

A quarterly publication of the Boston Chapter of the National Electrical Contractors Association



The electrical and telecommunications industry news in Eastern MA, ME, and NH

CONTENTS

POWERPOINTS

Educational Partnership with Wentworth Institute Exemplifies NECA and IBEW Commitment to Industry's Future

ELECTRICAL INDUSTRY NEWS

page 1

INSTALLATIONS

Larkin Enterprises On Schedule with \$320M - 132MW Kibby Mountain Wind Power Project in Franklin County, ME
State Electric and E.S Boulos Complete Electrical Construction of National Grid's Wakefield Junction Station 88, Wakefield, MA

page 2

Spectrum Integrated Technologies Provides Fully Integrated Lobby Security Systems at 100 High Street, 225 Franklin Street, One Post Office Square, and 1 Memorial Drive in Cambridge, MA

Mass Bay Electrical Corp. Completes NSTAR Station 726 Expansion Project in Carver, MA

State Electric Completes \$2.4M Switchgear Upgrade at Harvard's Holyoke Center Cambridge, MA

page 3

SHOPTALK

Trends in Security Systems in the Digital Age

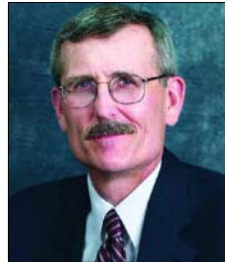
page 4

POWERPOINTS

A Message from the Executive Manager

Educational Partnership with Wentworth Institute Exemplifies NECA and IBEW Commitment to Industry's Future

West Newton, MA – In electrical contracting, excellence in education and training results in a rewarding future for electrical professionals and the highest quality workmanship for construction industry clients. The electrical and telecom training program provided by the Joint Apprenticeship Training Committee (JATC) of Greater Boston has long been recognized as among the strongest in the U.S. From integrated building systems to renewable energy installation training – Boston's JATC program is at the forefront.



Glenn Kingsbury

The recent continuing education partnership between the JATC and Wentworth Institute of Technology exemplifies the commitment that the Boston Chapter of NECA and IBEW Local 103 have in educating and training the skilled union electricians that comprise our labor force. The Wentworth / JATC agreement provides IBEW electricians the opportunity to advance their careers through a professional degree program. Graduates of the Inside Wireman Apprenticeship Program are awarded 27 credits toward the 60 credits required for an Associate Degree in Applied Science in Engineering Technology (AENT) from Wentworth. Electricians will be able to complete the Associate Degree in less than two years. The program started in January and accommodates full-time work schedules of the electricians, as courses are taught by Wentworth faculty members at the IBEW Electrical Industry Training Facility in Dorchester on Saturdays. The program promises to be a success, with 50 graduating IBEW electricians already taking part.

NECA contractors are active partners in the Wentworth co-op program, offering student interns hands-on education and training in the field of electrical construction. Many students have gone on to build careers with our contractors and in other related fields of construction. It is a mutually beneficial relationship, as Wentworth Institute provides nationally ranked career-focused bachelor's degree programs in such areas as architecture, construction management, design, and engineering.

"Building on the success of the certificate in Managing Construction Projects with the IBEW, this degree program addresses the educational needs and interests of professionals in the electrical industry," said Dr. Michael Kupferman, Associate Vice President of Academic Affairs and Associate Provost at Wentworth.

The importance of education is paramount in our contractors' mission to deliver the finest workmanship and the safest work practices to each project. We know the future of the electrical industry depends on our ability to attract bright, dedicated and well educated young professionals. Building partnerships with institutions like Wentworth is assurance that we will continue to do just that. ■

ELECTRICAL INDUSTRY NEWS

NECA Contractors Donate to RTB's New England Ctr. for Homeless Vets

Boston, MA – NECA members Broadway Electrical, J&M Brown Company and T&T Electrical joined Shawmut Design and Construction in donating labor, materials and financial support in the Rebuilding Together Boston renovation of the Heroes at Home project at the New England Center for Homeless Veterans at 17 Court Street in Boston.

