

Lamorinda OUR HOMES

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Home Energy Audit Identifies Energy Inefficiencies

By Cathy Dausman

As Charles Warner famously quipped, “Everybody complains about the weather, but nobody does anything about it.” Mr. Warner, meet the Penneys.

Damian and Laurel Penney bought a 40-year-old ranch home in Moraga three years ago and have lived with its energy imperfections ever since. “We run the heater, and the house instantly cools down,” Damian Penney complained. “We want more bang for our buck.”

Tired of stashing blankets to snuggle under near living room chairs or raising the thermostat to stay comfortable (Damian Penney) only to see it lowered to minimize energy costs (Laurel Penney), the couple hired Eco Performance Builders to assess their comfort zone and establish project priorities.

The company sent Kyle Bosworth, who has two years on the job and is Building Performance Institute certified as an analyst. Bosworth set to work using a laptop, a blower door, infra-red camera and a digital measuring tape; he inspected attic and crawl spaces, hooked up a blower to run air flow tests, and measured the air cubic volume in each room. And since Bosworth teaches building analysis, he narrated his findings.

A home is a product of a dozen interconnected systems, he said; duct leakage and combustion safety are two common energy/performance failures. Unwanted heating or cooling losses always occur through the path of least resistance – for example, through single-pane windows, under-wrapped HVAC ductwork and under-insulated walls and attics. Skylights and attic knee walls sometimes lack insulation, which works best when it is sealed tightly to the surface.



Kyle Bosworth of Eco Performance Builders inspects the Penneys' home.

Photo Cathy Dausman

New construction insulation standards, expressed in “R” values, include R-6 for ducts, R-13 for walls and R-38 for ceilings. Windows are especially poorly insulated, and the Penneys knew their street-facing windows were only single pane. On the mild autumn test day the sun shone steadily through eastern and south-facing living room windows. The infra-red camera showed east facing walls heated to 88 degrees and south facing walls at 86 degrees.

“If it’s a really hot day we’ll run the air condition-



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ing before we do infra-red testing,” Bosworth said.

HVAC returns are another item homeowners want properly sealed. The Penneys’ supply and return ducts efficiency averaged a lowly R1. “There are places where bare sheet metal shows through the ductwork,” Boswell said. Even heat registers should be properly sealed, using aluminum foil tape, not duct tape, because leaky returns present air quality issues in the house as well as energy loss.

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