



BUILT BY GEOFFREY HOBERT BUILDERS

First in a Series

Is It Your Color?

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In case you have not heard, green is the new black, but mind you this is no fashion trend. Decorating, designing and building sustainable homes is the wave of the future. This first installment, in a three-part series on the fundamentals of sustainable design and build, will help ensure that your project won't get left on the beach.

Sustainable design and build, a.k.a. building green, is defined by the efficient use of energy and material resources in the construction, operation and maintenance of a structure so as to minimize its overall impact on the environment. Designing and building green has been around for decades but is now getting renewed attention due, in part, to high energy prices and concerns over the United States' reliance on foreign oil and global warming. The fact that green design/building has historically not garnered a lion's share of the construction market can be attributed to both lack of

financial incentive as well as a perception of poor product quality and selection. Today there is a wealth of well-studied environmental building science along with an incredible selection of innovative green products that are making sustainable design and construction not only easy but affordable. This is evidenced by the fact that "big box" retailers like Home Depot are promoting environmentally friendly products.

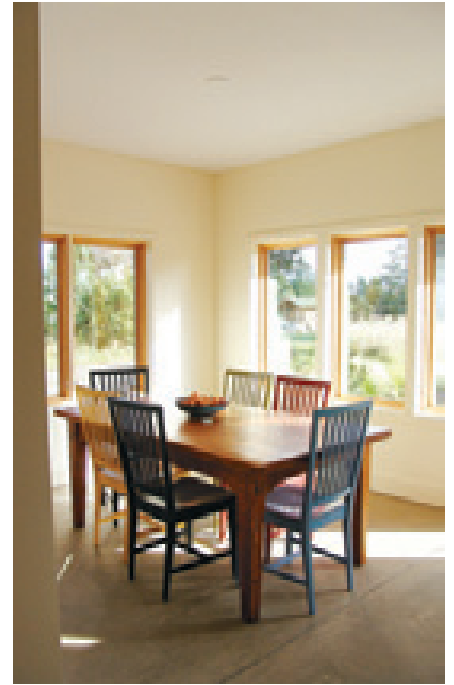
Designing and building green is not an all or none proposition. It is not a matter of single-handedly saving the environment on one's own, but rather focusing on the small things that individuals have control over, such as installing dimmer switches on lights, replacing incandescent light bulbs with fluorescents, or fixing leaky faucets. If everyone does a little bit, the benefits will add up.

To expand on this philosophy, we turn to the four Rs of sustainably designed and built homes: rethink, reduce, reuse and recycle.

Rethink: We need to rethink the way we have been designing and building residential spaces. Start by siting houses on their lots so that you can maximize day lighting and minimize western exposures (unless you have sufficient roof overhangs), which will reduce the need for artificial lighting as well as cooling needs in summer, not to mention maintenance of the home, all of which will have a positive impact on the environment. ►



Solar panels are one way of cutting energy consumption.



Net zero energy, carbon neutral home, built by Geoffrey Hobert Builders; Mary Terryl, designer.

Second, we need to rethink the size of residential structures. With careful design and planning, it is possible to maximize space utilization, providing a spacious living environment without tipping the project into the McMansion category. Sarah Susanka, the author of the "Not So Big House," suggests that bigger is not better when it comes to housing size and that using higher quality construction and finish materials rather than building more square footage will produce more satisfying results. Also consider the style of architecture: In an effort to minimize material usage, modern or contemporary architecture with its inherent open floor plans has fewer walls, which means less framing, wall board, millwork and ducting as well as more potential for natural day lighting. All of these suggestions will reduce building costs as well as operating and maintenance costs by minimizing utility bills and material replacements, effectively saving homeowners money and potentially increasing their leisure time.

From the build point of view, consider the materials with which you are building. By utilizing factory made and assembled structural materials such as panelized walls and floor joists, roof trusses,

structurally insulated panels (SIPs), gluelams and LVLs, you can reduce the logging of old growth forests, construction waste and project delays while saving considerable time and exposure to the elements during the construction. A house built with SIPs can be assembled in five to seven days with the assistance of a crane (this includes the frame, exterior sheathing, insulation and interior sheathing) versus over eight weeks for the same materials on a traditional stick-built home in good weather.

Lastly, rethink your selection of common materials. You can start by substituting a standard product for one with a green benefit, or by altering a home's design in a green way. For example, most homes will be painted on the interior. Consider using a low-VOC (volatile organic compounds) paint such as Yolo or Ecospec. These paints not only reduce smog emissions but also preserve indoor air quality, allowing you to breathe easier while applying the paint and thereafter. Houses need toilets, so why not consider a dual flush model that uses only 0.9 gallons per flush for liquid waste and 1.3-1.6 gallons for solid waste. Homeowners will recoup the investment via a reduction in their water bill over the life of the unit.

