2013 Engineering Symposium in Rochester

Sponsored by

Rochester's Technical and Engineering Societies and RIT

April 23, 2013

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

730 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 Sponsored by IEEE	Mechanical, Plumbing, & Fire Protection Sponsored by ASHRAE and ASPE	Lighting and Power Sponsored by IES Rochester
Room	**Riverview**	**Douglas**	**Gleason**	**Eastman**	**Fitzhugh**	**Silver**
Moderator	**Wendel Armstrong**	**Jim Baker**	**Dave Roberts**	**Dave Krispinsky & Kip Finley**	**Jennifer Wengender**	**Joe Dombrowski**
8:30 to 9:30	Load Rating of a 100 Year Old Concrete Arch Joshua Rodems, EIT (Erdman Anthony) NY1242	Implementing Ground Source Geothermal in Commercial and Institutional Settings Quinn Lewis, PE; H&A of NY NY1248	Climate Change Basics for Engineers William Bishop,PE Pathfinder Egrs & Arch. NY1253	Cathodic Protection Fundamentals & Applications James T Lary, Corrpro NY1259	Engineering for Fast Paced Design Build Projects Jennifer Wengender, Clark Patterson Lee NY1265	Power Quality PF, Harmonics, Voltage Support, Part I Haney Boulos & Mario Teti
Presentation Description	Presentation will provide a unique method of load rating a complex structure using basic engineering principles. Presentation will show the Load Rating of a 100-year old concrete arch bridge for MaineDOT using 20 arch analysis and axial-bending interaction diagrams to determine the arch capacity and rating factor graphically.	Presentation will provide an overview and lessons learned in the successful programmatic and technical development of ground source geothermal systems for commercial and institutional applications	Technical summary of climate change science, global and regional impacts, mitigation and potential solutions. Provide engineers with sufficient background information on climate change to inform their engineering decisions and business practices, and to enable them to educate and engage the public.	The presentation focuses on the causes of corrosion with respect to Ductile Iron, Carbon Steel and pre-stressed Concrete pipes and other water and wastewater structures. The course also covers physical factors that promote corrosion.	MEP, Structural and Architectural design considerations for working on a Design Build project at a Health Care facility with multiple bid packages and full Contractor team.	An in depth discussion of applying power factor correction equipment in a harmonic environment.
9:30 to 9:45	Break					
9:45 to 10:45	Geophysics for Geotechnical and Environemental Investigations Mark Saunders, PG (QISI - APPlus RTD) NY1243	Corrosion Control for Water & Wastewater Systems James T Lary, Corrpro NY1249	How and Why of Hydrogen Vehicle Fueling Stations David Wolff, Proton OnSite NY1254	Wireless Communications with Multiple Antennas Dr. Miguel Bazdresch, RIT NY1260	Laboratory Exhaust Fan Systems Andrew Bosscher, Twin City Fan and Blower NY1266	Power Quality PF, Harmonics, Voltage Support, Part II Haney Boulos & Mario Teti 2 hrs NY1271
