



## HOUSE &amp; HOME

## Raising the New Roof

From Plants to Polymers, It's All Going Green

BY ALAN RICHMAN .....

**G**reen roofs are nothing new. In their book, *Planting Green Roofs and Living Walls*, Nigel Dunnett and Noël Kingsbury report that the idea has “been [around] for centuries.” Historically, say the authors, people in present-day Turkey, Iraq and Iran built homes of mud or earth with grass-covered rooftops.

The ancient practice is enjoying a resurgence. In the U.S., noteworthy green examples include the Pentagon, Chicago’s City Hall, a Ford assembly plant in Dearborn, Michigan and numerous buildings in Portland, Oregon.

**Roofs: The Last Frontier**

There are many benefits to a “living” roof, says Steven W. Peck, founder and president of Green Roofs for Healthy Cities, a Toronto-based association.



*Living roofs provide beauty in unexpected places.*

“The roofscapes of our cities are the last urban frontier—from 15 percent to 35 percent of the total land area—and

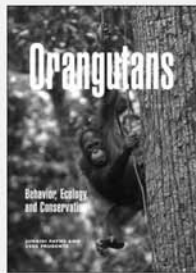
the green roof industry can turn these wasted spaces into a force for cleaner air, cleaner water, energy savings, cooling, beauty and recreation,” he says.

But given the importance of curb appeal, particularly in today’s turbulent real estate market, not everyone will want to cultivate their rooftops. Zoning laws could be an obstacle, sloped roofs pose challenges, and even flat roofs require a rugged, waterproof, puncture-resistant membrane to protect the living space and its contents from seepage and leaks. Then there is the increased cost and weight of many green roofs.

There are alternatives to an overhead garden, including a “cool” roof. According to the Cool Roof Rating Council (CRRC) “a cool roof reflects and emits the sun’s heat back to the sky... ‘Coolness’ is measured by two properties, solar reflectance and thermal emittance.”

Long life should be a goal of all eco-friendly roofing. Tom Hutchinson, a principal in Hutchinson Design Group and a technical consultant for the EPDM Roofing Association, says, “The

## The MIT Press

**Orangutans**

Behavior, Ecology, and Conservation  
Junaidi Payne and Cede Prudente

With lively text and more than 150 striking color photographs, this look at orangutan life examines topics ranging from habitat and behavior to the complex intricacies of orangutan society.

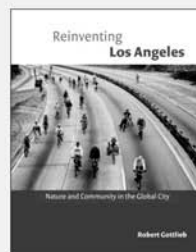
160 pp., 160 color photographs, 1 map, \$29.95 cloth

**Blubberland**

The Dangers of Happiness  
Elizabeth Farrelly

A leading critic examines the connections between obesity and architecture, unchecked sprawl and unchecked appetites, and other forms of insatiability that are hurting our planet and bodies.

219 pp., \$19.95 paper

**Reinventing Los Angeles**

Nature and Community in the Global City

Robert Gottlieb

“This is a brilliant map charting the green future of our increasingly urban world.” — Antonio R. Villaraigosa, Mayor of Los Angeles

464 pp., 26 illus. \$24.95 paper



NOW IN PAPER

**Design on the Edge**

The Making of a High-Performance Building

David W. Orr

“Allows us to understand why we’ll need to cleverly maneuver both the technological and the human track to have any hope of avoiding the ecological abyss we find ourselves approaching.”

— Bill McKibben, *Books & Culture*  
296 pp., \$14.95 paper

The MIT Press To order call 800-405-1619 • <http://mitpress.mit.edu>

A Wisconsin hospital's rooftop escape.



best environmental solution is a sustainable roof system, one that can last 30 years or more. There are way too many poorly designed cool and garden roofs that are consequently not environmentally friendly at all."

Possibly the longest-lived roofs are those made of slate, though the material can be expensive to work on. The Slate Roofing Contractors Association reports that sea green slates can last anywhere from 110 to 120 years, depending on the quarry of origin. Green slate from Vermont, they say, "could last 200 years or more."

### A Long Life, then Recycled

To the extent possible, the roofing material should come from recycled products and be recyclable at the end of its life span. Metal is one option. Scott Kriner, president of Green Metal Consulting, says, "A metal roof can be energy efficient, contain a high amount of recycled material, be inert, have low overall life cycle costs and be highly durable." In addition, he says, metal roofs are "ideal for catching rainwater."

Weight is critical in roofing materials. According to Frank Lane, president of ArmorLite Roofing Technology, lighter weight contributes to safety not only at

the time of installation but in the event of fire, earthquake or high winds. Environmentally, he claims, a lighter roof requires less energy in the manufacturing process, as well as in transporting materials from factory to jobsite.

ArmorLite roofs, Lane says, originate from 85 percent recycled materials that are, in turn, 100 percent recyclable. The key ingredient is lightweight polymers that are strong enough to provide 50 years of useful life at a weight of just 3,500 pounds for a typical residential rooftop. This compares, he says, with 30,000 pounds for a conventional roof. Often, says Lane, because of its light weight, an ArmorLite roof can be installed over an existing conventional roof, thus eliminating removal waste altogether.

CONTACTS: ArmorLite Roofing Technology, [www.armorliteroofing.com](http://www.armorliteroofing.com); Cool Roof Rating Council, [www.cool-roofs.org](http://www.cool-roofs.org); EPDM Roofing Association, [www.epdmroofs.org](http://www.epdmroofs.org); Green Metal Consulting, [www.designandbuildwithmetal.com](http://www.designandbuildwithmetal.com); Green Roofs for Healthy Cities, [www.greenroofs.org](http://www.greenroofs.org); Slate Roofing Contractors Association, [www.slateroofers.org](http://www.slateroofers.org).

**ALAN RICHMAN**, former editor of *Whole Foods magazine*, is a New Jersey-based freelance writer. **E**

**Energy-Free Lighting**  
For natural interior illumination.

Brought to you by...  
**Mother Nature & SunPipe®**  
17 Yrs of very happy customers.



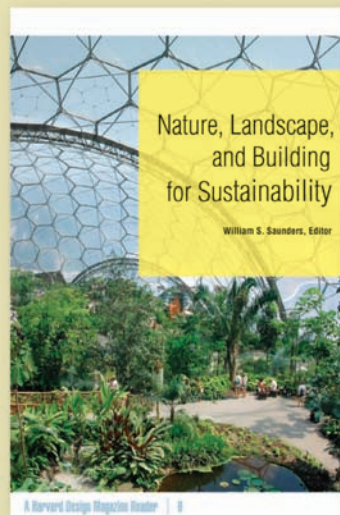
1-800-844-4786  
[sunpipe.com](http://sunpipe.com)

The Original

**SunPipe®**  
Since 1991

**The Original Tubular Skylight.**  
**The Better Way to Skylight™**

## Get Serious about Green Building



In *Nature, Landscape, and Building for Sustainability*, a diverse group of contributors, including Michael Pollan, Lucy R. Lippard, and Bill McKibbin, considers the concept of sustainability, both philosophically and practically. Together, these thought-provoking essays suggest ways of bridging the destructive divide between humanity and the natural world.

\$22.95 • PAPERBACK • 224 PAGES

UNIVERSITY OF MINNESOTA PRESS

Available at better bookstores or to order call 800-621-2736 [www.upress.umn.edu](http://www.upress.umn.edu)

MINNESOTA