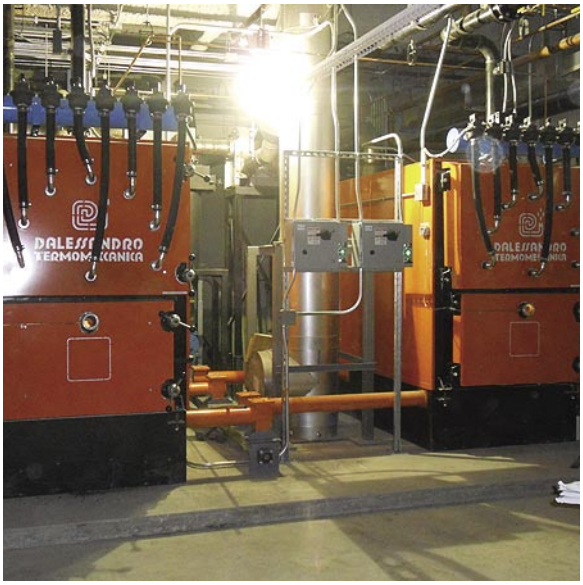
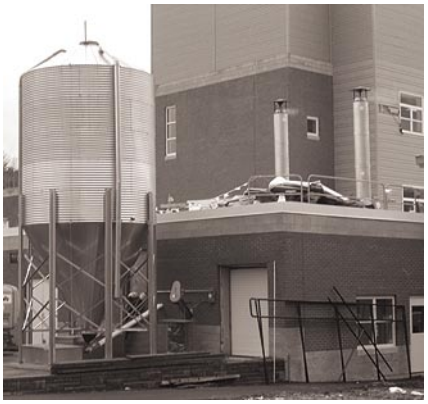
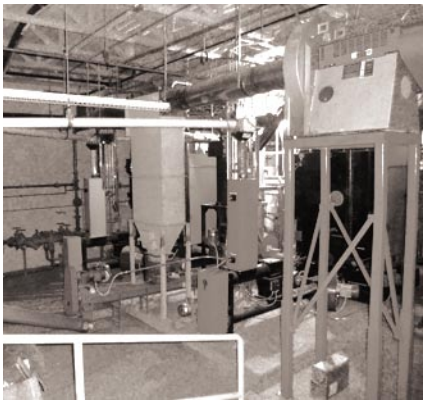
YEATON ASSOCIATES, INC.

Lebanon Middle School

Designed in Accordance with the Northeast Collaborative for High Performance Schools (NECHPS) Guidelines







Project: Lebanon Middle School
Facility Size: 105,000 sq. ft.
Location: Lebanon, New Hampshire

The Facility

Lebanon Middle School is currently under construction and slated for its grand opening in the fall of 2012. Construction was started on the $24.9 million, 105,000 square foot facility in February of 2011. The new middle school will be home to nearly 600 students in grades 5 through 8 and will include 30 classrooms plus science labs, a computer lab, a library and media center, as well as a cafeteria with seating for 200 students. The school sits on approximately 26 acres of land which allows enough room for three new full-sized athletic fields to complement the new building.

Project Scope

Yeaton Associates, Inc. was secured to provide mechanical, plumbing and sustainable design services for the 105,000 square foot building. The focus for the design team was adherence to the Northeast Collaborative for High Performance Schools (NECHPS) guidelines, which provides standards for building energy-efficient, environmentally friendly, healthy schools. As a result, energy efficiency and sustainable initiatives were key factors throughout the design process.

Project Result

Recognizing that energy efficiency, sustainable initiatives and adherence to the NECHPS guidelines were important to the new middle school, Yeaton designed a 3.5 million Btuh biomass boiler plant as the means of heat for the facility. As part of the design process, Yeaton studied all available sustainable options including the use of wood chips, pellets and geothermal energy before making a final decision in conjunction with the owner on pellet-fired biomass technology. Additional sustainable features Yeaton incorporated into the Middle School's design include a rainwater reclamation system that directs rainwater through an infiltration system and into a 20,000 gallon underground holding tank for toilet flushing, as well as the use of a solar generated domestic hot water system which may provide upwards of 40% of the building's domestic hot water needs. Based on the energy efficiency measures and overall design of the School, the new facility is expected to have the same utility costs as the 85 year-old junior high school it is replacing, even though the new Middle School is twice the square footage.

