

Feb. 17-18, 2022 E-Week Seminar Descriptions

T = Thursday Seminar and **F** = Friday Seminar

Note: Some of these seminars might have been offered at other locations. It is your responsibility to determine what seminars you want to attend.

BRIDGES

Congress Street Bridge – Multimodal Design - Intermediate

By: Lindsay Zefting, PE; Alta Planning + Design - lindsayzefting@altaqo.com

This presentation will describe the process for developing multi-modal recommendations along the Route 2 corridor, including the Congress Street Bridge; working collaboratively with the cities of Troy and Watervliet to develop a gateway project. The recommendations emphasized seven priority projects that will serve as catalysts for future public and private projects and spark transformation in both communities. The project involved coordination with NYSDOT, numerous other stakeholders, and the public.

Scour Risk Mitigation: Pile Retrofit of I-88 Bridges over Schoharie Creek – Intermediate

By: Kelly Schuman, PE; NYSDOT - kelly.schuman2@dot.ny.gov

Observed scour at two bridges carrying I-88 EB and I-88 WB over Schoharie Creek raised concerns over the stability of the existing spread footing piers. This presentation will discuss the observed scour, the implemented monitoring protocol, and the design and construction of a pile supported pier foundation retrofit.

Middlebury Bridge and Rail Project – Advanced

By: Aaron Guyette, PE; VHB - aguyette@vhb.com

The Middlebury Bridge and Rail Project replaces two 100-year-old bridges with a single precast concrete tunnel in downtown Middlebury, VT allowing for increased horizontal and vertical clearances inline with current standards. The five-year construction project culminated with a 10-week accelerated bridge construction period in the summer of 2020 requiring shutdown of the railroad and roadways during this time.

Innovative Design of a Non-Fracture Critical Steel Straddle Bent – Intermediate

By: Michael Culmo; CHA Consulting, Inc. - mculmo@chacompanies.com

Straddle bents are used for grade separation bridges with severe skews. The bents span across the lower roadway, allowing for a low to zero skew bridge structure. To date, steel straddle bents have been fabricated as box sections that are classified as fracture critical members. This leads to increased bridge inspection costs over the life of the bridge. The presentation will focus on the development and construction of an innovative non-fracture critical steel straddle bent that is also less expensive to fabricate than a traditional box girder section.

Sitterly Road over I-87 Bridge Hit – Intermediate

By: Joseph Albert, PE; NYSDOT - Joseph.albert@dot.ny.gov

Sitterly Road over I-87 was struck and severely damaged. Emergency measures were put into place to protect public safety and ensure that traffic could resume on both Sitterly Road and the Northway. A new structure was designed and let within 5 months of when the bridge was struck.

BUILDINGS

Fire Safety with Concrete Masonry Products (offered 2019) – Intermediate

By: Nicholas Carparelli; NYS Concrete Masonry Association - ncarparelli@nys-cma.org

According to FEMA, from 2013 to 2015, civilian fire fatalities in residential buildings accounted for 83 percent of all fire fatalities. Annually, during that same time period, an estimated 2,695 civilian fire fatalities resulted from 1,800 fatal fires in residential buildings and an estimated 380,200 residential building fires. Where does the responsibility for fire safety lie? Some would make the case that responsibility is shared by many, including those of us in the construction industry.

This presentation will introduce the concept of Balanced Design for design and construction of commercial, municipal and multi-family residential structures. Balanced Design includes three significant components; it is a combination of active and passive fire safety measures:

1. Automatic Detection Systems (Alarms, Active)
2. Automatic Suppression Systems (Sprinkler Systems, Active)
3. Compartmentation with non-combustible concrete masonry (Passive)

Introduction to the Fundamentals of the Proper Commissioning (Cx) Process - Supporting a wide range of simple to complex buildings, technologies and projects – Intermediate

By: Khaled A. Yousef, P.E., CEM, CDSM, LEED™ AP, GBE' Pyramid Energy Engineering Services, PLLC (Pyramid EES) - Khaled.A.Yousef@PyramidEES.com

