

ECODORM

Students Live the Change They Seek

Students led the move to build a “green dorm” and worked with faculty, staff, and architects to create a building that is livable and attractive and that follows best sustainability practices. Since two main environmental concerns in western North Carolina are water and air quality, the EcoDorm has set the precedent for action in these areas with practices such as recycling rainwater and generating solar power. The EcoDorm represents a bold step in getting new and alternative principles into the world, making it easier for others to follow suit.



A 10,000 gallon salvaged train tanker car holds rainwater from the roof before it is pumped into the dorm, pressurized, and used to flush toilets, as well as to irrigate the garden.



Permaculture produces an aesthetically pleasing, functional landscape. Most of the plantings are edible, and all are wildlife-friendly.



Workers install the hydromatic (radiant hot water) floor heat system. The water is preheated in a solar collector, reducing the energy cost by half.



Behind the dorm, solar panels preheat water to be piped inside for further heating by high-efficiency boilers.



Student-crafted oak cabinetry recovered from old fences is set off well by daylighting, which allows sunlight to reach interior and rear rooms of the building.



In the mechanical room, a computer monitoring station tracks the building's energy usage and savings.

Green Features

There is no air conditioning in the EcoDorm. There are also no mini-refrigerators, toaster ovens, or hair dryers. Residents are encouraged to forego television and synthetic rugs, and to hang their clothes out to dry.

Outside

- Wood siding comes from trees subject to pine-beetle kill in the Warren Wilson forests
- SIPs (structural insulated panels) create a tight, strong building envelope
- Orientation within ten degrees of true south allows the best collection of passive solar energy
- Window awnings include panels made up of photovoltaic cells, with any excess energy pushed upstream
- Window overhangs provide shade in the summer and allow maximum angle of winter sun
- Solar panel array preheats water further heated by high-efficiency (92%) boilers
- Roof is largely made of recycled and 100% recyclable steel
- Salvaged train tanker car collects rainwater from roof for flushing and outside watering
- Permaculture landscaping includes many varieties of herbs, vegetables, fruit trees, berries, and vines

Inside

- Cabinetry and wainscoting crafted by student crew come from old farm fences on campus
- Concrete floors downstairs enhance the thermal mass; tile floor upstairs is recycled material
- Circular pump moves heated water through plastic tubing to create hydromatic floor heat
- Appliances are ENERGY STAR rated
- Computer monitoring station tracks building's energy usage and savings
- Mechanically controlled fresh air is created by heat recovery ventilators and efficient ceiling fans
- Non-toxic materials are used for framing, paints, and sealers
- Composting toilets reduce the load on the local treatment plant and infrastructure and create odorless, safe, organic matter for use in landscaping
- Daylighting enables sun to reach interior and rear rooms; windows are low-e, argon filled, and high-efficiency design