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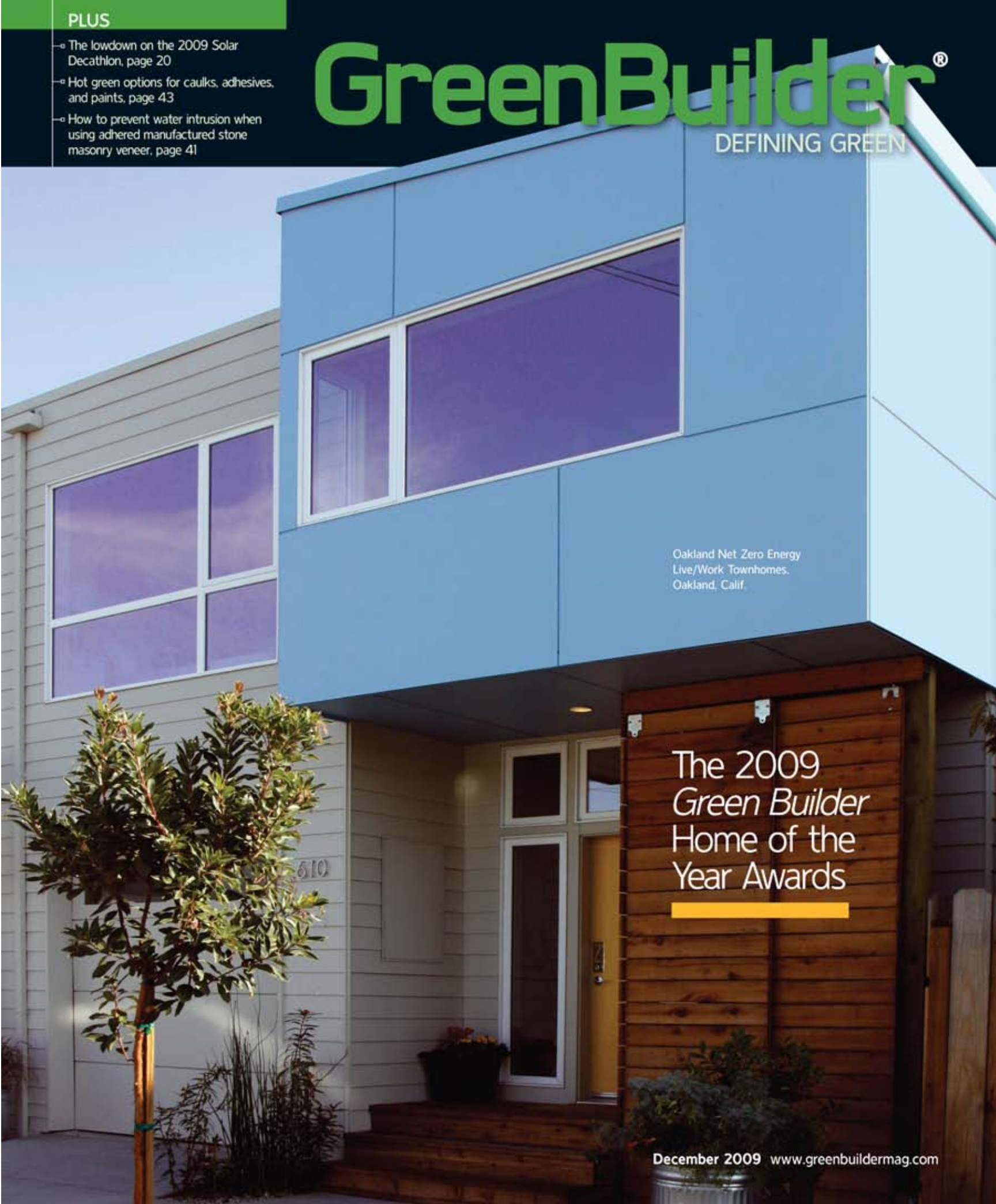
GreenBuilder®

DEFINING GREEN



Oakland Net Zero Energy Live/Work Townhomes. Oakland, Calif.

The 2009 *Green Builder* Home of the Year Awards

December 2009 www.greenbuildermag.com

This affordable infill home uses space wisely. Attention to detail in the design phase resulted in reduced waste and labor costs.

2009 GreenBuilder Home of the Year AWARDS

The Affordable Green Home, Pontiac, Mich.

