The Era of Efficiency
How To Upgrade Any Type of Bay Area Home
By Jennifer Chan
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Introduction

Here in the San Francisco Bay Area, conversations invariably come around to houses: the houses we want but can’t afford, the houses we’ve bought and want to renovate, the houses we’re hoping to sell, and so on. It’s not surprising—not only do we have one of the hottest real estate markets in the country, we also happen to have some great places to live. From stately Victorian townhomes to trendy mid-century Eichlers, the housing stock in the Bay Area is diverse, interesting and often quite beautiful.

When it comes to creating an energy-efficient home (another Bay Area obsession), this diversity provides unique challenges. Different types of aging homes require different kinds of energy-saving upgrades, so how do you know what’s necessary and appropriate for your home?

To help you answer that question, we asked a panel of Diamond Certified professionals to weigh in with their expertise.
First, our panel

John Fraine, Owner, Building Splutions
Heath Galloway, Director of Field Operations, Sungevity
John Gorman, Owner, Save Energy Company

Leila Jacobsen, Owner, Awnco Retractables
Laurie Kreger, Office Manager, Set in Stone Remodel & Renovation
Paul Proctor, Chairman and CEO, R E Roofing and Construction, Inc

Brian Ramirez, Owner, BR Electric
Richard Hiteshew, Owner, A-1 Guaranteed Heating & Air, Inc
The iconic tourist photos of San Francisco show Victorian ladies marching along a hill. Less familiar are the Edwardian homes that are found in many of the city’s neighborhoods. These aging beauties need special care to retain their *joie de vivre* in the 21st century.

“Victorian” is actually a broad term that refers to a number of distinct types of homes built during the reign of Queen Victoria (1837-1901). These homes vary architecturally but share certain characteristics: steeply pitched roofs and gables, an irregular façade, sash windows, and a surplus of ornamentation.

Edwardian homes (built between 1901 and 1910) are less showy, but both types originally lacked insulation, central heating and anything approaching modern electrical wiring. To complicate matters, many of these homes have since been remodeled—sometimes well, sometimes not. If you’re fortunate enough to have one of these homes, here are some ways to make it smarter.
Upgrading windows is one of the most cost-effective energy efficiency investments you can make, no matter what type of home you have. If you worry that today’s windows will look out of place on your period home, John Gorman suggests two alternatives. You may be able to replace the glass in the wooden window frames, adding a second pane for energy efficiency. If not, Mr. Gorman works with manufacturers that specialize in wood window replacement. These new windows have the same details as the originals (sashes, ogee lugs) and are more energy-efficient.
Victorians and Edwardians

Awnings

According to Leila Jacobson of Awnco Retractables, an awning can provide a 15-degree drop in temperature in the rooms it shades because the sun is prevented from touching the windows. What’s more, awnings add a wonderful—and entirely period—detail to the visual effect of a Victorian-era home.
Victorians and Edwardians

Roof

“It’s like putting on a hat,” says John Gorman, referring to insulating a ceiling. “It’s the most productive thing you can do to create an energy-efficient home.”

According to Paul Proctor, the challenge with Victorian-era homes is that the ceiling often needs multiple “hats.” All those picturesque turrets, dormer windows, and decorative eaves need to be roofed and insulated. “It’s almost impossible to see all the little air pockets and nooks until the roof is off and you can look inside,” he says. When insulating the roof of a Victorian-era house, Mr. Proctor advises paying attention to detail. Remove old insulation, don’t create unvented air spaces and close off accidental air chutes.
Adding a solar power system to your home involves a different kind of energy efficiency. While adding solar to your home doesn’t save energy, by switching to a clean, renewable energy source, you’ll reduce your dependence on fossil fuels and, ultimately, your electric bills.

So how do you install solar panels on a Victorian-era home? Heath Galloway, recommends paying special attention to the weight-bearing structures of your house. These older homes weren’t built to hold the weight of a solar array. Fortunately, you may not need to replace the roof; rather, your solar installer or roofer should be able to reinforce the rafters before installation.
Inspired by the turn-of-the-19th-century Arts and Crafts movement, **Craftsman bungalows** aren’t defined by *when* they were built, but by the philosophy that fosters their design. Committed to simplicity and featuring natural materials and handiwork, Craftsman homes typically have stonework, beautiful interior wood and low roofs that hang over a wide front porch. Rambling, wood-shingled Craftsman homes built between 1900 and 1940 are a particular feature in parts of Berkeley and Oakland.

