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MARKETS FOR GREENING

EXISTING BUILDINGS

We've seen the importance of greening existing buildings and have had an introduction to the barriers and incentives for doing it. Now the question is: who's going to do it and how does the market reward greening of existing buildings? This chapter focuses on the tangible and sometimes intangible benefits of greening private-sector buildings. The easiest place to start is with buildings that have been labeled ENERGY STAR or certified under the U.S. Green Building Council's (USGBC's) LEED system. Both are national in scope, cover most building types, and are widely accepted as authentic, third-party-verified measures of building energy and environmental performance.

For commercial building owners, the key economic factors for justifying green and energy-efficient building investments are increases in:

- 1** Average rents
- 2** Average occupancy rate
- 3** Resale value

Over time, these three factors, along with others such as tenant retention, ease of getting financing, lower insurance costs, etc., will help overcome any adverse consequences from the costs of greening buildings and certifying them. What are the facts today?

Commercial Benefits of Green Buildings

In the past two years, several important studies of the commercial benefits of green buildings all pointed in the same direction: green buildings make more money for their owners.

THE COSTAR STUDY

The first major study of the benefits of ENERGY STAR labeling and LEED certification was performed by Professor Norman Miller of the University of San Diego, California, using a database from a commercial property database leader, CoStar. Published in March 2008, and based on data from 2004 through 2007, the study produced the conclusions shown in Table 3.1. Subsequent studies by other research teams confirmed the results of this study.

The CoStar/Miller study analyzed more than 1300 LEED and ENERGY STAR buildings, representing about 351 million square feet in CoStar's commercial property database of roughly 44 billion square feet, and assessed those buildings against non-green properties with similar size, location, class, tenancy, and year-built characteristics to generate the results. The study analyzed only multitenanted, Class A office buildings of 200,000 square feet or more, with at least five stories and built since 1970.

At this time, it's certainly clear that one factor accounting for the "green" premiums might be the small supply of green buildings, which account for just a fraction of the total U.S. building stock (less than 1 percent of total leasable space in CoStar's database). The study suggests that while the number of LEED-certified and ENERGY STAR-rated buildings continues to grow, the supply has not kept pace with demand, hence the premiums.

It's obvious that the gains in average rents and average occupancy are enough to pay a considerable amount for green building upgrades, while still retaining a healthy profit on operations and adding to building value in the case of resale.

THE RICS STUDY

Using a similar database of 893 properties, compared with 10,000 noncertified buildings within a quarter-mile, a team of researchers at the University of Maastricht in the Netherlands and the University of California, Berkeley, produced a study for the U.K.'s Royal Institution of Chartered Surveyors (RICS) in 2008 that showed certified green buildings had 6 percent higher rents and achieved a 16 percent greater sales price (based on 199 sales).*

TABLE 3.1 ECONOMIC BENEFITS OF ENERGY STAR AND LEED BUILDINGS

	ENERGY STAR	LEED CERTIFIED
No. of buildings	960	360
Rent increase	\$2.40/square foot	\$11.33/square foot
Occupancy increase (nominal percentage)	3.6%	4.1%
Resale value increase	\$6.20/square foot	\$171/square foot
http://www.costar.com/josre/doesGreenPayOff.htm , accessed July 24, 2009.		

*Piet Eichholtz, Kok, Nils, and Quigley, John, "Doing Well By Doing Good? An Analysis Of The Financial Performance Of Green Office Buildings in the USA," *RICS Research Report*, March 2009, London.

Using a database of almost 500 buildings for which energy use data were available, the analysis also showed that a \$1 savings in energy costs from increased thermal efficiency yields a return of roughly \$18 in the increased valuation of an ENERGY STAR-labeled building.

The study indicated that the average effective rent for the 7488 control buildings in the sample of rental office buildings is \$23.51 per square foot. On the other hand, at the average size of these buildings, the estimated annual rent *increment* for a green building is approximately \$329,000. At prevailing capitalization rates of 6 percent, the incremental value of a green building was estimated to be about \$5.5 million more than the value of a comparable unrated building. (At a capitalization rate of 10 percent, the increase would still be \$3.3 million.) Given that most of the LEED-EB certifications we will see in this book cost less than \$500,000, you can see that the return on investment (ROI) on this incremental capital outlay would be quite large.