The design of this house came with a tall order: Build a home using sustainable building practices that can be constructed by volunteers and accommodate a family of ten—all for under $100,000.

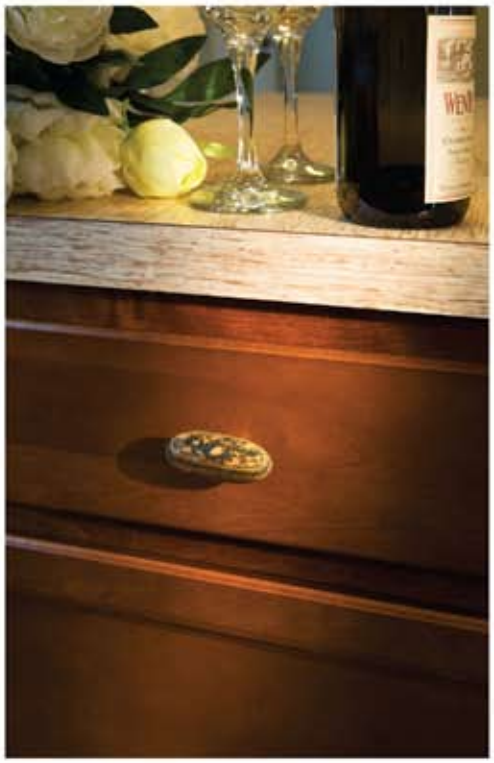
Up to the challenge, Dominick Tringali Architects and Brooklyn Homes teamed to make this prototype house for Habitat for Humanity a reality.

"Our mission was to prove we could build a sustainable home and raise the benchmark in general in Michigan and for Habitat," explains project designer Stephen McKay. "We wanted to prove we could get the utility bills down for home buyers in this segment."

Beginning with the site design, the footprint and rooms were configured to take advantage of solar orientation and natural features of the site to reduce heat gain during the summer and maximize heat gain during the winter. In addition, the home was strategically placed so that no trees would be removed and to take advantage of the dense foliage to the west for shading the home during the summer and reducing air infiltration from the winter wind.

"We looked at the energy costs of a typical Habitat house, which is an $80,000, 1,200-square-foot house with average utilities at about $1,600 a year," says McKay. "With our design, utilities will be $800 a year. The extra 500 square feet cost a little more, with the final cost running about $100,000 for a 1,750-square-foot house [or $56 a square foot]."

The house is designed on a modular grid, 24" on center from roof trusses to floor trusses. The architect designed everything with resource efficiency and labor costs top of mind. "We didn't have to cut anything," McKay says. "It's all stacked framing. All single-ply plates/headers, and everything was planned and designed from the start. We drew diagrams for the walls so no extra materials were used."



Interior finishes include low-maintenance, sustainable, and recycled options.

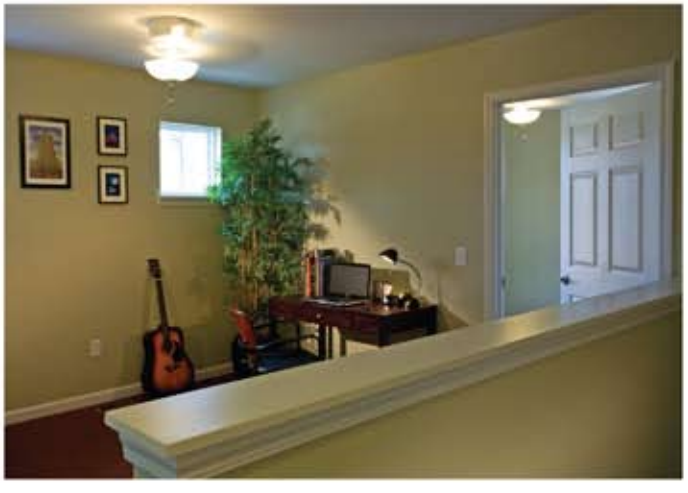
The team used the free program through www.homerenovator.com, which helps find the most efficient way to use materials. McKay estimates the program helped the team reduce drywall waste from 15% to 1.5%.

The team also opted to build the walls off site to save labor, waste, and material cost.

