
ADDRESSING FINANCIAL OBJECTIONS TO SUSTAINABLE DESIGN AND CONSTRUCTION

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INTRODUCTION

We have the tools and the knowledge to create much healthier, economical, and ecologically responsible buildings at little or no incremental cost over that of conventional buildings. Unfortunately, both actual and perceived financial barriers are preventing widespread adoption of sustainable design, construction, and maintenance practices. Often organizations express a commitment to sustainable design and construction, but limit the actual implementation to only low-hanging fruit and ignore any significant investment.

We need to be able to explain the benefits of sustainable design, construction, and facilities management in a more compelling fashion. In addition to talking about important features of green building, such as decreased use of energy, water, and other natural resources, we need to emphasize the benefits of green building in terms that resonate with key decision makers, such as higher net profits, increased asset values, enhanced image and reduced risk.

This article provides useful information that could help you address some barriers to sustainable initiatives:

- *Every executive that you speak to is aware that data can be manipulated and may be skeptical of studies conducted by organizations that could benefit from a particular set of results. So I've included information on independent third-party studies.*
- *In challenging economic times, people are particularly concerned about short-term cash flow. So I've included information on programs developed by the Building Owners and Management Association (BOMA) International to maximize asset values without sacrificing shorter-term profits.*
- *Often people are risk-averse and feel more comfortable in the middle of the pack than on the cutting edge. So I'm including information on some potential risks of not going green, including decreased asset values and increased operating costs. Many aspects of sustainable design and construction are based upon proven technology and are being increasingly incorporated into best practices for the design and construction industries, which might lead to legal problems for those who do not include the more widely accepted sustainability measures in their projects. It can be difficult to find and navigate through existing incentives for energy efficiency. So I'm including information on a tool to help you find what initiatives are available and some expert advice on how to use this type of tool.*
- *Often an executive may be far more concerned with the next quarter's financial results than in the long-term profitability of an organization that he or she may very well not be working for in 20 years. Currently accepted financial accounting methods encourage this short-term focus. So I'm including information on the efforts of leaders in the finance sector to change accounting principles to accommodate considerations of long-term profitability.*
- *Normally, people tend to accept the opinions of acknowledged leaders in their own fields. So I'm including examples of how sustainable initiatives are contributing to the bottom lines of several highly respected organizations. I'm also including information about efforts to create a globally accepted framework for accounting for sustainability that brings together financial, environmental, social, and governance information in a single integrated reporting format by a coalition including the Big Four accounting firms—PricewaterhouseCoopers, Deloitte Touche Tohmatsu, Ernst & Young and KPMG.*

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KEYWORDS

sustainable design financial benefits, increasing asset value, decreasing operations and maintenance costs, accounting practices incorporating sustainability, and risk avoidance

INDEPENDENT THIRD-PARTY STUDIES

Both the Federal Government's General Services Administration (GSA) and CoStar, the leading provider of information on commercial properties in the United States, have published studies confirming the value of sustainable design and construction.

A white paper published by the GSA in July 2008, "Assessing Green Building Performance: A Post Occupancy Evaluation of 12 GSA Buildings," tracked the post-occupancy performance of 12 sustainably designed buildings in GSA's national portfolio. GSA gathered data for both new construction and retrofits for a year starting three months from initial occupancy. The comprehensive evaluation took a holistic view, measuring both environmental and financial performance. Results showed that the 12 buildings in the study outperformed the national average for comparable buildings by substantial margins in terms of energy savings, water use reduction, lower maintenance and operations costs, waste reduction, recycling, and occupant satisfaction. The best performing buildings in the study were those that took a fully integrated approach to sustainable design. For more information, see: <http://www.gsa.gov/portal/content/103961>.

The CoStar Group is the leading provider of information, marketing, and analytic services to commercial real estate professionals in the United States. It tracks millions of buildings. The company's only "product" is information, and any inaccuracies could have a negative effect upon its brand, so it has a built-in incentive to be as thorough and objective as possible. CoStar's suite of services offers its customers online access to a comprehensive database of commercial real estate information, including comparable sales information, analytic information, and data integration.

