GREEN BUILDING TOURS

October 17, 2014

Drummond House

Houston, Texas

LEED for Homes

0	Furnace
28	HERS Rating
85%	Construction Waste Diverted
3200	Watts Solar Array
11,000	Gallon Rainwater Cistern

LEED® Facts

Drummond House
Houston, TX

LEED for Homes
Certification Awarded 2014

Platinum	109*
Innovation & Design	7.5/11
Location & Linkages	9/10
Sustainable Sites	13/22
Water Efficiency	13/15
Energy & Atmosphere	33/38
Materials & Resources	11.5/16
Indoor Environmental Quality	20/21
Awareness & Education	2/3

*Out of a possible 136 points

PROJECT PROFILE

Drummond House
Houston's First Triple Certified Home

PROJECT BACKGROUND

Designed with Texas A&M University, this house features the ***DEB Building System***, based on third party oversight and confirmation of the claims we make about our building system. Recognized as a ***IBHS (Institute for Building and Home Safety)FORTIFIED RATED home***, the house was built with resistances to storm, fire, intrusion, etc. designed in. It requires that at least 7 separate inspections be made by structural engineers to document the design and construction requirements are met. The second certification is the ***DOE (US Department of Energy) ZERO ENERGY READY HOME CERTIFICATION***, requiring the house to be provably much more efficient that the current building standards. With a documented HERS rating of 28, this system easily meets that and the other standards to earn this certification. Finally this house achieved a ***USGBC (United States Green Building Council) LEED for Homes PLATINUM Certification***. This certification considers the building process from the very beginning to well beyond the occupancy of the house.

INNOVATION IN DESIGN (7.5/11)

Integrated project planning, Quality management for durability, and exemplary performance for water efficiency and sustainable sites.

LOCATION & LINKAGES (9/10)

Prerequisite site selection criteria met, this is an infill development with existing infrastructure. Within ½ miles of extensive community resources and transit. Access to open space.

SUSTAINABLE SITES (13/22)

Landscaping includes a variety of native and low water use plants for 70% of site. Zoysia grass, low water use irrigation combines with drip irrigation. The house was designed around a huge 70-year-old live oak tree and the foundation took the root system into account. Shading of the building comes from the live oak noted above and several rapid growth trees. Ivy covers nearly the entire western exposure and a large portion of the eastern face, reducing solar energy gain in the summer. Rainwater harvesting and overflow control help control the storm water. Nontoxic pest control alternatives utilized.

WATER EFFICIENCY (13/15)

Rainwater is harvested from 75% of the roof and supplies the 11,000 gallon cistern with a high-efficiency irrigation system. This water is used for all irrigation and can easily be used as potable water inside the house when combined with a whole house water filter system by Watts. High-efficiency and very high-efficiency plumbing fixtures.

ENERGY & ATMOSPHERE (33/38)

The efficiency of the building and atmosphere is by the shell and carrying the conditioned space the limits of the building yields a very tight envelope. This is managed with Fantech ERVs that turn the air inside the house over 3 times/day. Lennox HVAC (solar PV driven in low speed), media filters, UV treated air, with fresh air introduced upstream of the conditioning units yields extraordinarily clean air with very little dust and humidity that rarely tops 50%. Solar PV, but a limited number of panels, provides some electricity and allows for an easy upgrade when the efficiencies of solar makes it more attractive. All LED ceiling lighting. Minimal east and west facing windows with highly efficient Pella Hurricane windows provide light, safety and efficiency. With a HERS rating of 28 now, and half the energy being used by the washer and dryer, greater efficiencies will be seen in the future with 'plug and play' appliance and system upgrades.

MATERIALS & RESOURCES (11.5/16)

Material efficient framing. Engineered flooring reduces the use of certified hardwoods. Low VOC paint. All painted doors made out of recycled wheat chaff (Masonite Safe and Sound). Cork floors in home gym and game room. High fly ash cement. Metal ('lifetime') Decra roof. Committed recycle program during construction meant that a dumpster was never onsite. Built to last, built strong means less repair and less waste in the future.

INDOOR ENVIRONMENTAL QUALITY (20/21)

UV/Media filter air handlers. Sealed fireplace. Casement windows. The building is so well insulated that a furnace was not required nor installed In fact, the heater has not turned on in this home for 2 consecutive winters. High efficiency Lennox heat pumps if heating becomes necessary. Fantech Energy Recovery Ventilators on times turn the air over 3 times per day. 4 cats and 2 big dogs live in the house, but you would never know if you didn't see them.

AWARENESS & EDUCATION (2/3)

Basic operations training. Enhanced training. Open houses for public education.

"The essentials of our DEB System cost the home buyer a mere 12% more in build cost for: a 72% reduction in energy usage, a 40% reduction in insurance, lower maintenance, repair and replacement costs, immensely improved air and water quality, lower humidity, and a safer, more livable home. Furthermore, the DEB Building System is scalable. The efficiencies are there down to about 2000 sq. ft. house.

Ker Thomson
Homeowner

Owner: Rachel & Ker Thomson
Architect: Rice Residential Designs
Structural Engineer: Interfield Group
MEP Engineer: Mike Quadumi
LEED Rater: Contects
Contractor: Durable Energy Builders
Project Size: 5600 SF
Project Cost: $1.25 M
Completion: 2011
Photography: Ker Thomson

ABOUT LEED

The LEED Green Building Rating System is the national benchmark for the design, construction, and operations of high-performance green buildings. Visit the U.S.Green Building Council's Web site at www.usgbc.org and the TX Gulf Coast Chapter of USGBC at www.usgbc texasgulfcoast.org to learn more about how you can make LEED work for you.