

Sustainable Home Design

A Green Building Revolution: The New Reality

Above: Winning Design for the Bird Island Zero-Energy Home Competition in Kuala Lumpur, Malaysia, by Zoka Zoka. "Rafflesia House" is a study of balance between the outside and the shelter from plants, animals, heat, sun and rain. The building is elevated, allowing various plant species to envelop the surrounding environment.

tried and tested through years of use and reuse are usually the best. For example, a reclaimed oak floor from trees that were locally harvested 100 years ago will always be better than the material du jour, such as brand new bamboo floors imported from many miles away with uncertain renewable pedigree."

Despite the futuristic landscape posited by the experts, part of the solution may well lie in the past. "In the early 20th century, architects and engineers did not depend entirely upon the highly advanced technologies we take for granted today," Hampton says. "While new advances such as electric light, elevators and steel were increasingly used, buildings still relied heavily on tried-and-true engineering, design and planning principles, such as locally sourced materials, balancing structural redundancy with efficiency, local energy supplies (water, electricity, heat), naturally lit and ventilated



"Rafflesia House," the winning design for the Bird Island Zero-Energy Home Competition in Kuala Lumpur, Malaysia by Zoka Zola.

spaces and civic responsibility and presence. Design and plan like your great-grandparents might have, though they probably looked to their tradition and just did it."

Hampton hopes that the future of Chicago includes a strong culture of preservation and building reuse that will keep our older buildings in good working order. He would like to see architecture students challenged to

design buildings for disassembly and reuse, to reclaim materials and plan for what will happen to their buildings and products once their useful life is over, instead of ending up in landfills.

In Wisconsin, architect Roald Gunderson is building what he calls "whole tree structures," which seem both "ancient and avant-gard." He takes unmulled, round timbers from sustainable forest thinnings and uses them as structural framing to replace lumber, steel and concrete in buildings.

"We shape trees while they're growing into the specific structural components for our buildings," Gunderson says. "Whole trees are 50 percent stronger and as much as a hundred times as abundant a resource as millable trees. It has a similar weight-to-strength ratio as steel and is safer in a fire." In addition, whole trees require little energy to produce and thinning a forest and harvesting trees for this

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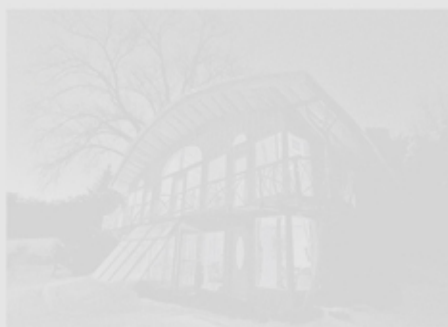
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Scandinavian Design

design preserves the genes of older trees for future forests.

At Valucine North America, the European company has committed to having a zero-effect on the environment and wants to repay its debt to nature by using recycled materials and farmed trees and replacing trees with twice the number needed to offset the CO2 emissions of their productions. The company founded Bioforest, an organization that focuses on planting, education and environmental preservation. Valucine uses up to 86 percent less material than other brands, and all of their kitchens are recyclable after their use is up. In addition, they use non-toxic, water-based and citrus oil finishes.

Famous for its glass kitchens, Valucine has added a new twist, Artematica Vitrum. It is now possible to reproduce drawings and painting on the glass fronts of its cabinets from Monet to your child's artwork.



"Chrysalis House" by Roald Gunderson.

Chicago architect Zoka Zola worked on designs for a groundbreaking project in faraway Kuala Lumpur. For the Bird Island project, she first sought to maximize the potential of the building to be a very pleasant space for its inhabitants by connecting very carefully and respectfully to the natural surroundings.

"In Kuala Lumpur, thermal comforts and cooling are the main factors, and reducing the

need for air-conditioning is the best way to save on energy," Zola says. "We achieved that by designing a very successful form and devising a set of strategies that all play together to achieve a zero-energy house. The building is unique in that it is an answer to the climate conditions, much like the traditional Kampong house of Malaysia, but it also takes sustainable design into the 21st century and contributes to the legacy of architecture. Its features are integrated into the design. They are part of what shaped the design."

One of the biggest obstacles to building green is the perception that the costs are much higher than traditional construction. This may be due to a misperception or the fact that inexperienced builders may be doing the work. "Many studies have shown the actual cost premiums for high-performance green buildings to be two percent or less," Yudelson writes. "There are a number of determining



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