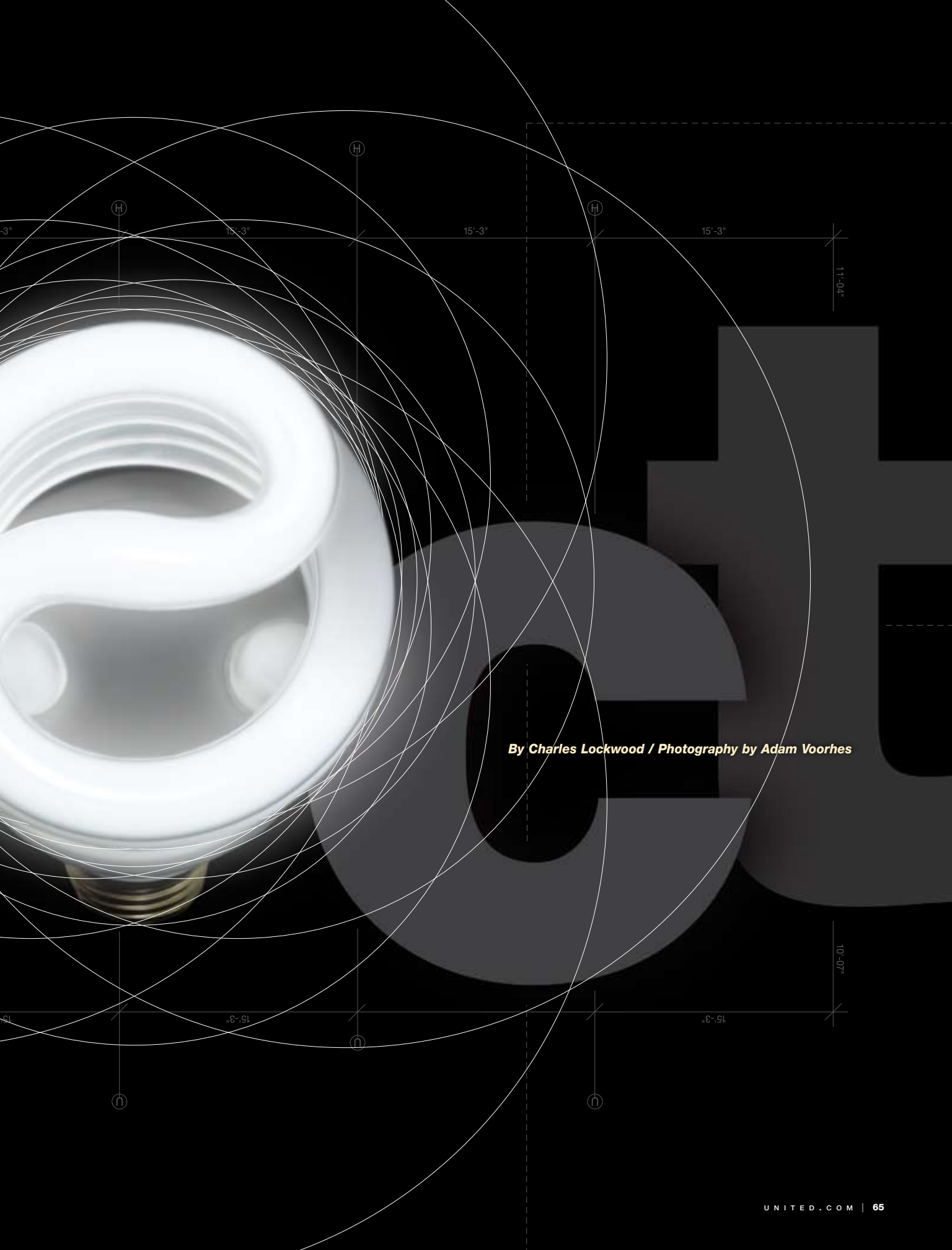
greenHouse effect

It's easy not going green, especially when it comes to buying a home. But that's about to change. The release this summer of new LEED residential standards may be a tipping point in home-buyers' ability to put their money where their mouth is. ►►►



By Charles Lockwood / Photography by Adam Voorhes

The trend toward green is growing. Corporate headquarters are leading the business world away from buildings that waste significant natural resources and energy and are made of toxic construction materials that harm people and the environment. The new structures consume far less energy than standard buildings and emit fewer greenhouse gases.

