

# Half An Acre Of Passionate Green

Shairon Beale

**Chinese Proverb: "Before you prepare to improve the world, look around your own house three times."**

My story about becoming a "green" builder/developer starts innocently.

I am Australian, but was raised in Asia. Water was collected in both places but for completely different reasons. In Australia, the country areas are very prone to drought, so rainwater tanks are set up to collect precious rain to water the cattle and to supply the homestead. We even had to share bathwater—rotating turns in who was first. In Asia, where we had torrential rain every day for months, water was collected to wash cars, footpaths, and clothing—this saved pennies for the locals.

I have always loved antiques and architectural salvage. The Asians were always creative in their reuse of things. So when I moved to Austin, Texas in 1989 and started my house-remodeling business it was always a natural to use old doors, windows, porcelain sinks, etc., mainly purchased at Habitat For Humanity and various junk stores. As I redesigned the houses, I would put in windows and doors opposite each other for cross breezes, and if new roofs were required, I would add extra overhangs to keep heat out of the house. Over the years I completed many houses and saved several from demolition, keeping a little bit of history.

My last Austin project was to purchase a two-acre property with an old house that I was told used to be

part of a strawberry farm. At this juncture, I became the vernacular architect of two new homes, which I designed to fit in with the neighborhood—again using some salvage to add warmth and character.

Around this time, Glen Murcutt was "the" architect in Australia so I was reading all his material, and I loved his borrowed Aboriginal philosophy "to touch the earth lightly." It rang in my soul each time I started a new project.

From 2000 to 2007, I designed one home on the Chesapeake Bay in Maryland, but the rest of the time "my dark side" and I went racing Open-Wheel Formula cars around the U.S., Canada, and New Zealand. When I moved to Scottsdale in late 2006, I really missed my houses and wanted to get back to creating again. So 10,000 miles of driving up and down the streets of Phoenix and Scottsdale, I purchased a beautiful one-half-acre property with a "70s Rancher. As I redesigned the floor plans, I researched building green and visited the city for building codes and restrictions. In moving to the desert area, I was incensed at the waste of water in the area and became interested in gray-water systems. Through my researching and reading magazines such as "Su Casa," I came across the U.S. Green Building Council and set up a meeting with my local provider, and after that applied to be part of their Leadership in Energy and Environmental Design (LEED®) for Homes pilot program.

By this stage I had already gotten the house plans accepted at the city—thankfully, they were congruent with what LEED wanted from the design phase for biophilic reasons.

During the last five months of construction, I have met with my LEED provider three times—he has been very helpful in many areas. The process of building a LEED-certified house has not been nearly as difficult or intimidating as it first appeared to be. I would encourage everyone to participate. LEED is there to support, along with certifying that everything required has been completed. There is a lot of written documentation and many captioned photos of every phase we go through—which does get passed onto the new homeowner—so it will feel like I am handing over an ultrasound of their new home.

LEED is a scoring system consisting of points awarded in each category of the building, starting at site selection. There are four levels: Certified, Silver, Gold, and Platinum. The use of photovoltaics, for instance, can earn up to 12 points. The use of non-VOC paints gets you six points. The LEED certification guarantees the home purchaser that the house is in fact "green" and not a trite imitation.

## Platinum Certification Components

The components that make the Platinum certification on this house are:

- It blends seamlessly into its neighborhood, and is close to community resources and transportation.

I changed the floor plan slightly to make two bedrooms larger, to accommodate today's lifestyle needs. About 40 square feet was added to the footprint in the family area, and about 20 square feet in

one corner of the kitchen had a wall knocked out, so the room would be re-oriented to the family room for views to the rear garden and pool. A further 1,000 square feet was run off the rear of the house, for a master suite away from the rest of the house. This obviously consists of a large bedroom, bathroom, and walk-in closet. I added French sliding doors to the master suite, family room, and a rear bedroom. The house can be opened for beautiful spring and fall breezes, to extend entertaining areas, creating a more relaxing lifestyle and an inside/out feel to rooms when they are opened up. Another component is minimizing disturbances of the lot plantings. The project has received high marks in this category. When a new block wall was built, two large eucalyptus trees sat at each end of the lot, where the block wall had to be built. In order to save the trees, I custom-built a wood fence around the trees tying back into the block wall. The one large Mesquite that did come down will be used in the landscaping.

