

c. 1993 Colonial

Approximately 2,000 square feet – Shirley, MA



THE PROJECT

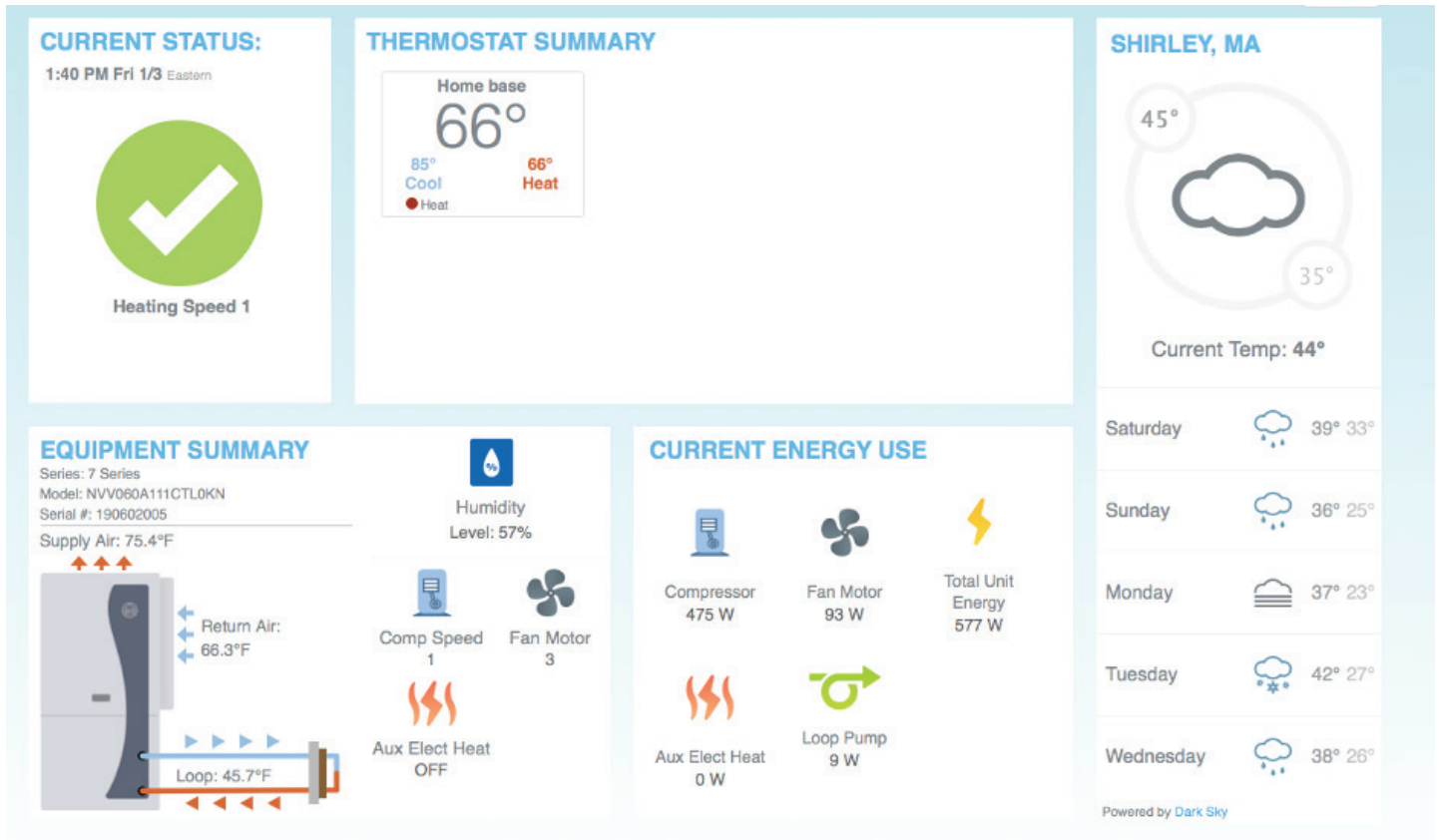
Our project in Shirley, MA is a very typical house. Built almost 20 years ago, the home had an ageing heating and cooling system that used fuel oil. Our Clients were new owners and wanted to eliminate fuel oil use to make a healthier environment for their newborn child. Achieve analyzed the performance of the home and found some deficiencies in the insulation and air sealing. We corrected these problems and designed a ground-source heat pump (GSHP) system to heat and cool the home.

There are a lot of home options to maximize heating and cooling while creating a healthier environment

- Ground-source heat pump
- New efficient WaterFurnace

THE RESULTS

Our ground heat exchanger design consisted of two vertical closed-loop borings in the side yard. Our Client was seeking the highest efficiency equipment available. Together, Achieve and the Homeowner selected the WaterFurnace 7 Series model line. This equipment offers high efficiency by using variable-speed motors on the compressor, fan and loop circulator and allows Achieve to tune the equipment for the specific needs of the home.



Advantages of the WaterFurnace equipment include built-in instrumentation and Internet connectivity. Below is screen shot of the remote monitoring on the afternoon of January 3rd, 2020. In the Current Energy Use section, you can see that the total energy use to heat the house is only 577 Watts. This is much less than other GSHPs because of the variable-speed capabilities of the equipment and because Achieve designs its systems to minimize electrical use by the fan and the loop circulator. In the graphic, you can see that the loop circulator is only using 9 Watts of power. A typical single-speed circulator on a loop that does not use Achieve's efficient design would be approximately 400 Watts. The difference in power consumption adds up over the course of a year.