

Inside area wood heat burning facilities: The growing energy alternative

By Kerry Miller | Oct 23, 2014



Photo by: Kerry Miller Toby Wells, an employee of Froling Energy, demonstrates how to clean a wood burning/hot water boiler at Charlestown's Whelen Engineering. Once a week, he said, ash needs to be scraped out of the boilers. Froling installed the boilers at the company, which heat three quarters of its 250,000 square-foot campus. The New Hampshire Wood Energy Council hosted a tour Wednesday of places in the area, including Whelen, that operate wood heating systems.



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When explaining how the biomass facility operates at the Sullivan County Complex in Unity, Facilities Director John Cressy compared it to something most of us would be able to envision.

"It's grandma's cook stove with a tea kettle on top," he said with a smile.

The *Eagle Times* tagged along with a tour group Cressy led around the facility Wednesday afternoon, to explain how the almost year-old facility operates. The New Hampshire Wood Energy Council sponsored the tour, which in addition to the county complex biomass facility, included viewing similar wood heating systems at Whelen Engineering in Charlestown and Claremont's Stevens High School.

The wet-wood chip burning county complex facility turns a year old on Dec. 1 and is on track to burn 2,000 tons of chips a year. In the first four months of the facility's operation, the complex, which includes the county nursing home and house of corrections, saw \$100,000 in energy cost savings.

"It's a fully-automated system," Cressy explained. "It heats the nursing home, the jail, the Ahern Building, dryers for laundry, the [nursing home] kitchen."

Inside the facility, the chips come out of a large storage space and into two bays. From there, the chips head to a shaker bin, which literally shakes the chips and sorts out those that are too large to be used. The size-appropriate chips fall into another bin and from there are augered [moved] to a boiler. The boiler then produces steam or hot water [steam in the case of the county complex] to provide heat and electricity to a building[s].

Wet chips, wood pellets or dry chips can be used in this type of heating system. Because the county facility uses wet chips, which have a 40 to 45 percent level of moisture, it is equipped with "three small motorized vents that are designed to keep this room dry," Cressy explained when responding to a question about how the facility keeps its wood chips dry and free of too much moisture.

In contrast the county facility, both dry chips and wood pellets are used in the wood heating system at Charlestown's Whelen Engineering, the second stop on Wednesday's tour.

Another difference between the two is that the boilers for Whelen's system produce hot water rather than steam.

"It's heating three-quarters of this facility with this boiler room," said Toby Wells, an employee of Froling Energy, the company that installed the boilers at Whelen last November.

He added that the amount of heat produced by Whelen's system is pretty substantial, considering it heats three-quarters of the company's 250,000 square-foot campus.

Kelley Wells, fuel and service department manager for the Peterborough, New Hampshire-based Froling, said Whelen's choice to have Froling install European boilers that use dry chips, is innovative.

"Nobody over here really heats with dry chips. It's new," she said, noting that the moisture level of a dry chip is below 30 percent, as opposed to a wet chip, which is around 40 percent.

Also new, is the heating system at Stevens High School in Claremont, the final stop on the tour. Four oil boilers that burned thousands of gallons of oil annually were replaced with wood pellet boilers, as part of a renovation project current going on at the school. The boilers, which have been operational for three weeks now, were also installed by Froling.

"The numbers are staggering now compared to their investment," said Toby Wells of how much the school is saving in energy costs with the new heating system.

According to a press release from the NHWEC, more than 100 institutional and commercial building owners in New Hampshire have switched from heating oil or propane to a wood heating system in the last five years alone.

Rick DeMark, executive director of North Country Resource Conservation and Development, the coordinator of the NHWEC, and Wednesday's tour organizer, Charlie Niebling, both said schools, commercial institutions, and even homeowners, are turning to alternative energy sources, because a wood heating system is cost effective, and also that most people in New Hampshire don't have access to natural gas, which is known a slightly cheaper heating option than oil.

"The state reimburses people for using pellet boilers," said DeMark.

At the facilities on the tour, he added, "The wood [used to make pellets and chips] is local and renewable, so it keeps the money here."

Niebling said the tour group was made up of those who work for a town, a school district or a business that owns and operates a boiler system using wood pellets or wood chips. The day was designed to educate members of the group, for them to exchange ideas and hopefully develop lasting relationships.

"It's a new technology, a new industry. There's a lot to be learned from each other," said Niebling.

In addition to the tour of Sullivan County-based wood heating systems, NHWEC sponsored three other tours this week at similar locations in other areas of the state, including the Rockingham County Complex, Plymouth's Urban Forest Center, Littleton Hospital and the White Mountain School in Bethlehem.

Following the Sullivan County tour, Dick Henry, founding director of HotZero, a provider of hot water and wood burning boiler systems to communities that don't have natural gas, discussed plans to bring such a system to the city of Claremont. An article on this presentation will appear later this week in the *Eagle Times*.