Real estate professionals and investors trust the information that CoStar provides. So when CoStar reported in March of 2008 that Energy Star® and LEED buildings had higher rents, occupancy rates, and sale prices than comparable buildings, the industry took note. The report was based upon a study of more than 1,300 LEED and Energy Star® buildings

representing about 351 million square feet in the company'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 charts that I have included show performance metrics as of the first quarter of 2009 and are from a presentation at that time given by Andrew Florance, president of CoStar.

A subsequent report published in June 2010 by Norm Miller, Ph.D., Vice President of Analytics of the CoStar Group and a leading expert in real estate econometrics, did not show the same strong evidence of increased rents and higher occupancy rates for green buildings. But Dr. Miller pointed out that since the original study was published "Much of the Class A construction for new office buildings has been aimed at becoming LEED certified." He explained that "The timing could not have been worse for those coming online in 2008 and 2009, and we have seen this have an impact on the latest statistics making apples to apples comparisons more challenging." Difficult economic conditions meant that few companies were undergoing the sort of expansion that would require a move, existing landlords were offering very attractive terms for lease renewals, and most businesses were looking for ways to reduce expenses. The study showed that LEED buildings were still commanding premium rents and Energy Star® buildings had higher occupancy rates than comparable properties, but the differentials were reduced, and LEED buildings actually had lower occupancy rates than comparable buildings that had been completed prior to 2008. The 2010 study mentioned that "in areas where tenants seemed unwilling to pay a premium for efficient buildings landlords are increasingly using full service or gross leases in order to reap the benefits of energy or water saving investments."

Dr. Miller said that "In the long run these greener buildings are likely to retain more value as the bar is raised and tenant expectations change" and warned that "Those who have ignored many of the simple actions necessary to improve exist-

ing buildings when undergoing a retrofit, and this includes distressed property, . . . will find not a premium for green but a discount for brown.” He also stressed that new buildings need to be designed for greater occupant comfort and operating efficiency in order to be competitive.

MAXIMIZING ASSET VALUE WITHOUT SACRIFICING SHORT-TERM PROFIT

The old idiom “Put your money where your mouth is” can be used as a prism through which financial executives view sustainable design and construction. Not surprisingly, those who are responsible for the fiscal well-being of their organizations are more likely to follow the recommendations of others who occupy similar positions than either “hard core environmentalists” or anyone in the business of providing sustainable goods or services.

The Building Owners and Managers Association (BOMA) International is dedicated to enhancing the asset value of the commercial real estate industry through advocacy, education, standards, and information. BOMA members represent over 9 billion square feet of commercial office space. Most of BOMA’s 16,500 members own, manage, and/or develop commercial buildings, so the programs BOMA develops or promotes are aimed at maximizing asset values without sacrificing shorter-term profits. Therefore, the following statement from BOMA’s website might be helpful in convincing upper management that it pays to go green: “BOMA International believes that reducing energy consumption and taking other steps to ‘green’ existing buildings helps drive ROI, keeps properties competitive with new construction, and benefits tenants and the environment. BOMA International is committed to providing the best resources to help building owners and managers wade through the sea of ‘green’ to identify the solutions that work for you and your portfolio.” BOMA’s support of sustainable initiatives includes:

- A program called the 7-Point Challenge, launched in July 2007, the aim of which is to reduce energy consumption in commercial buildings by 30% by 2012.
- An online resource called “The GREEN” (Green Resource Energy and Environment Network)

that is designed to highlight industry best practices, provide updates on the latest trends, solutions, and educational opportunities, and keep members apprised of important advocacy and code developments.

- Making sustainable policies and practices an integral part of the BOMA 360 Criteria for rating operations and management practices. Some of the criteria include green purchasing, Energy Star® benchmarking, Energy Star® products for buildings and tenants, building energy management, energy audits (including system commissioning and re-commissioning), acceptance of the 7-Point Challenge, waste management and recycling policies, indoor air quality, green cleaning, sustainable exterior maintenance management, water management, and traffic reduction initiatives.
- Annual recognition of particularly sustainable buildings as part of The Outstanding Building of the Year (TOBY) awards.
- The BOMA International Green Lease Guide, which provides hundreds of side notes to “green” a commercial lease.
- The BOMA Energy Performance Contracting Model, developed in partnership with the Clinton Climate Initiative, which helps building owners execute sophisticated energy efficient retrofits to existing buildings.

