

Case study

Buffalo Public Schools

Buffalo, New York



District aims at creating equitable academic environments

The Buffalo School District is regarded as a premiere urban school system in New York State. One of the District's beliefs is that all of its schools should be safe, equitable and flexible. Driven by this belief, the District embarked on a \$1.4 billion, district-wide project to modernize its facilities and equipment and create more safe and secure academic environments. The project included a multi-phase performance contract with Johnson Controls that guarantees positive cash flow of \$20 million over 20 years for the District.

Serving 37,000 students in nearly 65 facilities, the Buffalo School District strives to bring exemplary teaching and unparalleled opportunities to its diverse student population. Delivering education equally to these students across all facilities is a primary goal of the modernization plan for Dr. James Williams, Superintendent and Sue Eager, Director of Plant Operations.

Additionally, the District wished to improve its energy efficiency level and student and staff safety while addressing deferred maintenance. While the State supported the modernization plan with a 93.7 percent building aid reimbursement rate, performance contracting was the District's financial solution to achieve the remaining local share of the funding.



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SUPERINTENDENT
BUFFALO PUBLIC SCHOOLS



Johnson Controls Innovation Services, facilitated multiple needs assessment workshops.

Together, the District, its program manager and Johnson Controls developed a plan to renovate the city's aging schools and improve security district-wide. The renovation project resulted in an Outstanding Achievement Award in Public/Private Partnerships for the city from the United States Conference of Mayors. "This is one of just a few projects in the country where nearly every school in an entire district is being renovated. Bringing an urban school district up to basic standards is an enormous task, but because of the positive financial impact of the performance contracting project, we are in a position to do just that," states Dr. Williams.

Creating equity requires a look at the big picture

The District's schools range from being very old to relatively new. A lack of funding had led to deferred maintenance and outdated equipment in some schools, creating a grand inequity in academic environments. "Our challenge in this project was not only to make all the facilities aesthetically pleasing and comfortable but also to make them perform efficiently," says Eager. "Johnson Controls needs assessment was integral to ensuring that we looked at our needs from both an academic instruction perspective as well as the physical plant."

Working with the District's program manager, a team from Johnson Controls, now known as Innovation Services, facilitated multiple needs assessment workshops with architects, teaching and administrative staff, community members and the joint school construction board. Participants identified and prioritized facility-related

needs that would support an ideal learning environment. The structured, interactive process helped the team understand what was important to the various stakeholders and why. This information helped the team create consensus and alignment for the District. "The process not only helped us define what we would like to see, but also helped us determine what our needs actually were," says Eager.

First things first

Using a multi-phased approach, Johnson Controls focused on key instructional and operational needs first. The first phase included lighting retrofits, HVAC equipment and controls upgrades, building envelope improvements, steam traps, insulation, pool covers and installation of a Metasys® building management system at select schools.

Johnson Controls® Technology Contracting™ solution provided a single point of responsibility for installation and integration of Johnson Controls IFC-3030 fire alarm system and a P2000 security management system, IP video surveillance, HID card readers, clocks, bells, public address, auditorium sound systems, temperature controls and a master antenna system for nine schools. Johnson Controls commissioned all the systems and provided training to employees of Buffalo Schools.

Johnson Controls also worked with design engineers to completely renovate one of the District's grade schools and redesign it around achieving Silver certification under the U.S Green Building Council's Leadership in Energy and Environmental Design program. The school serves as a model for the District's future efforts in sustainable design.

A phase two initiative included the expansion of the Metasys system, lighting retrofits, replacement of burners, boilers and steam traps, installation of boiler controllers and new interior storm windows at an additional 13 schools. A third phase extended these same initiatives to an additional nine schools. In all, the Metasys system expansion allows for equipment monitoring and control at more than 50 schools.

“The benefit of this level of control is first and foremost energy savings but it also provides more flexibility in how buildings and equipment can be brought on line to meet academic programming needs, and it ultimately improves comfort within the learning environment,” says Eager. “Having facilities that work hand-in-hand with academics helps us deliver equitable education district-wide. The result is a positive impact on student achievement in all the schools we serve,” adds Dr. Williams.

An emphasis on security

In addition to making facility upgrades at additional schools in phase-three, the District wanted to focus on improving student and staff safety and deterring break-ins at all facilities. Through a district-wide technology and security project, Johnson Controls set out to bring as much visibility of facilities as possible to the District’s administrative and security staff.

The project includes the installation and integration of nearly 4,000 video cameras in schools, district-wide, which will be strategically placed to provide

maximum visibility to major public spaces. A Johnson Controls Digital Vision Network (DVN 5000) system will be used for recording, archiving and retrieval of all activity captured by the cameras. The DVN system will include over 220 recording devices upon completion.

The main offices at each school are equipped with 42” plasma monitors so camera activity can be viewed in real time. The monitors can also be used for visual identification of school visitors before they are allowed to enter a monitored door. A district-wide burglar alarm system is integrated with the DVN 5000 system. If an alarm is triggered, cameras automatically train on the door or window alarm point so the activity can be recorded.

As a large district, Buffalo Public Schools met some resistance to the surveillance system from a number of unions. The District must be sensitive to union agreements that make stipulations regarding privacy, and it needs to be careful not to limit its teachers’ academic freedom. To assist the District, Johnson Controls reviewed all union agreements and is developing a comprehensive policies and procedures manual, which will need the approval of each union upon completion. The manual will clearly define how the system will and will not be used, provide camera locations and the purpose for recording there, and identify which cameras are monitored live. Since many cameras are only monitored live during emergency situations, this document also helps ensure students and staff understand how the system works and do not get a false sense of security.



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DIRECTOR OF PLANT OPERATIONS
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Burgard High School underwent a \$35 million reconstruction involving numerous building improvements and a new addition, which houses virtual enterprise classrooms.



The manual will also explain how and when archiving and data retrieval will be done and the process for providing footage to police and emergency responders if needed. Information on intrusion detection and access control will be provided along with a detailed door policy that outlines who can use specific doors and when. Backpack, winter coat and other indirectly related security policies will also be included in the manual.

"We need to operate efficiently as a district, and as a business partner Johnson Controls has helped us do that. Just as they helped us accomplish our diversity goals of 30 percent of the workforce on this project by hiring women and minority owned suppliers and contractors," states Dr. Williams. "Johnson Controls commitment to us can also be seen in their frequent presence in the system and in their support of various programs, which motivate our students and ultimately help them academically."

Meeting needs beyond equipment

Johnson Controls supports all installed equipment and controls under a service agreement, which includes an onsite building environment specialist. For Eager, the most important element is the comprehensive training provided by Johnson Controls initially and the ongoing resources available through the specialist. "Putting new equipment and technologies in place is only one part of the process, using them properly is another part that is critical to achieving savings. As a district we want to remain self-sufficient in the operation and maintenance of our facilities. Johnson Controls customized training programs have been critical to our success here. And the onsite specialist continues to be a liaison of best practices as our staff transitions between installation and actual operation," states Eager.

"I want Buffalo Public Schools to be a leader in change. Johnson Controls is helping by being an agent of change."

DR. JAMES WILLIAMS
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Dr. James Williams, Superintendent of Buffalo Public Schools.