RESPONSIBLE PROPERTY INVESTING STUDY

A major international movement has grown up around the notion of responsible property investing (RPI). In 2009 a study using the RPI approach showed that ENERGY STAR-labeled buildings commanded 5.9 percent higher income per square foot and exhibited a 13.5 percent greater market value.* These benefits derived from 10 percent lower utility costs, 4.8 percent higher rents, and 1 percent higher occupancy rates. These buildings also sold at 0.5 percent lower cap rates than non-labeled properties, providing a higher multiple of net annual income in determining building value. In all other respects, ENERGY STAR buildings showed appreciation and total returns similar to other office properties.

In addition, other green building attributes such as location close to transit and in urban regeneration areas also showed strong positive results. Properties near transit in the suburbs had 12.7 percent higher net incomes, 16.2 percent higher market values, 0.3 percent lower cap rates, 1.1 percent higher annual appreciation, and 0.9 percent higher annual total returns than other suburban office properties. Properties near transit in central business districts (CBDs) had 4.5 percent higher net incomes, 10.4 percent higher market values, and 0.2 percent lower cap rates (but their appreciation and total returns were similar to other CBD office buildings). Properties in or near urban regeneration areas in CBDs had 2.4 percent lower net incomes, consistent with their economically distressed locations, but they still had 1.1 percent higher values per square foot, 0.5 percent lower cap rates, and appreciation and total returns at par with other CBD office properties.

*Gary Pivo and Fisher Jeffrey, 2009, "Investment Returns From Responsible Property Investments, Energy Efficient, Transit-oriented and Urban Regeneration Office Properties in the US from 1998-2008," Working Paper, Responsible Property Investing Center, Boston College and University of Arizona, Benecki Center for Real Estate Studies, Indiana University, accessed May 14, 2009, from www.u.arizona.edu/~gpivo/.

THE RREEF STUDY

The RPI approach has become a worldwide movement. A 2008 review of the benefits of green buildings by RREEF, a unit of Deutsche Bank, found that:*

- Real estate developers and managers are adopting greener business practices in all regions of the world, driven by the favorable financial returns for greener buildings, owing to increasing energy costs and the significant savings in building operations resulting from well-executed green designs or renovations.
- Globalization is reinforcing and accelerating sustainable property development and operating trends throughout the world. Multinational corporations and global investment firms are especially important in establishing greener real estate business practices worldwide through their criteria for securing tenant space and making investments.
- Major corporate tenants are seeking greener facilities in order to attract and retain workers, differentiate their products, improve their image to consumers, and satisfy shareholder demands, all of which have ties to environmental concerns. Such firms often set minimum global energy-efficiency and/or green standards for the buildings they lease or buy.
- Property investors who want to diversify their portfolios and leverage their expertise are looking globally for their acquisitions and developments, further spreading sustainability practices into new regions.
- Greener business practices are also being driven by increasingly prescriptive government regulations. In a growing number of countries, developers must build sustainably, owing to greener building codes and green building certification requirements for planning approvals.
- Global international environmental and green building organizations, investor pressure groups, and multilateral institutions also are playing key roles in driving greener building standards.

Market Trends

RREEF research reported in February 2009 its expectation that “major real estate markets—the markets where institutional investors focus their attention—will be pushed even faster to the tipping point where green building becomes the market standard.” The research predicts that older, less-efficient conventional buildings will actually have their market value discounted in the years ahead.[†] Even with the

*www.kennedyusa.com/PDFs/RREEF_Global_Greening_Trends_2008.pdf, accessed May 14, 2009. Original study, by Andrew Nelson, 2008, “Globalization and Global Trends in Green Real Estate Investment,” RREEF Research, September, pp. ii-iii.

