



April 19, 2011  
10:30 a.m. to 11:30 a.m.  
Conference Room B-2

Council Sustainability Committee Members:

Present were Councilmember/Chairperson Yvonne Knaack (Barrel District), Vice Mayor Steve Frate (Sahuaro District), and Councilmember Norma Alvarez (Ocotillo District)

City Staff Members:

Present were Larry Broyles, Marilyn Clark, Jon Froke, Cathy Gorham, Craig Johnson, Karen Hesser, Stuart Kent, Doug Kukino, Bob Manginell, Deborah Mazoyer, Erik Strunk, Pam Wertz, Charyn Palmisano

I. Approval of the Minutes of March 15, 2011

Chairperson Knaack called for a motion to approve the minutes for the March 15, 2011 meeting. Vice Mayor Frate made a motion to approve, and the motion was seconded by Councilmember Alvarez. The minutes were approved as written.

II. Presentation on Green Habitat Homes | Sustainable Homes

Opening Remarks

Stuart Kent, Executive Director, Public Works introduced Cathy Gorham, Deputy City Manager, Neighborhood and Human Services who delivered the opening remarks.

Ms. Gorham made a few statements on how important Habitat for Humanity is to the Glendale community and what a vital partner they have been to the city for more than a decade. Ms. Gorham then turned the program over to Charyn Palmisano, Revitalization Supervisor, Community Partnerships.

Ms. Palmisano presented some background information about the city's involvement with Habitat for Humanity Central Arizona and provided a brief outline of the presentation before introducing Roger Schwierjohn, President and CEO of Habitat for Humanity Central Arizona who presented this item.

### Building New Homes to LEED Standards

Habitat for Humanity Central Arizona has been serving the valley since 1985. They have been an energy star builder since 1996, and have been a member of the U.S. Green Building Council (USGBC) since 2008. LEED, or Leadership in Energy and Environmental Design, is an internationally-recognized green building certification system developed by the USGBC in March 2000. LEED provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations, and maintenance solutions.

### The Acosta Home - Learning to LEED – Home Green Home

The land for the Acosta home was purchased by the City of Glendale, Community Revitalization Division with federal funds through a Community Development Block Grant. In 2008, the city transferred the property to Habitat for Humanity Central Arizona where a partnership was formed to build the Acosta house. The construction on the home was accomplished with the help of volunteers from the Arizona Foursquare Churches. The Jenny Norton and Bob Ramsey Foundation underwrote a portion of the project's building costs and provided additional funding for the extra expenses related to the cost of building the home to LEED standards.

During this time, Habitat for Humanity also partnered with Glendale's Channel 11 to produce a program called "Home Green Home" which chronicled the construction of the Acosta home from a dirt lot to the first affordable Platinum Level (LEED) Certified Habitat home in the United States.

Glendale 11 won a local Emmy Award in the best environment program/special category for coverage of this documentary. The film was shown at the 2010 Green Building International Conference & Expo and through this effort the "Home Green Home Habitat Fund" was created.

This fund is being used today to finance the Palmaire Court project currently under construction. The project is located between 54<sup>th</sup> and 55<sup>th</sup> Avenue and Palmaire. Each house in the 11-unit townhome subdivision will be equipped with 5 Kilowatt (KW) solar panels. The plans, materials, and construction methods will allow the entire subdivision to be LEED Silver Certified. The City of Glendale will receive a LEED Silver Certification Plaque to commemorate the project when it is completed.

### New Home Stats

A Home Green Home is a relatively simple model which can be used on infill lots. These homes are built to make efficient use of a number of things such as energy, water, materials, and air quality, all of which go into the rating system that measures the LEED standard.

The average square footage for a newly built LEED home consists of 1,325 square feet of livable space. The home typically has three bedrooms and two baths. The design of the home is specific to help Habitat reach the LEED's standards they want to obtain.

### Energy

The energy efficiency of the Home Green Home is accomplished through a number of areas, but it begins with the building envelope. This is where a thermal and air barrier is added to the exterior walls of the home. This is done by wrapping the entire house with orientated strand board (OSB). Energy Star windows are used for light, which will not allow the heat to penetrate into the environment of the home. Semi conditioned attics are created with the use of a sealed foam installation barrier, and the attics are insulated to an R-38 factor. The air conditioning ducts are insulated as well.

### Heating and Cooling Equipment

Energy Star heating and cooling equipment, with a minimum SEER (Seasonal Energy Efficiency Ratio) rating of 14 is used for this type of home. It is also important to determine the right sizing when choosing heating and cooling equipment as this is a critical component for obtaining optimal energy efficiency and comfort in the home.