The roof design is a great example of resource efficiency. The roof pitch isn't an even 6:12 or 7:12 but rather equal sheets of plywood—which is 7.3:12, explains McKay. "You'd never know the difference between it and 6:12 or 7:12. No one had to cut the plywood." This practice reduced waste and labor costs.

In terms of the building envelope, the team sealed everything properly to minimize air infiltration, and used Dow board on the exterior to

Les Ward Photography



The project team used an online tool to help minimize waste; total drywall waste for the entire project was 1.5%

The window overhangs and shutters were made on site out of 1x2 material. The roof pitch was set to work with material sizes, which reduced labor and waste.

BUILDER/DEVELOPER: Craig Kallen, Brooklynn Homes www.brooklynn-customhomes.com
ARCHITECT: Stephen McKay, Dominick Tringali Architects www.dtarchitects.com
LANDSCAPE ARCHITECT: Matt Mosher, Mosher and Associates
CERTIFICATIONS: LEED-H Platinum

eliminate conductive heat transfer. And though it was more expensive than vinyl, the team used Hardie fiber-cement siding for reduced maintenance. "Depending on the type of vinyl siding you use, [the price difference] could be $70 a square for vinyl compared to $115 a square for Hardie," says builder Craig Kallen, president of Brooklyn Custom Homes.

The front of the house faces south, so McKay designed shadow overhangs on the windows to let the light in during the winter but not in the summer.

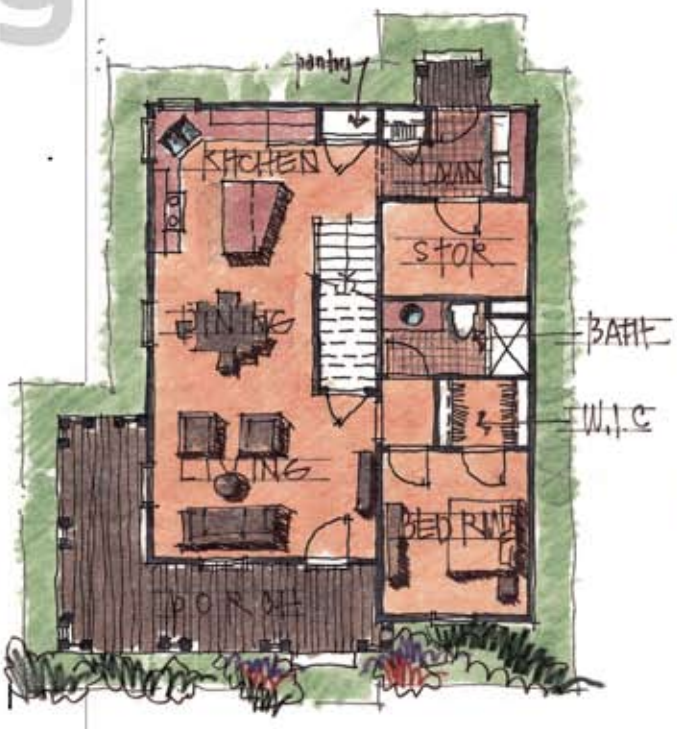
"It's commonsense," he explains. "Habitat homes don't have air-conditioning, so we made sure two windows, on opposite walls, were operable per room." The shutters and overhangs were built out of job site scraps. The lattice on the front porch is 1x2 built on site.

While this home will house a large multi-generational family for Habitat of Humanity Oakland County, McKay hopes the plan will be adopted throughout Habitat for Humanity International and is also for sale as a house plan.

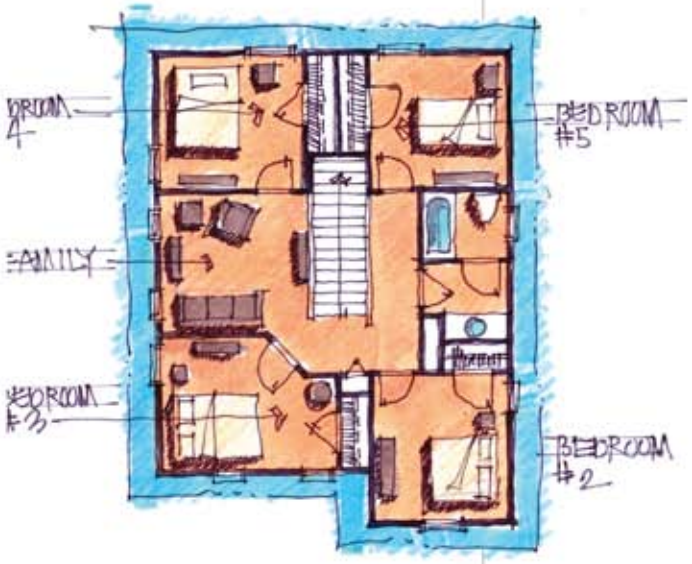
Sally LePla, the executive director of Habitat for Humanity Oakland County, hopes, too, the house becomes a staple design for Habitat affiliates across the country to use in serving low-income partner families.