[†]Andrew Nelson, “How Green A Recession?—Sustainability Prospects In The U.S. Real Estate Industry,” RREEF Research, Paper No. 70, February 2009, p. 8. Available at https://www.rreef.com/cps/rde/xchg/ai_en/hs.xsl/3157.html, accessed July 25, 2009.

continuing global economic recession, government policies will continue to accelerate the push toward greener buildings, as will tenant demand, especially from corporate real estate executives. There is also “no pronounced indication that major institutions are pulling back from their greening commitments” as investors.* In this context, greening existing buildings, especially upgrading energy efficiency, can be seen as a “defensive strategy,” since these less-efficient properties risk “market decay” in the form of lower rents and higher vacancies, “as tenants increasingly migrate to more modern, greener buildings.”

THE ROLE OF REGULATORS, TENANTS, AND INVESTORS

Scott Muldavin is executive director of the Green Building Finance Consortium. Here’s his take on the situation:†

The great thing about today—and over the past 18 months—is there’s been a dramatic shift in the importance of green or sustainable buildings, particularly energy efficiency for the regulatory community, the tenant/occupier community, and the investor community. When you look at the value or financial performance of any green existing building investment, those three groups (regulators, tenants, investors) really drive the value, so that increase in the level of importance today has overcome one of the most important obstacles.

Muldavin believes that green and energy efficiency upgrades to buildings may also benefit from a concern that investors have about the risk of functional obsolescence in the buildings they might buy.‡

Many of the top investors in this country are already developing acquisition screens for any existing building that they might buy. They want to know the potential functional obsolescence in a building—the way that you can make it energy efficient or sustainable. *The key issue—and this is really an appraisal term—is the cost to cure. You don’t want to buy a building today that the cost to cure the obsolescence, which would be lack of energy efficiency or sustainability, is so high that it doesn’t make any sense. You don’t want to own buildings today that are exposed to all of the risk. Functional obsolescence can lead to economic obsolescence because in the future you might have tenants, regulators, and investors that don’t want that building.*

*Ibid., p. 12.

†Interview with Scott Muldavin, April 2009.

‡According to Scott Muldavin, “The key to supporting sustainable property financial decisions is to ‘prove-up’ the level of increased regulator, space-user, and investor demand at the property level. Each property decision will have a unique set of regulator, space-user, and investor criteria and issues that need to be evaluated in the context of the factual context of the property and market conditions. Capital providers and appraisers need property specific analysis, with implications on rents, occupancies, tenant retention, expenses, and risk clearly articulated in order to fully credit a property with ‘value’ benefits beyond cost savings.” Personal communication, June 2009.

ENERGY EFFICIENCY FINANCING DISTRICTS

Lisa Galley is head of Galley Eco Capital in San Francisco. She points out an entirely new source of capital for green building upgrades that's developing very rapidly in California and is likely to spread around the country. She says:*

In terms of financing, first of all you have to define the financing. You have to ask, "Is there specific financing that's exclusively for green buildings?" That is not coming from the big national banking market. All of the money and forces of capital are coming from the public sector in a big way. For example, here in California, we have a large movement towards financing programs that are getting started from cities and counties called Energy Efficiency Financing Districts. Basically cities are putting out bonds and using these bonds to provide loans to commercial property owners that they can use to retrofit and upgrade their buildings.

For example [in April] the County of Sonoma [in northern California] announced a \$100 million program exclusively for the Energy Efficiency Financing District program. They're the first county government to do so. All of the cities in the county said that they want to offer these loans to their residential and commercial property owners. San Francisco has it in the works. Berkeley has done it. The City of Palm Desert has done it. There are eight or nine cities in California that have done this, in addition to the County of Sonoma. This is very new. All of this activity has happened in the past 18 months.

In spite of the commercial building recession, there are strong forces propelling the greening of commercial buildings at a rapid pace. These forces create opportunity for building owners to create additional value through green building retrofits and renovations, a movement that is likely to accelerate during 2009 and continue through the following five years at least.

