Utah House

Living in Balance with Nature

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Southwest Energy Efficiency Project and Utah Clean Energy Workshop on High Performance Homes

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Project Context - Utah

How would you build a home that addresses these issues?
Mission

The mission of the Utah House is to demonstrate, educate, and empower the public about new ways of constructing homes and landscapes that promote the sustainable use of resources, energy efficiency, water conservation, healthy indoor environments, and universal design.

Our goal is to provide people with the information and inspiration needed to build a more sustainable Utah.

Design Guidelines

The Utah House was designed with the following in mind:

• Respond to the arid desert climate of Utah
• Make efficient use of limited natural resources
• Demonstrate recyclability and renewability
• Minimize energy and water use in construction and operation
• Use non-toxic materials
• Use local materials when possible
• Select materials that are durable and have life cycle benefits
Landscape Guidelines

Water-efficient landscape design and plant selection:
- Hydrozoning
- Native and well-adapted non-native plants
- Mulch to reduce evaporation
- Strategic use of turf
- Pervious paving materials
- Trees for shade and noise barrier
- Area for food production
- Efficient irrigation
- Alternative water sources

Sustainability

DOE defines sustainable buildings as those which (1) minimize waste and use all resources efficiently (energy, water, materials, and land); (2) conserve the natural environment; and (3) create a healthy built environment for existing and future generations.
Sustainability

Recycled & Reclaimed Materials

The Utah House demonstrates practical, affordable, and cutting edge energy efficiency solutions.

• Energy Star rated home
• 60% more energy efficient than a standard house its size.
• Reducing home energy use saves money and natural resources, and it helps keep Utah's air clean.

How did we do it?
Energy Efficiency

Performance framing and increased insulation in roof and walls.

- Walls: R-19
- Roof: R-42

Energy Efficiency

Straw bale and Insulated Concrete Form Construction
Energy Efficiency

Passive Solar Design: working with the sun to heat and cool the home.

- southern exposure
- wide overhangs
- no west windows
- light shelf
- vegetation

Energy Efficiency

Daylighting: whole house illumination with natural light.
Energy Efficiency

Heating & Cooling

Efficient Sealing

Evaporative Cooler

Ground Source system: geothermal

Energy Efficiency

Efficient Lighting, Appliances, & Electronics

Compact Fluorescent Bulbs
Energy Efficiency

Solar Electricity: Grid-tied 1KW photovoltaic system

Water Conservation

Overall 50-70% reduction in water use

Inside the home:
- low-flow faucets and showerheads
- low-flow toilets
- low water appliances
- point-of-use hot water
- efficient plumbing
Water Conservation

In the landscape:
• Water-wise plants
• Sub-surface drip irrigation
• Hydrozones
• Pervious hardscape materials

Rainwater Harvesting System
• 6,500 gallon storage
• used to irrigate and flush toilet
• catch off of roof (metal)
• uses existing gutters & downspouts
Healthy Indoor Air

EPA lists poor indoor air quality as 4th largest environmental threat in the U.S.

• Air within homes and other buildings can be more seriously polluted than the outdoor air in even the largest and most industrialized cities.

• Additional research shows that people spend approximately 90% of their time indoors.

Ways to Improve Indoor Air Quality

Low or no VOC paints and finishes
Carbon monoxide monitor
Adequate ventilation (bathroom, kitchen)
Efficient furnace filter
Non-toxic cleaning
Universal Design

Design for all ages, sizes, and abilities.
- ADA compliant
- Barrier-free: no steps or thresholds
- Lever handles
- Wide doorways
- Smart House system
- Accessible landscape

Outreach & Education

- Guided Tours
- School Programs
- Public Workshops
- Professional Trainings
- Volunteer Programs
- Internships
- Website: [http://theutahhouse.org](http://theutahhouse.org)
- Location: 920 S. 50 W. Kaysville
- Hours: M-F 1-5pm & Sat. 10-2

Questions?