Old-fashioned TLC, sustainable remodeling transform neglected Portland home

Most homebuyers would have looked at the 1909 Portland home with its peeling paint, general disrepair and overgrown yard and said "No thanks!" But, Charles Kingsley and Anna Debenham saw "good bones" and more when they spotted the 1,750-square-foot two-story home in April 2001.

"We have a love for finding things neglected and giving them TLC," said Kingsley. Where others saw problems, the couple saw potential. They also felt strongly that their efforts should impact the environment as little as possible and their new home should use as little energy as needed.

"One of our goals was to take a fairly traditional home and to update it in an environmentally sensitive way that also blends with the original spirit of the house,'" said Kinglsey. "We want people to like our house — that just happens to be sustainable."

With that in mind, the two went to work. Acting as general contractors, they designed and managed the transformation, searched for suitable materials and recruited like-minded contractors.

A mess

"It was quite a mess when we started," Debenham said. The couple lived in a little cottage behind their house as they went in search of those "good bones."

The home had been made into an illegal duplex - kitchens on both the second and ground floor.

"It's amazing there wasn't a fire because there were illegal heaters and electrical cords all over the place," Kingsley noted. One of their first moves was to have the wiring redone professionally.

Heating system

The home had an "antique" furnace and water heater, according to Kingsley. Both were on their last legs and had to be replaced. There was no insulation in the ceiling, floors or walls and no duct system to transfer the forced-air heat to the second floor.

Because they could basically "start from scratch" with the heating system, Kingsley and Debenham began to research the possibilities. They decided on a hydronic system. This type of system is fluid-based, with hot water being the most commonly used fluid.

Kingsley and Debenham bought an energy efficient Polaris water heater. In addition to meeting their hot water needs, the water heater pumps hot water through tubing under the floor and supplies the space heating for the home. They placed insulation into the walls, ceiling and floors to keep the heat inside the home.

The hydronic radiant heat system is a comfortable heat choice for an older home that can't be made as air-tight as a new home. It has three temperature zones (main floor, upstairs and bathroom) that enable them to heat just the part of the home they are using. Debenham was especially pleased with the heating system as she was raised with radiant heat in her native England. She finds it to be more comfortable than the forced air heating common in many American homes.

The hydronic radiant heat system also offered immediate savings for the couple. First, they did not have to purchase a furnace or install a duct system. And, they also qualified for an energy tax credit through the Oregon Office of Energy.

But, Kingsley and Debenham expect more than these immediate savings from their heating system. They expect to save on their monthly utility bills, too.

Adding light

Kingsley and Debenham also cut their energy use by replacing all the old single-pane windows with new energy-efficient double-pane Marvin Tilt-Pac windows. They were able to keep the existing window frames. Their new windows also have a low-emissivity (e^2) coating. This reduces the heat transferred between the layers of glass because of the microscopically thin, virtually invisible metal or metallic oxide layer deposited on the glass. They were able to take advantage of a utility rebate for installing replacement windows. The old windows were saved for use in the greenhouse.

Kingsley and Debenham added some extra windows to bring in more light and glass inserts in several of the interior doors to allow light to penetrate further into the house. The additional natural light means less reliance on artificial lighting and lower energy use.

Reusing and recycling

It was important to the Kingsley and Debenham to reuse and recycle as much as possible.

"We're one small piece of the wave," Debenham said. "But, every bit helps the environment."

It was a learning experience for most of the sub-contractors they hired. "Some of them were unfamiliar with sustainable concepts, but they were all willing to learn," Kingsley said.

Kingsley and Debenham painstakingly searched for suitable material and equipment. "We assumed it would be easy to do since Oregon has such a reputation for sustainability," Kingsley said. "We were surprised. It was challenging." And, time consuming.

Kingsley joined the local neighborhood association. They asked neighbors where they found various products. They tried to buy from nearby merchants when possible. They networked, too. They applied for and received a $3,000 grant from the City of Portland's Office of Sustainable Development. In exchange, the agency will use the home for a case study and include it in the "Build It Green!" tour of sustainable homes sponsored by the agency and Metro. The tour is scheduled for September 21, 2003.

"It's nice to be in a community that stands behind you," Kingsley said. "We've told others."

