**GREEN BUILDINGS: LEED AND OTHER CERTIFICATION PROGRAMS**

**DEPARTMENT OF**
Development Services Group, (Steve Lancaster/Don Cole)

**COUNCIL LIAISON**
n/a

**EXHIBITS**
1. LEED for New Construction v2.2 Registered Project Checklist
2. "Investors Give the Green Light" and "Building for the Future," from The Institutional Real Estate Letter, September 2007 (enclosed at request of Councilmember Jahncke)
3. Sustainable Building Incentives, City of Issaquah

**APPROVED BY CITY MANAGER**

**SUMMARY**

**ISSUE**
The purpose of this Agenda Bill is to seek City Council direction concerning further research, possible code amendments or other City initiatives pertaining to "green building" design standards.

**BACKGROUND**
The City Council's adopted Sustainability Work Plan includes a number of "low-cost and easily implemented" initiatives that have provided focus to staff's sustainability work in 2007. At the time the Work Plan was presented, the Deputy City Manager encouraged Council to focus its efforts on those sustainability work programs that resulted in the most significant impact on the City's carbon footprint. Accordingly, the programs that have been implemented to date have covered conservation of natural resources, public education and reduction of the City's fleet carbon footprint. The Sustainability Work Plan also identifies several initiatives likely to require additional analysis and Council funding decisions. Possible amendment of building regulations is one of these items.

The issue of amending the Mercer Island City Code to incorporate sustainability regulations was also discussed by Council when approving the Planning Commission 2007 Work Plan. This item was not included on the 2007 Work Plan.

**GREEN BUILDING**
"Green building" has become an important issue as concern over climate change and environmental sustainability has grown. Green building is the practice of increasing the efficiency of buildings with regard
to their use of energy, water and materials, and reducing the impact of building construction and operation on the environment. Green building techniques are promoted as leading to reduced building operating costs, reduced environmental impacts, and improved occupant health and productivity due to improved indoor light and air quality.

According to the U.S. Environmental Protection Agency’s Green Building Workgroup, buildings account for the following percentages of U.S. energy consumption, carbon dioxide emissions and water consumption.

<table>
<thead>
<tr>
<th></th>
<th>Commercial</th>
<th>Residential</th>
<th>All Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total US Energy Consumption</td>
<td>17.9%</td>
<td>21.5%</td>
<td>39.4%</td>
</tr>
<tr>
<td>Total US Carbon Dioxide Emissions</td>
<td>20.6%</td>
<td>17.5%</td>
<td>38.1%</td>
</tr>
<tr>
<td>Total US Water Consumption</td>
<td>3.1%</td>
<td>9.1%</td>
<td>12.2%</td>
</tr>
</tbody>
</table>

The EPA Green Building Group also reports that indoor levels of pollutants may be 2 to 5 times higher, and occasionally more than 100 times higher than outdoor levels. On average, Americans spend about 90% of their time indoors (Buildings and the Environment: A Statistical Summary. USEPA, December 20, 2004).

**LEED CERTIFICATION**

In the United States, the Leadership in Energy and Environmental Design (LEED) system (www.usgbc.org) is the most widely known method for rating and certifying green buildings. Approximately 900 buildings in the U.S. have received LEED certification since the program’s inception in 1998, and 6,300 to 9,000 buildings are reportedly in the process of becoming LEED certified.

The LEED rating system was developed and is administered by the U.S. Green Building Council and currently includes specific rating methods for:

- New construction and major renovations (the most widely applied-for LEED certification)
- Existing Buildings
- Commercial Interiors
- Core and Shell (new buildings minus tenant improvements)
- Homes
- Neighborhood Development
- Schools
- Retail

The LEED rating systems address six major areas:

- Sustainable sites
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental quality
- Innovation and design process

In order to achieve LEED certification, projects must meet a few mandatory requirements plus meet specific combined rating thresholds in the areas listed above. The U.S. Green Building Council publishes detailed guidelines for certification.

