

A green demonstration home known as the Built Green Home at Suncadia is Five Star certified by the Seattle-area green home building program. Photo by Robin Rogers.

# GREEN BUILDING ON GREEN ACRES

RESORT DEVELOPMENT PROMOTES GREEN BUILDING PRACTICES THROUGH  
FIVE-STAR HOME AT SUNCADIA.

BY PATTI SOUTHWARD

Back in the nineties, in the popular television series *Northern Exposure*, a moose casually ambled down the main street of a tiny town supposedly in Alaska. In the real, small town of Roslyn in rural Washington where it was filmed, residents still remember that snow had to be trucked in from the nearby mountains to have the set look authentic. Today in this hamlet on the eastern slope of the Cascade Mountains, where the Cle Elum River winds its way through forests of pine and fir, what promises to bring renewed notoriety to this natural haven is a sustainable resort development.

Suncadia, a new community with a green ethic, is growing near Roslyn. Unusual for a resort community, strict regulations are in place to govern how homeowners may develop their property, and the village's condominiums are slated to be LEED-certified. There's also a conservation land trust that sets aside in perpetuity 1,200 acres of wild riparian corridor out of the community's overall 3,600 acres. Fully 80 percent of the property will remain as open space and golf courses, including 40 miles of trails.

The resort also contains a green demonstration home that is certified at the highest level of green - Five Star - by the Seattle-area green home building program. Known as the *Built Green Home at Suncadia*, it is one of only a handful of projects in the state certified at the highest level. A recent study of this home illustrates why a custom home can be green and cost the same as a conventional one without sacrificing aesthetics, personal preferences or comfort.

## INTER-COUNTY COLLABORATION

Although this resort home is located in rural Kittitas County, many of the contractors and material sup-

pliers operate out of adjacent King County, Wash. Shared ecosystems and construction markets transcend the boundaries between these two counties. Across the state, many organizations and governments have partnered to embrace sustainability on a larger scale, making this project a great candidate for collaboration.

Two years ago, King County's Green Building Program was involved in another green demonstration project in the city of Issaquah, a suburb of Seattle, to show that building a green home can be a viable mainstream alternative to conventional construction.

A survey of visitors to the home confirmed that homebuyers were willing to spend up to five percent of a home's purchase price on green features. For this project, King County's green building program wanted to find out if green techniques and products could be cost-effective in a custom green home.

King County's Green Building Program worked with builder Grey Lundberg of CMI Homes to research this issue. They developed a comparison matrix of the products and materials used

## THE BUILT GREEN HOME AT SUNCADIA

WWW.THEBUILTGREENHOME.COM

ARCHITECT: RICHARD FISHER

BUILDER: GREY LUNDBERG, CMI HOMES

DEVELOPER: BRENDA NUNES

COMMISSIONING: TOM BALDERSTON, ENERGY STAR NORTHWEST, AND ERIN HAMERNYK, WASHINGTON STATE UNIVERSITY

SQUARE FOOTAGE: 3,825

BEDROOMS: 4

BATHROOMS: 4.5

## GREEN MATERIALS AND BUILDING TECHNIQUES AT THE BUILT GREEN HOME AT SUNCADIA

## EXTERIOR SITE

LANDSCAPING TIMBER: CMI HOMES MILLED TREES ON-SITE  
 RETAINING WALL: MONTANA ROCKWORKS  
 NATIVE PLANTS, DROUGHT TOLERANT LANDSCAPING  
 CMI HOMES STOCKPILED TOPSOIL FOR REUSE  
 DRIVEWAY PAVERS: ECO-STONE PROVIDED BY MUTUAL MATERIALS  
 LOW IMPACT DEVELOPMENT: ASSOCIATED EARTH SCIENCES, INC.

## EXTERIOR &amp; BUILDING ENVELOPE

STONE VENEER SIDING: MONTANA ROCKWORKS  
 HOUSE WRAP: DUPONT TYVEK  
 CEDAR SIDING: NW SIDING & PREFINISHING  
 METAL ROOF  
 WINDOWS AND PATIO DOORS: JELD-WEN PROVIDED BY VANDER HOEK WINDOWS & DOORS  
 PORCH: CMI HOMES MILLED FROM TREES ON-SITE  
 ICFS: ARXX BUILDING PRODUCTS PROVIDED BY GLACIER NORTHWEST  
 SPRAY FOAM INSULATION: ICYNENE  
 SITE LIGHTING - LIGHT FIXTURES: REJUVENATION, INLAND LIGHTING, AND ALEXANDER LIGHTING  
 FSC-CERTIFIED DECKING: TIGERWOOD PROVIDED BY ENVIRONMENTAL HOME CENTER  
 ENGINEERED LUMBER: PLYWOOD SUPPLY

