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High School Renovations Earn High Marks

Contractor's plan cuts time and saves cost

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Working on an historic landmark high school in Joliet, Ill., a design and construction team brought HVAC, electrical, and other systems up to date while respecting the historic architecture. The project also included building two field houses for Joliet high schools, and blending the new buildings with the schools' existing architecture. The successful construction plan cut the project from five years to two while also cutting costs by 7% to 10%.

Renovations to the century-old Joliet Central High School brought the school's HVAC system into the 21st century and added a fieldhouse while preserving the building's architectural look.

The project also added a fieldhouse to Joliet West High School. To match the existing building, the West High fieldhouse used a brick exterior.

Joliet Central High School, which serves about 2,800 students in a century-old, Gothic building that's on the National Register of Historic Places, recently got its HVAC system brought into the 21st century. As part of the \$25-million renovation, the school also received 11 new science labs and new electrical services, lighting and fire alarms. Concurrently, Joliet Township High School District 204 also spent \$20 million to construct two field houses, one at Joliet Central and the other at Joliet West.

Renovations

The infrastructure overhaul to the 400,000-sq-ft Central building began in March 2008, and the construction manager, the Chicago office of Providence, R.I.-based Gilbane Building Co., turned the project over to the owner in September 2009. Wight & Co., Darien, Ill., was the architect both for the renovation and for the fieldhouse projects.



The indoor air quality project took Joliet Central from steam radiator heat and outdated window-mounted air-conditioning units to a digitally controlled forced-air and VAV system and a two-pipe hot water heating system.

The work involved carving into the building's ceilings without taking away from its grandeur. "We had to take extra caution in working with that building," says David Norris, senior project manager, Gilbane. "There are historic murals we had to protect."

The original Joliet Central building began construction in 1898, with additions up until the 1930s. Joliet West was built in the late 1950s. "Indoor air quality was something that we felt was an absolute necessity, not only to maintain equality with west campus, but also to improve the environment," says Rich Pagliaro, assistant superintendent for business and personnel, Joliet Township High School District 204. "For a lot of the rooms, the only real way to get

air movement was to open the windows. We're very pleased with how the project turned out. The community received it warmly."

While the ceilings were opened up for the ductwork, wiring for technological equipment used in modern-day education was also installed. This work also required the team to remove and relocate the sprinkler mains, branches and piping. Most of the intense tasks, such as lifting the eight air-handling units onto the roof and making the accompanying structural modifications, were done in summer, when the staff and students were gone. The project was originally conceived as a five-year endeavor, but Gilbane worked with the district on a phasing plan and on identifying classroom space in the building that could be relocated to mobile classrooms to help the project move along faster. Also, use of the JD Edwards program to generate accurate and timely cost reports kept both Gilbane and the district up-to-date on the project status and enabled management decisions to be made on an

informed basis. According to Gilbane 's Norris, cutting the project's length from five years to two reduced its overall cost by 7% to 10%. To ensure continued operation of the school and safety around the construction site, the team developed detailed site logistics plans, project phasing, security requirements, a quality program and a detailed safety plan. Identification checks, construction partitions, and scheduling deliveries around bus drop-off and pick-up times were part of the plans.



To provide a seamless transition from the old systems to the new ones, Gilbane divided the building in half. The north half systems' transition occurred in summer and fall 2008; the south portion's transition of systems occurred throughout spring and summer 2009. The steam and radiator systems had to remain live so that services could continue to the south portion during the winter of 2008 and spring of 2009. The existing fire alarm system was also kept active for the south half of the building while the north half was on the new system.

Systems that needed to be shut down to be worked on were turned off during the building's non-working hours. Electrical services shut-down was done during summer breaks; major equipment feed tie-in was completed over weekends and district breaks.

Field Houses

From 1993 until a few years ago, both Joliet Central and Joliet West high schools shared one athletic team. The district's subsequent decision to allow each school have its own athletic team drove the need for more gym space. "We had to add a fieldhouse to each school and with the increase in our population, there was a need for more physical education space," Pagliaro says. Design efforts were made to make the field houses blend with the existing structures' architecture. "At Joliet Central, we used stone, and at Joliet West, we used brick," says Kevin Havens, director of design for Wight & Co.. The efforts paid off. According to Hayes, the new field house for Joliet Central matched the design of the Gothic high school so well that some people asked the administration where they'd been storing the stone all these years.