Dagle Electrical Joins Local 103 at Project Stand Down Boston

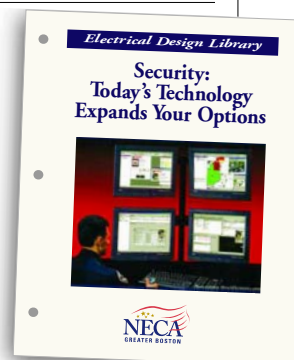
Boston, MA – Dagle Electrical of Braintree contributed materials and labor to help build Project Stand Down in Boston. The event assists military veterans back into the community.

NECA Confirms 2010 Board of Directors

West Newton, MA – The NECA Boston Chapter 2010 full slate of officers and directors are:

- Lawrence M. Hurwitz, President / *Broadway Electrical Co.*
- Paul Guarracino, Vice President / *J.M. Electrical Company*
- Joseph Bodio, Secretary / *Lan-Tel Communications*
- William Weber, Jr., Treasurer / *Gaston Electrical Co., Inc.*
- Thomas Driscoll, Governor / *E.S. Boulos, Inc.*
- Ronald Koning, Jr., Director / *State Electric Corp.*
- Joseph McCluskey, Jr., Director / *E.G. Sawyer Co. Inc.*
- Michael McDonald, Director / *McDonald Electrical Corp.*
- David W. Noon, Director / *J. & M. Brown Company, Inc.*
- John Penney, Director / *John A. Penney Co., Inc.*
- Gregory Sapochetti, Director / *J. F. White Electrical*
- Stephen Scarponi, Director / *Scarponi Electric*
- John Quinci, Director / *Cruz Electric, Inc.* ■

Accompanying This Issue The Boston Chapter of NECA is pleased to include a recent issue of *Electrical Design Library* with this issue of *Connections – Security: Today's Technology Expands Your Options*. Rapidly evolving security system technology is discussed with a focus on digital, IP-based options for access control and monitoring systems and their integration with other building systems. Considerations for the planning phase are presented, as well as the importance of working with an experienced contractor to ensure successful operation. ■



CONNECTIONS

CONNECTIONS is a quarterly publication of the Boston Chapter of the National Electrical Contractors Association / Electrical Contractors Association of Greater Boston, Inc., 106 River Street, West Newton, MA 02465. Phone 617-969-2521.

Mission: CONNECTIONS is designed to provide information relating to current happenings in the electrical construction industry in Eastern Massachusetts, Maine, and New Hampshire and to report activities of the Boston Chapter of NECA and its members. Your comments are welcome. We can be reached via e-mail at: info@bostonneca.org



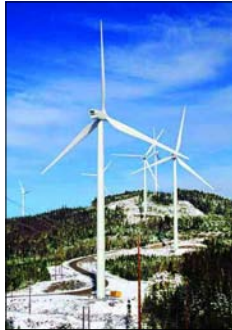
INSTALLATIONS

An inside look at recent projects completed by NECA Greater Boston Chapter members

Larkin Enterprises On Schedule with \$320M - 132MW Kibby Mountain Wind Power Project in Franklin County, ME

**New England's Largest Wind Farm Project; Base of Plant Contractor: Reed & Reed, Inc., Woolwich, ME;
Owner: TransCanada, Alberta, Canada**

Chain of Ponds, ME – Larkin Enterprises, Inc. (LEI) of Lincoln, Maine has completed the electrical power and grounding installations for Phase A's 22 Wind Turbine Generators (WTG) at the Kibby Mountain Wind Power Project, in Kibby and Skinner Townships, Northern Franklin County, Maine. In mid-October, the NECA Maine Division contractor completed the project's first phase, as 22 - 3MW Vestas V90 wind turbines were commissioned and are operational. On October 16, 2009, the ceremonial commissioning of Kibby Mountain Wind Power project's Phase A completion was headed by Maine Governor, John Baldacci. The project is constructed along Kibby Mountain and the Kibby Range in the Boundary Mountains of Maine.



