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Education & Government Edition

F L O R I D A C O N S T R U C T I O N R E V I E W

Florida's Most Innovative New Construction Projects

Gateway Exceptional Education School

Location: Orlando

Owner: Orange County Public
Schools, Orlando

Type of Project: Renovations to an
existing school

Prime Consultant/MEP Engineer:
Bobes Associates Consulting
Engineers, Inc., Maitland

Construction Managers:

PSA Constructors, Inc., Orlando

Size: 69,400 square feet

Cost: \$2,922,151 (total, including
preconstruction and other services,
hazardous materials abatement,
and owner-direct purchases)

Construction Time: June 2000 -
December 2001



Photos courtesy of
PSA Constructors, Inc.



CONCEPT TO COMPLETION

The Need: Renovations to an
existing K-12 school to upgrade
mechanical and electrical systems

The Challenge: Working in an
occupied school, and dealing
with both a roof infested with
termites and rain during
the roof installation

First built in 1960, the Gateway Exceptional Education School was greatly in need of some work. The owner, Orange County Public Schools, knew that systems were outdated and renovations were in order.

The project included the upgrading of the electrical and mechanical systems and the rebuilding and re-roofing of approximately 37,000 square feet of the existing facilities. Also included was the demolition of the existing electrical and mechanical systems in the administration and classrooms in the original structure, and upgrading the mechanical to include new air-handling units and upgrading the electrical to include fire alarm, intercom and transformers. In addition, the mortar joints for buildings number two and three were repointed; the exterior walls were pressure-washed, sealed and waterproofed; the ceiling and ceiling grid were replaced; and a new chiller was installed and a new pump was built, said Joseph Mitchell, superintendent on the project for PSA

Constructors, Inc. Staff and students occupied the building during most of the construction.

"Some of the most significant work included removing the new MEP [mechanical, electrical and plumbing] rough-in work, which had already been installed by electrical and mechanical contractors, and the demolition of the wood roof panels and structure over building number one," Mitchell said. "Even though we had drawings for the buildings indicating how the box trusses and wood roof panels were constructed, we had to do destructive testing in various locations on the roof to find out what was really there."

It was found after a temporary roof was installed that 50 percent of the existing wood roof had termite infestation, said Ralph Poole, senior project manager for PSA. After several inspections by architect Bobes Associates, the architect's roofing consultants and the school district, it was decided that the roof over building number one and its structure would be replaced.



However, the problem was that the rough-in of the electrical and mechanical systems was already complete.

"After various discussions, the architect along with its consultants, had to design a metal roof supported by structural steel beams and steel joist and secured with steel straps along the exterior and interior walls of the buildings," Poole said. This design was accomplished in less than 40 days, at which point the contractor had to provide a tentative cost proposal to remove all MEP materials already in place, reconnect all MEP and install a new metal roof on 50 percent of the building.

"During the construction and installation of the structural steel several issues came up that had to be overcome in the field," Poole said. "This was accomplished by onsite agreements by the field representatives. The re-roofing began in July with the demolition of the old roof in 20-foot sections to prevent any damage from the weather. However, on the first day of demolition it rained, causing various other problems. Yet no matter what, we were able to have the roof installed, all MEP reconnected and commissioned

by the start of the school year, August 13, 2001."

With this unexpected development, the project team had to be sure that code requirements were still being met. Mitchell said, "We had to do a lot of work in the field when we were doing structural modifications to existing exterior and interior walls and the floor slab to make sure we were meeting SREF and code requirements...."

The HVAC system was also upgraded. Five new air-handling units and 13 new fan coil units were installed to service the media center, classrooms and administrative staff areas. "We did a gut out in the mechanical equipment rooms and 12 classrooms in the east and west wings of building number one...to allow for these installations," Mitchell said. "The only things retained were the mechanical rooms and the classrooms. The buildings affected by the construction were pretty much stripped out to the outside masonry walls."

The HVAC system was chosen because it would work better with the low floor-to-ceiling heights in the administrative, classroom and corridor areas. "Instead of using a standard duct system in which the ductwork would extend from one central area, a system was used in which each conditioned area has its own mechanical room and each fan coil unit in the classroom has its own ductwork that could be fit into compact areas above the finished ceilings," Mitchell said.

A new MDP and transformer, new power and lighting, and a new intercom and a fire alarm system were installed throughout

the existing buildings. New construction included installing new chiller units and the construction of a new pump room to house the new auxiliary pumps.

"The installation of the new chillers presented an interesting challenge as well," Mitchell said. "First we had to demolish the old chiller units; however, only one of the two units could be taken off line at a time. The new unit had to be installed and brought on line before the remaining old unit could be demolished and taken off line. To do this required more than we had with which to work. I suggested that we flip the two, locating the pump room where the drawings had indicated the chiller to be placed. The adoption of this suggestion enabled us to simultaneously construct the pump room and install the new chillers, and install the pumps and bring all the equipment on line at

the same time. This was especially important because originally we would have only been able to install the chiller unit, then build the pump room and install the pumps."

PSA was involved from the beginning of design and gave the school district pricing estimates throughout the whole process. "That helped put the money where it needed it most — in the electrical and mechanical upgrades and the teacher and staff spaces," Mitchell said. "[The project] has been a success because of the hard work and has provided a safe place for the teachers and staff to work and students to attend school."

Poole agreed. "The coordinated efforts of the architect, Orange County Public Schools and the contractors enabled what looked like a major problem to become a success." ■

— J.P.



**We are proud to be part of the Gateway
Exceptional Education School team**

