



GREEN BUILDING TOURS



May 4, 2012

THE WARELOFT

Home/Studio
Houston, Texas

LEED for HOMES

99% Roof area optimized for PV

100% Drought tolerant plants

90% Site left undisturbed by construction

LEED® Facts

The WARELOFT
Houston, TX

LEED for Homes
Certification awarded February, 2010

Silver 74*

Innovation & Design	2.5 / 9
Location & Linkages	8 / 10
Sustainable Site	17 / 21
Water Efficiency	9 / 15
Energy & Atmosphere	20 / 38
Materials & Resources	5.5 / 14
Indoor Environmental Quality	10 / 20
Awareness & Education	2 / 3

*Out of a possible 130 points



LEED-H SILVER CERTIFIED PROJECT PROFILE

THE WARELOFT – HOUSTON, TEXAS

Houston's Cost Efficient, Delightfully Livable LEED Home/Studio

PROJECT BACKGROUND

The homeowners priorities: create an environmentally sensitive home with living and working spaces that are laid back, wide open, adaptable, and accommodating. Architect: Demonstrate that “green” can be very cost effective and affordable for custom homes, and still be stylish, innovative, evocative, and healthy. The home design had to accommodate several passions: gardening, informal social gatherings, showcase a low carbon environmental footprint ethic, and be a backdrop to display their artistic talents (hence the weaving studio and the large open spaces to display artwork of nearly any size), accommodate their easy going, active lifestyle, and in-corporate the openness of a loft along with the flex-activity capabilities of a warehouse where the “bones” of the homes’ construction are exposed. To have a small environmental footprint, they wanted to minimize air conditioning use yet remain highly comfortable, harvest rainwater for gardening, disturb as little as possible the land upon which the house sits, and have the capability to add a PV solar system to completely power the home (which has been postponed because the house has proved to be so extraordinarily energy efficient). Along with making their own light fixtures, they decided to actually build the cabinets and concrete countertops, to stain the concrete floors, to do the wood floors and tile finish work, and to do all the exterior and interior painting themselves.

SUSTAINABLE SITE STRATEGIES

Location of the house within ¼ mile of public transit. Less than 40% of the lot was disturbed, and 50% of the hardscape is shaded. No soil removed from site, permanent erosion control. For health reasons, no soil poisoning was done. Instead, stainless steel termite barrier were used.

WATER EFFICIENCY STRATEGIES

High efficiency plumbing fixtures used, including dual flush toilets.

ENERGY AND ATMOSPHERE STRATEGIES

Energy Star rating exceeded by 14 points. Central manifold water distribution system installed and with pipe insulation. HVAC heat pump with special controls for humidity reduction installed with non-HCFC refrigerant. 2010 energy bills averaged \$107/month (excl. \$3.50/mo. base charge) without any PV solar assist even though interior volume equals a 5800 sf home with 9 ft ceilings.

MATERIALS AND RESOURCES STRATEGIES

Drastic waste reduction through site stewardship – no site material was landfilled – excavated earth was used for berms to contain rainwater, topsoil was reused, and all trees felled were mulched on site and used to improve water retention. All cardboard packaging, recyclable containers, and scrap steel were recycled. Unused lumber was returned to the supplier. The driveway contains crushed concrete waste diverted from another project. Wall framing & sheathing from local tree species within 500 miles. Interior paints, adhesives, & sealants comply with low VOC requirements. Completely recyclable, durable, unpainted metal roofing used.

INDOOR ENVIRONMENTAL QUALITY STRATEGIES

Healthy home strategies: No fireplace. Detailed analysis of moisture loads and dehumidification system installed. Whole building ventilation system designed to ASHRAE Standard 62.2 uses fresh air intake with Energy Recovery System. Room by room cleanable duct design. MERV 10 min. filters. Ducts were sealed from dust during construction. No air handling equipment or ductwork in garage. Extensive pollutant barrier protection between garage and adjacent spaces.

OTHER ITEMS

Property has become a NWF Certified Wildlife Habitat. All LEED basic landscaping design criteria exceeded. No turf installed. 100% of plants are drought tolerant. Ponds installed. Site irrigation system installed for 8000 gallon of cistern stored harvested rainwater. Homeowner education, and public awareness tours were held, including a website. Roofs sloped at the optimum angle and orientation for future Solar PV Power System.

About Environment Associates (EA) “DESIGN for LIFE” for Sustainability & Resilience

Because our lives depend upon it, Design for Life is the exclusive signature for all Environment Associates’ projects as it enhances passive livability and survivability during normal times and during times of extreme weather, stress, and power outages. Design for Life includes wholistic site planning, passive heat gain reduction strategies, passive design assisted natural ventilation strategies, design strategies to enable homes to go completely off-grid to become net energy (& income) producing if desired, the use of healthy materials, climate appropriate materials for low maintenance durability, and design aesthetics to fulfill the owners desires. Architects for the SSEC’s Houston’s Passive Solar Demonstration home in 1979, they are also proud to be the First Houston entity to complete a Certified LEED Platinum home project anywhere on the Planet.

“GIVEN THAT ENERGY COSTS ARE ONLY GOING TO INCREASE, WE WANTED SOMETHING THAT WAS VERY ENERGY EFFICIENT. WE KNEW VERY LITTLE ABOUT GREEN BUILDING BEFORE WE STARTED. THE MORE WE LEARNED ABOUT IT, THE MORE IT APPEALED TO US.” RICK WILSON & THERESE COUCHER



Owner: Therese Coucher & Rick Wilson
Architect: LaVerne Williams, AIA, LEED AP
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Project Size: 3,148 SF, conditioned floor area
Photography courtesy of LaVerne Williams

\$108/month* total energy bills for 2010 without Solar PV assist. This may rank this home, having the equivalent volume of a 5800 sf home with 9 ft ceilings, at the very top of the best energy performing homes (btu/cf/yr) in Houston. *excluding base charge of \$3.50/mo.

ABOUT LEED-H

The LEED for Homes Green Building Rating System is the national benchmark for the design, construction, and operations of high-performance homes. Visit the U. S. Green Building Council’s Web site at www.usgbc.org to learn more about how you can make LEED work for you. Visit the Texas Gulf Coast Chapter of USGBC to learn more about getting involved locally.

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