The Official Newsletter of T.E.C. Systems

T.E.C. NEWS QUARTERLY

Volume 5, Issue 2

Summer, 2005

The New York Public Library

In Search of The LEED™ In Energy and Environmental Design

The New York Public Library (NYPL), beginning more than 100 years ago, today is internationally recognized as one of the greatest institutions of its kind. It is the only library that features both world-acclaimed research centers and a large network of neighborhood branch libraries.

Recently, NYPL undertook one of its most important construction projects in its 100 year history -- the construction of a new Bronx borough library center, located in the heart of the borough's busiest commercial district, bringing increases in collections, advanced technology, and specialized services to the vibrant and diverse community that totals nearly a quarter of New York City's population. Designed by the award-winning architectural firm, Richard Dattner & Partners Architects PC, and constructed by F.J. Sciame Co., Inc., the new building is being built on the site of a building formerly owned by Con Edison, will provide 75,000 square-feet of space, and more than double the size of the borough's biggest library. Located in the Fordham section of The Bronx, the Bronx Borough Center will not only offer a larger facility, but one that is also more technologically advanced, allowing the NYPL to offer expanded circulating and reference collections, new services and a unique Latino and Puerto Rican Cultural Center, 100-plus networked computers and a state-of-the-art technology training center, collections of more than 110,000 items, with most in-depth Reference materials publicly available to Bronx residents, and a 150 seat

continued on pg. 4, ***New Bronx Library***

Inside this issue:

T.E.C. SYSTEMS, INC.

SERVICES OVERVIEW

T.E.C. Systems provides building automation design, installation and commissioning solutions that developers, owners, and consulting engineers turn to every day. As a client of T.E.C. Systems, you'll be connected to a network of dedicated and experienced professionals. And, its local office keeps you in touch with the best people and the best practices industry-wide. T.E.C. Systems is also information, ideas and insight that you can use everyday, along with the knowledge that helps you grow and meet your facility needs.

What's New?

Bank Of America Tower At One Bryant Park

T.E.C. Systems to Provide State-Of-The-Art Automation and Environmental Systems For The 'World's Most Environmentally Responsible High-Rise Office Building'

Honeywell Authorized Controls Integrator, T.E.C. Systems, Inc., the leading independent Building Automation and Controls Systems Integrator in the New York Metropolitan Area, recently announced it has been awarded a $6 million-plus contract to provide the systems and technology that will control critical indoor environments at the new $1 billion dollar Bank of America Tower slated for completion in 2008. Renowned construction management firm, Tishman Construction, leads an all star team that includes the Architectural firm of Cook + Fox, Severud Associates (structural engineer), Jaros, Baum & Bolles (Mechanical Engineer), and Steven Winter Associates (Energy-Environmental Consultant). Bank of America, which will occupy approximately half of the 2.1 million square foot structure, is co-developer of the project with the Durst Organization of New York. With an emphasis on sustainability, water efficiency, indoor environmental quality, and energy and atmosphere, the Bank of America Tower will be constructed largely of recycled and recyclable building materials. It is designed to be the most environmentally responsible office building in the world, and the first to strive for the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Platinum designation. The tower will use more than 600,000 sq.-ft. of high-performance insulating glass in floor-to-ceiling windows that permit maximum daylight and double-wall technology to distribute heat. It will also feature a wide range of state-of-the-art environmental and energy technologies, from filtered under floor displacement air ventilation, gray-water systems to reuse rainwater and wastewater, waterless urinals, green roofs, a thermal storage system to produce ice, to an onsite 4.6-megawatt cogeneration plant, providing clean, efficient power source for the building's energy requirements. The project also will restore and reconstruct the historic 50,000-sq.-ft. Henry Miller's Theater, which will require the preservation of the original 1918 façade.

T.E.C. Systems and Honeywell's Industry Leading Excel 5000® Open™ Systems building management platform will manage all temperature and humidity controls for the entire 54 storey, 945 feet high building. The Excel 5000® Open™ Systems is a core offering of Honeywell's comprehensive suite of building automation technology solutions. Employing a distributive architecture, the system provides a powerful platform for the integration of an indiscriminate amount of products (software and hardware) from a varied group of vendors.