Presentation Description	Geophysics is an important tool in determining subsurface conditions for environmental and engineering sites. This presentation will serve as an introduction and/or a refresher into some of the more applicable techniques. The material will be presented in an introduction fashion with emphasis placed on fundamentals, examples, and good practices. Techniques focused on will be seismic, ground penetrating radar, and vibration analysis as well as brief introduction to other techniques.	The goal of this presentation is to identify and explain in an easily understood manner the corrosion process and its impact on cast and ductile iron, carbon steel and prestressed concrete cylinder pipe, water storage tanks and wastewater treatment equipment. Topics to be reviewed and discussed will include stray electrical currents, aggressive soils, bimetallic coupling, coatings, and cathodic protection.	The expected introduction of hydrogen fuel cell road vehicles will require hydrogen fueling capability. This presentation will outline one promising approach to hydrogen fueling.	Description of most common techniques (and their advantages) to perform wireless communications with multiple antennas.	Will provide definitions of common lab exhaust terms and standards, as well as the purpose of dilution and bypass air, energy efficient fan selection and correct fan application. The course objective is to assist engineers in making the most efficient and effective selections for laboratory exhaust fan systems as well as understand applicable standards and certifications.	An in depth discussion of applying power factor correction equipment in a harmonic environment.
10:45 to 11:00	Break					
11:00 to 12:00	Rehabilitation of the Corning Centerway Arch Bridge Joseph Logan, PE (Fisher Associates) NY1244	Engineering for the Design Build of the RGRTA Transit Center Dave Belaskas, P.E.; RGRTA NY1250	Detecting Cable Failure in Hoisting Systems David C. Roberts, PE, Retrotech, Inc NY1255	Green Rooftops: an innovative combination of Energy savings and Stormwater Retention Gaelle Berges NY1261	Implosion at the St Ann's Heritage Greg Merrick, Irondequoit Fire Marshal NY1267	LED Lighting It's Not Just About the Lumens Michael Trippe, IES, LC Point Source Group NY1272
Presentation Description	Since 1989, the City of Corning has used the Corning Centerway Arch Bridge as a pedestrian link across the Chemung River between the Corning Museum of Glass to the North and the historic Gaffer District on the south side of the river. This presentation will focus on the in-depth inspection and evaluation of the structure through use of non-destructive concrete testing techniques and the innovative approach to salvaging a bridge which is being attacked internally through the chemical process of Alkalai-Silica Reaction (ASR).	The presentation will discuss the engineering of the Transit Center from the subsurface to the roof and how it relates to the design build process.	Review of the requirements for cable failure detection as specified in ASME A17.1, B20.1, & B30.13. Discuss slack cable and overspeed devices. Review a case study in the design of slack cable systems and present the development of a custom formula needed to account for broken cable inertia.	The presentation will be on green rooftops and benefits on thermic insulation for conservation of energy and reduction of heat in urban areas, and stormwater management, using latest research results to illustrate the benefits.	This program will provide an overview of how the many concerns around explosive implosion demolition are answered by comprehensive engineering principles.	APPLICATION GUIDELINES FOR LED LUMINAIRES IN BOTH INTERIOR AND EXTERIOR APPLICATIONS
12:00 to 1:30	**Lunch and Keynote Program** **Regulatory Update and Continuing Education Guidelines for NYS Professional Engineers** **Anthony Fasano, P.E., LEED AP, ACC; Executive Director, New York State Society of Professional Engineers NY1276**					

