

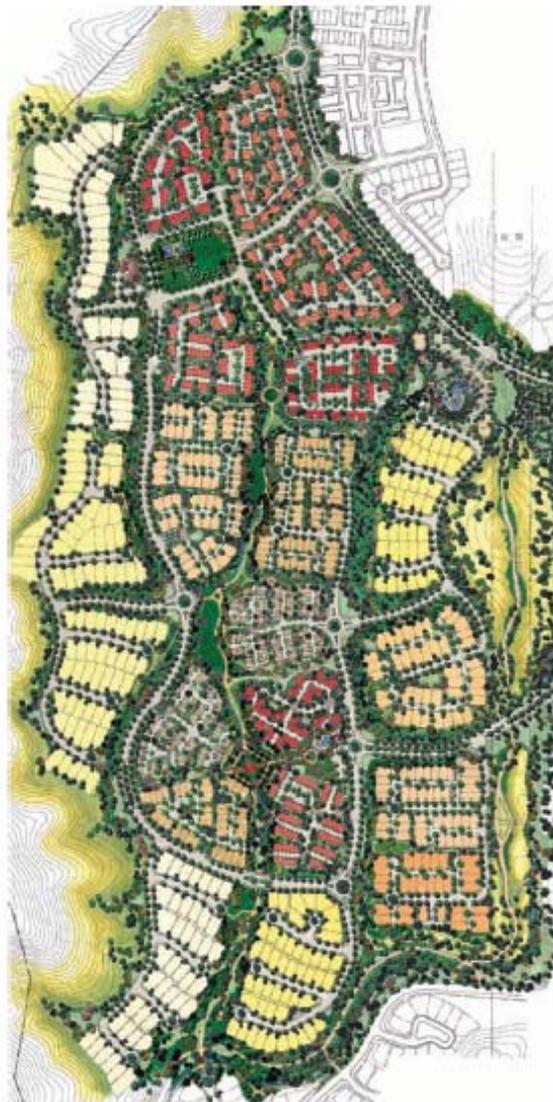


The promising economics of green development are creating new investment opportunities.

# PROMISING ECONOMICS



LADERA RANCH



Buyers of homes in Terramor at Ladera Ranch in California place a high value on ecology and on community and social responsibility.

