



GOING BIG INTO GREEN

This huge house requires energy efficiency on a grand scale—and a slick home control system makes the savings easy.

by Steven Castle, photography by Stephen Morales

BEING GREEN AND ENERGY-EFFICIENT is often considered a mindset. The mantras of reduce, re-use, and recycle are repeated ad-nauseum. But one doesn't need to adopt minimalist principles to be green and energy-efficient. In fact, Steve and Mashid Rizzone were of the mind that their new home, six years in the works, would be both green and energy efficient—and their contemporary California spread is as far from minimalist as you can get.

The nearly 12,000-square-foot Newport Beach compound encompasses three levels, with two kitchens, nine baths, a four-car garage, a gym, a state-of-the-art 14-seat home theater, 16 TVs, an infinity-edge pool, outdoor cooking area, motorized and movable glass walls, nine zones of heating and cooling, 17 zones of audio and video, an indoor waterfall, 11 closed-circuit security cameras, five biometric (fingerprint) access points, and nearly four miles of cabling. Oh, and there are views of the harbor to kill for.

So ... um ... how do you make all of *that* green and energy-efficient? Start with 3,000 square feet of solar panels mounted on a hillside to provide the home's electricity. Add 664 super-energy efficient and long-lasting

THE TEAM

Systems Design and Installation
Pacific Digital Home
Mission Viejo, Calif.
www.pacificdigitalhome.com

Architect
Marcelo Lische
www.thearchi.com

Solar Installation
Premier Power
Renewable Energy
www.premierpower.com



Hidden shades lower at certain times during the day to help keep the area cool and save on cooling costs.

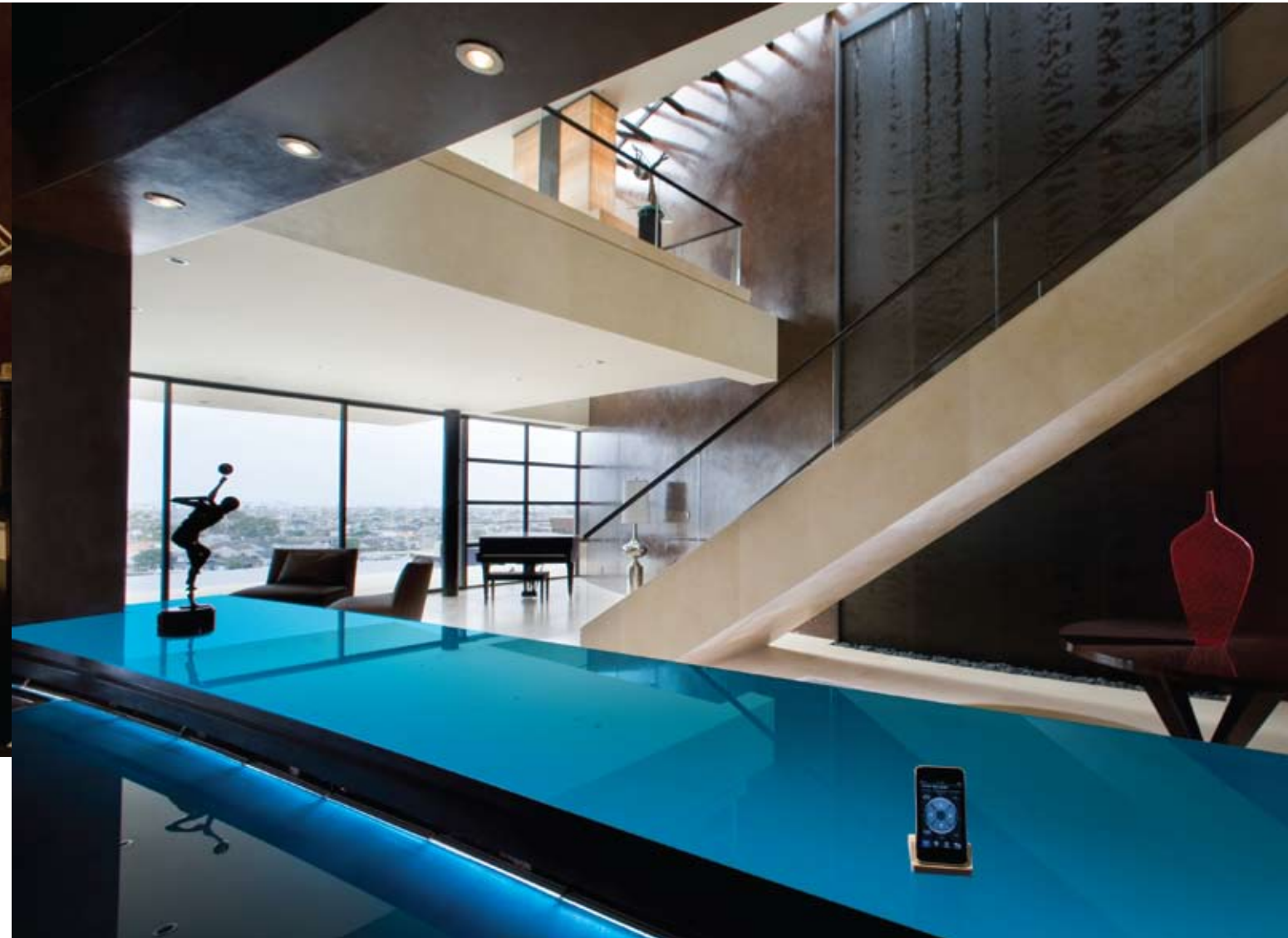
Apple iPads are used throughout the house to display and operate the Savant home control system and all the subsystems, from audio/video distribution to landscape irrigation.