In November, LEI also completed construction of Phase B foundation grounding and lateral raceways for the 22 remaining WTG's. In Spring 2010, LEI will provide electrical installation of the remaining wind towers. The 132MW Kibby Mountain Wind Power Project will be comprised of 44 - 3MW wind turbines when fully constructed, generating an estimated 357 million kilowatt hours of electricity annually – enough to power 50,000 homes each year.

Throughout the project, which commenced in October 2008, LEI has managed a field crew of 26 fore-

men, journeymen, and apprentice electricians from IBEW Local 567, based in Lewiston, Maine. The contractor is working with Base of Plant contractor Reed & Reed, Inc. of Woolwich, Maine, and 3 Phase Line Construction of Farmington, New Hampshire, an IBEW signatory contractor handling all aerial line work.

LEI has met considerable logistical challenges, including access to the remote location in the Western Mountains of Maine and corresponding mobilization challenges. The project schedule accommodates severe winter weather in Western Maine, as LEI is providing electrical installation services from April until November during the two-year project.

The Kibby Mountain project has undergone rigorous review by numerous environmental and engineering agencies to assure minimal environmental impact, receiving approval from the Maine Land Use Regulation Commission. Review was conducted by Maine Department of Inland Fisheries and Wildlife; the Maine Department of Environmental Protection; Maine Historic Preservation Commission; State Soil Scientist; U.S. Army Corps of Engineers; the U.S. Fish and Wildlife Service; and, the FAA.

A Green Project with Far-reaching Benefits

From a "green" perspective, the Kibby Mountain wind farm will eliminate the use of 201,470 tons of

CO2 each year (equivalent to 425,048 barrels of oil consumed). Economically, by October 2009, the project had contributed more than \$75 million to the state of Maine.

Commenting on the project, Milton McBreairty, Director, Renewable Energies for LEI said, "To be involved in a renewable project that will have such a positive economic and environmental impact for the region is important and gratifying for Larkin Enterprises. It is very much part of our company's mission."

The Kibby Mountain project is a NECA-IBEW Code of Excellence project, a program that mandates that all journeymen and apprentice electricians exercise the safest and most productive industry work practices to achieve job site excellence and total customer satisfaction. Larkin Enterprises was the first IBEW signatory electrical contractor in New England to endorse the Code of Excellence program for all projects.

Larkin Enterprises, Inc., an international electrical construction company based in Lincoln, Maine, was co-founded in 1994 by Company President Richard Larkin and his wife Nancy Larkin. The NECA Maine Division member provides instrumentation, control and power installations for major utility/power generation projects throughout the U.S., Europe and Asia. In September 2009, Larkin partnered with Northern Maine Community College to provide paid internships for students in the College's Wind Power Technology program, the first such program in New England. ■

State Electric Corp. and E.S Boulos Company Complete Electrical Construction of National Grid's Wakefield Junction Station 88, Wakefield, MA

**NECA Contractors in Joint Venture; Project Team includes EE/CM: TRC Solutions, Augusta, ME;
Owner: National Grid, Northborough, MA**

Wakefield, MA – State Electric Corp. of Woburn, MA, in a joint venture with E.S. Boulos Company (ESB) of Westbrook, ME, has recently completed electrical construction of National Grid's Wakefield Junction Station 88 project in Wakefield, Massachusetts. The comprehensive and intricate electrical project is valued at \$14M. The facility is located on a 4.2 acre site and the project is an integral substation to National Grid's ongoing updating of the power transmission system north of Boston.



The electrical project scope for the facility includes construction of an enclosed 345kV/115kV Mitsubishi Gas Insulated Substation (GIS) with four (4) 448 MVA auto-transformers. Within its scope of work, State Electric provided installation of a completely redundant control and protection system, housed within a multi-room control building. The GIS equipment is contained

in separate 175' x 64' structures. A total of nine (9) 345kV GIS breakers and eleven (11) 115kV breakers were installed and the substation is designed with provisions for future expansion.

CGIT of Medway, MA manufactured the compressed gas bus that was utilized to tie the existing overhead lines into the station following CGIT's modifications. Nearly sixty-thousand (60,000) control terminations were installed as part of the massive control wiring installation.