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1 Other rating programs include “Green Globes,” developed by The Green Buildings Initiative (www.thegbi.org) and the Model Green Homebuilding Guidelines published by the National Association of Homebuilders (www.nahb.org). “Energy Star” developed by the U.S. Environmental Protection Agency (www.energystar.gov) is a less comprehensive program focusing largely on the energy efficiency of household and commercial appliances and systems. The LEED rating and certification system appears to be gaining favor among institutional investors as a tool for evaluating the future performance of green buildings. Green Globes is reported to provide a simpler certification process, and the NAHB Green Homebuilding Guidelines may be more appropriate to smaller residential structures.
manuals establishing the methods for rating projects. A summary LEED project checklist for new construction is attached as Exhibit 1. This checklist indicates those project attributes that are mandatory for certification, as well as scores that are available for other attributes. In the case of new construction, a maximum of 69 points are possible. Based upon this scoring system, projects may receive one of the following four certifications:

- Certified (26-32 points)
- Silver (33-38 points)
- Gold (39-51 points)
- Platinum (52-69 points)

The voluntary nature of the program is based on the belief that by establishing a common standard of measurement and recognizing environmental leadership in the building industry, increased consumer awareness of green benefits could more easily be translated into “green competition” among builders, thus transforming the building market in environmentally beneficial ways.

**BENEFITS OF GREEN BUILDING**

**Benefits to the Environment**
The U.S. Green Building Council claims the following environmental benefits of LEED certified buildings when compared to conventional buildings:

- 36% less total energy consumption
- 35% reduction in carbon emissions
- 30% reduction in water consumption
- 50-90% waste reduction.

A recent study of 30 U.S. schools built to green building standards concluded that on average, such buildings realized 33.4% total energy savings and 32.1% water savings. The study also estimated a reduction of 585,000 pounds of carbon dioxide (CO2) emissions per school per year. (*Greening America’s Schools: Costs and Benefits*, Katz, November 2005).

**Benefits to Occupants/Tenants**
Green building proponents also claim improved health and productivity for the tenants of green buildings due to an emphasis upon improved outdoor air exchange, improved natural and artificial lighting, use of low-emitting materials and improved temperature control. This claim is given some support by research compiled by the Center for Building Performance at Carnegie Mellon University. The Center’s Building Investment Decision Support (BIDS) program has reviewed over 1,500 studies that relate technical characteristics of buildings (such as indoor pollutants reduction, lighting, ventilation and temperature control) to tenant productivity and health. According to the U.S. Green Building Council, these studies demonstrate that green building design correlates with increases in tenant/worker well-being and productivity.

**FINANCIAL COSTS AND BENEFITS**

Sustainable building techniques are generally considered to incur a “green premium” above the costs of standard construction. Estimates of added costs vary considerably, but recent studies suggest that as design and construction firms have become more experienced with LEED and other green building standards, the cost premium has steadily declined. According to a recent construction finance journal article, current estimates of the green premium “tend to converge around 3 percent” (Babcock, “Investors Give the Green Light,” *The Institutional Real Estate Letter*, September 2007 – See Exhibit 2).

Green buildings are also promoted as resulting in a variety of financial and other benefits. The claimed benefits of building green include cost savings from reduced energy, water, and waste; lower operations and maintenance costs; and enhanced occupant productivity and health (resulting in higher returns on
investment). One study commissioned by a group of California State government agencies comprising the California Sustainable Building Task Force estimated the 20-year “net present value” of resulting benefits at $48 to $67 per square foot (the same study estimated the average cost of meeting LEED standards at $4 per square foot). It should be noted that the largest share of this long-term value was related to projected improvements in occupant productivity and health. However, energy savings alone were valued at $5.79 per square foot over 20-years. The study concluded: “Despite data limitations and the need for additional research in various areas, the findings of this report point to a clear conclusion: building green is cost effective and makes financial sense today” (The Cost and Financial Benefits of Green Buildings: A Report to California’s Sustainable Building Task Force, Katz et al, October 2003).

A recent presentation regarding investment opportunities related to green buildings by Dr. Gary Pivo of the University of Arizona included both a cautionary note and an optimistic conclusion about financial benefit claims: “Despite the hype, the economics debate remains unsettled. But since green buildings can cost the same to build, cost less to run, be favored by tenants, and mitigate certain risks, I expect them to perform financially as well or better than conventional properties”.