This course presents an overview to the proper commissioning (Cx) process starting with what is Cx? It presents the most known six (6) types of Cx (Fundamental Cx, Continuous Cx, Ongoing Cx, Re-Cx, Retro-Cx, & Cx Light or Custom Cx), the 4 proper steps of the Cx process, how to plan for Cx, the Cx team's composition and their Roles and Responsibilities; it then offers an intro to the required checklists, forms and tests to conduct proper Cx, and how to plan for and generate a beneficial Cx report for existing and new buildings and systems targeting high performance.

CIVIL

An Engineer's Guide to Turf Reinforcement Mat Technology – Intermediate

By: Peter Hanrahan, CPESC; Hanrahan Environmental, LLC - hanrahanenvironmental@yahoo.com

This course will review the evolution and development of turf reinforcement technology while providing an overview of typical applications. Relevant case studies will be reviewed, with emphasis on the importance of third-party testing and performance-based specifications. Course material will also include important discussion regarding evaluation of turf reinforcement mats and how they compare to traditional hard armor solutions in high flow energy applications.

Increasing Roadway Performance with Geogrids – Intermediate

By: Doug McCluskey; EJ Prescott – doug.mccluskey@ejprescott.com

This course reviews the benefits that geogrids offer to paved and unpaved load bearing applications. We will discuss the impact that materials and manufacturing processes have on geogrid performance, and how they affect lateral restraint and radial stiffness. Punched and Drawn Polypropylene Geogrids will be covered in greater detail. The progression from Biaxial, to Triax, to 3D Triplanar geogrids will be explained with supporting paved and unpaved designs and examples.

America's Infrastructure: A Dissection of the 2021 ASCE Report Card - Intermediate

By: Ashraf Ghaly, PE, PhD; Union College - ghalya@union.edu

The latest report card on America's infrastructure is meant to be informative to both the public and engineering professionals. It reports on 17 infrastructure categories, defines their problems, offers solutions, and highlights the consequences of failure to act. The report card details the needs, challenges, investment, and resilience requirement in pursuit of upgrading or replacement of less-than-satisfactory facilities. Modernization of aging infrastructure comes at a cost which will have to be generated and borne by the society. This presentation intends to facilitate an overall understanding of the scope of the task before the engineering community. It also aims to raise awareness of the important role engineers play in not only the design and construction of facilities but also in the promotion of public backing of infrastructure improvement efforts.

CANCELLED: Fighting for the Future of New York's Infrastructure: Upcoming 2022 ASCE NYS Report Card - Intermediate

By: Beth Ann Smith, PE, BCEE – Bethann.smith@ghd.com and Peter Melewski, PE. - petermelewski.com

Clayton Village Buried Utilities – Intermediate

By: Stephen Gagnon, PE; NYSDOT – steve.gagnon@dot.ny.gov

NYSDOT Region 7 recently completed a village reconstruction project where the overhead utilities were buried in a system of vaults and conduit duct banks. This presentation discusses the complexities of incorporating that work into a highway project. Other challenges with maintenance of traffic and rock removal in a historic district are also discussed.

CONCRETE

Corrosion of Embedded Steel in Hardened Concrete – Intermediate

By: Chris Kelson, PhD, PG and Steve Moore, PE; Atlantic Testing Laboratories - ckelson@atlantictesting.com; smoore@atlantictesting.com

Corrosion of embedded steel within hardened concrete is a complex process that deleteriously affects the concrete and may ultimately cause it to fail. This seminar discusses general geochemical, physical, and geotechnical causes and effects of this process, how to identify the signs of corrosion in the field, tests that can identify active corrosion potential, and possible avenues for mitigation.

