

«GreetingLine»
Sustainable Design
LEED Certified Building
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11/4/08

Extreme Makeover Home Edition: Westwego, Louisiana

Environmentally responsible home design is becoming a necessity both environmentally and economically. With the volatility in the price of fuel, the limited resources available, and subsequent damage to the environment, people are beginning to realize the importance of sustainability for new construction. The development of the Leadership in Energy and Environmental Design (LEED) rating system in the United States, and similar ones abroad, are first steps in creating an informed consumer, and an accountable building industry. From an environmental standpoint, it is imperative that modern standards of building be developed to aid in the reduction of greenhouse gases and to reduce the carbon footprint created by the continued increase in population that our country, and the world, is experiencing. If global warming is disrupting the planet, moving towards LEED certification, or other equally accepted rating systems, has become one viable alternative to the continued pollution of the environment. This push towards environmentally sustainable business and industry is providing opportunity and growth for the US and around the world.

Obtaining LEED certification is a difficult, and often a costly task. The LEED rating system can be applied to New Construction, Existing Buildings: Operations and Maintenance, Commercial Interiors, Core and Shell, Schools, Retail, Healthcare, Homes, and Neighborhood Development.¹ This paper will focus on LEED rating for Homes, and look specifically at the Extreme Makeover: Home Edition Westwego, Louisiana home. Within the rating system for LEED Homes, there are a number of measures that are needed to be complied with in order to achieve one of the four levels of LEED Certification, and are graded on a points system. It ranges from Certified at the lowest level (45-59 points), Silver (60-74 points), Gold (75-89points), and the highest level of Platinum (90-128 points). These categories include: Innovation and Design Process, Location and Linkage, Sustainable Site, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Awareness and Education.

Within these categories, the number of mandatory and optional measures varies, but ultimately they all contribute to the overall rating level the site will receive. LEED Home certification can only be applied to entire projects, and the program cannot certify portions of existing buildings.ⁱⁱ

The Usea family, of Westwego, LA, was given the Platinum level LEED certified home as part of the popular reality television show Extreme Makeover, Home Edition. The show worked with various companies and people to ensure the house was built to the appropriate standards; it was also built to endure the harsh weather conditions that Louisiana has become notorious for. Deltec Homes was chosen as the primary builder, designer, and structural engineers of the project along with The EcoBuilders as a supplemental builder. Deltec Homes was chosen for their proven success in building hurricane resistant homes. Most impressive was their homes outcomes after Hurricane Katrina; all of the 8 total Deltec Homes in Louisiana withstood the ferocious weather conditions. In addition to the structural stability of the homes, Deltec is an environmentally friendly business that prides itself on energy efficiency and sustainable manufacturing.ⁱⁱⁱ Extreme Makeover: Home Edition also worked with VandeMusser Design as LEED consultants and mechanical engineers. VandeMusser Design is a firm that is devoted to providing technical support and certification for green residential buildings.^{iv} Mathew Vande, owner of VandeMusser Design, was contacted in regards to the slightly lower than approved Platinum level certification (88.5 vs. minimum of 90). He explained that the LEED rating system is scored on a sliding scale with respect to square footage and number of bedrooms. Since the Usea's house was larger with many bedrooms, and more square footage, it received the Platinum standards despite the slightly lower rating.^v (See figure 1)

The home had many significant green attributes. Most notable are: an 85% permeable lot, significant because permeable lots are an effective means of controlling storm water runoff and lessen groundwater contamination.^{vi} There is an energy reduction of 37% (according to the Home Energy Rating System (HERS)), cooling capabilities are 45% better than average, and there is a predicted water reduction of 52% in comparison to standard new construction. Three separate water-heating systems were built to decrease the distance the hot water had travel from different points in the house. In

addition, it is also fully equipped with ENERGYSTAR appliances and windows.^{vii} The ENERGYSTAR appliance program, developed and supported by the US Environmental Protection Agency and US Department of Energy, are important to incorporate into green buildings because they are designed for optimal efficiency. In 2007, ENERGYSTAR saved its users \$16 billion in utility charges, and now the Usea family is part of the movement.^{viii} (See Figure 2)