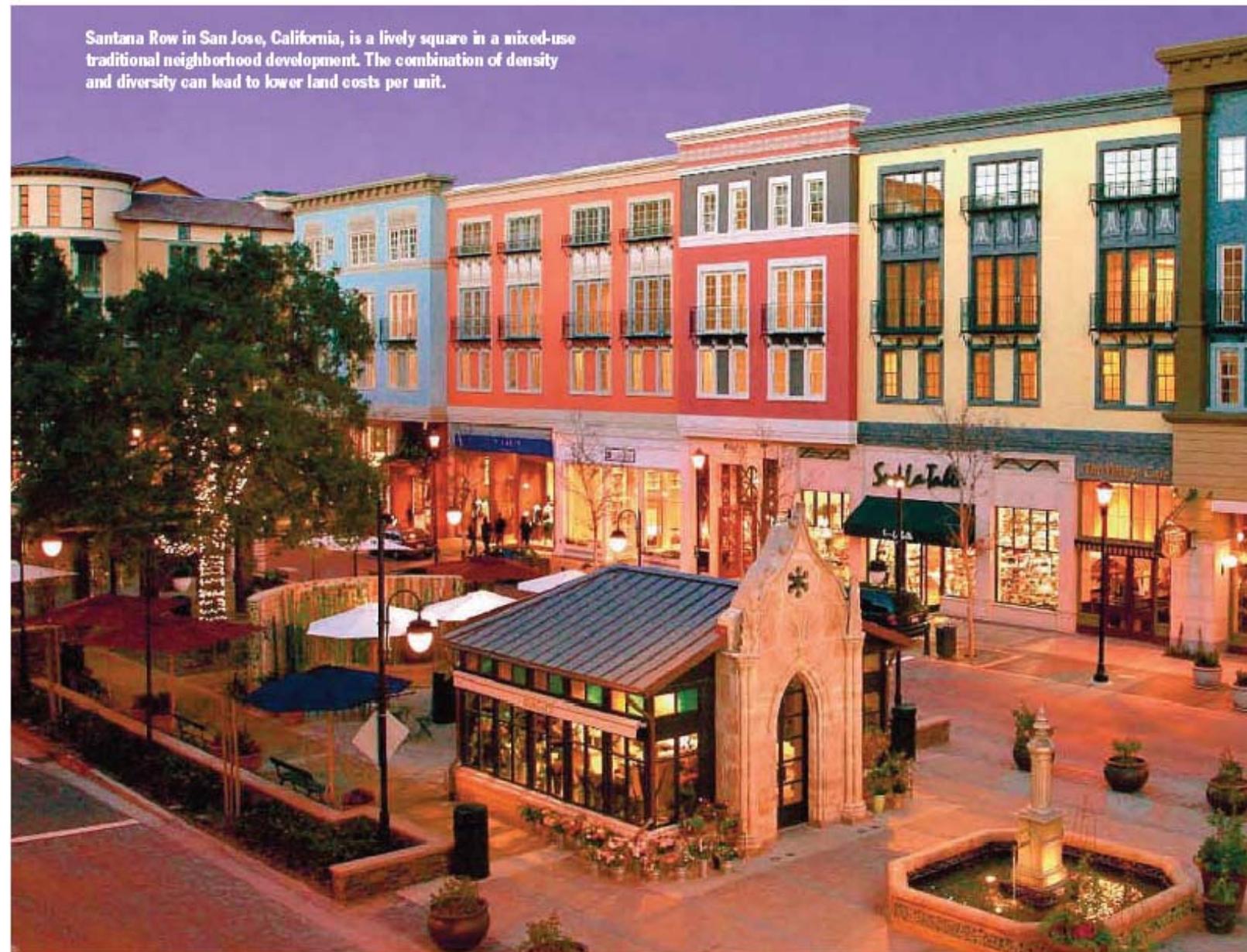
G

reen or sustainable real estate encompasses various types of projects designed for social, environmental, and financial benefits. It includes resource-efficient, high-performance buildings, transit-oriented development, new urbanism, and conservation-oriented subdivisions and planned communities.

Two recent surveys of the readers of *Building Design and Construction* found that the top three barriers to sustainable design are based on perceptions of its economics: that it adds significant costs to a project, that there is a lack of market interest, and that it is hard to justify.

GARY PIVO

Santana Row in San Jose, California, is a lively square in a mixed-use traditional neighborhood development. The combination of density and diversity can lead to lower land costs per unit.



But green building advocates offer a convincing case. For example, the founder of the U.S. Green Building Council argues that the site and construction costs of a green project can be on a par with those of conventional projects; that design and certification cost premiums are declining; that media attention and perceived value increase lease-up rates; that good marketing can generate higher rents in exchange for lower tenant operating costs, better air quality, and other tenant features; and that tenant benefits produce lower vacancy rates. He points to lower operating costs for energy, water, waste, repairs, and maintenance, and lower insurance premiums from better air quality. The result is higher net operating incomes that are capitalized into higher valuations. And if valuations are higher, equity on loans can be lower, allowing greater leveraging. Green buildings can also receive public subsidies and tax credits, further enhancing their economic position.

There are other potential benefits as well. One is the promise of greater worker productivity and lower absenteeism, which would support higher rents and prices. Green building investments also

can make properties more secure. For example, they can reduce the physical and policy risks of global warming. And according to Paul McNamara, head of research for London's Prudential Property Investment Managers, Ltd., this should lead to lower discount rates and higher prices.

So what are the facts that support the economic case for green development?