Concrete Intersections and Roundabouts – Intermediate

By: Bill Cuerdon - American Concrete Pavement Association New York State Chapter (ACPA-NYS) - bcuerdon@gmail.com

This seminar discusses:

1. Early age behavior of concrete slabs on grade.
2. Jointing concrete to control drying shrinkage and load-related cracking.
3. Jointing concrete to control cracking around projections into a concrete pavement.
4. Concrete Paving Equipment.
5. Correct construction of decorative concrete crosswalks
6. Sustainable concrete mix designs

Concrete Ideas for Reducing Carbon Emissions – Intermediate

By: Jim D'Aloisio; Klepper, Hahn & Hyatt – jad@khhpc.com

Concrete is a time-tested, reliable material that creates strong, durable, cost-effective structures, however, the manufacture of Portland cement used in concrete creates a large “bloom” of CO2 emissions into the atmosphere. This presentation presents up-to-date information about the specifics of carbon emissions from concrete and concrete masonry construction, including new GWP emissions data obtained from Environmental Product Declarations (EPDs) of aggregated concrete mixes developed by NRMCA. We will then explore answers to the question, “How can we reduce our CO2 emissions from concrete and concrete masonry without compromising the performance of our structures?”

Precast Concrete for Resilient Infrastructure – Introductory

By: Ronald Thornton, PE; Precast Concrete Association of NY, Inc - precast@pcany.org

So much of our nation’s infrastructure is in dire need of repair and/or replacement. Extreme weather events coupled with limited state & federal dollars require a longer term and more robust strategy for rebuilding our critical infrastructure. This course will explore the use of precast concrete products to improve durability and extend the service life of culverts, bridges, utilities and more.

Construction Practices for Concrete Slurry and Wastewater Handling – Intermediate

By: Ellen Kubek, CPESC, CPSWQ; NYSDOT - Ellen.Kubek@dot.ny.gov and Jonathan Bass; NYSDOT - Jonathan.Bass@dot.ny.gov

This presentation discusses construction practices employed to protect water quality when handling concrete slurry and wastewater, including Concrete Washout, Diamond Grinding, Polyester Polymer Concrete (PPC) Grinding and Grooving, Micro-Piles and Concrete Bridge Deck Hydro-Demolition, and includes NYSDOT specifications, plans, special notes, MOUs and state regulations.

ELECTRICAL

Power System Ground Fault Protection – Intermediate

By: Peter Sutherland, PE; ABB - Peter.sutherland@us.abb.com

Ground fault protection methods are reviewed for commonly used low voltage solidly grounded and medium voltage low resistance grounded systems.

IEEE 2800; The New National Standard for Interconnection of Inverter-Based Resources to the Transmission Grid – Intermediate

By: Reigh Walling; Walling Energy Systems Consulting, LLC - rwalling@wesconsult.com

Rapid growth of wind and solar generation, as well as battery energy storage systems has resulted in a large amount of inverter-based resources to be interconnected to the high-voltage power transmission systems. Special generation interconnection requirements are necessary due to the differences between these new sources and the conventional generators that they are displacing. IEEE has developed a new standard that seeks to define uniform IBR interconnection requirements which are described in this seminar.

Maturing BEES System Design – Intermediate

By: Tim Corrigan; Convergent E&P - rndmtim@gmail.com

This presentation will discuss issues of fire compliance in NY and other states for many BESS designs, including repercussions of the Tesla Moorabool fire.

MNT Nanotech Cores for Motor Bearing Protection – Advanced

By: Dave Rollins; MH&W International - drollins@mhw-intl.com

Discussion on the use of MNT Nanotech Cores (formerly CoolBLUE) to prevent motor bearing failures due to the high frequency common mode currents generated by VFD’s. In addition, we will discuss the added benefit of providing EMI filtering for conducted emissions.