INCORPORATING SUSTAINABILITY INTO FINANCIAL STANDARDS

Financial executives usually listen to their auditors, so when the Big Four accounting firms not only recognize that there are significant risks in unsustainable business practices but are actively engaged in integrating sustainability into financial reporting and accounting practices, it is apt to get everyone’s attention.

Increasingly, companies and investors are becoming aware of the significant financial risks associated with environmental issues, including climate change, depletion of natural resources, and ecosystem degradation. In addition to the direct impacts that rising costs for utilities and resources may have on an organization’s financial health, there are risks associated with public opinion and public policy.

Many major companies now track and report at least some of their environmental impacts. The Carbon Disclosure Project and the Dow Jones Sustainability Index are just two of the tools that potential investors can use to evaluate environmental performance. Not-for-profit organizations, in particular, are emphasizing environmental issues in their investment choices.

The bad news is that current financial accounting standards and generally accepted accounting principles (known as GAAP) fail to explicitly address the risks of unsustainable business strategies, and only a small percentage of annual financial reports have corporate responsibility information fully integrated into them. Until sustainability is integrated into financial reporting as a strategic business issue, businesses and investors continue to make investments that are bad for the environment, society, and ultimately their own bottom lines.

The good news is that help is on the way. A coalition of businesses, regulators, accountants, securities exchanges, and not-for-profit groups is working on an initiative to create a globally accepted framework for accounting for sustainability that brings together financial, environmental, social, and governance information in a single integrated reporting format. The International Integrated Reporting Committee (IIRC) has been jointly convened by HRH Prince Charles's UK-based Accounting for Sustainability Project and the Global Reporting Initiative and includes participants from the International Accounting Standards Board, U.S. Financial Accounting Standards Board, Organization of Securities Commissions, and the Big Four accounting firms. The IIRC intends to present an integrated reporting framework at the G20 intergovernmental summit in France in 2011. The G20 already backs the formation of a single set of reporting standards, and G20 support for broader rules will be crucial to their introduction.

According to the IIRC's website, "The IIRC has been created to respond to the need for a concise, clear, comprehensive, and comparable integrated reporting framework structured around the organization's strategic objectives, its governance and business model, and integrating both material financial and non-financial information. The objectives for an integrated reporting framework are to:

- a. Support the information needs of long-term investors, by showing the broader and longer-term consequences of decision-making;
- b. Reflect the interconnections between environmental, social, governance, and financial factors in decisions that affect long-term performance and condition, making clear the link between sustainability and economic value;
- c. Provide the necessary framework for environmental and social factors to be taken into account systematically in reporting and decision-making;
- d. Rebalance performance metrics away from an undue emphasis on short-term financial performance; and
- e. Bring reporting closer to the information used by management to run the business on a day-to-day basis."

The IIRC website has additional information about the organization, its members, and its work. It also has a report initially published in December 2009 and updated in May 2010 called "Governance and Collaboration—Establishing an International Integrated Reporting Committee." The following is a link to the IIRC website: <http://www.integratedreporting.org/node/4>.

POTENTIAL LEGAL RISKS OF NOT GOING GREEN

I asked two attorneys with considerable expertise in real estate, construction, and environmental issues to share their thoughts about the potential legal risks of not using environmentally preferable building practices. John Osborn, principal in John E. Osborn P.C., is a New York attorney with over thirty years of experience specializing in complex construction, real estate, and environmental litigation. Stephen Del Percio is an associate in the construction and real estate groups of Arent Fox's New York office, a LEED AP, and the publisher of the online Green Real Estate Journal, which tracks and reports on the emerging legal and regulatory issues associated with green building.

Mr. Del Percio said he believes that there have been no judicial opinions concerning any fiduciary duty to clients or investors to pursue green design, but that it's important to bear in mind the increasing breadth and stringency of environmental legisla-

tion. He said “wind the clock back five years, and most legislation on sustainable building applied only to large public projects. Now such legislation also applies to the private sector, and although it is far from uniform it has happened all over the country.”