Motorized sliding doors are filled with argon for better energy efficiency and controlled by the house-wide Savant system.

Energy-saving LED lamps (light emitting diodes) provide all the home's lighting and are 90 percent more efficient than incandescent bulbs.

IS THAT SENSOR FSC-CERTIFIED?

Incorporating energy-saving systems into luxury homes sometimes requires special craftsmanship. Steve and Mashid Rizzone's new home features a lot of wood paneling, so an artist was employed to paint the Aprilaire in-wall temperature sensors to match the grain of the woodwork. The "real" wood in the house are veneers from strictly controlled forests.



property and decided that we wanted to build an energy-efficient house and be specific in terms of construction materials. In the interim we had two children, and we felt it was important to send a message to the kids. This was capped by what has happened in the last two years with energy and the cost of it, and what's happening with the planet."

The homeowners have applied for the highest level of LEED (Leadership in Energy and Environmental Design) for Homes certification. The LEED system typically won't certify a home that's as large as theirs, but the Rizzones are not easily deterred. They're still going for Platinum-level certification.

Neither are the Rizzones deterred by technology. In fact, they insisted on it. Steve and Mashid are both high-tech executives, and both are very interested in using technology. Consequently, high-end home technology was incorporated into the design phase at the very beginning. The couple's previous home had a control system, so they knew, basically, that a good control system could help them operate all the subsystems in a house and ultimately help them save energy. "This is the third house we've built, and we've always had electronics," Rizzone explains. "We just wanted to take it to the next level."

EQUIPMENT LIST

Control system:

Savant Systems

Solar panels: Sharp

Lighting Control:

Lutron

Shades and Control:

Somfy, Lutron

HVAC: Unico

A/V Distribution:

Savant

LED (light emitting diode) lamps throughout the house. Stir in an easy-to-use Savant home control system that operates nearly everything. And mix with generous portions of green building features, including a structural steel framework, recycled steel studs, concrete walls that help warm and cool the home, blown-in cellulose insulation, Energy Star-rated appliances and a rainwater harvesting system for landscape irrigation.

