

Contracted Scope

Chippewa Nature Center of Midland, Michigan

"Chippewa Nature Center is a private nature center, open to the public year-round. Its mission is to help people enjoy and learn about the environment, as well as to inspire and teach them how to be responsible stewards of the land, water and air."

Provided by CNC



As Mechanical Contractor for the Chippewa Nature Center of Midland, Michigan, Answer Heating & Cooling, Inc. (AHC) provided complete Mechanical Installation and post-construction system optimization.

The scope of work included:

- The *ClimateMaster*-TMW170 water to water 10-ton geothermal heat pump achieves a 12.5 EER rating, exceeding the 11.3 EER required by design. Unit has a COP of 3.52 and a 50 degree EWT. The TMW170 maintains a 500 gallon storage tank at 105 degrees for heating and 45 degrees for cooling.
- Loop field, located outside the north side of the pre-school consists of 16 vertical bores that are 150' deep. Each bore contains 300' of 3/4" black plastic water line, for a total 4800' of pipe.
- 13 Variable frequency drive pumps, installed in the mechanical room and the mezzanine, that provide increased energy savings that result in additional electrical savings.
- Air handler located in the mezzanine distributes air from the energy recovery unit.
- Energy recovery unit located in the mezzanine preheats outside air with air being exhausted from building.
- Underground duct work, is a plastic "Blue" duct work system that is durable, non-corrosive, water- and air-tight with a R-10 insulation value.
- In-floor heating & cooling system located in the concrete consists of 3400' of 5/8" *Wirsbo* tubing. The tubing is stapled to 4" foam insulation and the system is sectioned into 13 zones.
- 5 *CHROMAGEN* all-copper solar collectors are located on the roof that provide hot water via a drain back system filled only with distilled water.
- 48 electric photovoltaic solar panels to generate up to 10kw of energy. During unoccupied times it puts the excess electricity back into the existing electrical grid to be used at a later time.
- Custom built Temperature Control System by *Honeywell*, that is operated by computer featuring full integration with remote access.

Type of construction / New Construction

Physical size of project / 5,753 sq. ft.

Contract value / \$538,585

Calendar length of project / 17 months

Percentage of labor that is self-performed / 36%

Evaluation of Trade Contractors:

AHC evaluated competitive sealed proposals from trade contractors based upon past experiences and the ability to meet project specifications.

Merit Shop / ABC Members Involved in the Project:

Fisher Contracting; G.E. Insulation; Helger Construction; Metal Arts; Rockford Construction; SPACE, Inc.