience with all types of land surveying and 3D laser scanning projects.