Modeling the Grid: Modelica-based Portable and Interoperable Grid Modeling, from the desktop to the cloud -

By: Luigi Vanfretti; Rensselaer Polytechnic Institute - vanfrl@rpi.edu

Modeling and simulation is essential for a myriad of engineering functions, from planning grid expansions to real-time market operations. However, existing modeling and simulation technologies lack portability requiring reimplementations and creating ambiguity, while locking-in analysts to specific tools. The open access Modelica language offers a new paradigm, the ability to build object-oriented equation-based models, supported by multiple tools and advanced modeling constructs. The seminar will introduce the Modelica language and the OpenIPSL.org library for power system dynamic modeling along with results of on-going projects that use this powerful approach for machine learning and cloud-based model calibration.

Gas Generator Sets in Standby Applications - Intermediate

By: Christopher Alexopoulos; Milton Cat Inc. - Chris_alexopoulos@miltoncat.com

This seminar reviews application of natural gas fueled generator sets in standby applications and reviews differences between diesel and gas generator sets, as well as opportunities for demand response/peak shaving applications.

Standby Generators: Paralleling Concepts and Implementation (Part 1) – Intermediate

By: Michael Hainzl; Generac Power Systems - Michael.hainzl@generac.com

This two-part seminar examines basic technical requirements to parallel stationary generator sets together to meet the power demands of larger projects. Part 1: focuses on technical fundamentals such as synchronizing, power balancing, load sequencing and system protection.

Standby Generators: Paralleling Concepts and Implementation (Part 2) – Intermediate

By: Michael Hainzl; Generac Power Systems - Michael.hainzl@generac.com

Part 2: compares traditional external paralleling systems with modern “on-board” paralleling, different implementations to meet client design requirements and how to address various project constraints (weight distribution, expandability, fuel diversity, redundancy, value engineering opportunities).

ENERGY

Centralized Control for Energy Efficiency – Intermediate

By: Paul Farris; Leviton Manufacturing - PFarris@leviton.com

Gain an understanding of Centralized Control systems and how they are effective in facility management strategies. Gain an understanding of Building Automation Systems (BAS) and their integration capabilities with Centralized Control systems. Learn how to select a Centralized Control system for a particular application. Plan an energy management strategy around a system which utilizes the advantages of Centralized and BAS systems to control energy usage within a facility.

The NYS Energy Code: The Old and the New – Intermediate

By: Jim D'Aloisio; Klepper, Hahn & Hyatt – jad@khhpc.com

The Energy Code may be the least well understood book in the NYS family of codes, yet all engineers who are involved in building design and construction should have at least a basic familiarity. We'll start by making the connection of E-code compliance with reduced operational carbon and energy usage over the life of a building. Then we'll review important Energy Code concepts in a rapid-fire Top Ten List format. Following that, we'll cover another Top Ten List of provisions that are new to the 2020 Energy Code, including an overview of aspects of the new NYStretch Code.

ENVIRONMENTAL

Granular Activated Carbon Installations for Drinking Water – Introductory

By: Steve Gladding; NYSDOH - Steven.gladding@health.ny.gov

Granular activated carbon (GAC) is being used more frequently for the removal of contaminants from drinking water. This presentation will cover the interim recommendations issued by the NYSDOH for the design review, startup and operations of GAC installations.

ETHICS

Using Moral Tests To Moderate/Resolve Ethical Dilemmas - Introductory

By: Ashraf Ghaly, PE, PhD; Union College - ghalya@union.edu

Moral tests ask questions that could open one's eyes to the necessity of considering the potential negative impact of one's less-than-thoughtful decisions and actions. These tests are intended to help engineers realize possible drawbacks before they escalate into full scale problems. Answering these moral questions could make one pause and rethink one's position, thus significantly minimize unethical behavior as the sound reason would ultimately prevail. Moral test questions have the potential to help engineers grow ethically and professionally. This presentation will introduce two case histories where failure to apply moral tests resulted in catastrophic outcomes.

GEOTECHNICAL

Role of Laboratory Testing in Geotechnical Engineering – Intermediate

By: Brian Barnes, PE; Atlantic Testing Laboratories - bbarnes@atlantictesting.com

This presentation discusses the typical geotechnical laboratory tests performed on soil samples for geotechnical evaluations in NYS. The typical index and performance tests will be presented along with the role of the geotechnical engineer of record in the laboratory testing program.