The substation project was completed on schedule in September 2009. To accommodate the extremely aggressive project schedule, State Electric provided installations for required outage dates on the 115kV lines prior to summer 2009. Electrical construction began in the late Fall 2008 following engineering and manufacturing phases. Within only three months of the earliest phase of electrical construction, the 115kV GIS

was received, and State was able to provide complete assembly, wiring, gassing, testing services, commissioning and sign-off to the owner on schedule to meet an April 2009 energization date. The 345kV GIS construction had a March '09 start date and the State Electric/ESB team achieved substantial completion by Memorial Day.

State Electric and ESB managed a field crew of 65 electricians and linemen at peak construction. The electrical crew was comprised of 37 inside journeymen and 14 apprentice electricians from IBEW Local 103, supervised by six (6) inside wiremen foremen; additionally, one (1) line foremen, five (5) linemen, and one (1) lineman apprentice provided installations.

The project was adeptly managed by State Electric's Project Manager Richard Schneider and General Foreman Anthony Lavecchia, and ESB Project Manager Dave Kachinski as they met the September tie-in date for the final energization of the substation and site demobilization. ■

INSTALLATIONS

An inside look at recent projects completed by NECA Greater Boston Chapter members

Spectrum Integrated Technologies Provides Fully Integrated Lobby Security Systems at 100 High Street, 225 Franklin Street, One Post Office Square, and 1 Memorial Drive in Cambridge

Property Owner/Manager: Blackstone Properties, Chicago, IL; GC: Shawmut Design and Construction

Boston, MA – Spectrum Integrated Technologies (Spectrum IT), the security and telecom division of J. & M. Brown Co. Inc. of Jamaica Plain, MA, has completed the design and installation of fully integrated visitor entry security systems at four Blackstone Properties' buildings in Boston and Cambridge – 100 High Street, 225 Franklin Street and One Post Office Square in Boston, and 1 Memorial Drive in Cambridge.

The state-of-the-art lobby/entry security systems, designed by Spectrum specifically for high-rise applications, tie each property's security sub-systems, including electronic turnstiles, card access, elevator control, intercom, and digital CCTV into each building's overall security management system. At 225



Electronic turnstiles, 225 Franklin Street

properties allows expected pre-enrolled visitor's to gain entry to elevators and destination points within the building via a touch-screen kiosk in the lobby, which is designed with a bar code scanner and reader. Spectrum's Director of

Franklin Street, One Post Office Square and 100 High Street, Spectrum also installed the latest in high-rise electronic turnstile visitor entry security systems. All security system solutions were designed to correspond to the buildings' "Class A" ratings.

The fully integrated lobby security at each of the

Operations Terry Kilduff and Principal Steve Feldman managed project planning, design, integration and implementation to meet Blackstone Properties unique requirements for entry security at each facility. Security system companies integral to the projects included AMAG, Pelco, Building Engines, and ITS (Interactive Touchscreen Solutions). Spectrum also worked closely with Infrasaft, the national security consultant for Blackstone Properties. Shawmut Design and Construction served as the general contractor for the lobby renovations at all four Blackstone projects.

Spectrum Integrated Technologies also recently provided electronic turnstile security system projects at 101 Arch Street, and 10 St. James Street in Boston. ■



Mass Bay Electrical Corp. Completes NSTAR Station 726 Expansion Project in Carver, MA

NECA Contractor Teams with GCs: Dis-Tran Packaged Substations, LLC, Alexandria, LA and Lawrence-Lynch Corp. of Falmouth, MA; EE: Dis-Tran Packaged Substations, LLC and NSTAR Electric & Gas Corp.

Carver, MA — Mass Bay Electrical Corp. of East Boston, MA has completed electrical installations for the NSTAR Station 726 Expansion project in Carver, MA. A total of \$3,000,000 in electrical work for the multifaceted substation upgrade project was performed by Mass Bay under six separate contracts. Mass Bay's comprehensive project scope included providing all underground conduit installations, above-grade electrical work, 115kV breaker assembly, as well as temporary power for the site. The project entailed expansion of an existing 345/115kV substation at the six-acre site, more than doubling the station's capacity. Expansion details included Mass Bay's installations for two new 345kV bays, one new 115kV bay, and a complete replacement of the control and protection (C&P) scheme. Mass Bay employed construction methods that allowed for the expanded station to be constructed to the fullest extent possible before taking it off-line for commissioning of the new equipment.