Mr. Osborn felt that design professionals who do not factor in environmental issues when providing advice to clients involving building design, construction, and renovation risk malpractice suits. Mr. Osborn stated that to avoid potential liability for possible diminished marketability of both new and newly renovated properties that are not viewed by potential buyers or tenants as sufficiently “green,” it would be best to put advice concerning suggested sustainable features in writing. It can be argued that the standard of care to which design professionals are held already includes the obligation to suggest “green” design ideas (which at this point relate to LEED, and in the future may be issues covered by local building codes and industry standards, such as ASHRAE 189.1, ISO 1400, etc.). In this regard, Mr. Osborn pointed out two important concepts that need to be considered. The first is that often the code provisions (and even regulations) are just the minimum, and may be below the standard of care in a locality. The second is that the standard of care for design and construction tends to get stricter as time goes on. If advice is given by the design professional/green consultant in 2010, and the project is built in 2012, ensuing litigation (at the center of which, is a measurement of the standard of care) may take place in 2015. By that time no one will remember that it was not a widely used practice to make sure that indoor environmental quality (IEQ) was sufficient or that energy efficient equipment was not specified, and the design professional/green consultant will face significant legal liability risk, as having not met the standard of care in the industry.

Mr. Osborn felt that at this point the risks to building owners and developers who choose to not build green are chiefly financial, rather than legal, as long as they meet the building code requirements. As ASHRAE 189.1 and other environmental standards are adopted into local codes and regulations, compliance will become mandatory, and developers who do not meet what today are voluntary standards for LEED may be fined or be unable to obtain building permits. However, in the future it is possi-

ble that investors or building occupants might institute litigation against building owners or developers who do not follow the recommendations of design professionals or green consultants on how to effectively proceed with building green.

Mr. Del Percio said that the lack of a uniform comprehensive approach to “green” legislation is a problem. He pointed out that rapidly changing and sometimes inconsistent regulations are especially difficult for companies that do business in multiple jurisdictions, and that some companies are adopting a “wait and see” attitude before attempting to develop policies for sustainable design and construction. He said that just complying with current requirements can lead to problems.

Mr. Osborn said that consistent green initiatives need to end up in the building code, and, until then, comprehensive and consistent reform cannot take place.

INCENTIVES FOR SUSTAINABLE BUILDING

Organizations that are slow to adopt sustainable business practices are liable to be required to do so at some time, and early adopters are being rewarded by governments and utilities for their actions. Obviously, it’s better to receive a carrot than to be threatened with or struck by a stick, but most of us don’t know how to go about obtaining incentives.

DSIRE (pronounced “desire”) stands for Data Base of State Incentives for Renewables & Efficiency, but I think that the acronym sheds more light on the wealth of information contained on the website and the ease of accessing it than the official name implies. It is a comprehensive and user friendly source of information on state, local, utility, and federal incentives and policies that promote renewable energy and energy efficiency. Financial incentives include personal income tax, corporate tax, sales tax, and property tax deductions, rebates, grants, loans, and bonds. Rules, regulations, and policies can include non-cash incentives, such as expedited building department consideration for green projects, as well as legislation requiring certain sustainable building practices. The URL for this site is: <http://www.dsireusa.org/>.

DSIRE’s emphasis is on continuous incentives for residents, businesses, and other end-users throughout the United States and its territories. It

does not include research and development incentives, outreach programs, or demonstration projects, and generally does not include funding opportunities with very short deadlines or those supported by a single round of funding. The database provides comprehensive information on current federal and state initiatives and policies and programs of utilities with more than 30,000 customers. It also includes information about local incentives and policies that is limited, for the most, to large cities or municipalities or particularly innovative policies.

Navigating the database, which has information about over 24,000 policies and incentives, is greatly facilitated by the use of maps, summary tables, and a search function. All information is reviewed and updated at least annually, with more frequent updates in certain areas. The website contains a "What's New" section that describes developments that have taken place within the last two months.

The DSIRE home page features a U.S. map for easy access to incentives and policies available in each state. Clicking on a state or territory provides a list of available incentives and policies in that state or territory, including the type of incentive or policy, the implementing sector, eligible sectors, eligible technologies, links to authorizing statutes, regulations and other relevant legal documents, a summary of the incentive or policy, contact information, and a link to the incentive or policy website.

The search function on the DSIRE home page allows users to search all incentives and policies by state, incentive type, technology type, implementing sector and/or eligible sector.

Established in 1995 and funded by the U.S. Department of Energy, DSIRE is an ongoing project of the North Carolina Solar Center and the Interstate Renewable Energy Council.