#### **Market Demand**

Residential market studies are suggesting there is strong demand for sustainable housing. A 1995 survey found that 21 percent of all homebuyers embraced new urbanism, and its findings were reinforced in 1999. A 2001 study by USC researchers projected a large future demand for housing that is in denser, walkable, mixed-use communities, much beyond what will be available if current development trends continue. The reason is the increasing numbers of older households who favor denser, more central locations. Similar findings were reported recently for transit-oriented housing. At least 14.6 million

## Conservation Design Cuts Costs, Generates Profits

Conservation design saves money, according to Bob Brownell, CEO of Bielinski Homes, based in Jackson, Wisconsin. Brownell is convinced that his company profits by using conservation design, averaging \$400,000 in infrastructure savings per community. Total costs typically run 15 to 25 percent less, despite landscape expenses that can be more than three times the costs of conventional development budgets. Conservation design includes clustering communities, designing for water conservation and stormwater management, restoring degraded ecological systems, and building energy-efficient housing.

Savings for Bielinski Homes' Laurel Springs community are typical, the company says. A low-impact site plan will save the company more than \$400,000, compared with the cost of a conventional plan. Grading for a low-impact site plan, for example, will cost \$358,500 rather than \$441,600 for a conventional site plan; paving will cost \$255,760 rather than \$335,665; concrete (sidewalks and curbs) will cost \$259,995 rather than \$271,800; storm sewers will cost \$204,100 rather than \$444,300; sanitary sewers will cost \$385,280 rather than \$415,600; the main water line will cost \$384,240 rather than \$405,950; and landscaping will cost \$120,000 rather than \$65,000. Total low-impact site development costs will amount to \$1,967,875, compared with \$2,379,915 for a conventional site plan, for a savings of \$412,040. And not only does site development cost less overall, but also the resulting communities sell faster and command higher prices, Brownell says. The company finds that the greater "site appeal" of conservation design may garner premiums of up to 25 to 30 percent per lot.—Christina B. Farnsworth, *Builder*, October 2003, p. 244. Adapted with permission from *GreenClips* ([www.greenclips.com](http://www.greenclips.com)).

households, or a quarter of all new households, are expected to want housing within a half-mile of urban rail transit systems by 2025—more than twice the number living there today.

A leading source of this demand for greener alternatives, according to author Paul Ray, is the American subculture called "cultural creatives." They include as many as 35 percent of the total housing market, and value ecology, community, and social responsibility—all of which lead them to strongly favor various forms of green development. But even though cultural creatives constitute 35 percent of the total housing market, they make up only 15 percent of the new housing market. That is because, with notable exceptions like Terramor at Ladera Ranch, most developers do not build homes that meet their needs. Ray notes that developers who do build for cultural creatives meet with considerable success.

In the commercial market, "traffic congestion and changing lifestyles impel more mixed-use town center developments, urban mixed-use projects, and infill residential development," according to *Emerging Trends in Real Estate 2005*. Indeed, the prospects for

sprawling congested metropolitan areas "hinge on developing successful 24-hour infill environments and integrating mass transportation alternatives to the car."

### Costs

Might demand be softened by higher costs of sustainable development? Systematic studies suggest there may be no real cost differentials. For example, according to a 1998 article in the *Wharton Real Estate Review*, the combination of density and diversity associated with new urbanism can lead to lower land costs per unit because there are no collector roads and less buffering without developable frontage. Infrastructure costs per unit also can be lower because of lower first-phase infrastructure costs resulting typically from using only a single double-loaded street and a small civic space, rather than the entire pods and collector roads normally provided in the first phase of conventional master-planned communities.

Moreover, in a 2004 study of LEED-qualified buildings, Davis Langdon, a cost estimating firm, found that when LEED and con-

ventional buildings with similar programs were compared, there was no statistically significant difference in the cost per square foot. The firm concluded that “many projects achieve sustainable design within their initial budget or with very small supplemental funding,” and that owners are finding ways to build green by making choices. In a similar study for the U.S. General Services Administration, a small cost impact was found, but it was far below both the accuracy normally expected of early estimates and the contingency carried in most GSA project budgets at the conceptual stage. In other words, LEED rating “could potentially be achieved within a standard GSA project budget (without a green building budget allowance).”

