



# weighing the green of green

by kirsten delara

homeowners, builders eye costs of benefits

**W**HILE THE EMERALD CITY HAS LONG BEEN PROUD OF ITS GREEN ROOTS, rising environmental, health and energy concerns are prompting Seattleites to go greener. "There has been a fundamental change, even in the last year, in the interest in green building and sustainability issues like alternative vehicles and energy consumption," explains Aaron Adelstein, executive director of Built Green, a residential green building program of King and Snohomish Counties.

In fact, Seattle is considered a national leader in green building, where green homes are getting hot. How hot? Adelstein's final figures for 2006 include certifying 3,107 housing units in King and Snohomish counties as Built Green, (which he estimates is close to 25%), and a grand total of 10,000 certifications since they began in 2000.

If those numbers don't convince you that green building is hitting the mainstream, wait until July, when all homes in the 2007 Street of Dreams in Snohomish will be Built Green certified. For this luxury home and garden tour, minimum requirements are a 3-star level, but Adelstein says at least two are attempting the highest certification of 5-stars. One featured builder (Grey Lundberg/CMI Homes, Inc.) built the luxury 5-Star Built Green home at Suncadia, which Adelstein considers "one of the greenest homes ever built in the Northwest."

What does green have to offer? Green building helps the environment by preserving natural resources, forests and wildlife habitats, as well as improving air and water quality. Green building offers homeowners a healthy living environment with lower energy and "life-cycle" costs, spanning the life of the building. It can even increase property values. Now homes for sale usually indicate whether they've been certified by an environmental program.

With increasing options, green decisions can be overwhelming. Jon Alexander, owner of Sunshine Construction specializing in green building and remodeling, promotes informed choice. "If people are going to go green, the better informed they are,

*opposite: Deck shows salvaged decking and siding.  
—Sunshine Construction; photo: Grace Huang*

*above: Solar photovoltaic panels convert the sun's energy.  
—Sunshine Construction; photo: Jon Alexander*





"DEEPLY GREEN HOMES CAN BE VERY BEAUTIFUL, HEALTHY PLACES."  
—JON ALEXANDER



*A new green home on Vashon Island. —Harrison Architects  
/Anderson Builds; photo by: Rob Harrison AIA*

the better the finished product will work for them," explains Alexander. "It's critical that people comprehend the major components of their house in terms of green, so they can ask and get what they need."

Yet green is just like any other building factor: homeowners need to balance wants against added expense. "A green project doesn't give you an excuse to give up on other criteria such as cost, ability, performance, aesthetics," says George Ostrow of VELOCIPEDA architects, Seattle. "It has to be win-win all the way around."

How to make product decisions? It starts

## green is really a layering of many small things, each making a difference

with getting informed. How well does a product hold up? Try to talk to someone who has used it before. "The environment is not a simple thing at all," says Ostrow. "You look at everything and try to make the best decisions you can, but there's no silver bullet. Fortunately our minds are wonderful computers. They can take a lot of vague intuitive information, make a decision and generally feel good about it afterwards."

Because many green products are new, it's harder to find published track records or ASTM standards (American Society for Testing and Materials). It also depends how the material would be used. And some products marketed as green are not green at all. "There is so much information out there, it can be really difficult to tell what's green and what isn't," says Adelstein. "There's a lot of 'greenwashing' going on, where products will be labeled green but aren't. Once you can figure out what is really green, then you can make decisions."

To help consumers, builders and architects evaluate green products and agree on "what's green," the Seattle area has a number of certification options:









# green thoughts

*The largest impact our homes have on the greater environment is how much energy they consume. So put as much insulation in the attic as possible and insulate walls and floors as needed. Replace single-pane windows with double-pane, or add storm windows. Have an energy efficiency specialist help find places to tighten up the house and reduce leaks.*

—Jon Alexander

*Turn off the lights, turn down the thermostat, close your laptop and go talk to your neighbors. Get out of the car and walk. That's tough to sell. With downhill skiing there's unlimited gear to sell, but for yoga there's just a mat, a brick and a book. So greening is a lot like yoga, there's not a whole lot of gear to sell. You can't buy your way out of it—you gotta just do it.*

—George Ostrow

*Upgrade to Energy Star appliances. Unplug your charging units, and put home entertainment centers on a power strip: they still use a lot of power when turned off. The single most effective thing people could do, would be to change out to compact fluorescent lighting. If people all across the country would change out these light bulbs, it would eliminate a lot of power plants.*