Knowing that incentives exist (or may exist) and being able to take advantage of them are two entirely different matters. So I decided to ask Ann Kayman for her advice. Ms. Kayman, formerly Vice President of Economic Development of the City of New York, founded New York Grants in 2002 to help people navigate the maze of economic incentives post 9/11. For the past two years, she and her team have increasingly focused on sustainable initiatives. They actively track more than 100 current federal, state, and local programs pertaining to green initiatives

and package applications and source funding for businesses and not-for-profit organizations.

Ms. Kayman said that DSIRE is an excellent resource and provides an unparalleled overview of programs that may be available. But, as is the case with any tool, there are some things to keep in mind:

- Some programs may have changed or been eliminated since the latest update. It is best to click on the links for each program that you think might be of use to you, read all you can about them, and then contact a live person. Contact information for program administrators is often listed on the sites.
- DSIRE covers only programs directly related to energy efficiency and renewable energy, and, while this is certainly a wide range, there may be other programs that could be useful. For instance, many municipalities have generic economic development programs that can be used for equipment upgrades.
- Don't focus just on government incentives. If you purchase electricity from a major utility, it may have a program that could help you pay for your energy efficiency measures. The Systems Benefit Charge that is added onto utility bills every month is meant to encourage energy efficiency and is designed to be fed back into the energy pool. In New York, some of that money is distributed by the New York State Energy Research and Development Authority (NYSERDA), and quite a bit of it is distributed directly by the utilities. At the time that this article was written Con Edison had \$300 million to subsidize energy efficiency on the part of its rate payers. Unfortunately, federal, state, and municipal agencies often do not exchange information with each other, and sometimes cannot even exchange information between systems within their own organizations. This lack of communication can make it quite difficult for someone seeking funding to get the lay of the land.
- DSIRE is a very helpful tool because it brings together an enormous amount of data in one convenient spot. But it cannot be all things to all people and may be missing information, especially on the local level. Useful starting

points for research on incentives that are not included in DSIRE could be the offices of economic development for your state or municipality.

- Not-for-profit organizations and even government entities can qualify for certain incentives. And building owners can pass through certain economic benefits to their tenants.

Ms. Kayman showed me an example of how incentives for energy efficiency that would be included in DSIRE can be combined with other programs. A client of hers who manufactures building sensors was interested in incentives both for making improvements to his substantial building portfolio and incentives that might be available to his potential customers. In addition to the sort of incentives that DSIRE listed, the client could qualify for a New York City Industrial and Commercial Abatement Program that could postpone for 10 years any increase in taxes from increased asset value due to building improvements. And because the client had fewer than 100 employees, he was eligible to apply for a New York State linked deposit program that would enable him to obtain a bank loan for 2% to 3% less than the normal rate.

Ms. Kayman emphasized the importance of due diligence and said that even official sites can be way off, but hidden buried treasures are not unheard of. Even after more than 12 years advising people on grants and other financial incentives, she said she regularly comes up with new programs and nuances of existing ones.

Ms. Kayman explained that sometimes receiving one incentive disqualifies you from receiving another one, and sometimes receiving one incentive is the only way that you can qualify for another one. For example, New York City used to have a certain bond program that afforded a low interest loan to finance renovations, and that entitled recipients to purchase electricity at the very discounted rate that the City itself pays. I asked Ms. Kayman if there were firms in other parts of the country that offered the same sort of services as she did, and she said that there are. She has recently formed a strategic alliance with Hickey and Associates, based in Minneapolis and Washington D.C. but working nationally, and

the two firms are working together on a large project in Virginia.

Ms. Kayman showed me the website for the New York City Economic Development Corporation (NYCEDC), which has an incentive finder that is searchable by type of business and location. Although the following link is specific to New York City, it is worthwhile to explore what might be available in your specific state or municipality: <http://www.nycedc.com/Pages/HomePage.aspx>.

Her advice for using this type of database was the same as for using DSIRE. Locate and review the roster of potential benefits for which you might qualify, drill down as far as you can so that you are familiar with the programs that seem applicable and can speak the language of the program director, and then pick up the phone. Her advice about the importance of confirming the accuracy of any database was underscored when she saw a program on the NYCEDC site that she thought had been suspended and called a contact at that organization to see if it had been reinstated. It turned out that the program had not been reinstated, and that the reason that it was still listed was that the database was not up-to-date.