But even if it does cost more to build sustainably, consumers may be willing to pay for the benefits. For example, a 1999 study in the journal *Real Estate Economics* assessed the impact of new urbanism on single-family home prices. It found that consumers were willing to pay 12 percent more for homes built in a new urbanism community, than for conventional homes nearby.

### Investment Opportunities

First, it seems that both higher-density multifamily housing and central business district office buildings are better bets for institutional investors. According to the National Council of Real Estate Investment Fiduciaries, central business district office properties produced an average annual total return of 10.2 percent over the past five years, compared with an average annual return of 7.7 percent for suburban office properties. Downtown office buildings could easily be classified as sustainable because they use less land, support transit, and provide better access to jobs for inner-city residents. And high-rise apartments, which also save land, materials, and energy, outperformed garden apartments over the same period.

Other investment data come from studying energy conservation activities in existing buildings. According to research done by the EPA drawing on experience from companies that participate in its ENERGY STAR program, a recommended sequence of upgrades de-

signed to save energy costs an average of \$2.30 per square foot, reduces energy use by 40 percent, produces an annual savings of \$0.90 per square foot, and is paid back in 2.5 years (see Figure 1). If this sequence of costs and returns is analyzed for a ten-year period, with the energy savings capitalized into building valuation and returned at the end of ten years, the internal rate of return for the investment would be 41 percent.

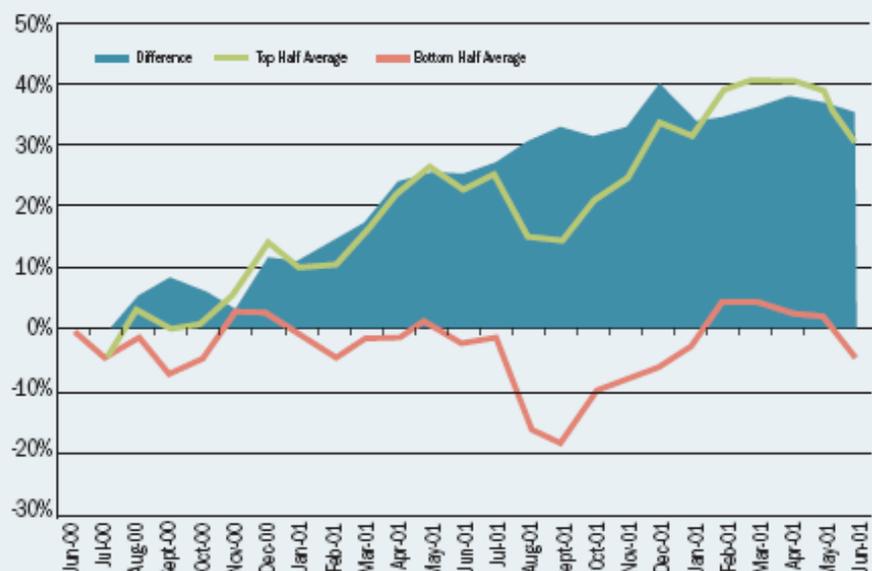
Related findings came last year from Lawrence Berkeley National Laboratory after reviewing commissioning projects undertaken from 1984 to 2003 covering 224 buildings in 21 states representing over 30 million square feet of floor area. Commissioning is a systematic process for optimizing the energy and nonenergy performance of new and existing buildings. For existing buildings, a median payback time of 0.7 years from energy savings was found. For