Marketing Benefits of Greening Existing Office Buildings

If green buildings really deliver short-term marketing benefits, we should be able to find some good examples in a number of cities that illustrate the results of the studies cited above. Since most of the studies cited are based on new buildings, it's instructive for the purposes of this book to try to find LEED-EB commercial office projects that illustrate the same benefits. Here's one such project.

CASE STUDY: 100 PINE STREET, SAN FRANCISCO

Let's take a look at one typical greening effort, the 100 Pine Street building in San Francisco. The 35-story, 441,000-square-foot, multitenant building is the first such office structure in California to receive a LEED-EB certification, a distinction reached in

*Interview with Lisa Galley, April 2009.



Figure 3.1 The 35-story office tower at 100 Pine Street in San Francisco is the first such building in California to receive LEED-EB certification, which should provide over time significant marketing benefits. *Courtesy of Unico Properties.*

mid-2008 (Fig. 3.1). The building also has an ENERGY STAR label; it is unique from both a building management and leasing perspective, according to the owner.* To achieve the LEED-EB certification, the project team invested \$1,292,302 (net after utility rebates) to save nearly 800,000 kilowatthours per year of electricity, with a current benefit of \$180,660, about a 14 percent annual return on investment. A \$10,000 investment in low-flow water fixtures expects to save 1.5 million gallons per year, with an annual utility savings exceeding \$11,000. The energy upgrade included adding direct digital controls (DDC) to two levels, converting to a variable air volume (VAV) system from a constant

*Personal communication, Sharon Mead, Unico Properties, June 2009.

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air volume system, installing variable frequency drives on all motors, installing heat and motion occupancy sensors in hallways, stairways and other common spaces, and retrofitting garage lighting with T8 lamps. A comprehensive recycling program dating from 1998 saves about \$36,000 per year in avoided disposal costs, diverting 75 percent of building waste from landfill, at a cost of about \$5500.

Wesley Powell of Jones Lang LaSalle is the leasing agent for 100 Pine, managed by Unico Properties LLC. He says:*

As a leasing guy, my job is to lease the building and to keep it well leased at the best possible rent for the landlord. Just a few years ago, the LEED effort probably wasn't really translatable into deals or increased rents, but it just made people feel good. That's changed. We all knew that it was a good thing for the building, but it wasn't until just recently that sustainability has been brought to top of mind. The CEOs of top-performing corporations are making sustainability a goal; and that is working its way into office lease decisions. LEED, Green Globes or similar "green" certification has quickly become something that can be translated into more opportunity for the building from a leasing and marketing perspective. At 100 Pine, in 2009, we now see the benefits and results of ownership's decision to become green.

From a tenant's perspective, particularly in a city like San Francisco, where green living is quite accepted, Powell is seeing more tenants put green features on their "must have" checklist for office space:

LEED certification, more importantly, just sustainability, doesn't have to cost a tenant or building owner more money. In fact, long-term, it saves money. What we're seeing from tenants is that even with the economic downturn, where one would think tenants would decide against green decisions like choosing a sustainable, "green" carpet (one that costs an extra five percent); we're still seeing tenants continue forward with their sustainable commitments. That's a good thing to see for the right reason; our environment. I'd say that in 2007 I saw 0 percent of tenants put sustainability on a checklist as a nice-to-have item. In 2008 I saw 5 to ten percent put it on their checklist as a nice-to-have item. In 2009, we're seeing 20 to 30 percent and I think it's going to be increasing very quickly. Soon, it will be a must-have item. One of the major reasons is green carpet, green paint, sustainable construction is quickly becoming commonplace so it's not costing more or much more. I lease 12 high-rise buildings in downtown San Francisco, and each owner is making the commitment to sustainability. If you are not green, you're going to be behind the eight ball, going to lose deals, be priced lower, and ultimately lose asset value.

Greening the Hotel Industry

Hotel operators are in the unique position of seeing direct bottom line impacts from energy and water savings, reduced waste disposal costs, and possibly reduced health

*Interview with Wesley Powell, April 2009.

claims from using more environmentally friendly pest management practices and green cleaning practices. In addition, there are direct marketing benefits for being a “green hotel.” Little wonder that green hotels are one of the fastest growing market segments of the industry.

