

By the Numbers

177,000 BTU/hr

5,000 square feet

1 Garn 1500 cordwood boiler

1,500-gallon thermal storage

1 cord every 10 days

100 acres of woodlands

\$5,000 fuel savings/year

\$12,000 boiler

\$14,000 heat exchanger and piping

Buxton School
291 South St
Williamstown, MA 01267

Buxton School Classroom and Lab Building

Buxton School is a small private coeducational college preparatory boarding and day school located in rural Williamstown. Students live in small houses, many of which are heated with wood or pellet systems. The campus has more than 100 acres of woodlands, so considerable wood is available from landscaping and forest management activities. Students take part in work programs such as splitting and stacking the wood, and operating the boiler in the evening.

In 2006, Buxton School built a new classroom and science lab building and installed a Garn cordwood boiler and district heating system. Wood is loaded manually in to the boiler, located in the basement of the science building.

During cold conditions, the boiler will consume about one cord of 3-foot wood every ten days. The school saves about \$3,000-\$5,000 on fuel each year by heating with wood. Most of the wood is derived from landscaping and other management operations on the Buxton property. Wood is sawn, split, and stacked at a central woodshed to dry, then moved by loader to the boiler.

When the thermostat calls for heat, a draft fan blows air into the combustion chamber to increase the burning rate of the wood. Heated gases are recirculated to create complete combustion and maximize the extraction of heat. The 1,500-gallon water jacket provides thermal storage to increase efficiency and reduce firings.

The cordwood boiler can be connected to other buildings, with the only limiting factor being the cost of insulated underground piping. A more centrally located boiler would minimize the amount of piping necessary.