MECHANICAL

Wear Mechanisms and Prevention - Intermediate

By: Neville Sachs, PE; newsachseng@gmail.com

Things that break get a lot of attention, but we tend to accept wear as a normal consequence of life. However, when we look at mechanical equipment, i.e., gears, bearings, drive belts, car and truck tires, seals (whether on bearings or on your refrigerator door), etc., the most likely cause for replacement is wear. Understanding how wear occurs is difficult because the mechanisms take place on a microscopic basis and frequently more than one is present. To help the attendee, this session will review and give examples of the more common wear mechanisms and some actions that can be taken to reduce wear rates. During the class, we'll show some specifics of how changes in component metallurgy and lubricant formulations will improve component lives.

Retro-Engineering – When Design Gets Reality Tested – Intermediate to Advanced

By: Mark Cambria, PE, CCP, LEED AP – Fusion Systems Engineering DPC - mcambria@fusionsystemseng.com

Examples of mechanical/electrical design deficiencies, and practical resolutions developed by contractors and consultants in the field. This will be an informal, interactive presentation citing real world examples of field issues and their resolutions.

Electrical Know-how for Mechanical Engineers and Designers - Intermediate

By: Andrew Wilsey, PE; Quantum Engineering - awilsey@quantumengineers.com

Seminar is intended to provide Mechanical Engineers and Designers with a background of electrical concepts that will allow them to specify and/or coordinate electrical requirements for complete definition of equipment.

STRUCTURAL

Structural Glass Reinforced Plastic Liner For Circular and Non-Circular Shapes – Introductory to Advanced

By: Don LeBlanc; DLVEWS, Inc. - don@dlvews.com & Andy Sherwin - andy@channeline-international.com

This presentation is an introduction to glass reinforced plastic (GRP) liner technologies focusing heavily on challenging non-circular structures. The presentation begins with a brief comparison of traditional 'dig and replacement of a structure versus sliplining/reline of the host structure. We will review basic applications and will answer proper design questions that engineers should ask themselves when considering a sewer and/or culvert for a lining candidate. Many project profiles will showcase unique engineering challenges and the versatile solutions that we used to meet the project parameters.

4 learning objectives for attendees: 1. Discuss the history, definition, and properties of liner options; 2. Review hydraulic and structural design procedures; 3. Explore typical applications and highlight some case studies; 4. Introduce emerging technologies, and how traditional culvert liner materials are advancing to meet challenging project parameters.

Deflection and Performance Considerations In Residential Wood-Framed Floor Design (Part 1)

By: Drexel Hermann; Weyerhaeuser - drexel.hermann@wy.com

Explore deflection of floor systems and how joist and panel selection can affect deflection. Delve into the special deflection and assembly requirements for more demanding floor coverings. Identify the potential areas of differential deflection and address field issues that arise due to differential deflection.

Deflection and Performance Considerations In Residential Wood-Framed Floor Design (Part 2)

By: Drexel Hermann; Weyerhaeuser - drexel.hermann@wy.com

Compare Static vs Dynamic deflection and how they affect perceived floor performance. Recognize the critical influencers of floor performance. Explore cumulative deflection on floor system design. Define other floor system problems that may cause floor performance concerns.

TRANSPORTATION

Sullivan O&W Trail Neversink Trail Gap - Intermediate

By: Kristie Di Cocco, PE; Alta Planning + Design - kristiedicocco@altaqo.com and Steve Hagy, PE; H & T Engineering - shagy@handteng.com

The 50-mile Sullivan O&W Rail Trail in Sullivan County, NY has many segments already completed. The Neversink Trail Gap is one of the most technically challenging sections to be constructed. Presenters will discuss from feasibility study to construction with a focus on the various trail elements (trail, 190' span bridge, 108' timber truss boardwalk).