Greg Reitz is a green hotel consultant who helped with the certification for the first LEED-EB certified hotel, the Ambrose, in Santa Monica, California (Fig. 3.2). For him, the case for greening a hotel is clear:

Hotel operators have long known the value of incorporating green practices into their operations. As more hotels begin to make claims about their green policies, however,



Figure 3.2 The Ambrose Hotel in Santa Monica, California, was the first LEED-EB certified hotel in the country. *Photo courtesy of the Ambrose Hotel.*

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some hotel operators have begun to seek certification to add a level of credibility only possible through a reputable third-party verifier. While programs specialized for hotel operations such as Green Seal have the benefit of being customized for hotels, the LEED-EB certification has an advantage of being internationally recognized across all industries and buildings types.*

CASE STUDY: THE ORCHARD HOTEL, SAN FRANCISCO

The first hotel in San Francisco to be LEED-EB certified was the Orchard Hotel near Union Square (Fig. 3.3). Stefan Mühle is the hotel's general manager. He spoke about how the efficiency process developed, initially through a need to cut operating costs after the 9/11 attacks and the subsequent recession that dramatically reduced business and personal travel.†

Opening in the year 2000, Orchard Hotel was not built as a green hotel. It was just built as a new, conventional-type of hotel property. After 9/11, we really looked into opportunities to reduce expenses. We started chipping away on that by having each department head look into his or her domain and come up with a few creative solutions on how we could save money. The housekeeping department, for example, discovered cleaning products that are natural, less abrasive to the guest rooms, better for the environment and not any more expensive. In fact, if applied properly they would be less expensive. In maintenance, we found a rebate program with Pacific Gas and Electric (PG&E) that offered free light bulbs, if you discarded your old incandescent lamps and replaced them with compact fluorescents. Every department participated in this and slowly but surely, we started to go green. We didn't give it a name back then. That's the paradox really because there are so many people out there that say going green is going to cost you money. When in fact, for five or six years we were just trying to save money.

This is a key point. For the hotel industry, cost cutting can lead naturally to green solutions. Since it's hard to raise rates, the best way to increase profit is to cut costs, but it must be done without harming the guest experience. Working with partners such as electric and water utilities was very important for the hotel.

The direct impetus for the LEED-EB certification was a new hotel, the Orchard Garden Hotel, built nearby in 2006 for the same owner. This hotel achieved LEED for New Construction basic certification, the first for a hotel in California. Then, according to Mühle, the owner said, "Now it really does make sense to get both hotels on the same pedestal and make sure that they all have the same types of certifications." In looking around for opportunities, the company came across LEED-EB as a way to certify the existing property. Mühle says:

*www.greenlodgingnews.com/Content.aspx?id=3006, accessed May 14, 2009.

†Interview with Stefan Mühle, May 2009.