In the demolition, the crew separated out all the materials like fans, and an oven and dishwasher so they could be donated to the Stardust Foundation for reuse. Some of the other lumber was used in the house, in an effort to reduce landfill pollution.

Demolition left two-and-one-half walls standing, and this all took about a month. The ground was then prepped for the new areas of the foundation.



The concrete mix that was used had 40 percent fly ash added per LEED requirements—all the invoices have to be produced in order to receive points.

The height of all the walls was increased from 8 feet to 10 feet. This took about two weeks, during which time I went to Australia for my daughter's marriage to a man who had been in charge of all the steel and related components for the new Wembley Stadium in London.

A very exciting part of the rebuild was when the trusses were going up. In came a big crane, and up they went. They were left for a week to settle the weight on the building.

Plumbers and electricians came in next. All copper plumbing was installed, along with a Jetta Spa Tub and a regular Jetta Tub. I picked Jetta because they are a company that is making efforts to be more earth friendly.

The electrical consists of a general lighting control system, which will allow us to set several different lighting scenes throughout the house, in order to save on energy use. CFL bulbs will be used in all lighting.

After a four-week delay, the clay roof tiles were delivered and set in place. They were also left to set for a week, again, letting the building settle further under the additional weight.

The stucco was then applied to the exterior and left to dry for four weeks. The drywall crew came in, and I couldn't walk through walls anymore!!! A 9010 texture was applied to the walls, and curved edges were applied. I think this adds softness to a home and helps when you bang into a corner!!

A very important component of a LEED home is insulation. Demalac was chosen because when dry, it is very dense. This is an open-cell spray-in foam that allows a ventless attic system and creates a very airtight house. About six inches of foam was sprayed onto the roof deck, giving an R-50 rating, and about four inches were put into the walls, giving an R-30 rating. This will really keep the house much cooler in the summer and toasty warm on one of the three cold days of our Arizona winter! It also has wonderful soundproofing qualities. An independent rater then checked the house physically.

This brings the time line to about four months. Also

included in this time line was the large swimming pool. The old chlorine system was removed, and a C.L. Free one was put in its place. I have been asked why salt wasn't chosen. Well, I too thought that was the "go" until research taught me that the biggest destroyer of the Arizona underground water table is salt—it is leached back into the ground via saltwater backwashing and the "all-innocent water softener."

I absolutely love the C.L. Free System. It is a copper ionization and carbon-oxidizing process that kills all bacteria and algae. It is easy to maintain—much cheaper than chlorine, and the water, if kept correctly, is safe to drink, which I have been doing! Another benefit is no more green hair (pardon the pun), itchy skin, or red eyes. Also there is no calcium buildup around the pool edge. The water is absolutely crystal clear and like silk falling through your fingers to touch. The rep for this area has been so enthusiastic and always going above the call of duty—that it was easy to choose the C.F. Free whole-house point-of-entry system for the house. This system will remove chlorine, chemicals, and organic matter

from the water. It changes minerals to digestible bicarbonates. Like the pool, the house water will have a luscious silky feel, which will leave hair soft and shiny, and no dry skin. Even the landscape plants will get a boost from the chemical-free water.

The next exciting part to begin was the tiling. More than three-quarters of the tiles came from Villagio Stone and Tile in Scottsdale. They were chosen because they too are starting to stock more earth-friendly products, and I look forward to working with them again. The tiles are gorgeous.

All the bathrooms have Toto® dual-flush Aquia™ toilets installed. Points are awarded for these water-saving products. When I was looking at which toilets to use, Toto consistently came up as No. 1. The sinks are Toto as well.

I went to R and R Plumbing, where all the shower/bath and sink faucets were chosen. They are Santec low flow (again, points will be given) made of solid brass, using the latest valve and cartridge technology, which gives a more lasting product. All the bathrooms have Toto dual-flush Aquia toilets



installed. Points are awarded for these water-saving products. When I was looking at which toilets to use, Toto consistently came up No. 1. The sinks are Toto and Duravit. Two Bradford/White tankless hot water systems will supply instant hot water. These are the plumber's preference because they are a good product, and unlike other heaters, there are repair reps in town if needed. From a points perspective, A LOT of water is saved (approximately eight gallons per run).