Henry W. Dubois Drive – A piece of the EST – Intermediate

By: Kristie Di Cocco, PE; Alta Planning + Design - kristiedicocco@altago.com and Neil Bettez; Town of New Paltz - supervisor@townofnewpaltz.org

Henry W. Dubois Drive is a narrow suburban 1.2-mile corridor along the Empire State Trail in New Paltz, NY. Originally outfitted with shared lane markings, the Town wanted more for its residents. The presenters will take the audience through a journey showcasing how this narrow corridor is being transformed into a side path closing one of the few pieces along the Empire State Trail where pedestrians and cyclists are separated. The presentation will discuss design elements of this limited width Right-of-Way.

Final Phase of Ocean Parkway Coastal Greenway: From Concept to Completion – Intermediate

By: Christian Keller; Robb Smith, Phyllis Elgut, RLA; NYSDOT - christian.keller@dot.ny.gov; robb.smith@dot.ny.gov; phyllis.elgut@dot.ny.gov

The third and final phase of the Ocean Parkway Coastal Greenway was completed in the Spring of 2021. This new 10-mile segment completes the 14.4 mile Shared Use Path that connects Jones Beach to Captree State Park. This seminar will be a comprehensive presentation of the project including the history, design considerations, and unique challenges.

Principles and Concepts in Railroad Signals and Methods of Train Control - Intermediate

By: Wes Coates; HNTB - jcoates@hntb.com

Often seen along the side of the railroad, the signal system is more than traffic lights. The presentation will discuss the development of railroad signal systems, the application of railroad rules on train movements, how different signal types and signal technologies have changed to support new safety requirements and use of Positive Train Control on railroad lines in NY State.

Innovation in Active Transportation Design - Intermediate

By: Kristie Di Cocco, PE & Lindsay Zefting, PE; Alta Planning + Design - kristiedicocco@altago.com; lindsayzefting@altago.com

Advances in the active transportation design field is changing the landscape at intersections across the country. In this webinar, we will showcase design treatments such as protected intersections, corner design for all users, and other facility design treatments that focus on improving safety for all users, especially the nonmotorized users that are typically the most vulnerable.

Roadside Asset Inventory Management and the Next Technology Integration – Intermediate

By: Mary Susan Knauss, MSIS, GISP; Mapping Momentum, LLC – susan.knauss@gmail.com

Tremendous Infrastructure investment is on the horizon and the state will be funneling funds to municipalities that are prepared to act on the opportunity. Attendees will be exposed to the state of practice for mobile field data collection and how that enables capital programming and maintenance operations. In the near future, this location-based asset information will be exchanged between the converging technologies of Geographic Information, Computer Aided Design, Building Information Modeling and Computer Aided Dispatch. Communities and agencies using shared data will be better prepared for both progress and disasters.

Resiliency Planning for Transportation Assets – Intermediate

By: Joseph Englot, PE; HNTB Corporation - jenglot@hntb.com

This seminar is for Engineers, Architects and Business Managers who have responsibility for the operation, state of good repair and reliability of transportation system infrastructure assets and who will benefit from knowledge about various resiliency planning strategies to compensate for the long-term effects of global warming and climate change.

Asphalt Paving Principles – Intermediate

By: Bruce Barkevich; New York Construction Materials Association - bruce@nymaterials.com

Infrastructure is a substantial investment for any owner or agency. Making sure you get the best bang for your buck is important. Asphalt Paving can be as much an art as a science. This session will help you understand the best methods to ensure your pavement is specified and placed properly for the best chance of success.

Innovations in Asphalt (Offered 2021)– Intermediate

By: Bruce Barkevich; New York Construction Materials Association - bruce@nymaterials.com

The asphalt industry is ever-changing. The product continues to adjust to meet the demands of the owners and agencies. With the new Infrastructure deal, it is more important than ever to understand how to best utilize asphalt pavements in your projects: Warm Mix Asphalt, Porous Asphalt, Superpave, Recycling and other topics will be discussed.