—Tom Balderston

*Spending less money is another way of reducing environmental impact. Every dollar we spend has an ecological consequence. Often, when people first become interested in green architecture, they gravitate toward the innovative and funky materials. We start thinking, "well, this is an interesting material: how can we use this?" We end up going shopping, looking for green materials, which is actually a bit of the problem that has gotten us into this situation in the first place.*

—Rob Harrison

- > **THE BUILT GREEN PROGRAM.** For residential remodeling and new home construction. A 1-5 STAR rating system quantifies environmentally friendly building practices.
- > **THE LEED RATING SYSTEM (LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN).** Originally designed for commercial buildings, it's now in a pilot stage for residential buildings. Levels range upward from Certified, Silver, Gold to Platinum, which is even tougher than the Built Green's 5-star. All new and renovated City of Seattle buildings over 5,000 square feet have to achieve a LEED Silver rating.
- > **THE NORTHWEST ENERGY STAR HOMES PROGRAM.** The focus is on enhancing new home energy efficiency.

To keep track of all these resources, incentives and assistance offers, Seattle's "City Green Building" webpage offers program information, design guidance, green home remodel guides and events calendar.

In traditional construction and remodeling, homeowners balance functionality, aesthetics, personal taste and costs. To go Built Green, they also need to select components from four main categories:

- > Energy efficiency
- > Natural Resource conservation
- > Indoor air quality
- > Water quality

## 1. energy efficiency

The goal here is to make your home energy efficient without losing gains to the outside. That means selecting high efficiency water heaters, appliances and lighting which meet "Energy Star" criteria, as well as heavy emphasis on insulation, sealing of heat and cooling ducts and advanced caulking techniques.

Building performance consultant Tom Balderston computes ratings and predictions for builders and architects to obtain LEED certification. Concerned by global warming, he notes that 40% of green house gas emissions come from the operation of buildings. That means that Seattle's housing boom could have startling environmental impacts, in addition to a need for more power. "The whole idea behind energy efficiency is to reduce that need," explains Balderston.



Two substantial ways to reduce overall energy use is choose the smallest house that will meet one's needs, and live in a "walkable" neighborhood near your work or within easy reach of transit. For those living within the city's core, the two go hand in hand. "In Seattle it's exorbitantly expensive to build, so people who were once willing to have extra rooms 'just in case' do without," explains Ostrow. "In particular, people now ask for a great room—a living room-dining room-kitchen where they can cook and entertain—which functions as the public core of the house." No more dining rooms 'just for guests'.

Rob Harrison, Harrison Architects, Seattle, is seeing more clients interested in energy independence since last fall's windstorm left many residents without power. Here in the Northwest, viable renewable energy options come from the sun. Solar hot water is "very cost effective for Seattle," says Balderston. "Residents can get from 50-70% of their hot water from the sun, and systems can be installed for under \$5,000."

Solar panels that generate electricity (photovoltaics) are also growing in popularity despite their larger initial investment of \$15,000 and up. They also offer some intriguing paybacks:

- > **Puget Sound Energy** offers rebates on installation of solar-power equipment and pays customers for each extra kilowatt-hour their systems generate and feed back into the energy grid.
- > **Seattle City Light** and Snohomish County PUD offer Net Metering, where any excess electricity generated is fed back into the grid, and the customer's account credited for future use.

Houses designed for passive solar maximize the sun's heating properties in winter while minimizing it in summer. In conjunction, adding thermal mass (for example concrete or stone) helps even-out fluctuating temperatures, absorbing solar heat during the day and slowly releasing it as temperatures cool.

## 2. natural resources conservation

This area has plenty of tradeoffs without black-and-white clarity. A house built of wood is less energy intensive than one from steel and glass, but you also



*This house used stack framing which reduces the amount of wood used in framing by 25-30 percent while increasing insulation—all while lowering both material and labor costs. — Harrison Architects/ Anderson Builds; photo credit: Rob Harrison, AIA*

have to look at where it came from and how it was made. "If you haul something from Australia, yet it doesn't harm the ozone layer in its manufacturing, what's more green?" asks Ostrow. "It's the old 'paper or plastic' choice at the grocery store. The answer, of course, is cloth!"

Traditional materials can be made greener by reducing impacts upstream and down. That might mean choosing sustainable FSC certified (Forest Stewardship Council) harvested wood, eco-friendly renewable cork, natural linoleum and bamboo. Some creative "cloth" alternatives could work even better: for example, SIPs (Structural Insulated Panels) which reduce the amount of lumber for framing while adding high insulation levels.