Consider installing tubular skylights to enhance day lighting and reduce dependence on artificial lighting and get a nice little tax deduction for your troubles (go to www.EnergyStar.gov and search tax credits or your local utility companies website to find all the products that are eligible for tax breaks and rebates).

Reduce: It is important to minimize a home's energy and water consumption as well as its operating and maintenance requirements. To reduce energy and water consumption, focus on selecting Energy Star rated appliances (www.EnergyStar.gov), low-flow plumbing fixtures, especially those that sport the WaterSense certification logo (www.epa.gov/watersense) and using native plants for landscaping, which have much lower irrigation requirements than nonnative species. The key to reducing maintenance requirements and material replacements is by selecting the most durable products a project budget can afford. As an example, metal roofing has a 50-year life versus three-tab asphalt roofing that has an expected life of 20 years. The metal roof is more expensive on the front end but is has more than twice the life of the asphalt roof, making it less expensive in the long run. Metal roofs

are also easier to maintain than asphalt and they can be recycled at the end of their useful lives unlike asphalt roofs.

Reuse: Consider remodeling or expanding an existing home rather than building new. By reusing an existing lot, foundation and framing, you are preserving what is referred to in the trade as embodied energy. Embodied energy is the total amount of energy required to produce, transport and install a product. Preserving embodied energy can be augmented by using salvaged materials. Reusing materials whenever possible reduces project costs by avoiding the expense of disposing of them and by reducing the need to purchase new materials. When reusing structural materials, it is important to check with your local building authority regarding strength reductions or limits. Code may require some downgrading of structural capacity. Some materials commonly reused include: framing timbers, concrete forms, windows, doors, cabinets, and moldings, just to mention a few.

How do you get the most reusable materials out of a project? You deconstruct. If you really believe that you need to knock down an existing house to build a better one, consider deconstruction first; this can be applied to remodels too. Deconstructing is just as it sounds, you take the structure apart, sometimes stick by stick. According to Quarterly Remodeler magazine, the average new home produces between three and five pounds of construction waste per square foot (or 10,000 pounds for a 2,500-square-foot home) while the average remodel produces between 70 and 115 pounds of construction waste per square foot, 85 percent to 90 percent of which is recyclable. I recently deconstructed my own 2,000-square-foot home and in the process diverted approximately 40,000 pounds of waste from the landfill not to mention saving at least \$8,000 in dump fees.

Successful deconstruction takes planning and creativity. It is important to determine how and where salvaged materials will be stored for future use as well as to decide how/where to best ►





This kitchen was a remodel. The cabinets are by Neil Kelly and are made of wheat board construction with a low VOC finish. The countertops are Squak Mountain Stone and are a recycled content concrete like product. The backsplash and cabinet pulls are both recycled glass. The pulls were done by Messolini Glass on Bainbridge Island. This kitchen also includes a hot water relay system that reduces water usage.

recycle the materials that will not be reused in a project. Unwanted materials can be sold on eBay or Craig's list, donated to charitable organizations such as Builders Bargains (a division of Kitsap Habitat for Humanity) in Bremerton and the Re-Store in Seattle or responsibly recycled at your local transfer station or through local chapters of Freecycle.org. If you are not up for doing the deconstruction yourself, there are companies and nonprofit agencies for hire that specialize in deconstruction.

Recycle: As mentioned earlier, up to 90 percent of construction waste is actually recyclable. So whether a building project entails deconstructing and building back up or building new, a concerted effort should be placed on recycling construction debris. For example, save the end cuts from framing timber for kindling or give them to someone who uses a wood burning stove for heat. Maintain a collection bucket for bent nails, bits of wire and metal straps from wood deliveries and periodically recycle this at your local transfer station. Save the plastic wrap off product packaging and use as drop cloths, masking off painting areas or covering materials being stored outdoors. Recycling will reduce dump fees and minimize the quantity of materials being placed





in landfills while potentially providing useful items to others and a tax deduction to the donor.

There are multiple motivations for designing and building green. For some, it is the monetary savings, for others, it is the sense of wellbeing by living in a healthy home, and for many, it is the idea they are reducing their impact on the global environment. Whatever the reason, the key to successfully designing and building green is the same as conventional design and build — planning. By incorporating the four Rs of sustainable design and build into the planning of a remodel or built-new project, you can ensure your efforts will pay off aesthetically, ecologically and economically. So ask yourself, is green your color? ♦

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In the next installment, we will look at "how do you know that you are really getting a green product/home?"

The final installment will look at design features and materials to make your kitchen, bath or laundry room environmentally friendly