

Summary of Field Test of EarthLinked® Heat Pump by Public Service Company of New Hampshire

Project Year: 2006

Location: Claremont, New Hampshire U.S.A.



The owners of 142 condominium units in Claremont, New Hampshire USA, wanted to reduce one of its largest operating expenses, the electrical heating of the central supply of domestic hot water. An adequate supply of hot water for tenants is essential, so a more efficient means of heating water was the only alternative.

The complex is comprised of 6 buildings, each containing 12 two-bedroom apartments and 12 one-bedroom apartments with two laundry rooms and one utility room per building. Each building was supplied domestic hot water from 5 eighty-gallon 3800 watt stone lined electric water heaters feeding the building via a parallel supply manifold. The pre-existing configuration supplied marginally sufficient hot water in most peak usage periods.

A 6-ton EarthLinked® Commercial Water Heating system was installed in 2006 to pre-heat the water in one of the buildings. The system performance was monitored by the electric utility, Public Service Company of New Hampshire.

The energy savings averaged 67-70% even though the building's common area lighting is on the same electrical circuit as the EarthLinked heat pump. Based on the amount of energy savings and the satisfactory operation of the unit, the owner had additional units installed in each of the five remaining buildings.

The newly installed systems each consist of a 6-ton EarthLinked geothermal heat pump, with 100 foot ground loops installed diagonally, a SWEP brazed plate double walled heat exchanger and an 18 GPM Grundfos circulator pump, a 125 gallon pre-heat tank with associated piping and controls. The EarthLinked system pre-heats water to 115° F and the water heater raises it to 120°F.



DX ground loop being installed at Claremont Arms Apartments. Six boreholes were drilled, with a copper U-loop tube in each. Tubes will be attached to supply and return headers, about 5 ft below grade, and inserted through the wall below the entry hall. White material is grout. [Photo by Mel Hensch.]

Lynn Thomas, a partner in the property owner, DLC Investments, was so impressed with the systems' performance that he had two EarthLinked heating and cooling systems installed in his 5,000 square foot home.

"We have had a very comfortable winter at a cost that is only a fraction of what I paid for fossil fuel in our previous homes," Thomas said.

Published articles about this installation: [Department of Energy Newsletter](#)