



CUSTOM FOOTHILLS HOME BOISE, IDAHO

50% more energy efficient than a code built home

100% of wood waste diverted from landfill for recycling

Rainwater Harvesting supplies irrigation needs

LEED® Facts

Custom Foothills Home Boise, ID

LEED for Homes
Certification awarded April 24, 2008

Gold 79.5*

Innovation & Design	8/9
Location & Linkages	9/10
Sustainable Sites	17/21
Water Efficiency	7/15
Energy & Atmosphere	14/38
Materials & Resources	13.5/14
Indoor Environmental Quality	9/20
Awareness & Education	2/3

* Out of a possible 130 points

The information provided is based on that stated in the LEED® project certification submittals. USGBC and Chapters do not warrant or represent the accuracy of this information. Each building's actual performance is based on its unique design, construction, operation, and maintenance. Energy efficiency and sustainable results will vary.

LEED FOR HOMES PILOT PROJECT

Custom Boise Foothills Home

Local homeowners find building green can be affordable

PROJECT BACKGROUND

When Mark Hixson was first approached to design and build a custom home for environmentally conscious clients, he broached the subject of integrating green technologies into the project. Concerned about staying within budget, he knew he would need to outline a plan to enhance the sustainability of the home by utilizing cost-effective strategies and then design accordingly. As a veteran design-build contractor, he was aware that the project needed to be approached as a whole before the first line was ever drawn. A series of meetings were held with the clients and Tad Duby of OnPoint LLC, an Energy Star® Home Performance Specialist to discuss strategies.

BLAZING TRAILS

The USGBC was just rolling out a pilot program for residential certification under LEED® and DUBY (a rater for Earth Advantage) encouraged Hixson to consider it for the new home he was designing. A critical part of the project team, DUBY offered his knowledge and expertise throughout the project's timeline. As with any new program, Hixson, like all the pilot builders, were writing the book, so to speak, and considerable time and resources were spent documenting every aspect of the project.

STRATEGIES AND RESULTS

It was decided by the project team and the homeowners to emphasize long term reduction in water usage and to reduce energy consumption by as much as 50% from a conventional home. Toward that end, the following were strategies used:

- Air-lock entry vestibules reduce heat loss (and gain) from outdoor air infiltration.
- Used concrete "urbanite", bound for local landfills, for retaining walls and as masonry veneer.
- Passive convection air-flow in the home reduces the need for mechanical cooling through the use of strategically placed windows and electronic skylights.
- Rainwater, harvested through the roof's gutter system, is directed into two 1,700 gallon underground cisterns, providing irrigation water during drier months.
- Highly efficient drip irrigation system with timer controls activate watering zones in landscape beds.
- Drought-tolerant landscaping and no turf minimizes the demand for water and synthetic chemicals.
- 95% efficient, variable-speed furnace with fresh-air system and MERV 16 filter means very low particulate matter in the home, making it cleaner and healthier for the occupants
- Installation of a 15 SEER air conditioning unit utilizing new blend of R410A Freon.
- Advanced framing techniques reduced the need for lumber and 100% of lumber waste was recycled as was all cardboard, plastic, aluminum and paper. Overall waste diverted from landfill exceeded 50%.
- Low and no VOC primer and paint, Trex® decking, Green Label Plus carpet and pad, FSC certified wood doors, locally processed* concrete, roof material and lumber in wall framing, sheathing, floor joists and trusses. (*Products extracted, processed and manufactured within 500 miles of the project encourage the use of indigenous resources and reduces the environmental impact from transportation.)
- The home meets or exceeds Energy Star® standards in the following areas: Appliances (refrigerator, dishwasher and front-load clothes washer) light fixtures, windows, duct tightness, air infiltration, space heating and cooling.

ABOUT CUSTOM FOOTHILLS HOME

This project is a featured case study in the *Guide to Green Building Rating Systems* by Linda Reeder, AIA (John Wiley & Sons, 2010.)



"Green building has its own inherent architecture reflecting the Earth itself. It is a synthesis of natural elements and good design."

Mark L. Hixson,
Designer/Builder



Designer: Mark L. Hixson
Contractor: Mark L. Hixson, Design-Build
(now Earthcraft Construction, Inc.)
LEED Consultant: OnPoint LLC
Structural Engineer: Tru-Engineering
Project Size: 4,218 sq. ft.
Total Project Cost: \$453,000
Cost Per Square Foot: \$107.39

Photographs Courtesy of: Jen Hopkins

ABOUT CHAPTER

The U.S. Green Building Council Idaho Chapter is a diverse group of individuals seeking to promote sustainable design in the State of Idaho.

Our group is made up of architects, engineers, contractors, government officials, product manufacturers, students, and more.



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