Massachusetts-based developers Orchard Knoll, LLC are tracking the performance of new eco-friendly home heating and cooling systems installed in Wayside Farm homes, a 66-unit development in East Bridgewater, MA. Developer and engineer Mike McGonigle explained that each colonial-style home features a geothermal heat exchange system, supplied by Coneco Geothermal Systems, that takes advantage of temperatures deep in the Earth to help keep the home warm in the winter and cool in the summer. Water is pumped through a loop down a 300- to 400-foot well and back up to a heat exchanger in the basement. Since the average temperature of the ground at that depth is stable year-round, once the water in the loop reaches the basement, heat is either transferred to the home's air in winter, or removed from it during warmer months.

Many factors can affect system performance, ranging from water flow and pressure to outdoor temperature and the motor runtime of the heat exchanger.

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The developers ultimately chose an Onset HOBO U30/GSM Remote Monitoring System. The system...
consists of a GSM cellular-based data logging unit mounted on the wall in the model home’s basement, and sensors that plug into the unit. The sensors monitor indoor and outdoor temperature and relative humidity, as well as power usage of the geothermal unit, well pump, and the whole home. The HOBO U30 collects data all day, every day, and the information is accessible via the web at Onset’s HOBOlink™ website.

"You can upload data and have it formatted and presented to a website anywhere,” said McGonigle. "I can wake up at four in the morning and know exactly what the heating unit’s doing. It’s very valuable information for engineers to be able to look at the behavior of a system as it’s operating."

McGonigle has been able to learn valuable information about the duty cycles of the heat pump, and has been able to adjust the system. The monitoring system will continue to be valuable in the future as the developers plan to add solar thermal units to the homes’ roofs to further help with home heating and the hot water supply.

**About Onset**

Onset is the world’s leading supplier of data loggers. The company’s HOBO data logger and weather station products are used around the world in a broad range of monitoring applications, from verifying the performance of green buildings and renewable energy systems to agricultural and coastal research. Based on Cape Cod, Massachusetts, Onset has sold more than one million data loggers since the company’s founding in 1981. Visit Onset on the web at http://www.onsetcomp.com.

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