LEADING DEVELOPERS RECOGNIZE THE VALUE OF SUSTAINABILITY

At this point, most major developers and owners have sustainability programs in place. To better understand a developer's point of view, I interviewed Charlotte Mathews, Vice President of Sustainability for the Related Companies ("Related"). Related is a leading developer of residential and mixed-use properties that developed one of the nation's first green high rises nearly a decade ago, and has since committed to building to LEED standards whenever applicable. The company uses LEED to develop both luxury properties and 80/20 projects (for which 20% of the housing is reserved for low-income families).

Ms. Mathews stated that she believes that there are significant benefits for developers who build green, even if buyers are not currently willing to pay a premium for LEED buildings. She said that Related feels an obligation to build sustainably, but that the reputation for "being one of the good guys" has made it easier to gain the trust and cooperation

of the communities in which Related plans to build, which facilitates approvals and can help in winning projects. Being a trusted leader in sustainable design and construction can also earn an organization a place at the table when government entities are considering legislation. For instance, Ms. Mathews was invited by the Office of the Mayor of New York City to serve on a multidisciplinary committee of governmental, non-governmental organizations (NGOs) and private entities charged with making recommendations to green the building codes. Because Ms. Mathews's motivations are not in doubt when she voices an opinion on what is practical for real estate owners and developers, people generally listen to her.

Ms. Mathews shared an interesting and encouraging example of how the costs of sustainable measures can survive a budget decrease. Because of the downturn in the real estate market in 2009, Related undertook rigorous value-engineering to cut costs by 20% for a building that was in a very preliminary stage of construction. To achieve this reduction, the design, construction, and operations teams worked as an integrated team to scour the building's design for waste in construction cost and value. The process was iterative, in that each change to the building created new opportunities for greater efficiency and value enhancement. The vigorous financial scrutiny of the building's energy efficiency measures—which included estimating the first cost premium of each energy efficiency measure and calculating its utility incentive and payback period through energy modeling—not only confirmed the value of incorporated measures, but generated interest in exploring new strategies for saving energy. Once the design team realized that the owner was willing to pay for energy efficiency measures that delivered a reasonable payback, they incorporated such thinking into their design revisions, selecting premium efficiency equipment and reducing the size of systems. And as the building's projected energy performance improved, it was able to qualify for additional tax deductions and incentives that made further energy efficiency measures cost effective. At the end of the process, the building was not only smarter to build and operate, but 10% more energy efficient than it had been before value engineering and 21% more efficient

than ASHRAE 90.1-2004, and the building became one of the most energy efficient mixed use buildings in New York City.

Although there is much talk about buildings with “net zero energy,” Ms. Mathews said she believes that 21% better than ASHRAE 90.1-2004 (or 2007) is a more realistic “reach goal” for cost effective high-rise multifamily and mixed use buildings, especially since market demand still favors the use of a lot of glass. (She said it's harder to generalize for office towers right now because the energy modeling standards recently changed to include tenant energy use; previously just base building energy use was reported.) She recommended that urban projects focus on energy efficiency because the potential to generate significant onsite renewable energy is very limited for tall buildings in urban centers. These buildings commonly lack the area of open roof (free of mechanical equipment) necessary to install a significant photovoltaic array, and the wind streams around and over buildings are unfavorable for wind turbines.

STANDARD OPERATING PROCEDURES FOR SUSTAINABLE BUILDINGS—LEED FOR EXISTING BUILDINGS—OPERATIONS AND MAINTENANCE (LEED EBOM)

Since I live in a city in which almost none of the commercial buildings are owner-occupied and all of the commercial buildings are multi-tenant, and operating expenses including utility charges are normally allocated on a square foot basis, my initial impression of LEED for Existing EBOM was “Be afraid, be very afraid!” But just as other versions of LEED can be useful guidelines for sustainable design and construction, whether or not a project is applying for LEED certification, it seemed that LEED EBOM could provide a roadmap to improved facilities management that would result in healthier, more cost-effective, and environmentally responsible buildings.

If LEED EBOM certification for multi-tenant buildings were not cost-effective, it seems unlikely that one of the largest owners and managers of commercial property in the United States would make a commitment to certify its existing buildings under LEED EBOM when possible and appropriate.