When removing the well-worn carpet, Debenham discovered beautiful Douglas fir flooring. When they relocated and remodeled the downstairs bath and expanded the kitchen nook, the flooring had to be extended. With meticulous searching, they were able to find a nearly perfect match and recycled some wood in the process.

They purchased cabinets made from certified wood and Wheatboard from Neil Kelly Company. Certified wood is wood tracked by the international non-profit Forest Stewardship Council (FSC). Its goal is to improve forest conservation and reduce deforestation. Wheatboard is made from waste straw.

The new front door with glass insert is also made from salvaged pine. The door manufacturer was a bit leery of making the door from salvaged material.

"They were afraid of moisture 'surprises' with the hundred-year-old wood that would lead to the wood rotting," Kingsley said. After testing, the company agreed to make one. They

were so pleased with the results that they are now marketing recycled wood doors for other customers interested in sustainable materials.

The kitchen countertops are made from the salvaged pine. Debenham also found some beautiful wood banisters the couple recycled for the front porch.

Green practices

Kingsley and Debenham chose local, green products as often as possible. "There are lots of trades offs when you try to be sustainable," Kingsley said. "For example, you can try to get sustainable wood from out-of-state, or you support your local providers. It's not black and white."

The couple selected paints made by Miller Paint of Portland that were no or low-VOC (volatile organic compounds). These products use water as a carrier instead of petroleum-based solvents and contain no or very low levels of heavy metals and formaldehyde. They also used organic wood strippers and finishes.

They have started working on their yard adding native plants such as vine maple and Oregon grape. They are removing invasives such as English ivy. They direct their downspouts and run off to a 1,700 gallon cistern to use for irrigation. They are building a deck made from sustainably harvested cedar over the cistern that will keep it out of view.

They removed the unfriendly chain link fence surrounding the property on all four sides and added a "living" fence — natural material planted to define their yard. They added a unique cedar fence on one side of their backyard that is made from cedar offcuts collected from the outside edge of fallen trees. These cuts usually are shredded for wood chips.

Solar

The next phase of the home transformation is to install a solar hot water heating system that will be tied into the radiant heat. The couple is confident the new rooftop solar panels can blend inconspicuously on their older home. They chose dark composite roofing material for that reason.

Kingsley and Debenham are also excited to generate clean, non-polluting renewable energy. Oregon's sunshine varies substantially with the season, but the sun in Northwest Oregon can readily supply 40 to 50 percent of the typical family's water heating needs in a year.

The Oregon Office of Energy offers residents a tax credit for installing solar water heating or solar electric systems in their homes. The tax credit is based on the system performance and is a maximum of $1,500.

Appliances

The couple chose premium efficiency appliances for their home. Their Bosch dishwasher uses less electricity and water and is very quiet. It qualifies for a $230 tax credit from the

Oregon Office of Energy because it is at least 20 percent more efficient than the federal standard and saves approximately 700 to 800 gallons of water per year.

They purchased a new clothes washer is a front-loading Kenmore that also uses less electricity, water, and detergent and reduces drying time because of its improved spin cycle. It, too, qualifies for a tax credit.

Neighborhood celebration

When the couple was able to move into the home in December of 2001, they had an open house for contractors, their Waverly Heights neighbors and friends who helped work on the home during its nine-month transformation.

"It's been fun," Kingsley said. "We've met some great people."

And, in the process, an eyesore of the neighborhood got transformed to show off its "good bones."

Resources

The Oregon Department of Energy manages the Residential Energy Tax Credit Program. Following is a list of the energy efficient products/technologies that are eligible for a tax credit. For more information visit our Web site at www.energy.state.or.us or call 1-800-221-8035.

Appliances
- Clothes Washers
- Dishwasher
- Refrigerators

Fuel Cells

Heating and Air Conditioning Systems
- Air Conditioning Systems
- Combo Space and Water Heating Systems
- Ducts
- Furnaces and Boilers
- Heat Pump Systems
- Heat Recovery and Energy Recovery Ventilation System
- Geothermal Space Heating/Ground-source Heat Pumps

Solar
- Solar Water Heating
- Solar Electric Systems (Photovoltaic)
- Solar Space Heating

Water Heaters
- Water Heaters
- Wastewater Heat Recovery
- Combo Space and Water Heating Systems
- Solar Water Heating

Wind
- Wind Systems

Vehicles
- Alternative Fuels
- Hybrid Vehicle