Built with thick plaster walls and wood and stone features, Craftsman bungalows begin life with a natural advantage in terms of energy efficiency. Still, there’s much you can do to smarten them up for today. Because these homes are older, many of the upgrades mentioned above also apply to Craftsman homes. Here’s more:
Craftsman Homes

Masonry

Not only does natural stone visually distinguish Craftsman homes, stonework also lends itself to energy efficiency. According to Laurie Kreger, masonry creates a climate barrier that mitigates the fluctuations of temperature on any given day. On a hot day, it takes longer for a home to heat up; on a cold day, a home with stone features will keep in the warmth. To increase energy efficiency, add stone facing around the exterior of your home—the layer of stone will help reduce your energy bill while keeping the period detail.

Lighting

Replacing your incandescent light bulbs with LED lighting can cut energy use by more than 80 percent. If you cherish the hues of your wood-paneled Craftsman interior, however, you may miss the warm glow of the incandescent. Never fear, says Brian Ramirez of BR Electric. Newer LED bulbs come in an array of colors that cast a warm glow and save energy at the same time. Moreover, there’s no need to replace those vintage sconces in the hall—older lighting fixtures can be updated with LED conversion kits.
Craftsman Homes

Heating and Air Conditioning

Most Craftsman homes feature built-in china cabinets and cupboards. While these period details are among the homes’ most attractive features, they can also lead to energy loss. As Larry Waters of A-1 Guaranteed Heating & Air points out, the empty space in the wall above those cabinets often opens directly to the attic, which allows drafts to cut through even the most carefully insulated walls. Sealing off those spaces is a quick, easy and productive upgrade.

Richard Hiteshew says homeowners who want to upgrade their heating and air conditioning systems should seek a whole-house solution. “Reduce before you produce. Remove old insulation, replace ductwork and seal up the house before you install a new furnace or solar panels.”
Ranch homes were born in California in the 1930s, and by the 1950s they had become the iconic home of post-war America. In the Bay Area, they quickly came to dominate our newly developing suburbs.

Characterized by an elongated floor plan with bedrooms at the back of a narrow hall, ranch houses typically have slab foundations, pitched roofs and attached garages. While the cookie-cutter sameness has given this type of home a bad reputation, it’s good to know that these houses actually lend themselves to energy efficiency upgrades. For example, ranch homes have neither the gabling of a Victorian or the thin roofs of an Eichler (see below), but they do have attic crawl spaces that serve as a buffer between the ceiling and the roof, which provides the home with ventilation and a place to install insulation.

Still, there are many ways to bring these also-aging ranch homes into the 21st century.
Ranch Homes

Awnings

Awnings make an excellent, easy and energy-efficient contribution to ranch homes. Protect walls, windows and sliding glass doors from direct sunlight to keep rooms significantly cooler.

Solar

With their expansive roofs, ranch homes are ideal candidates for solar conversion. What’s more, the larger rectangular solar arrays supported by ranch homes provide an additional layer of shading that helps the house stay a little cooler during hot summer months. The same rule for Victorians applies here—these roof structures weren’t designed to hold the weight of a solar array and must be strengthened to do so.
Ranch Homes

Windows

Many ranch homes were built with aluminum windows. High-tech for their time, aluminum windows were inexpensive and easy to maintain. Unfortunately, as Paul Proctor points out, there’s a reason cookware is made of aluminum: it transfers heat well, which makes for excellent energy inefficiency.

For a more energy-efficient home, replace aluminum with contemporary, low-maintenance, double-paned windows framed with vinyl, fiberglass or clad-wood materials.
“Eichlers” are midcentury modern tract homes built by developer Joseph Eichler between 1950 and 1974. Found throughout the suburban Bay Area, Eichlers are characterized by flowing spaces, floor-to-ceiling windows, radiant heating and central atriums.