KEY INDUSTRY EVENTS

Connected@Home Conference

October 3 - 5, 2005
Produced by the Continental Automated Buildings Association (CABA)
Las Vegas, NV USA
http://www.caba.org/connectedathome

LonWorld™ 2005

October 20 - 21, 2005
Congress Center EuropDisney
Paris, France
Contact Tatiana Kvitka
Echelon Corporation
550 Meridian Ave
San Jose, CA, 95126 USA
408 938 5214
Email: tkvitka@echelon.com
http://www.echelon.com
http://www.lonworldexpo.com

Greenbuild International Conference and Expo

November 9 - 10, 2005
Atlanta, GA USA
Contact the U.S. Green Building Council at 202 828 7422, info@greenbuildexpo.org or www.greenbuildexpo.org

Air-Conditioning and Refrigeration Institute Annual Meeting (ARI)

November 12 - 15, 2005
Fort Lauderdale, FL USA
Contact the Air-Conditioning and Refrigeration Institute at 703 524 8800, ari@ari.org or www.ari.org

LEED™ IN NYC

LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

The United States Green Buildings Council (USGBC) defines green buildings as "buildings that are environmentally responsible, profitable and healthy places to live and work." Effectively, that translates into the designing, constructing and operating of buildings that incorporate energy efficient, water conserving, minimizing of waste, pollution preventing, resource-efficient materials, and indoor environmental quality in all phases of a building's life. In comparison, non-green or traditional building practices often neglect the interrelationships among a building, its components, its surroundings, and its occupants, which unnecessarily depletes our (natural) resources and inundate us with large amounts of waste. The USGBC's Leadership in Energy and Environmental Design Green Building Rating System® (LEED) is the adopted standard, and is summarized as a guideline for combining environmental stewardship and life cycle cost benefits of investing in good building design. LEED Certification distinguishes buildings that meet the highest performance standards through environmentally conscious design, energy efficiency, resource conservation and dedication to indoor air quality.

Nationwide, thousands of residential and commercial buildings, ranging from single-family homes to large corporate headquarters, have been designed and constructed utilizing green building principles. Locally, noteworthy examples include 4 Times Square, 20 River Terrace, Hearst Tower (LEED Gold), Bank of America At One Bryant Park (2008, LEED Platinum), and the Bronx Borough Library Center. Numerous municipalities, including Atlanta, Austin, Boston, Boulder, Chicago, Dallas, Los Angeles, Portland, San Diego, San Francisco, San Jose, and Seattle, have adopted LEED or have otherwise mandated that new city-owned buildings adhere to green building standards. In New York City, various governmental bodies have also embraced green building. The Battery Park City Authority has begun utilizing green building guidelines modeled on LEED for all commercial and residential building construction in Battery Park City. The Department of Design and Construction has also developed High Performance Building Guidelines and has begun applying the guidelines for schools, libraries and other facilities. The New York City Transit Authority has adopted green building guidelines for all new transit facilities, including the Second Avenue Subway. Moreover, the Lower Manhattan Development Corporation and the Port Authority of New York and New Jersey have developed sustainable design guidelines and have designated "environmental planning" as one of five general requirements for the redevelopment of the World Trade Center site and surrounding area. Likewise, many states, such as California, Connecticut, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, and Rhode Island, have begun utilizing LEED for state-owned buildings. The State of New York provides tax credits for buildings that meet defined green building criteria and, under Executive Order 111, state agencies are directed to reduce energy use and carbon dioxide emissions and to utilize green building principles. The New York City Council is currently reviewing a change to the New York City charter as it relates to green building standards for certain capital projects. The Council acknowledges the use of green building criteria will substantially reduce the City's electricity consumption, air pollution and water use, as well as improve occupant health and worker productivity and encourage market transformation. The Council further finds that reducing overall energy demand through green building techniques will reduce the City's dependence on foreign oil and allow new power plants to displace power from less efficient and dirtier existing plants. Conclusively, the Council has established that it is reasonable and necessary to employ green building standards in the construction and renovation of city-owned and city-funded buildings and that these standards be utilized in an orderly and timely fashion. Among the many provisions of the propose legislation is, any capital project involving the installation or replacement of any HVAC system in any building with a budget of $2,000,000 or more for such construction, or involving the installation or replacement of lighting systems in any building at an estimated construction cost for such installation or replacement of $1,000,000 or more, shall be designed and constructed to reduce energy cost by a minimum of 10% as determined by the methodology prescribed in LEED or the New York State energy conversation code, whichever is more stringent.