In meeting the ambitious project schedule, Mass Bay preassembled most of the larger station components on steel skids while the civil foundation work was taking place. This allowed a parallel path of

construction, as the electrical contractor was able to place pre-assembled equipment on foundations immediately after curing.

Another significant challenge involved the installation of an interim control and protection (C&P) scheme that enabled the station to function on a limited basis while the new scheme was implemented. Equipment installations within this aspect of the project include electronic controls and relays as well as fiber optic communications, housed in an on-site climate-controlled building. The information aids ISO New England in monitoring the overall grid system in the area.

The Carver site borders residential communities, which mandated a weekday business hour construction schedule. At peak construction, Mass Bay's Project Manager James D. Moulison, Jr., Field Operations Manager Daniel D. Sullivan, Foremen Kyle Perry and Fred Clapp of IBEW Local 103, and Foreman Jason Meashaw of IBEW Local 104 supervised a field crew of 26 electricians from IBEW Local 104 in Walpole, Local 103 in Dorchester, and Local 223 in Lakeville. The expanded substation project was completed in 11 months, as scheduled, in May 2009. ■



State Electric Completes \$2.4M Switchgear Upgrade at Harvard's Holyoke Center Cambridge, MA

GC: Bond Brothers, Everett, MA; EE: WSP Flack + Kurtz, Boston, MA; Owner: Harvard University Health Services, Cambridge, MA

Cambridge, MA – State Electric Corp. of Wakefield, MA has completed the comprehensive electrical upgrade/switchgear replacement project at Harvard University Health Services (HUHS) Holyoke Center / Harvard Square in Cambridge. The electrical project, valued at \$2.4M, entailed State Electric's replacement of 15kV and 480V switchgear in two separate 10-story towers – the Mount Auburn Street tower and Mass Ave. tower. Under separate contract, prior to construction, State Electric had extensive involvement in pre-construction planning, providing services including risk analysis and feasibility studies.

The key aspect of the project was maintaining electrical service to the fully operational health care facility without disruption throughout project construction. This necessitated ongoing close coordination between State Electric, the general contractor Bond Brothers, Harvard University Health Services, electrical engineering firm WSP Flack + Kurtz, and the City of Cambridge. The electrical upgrade project required the coordination of dozens of planned shutdowns and complicated cutovers as all precautions were taken to prevent power outages. ■

SHOPTALK

An interview conducted with electrical industry professionals on issues impacting the construction industry.

Trends in Security Systems in the Digital Age

In a recent interview, Richard Penney, President of Viscom Systems, Inc. in Watertown, MA and Steven Feldman, Director of Spectrum Integrated Technologies, the security division of J. & M. Brown Co. in Jamaica Plain, MA, discuss trends in commercial building security and provide recommendations for building owners and managers.

Q What is your recommendation for commercial building owners/managers in terms of evaluating their security system needs?

ARP Seek qualified Security Professionals for physical or operational review, which should be performed by a Security Systems Integrator or CPP certified Security Consultant.

SF Determine which are your areas of concern. Work with your integrator to determine the most effective course of action. It does pay to start with the best security management system or access control "head end" that you can fit into your budget, as all systems integrate with it.

Q To ensure its functionality, how often should a commercial building's security system undergo routine maintenance?

ARP Depending on the size of the system quarterly, semi annually or at the very least annually. The system also should be exercised regularly by operations so that any system issues are noted between maintenance cycles and can be addressed.

SF This is dependent upon which subsystems are employed. Video systems, specifically, cameras should be tended to every quarter or half year. That would include, lens cleaning and refocus, and evaluation of change of scene.

Computer based systems, access systems or the security management system (PSIM), require annual inspections at a minimum. Computer based systems require purging files and software updates. Annual or twice-yearly meetings with your integrator are important to keep up with emerging technology and to lay out security plans for upcoming quarters.

