

The Fabun Road Cottage

After joining us on our Cottage Home 2011 LEED Home Bus Tour, these future clients were inspired to begin their design/build process and to do so with as many green and LEED features in mind as possible. On the tour, they witnessed first hand the benefits of minimized site impact, indoor air quality, and heating and cooling efficiency, and thus chose to implement these in the building of their own new cottage.

We started with the client's large, very natural site, located just across the street from Lake Michigan, in the quaint area of Glenn, Michigan. Site harmony was an important feature to these new home owners, so a great deal of thought and effort was given to minimize the disturbance to the site, leaving it as natural as possible. Then, systems were set in place for the home owner to utilize their own well, propane and septic systems, making this house nearly off the grid in terms of energy usage. Furthermore, they do not contribute to the infrastructure at all of natural gas, water treatment and sewer plants or the overall distribution of resources.

In terms of energy efficiency, this home utilizes a hybrid heating system with forced air to make the home as efficient as possible. The thermostat chooses the best method (most efficient) based on outside air temperature. If the temperature is above 45 degrees, the system will use an air-source heat pump. If it is colder than that it will use the high efficiency gas furnace, which has an ECM (electronic controlled motor) for the fan control, can modulate blower speed to match demand, and runs at 96.7% AFUE (efficiency rating). Moreover, the ECM motor in the furnace is quieter, more efficient, and less expensive to operate than conventional furnace fans.

Awarded Platinum level LEED certification, and as a fantastic example of green building, this home is very likely to be a stop on our next Cottage Home LEED Bus Tour!

LEED™ Facts

LEED for Homes
Certification Awarded: December, 2011

Platinum 85*

Innovation in Design	6/11
Location & Linkages	4/10
Sustainable Sites	16.5/22
Water Efficiency	4/15
Energy & Atmosphere	23.5/38
Materials & Resources	13/16
Indoor Environmental Quality	16/21
Awareness & Education	2/3

*Out of 136 possible points.



Key LEED Features



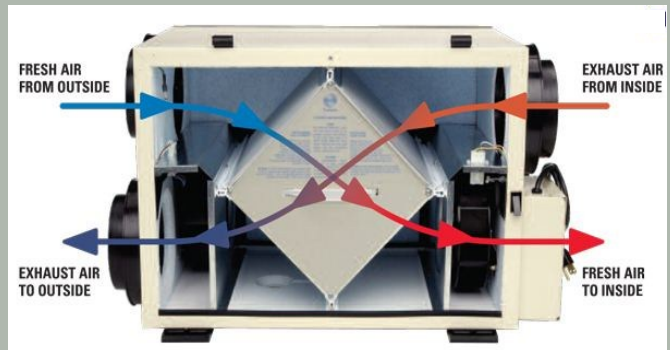
Indoor Environmental Quality
ERV (Energy Recovery Ventilator) bath fan.



Energy & Atmosphere
Exceptional energy performance, utilizing an air source heat pump.

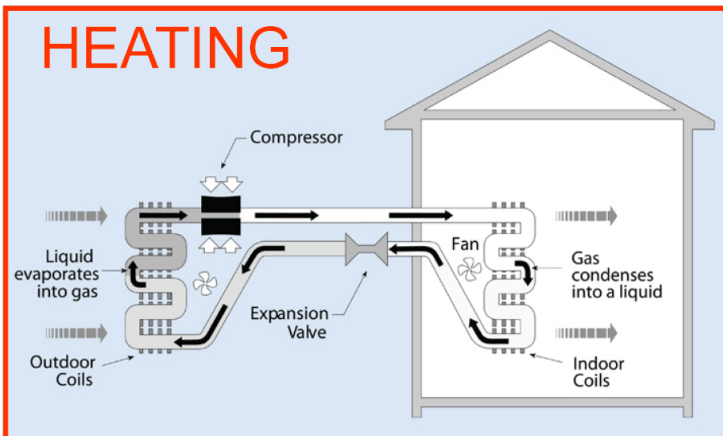
ERV Diagram:

This home also utilizes a bath fan ERV (Energy Recovery Ventilator), which automatically exhausts stale air from the inside of the house, and replaces it with fresh air from the outside.



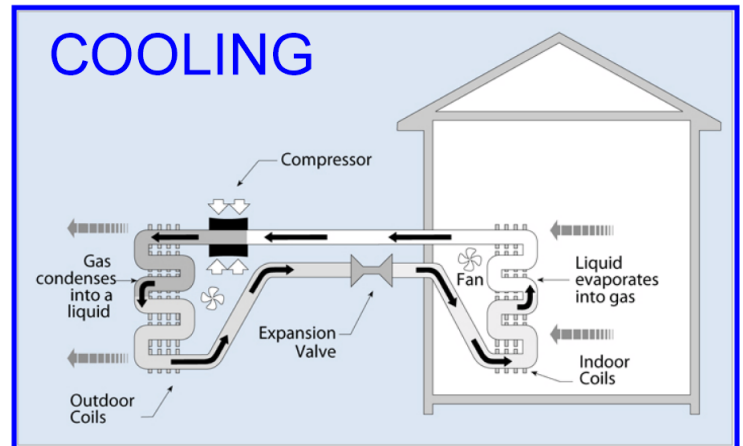
AIR-SOURCE HEAT PUMP

HEATING



In heating mode, an air-source heat pump evaporates a refrigerant in the outdoor coil; as the liquid evaporates it pulls heat from the outside air. After the gas is compressed, it passes into the indoor coil and condenses, releasing heat to the inside of the house. The pressure changes caused by the compressor and the expansion valve allow the gas to evaporate at a low temperature outside and condense at a higher temperature indoors.

COOLING



In cooling mode, an air-source heat pump evaporates a refrigerant in the indoor coil; as the liquid evaporates it pulls heat from the air in the house. After the gas is compressed, it passes into the outdoor coil and condenses, releasing heat to the outside air. The pressure changes caused by the compressor and the expansion valve allow the gas to condense at a high temperature outside and evaporate at a lower temperature indoors.

