



Mechanical Engineering for the Northeast



RIVENDELL INTERSTATE SCHOOL DISTRICT FAIRLEE, VT AND ORFORD, NH

BLACK RIVER DESIGN
138,000 SQUARE FEET

The Rivendell projects includes three schools in the first bi-state K-12 district in the US: the 25,000 sq. ft. Fairlee School, the 22,000 sq. ft. Westshire School, and the 89,000 sq. ft. Orford School. Energy saving features of the project included daylighting, rigid foam insulation panels on the building envelope, and energy recovery ventilation for a healthy indoor environment.

Significant energy savings were realized from the advanced mechanical systems (energy recovery for all of the classroom ventilation air, CO2 controlled ventilation for the gym and auditorium, and an efficient boiler plant).

Heating is provided by cast-iron modular oil fired boilers. The inactive boiler is isolated from the loop to reduce standby losses. The main and spare primary circulators operate with variable speed controls to save energy. Hydronic baseboard radiation is provided in most classrooms.

Packaged enthalpy-type energy recovery units provide ventilation air for the classroom spaces. Enthalpy wheel heat exchangers recover approximately 80% of the sensible and latent energy from the leaving exhaust air to preheat and humidify the incoming air. Economizer operation is provided by slowing down the wheel rotational speed.

