

# Roy McCully - Home Installation

## Direct Expansion



Roy McCully recently installed a 3.5 ton DX-to-Air geothermal heat pump in his 1500 ft. sq. home as part of an extensive renovation program to re-finish the basement area and modernize all systems to the latest standards. Air conditioning was required so the aging oil furnace had to go. A DX style heat pump was chosen to replace the furnace for it's simple backyard installation and cost effectiveness compared to a conventional ground water heat pump when the overall costs of drilling another well and installing a submersible pump were compared.

Four 80 ft. bore holes approximately 15 ft. on center were drilled in a 2 x 2 pattern in the backyard to accept the DX vertical heat exchangers. The heat pump is equipped with a domestic hot water generator as shown in the figure below so that hot water is generated whenever the heat pump is run. Control is via an electronic programmable thermostat in the main hall upstairs.





Photo at left shows the utility room, heat pump, hot water tank and air exchanger.

A geothermal style is very convenient to install and does not require a noisy outdoor condenser as do air-to-air systems. Overall energy efficiency is maximized by direct connection with the earth which is warmer than the outside air in winter and colder than the outside air in summer.

One of the most important secondary features of all NORDIC heat pumps is the built in domestic hot water generator which produces hot water for the same kind of energy saving (3.5 to 1) as is experienced in heating the home. Since the generation of hot water is usually the second largest use of electricity in the average home, the desuperheater can pay for itself in less than a year with energy savings.

## Total Electric Utility Bills for a 1 Year Period

<b>Month</b>	<b>Power Cost</b>
May 95	\$ 175.81
June 95	\$ 68.23 (Est)
July 95	\$ 133.59
Aug 95	\$ 62.47 (Est)
Sept 95	\$ 124.42
Oct 95	\$ 95.56 (Est)
Nov 95	\$ 99.43
Dec 95	\$ 157.50
Jan 96	\$ 172.71
Feb 96	\$ 153.22
March 96	\$ 156.66
April 96	\$ 128.53
<b>Average Monthly Bill</b>	<b>\$ 127.34</b>