"This house has been a labor of love," says Steve Rizzone. "We started about six years ago. We bought the

BIG on Solar

The most prominent feature of the Rizzone house, especially if viewed from the street or the harbor below, is the 3,000 square feet of Sharp solar panels—128 of them, to be exact—mounted on the hillside below the house. The 36-kilowatt array looks like an enormous solar slide extending from the house above. The solar array has become controversial, sparking protests from neighbors about its appearance and the glare it produces. "As we've talked to more neighbors and educated them on the benefits [of solar power], we've been able to turn some of the naysayers into believers," Rizzone says.

Rizzone believes his mega-solar array could provide enough energy to power his entire house, though he won't know for sure until his family has lived in the house for a while. (They had just moved in when this was written.)

"Today, with the cost of energy and our energy demands, all of those things are averted with the solar system,"

Rizzone says. Solar contractor Premier Power Renewable Energy in El Dorado Hills, Calif., did a comprehensive study of the home's energy requirements and placement of the array and its size. "They studied the path of sun. We originally tried to put it on the roof, and ran into problems with the homeowners' association," Rizzone recalls.

Premier Power also monitors the system's energy production via a web-based interface that the Rizzones can access via their home system.

LEDs or Bust

The Rizzones are also big on LED (light emitting diode) lamps, which are 90 percent more efficient than traditional incandescent bulbs and can last 10 to 20 years or more. The only problem with LEDs are their high costs, which can discourage even affluent homeowners from equipping their entire homes with them. Instead, homeowners often opt for a combina-

Apple iPads, iPhones and iPod touches are used to control the lighting levels and scenes in various rooms (opposite, bottom) and volume controls for the house-wide audio system. The Apple products seamlessly interface with the Apple-based Savant home control system.



The 3,000-square-foot array of solar panels provides more than 36 kilowatts of electricity to the home, while iPads provide climate and pool controls with easy-to-use interfaces. The pool and spa are heated by a high-efficiency gas heater.

The efficiency of the LEDs actually presented a small challenge for electronics installer Jeff Goold of Pacific Digital Home in Mission Viejo, Calif. Some LED lamps use only 5 watts, for example, and since the HomeWorks system required a minimum load of 50 watts, Pacific Digital often had to group several LEDs in one lighting load, meaning they go on and off together.

That's no problem for the Rizzones, though, who love having a variety of lighting scenes—and using their slick Savant control system to operate them.

tion of LEDs, CFLs (compact fluorescents) and even some incandescent and halogen lights—and some of the lights can dim and others cannot.

Not so with the Rizzones. They went all in on LEDs, to the tune of 166 loads of them—with many loads made up of several LEDs. There are LED recessed lights, LED rope and cove fixtures, LED uplighting on the walls, LED exterior lights, you name it. They're governed by a Lutron HomeWorks lighting control system to turn on and off in groups and to dim. This way the Rizzones are able to turn on only the lights they need—and at the levels they want—in preprogrammed lighting scenes.

Total Control

You can have all the solar panels that will fit on a hillside, and all the LED lamps to light up your home, and nine zones of HVAC and 17 zones of A/V and everything else, but it's just a great big mess of energy-efficient maybes if you can't control it all from a central system that's easy to use.

The Rizzones found their answer in a Savant system, which is an Apple-based home control network. "It's very intuitive and easy to use. It's a one-time familiarity, and then you're a master of it," says Rizzone.

The Rizzones' Savant system controls the heated

floors, several thermostats, nine zones of heating and cooling, electronic glass doors, motorized shades, swimming pool, all of the lighting and serves as the front-end for the Kaleidescape media server, which distributes audio and video content throughout the house.

There are eight in-wall touchpanels that enable the Rizzones to operate the various devices that are tied to the Savant system, but the real fun is in using Apple iPads and iPhones to control everything. "We have iPads throughout the house, and it's so easy to have a total element of control," says Rizzone. "You can do anything in the world. As long as you have access to the net, you can control this whole house."

