2012 Engineering Symposium in Rochester

20-Apr-12

Sponsored by

Rochester's Technical and Engineering Societies and RIT

April 24, 2012

PDH hours will be acceptable in New York State. Schedule subject to change.

7:30 to 8:15	**AM**	**Registration and Continental Breakfast**				**AM**
8:15 to 8:30	**Welcoming Remarks**					
	Civil Engineering Sponsored by ASCE	Civil Engineering Sponsored by ASCE	Mechanical Engineering Sponsored by ASME	Electrical NYSERDA, RIT & IEEE	Mechanical, Plumbing, & Fire Protection Sponsored by ASHRAE and ASPE	Lighting and Power Sponsored by IES Rochester
Room	**Riverview**	**Douglas**	**Silver**	**Gleason**	**Eastman**	**Fitzhugh**
Moderator	**Wendel Armstrong**	**Jim Baker**	**Bill Bishop**	**Dave Krispinsky**	**Jennifer Wengender**	**Joe Dombrowski**
8:30 to 9:30	Geofoam – a Lightweight Fill Alternative Nico Sutmoller	Creek Bank Stabilization-Not Just a Geotechnical Problem Mike Mann, PE and Todd Swackhammer, PE of MMCE	CFD Wind Dispersion Modeling with Comparisons to Other Modeling Techniques Scott Reynolds, PE	Electric Vehicles and the Grid Andres Kwasinski, RIT	"LEED Design Considerations and Case Study" Dave Hart, PE Clark Patterson Lee	Recent Advancements in HID Technology Dr Alex Dunaevsky, Philips Lighting
Description Presentation	Participants will learn about the utilization of geofoam as a light weight fill alternative. EPS Geofoam is a large block, rigid foam plastic material that is up to 100 times lighter than soil. It is a simple, cost effective solution for five major geotechnical conditions that engineers encounter on a regular basis:	Case histories of creek bank stabilization projects located in Western New York will be presented. The projects will highlight different approaches for stabilization depending on the causes of the instability. Approaches discussed will include traditional slope stabilization method (e.g. flattening slopes, ground improvement methods, rip-rap placement, etc.) creek redirective measures (e.g. vanes, bendway weirs, vegetation, etc.) or a combination of methods.	A presentation on the use of Computational Fluid Dynamics (CFD) for wind modeling with a comparison to other techniques including ASHRAE closed form, wind tunnels and Lagrangian/Gaussian methods. Teach the audience about the availability and the value of wind modeling, particularly with respect to CFD	This talk will discuss challenges and solutions being researched to the deployment of electric vehicles from a smart electric grid perspective. To learn about some of the challenges brought by the recharging of electric vehicles and some of the approaches being researched to address these challenges.	Overview of the process for obtaining LEED Gold certification for the Monroe County Pediatrics and Visitation Center. Review of the complete LEED checklist for a point-by-point summary of credits obtained and lessons learned. Provide insight to the LEED process through a real project example.	Overview of new energy efficient products and systems in HID lighting. To understand basics o design principles of modern HID lamps and systems and technology trends * To overview lighting solutions available with modern HID lamps, in comparing with other technologies * To learn about energy saving options available with modern ceramic metal halide lamps designed to retrofit quartz lamps
9:30 to 9:45						
9:45 to 10:45	The Monroe County Crime Laboratory: A LEED Platinum Project Reinhard Gsellmeier of Monroe County and Brian Danker of M/E	Repair/Restoration of Historic Structure John Collins, PE & Nancy Muiir-Gaiire, MRB Group	Unmanned Aerial Vehicles: From Research to Education Dr Jason Kolodziej of RIT	Hardware Implementation of Wireless Communication Algorithms Antonio F. Mondragon, RIT	"Sprinkler Design from a Contractors Perspective" Heather Roth, PE, Kennedy Mechanical Plumbing and Heating, Inc.	Harmonics and AF Drives Brent Vild, Eaton PIE- NY0959
