KOHLER&LEWIS ENGINEERING

Mechanical Engineering for the Northeast

Enosburg High School
Enosburg, VT

Black River Design
113,000 square feet

The Enosburg project involved extensive renovations of the existing 53,000 square foot middle school and the 60,000 square foot addition. The challenge was to add a state-of-art mechanical system to an existing building of historical significance, providing comfort, air quality and energy efficiency, while minimizing mechanical costs.

Energy conservation features included: Occupancy sensors in classroom, adding additional foam board insulation (typically 2") to the new construction walls and roof, argon gas and additional tinting to all windows, 87% efficient boilers, variable speed drives to modulate system heating and cooling pumps and air handling units and CO2 sensors to control outside air ventilation for air handling units serving the gym, cafeteria and auditorium.

The energy and operating cost of this project was simulated using the Carrier HAP program and compared to a basecase building designed to current ASHRAE standards (90.1-2001). The simulation indicated that the energy savings measures would have a rapid payback. The school uses 23% less oil and 40% less electricity, and costs 29% less for overall energy costs than the basecase school designed to meet current ASHRAE codes. The average simple payback for all options in the building is 3 years. The energy conservation features reduce peak energy demand by winter and summer by 34 and 38%, respectively.

Heating is provided by four cast iron modular combination oil-fired boilers. The main and spare primary circulators operate with variable speed controls to save energy.

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