## INTERIOR SYSTEMS

GEOTHERMAL HEAT PUMP: EARTHHEAT  
 FURNACE: HI-VELOCITY PROVIDED BY ENERGY SAVING PRODUCTS  
 RADIANT FLOOR HEATING: THERMAL SUPPLY  
 HYDRONIC PUMP CONTROL: HYDRONIC CONTROL PANELS  
 AIR PURIFIER: SUN PURE FILTERS/ULTRA SUN TECHNOLOGIES  
 HEAT RECOVERY VENTILATOR: FANTECH PROVIDED BY CASCADE PRODUCTS  
 TANKLESS WATER HEATERS: RINNAI PROVIDED BY CASCADE PRODUCTS  
 HOT WATER RECIRCULATING: METLUND ON-DEMAND RECIRCULATING HOT WATER CONTROL SWITCH  
 HOME AUTOMATION: THE MUSIC ROOM, A DIVISION OF PROCOMM  
 GAS FIREPLACE: FIRESIDE HEARTH & HOME

## INTERIOR FIXTURES

DUAL-FLUSH TOILETS: CAROMA PROVIDED BY THE ENVIRONMENTAL HOME CENTER AND TOTO PROVIDED BY BUILDERS HARDWARE & SUPPLY  
 GRANITE SINK: STONE FOREST PROVIDED BY BUILDERS HARDWARE & SUPPLY  
 COPPER SINKS: HANDMADE IN MEXICO OF RECYCLED COPPER, PROVIDED BY ENVIRONMENTAL HOME

CENTER, AND NATIVE TRAILS PROVIDED BY BUILDERS HARDWARE & SUPPLY  
 BRONZE SINK: BUILDERS HARDWARE & SUPPLY  
 COPPER BATHTUB: BUILDERS HARDWARE & SUPPLY  
 HANDMADE GLASS LIGHT FIXTURE: ALEXANDER LIGHTING  
 COMPACT FLUORESCENT LIGHTING: SEA GULL LIGHTING PROVIDED BY ALEXANDER LIGHTING

## APPLIANCES

DISHWASHER, REFRIGERATOR, GAS STOVE, MICROWAVE, CLOTHES DRYER, WASHER: KITCHEN AID APPLIANCES BY WHIRLPOOL CORPORATION  
 CENTRAL VACUUM: BEAM CENTRAL VACUUM SYSTEMS

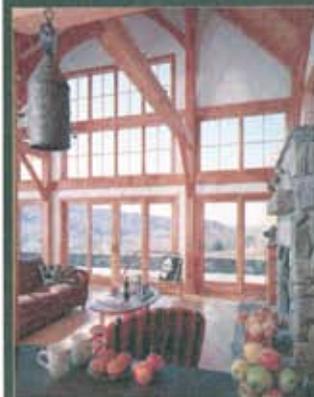
## INTERIOR FINISHES

NATURAL STONE FIREPLACE: MONTANA ROCKWORKS  
 RECYCLED GLASS COUNTERTOP - KITCHEN: ICESTONE PROVIDED BY AMBIENTE TILE  
 COMPOSITE COUNTERTOP - BATHROOM: PRODUCED BY SQUAK MOUNTAIN STONE, SUPPLIED BY THE ENVIRONMENTAL HOME CENTER (EHC)  
 CONCRETE COUNTERTOP - BATHROOM: RAS CONTRACTING CORP.

FSC-CERTIFIED FORMALDEHYDE-FREE WOOD CABINETS - KITCHEN AND MASTER BEDROOM: MANUFACTURED BY NEIL KELLY, PURCHASED AT EHC  
 FSC-CERTIFIED FORMALDEHYDE-FREE WOOD WINDOW SEATS - GREAT ROOM AND DINING ROOM: MANUFACTURED BY NEIL KELLY, PURCHASED AT EHC  
 ALDER CABINETS - THROUGHOUT HOME, AND BOOK-SHELVES: PACIFIC CREST CABINETS  
 RECLAIMED TIMBER FIREPLACE MANTEL: CMI HOMES MILLED TREES ON-SITE  
 EARTH PLASTER WALLS: MANUFACTURED BY AMERICAN CLAY EARTH PLASTER WALLS, PURCHASED AT EHC  
 LOW-VOC PAINT: HORIZON BY RODDA PAINT  
 GLASS MOSAIC -LOFT: ACAPPELLA DESIGN  
 RECYCLED GLASS TILE: OCEANSIDE TILE PROVIDED BY AMBIENTE TILE, AND INTERSTYLE CERAMIC & GLASS LTD.

## INTERIOR FLOORING

CORK PLANKS: VIDA CORK PLANK FLOORING PROVIDED BY THE EHC  
 FSC-CERTIFIED TEAK: TOUCAN TEAK  
 FSC-CERTIFIED AUSTRALIAN CHESTNUT FLOORING: ECOTIMBER PROVIDED BY THE EHC

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in this project. Lundberg's assertion has been that green home-building products can cost less, the same or more, and that the difference depends on the application, installation process and materials selected. More than the cost issue, we found that selecting products for a green custom home is virtually the same as for a conventional custom home, the only difference being the commitment to environmentally preferable products. (The resulting project comparison matrix is posted on King County's Web site; see Resources below, as well as at [www.SustainableHomeMag.com](http://www.SustainableHomeMag.com).)