Please note that the cost/benefit information presented above is the result of a preliminary review of readily available research findings. Much of the data reported is based upon projections and modeling as opposed to empirical measurement. In addition to the published research results, there are anecdotal reports raising questions regarding certain green building techniques, costs, performance, and the cost and complexity of the certification process. In the event the City Council wishes to explore significant incentives or requirements relating to green building, staff recommends that additional research be conducted in at least the following areas: 1) design and construction costs; 2) actual building performance vs. projections; 3) actual cost, complexity and “value-added” of certification processes, as well as alternatives to certification.

POLICY OPTIONS

The City Council may choose among a wide array of options with regard to green building. The following is not intended to be an exhaustive list of possibilities, but reflects the results of preliminary research into the actions taken by other communities in Washington State and the U.S.

No Action. Rely upon the private market and existing grant or incentive programs of others (see the Database of State Incentives for Renewables and Efficiency website at www.dsireusa.org for information on incentives available in Washington and other states).

Provide technical assistance and information. A number of jurisdictions provide free technical assistance and information on green building techniques and financial resources. Washington jurisdictions providing such assistance include King County, City of Seattle and City of Issaquah.

Provide incentives. Some jurisdictions provide incentives including expedited permit review, fee reductions or waivers, density bonuses and grants for green buildings. Local examples include Seattle (density bonuses, grants) and Issaquah (expedited review, dollar rebates for low flow fixtures and high efficiency appliances – see Exhibit 3).

Require publicly funded buildings to be green. The State of Washington requires that all state-funded projects over 5,000 square feet achieve LEED Silver certification, and that new public school construction achieve either LEED Silver certification or certification through the Washington Sustainable School Design Protocol (ESSB 5509). Approximately 20 other states have similar requirements for publicly funded buildings. Other local jurisdictions with adopted policy or ordinances requiring that their own buildings meet green building standards include Seattle, Bellingham, King County, Everett and Whatcom County.

Require private projects to meet green standards. Our research indicates only a few jurisdictions mandate LEED or similar certifications, none of which are in Washington State. Calabasas, Long Beach and Pleasanton, California require that certain commercial structures meet LEED standards, as does Boston.
Chicago, Illinois requires that Planned Unit Developments and developments within its Lakefront Protection area meet LEED standards. Frisco, Texas requires that all new residential development meet the US Environmental Protection Agency’s “Energy Star” standards.

**RECOMMENDATION**

*Steve Lancaster, Development Services Director*

**MOVE TO:** No action needed. Provide direction to staff regarding additional information needs and desired policy direction.
# LEED for New Construction v2.2
## Registered Project Checklist

### Sustainable Sites

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Sustainable Sites</th>
<th>14 Points</th>
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<tbody>
<tr>
<td>Y</td>
<td></td>
<td>Prereq 1</td>
<td>Construction Activity Pollution Prevention</td>
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<tr>
<td></td>
<td></td>
<td>Credit 1</td>
<td>Site Selection</td>
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<tr>
<td></td>
<td></td>
<td>Credit 2</td>
<td>Development Density &amp; Community Connectivity</td>
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<td></td>
<td></td>
<td>Credit 3</td>
<td>Brownfield Redevelopment</td>
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<td></td>
<td></td>
<td>Credit 4.1</td>
<td>Alternative Transportation, Public Transportation Access</td>
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<tr>
<td></td>
<td></td>
<td>Credit 4.2</td>
<td>Alternative Transportation, Bicycle Storage &amp; Changing Rooms</td>
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<tr>
<td></td>
<td></td>
<td>Credit 4.3</td>
<td>Alternative Transportation, Low-Emitting &amp; Fuel-Efficient Vehicles</td>
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<td></td>
<td></td>
<td>Credit 4.4</td>
<td>Alternative Transportation, Parking Capacity</td>
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<tr>
<td></td>
<td></td>
<td>Credit 5.1</td>
<td>Site Development, Protect or Restore Habitat</td>
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<tr>
<td></td>
<td></td>
<td>Credit 5.2</td>
<td>Site Development, Maximize Open Space</td>
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<tr>
<td></td>
<td></td>
<td>Credit 6.1</td>
<td>Stormwater Design, Quantity Control</td>
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<td></td>
<td>Credit 6.2</td>
<td>Stormwater Design, Quality Control</td>
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<tr>
<td></td>
<td></td>
<td>Credit 7.1</td>
<td>Heat Island Effect, Non-Roof</td>
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<tr>
<td></td>
<td></td>
<td>Credit 7.2</td>
<td>Heat Island Effect, Roof</td>
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<tr>
<td></td>
<td></td>
<td>Credit 8</td>
<td>Light Pollution Reduction</td>
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### Water Efficiency

