

Case Study - Multiple Geothermal Systems on Lake-Plate Heat Exchangers Provide Total Heating A/C and Pool Heat by Jeff Persons Geo Source One Inc.

Photo description:

Multi-zone 7500 square foot home with 3 WaterFurnace geothermal systems. One 4 ton Synergy III for radiant floors and pool heat via plate exchanger and 3 zones of forced air heat, One 4 ton ES split with two zones for second floor, one two ton E series with 3 zones.



Ten ton double stainless plate lake-plate heat exchanger; ready for installation.



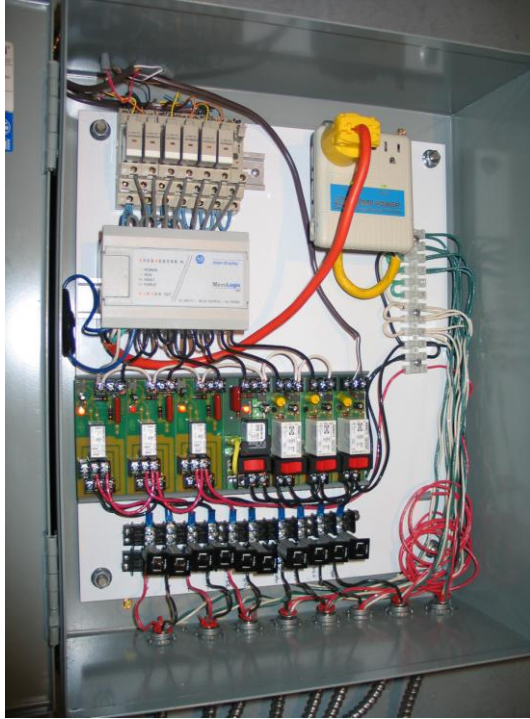
Pond Heat- exchanger in position. (Loop lines will be buried next day when trench is run from the home to the pond.



Master loop manifold is 2 inch copper with Pro-Press fittings. Master pump in lower right functions as the primary pump to circulate between the pond exchanger and the home. Secondary pumps for each of the three geothermal systems draw off the primary loop, circulate to their dedicated geothermal system and inject back into the primary loop down-flow from the intake location.



A ten ton (120,000 BTU) plate exchanger in the center functions as the heat source for a swimming pool. Heat for the pool is provided by a circulation loop to the Synergy system in moderate weather and by rejected heat from the air-conditioning cycle during warm weather. The PLC controller regulates operation between the primary pond loop pump and a smaller pump



dedicated to the interior primary loop and the plate exchanger for the pool. Whenever there is a demand for Air-conditioning and the pool requires heat, the pond loop pump is cycled off and the interior loop circulator turns on to move loop solution warmed by AC through the pool exchanger.

PLC solid state digital controller which manages the operation signals from each geothermal system and cycles the loop pumps for heating, AC, pond circulation and pool heat circulation. Each circuit is individually fused and isolated from the PLC control to allow for manual or automatic operation. All controls are protected by a surge suppressor to prevent interference from line power or from a stand-by generator.

Jeff Persons inspects control connections to the Synergy III system before start-up of the system.



Radiant floor heat for master bath proves to be one feature the owners cannot live without. “Spending time in the tiled bathroom with its warm floors is one amenity provided by the geothermal system that is truly appreciated”.



Loic Lenez inspects radiant heat transfer plates for the heated bathroom floor.

Swimming pool heat is provided as a FREE benefit of the air-conditioning cycle. Heat rejected from the home by the geothermal systems is diverted from the lake-plate heat exchangers in the pond to the brazed plate heat exchanger for the pool water.

Ten ton brazed plate heat exchanger with pool lines connected.





Pool under construction and ready for heating.