#### MATERIALS MAKE IT GREEN

All materials were specified for their ability to provide improved indoor air quality. Cabinetry is formaldehyde-free with all low-VOC (volatile organic compounds)



King County sponsored a bus tour for builders and developers to take a free trip across the mountains to see the Built Green Home at Suncadia and encourage green building. Photo by Robin Rogers.

finishes, paints do not off-gas into the home, and materials that are easy to maintain with non-toxic cleaners were selected. Flooring includes cork, woods certified by

#### GREEN CUSTOM VERSUS CONVENTIONAL CUSTOM HOME

THE BUILT GREEN HOME AT SUNCADIA ([WWW.THEBUILTGREENHOME.COM](http://WWW.THEBUILTGREENHOME.COM)) IS A CUSTOM HOME THAT HIGHLIGHTS THE FISCAL BENEFITS, AS WELL AS THE ENVIRONMENTAL AND HEALTH BENEFITS, OF UTILIZING GREEN MATERIALS AND BUILDING TECHNIQUES. THE KING COUNTY SOLID WASTE DIVISION (WASHINGTON STATE) PROVIDES A COMPARISON OF THE ENVIRONMENTALLY-FRIENDLY FEATURES OF THIS HOME AGAINST COMPARABLE CONVENTIONAL MATERIALS TO SHOW ESTIMATED COST INCREASES OR DECREASES OF THESE GREEN PRODUCTS AS WELL AS THEIR POTENTIAL BENEFITS, AVAILABLE AT [WWW.METROK.COV/DNIRP/SWD](http://WWW.METROK.COV/DNIRP/SWD). OR DOWNLOAD THE FULL COMPARISON CHART OF THE ABOVE MATERIALS AND TECHNIQUES IN THE NOVEMBER EDITION OF ED+C'S SUSTAINABLE HOME AT [WWW.SUSTAINABLEHOMEMAG.COM](http://WWW.SUSTAINABLEHOMEMAG.COM).

the Forest Stewardship Council, slate, ceramic, glass and concrete tile instead of fixed carpet that harbors dust, dirt and mites. Indoor air quality is further enhanced using an air purifier that kills bacteria and dust mites as it handles all return air, plus gets help from a central vacuum system.

Lundberg, along with homeowner Brenda Nunes, also committed to featuring regional products where possible. Many materials also use recycled material harvested locally through municipal

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recycling programs. For example, Squak Mountain Stone countertops are created locally by mixing waste paper and fly ash to create a material that is similar to concrete or soapstone. Squak Mountain Stone is also a member of King County's Link-Up program, which supports businesses that process recyclable materials to manufacture recycled content products.

Suncadia allows trees to be removed from the land only if they interfere with building foundations. For this project, those trees that were cut down were milled locally and used throughout the home as columns, beams, porch timbers, a fireplace mantel and land landscaping timbers. Other items made from wood, including cabinets and window seats, were made from sustainably harvested sources and finished with non-toxic varnishes.

Selecting green materials will sometimes save time and effort. For example, Lundberg points out that the insulated concrete forms foundation actually causes less physical strain on the installers. The installation is cleaner than traditional methods, with no stripping, cleaning or transporting the form panels that are required with conventional poured foundations.

#### SAVING ENERGY AND RESOURCES

This home is also ENERGY STAR-rated, and achieves 60 to 70 percent greater energy efficiency than an average home. A geothermal ground-loop heating system relies on abundant renewable energy and is coupled with a back-up furnace and radiant floor heat. To optimize the system, spray foam insulation stops air flow through the walls and ceilings, providing the tightness of structural insulated panels with the advantage of being able to run utilities inside the exterior wall cavity. A heat recovery ventilator captures waste heated air, while a hot water recircu-

lating system is partnered with an on-demand water heater for maximum efficiency. Appliances and many of the lighting fixtures are ENERGY STAR-rated, and the exterior site lights are "good neighbor" dark sky-rated that help prevent nighttime light pollution.

By staying under 3,000 square feet, this home is smaller than most surrounding homes in the community, but will ultimately provide a better return to the homeowners. Smaller spaces not only use less materials to build, but will consume less energy and resources to operate over the life of the project.

With current pressures on the environment and society based on fuel costs and limited resources, the Built Green Home at Suncadia models not so much a "green" trend, but instead, common sense. As King County and its neighbor Kittitas County experience

growth – that's about 30 percent in King County in recent years – we are confident that the lessons from this green home can be applied to other custom projects as well as multifamily, remodels and production homes anywhere in the nation.

As Eddie Albert crooned, "Land spreading out so far and wide, keep Seattle, just give me that countryside." ■

*Patti Southard is a green materials expert and program manager in King County, Wash.'s Green Building Program. She is also a co-chair of the executive committee for the Built Green program of King and Snohomish Counties, Wash. Part of her mission is to help educate the construction industry as well as residents about how sustainability can make a positive difference to the bottom line and the environment.*

*E-mail Patti.Southard@metrokc.gov.*

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