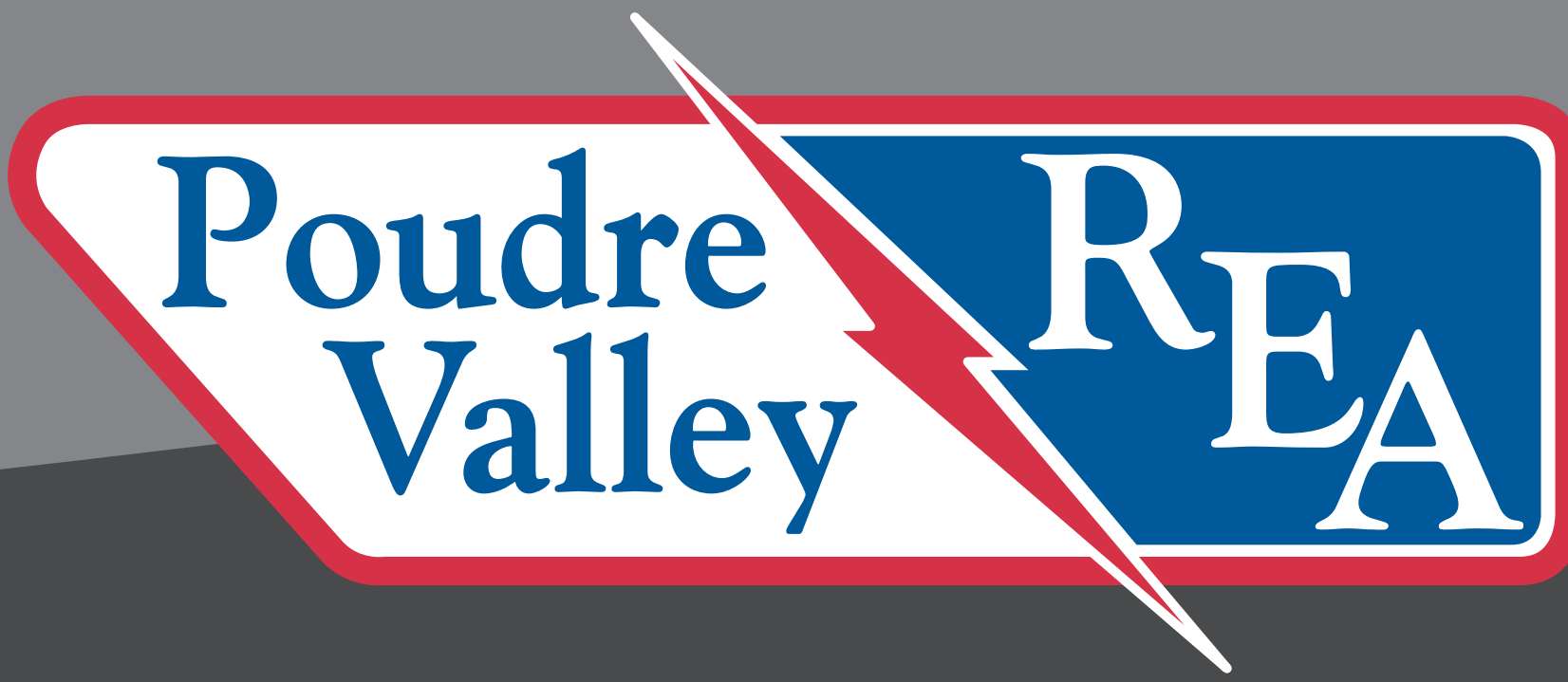


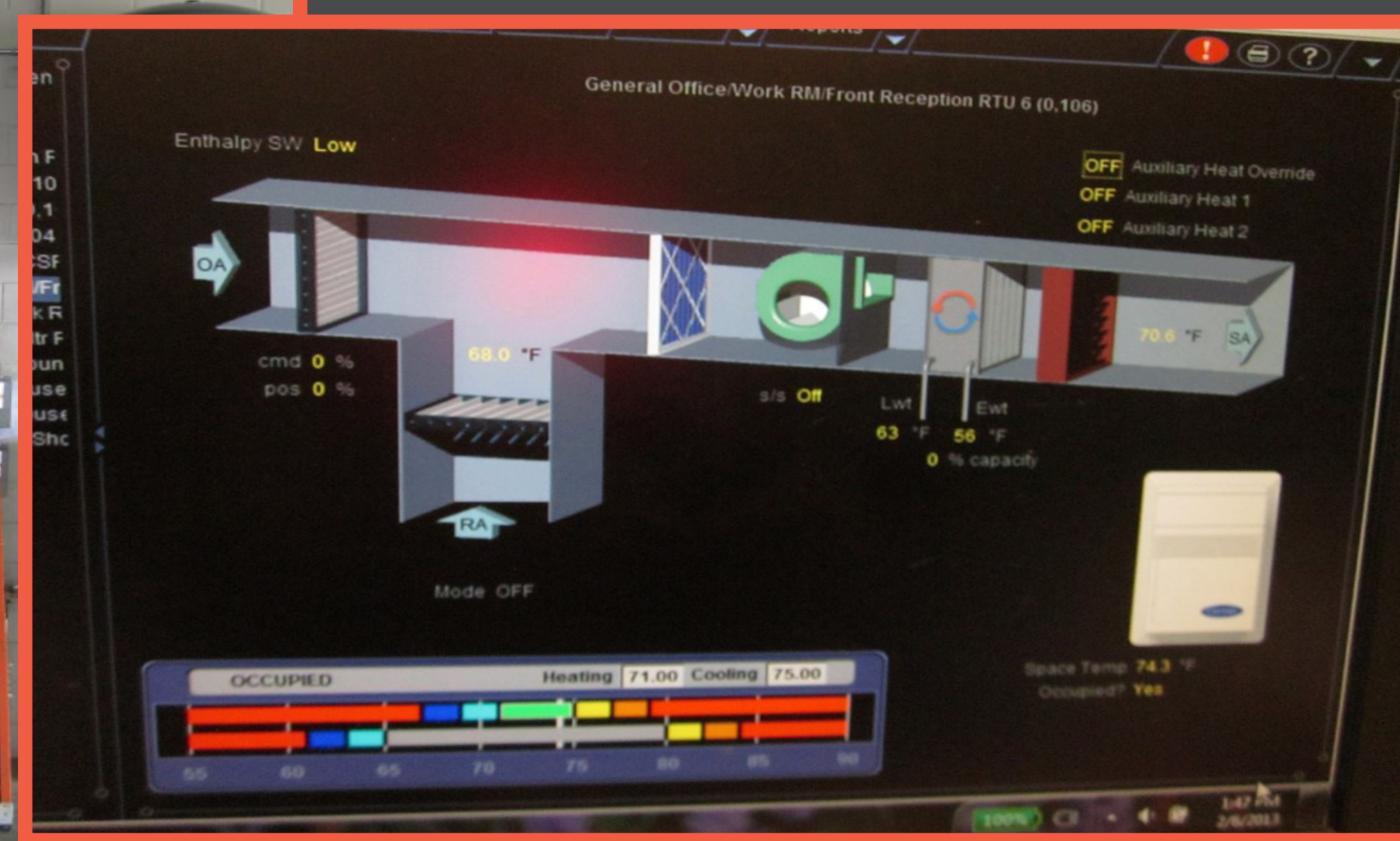
GEO-THERMAL ENERGY



Why Install a Geo-Thermal System?



A supply return manifold.



HVAC control system.

- Geo-Thermal Heat Pumps are really 24/7 solar based systems for all the energy gathered by a Geo-Thermal system comes from the sun!
- Regardless of the location from the surface to a depth of 500 ft. the earth temperature equals the yearly mean surface temperature which is perfect for Geo-Thermal systems.
- Geo-Thermal systems collect or reject heat energy between the structure and the earth below and electric energy is only used to condense the energy for more efficient distribution.
- Geo-Thermal systems have a conversion efficiency of electric energy to thermal energy up to 400% making them the most efficient mechanical way to heat and cool a building. (new designs will be even higher)
- Utility provided green power generation or on site PV solar to power a Geo-Thermal system provides total renewable capability no other system can provide!
- Geo-Thermal systems are so adaptable they heat & cool single story homes to skyscrapers.

The Facts About PVREA's System

- The payback numbers were originally figured at 3 COP, with a 10.5 year payback.
- The actual COP on (01-30-14) was a 4.0 COP, with a 9.5 year payback
- $102.5 \text{ tons} / 4.0 \text{ COP} = 25.625 * 2.5$ from the earth = 64 Tons minimum of "FREE" energy from the earth.