Let's start with the Somfy shades. At certain times of the day when the sun heats the rooms too much, the shades come down to block the sun and help defray cooling costs. Then, just before a dazzling sunset, the shades roll up to display the show. The HomeWorks system uses an astronomical time clock



programmed to take into account the difference in sunset times throughout the year.

The motorized glass sliding doors—dual glazed, filled with argon for energy efficiency and framed in heavy bronze—are operated by the Savant system. The Rizzones just press a button to open them—a good thing because they are massive.

Lest we forget, the Savant system is used to control the distribution of audio and video to 17 areas in the home and 56 speakers, with sources including satellite radio, satellite TV, four simultaneous streams from multiple DVRs, Netflix and whatever music and movies are on the Kaleidescape hard-drive-based media server.

Savant even connects to the landscape irrigation system and controls all of the sprinklers. And users can pan and tilt security cameras just by sliding a finger over the screen of any touchpanel.

"The big problem with these [home control] systems has been the programming and the user experience," Rizzone says. "But Savant has taken the programming and made it easy."

Goold of Pacific Digital Home couldn't agree more.

Breaking It Down

Apple iPad
You've heard of this Apple iPad? Perhaps the coolest thing about it is that it functions as a high-level, wireless controller for the homeowners' Savant control system. Sweet—and just \$500 to boot.

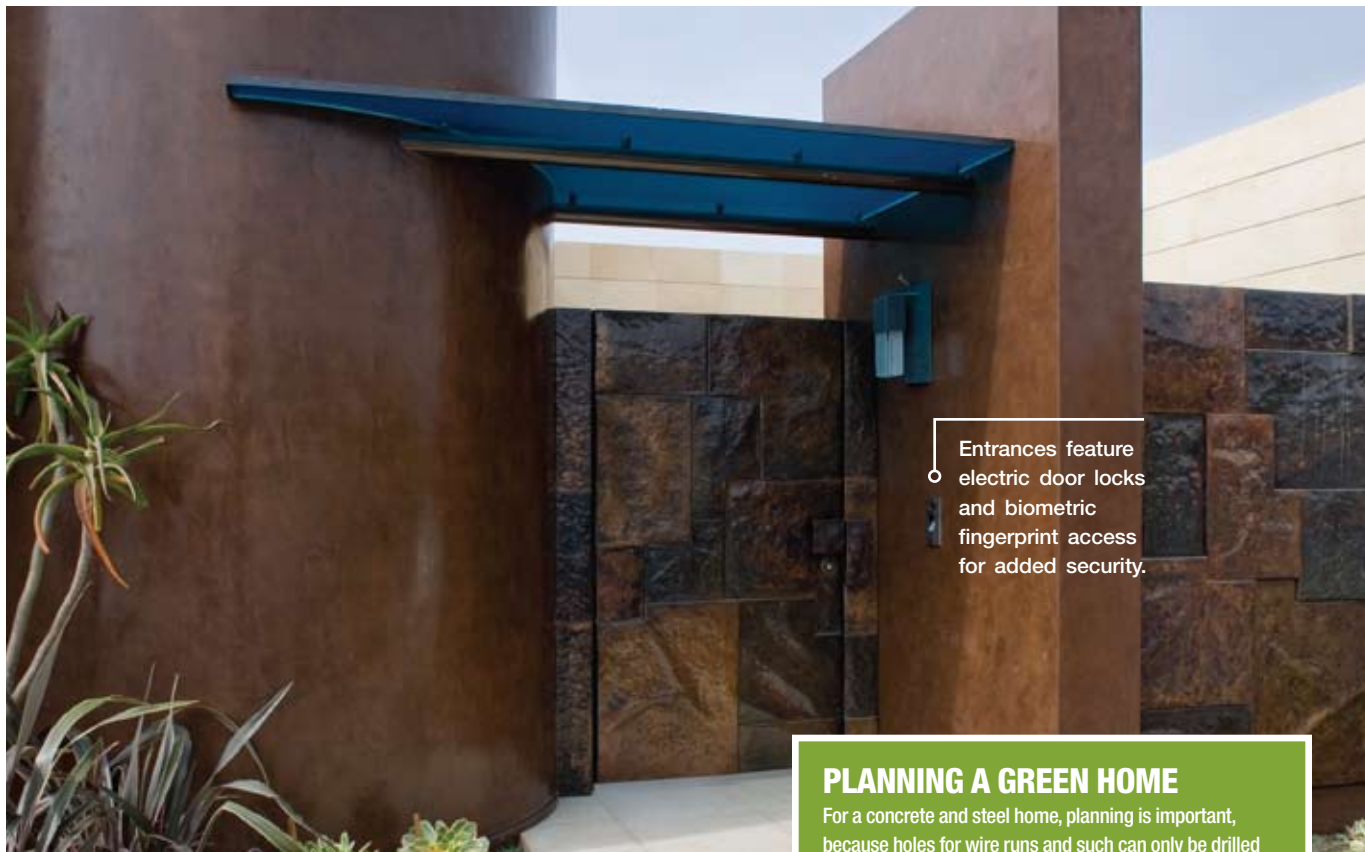
True Image
This feature on the Savant system allows a photo of a room to be used as a sort of controlling "image map." You just tap on the lights in the photo to operate them, for example.