Quality Granite Counter Tops, who rescued me from a very bad situation.

When non-toxic Yolo Color House Paints began being applied to the walls, it was a joy to walk in and not choke on paint fumes. All paints, stains, and glue are non-toxic. Color matching for touch ups has been difficult. The paint mixes don't seem to be the same, so order plenty.

At this time, the kitchen-cabinet installation was started. The

covered in cherry-wood panels. A butterfly sink will sit atop the granite countertops. A beautiful hand-glazed tile with a mixed-glass accent tile from Villagio Stone and Tile will put the final sparkle on the room.

At this time of writing, we are five-and-one-half months in and still waiting (after a lot of mixed stories) for the

in and they are beautiful.

Landscaping has just begun—it has been professionally designed and installed by Matt Ross of Desert Designer Landscape and Development. He designed a garden around my wishes for a Wildflower Zen feel. There will

for dogs and children on a hot summer's day. I always think grass is so cooling—but must be kept to a minimum, per LEED. A small herb garden will be planted near the rear door off the kitchen. A trellised back porch will

the house, and some are switching their product choices as a result.

But what is most important for me, as I pass the keys to the new owners, will be the knowledge that I have touched the earth lightly in Arizona.



Anderson dual-pane low-E (wooden on the interior) windows were then installed and stained with a non-toxic soy stain. The interior solid alder doors were stained and their frames put in place. We are waiting for the custom front door to be re-made, but just about everything was wrong when it arrived (oh well, here's hoping). The door finally arrived and is more professional this time.

Be careful when you cut the granite; many thanks to Mike Olari from AZ

cabinets are whole-box cherry wood with no formaldehyde. Points are awarded because this is a Forest Stewardship Council company. The same cabinetry is in the master ensuite with a his-her configuration.

The two other bathrooms will be installed with an antique hutch in one and a Chinese storage bench in the other. Cutouts will accommodate the sinks.

Back in the kitchen, all ENERGY STAR® appliances will be used and

photovoltaic that is approximately 3 KW, which the whole house will be able to run off with an inter-tie to the grid.

The woven, mahogany-stained bamboo floors are due tomorrow and will be left for a few days to acclimatize before being installed. The bedroom floors will be laid with organic 100 percent New Zealand Wool carpet with latex underlay that mold and bacteria don't survive in (again, points are awarded). No formaldehydes or ammonias are in the floors! Synthetic carpet contains up to 20 toxins. The floors are

be "walking trails" and a large play area with a picnic area close by, under one of the large eucalyptus that was saved by the wooden fence! The mesquite that was felled gets a new life in the form of benches to sit on, along the trail and under the tree. The LEED points system calls for native plantings that are native to the Sonoran Desert. A rainwater catchment's system will be around the back of the house to help supplement the drip irrigation. A crushed granite driveway will create a pervious coverage. There are some additional shade trees around the house, where a 400-square-foot grass area will go in creating a romping area

be relaxing to sit on and watch the children swim and play, or just daydream while watching the garden.

As this home nears completion, I look back on how far it has come, and I wonder what the original builder would think of his humble Rancher that will become a Platinum level "green" house and somewhat of a celebrity. The only irony is that no gray-water system has been installed because it only receives one point.

As for me, I hope my passion has had a positive effect on my peers and my neighbors to go a little "greener" in their projects ahead of them, and to be more environmentally and holistically aware. I know that all the tradesman have really enjoyed the environment of

**The Author**

Shairon Beale was born in Sydney, Australia and lived in Asia or 20 years. Her first renovation project was a beautiful old bluestone house in Taipei. She later worked at several design businesses in Australia. From 1989 she worked with design teams in Austin and Dallas, Texas. Many home renovations later, she became the vernacular architect of three new houses. Currently she resides in Scottsdale, Arizona where she is a LEED-certified homebuilder. Shairon can be reached at 480 234 9793.