"Habitat Oakland County is delighted with the beautiful, affordable home design," she says. "There is a special skill required to design a home that is sustainable, energy efficient—both inside and environmentally—and also easy enough to be built by Habitat volunteers. By using every possible piece of material, the Dominick Tringali design allows us to be good stewards of the money donated to us to construct affordable low income housing."

2009 GreenBuilder Home of the Year AWARDS



FIRST FLOOR



SECOND FLOOR

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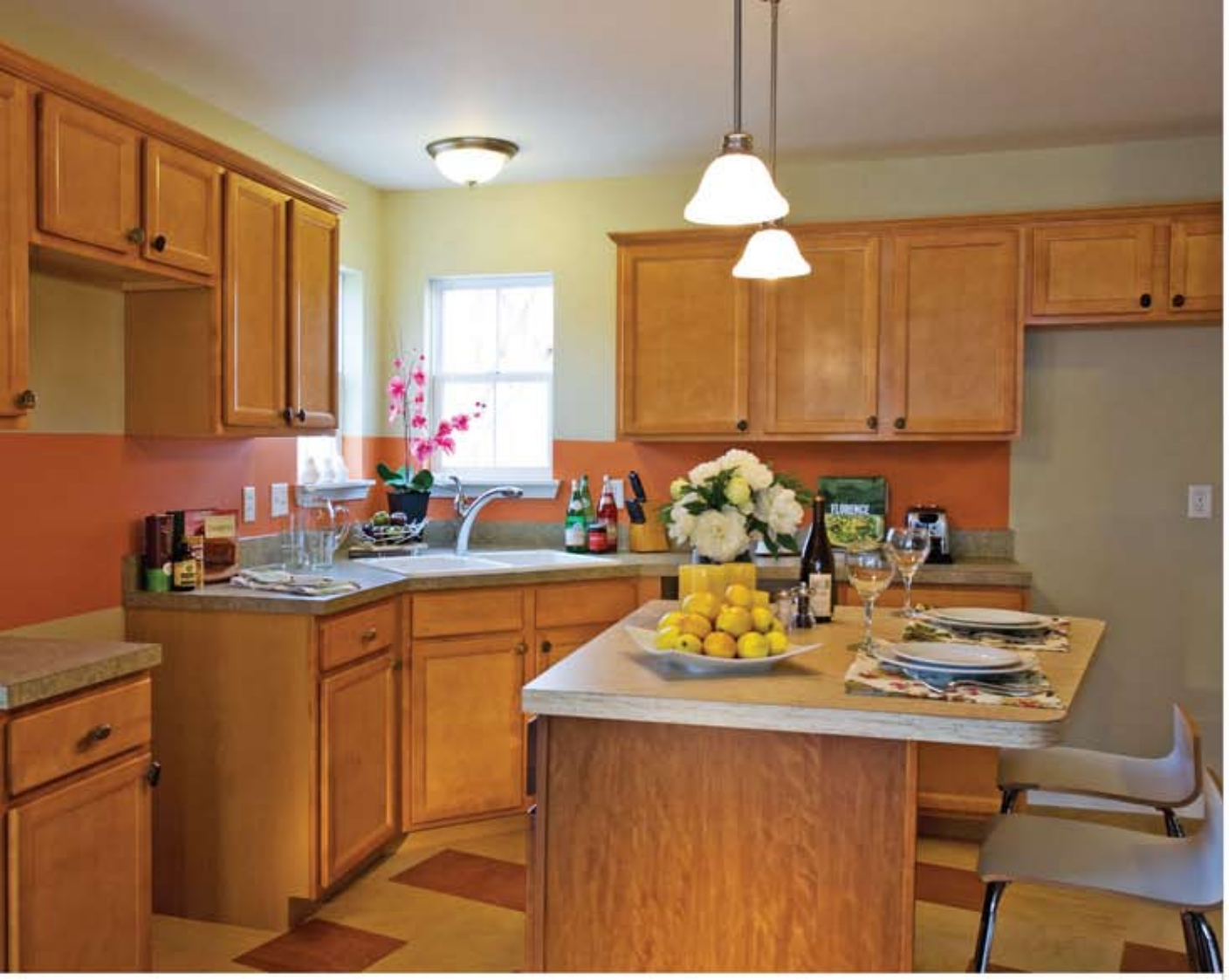
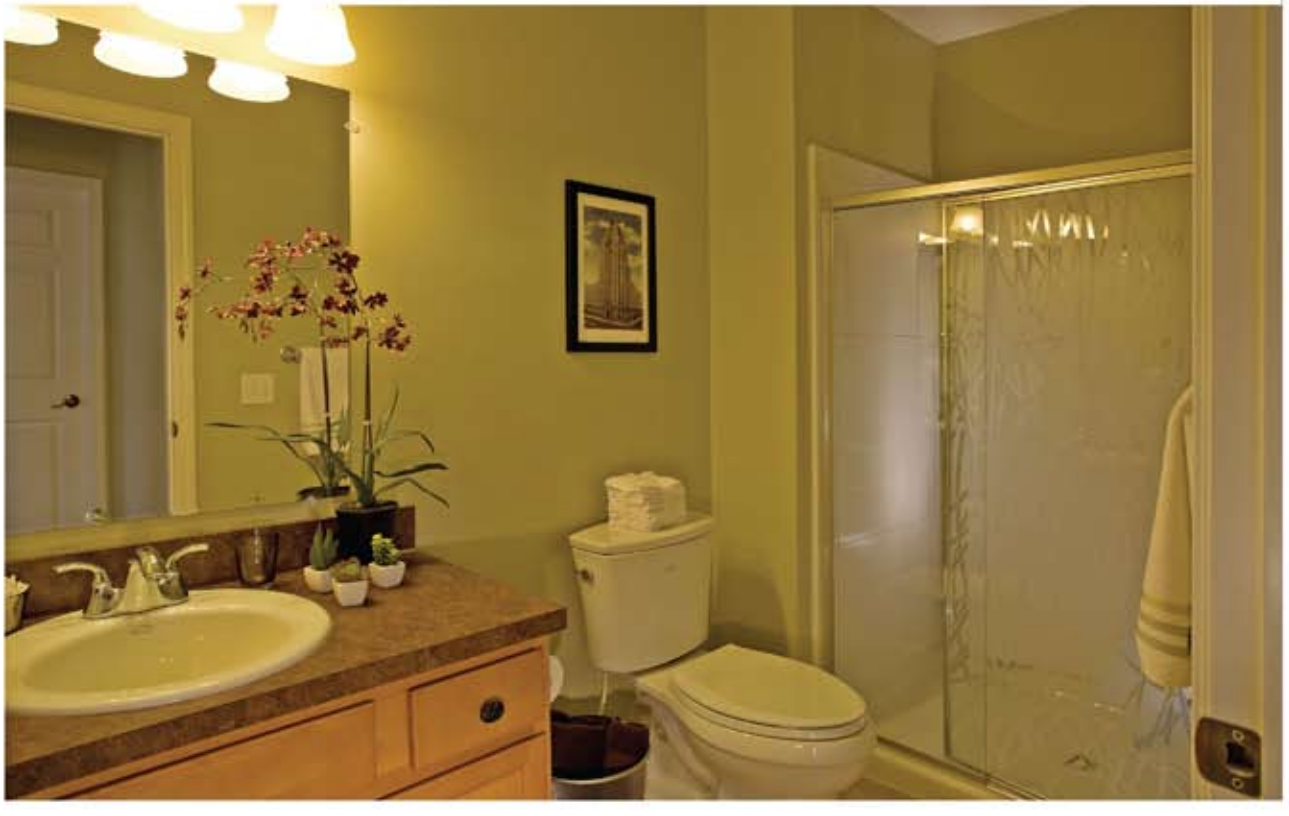


The house boasts Energy Star windows, appliances, light fixtures, and light bulbs.



The water-wise house includes a tankless water heater, dual flush toilets, and low-flow faucets and shower heads.