Motorized Doors and Shades

Several bronze framed glass sliding doors are motorized and operated by the home's Savant system, bringing the outside in at the touch of a button. Somfy shades go up and down, depending on the time of day, to help keep the house cool.

Kaleidescape A/V Server

The hard-drive-based system can store 18TB—that's terabytes—worth of digital media, including 400 Blu-ray discs, 2,100 DVDs or 23,100 CDs.



Entrances feature electric door locks and biometric fingerprint access for added security.

“Getting it coordinated with weird things like the water systems has been really simple. Savant provides the platforms and pieces. It still needs programming, but you don’t have to write code.” This makes installation much less complicated and time-consuming, and programming costs go way down. Besides, Goold says, “Savant is fast and fluid, and does everything seamlessly.”

Goold has even rigged the system to cut power to certain devices to prevent unnecessary vampire loads, which occur when electronics continue to draw current even when they are essentially “off.” All of the TVs in the home are set to completely turn off, Goold says. “At the equipment rack, we can turn off things like amps with the APC power conditioner, but we won’t turn off the DirecTV/DVR receivers, because they are always recording something. And in the office we put the loads on relays and just shut them off via the Lutron HomeWorks system. It’s much cleaner that way.”

All of this energy-saving on such a grand scale could only be made possible by a home control system that ties everything together and allows the homeowners to be green and energy-efficient—without becoming minimalists. **EH**

PLANNING A GREEN HOME

For a concrete and steel home, planning is important, because holes for wire runs and such can only be drilled once. There’s no going back for a re-do.

Luckily for everyone involved, homeowners Steve and Mashid Rizzone knew and appreciated that. “They knew what they wanted, and that made it easier for us, because they were directly involved,” says Jeff Goold of custom electronics design and installation firm Pacific Digital Home in Mission Viejo, Calif.

Planning is also critical if you’re thinking of installing a solar photovoltaic (PV) system. Steve Rizzone speaks highly of the planning done by solar contractor Premier Power Renewable Energy, which scoped the site and took careful measurements.

“They were also very good in working with the utility, because rebates are a big part of this,” Rizzone says. “With the state rebates and incentives the utilities offer, they pay for half the system, and the federal government gives a tax incentive of 30 percent for the rest. My ROI [return on investment] is about three years, and these panels are warrantied for 30.”

Not everything in this home went according to plan, however. A rainwater harvesting system with a 3,500-gallon underground tank was added late in the project. It’s not controlled by the home’s Savant system—yet—but Goold says with a float sensor the homeowners should be able to monitor the water level of the tank on the screen of their home control touchpanels.

“This has been our third Savant project, and the system has been extremely easy to work with and really user friendly,” Goold says.

That’s also good for planning.