

# RENEWABLE ENERGY TOUR, JUNE 4

*Sponsored by PACE (People's Action for Clean Energy)  
in conjunction with the Connecticut Clean Energy Fund  
and The Talcott Mountain Science Center*



Featuring:

## ZAHREN HOME:

- 15 Kilowatt Proven wind turbine on 100' tower
- Solar domestic hot water
- Geothermal well HVAC system
- Water conserving features
- High efficiency lighting, compact fluorescent and LED fixtures
- Energy Star appliances
- Central enclosed fireplace with central flue
- Rainwater recovery system
- Greenhouse with thermal mass
- "Tight House" construction methods, incorporating R-40 wall and R-60 roof insulation
- 95% of demolition waste was recycled or reused with much of original structure preserved.
- Use of sustainable building materials throughout

## TALCOTT MOUNTAIN SCIENCE CENTER SUSTAINABLE FEATURES:

- Solar hot water heat system with 52 thermal panels and 2300 gallons storage
- Passive design solar building with external insulation system
- 9.5 kilowatt and 11.9 kilowatt solar photovoltaic arrays with a total of 122 Sharp PV collectors

# Reduce, Reuse, Recycle!

Much preplanning was done to determine how best to Reduce debris and Reuse much of the original structure. We achieved both results by sending Reusable materials to Restore in Springfield, MA for resale. This included oak flooring, cast iron radiators, all appliances and bathroom fixtures. By the winter of 2009 all radiators had been sold by Restore.

Over 110 tons of waste was Recycled and diverted from landfills!! Construction crews used six different containers to separate waste. (The only non-recycled materials were drywall and plaster.

Much of the lumber removed from the house was reused during construction to brace walls, form foundation walls and build various scaffolds. The entire chimney was saved and two original fireplaces were custom designed to create a see-through fireplace serving two rooms. Combustion air is supplied from the outside and tight doors to the interior prevent loss of heat into the house. Reclaimed beams from the original living room are now a fireplace mantel.



## **Trash the Trash Truck**

NO trash pick-up is required, saving fuel, waste and materials!!

Two trash compactors – one is for single flow recycling materials and the other for anything necessary. All organics that can be composted go into an indoor composter in the basement. Compost is used for gardening. Small compact bags from compactors are taken to the transfer station monthly by hybrid vehicle.





A wind turbine at 120 feet tall (the first one in the CL&P service area at a private residence) will produce and exceed all electrical needs of the house.



The stone floors of the greenhouse will absorb heat during the day and radiate heat at night.

The many exterior decks are made from recycled plastic.

The roofing made of a highly reflective material lowers the summer cooling needs.



## The Mighty Oaks

Oak trees were reclaimed and saved during excavation for the windmill and driveway. The lumber was cut into slabs by a local sawmill and dried in a homemade kiln and installed as treads for the open tread stairway. The "book matched" grain presents a unique visual effect.





## Blasting the Basalt

Large boulders from the blasting required to form the footprint of the house (both in 1961 and 2009) were selected by size and condition for potential 2-inch thick slabs of basalt. Boulders were transmitted to Berkshire Stone in Winsted, CT where they were cut into slabs and carefully held together with one corner intact. Two of the “benches” are at the front entry way so one can sit and remove shoes. (This is required for a LEED point.) A set of cubicles are supplied for shoes, slippers, etc.

In addition the very heavy slabs of partially cracked basalt were meticulously moved into two areas for flooring...the foyer and the sunroom below the dining area. In both locations the cracked basalt was then placed in a jigsaw-like puzzle in cement or “mud” on top of radiant floor heat pipes fed from the geothermal system. Many pieces of the basalt slabs broke off and were placed within larger sections. Cracks can be seen in the larger slabs of basalt – also known as “trap rock”. This very unconventional flooring material creates a unique mosaic of dark and uneven natural material. The floor is a stunning introduction to what lies within the rest of the house.