Vornado Realty Trust has a portfolio of over 100 million square feet of space and has committed to making both its new and existing buildings greener because, as Vornado states on its website: “At Vornado, we believe that environmental sustainability is not only responsible citizenry, it is also good business.” Vornado’s position is all the more significant because, unlike some of the great real estate families who were the earliest adopters of sustainable building practices and who could afford to sacrifice short-term profits for increased asset value without incurring any criticism, as a REIT Vornado must answer to its stockholders.

Merchandise Mart Properties, Inc. (MMPI) is one of the four major business platforms of Vornado. The Merchandise Mart (“The Mart”) is not only the world’s largest LEED-EB (the predecessor to LEED-EBOM) building, but at 4.2 million square feet, it is also the world’s largest commercial building.

I spoke to Mark Bettin, Vice President of Engineering for MMPI, to discuss some of the challenges faced and lessons learned. He explained that LEED-EBOM is a different way of operating a facility, rather than a one-time occurrence, and that gathering and analyzing the large amount of data required to achieve LEED-EBOM certification provides very useful information for increasing efficiency, cutting costs, improving tenant satisfaction, and enhancing asset value. Other than the sheer size and scope of doing anything for a building that spans two city blocks, many of the steps taken by Mr. Bettin and his team seem pretty straightforward:

- The Mart was already very energy efficient and all tenant spaces were already submetered before the project began. The Mart has since added quite a bit of submetering in common areas, such as HVAC and elevators, and finds it valuable in determining whether equipment is working properly. The energy audit performed during certification was used as a basis for equipment retrofits that occurred after certification, which have resulted in lower utility expenses and in receiving rebates from the utility.
- The Mart now consumes almost 50% less water than it did a decade ago. During certification, a water-cooled air conditioning unit was

eliminated and all faucets received new aerators. Washroom renovations that had been done prior to certification contributed significantly to the reduction in water usage and costs.

- The Mart not only recycles fluorescent lamps, it recycles all lamps, electronics, and batteries. The Mart salvages building materials by partnering with an organization that resells them, promotes desk side recycling with the tenant base, and makes extensive use of composting.
- Housekeeping has been improved using an integrated approach to cleaning and using GreenSeal products where applicable.
- The Mart makes the services of its centralized purchasing department available to tenants. Bulk purchasing reduces the additional costs sometimes associated with more sustainable products. While having a sustainable purchasing policy is a prerequisite for LEED EBOM certification, requiring tenant compliance is not.

Mr. Bettin pointed out that increased demand for greener products lowers the cost considerably. For example, he said that in 2006 no one noticed the smell of off-gassing paint; in 2007 painters were complaining that low-VOC paint was more expensive and did not provide the same coverage as the paint they were used to; and now it’s all that anyone uses.

HARVARD’S OFFICE FOR SUSTAINABILITY (OFS)

Harvard University has an enviable track record in fostering sustainable initiatives. Harvard has 75 buildings registered with the United States Green Building Council (USGBC), 37 of which are certified, the highest number of certified projects of any university in the United States. The Harvard Green Building Standard requires all new construction and major renovation projects to achieve at least LEED Gold Certification, and major projects achieving all Harvard required credits and those that are inherent in design best practice at the University will have at least enough points to achieve LEED Gold. All projects of any size are encouraged to pursue aggressive levels of energy efficiency and sustainable design using recognized performance standards as design minimums.

Nathan Gauthier, Assistant Director of the Office for Sustainability at Harvard, who manages the Sustainable Design and Construction division of the university's Green Campus Building Service, stated that for a decent college campus with infrastructure in place, even LEED Gold is achievable at no incremental cost (factoring in both hard and soft costs). Universities normally would not use cheap construction methods that barely meet code, because they need to live with their decisions for a very long time. He pointed out that certain sustainable features, like renewable energy, are more expensive, but they are not LEED requirements. Mr. Gauthier said he believes that commissioning should not be considered an added cost, since it is essential quality control and pays for itself almost instantly. Harvard has compared the cost of building to the university's green standards to that for previous projects and is confident that there is no incremental cost. Mr. Gauthier pointed out that requiring LEED design and construction in an RFP does not add to the cost of the bids, because so many bidders already have the experience and expertise to design and build to LEED standards at no additional charge and that any companies that might experience a learning curve will do so at their own expense in order to remain competitive.