Joseph Eichler was committed to using design to bring the outside in—a feature loved by many homeowners. Of course, sometimes there are good reasons to keep the outside out: keeping Eichlers warm in the winter and cool in the summer can be a real challenge.

If you live in an Eichler home, here are some things you can do to keep the outside out.
Eichler Homes

Roof

Unlike traditional ranch-style homes, most Eichler roofs have a large flat area combined with a sharply sloped projection and vaulted interiors with exposed rafters that leave no space for insulation between roof and ceiling. To solve this, Paul Proctor suggests putting a “hat over the hat”: place insulation on the existing roof and build another roof on top of the new insulation.

Solar

Like ranch-style homes, Eichlers tend to have a large expanse of roof. However, as Heath Galloway points out, unlike most ranch homes, the roofline on an Eichler is very low-profile. “Solar panels don’t like flat—they want to be perpendicular to best catch the sun,” he says. Still, you don’t have to rule out solar for your Eichler. But it's a good idea to have your installer work with a roofer to make sure they drill down through the roof's insulation and tongue-and-groove into the exposed beams.
Floor-to-ceiling windows are an Eichler hallmark. These oversized sheets of glass are frameless and held in place with wooden stops. While all that glass is visually appealing, the enormity of the energy loss is not. One option is to reconstruct the wall into a series of contemporary, framed windows.

But if you don’t want to mess with the Eichler design, John Gorman says you can replace the old glass with double-paned insulating glass. “That way, you don’t have a bulky aluminum, fiberglass or vinyl frame cutting into the viewing area, which means the look remains truer to the original design.” Keep in mind, however, that unframed glass may not have a long warranty or insulate as well as a framed unit.
Eichler Homes

Heating and Air Conditioning

The radiant heating systems used to heat Eichler homes weren’t energy-efficient when they were installed, and now, decades later, many of these systems have broken down. While they can be repaired, Larry Waters of A-1 Guaranteed Heating & Air recommends replacement. After you’ve sealed and insulated your home, install a multi-zone mini-split. This consists of a single unit that uses electricity for both heating and cooling. Multiple indoor fan units installed in each room (or zone) pump either heated air or refrigerant. Each room has its own thermostat, which allows for maximum climate control and, ultimately, improved energy efficiency.
In the 1980s, the popularity of ranch homes gave way to a new (or, to be precise, old) style of building. Homes got taller, living rooms sank and gables began popping out of roofs. After 50 years of Modernism, ornamentation reappeared with a vengeance.

Green building technology has advanced significantly in the last 10 years, so even contemporary homes can use an energy efficiency tune-up. Here’s what you can do to give your contemporary home an energy-saving makeover.
Contemporary California Homes

Roof

Like Victorians, contemporary California homes tend to have complicated roofs, with multiple angles and vaulted ceilings. Paul Proctor says the original roofing material of many homes built in the 1980s was wood shake. As the roofs have aged, some homeowners have opted to replace wood shake with less expensive (and less energy-efficient) asphalt shingles.

If that’s the case with your contemporary home, insulation can mitigate the lower energy efficiency of the asphalt. When using asphalt shingles, make sure your roofer follows the building code and properly vents the attic. Also, in vaulted, insulated ceilings, a minimum of 1-inch vented airspace must be provided between the roof deck and insulation. This will help prevent condensation that can cause damage and ultimately lead to mold growth.
In 1978, the newly formed California Energy Commission began calling for all new homes to be built with dual-pane windows. While the changes were certainly a good step in the direction of energy efficiency, by the 1990s, John Gorman had seen many of these “young” windows begin to fail. Technology has improved significantly since these windows were installed, so if your windows are fogging up or hard to open, it may be time to replace them.
Contemporary California Homes

Solar

Heath Galloway laments the moment in the 1980s when architects began to get a little crazy with their designs. All those faceted rooflines, hips and valleys, and dormer windows make installing solar panels far more challenging. Consequently, if you live in a contemporary California home, don’t expect a sleek rectangular array of panels. Instead, your installer will likely put multiple smaller, oddly shaped arrays in place. You may not like the more eclectic look of the broken up panels, but you’ll definitely enjoy your energy savings down the line.
Special Thanks

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