Energy Use	
2011 kWh	2013 kWh
906,400	604,600
32.5% kWh reduction	

Demand	
2011 kW	2013 kW
788	395
50% kW reduction	



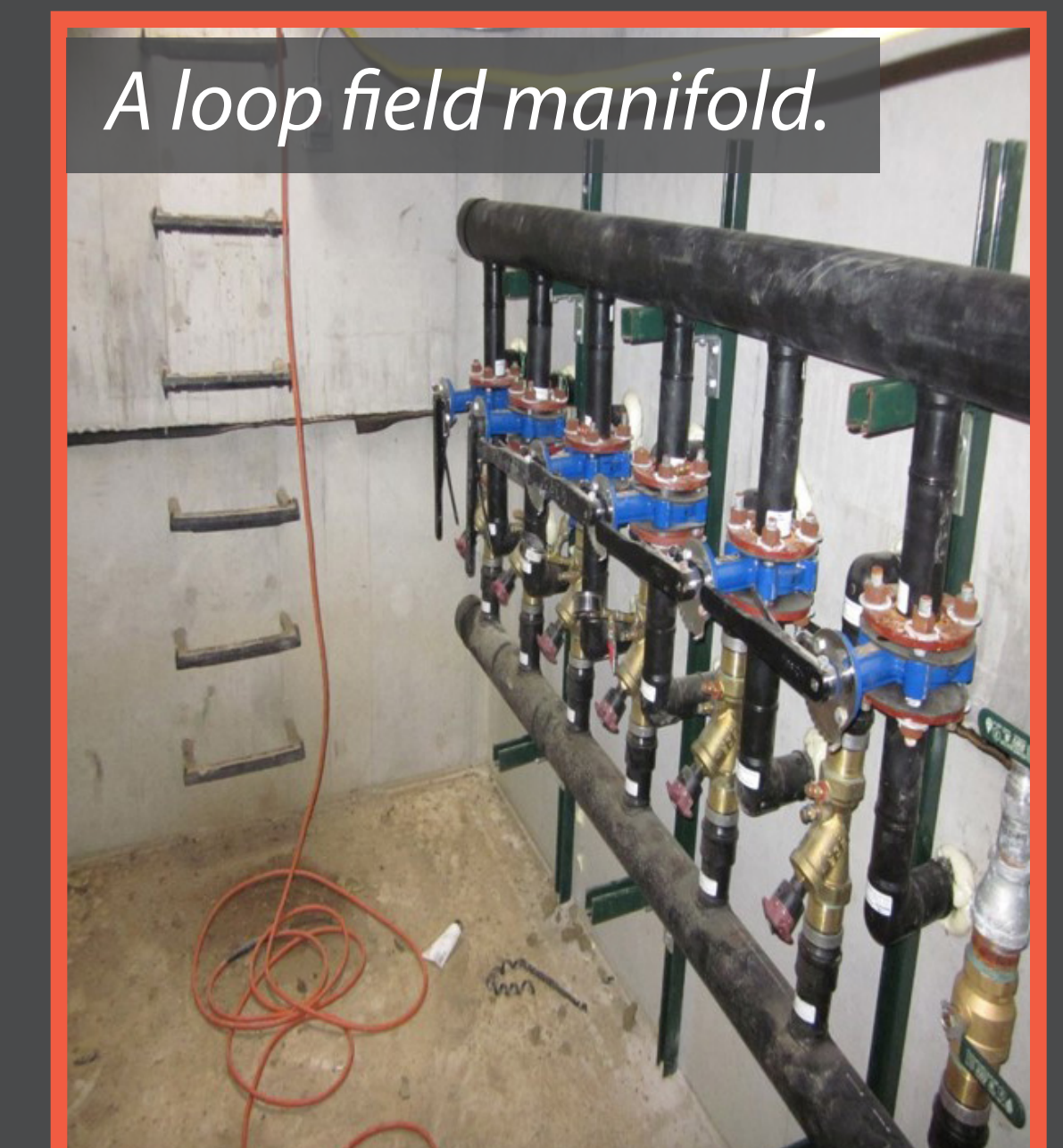
PVREA's geo-thermal installation.



Loop field at PVREA's office.



Rooftop geo-thermal unit.



A loop field manifold.

