



Putting “Children First” In New York



The aim of the New York City’s Children First Project is “To create – from pre-school through high school – a public education system second to none” (Mayor Michael R. Bloomberg). This means the creation of over 1,400 top quality schools for all of New York’s 1.1 million children. 1200 existing schools are being renovated and new schools are being built. The preliminary Capital Spending Plan for the project for the next five years for new construction is over four billion dollars.

Reducing the cost of design and construction through the use of standard materials and methods and current technology are basic objectives of the program. In order to be sure of applying standards and current technology in the area of building automation and control, New York City selected LON technology and solicited the services of a Master Systems Integrator to specify and oversee the implementation of the technology in the project. In a rigorous selection procedure, the School Construction Authority (SCA) awarded the contract to LONMARK Member, Control Technologies Inc.

Control Technologies Inc. is providing the design services, construction oversight, submittal review, commissioning and training to SCA personnel and to all

A&E firms that provide design services to the SCA for school construction and renovation. The contract also requires CTI to design and install the user interface and connection services for each new school via the city’s existing WAN to a central location in Queens and, finally, to design and implement the central host station, with alarm management, data archiving, remote monitoring, and other features.

Creating a Durable Competitive Environment

Using a building automation system based on open standards has helped to reduce the costs of the new constructions. Standard designs and operational sequences allow the reuse of code on the project. Specifying packaged, factory installed unitary controls and specifying and verifying the technical details of the interface to the overall building management system using an open, documented communications protocol results in lower jobsite labour costs, fewer mistakes, warranty protection and an overall reduction in costs.

Furthermore, the open LON system ensures a durable competitive environment both during the project and beyond. When properly specified by a Master Systems Integrator and when properly implemented and documented, competitive bidding for system additions, alterations and service can be achieved, greatly enhancing the return on investment made on the system. In the Children First Project, life-cycle cost savings are anticipated due to competitive bidding for system additions; and service on schools can now be bid on a geographic or sub-district basis.

Interoperability and Efficiency

The schools’ sub-systems such as lighting, access control, HVAC etc. are integrated into one, overall network for optimal operation and control. Since LON is based on open standards, it encourages the exchange of information not only between devices on the LON network, but also between the building automation system and higher level IT systems.

By using de facto standards (such as Wonderware), CTI connected the schools to non-real time

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software packages such as maintenance management, time and attendance, master scheduling, business management and utility demand-response programs.

As a result, staff can now plan maintenance work more effectively and respond quicker to faults thanks to effective alarm management. The collection and analysis of energy consumption information from the LON network enables the SCA to plan its long term energy saving strategies. The central subsystem in Queens is being used as a measurement and verification tool for the implemented energy conservation methods, and as a central supervisory controller for district wide demand side management programs.

Keeping the Custodian Happy

A major impediment in the application of DDC controls in New York City schools prior to this project was the diversity of user interfaces supplied with stand-alone systems for school projects, and the system-specific training that was required for custodians in each location. It is common practice for custodians to be assigned to multiple locations, and if assigned to a single location, to be transferred between schools during their careers.

The new design uses a standard user environment – graphics, navigation, alarming and naming conventions are consistent regardless of the device's location. This contributes significantly to reducing training costs, and increasing the use of the system(s). Using standard software drivers that utilize the open LON communications protocol makes it possible to provide supervisory control and data acquisition over control systems manufactured by (currently) seven different suppliers of DDC product lines.

An Award Winning Project

With energy consumption and Green issues at the forefront of everyone's concerns, the SCA now has the systems and tools to implement Local law 86 – LEED Compliance in the City for Public Buildings. To date, four schools have been completed and a further 16 are scheduled for the coming year. Another 75 new schools have been budgeted and are already in the planning or construction stages. Control Technologies Inc. recently won the Networked Controls Leadership Award in the category of Leadership by Building Design Engineers for its work on the Children First project. The award was presented by HPAC Engineering Magazine and sponsored by the HVAC Products Division of Siemens Building Technologies Inc.

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