PV Tradeoff: High Performance Homes with PV

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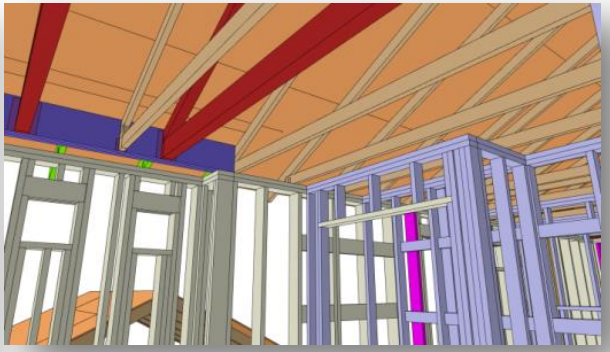
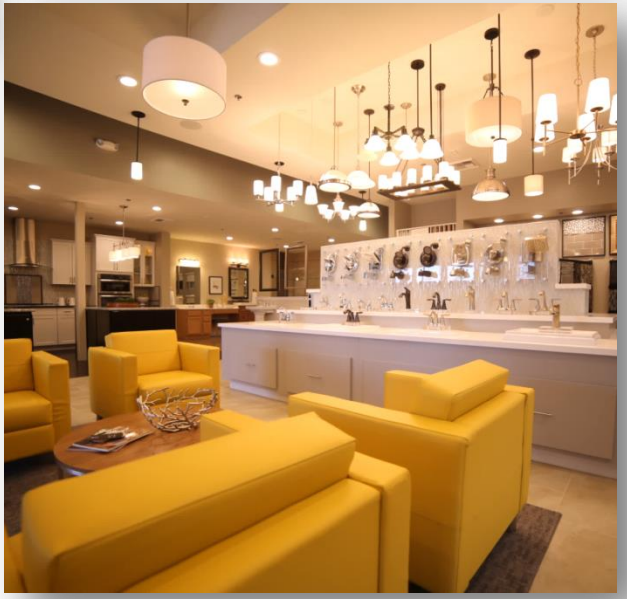
BRAND

VALUE

INNOVATION





85,000 ENERGY STAR Certified Homes; 18,000 in CA

3,300 Solar Homes; 3,200 in CA

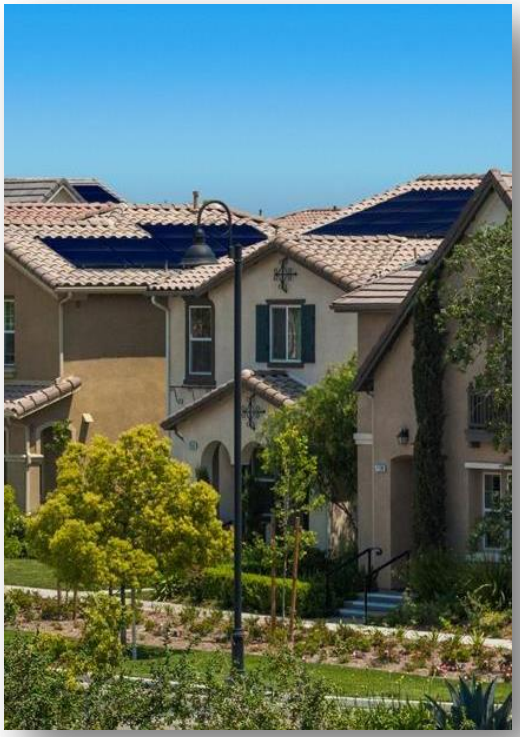
13 Net-Zero Energy Homes; 4 in CA

ZeroHouse Model Homes in CA:
Lake Forest; San Marcos; Lancaster & El Dorado Hills

Focus: Affordable High Performance Homes with Lower Total Cost of Ownership

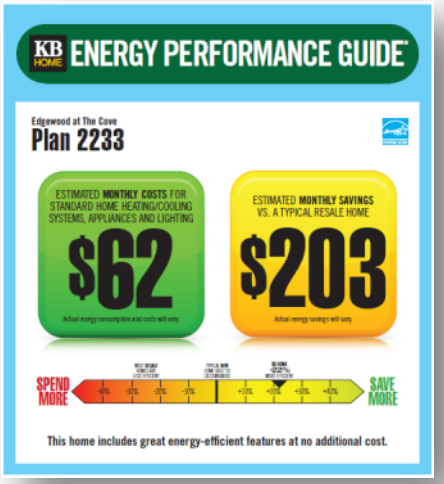
Smarter, Healthier Homes Built For Saving Money, Energy & Water

Easy Math; Easy Savings



Edgewood at The Cove, San Jacinto, CA (built in 2013)

- 2,233 sq. ft. home
- Water & energy-efficient, high quality
- ENERGY STAR certified
- Energy management system
- 2.3 kW solar PV system



Savings in 10 Years:
$24,000 energy bills savings
+ 3,000 water bills savings

$27,000 total utility bills savings

Testimonial from homeowner: *"…going from 400, 500, 600 dollars a month [electricity bills at old home] to less than a dollar in some months, it just amazing!"*

Variable PV Credit

A Powerful Multiplier of Benefits for Builders and Homebuyers

- Builders need a stable construction practices strategy that has a longer cycle than 3 years
  - Knowledge base (internal & external) takes time to maturate
- Variable PV Credit (allow builders to fix envelope practices while decreasing home energy use) can help both builders and homebuyers
  - Reduce risk & costs
  - Homebuyers are attracted to solar (value)
  - Longer warranty
- Ideas for integrating Variable PV Credit in 2016 Residential Energy Efficiency Standards
  - Solar credit needs to proportional to system size
  - Solar credit should be allowed in all climate zones (let PV calculator determine kWh savings)
  - Solar credit should be allowed to trade off against ALL regulated loads

SunPower's 25-year warranty – effective useful life of solar is greater than an AC unit, or other building products with EULs that are shorter, yet get full credit in the Standards.