Description Presentation	This program will present on the Monroe County Crime Laboratory project, a new state-of-the-art 45,000 sf facility that provides forensic evidence for law enforcement agencies in Monroe County and 8 surrounding counties.	Structural assessment of existing materials and construction types, loadings, common member failures, and repair options for historic buildings. The presentation will also include administrative requirements related to SHPO, including demolition of existing buildings.	The talk is a focus of Dr. Kolodziej's research activities at the Rochester Institute of Technology in the area of Unmanned Aerial Vehicles.	In this presentation we will cover some practical methodologies to implement Wireless Communications Algorithms in hardware platforms.	Review of Fire Sprinkler Design from the contractor's perspective. We will discuss drawings, specifications, design criteria and code requirements. To have the engineer's have a better perspective of fire sprinkler design and how it effects bids, change orders and overall sprinkler design and installation.	Review of harmonics in power systems; current and voltage distortions, harfull effects and mitigation strategies when employing adjustable frequency drives. There is adescription of active and passive filters and increasing converter pulses.
10:45 to 11:00						
11:00 to 12:00	Air Quality Regulations and Permits – Are You in Compliance? Scott Miller & Edwin Valis, Cornerstone	Developing Accurate Estimates on Excavation Projects Steve Warfle, Insite Software	Energy Modeling for Existing Buildings Bill Bishop, PE, LEED AP Pathfinder Engrs & Architects	Custom ASIC vs. FPGA in Embedded Systems Design Jeanne W. Christman, RIT	"Fighting the FOG: Monroe County's Fats, Oil and Grease Program" Andy Sansone, Monroe County Environmental Services	A Primer On The Basics Of Lighting Controls Michael Trippe, IES, LC Point Source Group
Description Presentation	This program will present an overview of how to assess whether your facility is in compliance wit air quality issues, including how to identify baselines, emission units, and Potential to Emit (PTE) at your facility. It will also include a summary of the state and federal regulations and how they may affect your facility.	Review/ discussion of various earthwork items that tend to not be incorporated into efforts to 'balance' the site-work. Actual project examples will demonstrate software applicability. To raise awareness of the applicability of these items into proper site design and cost analysis.	Using energy modeling to evaluate energy conservation measures through calibration with existing building utility data. Attendees will learn how energy auditing data is used to create a calibrated energy model, which can then be used to simulate energy conservation measures and determine the simple payback period of energy cost savings.	A comparison of the pros and cons of choosing Application Specific Integrated Circuits vs. Field Programmable Gate Arrays for modern embedded systems. The course will begin with a brief history of embedded systems design and introduce considerations for modern embedded systems designs; such as power consumption, speed, reliability, time to market and cost. It will then evaluate the suitability of ASICs and FPGAs in meeting each design consideration.	Discuss the problem with Fats, Oils and Grease in the public sewers With specific data on Monroe County Systems, Review related laws and options for enforcement. Provide some design solutions for grease collection including sizing for grease intereceptors. Educate engineers and owners of dangers of grease entering waste stream and provide information for prevention.	An introductory course into the technologies & application of lighting controls & control systems To provide a basic overview of lighting controls explaining why they are needed and how they can be instrumental in energy conservation. The technologies & techniques of different systems & methods used will be covered.
12:00 to 1:30	**Lunch and Keynote Program** **Laboratory for Laser Energetics: A Unique National Resource** **Matt Weibel, PE, Facility Manager, University of Rochester**					