It was only a matter of time before the public took the trend to heart and wanted to bring it home. Almost all homes consume—and waste—vast amounts of energy. In the U.S., residential heating and cooling make up 20 percent of the country's total energy use. In the UK, that figure is 25 percent. Heating, in fact, comprises 60 percent of a UK household's total annual power use. Anywhere you look, poor insulation and leaky windows and doors mean that much of a household's heat escapes.

Homes also emit greenhouse gases, which contribute to global climate change. And most homes are filled with toxic building materials, such as formaldehyde-laced particle board and dioxin off-gassing vinyl flooring that can create health risks for residents, especially young children and the elderly.

The solution, of course, is high-performance green homes. They are 30 percent to 50 percent more energy-efficient than "standard" homes, use less water, and because they are constructed without toxic building materials, green houses are much more healthful to live in.

But it hasn't been easy to move into this ideal new neighborhood. Homebuilders have recognized the marketing power of proclaiming themselves green, but a truly green home hasn't been easy to find. When green "window dressing"—a solar panel here, some recycled products there—embellishes largely standard housing, homebuyers and renters can find it hard to see beyond the "greenwash" and accurately evaluate a home's sustainability.

Until now.

In fall, the U.S. Green Building Council issues its easy-to-use LEED for Homes rating system. LEED standards, meaning Leadership in Energy and Environmental Design, have been in place since 2000 in commercial settings. Their emergence for residences follows a two-year pilot program that built more than 1,600 green homes across the U.S.

So get ready. Green homes may soon be coming to a cul-de-sac near you.

LEEDing Houses to Green / LEED for Homes gives homebuilders and homebuyers a national residential standard, which addresses criteria that include location, sustainable site, water efficiency, indoor environmental quality, materials and resources, energy and atmosphere, and homeowner awareness or education. The program has four award levels: Certification, Silver, Gold, and Platinum.

Of course, LEED for Homes isn't the country's only national rating system for residences. Standards for the EPA's Energy Star for Homes program were incorporated into the LEED program. Other guidelines include Built Green and Green Globes. The National Association of Home Builders has its Green Home Building Guidelines.

cybersidebar

If you're interested in going green, you're not alone. For a list of green residential developments around the world, go to **hemispheresmagazine.com**. Click Cyber Sidebar.

But LEED has been enthusiastically embraced by local and state governments, federal agencies, real estate developers, the public, and the media. "LEED has become a familiar and respected brand that developers and consumers trust," says Rick Fedrizzi, the president, CEO, and founding chairman of the Green Building Council. "LEED for Homes assures consumers that homebuilders have used best practices that deliver the highest performance."

Goodbye greenwash, hello genuinely green builders and green homes.

Mything the Point / Some insist that the U.S. residential market won't go green. They believe the first of a few myths about green homes: that they cost more—much more—than standard homes.

Luckily, they don't.

Environmentally friendly materials and products are increasingly available and often cost no more than standard products. Green technologies also have dropped in price. Today, the cost of a rooftop photovoltaic electric system is half of what it was 10 years ago. Rebates and grants from government and utility companies lower that cost further. Consider the lower utility bills in this era of high electricity and natural-gas costs, and these homes often can be less—even much less—expensive than standard homes over the long term.

A second myth is that only the rich live in green homes. Most people believe this fiction, in part because of the media's fixation on "eco-chic" stories about costly green homes in fashionable communities.

Truth is, green homes are being built for every income level in every location. This fall, the National Building Museum's exhibit "The Green House: New Directions in Sustainable Architecture and Design" will become a traveling exhibit, showcasing a wide variety of green homes in many price ranges.

The exhibit includes a full-scale model of a prefabricated modular Glidehouse designed by architect Michelle Kaufmann, which has been selling throughout the U.S. and Canada in nine floorplans ranging in size from 672 to 2,016 square feet. It's hard to get greener than a house with glass curtain walls, bamboo flooring, and nontoxic paints, as well as carpet tiles and countertops made from recycled materials. To that, add energy-efficient appliances; natural ventilation; the extensive use of natural daylight; water-conserving fixtures; a choice of solar, geothermal, wind, or hybrid power-generating systems; and much more.

The cost? From $120 to $160 per square foot,

depending on the materials and fixtures, or an average of $200,000, excluding land costs. The national average single-family home price in 2006 was $220,000.

Green Houses Go Global / More and more cities and countries around the world are beginning to mandate green residential construction and renovations.