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<tbody>
<tr>
<td>Credit 1.1</td>
<td>Water Efficient Landscaping, Reduce by 50%</td>
</tr>
<tr>
<td>Credit 1.2</td>
<td>Water Efficient Landscaping, No Potable Use or No Irrigation</td>
</tr>
<tr>
<td>Credit 2</td>
<td>Innovative Wastewater Technologies</td>
</tr>
<tr>
<td>Credit 3.1</td>
<td>Water Use Reduction, 20% Reduction</td>
</tr>
<tr>
<td>Credit 3.2</td>
<td>Water Use Reduction, 30% Reduction</td>
</tr>
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</table>

### Energy & Atmosphere

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<th>17 Points</th>
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</thead>
<tbody>
<tr>
<td>Prereq 1</td>
<td>Fundamental Commissioning of the Building Energy Systems</td>
</tr>
<tr>
<td>Prereq 2</td>
<td>Minimum Energy Performance</td>
</tr>
<tr>
<td>Prereq 3</td>
<td>Fundamental Refrigerant Management</td>
</tr>
</tbody>
</table>

*Note for EAc1: All LEED for New Construction projects registered after June 26th, 2007 are required to achieve at least two (2) points under EAc1.*

### Optimize Energy Performance

| 10.5% New Buildings or 3.5% Existing Building Renovations | 1 |
| 14% New Buildings or 7% Existing Building Renovations | 2 |
| 17.5% New Buildings or 10.5% Existing Building Renovations | 3 |
| 21% New Buildings or 14% Existing Building Renovations | 4 |
| 24.5% New Buildings or 17.5% Existing Building Renovations | 5 |
| 28% New Buildings or 21% Existing Building Renovations | 6 |
| 31.5% New Buildings or 24.5% Existing Building Renovations | 7 |
| 35% New Buildings or 28% Existing Building Renovations | 8 |
| 38.5% New Buildings or 31.5% Existing Building Renovations | 9 |
| 42% New Buildings or 35% Existing Building Renovations | 10 |

### On-Site Renewable Energy

| 2.5% Renewable Energy | 1 |
| 7.5% Renewable Energy | 2 |
| 12.5% Renewable Energy | 3 |

### Enhanced Commissioning

| Enhanced Commissioning | 1 |
| Enhanced Refrigerant Management | 1 |
| Measurement & Verification | 1 |
| Green Power | 1 |

continued...
### Materials & Resources 13 Points

| Y | Prereq 1 | Credit 1.1 Building Reuse, Maintain 75% of Existing Walls, Floors & Roof | Required |
| Y | Prereq 1 | Credit 1.2 Building Reuse, Maintain 100% of Existing Walls, Floors & Roof | 1 |
| Y | Prereq 1 | Credit 1.3 Building Reuse, Maintain 50% of Interior Non-Structural Elements | 1 |
| Y | Prereq 1 | Credit 2.1 Construction Waste Management, Divert 50% from Disposal | 1 |
| Y | Prereq 1 | Credit 2.2 Construction Waste Management, Divert 75% from Disposal | 1 |
| Y | Prereq 1 | Credit 3.1 Materials Reuse, 5% | 1 |
| Y | Prereq 1 | Credit 3.2 Materials Reuse, 10% | 1 |
| Y | Prereq 1 | Credit 4.1 Recycled Content, 10% (post-consumer + ½ pre-consumer) | 1 |
| Y | Prereq 1 | Credit 4.2 Recycled Content, 20% (post-consumer + ½ pre-consumer) | 1 |
| Y | Prereq 1 | Credit 5.1 Regional Materials, 10% Extracted, Processed & Manufactured Regio | 1 |
| Y | Prereq 1 | Credit 5.2 Regional Materials, 20% Extracted, Processed & Manufactured Regio | 1 |
| Y | Prereq 1 | Credit 6 Rapidly Renewable Materials | 1 |
| Y | Prereq 1 | Credit 7 Certified Wood | 1 |