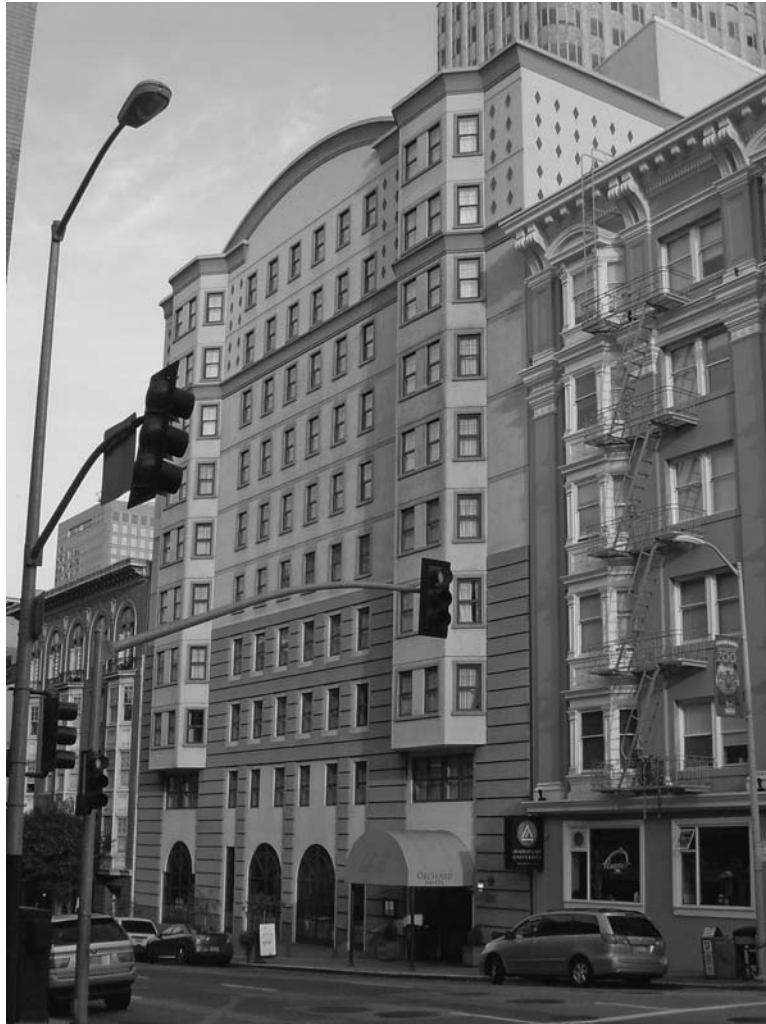


Figure 3.3 The Orchard Hotel was upgraded to become a green hotel using the LEED-EB system, largely through a series of continuous improvements made over a period of years.

Photo courtesy of James Yudelson.

The owner of the hotel, Mrs. Huang, is 85 years old and she is 100 percent behind this. She had numerous family members—her father, husband and daughter—all pass away from cancer or cancer-related illnesses within a relatively short amount of time. She said, “If I can build a new property or even if I can retrofit an old property and make it a healthier environment for its occupants, I definitely would like to do so.”

Sometimes the champion of the idea can come from anywhere. While greening an existing hotel obviously requires an effort by a lot of people, including vendors, employees, management, and ownership, each successful project does require one person to say,

“let’s do it.” In this case, it was the personal interest of the owner in creating a healthier property for guests and workers.

Greening Existing Retail Buildings

Many large retail store chains have begun to build new LEED-certified stores in the United States and Canada, as well as in Europe (with the U.K.’s BREEAM certification system or others that are evolving in such places as France and Germany), but greening existing buildings has barely started.* Many types of stores constitute the retail sector, including clothing, grocery, restaurants, and the entire gamut of shopping, entertainment, and eating destinations. So far, without strong consumer demand, the push to green existing stores has been basically nonexistent.

However, one store type that lends itself well to LEED-EB certification is the grocery store, for several reasons. Food stores use a lot of energy: think of 24/7 refrigeration and all the energy for cooking and washing in the prepared foods department. Grocery stores also use a lot of water, and they occupy a considerable site area. They also have large waste disposal costs. Finally, they tend to be large chains with centralized purchasing, so that many of the LEED-EB programs can be easily implemented.

CASE STUDY: STOP & SHOP

A major grocery chain, Stop & Shop, located primarily in the eastern United States, has implemented the LEED-EB system in more than 50 stores.† Stop & Shop’s parent company, Ahold, has a strong corporate responsibility commitment based on a partnership with customers to build a more sustainable future. Ahold operates 1300 stores along the East Coast, including the Stop & Shop chain.

In 1998, Stop & Shop developed what they called the Low Energy SuperStore (LESS) prototype.‡ As a result, Stop & Shop/Ahold set a goal of building a superstore that uses about one-third less electricity than conventional supermarkets. To target transformative changes, the company focused on savings in lighting and heating, ventilating, and air-conditioning (HVAC); super-efficient refrigeration, systems integration; and building envelope improvements. In 2001, they piloted related innovations by opening a LESS facility in Foxboro, Massachusetts. The value of the model is demonstrated by annual electricity savings of 8 million kilowatthours, which eliminates emissions of nearly 1000 tons of CO₂ annually.