T.E.C. Systems Incorporated, the region's leading independent building automation and controls integrator, is a USGBC member, employs LEED Accredited Professional Engineers and supports the adoption of LEED standards and sustainable building policies industry-wide. Currently, the company is controls integrator on several significant projects within the city designated for LEED Certification, including the Bank of America Tower at One Bryant Park, Hearst Tower, and the Bronx Library Center. For more information on these projects, and custom automation and controls solutions, please contact: Ronald K. Herrmann, P.E., C.E.M., LEED-AP, Director of Systems Development, at 718-784-7955 or via E-mail at rherrmann@tec-system.com.

TEC SYSTEMS INC.

The New Bronx Library Center

Built To LEED On A Native BACnet Network

continued from cover

Bronx Borough Center Library - 2 Months To Completion

fully-equipped auditorium for public programs and performances.

Environmental Conscious Architecture

Upon completion, the Bronx Borough Center will be the NYPL's most environmentally responsible branch and the first to strive for the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Certification. The LEED Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. The project incorporates innovative technologies to use significantly less energy, conserve water and provide a healthy and productive indoor environment that prioritizes natural light and fresh air.

The Design

With an emphasis on sustainability, water efficiency, indoor environmental quality, and energy, the Bronx Borough Center is being constructed largely of recycled and recyclable building materials. It will feature a wide range of sophisticated environmental measures and technologies; from bicycle storage and changing rooms for library staff, to reflective roofing, water efficient landscaping, a 25% reduction in energy use through effective insulation, sun shading, energy efficient equipment and other measures, 50% diversion of construction waste, materials with high recycled content, local materials, forest stewardship, Council R certified woods in millwork and doors, carbon dioxide monitoring, Low or no offgassing finishes, and lots of daylight through the building's carefully engineered glass curtain wall.

Controls and Energy Management

The Bronx Borough Center features a centralized heating, ventilation and air-conditioning (HVAC) system, utilizing variable-speed-fans, fan-powered variable-air-volume boxes with reheat, and chilled-and hot-water systems employing variable-speed pumping throughout; a hot-water system with finned-tube radiation and terminal units providing hot water where/when required; and, for the staff and office areas, a high-quality variable-air-volume (VAV) system with carbon-dioxide- (CO_2-) controlled ventilation. CO_2 levels are monitored in specific areas with VAV unitary controllers, allowing the AHUs to make instant modifications to control air-flow to maintain specified air quality levels.

For a control system, NYPL chose American Auto-Matrix's (AAM) Native BACnet Automatic Direct Digital Control (DDC) Temperature Controls and BACnet Systems Integrator, T.E.C. Systems Inc., of New York City. "The Native Series is intended to give customers the interoperability they desire and the security of knowing they are not locked to a single vendor." AAM's line of communications-intensive controllers offers the flexibility of multiple communication protocols, including BACnet IP, BACnet Ethernet and BACnet MS/TP, as well as powerful trending, scheduling, alarming and programming capabilities. T.E.C. Systems has been an HVAC automation specialist and a BACnet Systems Integrator since 1981. The company has been responsible for numerous significant building management system (BMS) installations within the City of New York, including the Museum of Modern Art (MoMA), the American Museum of Natural History, 300 Madison Avenue, The Westin Hotel, Terminal One at JFK International Airport, Saint Vincent's Staten Island Hospital, Rockefeller University, and Brooklyn College.

continued on next page

continued from pg. 4, ***Bronx Library***

Working with the Mechanical, Electrical and Plumbing Engineering firm of Robert Derector Associates, and complementary to the NYPL's LEED initiatives, T.E.C. Systems provided a BMS that has been customized to control the temperature, relative humidity, and the quality of the supplied air in the building. The system uses a BACnet interface for communication with the NYPL's central facility management control network which will allow authorized staff and facility engineers responsible for the Bronx Borough Center to access and address a plethora of facility information, including sensor readings and alter setpoint adjustments.

Heat pumps and air-handling units (AHUs) serve the auditorium and the general spaces throughout the building. In order to maintain the air supply at a steady, most efficient rate, the AHU system uses 4 Yaskawa variable speed drives (VFD) and 39 variable-air-volume (VAV) boxes. Each box communicates to one of eleven Native BACnet General Purpose Controllers (NB GPC1 Controller) via an American Auto-Matrix Native BACnet Pro-Software interface, allowing for full control and monitoring of hundreds of box parameters. Two MultiStack, AirStack modular chillers serves the air-conditioning needs of the building. Using BACnet protocol, the BMS integrates with the chillers, providing facility engineers the ability to enable and disable individual units, and control over a minimum flow valve. In terms of heating, the facility features a boiler system of 8 pre-packaged modular units, staged to precisely maintain the building's heating requirements.