Q Why is the integration of the security management system with other building systems important?

ARP Integrated systems provide a comprehensive technology solution to enable a customer to react more efficiently to energy, life safety and security events. During an event, without systems integrated, one would have to interact with several sub-systems at once, which in many cases is time critical for operations.

Systems integration minimizes operational requirements associated with systems monitoring and in many cases provides automation of processes, historical data and real time response instructions to operations personnel.

SF Properly laid out, integrated security infrastructure has a quicker return on investment. The integration of access control, with elevators, life safety, and visitor entry provides valuable information to the property managers. Having systems integrated provides for multiple layers of security with increasing specificity of control and information. However, these integrations should not be implemented lightly. They require a high degree of electronic communications, with specific knowledge of protocol conversion and adherence to the codes of the subsystems. Properly executed, these sophisticated systems are simpler to manage and employ.

Q In 2010, what do you project will be the trend in terms of commercial building owners updating their building's security?

ARP As legacy systems reach the end of their product life, Web and IP based access control, intrusion and video systems will predominantly emerge as the current technology solution. Megapixel and High definition video solutions which are networked based for video data transmission and NVR (Network Video Recorders) and web based VMS (Video Management Systems) applications will become the industry standard for high quality video systems. This open architecture platform will provide the end user with a highly versatile system which takes advantage of the existing corporate network topology.

SF We've seen tremendous growth in electronic turnstiles for class A buildings. Perhaps the largest expansion though for all applicable video installations, particularly where high speed LAN networks exist, is TCP/IP digital video. Video over TCP/IP allows for the recording over network video recorders (NVRs) and while heavily protected via encryption and passwords and privileges, can be viewed from anywhere in the world, by those who need to see the activity. This allows for multiple user sites to be controlled from one location. Additionally, new cameras can be added directly over the corporate LAN / WAN.

As excited as we are with web and IP-based video, we are extremely concerned with the ability of access control systems and other alarm infrastructure subsystems to be active over an open LAN and especially WAN's open to the world. When proper-

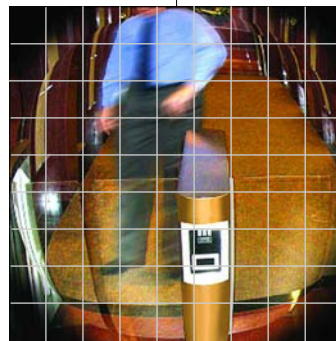
ly constructed, information to unauthorized viewers is limited, should the network be circumvented. Further, even the best of the "browser based" physical security management systems (PSIMs), generally exhibit far fewer options, delay in controlling devices, limited database storage options, questionable safety and security of the information and expanded ability for hackers to enter your system. While IP based systems may be appropriate for small applications, in specific instances, unless extremely high levels of communications security are put in place as well, a hole into the security will be added.

Q How can a building owner assess the competency of a security system provider and what are the keys that they should look for in the provider/installer?

ARP There are a number of metrics that can be used for this evaluation: length of time in business, size of operation, territory of coverage, past projects, financial information, references, available product lines and product certifications. Owners should take a hard look at how the security provider is going about the business of actually performing the work. Are they subcontracting the installation? Is that subcontractor qualified, trained, properly licensed and insured? How much of the project is being performed by their staff and that of the subs?

They should make sure that all the service providers are reputable companies that adhere to industry standards and are in the security business day to day and not project by project. A security integrator that is highly competent and capable typically will have a core staff that is capable of deploying a system which is not totally dependent upon the use of subcontractors.

SF I'd agree with Rick here, but make sure your integrator proves their lineage. This is your security after all. Ask to see copies of the installers factory training certificates. Ask to see their Comm. of Mass. licenses and security "s" license certificates for each person on your project. Make sure your integrator has a mix of electricians and technicians schooled in security installation. Technicians handle the preponderance of the security tasks at a lower cost! Most importantly, check on their security, communications and software backgrounds. ■



For a complete directory of NECA Greater Boston Chapter members, visit www.bostonneca.org