However, due to the nature of the program there were a number of negative environmental impacts that need to be noted. There was an increased amount of electricity used on the project, specifically for the lights, needed for film crews to be able to capture the work in progress. Despite efforts to minimize the amount of energy used, there continued to be an excessive amount of electricity spent. To counter this fluorescent lights were used, increased light switches for better control were added, and a conditioned attic to “prevent light heat loss” was built. Another obstacle that traditional construction does not face was the immense amounts of waste generated by the hundreds of volunteers involved. “The extra waste was offset by Deltec’s prefabrication process, which produces 78% less waste than the construction of a conventional home’s shell.” In addition, the house was completely built in approximately 4.5 days (the website boast 106 hours) and one can assume there are potential structural repercussions due to the rapid process, although none have been publicly documented yet.^{ix}

This project needs to be viewed as an exception to normal protocol when building a LEED certified home. The home complied with a significant number of the required measures and accumulated the points resulting in a very high rating. However, the home was financially backed with funding from a huge network; they had access to the top people and materials in the industry regardless of location, and all the labor, supplies, and materials were donated. An average person who was interested in LEED certification for their home may not be aware of the increased cost and the additional measures that must be taken. It was also incredibly disappointing to see that despite this effort to make the house compliant with LEED certification, the actual broadcasted episode spoke very little about this accomplishment. They did not highlight the environmental significance of the structure, and did not mention LEED certification once. I believe this was an unfortunate omission to the efforts put forth in building this environmentally responsible house.^x

Despite the lack of acknowledgment of LEED certification in the final airing of the show, the project now serves as an example for others to follow. There is a significant amount of information available on the Internet about this project. Extreme Makeover: Home Edition has brought the importance of environmentally responsible homes to prime time television, where approximately 1 billion people globally watched the show, and were told where to find more information about the project. Green design is still an up and coming industry, and the Usea house contributed to an awareness of the LEED rating systems. People who may otherwise not have been privy to such information can now find it more easily. Currently, one of the major problems green building projects are facing is that the cost of environmentally responsible equipment, supplies, and appliances are often sold at a premium due to the current lack of demand for such goods. As more people begin to incorporate these technologies into their designs and buildings, it will in turn lower their cost and make environmental products and procedures commonplace, not the exception. Although we cannot accurately estimate the number of people who decided to incorporate LEED certification as a direct result of the show, we can assume that a general awareness has been heightened.

Overall, I feel that Extreme Makeover: Home Edition contributed positively to the green building and LEED certification movement. I was, however, very disappointed by the lack of attention that was given to the accomplishments of the structure. I was not alone in my feelings. Mathew Vande expressed his frustration in a phone interview that I conducted on November 4th, 2008. This project was the first time his company has worked with Extreme Makeover: Home Edition and they were disappointed that in the editing of the episode the green aspects of the project were removed. He also reported that Trane, the company that donated the HVAC system, had similar feelings and would likely not participate in the show again. Mathew Vande did however say that currently the house is performing significantly better than other Extreme Makeover: Home Edition houses, has not experienced any problems, and was built to the highest standards possible given the time constraints.^{xi} The show could have spent considerably more time and effort explaining LEED certification, and the environmental advantages of a green home, yet that does not minimize the fact that they did build a home that was compliant with the highest standard of LEED certification. From an awareness standpoint, they let the

viewers down by not delving more deeply into the environmental impact of this construction. The amount of resources that were used to transport people and materials created more waste and pollution than normal green construction, and I feel it was their responsibility to explain more clearly about the certification process to counterbalance their footprint and promote sustainability. (See Figure 3) Ultimately, if this leads to people researching the Usea's home, to find out more about the processes, then it did contribute to the ultimate goal of environmental awareness. The beneficiaries of sustainable designs, energy conscious appliances, alternative building materials, and general environmental awareness are not limited to wealthy people, big corporations, or reality TV show stars, but include every living organism on the planet. Green buildings do not completely resolve the problems created by human consumption, but it is a step in the right direction in alleviating the global stresses humans have created.

LEED for Homes Certification awarded April 23, 2008	
Platinum	88.5*
Sustainable Sites	17/22
Location & Linkages	10/10
Water Efficiency	8/15
Energy & Atmosphere	24/38
Materials & Resources	8/16
Indoor Environmental Quality	14/21
Innovation & Design	5.5/11
Awareness & Education	2/3
<i>*Out of a possible 136 points</i>	

Figure 1: LEED point's breakdown^{xii}



Figure 2: Usea Family's completed home.^{xiii}



Figure 3: General distance from Deltec and Vandemusser to Westwego, LA. Approximately 688.43 miles had to be traveled.

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