Enterprise-Wide Integration

All data, including scheduling and alarming, from the Bronx Borough Center will be fed and managed through the NYPL's central monitoring graphical-user-interface workstations. Data from the Bronx Borough Center will be fed to the user interface host site via a BACnet IP connection via the NYPL's Ethernet network. Library engineers and facility managers will have access to multiple branches through the central site, and have the ability to manage all environmental functions remotely.

The control network installed will allow for several points to be achieved in the Energy & Atmosphere, and Indoor Environmental Quality sections of LEED. The BMS design was successful in obtaining LEED points due to its utilization of a CO_2 monitoring system, user controllability of systems, a permanent thermal comfort monitoring system, and operating systems to optimize energy performance. Moreover, the system shall act as a commissioning tool for the HVAC systems.

T.E.C. CORNER

American Auto-Matrix's Native BACnet® Series Controller Line

American Auto-Matrix (AAM), located in Export, PA, is a leading provider of innovative, break-through technologies to the building automation market. As part of AAM's continued investment in building automation technology, the company recently announced the availability of a new and comprehensive set of integrated, BACnet compliant technologies and services that can help customers better manage and upgrade environmental controls within their facilities: the SBC-GPC family, currently available for shipment. These Public Unitary Protocol (PUP) controllers have been designed to be a fundamental component of managing control networks of any size or type, as installation of open, flexible controls is the most critical way to help protect owners from system incompatibilities. AAM has made notable progress toward its goal of providing customers with a more streamlined and cost-effective facility management experience built around technology and guidance. The company is building on that progress with three technologies (complementing its innovative STATbus™ technology) that reduces complexity and make facility management intelligent, reliable and consistent.

1. SBC-GPC1 – *is the ultimate programmable controller that offers complete stand-alone control as well as full peer-to-peer capabilities with other devices on the same physical PUP network. The flexibility of inputs and outputs, as well as full custom programming capabilities, makes the GPC the perfect choice for a variety of HVAC applications. The GPC1 allows for the use of "industry standard" I/O devices, AAM STATbus™ devices, or both.*

2. SBC-GPC2 – *Configured with 8 universal Inputs, 4 analog outputs, and 5 digital outputs, this controller offers a significant amount of functionality in a smaller package with a lower price. Built-in control functions, such as closedloop control, allow the SBC-GPC2 to be configured for a wide variety of applications. SPL programming capabilities provide the user with the ability to perform custom user defined sequences.*

3. SBC-GPC3 – *This controller serves as the foundation of a complete STATbus based approach allowing the most I/O flexibility in the industry. The GPC3 has all of the software capability of the GPC1 without any of the on-board I/O circuitry. With this controller, I/O capabilities can be established in increments of one I/O point up to the full I/O complement, lowering the overall installed cost.*

The AAM GPC product joins a growing line of BACnet compatible devices that accommodate a wide variety of needs on the part of building automation. For specific questions and detailed applications information, please contact AAM Inside Sales at 724-733-2000 or visit http://justplainsmart.aamatrix.com.

AMERICAN AUTO-MATRIX® SMART BUILDING SOLUTIONS®

In The Spotlight

Delivering A Better Understanding Of 'Green' Technologies And Markets

The greenbuild International Conference & Expo signifies and celebrates the ecological imperative of the occupant, champions architecture of participation on which to build the future, and shines a light on the innovations coming from non-traditional sources in an effort to get them into the mainstream. While the initial impact of these innovations may have seemed small, their ripple effects are now having a huge impact in the larger building/construction arena. What you see, hear and touch at greenbuild 2005, you'll be using in the building products, applications, and services of tomorrow. For three days in Atlanta, thousands of green building industry professionals will come together to learn about the latest advancements in green building design, construction, project financing and building management. T.E.C. Systems Incorporated, the New York Metropolitan areas leading independent building automation and controls integrator, is a U.S. Green Building Council member, employs LEED Accredited Professional Engineers, supports the adoption of LEED standards and sustainable building policies industry-wide, and encourages each of its clients, whether a small, non-profit, emerging business, or a highly diversified corporation or one of dozens in between, to attend greenbuild 2005. **For registration and travel information, please visit http://www.greenbuildexpo.org. To build the future, you have to be there!**

T.E.C. SYSTEMS INC.

T.E.C. Systems Incorporated
Building Automation Contractors
54-08 Vernon Boulevard
Long Island City, New York 11101

Subscribe to T.E.C. News Quarterly. It's free!
Just e-mail info@tec-system.com or go to
www.tec-system.com/whats_new.htm