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12:00 to 1:30	**PM**					**PM**
	Civil Engineering Sponsored by ASCE	Civil Engineering Sponsored by ASCE	Mechanical Engineering Sponsored by ASME	Electrical NYSERDA, RIT & IEEE	Mechanical, Plumbing, & Fire Protection Sponsored by ASHRAE and ASPE	Lighting and Power Sponsored by Elect. Assoc. of W N Y
Room	**Riverview**	**Douglas**	**Silver**	**Gleason**	**Eastman**	**Fitzhugh**
Moderator	**Rick Bennett**	**Tim Webber**	**Bill Bishop**	**Dave Krispinsky**	**Jim Browe**	**Joe Dombrowski**
1:30 to 2:30	Methods to Remove Phosphorus from Wastewater Mark Green, O'Brien Gere	Urban Roundabouts David Askinazi, CPL and Amy Dake, SRF	Ginna Reactor Internals Aging Management Program Rob Marcello, Ginna NPP	Photovoltaics Clark Hochgraf from RIT	Custom Air Handling Unit Design and Fanwall Technology Joe Naccarello PE	UL and NFPA Standards for Emergency Generators Rob Sweeney & Steve Huber, R L Kistler
Description Presentation	This course will discuss chemical and biological methods to remove phosphorous, a finite worldwide resource, from wastewater. Compare and contrast alternative methods to remove phosphorous from wastewater including new methods for recovering phosphorous as a usable product. Learn the use and applicability of life cycle analysis as decision support also.	Implementation of a roundabout as part of an urban street improvement project can present a unique set of challenges that transcend simple geometirc or ROW issues. The presentation will provide an overview of the City of Rochester project and then focus on the issues revolving aroudn the planning and design of the proposed roundabout at the intersection of Broad and Court Streets/Broadway/ and Manhattan Square Drive in Downtown Rochester.	Overview of aging management exams performed by the oldest operating Pressurized Water Reactor in the United States. Inform engineers of the exams required by nuclear power plants to attain License Renewal.	Photovoltaic energy systems: Site assessment, shading analysis tools, solar energy analysis. Understand the available solar resource at a site and learn about tools to measure the impact of shading.	The Benefits of FANWALL Technology™ vs. Traditional Air Handler Design. To illustrate the advantages of using FANWALL Technology™	This program will cover the latest codes and standards for installation and operation of Emergency Standby Generators for a variety of applications. Highlight points of interests for consulting engineers designing an emergency standby power system.
2:30 to 2:45	Break					
2:45 to 3:45	Working with New York's Dam Safety Regulations Ken Avery	Fundamentals of Pump Station Design Mark Koester	Isolation Gaskets – Mitigating Electricity, Corrosion and Leakage Tim Hurley, GPT	The History of the National Electric Code George Sharlow & Robert Farron	Principals of Displacement Ventilation Dennis Sikkema	Controlling LED Lighting Craig Fox, LC, IES
Description Presentation	Review the application of the NYSDEC Part 673 Dam Safety Regulations and guidance documents to several case studies involving hazard classification; determination of the Spillway Design Flood; Safety Inspections and Emergency Action Plans.	Attendees of this training session can expect to gain knowledge and understanding of pumping systems for municipal wastewater conveyance applications. Specific topics include: basis theory of pumping hydraulics, pump station design elements, pump station configurations, pump control systems, and interpretation of hydraulics and pump curves.	A study of the flange options available to mitigate electrical flow, corrosion and leakage in piping systems.	History of how codes were developed resulting in the NEC and some important codes. Relate the NEC to the engineering field and the importance of that relationship.	Using Displacement Ventilation as a beneficial Air Distribution System. Show how Displacement Ventilation used in schools, large public spaces and hospitals can quisliV improve air quality with potential energy savings	This course will address the wide variety of available control options for LED lighting. It is intended for engineers, lighting designers and architects who are tasked with understanding and specifying control systems for this aspect of commercial lighting.
3:45 to 4:00	Break					
4:00 to 5:00	Flight of Five Historic Lockport Canal Repair/Restoration Don Nims Bergmann Associates	Long Term Fuel Storage Tony Ramos, Core Engineered Solutions	Optical Measuring Technologies for Detecting Fugitive Emissions Jim Drago,PE, GPT	Energy in the Wind : Dr. Larry Villasmil, RIT	The Path to Building Information Modeling Scott Burke	Solid State Lighting Update Chris Dolan, LC, Philips Lighting
Description Presentation	Upon completion in 1825, a twin set of five locks ("Flight of Five") for the Erie Canal in Lockport, NY were considered to be an engineering triumph. By 1910 the southern half of the Flight of Five was replaced by a set of two mechanically-operated locks. The remaining nothern half has since fallen into disrepair. This presentation will describe repairs that would restore the Flight of Five to working order with new wooden gates and balance beams the mos prominent features.	The course covers National and State codes, and design standards within the fuel storage industry. Applications reviewed include fleet fueling operations, mission critical and emergency power systems, aviation fueling, and alternative fuels. Present examples of Rochester projects including the URMC Cancer Center Building Critical Mission.	EPA regulations relating to fugitive emissions and optical measuring methods in use by chemical and hydrocarbon processors. To educate on the basic clean air regulations for volatile organic compounds categorized as hazardous air pollutants. Further to inform on monitoring methods in use and optical methods, some of which were made regulation in 2008. Also covered will the use of consent decrees as a method to mandate the use of new technologies.	It is a two parts presentation. The first half is focused on understanding the wind origin, its analysis as an energy resource and characterization. On the second half, we cover how to estimate the power available in the wind, the performance of large wind power generators and the energy yield, concluding with the basic principles of energy conversion.	The creation and use of coordinated, internally consistent, computable information about a building project in design and construction. To implement BIM inside your firm. Keep critical design information in digital form. Create real-time, consistent relationships between digital design information.	Solid State Lighting Update: A review of SSL technology beginning with the basics. Program will include advatanges, challenges of designing with SSL and conclude with a look at some, application examples. To give audience an update on the basics of SSL technology and how it is used.
5:00	**Cocktails and Conversation in the Lounge (Continued)**				**Please Take this Survey** https://clipboard.rit.edu/take.cfm?sid=D3683C17	