

Hopkinsville Middle School

HVAC Replacement

Owner: Christian County Board of Education

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Building Area: 78,000 SF

Construction Cost: \$ 3,700,000

Project Status: Completed Fall 2014

Project Description: This project included complete replacement of existing 78,000 SF school's HVAC system including ductwork, piping, controls and all equipment. All ceilings were replaced and new LED lighting was installed throughout. This project was an energy performance contract for Trane Corp.



Engineering Highlights:

HVAC:

The HVAC system was based on a low temperature supply water and supply air concept that reduced pumping and fan energy costs. This low temperature system also lowered capital first costs allowing smaller piping and ductwork to do the same job as traditional larger duct and piping. Chilled water was produced via a variable load air cooled high efficiency chiller. Hydronic hot water was produced using high efficiency gas boilers. The air system is based on built-up air handlers using energy recovery wheels delivering air to individual room VAV boxes with reheat. All new computer based Web accessible control system was installed that consisted of CO2 control of outside air to maximize energy savings. Energy Management System offers 100% monitoring of all spaces all the time. Office areas were served by new Variable Refrigerant Flow (VRF) HVAC heat pump system that offers energy efficient individual zone control.

Electrical:

Existing lighting was replaced with new LED lighting in all areas of the building. New occupancy lighting controls were installed in all areas to turn off lights automatically when the spaces are vacated. Power systems were modified to accept the new HVAC system.

Plumbing:

The existing potable hot water boiler system was replaced with a high efficiency gas powered condensing boilers with new controls and circulation pumps.