13-Apr-13

2013 Engineering Symposium in Rochester

Sponsored by

Rochester's Technical and Engineering Societies and RIT

April 23, 2013

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

12:00 to 1:30	**PM**					**PM**
	Civil Engineering Sponsored by ASCE	Civil Engineering Sponsored by ASCE	Mechanical Engineering Sponsored by ASME	Electrical Sponsored by IEEE	Mechanical, Plumbing, & Fire Protection Sponsored by ASHRAE and ASPE	Lighting and Power Sponsored by Elect. Assoc. of W N Y
Room	**Riverview**	**Douglas**	**Gleason**	**Eastman**	**Fitzhugh**	**Silver**
Moderator	**Rick Bennett**	**Tim Webber**	**Dave Roberts**	**Dave Krispinsky & Kip Finley**	**Jeffrey C Ellis**	**Joe Dombrowski**
1:30 to 2:30	Basement Wall Design…Or Is It a Retaining Wall? John Collins, P.E.; MRB Group NY1245	Water Storage Tank Modifications for Disinfection Byproduct Compliance Mark Koester, Koester Associates NY1251	Grid-Scale Compressed Air Energy Storage George Lucas, PE, GML Engineers NY1256	Virtual Acoustics in Action: Turning a classroom into a concert hall Dr. SungYoung Kim, RIT NY1262	Multi-Functional, High Performance Run-Around Energy Recovery Systems Rudolf Zaengerle, Konvekta NY1268	Selective Coordination John Kowal, FAE, EE NY1273
Presentation Description	Review building code requirements and structural considerations in the design of building basement walls. Discussion of design parameters and loadings. Discussion of considerations which may change the design process to that of a retaining wall, specifically a restrained retaining wall.	The objective is to outline the benefits of mixing in water storage tanks and how best to mitigate disinfectant byproducts. This presentation will discuss the importance of mixing water storage tanks (WST's) and will evaluate different ways to reduce disinfectant byproducts in WST's to meet the new disinfectant byproduct rules.	This course introduces Compressed Air Energy Storage as a viable bulk energy storage technology, including a brief history of CAES, operating experience at the McIntosh CAES Plant, major cycle and machinery configuration options, and a discussion of plant thermodynamic performance measures.	Virtual acoustics refers to a technology that varies listeners' perceived room impression. This presentation summarizes the history and a case study of a virtual acoustics.	High performing energy recovery systems require heat exchangers with high temperature efficiency and demand-dependent controls. The elements of such a system are presented and put in a system perspective.	One hr. short course on the requirements for selective coordination with the use of overcurrent protective devices to meet the requirements as stated in the National Electical Code NFPA 70, Articles 517 and 700 since 2005.
2:30 to 2:45	Break					
2:45 to 3:45	BIOGAS – Renewable Energy & Solutions for Organic Waste at Synergy Biogas Bob Kieffer, PE, TY Lin and Paul Toretta, PE, Synergy Biogas NY1246	From the Codebook to the Field Keith Lashway, PE International Masonry Institute NY1157	Corrosion Fatigue Ronald Salzman, PhD, PE SimuTech Group NY1257	Power Line Communications Dr. Antonio Mondragon, RIT NY1263	Fume Hood and Laboratory HVAC Controls Dave Ruhland, TSI NY1269	LED Basics Tom Nowakowski Philips NY1274
Presentation Description	Presentation will review the design issues and criteria for a large scale bio-gas renewable energy facility and discuss construction lessons learned.	The goals of the presentation will be to provide an understanding ot the interrelationship between masonry materials, architecture, engineering, and construction; how the intent of code requirements can be translated into specification language; how structural & architectural mock-ups can be used as on-site training tools, and how craftworker training, certifications & upgrades, and on-site QA can lead to successful projects.	Presentation on methods of fatigue analysis: Stress-Life, Local Strain and Fracture Mechanics. Description of new corrosion fatigue test methods (ultrasonic testing) and results. This presentation integrates fracture mechanics with crack initiation at a pit. These results should be applicable to other structural defects.	Power line communications technology enhances intelligence and reliability across a broad range of smart grid applications, including smart electrical meters, lighting, solar, electric car charging, smart appliances, home automation, intelligent building control, and networking.	Introduction to fume hood and laboratory controls, including customer requirements and comparisons of sequence of operation and control components.	BASICS OF LED LIGHTING; CONSTRUCTION, PRODUCTION OF COLOR AND WHITE LIGHT, EFFICACY, HEAT MANAGEMENT, BINNING, TESTING STANDARDS, ABSOLUTE PHOTOMETRY
3:45 to 4:00	Break					
4:00 to 5:00	Marcellus Shale 102 – An update on the Status of Marcellus Shale Development in New York Bill Kappel NY1247	CSO Tunnel Design and Construction AJ McGinn, Ph.D., P.E. Brierley Associates NY1252	Cased Pipe and Corrosion Protection Systems Jay Keldsen, GPT NY1258	Paralleling for Emergency Generators Steve Huber, RLK NY1264	Get the Lead out of Plumbing Stephanie Ewing & Randy Schafer Watts Water Technologies NY1270	NFPA 70E Changes 2009 to 2012 Dean Vanasse NY1275
Presentation Description	The objective is to to review and update participants on the pending development of HVHF in New York. It will include an update on the status of High Volume Hydraulic Fracturing (HVHF) in New York and present through baseline data.	CSO Conveyance and Storage Tunnels have become a common method for mitigating and managing CSOs in urban environments. This presentation will review the history of CSO tunnel construction, including the CSOAP project in Rochester, NY; current forecasts for new CSO tunnel construction; and, review tunnel design and construction methods	Presentation will cover practical design considerations to assure long term integrity of cased pipe installations including corrosion control concerns.	This program will cover the latese information concerning paralleling technology of emergency Standby Generators for a variety of applications	The Get The Lead Out Plumbing Consortium, a cross section of the plumbing industry comprised of leading trade associations and manufacturers, was founded in 2012. Its mission is to provide widespread education about the manufacture, distribution and installation of Lead Free* plumbing products.	Presentation on the significant changes to the NFPA 70E Standard for Electrical Safety in the Workplace from the 2009 Version to the 2012 Revision
5:00 to 7:00	**Cocktails and Conversation in the Lounge**				**Please Take this Survey** https://clipboard.rit.edu/take.cfm?sid=B9C59515	