A few years later, the company decided to benchmark its latest store prototype, in Southbury, Connecticut. Store 621 was an ENERGY STAR-labeled model that opened

*See Jerry Yudelson’s forthcoming 2009 book, *Sustainable Retail Development: New Success Strategies* (Springer) for a fuller description of green building in the retail sector.

†Interview with Leo Pierre Roy, Vanasse Hangen Brustlin, Inc. (VHB), November 2008.

‡Case Study—Stop & Shop. Retrieved December 28, 2009, from www.cleanair-coolplanet.org/information/pdf/StopShop.pdf.

in 2005. Stop & Shop stores have excellent energy efficiency—a company review confirmed that stores built by Stop & Shop after the LESS facility were more sustainable, considering particularly their energy use.

In mid-2007, Stop & Shop began the USGBC's Volume Certification program, using the LEED-EB program as the basis for store certification assessments. The 51 Stop & Shop grocery stores in the certified portfolio are a subset of a much larger group of company stores that share many similar characteristics, making them excellent candidates for the volume LEED-EB certification process. All of the buildings are built from a common specification; further selection criteria included preliminary LEED-EB checklist evaluations, ENERGY STAR ratings, store management/ownership, location, and age. All of the selected stores are located in or near New England.

In May 2008, after about an year's effort, the project team succeeded in achieving LEED certified-level status for the 51-store portfolio, representing nearly 3.4 million-square-feet of retail space. Stop & Shop is the first company and first supermarket chain in the United States to be awarded LEED-EB certification in this manner.

The business case for Ahold/Stop & Shop The most prominent factors in making a business case for LEED were the ability to use the system as a framework for creating new design metrics and the benefit of reduced certification costs per store. The switch from single-building certifications to a volume perspective with attractive economies of scale is critical to giving larger retailers cost-effective incentives to comprehensively address their environmental impacts. From a marketing perspective, LEED is an internationally known standard, which appealed to Stop & Shop as a nationally distributed retailer with considerable brand equity.

USGBC's Volume Certification program helped Stop & Shop to further standardize environmentally responsible programs in their stores by integrating green operations into multiple existing buildings in their portfolio all at once, using the LEED-EB rating system. The certification process met Stop & Shop's overarching goal: to confirm through third-party validation that it was successfully applying sustainable principles to store operations.

What did Stop & Shop do for LEED-EB certification? Energy and water savings were critical elements in both the economics and environmental footprint of the stores. To achieve energy efficiency gains in existing stores, Stop & Shop used cool, white reflective roof membranes, reducing solar heat gain and therefore lowering the demand for air conditioning, and also added extra layers of insulation to hold heat in during the winter.

For energy savings, Stop & Shop focused particularly on product lighting. By specifying more efficient lighting and mechanical systems that produce less waste heat, Stop & Shop saves a great deal of electricity. The stores further conserve energy through appliances like ultraefficient refrigeration and HVAC units. Stop & Shop's advanced refrigeration designs more accurately match the specific refrigeration needs of products in different display cases while at the same time minimizing energy consumption. In addition, waste heat from refrigeration units is used to preheat water for in-store use and to provide space heating.

Summary

Before turning to specific programs for upgrading buildings, it's important to understand the market dynamics of greening existing buildings. From a macroeconomic perspective, energy efficiency upgrades represent the most cost-effective way to meet growing energy demands. From a microeconomic perspective, recent studies have shown that energy-efficient and certified green buildings merit higher market values, greater rents, and higher occupancies. From a corporate sustainability viewpoint, greening existing buildings is a direct way to reduce a company's carbon footprint. As a result, corporate real estate managers in the United States have begun to decide in favor of greening both owned and leased buildings, seeing many economic benefits from this switch. Green buildings offer many marketing benefits for building owners and tenants, including opportunities for creating new green "brands" and also "future-proofing" their real estate against both future energy price increases and also value erosion as the trend toward green buildings continues to grow. Marketing benefits will vary by geographic location, building and tenant type, and other factors, but they are present in all privately owned real estate.