### Indoor Environmental Quality 15 Points

| Y | Prereq 1 | Credit 1 Minimum IAQ Performance | Required |
| Y | Prereq 1 | Credit 2 Outdoor Air Delivery Monitoring | 1 |
| Y | Prereq 1 | Credit 3 Increased Ventilation | 1 |
| Y | Prereq 1 | Credit 3.1 Construction IAQ Management Plan, During Construction | 1 |
| Y | Prereq 1 | Credit 3.2 Construction IAQ Management Plan, Before Occupancy | 1 |
| Y | Prereq 1 | Credit 4.1 Low-Emitting Materials, Adhesives & Sealants | 1 |
| Y | Prereq 1 | Credit 4.2 Low-Emitting Materials, Paints & Coatings | 1 |
| Y | Prereq 1 | Credit 4.3 Low-Emitting Materials, Carpet Systems | 1 |
| Y | Prereq 1 | Credit 4.4 Low-Emitting Materials, Composite Wood & Agrifiber Products | 1 |
| Y | Prereq 1 | Credit 5 Indoor Chemical & Pollutant Source Control | 1 |
| Y | Prereq 1 | Credit 6.1 Controllability of Systems, Lighting | 1 |
| Y | Prereq 1 | Credit 6.2 Controllability of Systems, Thermal Comfort | 1 |
| Y | Prereq 1 | Credit 7.1 Thermal Comfort, Design | 1 |
| Y | Prereq 1 | Credit 7.2 Thermal Comfort, Verification | 1 |
| Y | Prereq 1 | Credit 8.1 Daylight & Views, Daylight 75% of Spaces | 1 |
| Y | Prereq 1 | Credit 8.2 Daylight & Views, Views for 90% of Spaces | 1 |

### Innovation & Design Process 5 Points

| Y | Credit 1.1 Innovation in Design: Provide Specific Title | 1 |
| Y | Credit 1.2 Innovation in Design: Provide Specific Title | 1 |
| Y | Credit 1.3 Innovation in Design: Provide Specific Title | 1 |
| Y | Credit 1.4 Innovation in Design: Provide Specific Title | 1 |
| Y | Credit 2 LEED® Accredited Professional | 1 |

### Project Totals (pre-certification estimates) 69 Points

Investors Give the Green Light
Environment-Friendly Buildings Gaining Widespread Acceptance

In the first nine months of 2007, environmentally sustainable real estate has gone from a quiet backwater of mainstream U.S. investment activity to a dominant current that arguably will shape the built environment well into this century and beyond. In this short time, “green” has gone from a feature some developers were including in a handful of projects to, for a number of companies, the standard for all their building projects worldwide. Energy efficiency strategies have gone from something a handful of REITs were implementing to something 68 percent of REITs are actively pursuing or planning to pursue. Sustainability has gone from being the focus of product offerings by one or two investment managers to an every-building issue to which every manager must answer. And it has gone from an initiative one or two pension funds were studying, or were implementing with a portion of their assets, to an economic force that now affects all institutional investors’ portfolios even if they have not made changes to their portfolios.

While green investing has been around for years, something changed in the beginning of 2007. “I don’t know what it was,” explains Stephen Blank, senior fellow, finance, of the Urban Land Institute (ULI), “but sometime during the winter, sometime during the [Al] Gore movie, the incessant beating of the drum, somehow we reached an inflection point. All of a sudden ‘carbon footprint’ got into the vocabulary, and it became an ‘every person’ issue.”

**JUST HOW GREEN?**
Most institutional investors recognize a “green” building by its LEED certification. Although there are a number of other measures of a building’s environmental impact, the standards developed by the U.S. Green Building Council predominate in the United States as the primary rating system. Green buildings must meet standards in five categories: sustainable sites, energy and atmosphere, water efficiency, indoor environmental quality, and materials and resources (see the related article “Building for the Future,” page 81).

Of the 4.7 million buildings in the United States, there are roughly 900 certified LEED projects, estimates Scott Muldavin, executive director of the Green Building Finance Consortium. Seven to 10 times that number are in the process of becoming certified, and seven to 10 times that number, or somewhere around 75,000 buildings, have what Muldavin calls sustainable features but will not become LEED certified. While that number is still a small fraction of all buildings, it is a significant portion of institutional-quality buildings. LEED-certified buildings represent 30 percent or more of all new high-quality projects nationwide, notes Muldavin.

