

By the Numbers

753,000 BTU heat output

22,000 sq. ft. area heated

1 Burnham 4NW-209A
pellet boiler

10-ton pellet silo

8-9 tons of pellets
consumed/month

John W. Olver Transit Center

The Franklin Regional Transit Authority (FRTA), established in 1978, serves 41 communities in Franklin, Hampden, Hampshire, and Worcester Counties. The FRTA is funded by federal, state, and local governments.

In 2012, with American Resource and Recovery Act funding of \$12.8 million, the FRTA built a new headquarters and transit building in Greenfield. The John W. Olver Transit Center is a showcase for green building technologies and is a zero-net energy facility.

The Olver Transit Center pellet boiler is an American-built oil boiler retrofitted to combust wood pellets. The boiler heats the 22,000-square foot building with pellets sourced from New England. The boiler and 10-ton pellet silo are in a detached boiler room near the building's solar panel array.

A modern wood heat system is just one of the many advanced technologies installed at the Olver Transit Center. A solar heat induction wall raises the temperature of incoming air by as much as 30 degrees Fahrenheit, decreasing the heating demand on the boiler. A geothermal heat pump system provides air conditioning and dehumidification in the summer, and can pre-heat air in the winter. Compact fluorescent and LED light fixtures are controlled by occupancy and ambient lighting sensors. The building's 405-panel photovoltaic system produces 95kw of electricity.

Franklin Regional Transit
Authority
12 Olive Street
Greenfield, MA 01301



Pellet Boiler



The Building

22,000 sq. ft. (roughly ½ office space, ¼ transit waiting/lobby, and ¼ mechanical and storage). Designed as a net zero energy facility-meaning in a 12-month period we should produce as much electricity as we consume. A local source biomass (wood pellet) boiler is the main heat plant and offsets any fossil fuel consumption.

Photovoltaic System

405 panel system with a maximum output of 95kw in optimum conditions. From March to June (2014) we averaged 10,000-13,000kwh/month.

Pellet Boiler

Gross output of 753,000 BTU/hr. Only uses pellets as fuel. Maintains water temperatures range of 160-170 degrees Fahrenheit. Also used to heat domestic water (electric hot water tank used during the summer). An average of 8 tons of pellet fuel is burned in one month during the heating season-the equivalent to 928 gallons of heating oil.

Solar Heat Induction Wall

Covers the entire south end of the building-minus the windows. Fresh air is pulled through perforations in the exterior wall panel. The air then enters a gap or chamber within the wall structure and is heated by the sun. That heated air is pulled by the air handler into the building to supplement the building's heating demand. The wall can increase the incoming air by 30 degrees Fahrenheit on a sunny day in the winter.

Geothermal System

22 geothermal wells on a closed loop system, (2) 28 ton/336,000 BTU/hr heat pumps. The geothermal system can transfer 12-13 degrees Fahrenheit on average back to the ground in cooling mode. The heat pumps maintain an average water temperature of 47 degrees Fahrenheit in cooling and 92 degrees Fahrenheit in heat mode (used only for pre-heat in the air handling unit when needed). The geothermal heat pump system is the building's sole A/C and dehumidification source.

Chilled Beams

The chilled water from the heat pumps is circulated to ceiling mounted coils. Air passing through those coils (from the air handling unit) produces air for the space.

Lighting

Most of the building's lighting is controlled by ceiling mounted occupancy and ambient light sensors. When the room is unoccupied or it has ample ambient light (sunlight), the light fixtures either dim or shut off completely. All the building's fixtures are compact florescent or LED.