**FIGURE 1: INVESTMENTS IN ENERGY EFFICIENCY HAVE HIGH RETURNS<sup>1</sup>**

	Investment per SF	Rate of Energy Savings	Annual Savings per SF	Savings per 100,000 SF Office Building	Asset Value Increase at a 10% Capitalization Rate	Simple Payback
Janitorial Services	\$0.01	5%	\$0.14	\$13,500	\$135,000	Immediate
Operations and Maintenance	\$0.05	9%	\$0.20	\$19,800	\$198,000	4 months
Lighting	\$1.04	16%	\$0.36	\$36,000	\$360,000	3 years
Heating, Ventilation, Cooling	\$1.21	9%	\$0.21	\$20,700	\$207,000	6 years
Measures Combined	\$2.30	40%	\$0.90	\$90,000	\$900,000	2.5 years

<sup>1</sup>Calculations based on national averages and \$0.09 per kWh blended rate for office properties.

**FIGURE 2: COMPARATIVE FINANCIAL PERFORMANCE OF ABOVE- AND BELOW-AVERAGE ENERGY-EFFICIENT COMPANIES**



Companies with above-average energy efficiency performance, taken as a group, outperformed the below-average companies over a 24-month period by 3,000 basis points. Source: *Energy Efficiency and Investor Returns: The Real Estate Sector*, Innovest Strategic Value Advisors.

new buildings, the median payback period was 4.8 years. The authors estimated a “cost-effective savings potential of \$18 billion or more each year in commercial buildings across the United States.”

Results like these get an investor’s attention and some REITs are now making energy conservation a conscious strategy. For example, Arden Realty, a large commercial building REIT in southern California, has won several ENERGY STAR awards from the EPA. And it appears that the REIT’s forward-thinking management may pay dividends in stock prices. A study by Innovest Strategic Value Advisors looked at the relative energy efficiency and energy management performance of publicly traded REITs. “Leaders in energy management achieved superior stock market and financial performance over the two-year study period,” outperforming below-average companies by more than 3,400 basis points in the stock market (see Figure 2).

High-performance projects look even more attractive in terms of total returns to society as a whole. In light of the fact that government agencies own most LEED buildings, the total costs and benefits deserve full consideration. In a study done for California on the total costs and benefits of green building, the lead author Greg Kats and others found that sustainable building is a “solid financial investment” because the “total financial benefits of green buildings amount to more than ten times the average initial investment required to design and construct a green building. Energy savings alone exceed the average increased cost associated with building green.”

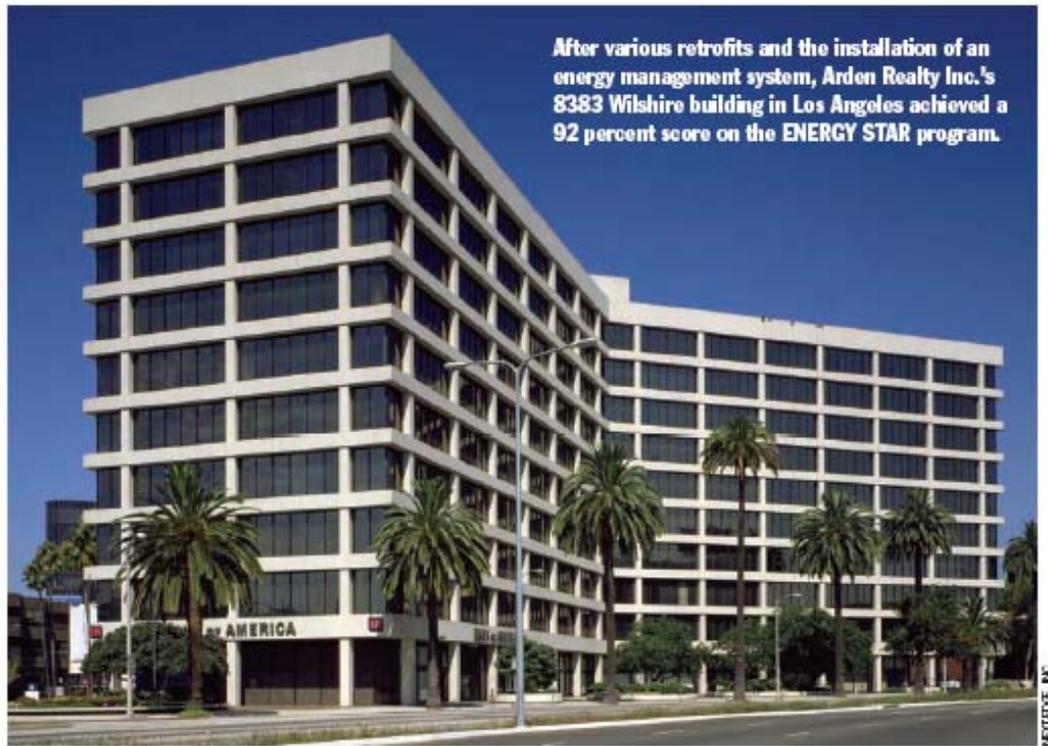
So, with all this good news, where might investors go to buy a stake in green real estate? Unfortunately, we have yet to see the first real estate investment fund squarely committed to green real estate. But until such funds are created, there are some other options worth considering. One is to acquire shares in companies that commonly own ENERGY STAR-labeled buildings or have been recognized by ENERGY STAR for their conservation efforts. Examples include Arden Realty, Equity Office Properties, Hines, Brandywine Realty, Carr America, Glenborough Realty, Parkway Properties, Prentiss Properties, and USAA Realty. Another approach is to choose real estate companies listed in the various socially responsible investing indices, which screen for social and environmental issues (though none of the indices directly evaluate property portfolios). These indices include the FTSE 4Good Index, KLD’s indices, the Calvert In-