Sustainable or green buildings attract investors for a number of reasons: They offer an average 35 percent reduction in energy costs (see “Energy Savings in a Green Building,” page 50) at a time when electricity and water costs continue to rise; the extra expense to develop green buildings keeps going down (estimates range from as high as 15 percent to as low as 0.8 percent, but tend to converge around 3 percent); green is excellent PR right now; and, perhaps most importantly, federal, state and local regulations are tightening in favor of green development.

But increasingly, as LEED-certified buildings penetrate deeper into the market, institutional investors’ non-certified buildings may be losing value in comparison. “All the last 10 new major office buildings in New York City are LEED certified,” explains Muldavin. “So there’s a de facto standard for the trophy building in New York to be LEED certified. Every owner in New York that thinks they have the top class A building in the market has actually lost value due to functional obsolescence because the new standard is LEED.”

**PENSION FUNDS RESPOND**
A few pension funds have waded into the green investment arena, most notably the California public funds. For two years, the $249.1 billion California Public Employees’ Retirement System (CalPERS), in particular, has been working on its pledge to reduce by 20 percent the energy use of its $10.3 billion core real estate portfolio by 2009. Other pension funds are investing part of their real estate allocation into products defined by environmental sustainability, including 15 or
so closed-end funds, “green” REITs, and even a CMBS product or two.

Until recently, the majority of pension funds had yet to follow suit, although many have wrestled with how to reconcile the moral imperative of global warming presents with the fiduciary responsibility they have to make the best economic investments for their beneficiaries. “Investors have focused on their fiduciary responsibility in terms of the economic condition,” explains ULI’s Blank. “This ecological addition is totally new, and we’re trying to learn our way through it.”

THE NEW RULES

The changes taking place in the regulatory bodies right now are settling that dilemma, however. Increasingly, the best economic decision is also the best decision for the environment. “Even if you don’t believe in global warming,” says Muldavin, “the governments appear to.” And that spreading conviction is creating a whole new set of rules for buildings.

Muldavin points out that behind the current changes in regulations is a study done by Stephen Pacala and Robert Socolow (2004) on “stabilization wedges.” This study identified 15 major ways the United States could meet the carbon reduction goals that global warming scientists have identified, and it indicates that to stabilize carbon emissions, the United States must implement seven of these wedges.

In the spring of 2006, a paper submitted to The Global Roundtable on Climate Change by a group of prominent research and financial institutions rated these stabilization wedges in terms of their costs, safety concerns, political challenges and overall benefits. The study rated making buildings energy efficient as number three on the list — a “no regrets” choice. Developing a green built environment in most cases would be a win-win for investors, developers and environmentalists, especially when compared with the complications of nuclear power or capturing and storing carbon.

REGULATION MULITPLICATION

Legislators are acting fast. “We are headed in the very near term to a situation where almost every local regulatory body and all states and the federal government will significantly increase their regulatory pressure related to private real estate as related to sustainability,” cautions Muldavin. To highlight how fast these changes are taking place, he goes on to explain that a year ago no local governments regulated sustainability at the private level. As of mid-summer, there were roughly 100. “In six months to a year, there will be 5,000,” Muldavin predicts. He is aware of 19 states, and he estimates all the states are working on legislation similar to California’s AB 32 — Global Warming Solutions Act of 2006, which requires California to reduce its carbon emissions to 1990 levels by 2020.

What began with public buildings is now extending to private commercial real estate. Where pension fund investors can benefit financially right now is the package of incentives that are the other side of the regulatory coin. Most of the legislation being written does not go into effect for a year or two or more. To spur changes now, local and state governments and the federal government — as well as utilities — are offering all kinds of incentives to those who act early. There are tax breaks, grants, expedited permitting, entitlement incentives and energy rebates that all boost returns — and that all contribute to making green investing responsible from an economic fiduciary point of view. (For a state-by-state sampling, visit the Database of State Incentives for Renewables and Efficiency, www.dsireusa.org. The American Council for an Energy-Efficient Economy [ACEEE], www.aceee.org, also has an online database of energy reduction programs currently offered in 20 states and Washington, D.C.)