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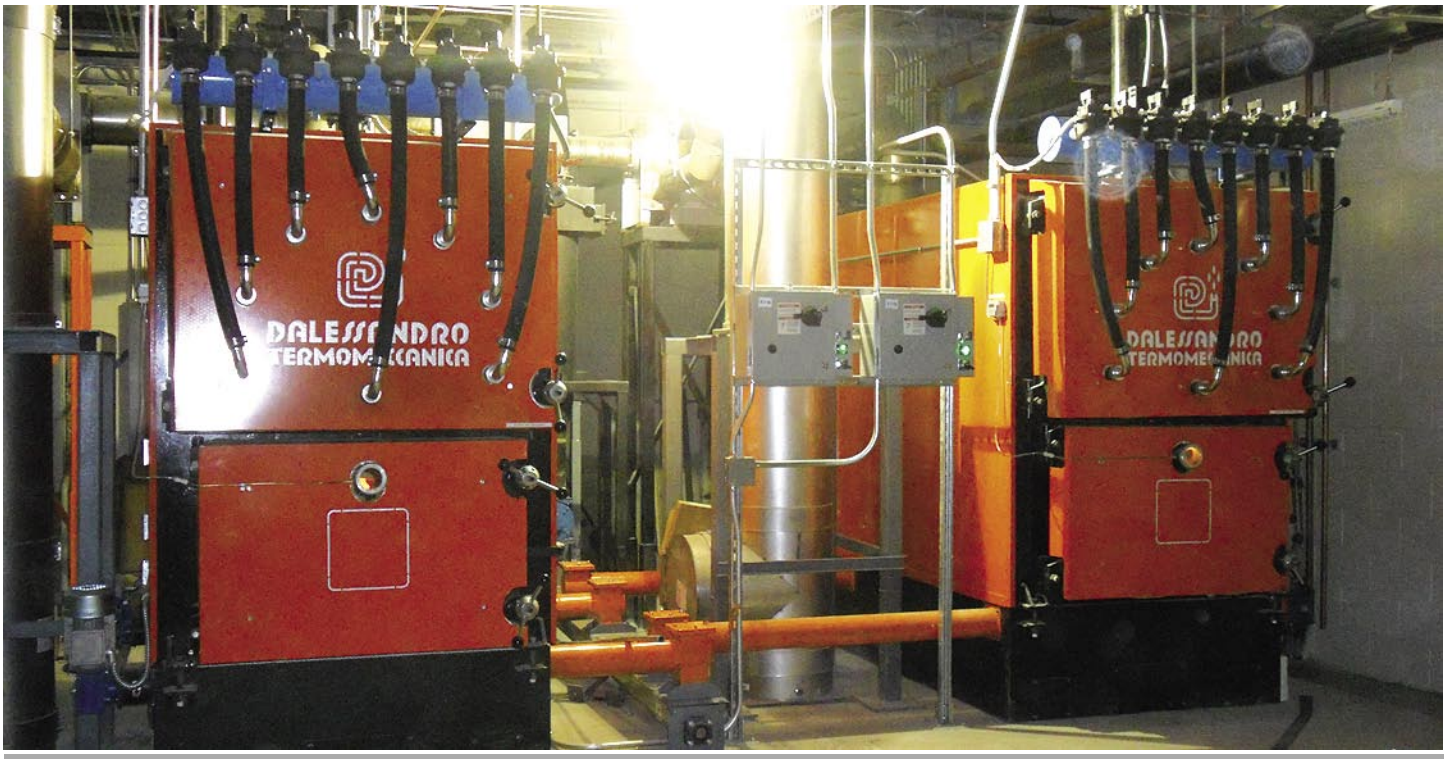

The heating plant consists of two biomass (wood pellet) boilers with no fossil fuel back-up. The boiler plant sizing and associated control logic takes into account shoulder season part load heating requirements and design day heating load requirements to maximize the firing rate and efficiency of the plant.

The boilers were equipped with a Multicyclone dust removal system to prevent the emissions of particles greater than 50 microns. The boiler system emissions were modeled as part of EPA compliance requirements.

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A 36 ton silo located outdoors adjacent to the boiler room stores pellets. The pellets are delivered to each boiler with a dual auger system. During the design process, extensive coordination with the architect and other design team members was required to locate the silo, taking into account proper pellet auger paths, coupled with delivery truck approach and reach.

The dual auger system, located at the bottom of the 36 ton silo, automatically delivers pellets to each of the boilers.

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The Firm

Yeaton Associates, Inc. is a well-respected MEP consulting engineering firm with a commitment to quality and an assurance that the company will deliver well-engineered, efficient and sustainable design services. Founded in 1973, Yeaton Associates, Inc. has evolved its focus to provide Mechanical, Electrical, Plumbing and Sustainable Engineering Design Services as part of its integrated, multi-disciplinary approach to engineering.

For over 35 years, Yeaton Associates, Inc. has provided and continues to provide expert, comprehensive engineering consulting and design services for healthcare, academic, commercial and public facilities. A focus on innovation and emerging technologies has allowed the company to stay at the forefront of high-performance design, while a commitment to quality and service has made Yeaton Associates, Inc. a trusted partner for those in need of engineering design services. The company's extensive client base and diverse project resume has garnered recognition throughout New England, and its commitment to quality has allowed Yeaton Associates, Inc. to earn a reputation for excellence and excel as a well-respected design leader within the industry.

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