KB HOME
BUILT TO ORDER
zeroHOUSE 3.0
WELCOME
Join us for a tour of this Double ZeroHouse 3.0 home.
ADVANCED INSULATION & SEALING
LOW-E WINDOWS
HIGH EFFICIENCY HVAC
HEAT PUMP WATER HEATER
ENERGY STAR® SMART APPLIANCES
SMART HOME TECHNOLOGY
SOLAR & STORAGE SYSTEMS
ELECTRIC VEHICLE CHARGING STATION
GREYWATER RECYCLING SYSTEM

KB Home Fiora, El Dorado Hills, CA 2612 sq.ft.

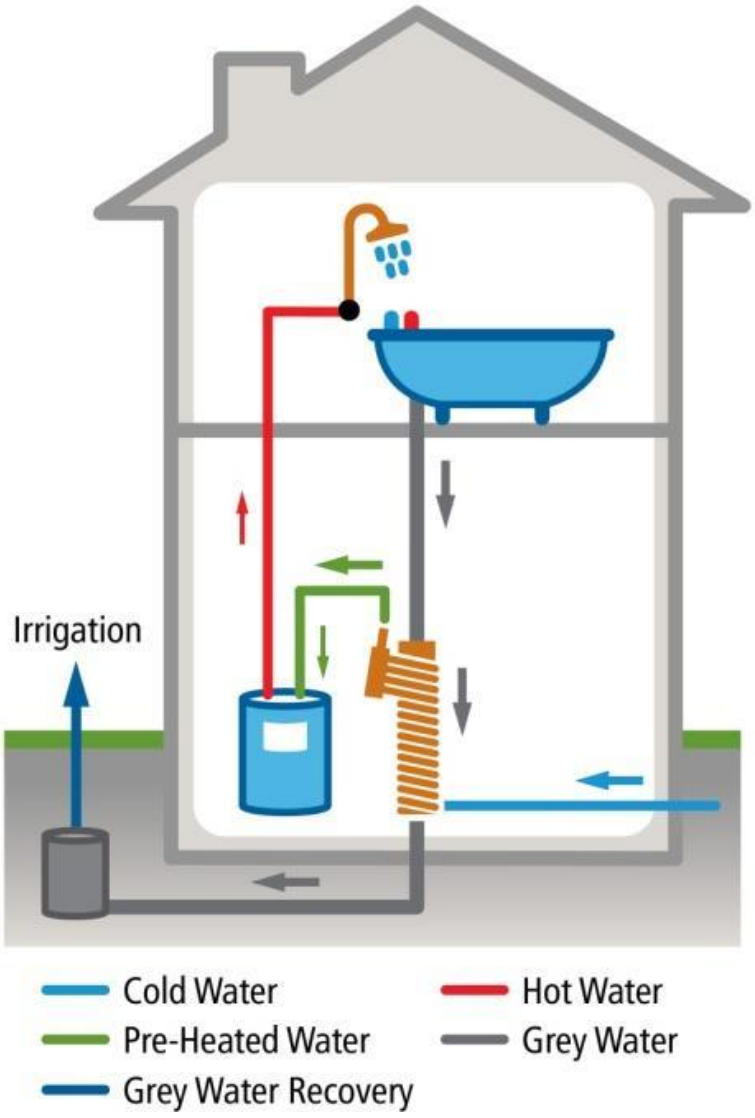
- **Certifications:**
  - DOE Zero Energy Ready Home
  - ENERGY STAR
  - WaterSense
  - Indoor airPLUS
  - 3rd party verification & tests
- **HERS Index Score:**
  - 64 w/o solar PV system (standard ENERGY STAR home)
  - "Load reductions" reduced score to 45 w/o solar PV system
  - Zero w/ 7 kW solar PV system
  - Estimated $4,000+ in annual energy & water cost savings versus resale home

ZeroHouse components:

- Sealed attic (insul. @ roof deck; no vents)
- Ducts and A/C in "conditioned space"
- Higher efficiency A/C (19 SEER two-stage heat pump, coupled with the variable speed fan coil)
- Energy recovery ventilation (ERV)
- Improved wall insulation (R-15 in 2 x 4 with R-4.2)
- Slab edge insulation (R-10)
- Improved air sealing at select locations
- Higher performance windows (R-5)
- 100% LED lights (garage & outdoors use CFL)
- Smart appliances and induction cooktop
- WaterSense labeled fixtures & touchless kitchen faucet
- Hot water on-demand recirculation pump
- Solar PV system with storage and energy management system
- Home automation
- USB outlet at Kitchen counter
- Low-VOC paint & carpets; formaldehyde-free insulation
- Garage features EV charger
- Whole-house surge protector
- California-friendly landscaping
- Weather-sensing irrigation controller
- Grey water recycling system (with energy recycling)
- Dishwasher that recycles water
- Real-time water monitoring system

- **19 "load reduction" points cost $1000/pt.**
- **45 Solar PV points cost $550/pt.**
  (both $ figures are before incentives)

Water & Energy Recycling Systems



KB Home and SunPower, Offering Battery Storage