Japan's Design and Construction Guidelines on the Rationalization of Energy Use for Homes set efficiency standards for heating and cooling systems and for roof, door, and window insulation.

The UK's Code for Sustainable Homes, which will become mandatory for new home construction in April 2008, sets a variety of standards, including energy efficiency, water conservation, and nontoxic building materials.

The UK also has Prince Charles. A longtime proponent of sustainable development, Charles is involved in more than 20 developments through his Prince's Foundation for the Built Environment, including work on the master plan and design codes for Upton, 67 miles north of London outside of Northampton.

When completed, Upton will have 5,000 green homes in various price ranges, as well as schools, stores, offices, a health center, and abundant open space within walking distance. Upton also will have narrow traditional-style streets and plenty of public transportation so people can leave their cars at home.

Green Challenges / Several challenges confront widespread green residential development. First, homes are getting bigger in the U.S. and around the world. In the 1950s, the average U.S. home was approximately 1,000 square feet. Even though the number of people living in a household has shrunk (from 3.27 in 1950 to 2.03 in 2000), the average home had swollen to 2,459 square feet by 2006. The challenge, of course, is that bigger homes consume more land, natural resources, and energy, and they contribute more greenhouse gases.

Second, homes are being filled with more energy-consuming equipment, including larger refrigerators and freezers, computers and flat-screen TVs, and, in some cases, multiple computers and TVs per household.

Third, existing homes greatly outnumber new home construction. The U.S. has more than 119 million existing housing units, compared with 1.8 million new housing units built in 2006. To make a difference, existing homes also need to become green, a renovation task made harder because most renovation companies aren't familiar with green principles, products, and techniques.

Fourth, the development patterns in the U.S.—which favor personal vehicles over public transportation, large single-family homes, and heavy energy and water use—are not very conducive to green development. Worse, countries in Europe, Asia, and Latin America are adopting unsustainable development patterns, particularly bedroom communities isolated from jobs, stores, and services.

That said, the greatest challenge is lack of information among homebuyers and renters who still don't fully understand—let alone demand—the financial, health, and environmental benefits of living in a green home.

But awareness is growing and consumer preferences are starting to shift. The arrival of the new LEED for Homes program may tip the balance toward the genuinely green homes that many consumers want and the planet needs.

Charles Lockwood *is an environmental and real estate consultant in Southern California and New York City who is widely quoted as an authority on "green" issues. He writes* HEMISPHERES' *Going Green column.*

FYI

Green Home *Checklist*

What does it take for a house to be truly green?

☐ **Select a Home on the Right Site**
New green homes and neighborhoods cannot be built on environmentally sensitive sites such as prime farmland, wetlands, and endangered-species habitats. The greenest sites are "in-fill" properties such as former parking lots, railyards, and factories.

☐ **Green Materials**
Use nontoxic building materials and furnishings, such as low- and zero-VOC (volatile organic compound) paints, strawboard made from wheat (rather than formaldehyde-laced particle board), toxin-free insulation, natural linoleum, wood-based features from Forest Stewardship Council–derived wood, salvaged materials like kitchen tiles, and materials with significant recycled content.

☐ **Superior Indoor Environmental Quality**
Allow natural daylight to reach at least 75 percent of the home's interior. Natural ventilation (via building orientation, operable windows, fans, and wind chimneys) should bring plentiful fresh air inside the house. In existing homes, bring sunlight inside to reduce use of artificial lighting and improve indoor environmental quality by installing larger (low-emission) windows, clerestories, skylights, and lightshelves.

☐ **Green Technologies and Fixtures**
A green home has efficient lighting, heating, cooling, and water-heating systems. Purchase Energy Star appliances. The house also should generate some of its own energy with technologies like photovoltaic systems. A green home has water-efficient fixtures, as well as drought-tolerant landscaping. Use a light-colored heat-reflecting Energy Star roof or a landscaped roof.

☐ **Landscape for Savings**
Landscaping is one of the most cost-effective ways to turn a house green. Vine-covered "green screens," large trees, and other landscaping should shade exterior walls, the driveway, patios, and other "hardscape" to minimize heat islands and lower air conditioning bills. A landscaped roof provides insulation that lowers heating and cooling costs.

☐ **Keep Your Home Green**
Select furnishings made of natural and recycled materials. Use nontoxic cleaning and pest control products. Monitor the performance of your heating and cooling systems to optimize efficiency.