



## Building America Case Study Whole-House Solutions for New Homes

# New Tradition Homes

Landover Commons | Vancouver, WA

### PROJECT INFORMATION

**Construction:** New home

**Type:** Single-family

**Builder:** New Tradition Homes  
360-254-9225  
[www.newtraditionhomes.com](http://www.newtraditionhomes.com)

**Size:** 1,625 to 2,304 ft<sup>2</sup>

**Price Range:** \$180,000 to \$399,000

**Date Completed:** 2010

**Climate Zone:** Marine

### PERFORMANCE DATA

**HERS Index:** 65

**Projected annual energy  
cost savings:** \$1,000

**Incremental cost of energy-  
efficiency measures:** \$3,636

**Annual mortgage  
payment increase:** \$290

**Annual net cash flow  
to homeowner:** \$700

**Billing data:** Not available

New Tradition Homes of Vancouver, Washington, partnered with Building America to design homes that achieved HERS scores of 65 or less. The homes were designed with ducts in conditioned space and incorporated moisture management techniques for durability in the damp Northwest climate.

For homes built with crawlspaces, New Tradition employs extensive grading so that the ground slopes away from the home on all sides. Below grade, a sloped trench is dug diagonally across the crawlspace that exits to a low-point drain sleeve with a one-way valve to let water out but not in. This drain sleeve directs the water to an infiltration system (a drywell) or out to the street via a curb cut. Once the sloped trench is dug, 4 to 6 inches of crushed rock are laid over the entire crawlspace and foundation area, and a perimeter drainage pipe is installed. Next, the concrete footing, stem, and foundation walls are poured on top of the rock. A water-proof gasket separates the foundation stem wall from the sill plate. A code-required layer of 6-mil plastic covers the crawlspace ground, with all sides sealed up the foundation wall. Above-grade wall studs are tested for moisture content and dried before drywall is hung if the moisture content is higher than 19%.

New Tradition designs for high indoor air quality in its tightly constructed homes, which achieve air tightness of less than 4 ACH50. The walls are constructed with 2x6, 16-inch on-center wood-framing and insulated to R-21 with GreenGuard-certified EcoBatt non-offgassing insulation that is properly installed to avoid gaps and voids. A fresh air intake is ducted to the air handler return air plenum; a timer operates both the air handler and a mechanical damper on the air intake duct to open the damper, drawing fresh air into and through the house on a continuous on-off cycle throughout the day. Additional ventilation is provided by low-sone ENERGY STAR bath and laundry fans. Transfer grilles between rooms balance pressures and encourage air circulation.

*(Photo top left)* Even in the marine climate, New Tradition Homes builds to conserve water with water-conserving bath faucets, a rain sensor on lawn sprinklers, and native landscaping. Roofing material contains 40% recycled content, concrete driveways use recycled flyash (a byproduct of coal burning), and construction lumber waste is recycled.

## KEY ENERGY-EFFICIENCY MEASURES

### HVAC:

- 93% AFUE sealed-combustion gas furnace, 14 SEER AC, air handler in sealed utility closet
- Most ducts in conditioned space, transfer grilles to balance room air pressures
- Fresh air intake ducted to air handler return
- Low-sone ENERGY STAR bath and laundry fans on timer for continuous ventilation

### Envelope:

- 2x6 16-inch on-center framed walls insulated with R-21 GreenGuard-certified EcoBatt
- R-49 blown-in cellulose attic insulation
- Vented crawlspace or slab
- ENERGY STAR low-emissivity, argon-filled double-pane windows U-0.32
- Dedicated weatherization contractor for caulking and sealing
- 5.2 ACH50 infiltration

### Lighting, Appliances, and Water Heating:

- 100% hardwired compact fluorescent lighting
- ENERGY STAR® refrigerator, dishwasher, and clothes washer
- Tankless gas water heater

For more information, please visit:  
[www.buildingamerica.gov](http://www.buildingamerica.gov)



New Tradition Homes employs best practice recommendations for moisture management, including extensive site grading, below-grade drainage systems, damp proofing of exterior walls, contoured housewrap, gasketing of wall penetrations, and a waterproof gasket under the sill plate.

## Lessons Learned

- New Tradition Homes revised house plans to move ducts and air handlers into conditioned space wherever possible. In some cases, the high-efficiency sealed combustion furnace was located in an air-sealed, conditioned closet in the garage and fresh air was ducted to the air handler from outdoors.
- New Tradition uses a trained and certified weatherization contractor whose only responsibility is caulking and air sealing everything not sealed by the other trades. All wall penetrations are sealed per the ENERGY STAR Thermal Bypass Checklist. Homes typically achieve blower door test results of less than 4 ACH50 and all meet the duct leakage requirement of below 6%; most have duct leakage below 4%.
- New Traditions participated in a research project with Washington State University Energy Office to compare vented and unvented crawlspaces in the marine climate. Results showed the overall energy savings of sealed crawlspaces were minimal in the marine climate and were overshadowed by health concerns about radon gas accumulation. Moisture problems associated with vented crawlspaces were deemed to be related primarily to surface water runoff and could be eliminated with good site drainage.

“During the recession, the only builders in Clark County doing new construction and still selling were builders like New Tradition, who are building really energy-efficient homes. If I was going to buy a new home myself in Clark County, I wouldn’t buy anything but a New Tradition home.”

*Chris Taylor, Installation Manager, Area Heating and Cooling  
(New Tradition’s HVAC contractor)*