Mr. Gauthier said that Harvard's primary emphasis is on process. Design and construction projects consistently use integrated design, life cycle costing, and energy modeling. The university's own Green Building Standards are quite stringent, so achieving LEED Gold is more of a by-product of conforming to its own standards than an end in itself. Mr. Gauthier sits on Harvard's Capital Projects Committee, which helps to assure that all major construction projects conform with the university's Green Building Standards.

Harvard has considerable in-house expertise in sustainable design and construction. The Office of Sustainability has up to 24 people on staff. Seven are in the Green Building Services Group (GBSG) and work on green building, design construction, and operations, of which LEED is a component. This in-house group functions much the same way as an architectural firm, and all of the costs of maintaining such a staff are paid through a chargeback

of fees for service. The group offers a full range of services, but the degree to which they are involved in a given project is up to each client department. If a client prefers to use outside consultants for the bulk of the project, GBSG's involvement might be limited to initial meetings with the client and assistance in selecting an outside design team. Often, even when an outside firm is used for the design, GBSG is retained by the client to do the commissioning and documentation and/or to serve as the Owner's Representative.

Core funding from Harvard's Office of the President covers only those aspects of the OFS that benefit the entire university (such as the website, policy setting, and sharing best practices). It pays for a relatively small portion of the budget and does not vary from year to year. Most of the income for OFS comes from fees-for-service.

Harvard's Green Campus Loan Fund (GCLF) makes most of us simply green with envy. The \$12 million revolving loan fund provides up-front capital for projects that reduce Harvard's environmental impact, including high-performance campus design, operations, maintenance and occupant behavior projects, and that have payback periods of five to 10 years or less. Loan fund projects save the university almost \$4 million per year and have a median return on investment of 27%. Departments that receive funding from GCLF repay the fund via savings achieved by project-related reductions in utility consumption, waste removal, and operating costs. This formula allows departments to upgrade the efficiency, comfort, and functionality of their facilities without incurring any capital costs. Although the experiences of the university with the largest endowment in the United States may not initially seem relevant to many other schools, in point of fact the Harvard Green Campus Initiative (HGCI) that was the predecessor of OFS started small and built on success. During the first year there was only a single full-time staff member, Leith Sharp, and a budget of \$80,000. Together with the two gentlemen who had recruited her and to whom she reported, Tom Vautin, Head of University Operations Services, and Dr. Jack Spengler, a tenured faculty member at the School of Public Health, Ms. Sharp worked from March 2000 to June 2001 to produce a well-

supported strategic plan for Harvard University to green the campus. In late 2001 the President and Provost approved five years of funding at \$150,000 a year to further establish HGCI, along with the establishment of a \$3 million GCLF. While GCLF has increased considerably since then, core funding remains the same.

From the start, savings that could be directly attributed to OFS and HGCI have exceeded the annual base budget. The GCLF can serve as an effective model for organizations with much more limited resources, because the basic premise is so effective. Especially in challenging economic times a department responsible for capital projects might be reluctant to use part of its budget to save money for a department responsible for ongoing operations and maintenance. A centralized revolving capital fund provides financing that directly benefits operations, isolating the outlay from other capital expenses. This minimizes the challenges inherent in accounting practices in which operational expenses and capital expenses are isolated from each other and reduces the impact of the silo effect common to large organizations, in which interests are compartmentalized and information and other assets are not shared freely.

Even more important than the Environmental Loan Fund is Harvard's Green Building Resource, which has been designed to foster continuous improvement in cost-effective green building design and is available to anyone who cares to use it. The site is continuously updated and expanded to reflect best practices across the university. It includes Harvard's Green Building Standards, implementation tools, case studies, LEED submittals, and information about technologies and products that can be accessed by CSI MasterFormat, environmental attributes, or Harvard buildings. The link to the URL is <http://green.harvard.edu/theresource>.

CONCLUSION

Persuading executives to invest in sustainable measures requires presenting compelling business cases that effectively address their concerns. We need to present a comprehensive picture of value, rather than focusing only on ROI and payback periods. Studies by independent third-party sources, examples of successful implementation of sustainable practices by highly respected industry leaders, and trends that are making it increasingly risky to delay implementation of sustainable practices can all help to support the business case for going green.