vestor Index, and the Dow Jones Sustainability World Index (DJSWI). Examples of such companies from around the world include British Land, Investa Property, Hammerson, Land Securities, and the St. Joe Company. Finally, an investor might select so-called urban funds that focus on existing cities, because of their association with various social and environmental objectives. Examples include the American Ventures Urban Fund, the Canyon-Johnson Urban Fund, the CIM Urban Real Estate Fund, and the Southern California Smart Growth Fund.

Exciting investment opportunities in sustainable real estate are just beginning to emerge, and much more could be achieved by implementing four key recommendations. First, it would help to establish real estate investment funds, REITs, and mutual funds that are clearly committed to principles of sustainability. Second, investment fiduciaries should recognize that if green building and commissioning increase returns, they have an obligation to use these strategies in their portfolios. Third, green building experts should collaborate to create an independent sustainability rating for existing REITs and other investment products so investors can identify today’s “best in class.” And fourth, an effort should be made to pool data on the financial performance of green properties. These actions would go a long way toward fully developing the opportunities in green development. ■

Exciting investment opportunities in sustainable real estate are just beginning to emerge, and much more could be achieved by implementing four key recommendations. First, it would help to establish real estate investment funds, REITs, and mutual funds that are clearly committed to principles of sustainability. Second, investment fiduciaries should recognize that if green building and commissioning increase returns, they have an obligation to use these strategies in their portfolios. Third, green building experts should collaborate to create an independent sustainability rating for existing REITs and other investment products so investors can identify today’s “best in class.” And fourth, an effort should be made to pool data on the financial performance of green properties. These actions would go a long way toward fully developing the opportunities in green development. ■

**GARY PIVO** IS PROFESSOR OF URBAN PLANNING, PROFESSOR OF NATURAL RESOURCES, AND SENIOR FELLOW IN THE OFFICE OF ECONOMIC DEVELOPMENT AT THE UNIVERSITY OF ARIZONA. HE WISHES TO THANK LEANNE TOBIAS, STEVE SCHUETH, DENNIS FLEMING, AND MACON COWLES FOR THEIR COMMENTS ON EARLIER DRAFTS.



After various retrofits and the installation of an energy management system, Arden Realty Inc.’s 8383 Wilshire building in Los Angeles achieved a 92 percent score on the ENERGY STAR program.