### Compact Plumbing Design - Hot Water Heating

The 1,325 square foot design of the home allows Habitat to use fewer plumbing joints which provides a closer proximity to the hot water heater. This means that the amount of water that is wasted from the water heater to the tap will be minimal. The LEED Platinum homes are built with retrigger mechanisms that will allow pass-through water to flow back through the system to the water heater.

### Appliances and Lighting

One hundred percent of the appliances and lighting fixtures are certified by Energy Star for low energy usage. Compact fluorescent light (CFL) bulbs are installed in the lighting fixtures.

### Outside Water

The Acosta house has drought tolerant plants, a drip irrigation system, and an onsite rainwater management system. The system was developed in where the landscaping was designed with dry wells to collect and store rainwater from the roof to be used for plants. This system also helps to eliminate any street or curb gutter damage from water flowing off the lot.

### Inside Water

The use of high-efficiency toilets and fixtures as well as compact plumbing minimizes the amount of water used in the home, which also helps the environment and reduces size of the water bill.

LEED also takes into consideration the durability of the home. By having less footage of plumbing, water management issues become a lot less. The water heater, the recycling, the ability to capture outside water, and the use of a timing water irrigation system all work together to reduce the amount of maintenance in the home. Other factors such as the use of orientated strand boards to prevent air leaks, and having a

walk-off area in the garage reduces the amount of outdoor contaminants entering the home.

#### Indoor Air Quality

A passive fresh air intake is used for proper ventilation which minimizes toxins. During construction all air ducts are sealed to prevent contaminants from entering the air conditioning system. A sealant is applied to all corners and edges in the air handler and room vents as well. All paints, sealants, and adhesives used on the interior of the house are low volatile organic chemicals. This improves indoor air quality, increases the durability of construction, minimizes the environmental footprint, and improves the energy efficiency of the home.

#### Recycling

Most of the waste from the site is recycled including wood, concrete, drywall, plastic, paper, and metal which help to minimize the impact on our landfills. Habitat sells the recycled materials in partnership with resale outlets. The proceeds help support the mission of Habitat for Humanity.

#### Property Acquisition for Renovation

Habitat began their renovation efforts in the beginning of 2009. The first step in the acquisition process is for Habitat to identify a potential property for renovation. These are usually in neighborhoods that need revitalization. Once identified, Habitat can generate an offer to acquire the property subject to an environmental clearance. After this is completed they can begin the due diligence process. This consists of items including but not limited to a property appraisal, a lead/asbestos inspection, and a home warranty inspection. Upon the successful completion of all required due diligence items, they can then complete the close of escrow.

#### The Green Renovation - Evaluation Procedure

As the first step in rehabilitating an existing home, with a focus on energy efficiency and environmental impact, is to conduct a thorough evaluation of the home's current energy performance and environmental footprint.

The second step is to execute a thorough analysis of the home before defining the scope of work. It is important to understand what the greatest drains would be on the home's energy efficiency.

Once all systems of the home have been evaluated and tested, the money can then be used most cost effectively towards performance upgrades. The three major ingredients used to develop the scope of analysis on all homes to be rehabilitated are the hazard assessment of the home, the home inspection, and the energy audit.

#### Energy Audit

An infrared measurement evaluation system is conducted by an outside independent vendor who measures the performance of the insulation, the amount of leakage in the

duct system, the window performance, door and weather strip performance, and the performance as a whole on the building envelope. The age, condition, rated performance of air conditioning unit, lighting fixtures, water heater, and appliances are also evaluated.

The average costs of remediation renovation are roughly from \$32,000 to \$40,000. These costs include cleaning and sealing the ductwork, replacing inadequate air conditioners to a 14 SEER unit, bringing the attic insulation to a R-38 value, improving the wall insulation up to a value of R-25, installing high performance windows and doors, using CFL bulbs in the light fixtures, having Energy Star appliances throughout the house, installing a new water heater and recirculation system, ceiling fans, and setback thermostats. Solar panels have not yet been installed in any of the renovated homes.

From a water conservation standpoint, the cost for a renovated home is estimated at \$3,000. The costs include high efficiency flush toilets and high efficiency fixtures in bathrooms, a hot water recirculation system, an outside drip irrigation system, and desert landscaping.

Glendale has had a strong history and partnership with Habitat of Arizona for the past twelve years, building and now renovating homes to benefit low-income families. These homes are made possible through the labor of the volunteers and the generous donations from throughout the community.

Chairperson Knaack thanked Mr. Schwierjohn for his presentation, stating it was very interesting and informative, and ended by saying how proud the city is to be a partner with Habitat of Arizona.

This presentation was an informational item, therefore, no motion or vote was called for by the committee. Discussions that took place during and after the presentation did not required follow up or action on the part of staff.

III. Staff Updates

There were no updates from staff.

ADJOURNMENT

The meeting was adjourned at 11:30 a.m.

Respectfully Submitted,



Marilyn Clark, Recording Secretary