Another way to conserve resources is in the recycling arena. Alexander specializes in using salvaged and recycled content materials in construction and remodeling projects. When remodeling, instead of demolishing an existing area to be removed, he deconstructs it to save its component parts that can be reused in the project or by others. Instead of filling landfills, wood, brick, concrete, copper and glass are either reused in their current condition or recycled into components for new use. A number of salvaged elements find their way to Seattle vendors such as the Re Store. A house Alexander built a few years ago replaced an older home that was completely deconstructed by the Re Store, adding about eight days to the construction schedule. Dubbed "the sensible house" by its owners, it was the first home to receive a 5-star rating from the Built Green program.

## 3. indoor air quality

It's a volatile combination when Americans spend close to 90% of their time indoors, where many modern materials and construction solvents create toxic off-gassing. Rising environmental health concerns such as allergies, asthma and chemical sensitivities have





*clockwise from top: First Built Green 5-Star remodel, Perkins Lane, Magnolia. —Sunshine Construction; photo: Grace Huang*

*A shower with recycled glass tile by Bedrock Industries. —Sunshine Construction photo credit: Grace Huang*

*5-Star Built Green Home at Suncadia showcases "built green" finish materials, using innovative, durable and recycled content/ recyclable materials where available. —photo: Photo Northwest Property Imaging Inc.*





*Using innovative, durable and recycled content/recyclable materials where available. – photo : Redman Construction*

escalated healthy home awareness. According to Alexander, key factors for maintaining air quality are: utilizing hard surfaces on floors; choosing low toxic, low VOC (Volatile Organic Compounds) paints, cleaners and materials; and avoiding products with urea-formaldehyde. Formaldehyde, a known carcinogen, off-gasses from adhesive resins used in pressed particleboard, fiberboard, plywood panels, as well as foamed-in-place urea-formaldehyde insulation.

With the green emphasis on airtight homes, comes an added need for controlled ventilation. Ideally, whole-house fans would balance air flow,



but even a bathroom fan to maintain moisture levels below 65% would help keep mold and dust mite populations in check.

There are also easy solutions. "Probably the simplest, most cost effective way to improve air quality in the house," says Harrison, citing pesticide and pollen concerns, "is to take off your shoes when you come in the door."

#### 4. water quality

Water quality strategies focus on reducing storm water runoff into drains and recycling rain water. The first option calls for replacing normally watertight surfaces such as driveways, walkways and patios with porous paving to allow rainwater to soak into the ground. Or install a green garden on a flat roof, perhaps the largest impervious area on a homeowner's lot. Rain water is slowed as it makes its way through plant roots and soil on top of a waterproof membrane. Heating and cooling costs can also be reduced from this increased thermal mass.

The second option, using rainwater as a free source of landscape irrigation water, is quite popular here. When rain barrels first arrived, they became an instant sold-out commodity in the Seattle area. While still popular, we've realized their storage is a bit small—they're great in spring and fall, but come our dry summers, there's no water when you need it. So what's the latest? Large cisterns, either above or below ground, that store a lot more rainwater.

Collected rain water also has uses beyond landscape irrigation. One such project Harrison is working on in West Seattle involves an underground 1,500 gallon tank. When the tank is full, the filtered water will provide water for laundry and flushing toilets for up to 20 days. If the water in the tank gets too low, city water automatically kicks in until the next rainfall.

In summary, whether you are thinking about building, remodeling, or just increasing the health of our planet, green is really a layering of many small things, each making a difference. As we make decisions about what will keep us healthy and reduce home and environment costs, we all become the richer. "Deeply green homes can be very beautiful, healthy places," says Alexander. "If people had the opportunity to walk through them in our community, they wouldn't be interested in anything else."

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## reference links

### SEATTLE AREA BUILT GREEN

<http://www.builtgreen.net/>

### SEATTLE'S CITY GREEN BUILDING

<http://www.seattle.gov/dpd/GreenBuilding/>

### LEED FOR HOMES:

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=147>

### NORTHWEST ENERGY STAR HOMES:

<http://www.northwestenergystar.com/index.php?cID=125>

### NORTHWEST ECOBUILDING GUILD

<http://ecobuilding.org/>

### PUGET SOUND SOLAR

<http://www.pugetsoundsolar.com/>

### KING COUNTY FLUORESCENT BULB RECYCLING PROGRAM:

<http://www.metrokc.gov/dnrp/swd/takeitback/fluorescent/index.asp#members>

### THE SENSIBLE HOUSE PROJECT

<http://www.sensiblehouse.org/>

### LOCAL 100% RECYCLED GLASS TILES:

<http://www.bedrockindustries.com>

### FOREST STEWARDSHIP COUNCIL CERTIFIED WOOD:

[www.dunnlum.com](http://www.dunnlum.com)

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