HOW MANY LIGHT BULBS IN MY PORTFOLIO?

Among its other complications, sustainable real estate investing brings with it a new math for evaluating investment decisions. “If you are going to be buying a building,” notes Muldavin, “it’s prudent for you to determine if it is going to be able to meet the regulatory hurdles and at what cost. And also whether your building is going to be sustainable enough to take advantage of all the incentives. A building’s value will be significantly affected if it can’t use incentives or if it can’t meet, or it’s more costly to meet, regulations.”

The bigger concern for pension funds, however, is not so much with new investments as with their existing portfolios. “The real issue for institutional investors is not, ‘Should I invest in green funds?’” continues Muldavin, “but, ‘What should I do relative to my broader portfolio to address these issues of sustainability both from a defensive perspective, relative to functional obsolescence, and from an offensive perspective, to maximize returns?’

Energy Savings in a Green Building

<table>
<thead>
<tr>
<th>Energy Costs</th>
<th>Water Costs</th>
<th>Waste Reduction</th>
<th>Carbon Emissions</th>
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<tbody>
<tr>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
</tr>
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</table>

Source: United States Green Building Council
ULI's Blank recommends as a first step taking a deep look inside the portfolio to assess: "What is our carbon footprint? How much energy are we using? How are we disposing of waste? What are our contractors doing? What techniques are available to improve our carbon footprint?"

Because of its early commitment to reducing emissions in its real estate portfolio, CalPERS has developed a system for doing just that. At its June 18 meeting, the CalPERS' investment committee reviewed the progress the portfolio had made toward its environmental goals. The results themselves were quite notable: the 577 buildings in its core portfolio reduced electricity usage by 4.47 percent and natural gas consumption by 10.50 percent in 2005 and an additional 4.46 percent and 4.22 percent, respectively, last year. Managers reported reducing waste by recycling an average of 73 percent of total waste in 2006.

What is almost as notable, and perhaps even more significant for pension funds seeking to know how to respond wisely to the environmental and political pressures on real estate, was the degree of detail in the report. Within two years of launching their environmental goals, investment committee members could analyze the results in a number of ways. They could tell how much each manager had saved in energy use each year in how many buildings, in which sector, at what occupancy. They could tell how many pounds of waste were produced in their buildings, broken down by manager and sector, and how much was recycled.

In response to new environmental standards, the real estate investment community is quickly shifting from a defensive stance of compliance toward a creative, solution-oriented, profit-making offensive stance.

Another attachment spelled out for the core and noncore portfolios — again by sector and manager — what steps each manager had taken to reduce energy and water consumption and waste production in their buildings. This report went into details like whether the manager turned the air conditioning off on weekends, changed the light bulbs in elevators, installed skylights or changed the paint. Some managers installed low-flow toilets and used reclaimed water for irrigation. Others recycled carpet pads drywall and paint.

Decision makers at CalPERS could scroll through their portfolio and see who was doing what, what was working well, and how those strategies could be applied elsewhere to reach the goal of 20 percent reduction in the next three years.

A HOPEFUL OUTLOOK

In its response to new environmental standards, the real estate investment community is quickly shifting from a defensive stance of compliance toward a creative, solution-oriented, profit-making offensive stance. And they are doing so in a time of unprecedented cooperation. "What's surprising," admits ULI's Blank, "is how everybody wants to find a way to make a contribution. You don't hear anybody saying, 'This is silly. This is a mistake. This is a huge waste of money.' I've been in this business for 40 years. This is the first time I've seen something like this really generating care and concern. I think people are frankly worried, they frankly believe that global warming is a problem and a problem that is not going to go away."

What's missing, continues Blank, are the detailed case studies that spell out the results from investors, developers and companies' experiments in this area. And those are starting to appear, often from large corporations like Wal-Mart, Target, Whole Foods, Toyota and a host of others.

In this environment of change and uncertainty, the real estate community is responding with creativity — even insulation made from recycled blue jeans, in a recent new building in Northern California. And a variety of organizations are cropping up to, yes, seize a new business opportunity but also to help pension fund investors gather the information they need to make the best fiduciary decisions today and in the days to come. ✦

GREEN BUILDINGS IN THE UNITED STATES

900
of the 4.7 million U.S. buildings are LEED certified

6,300-9,000
buildings in the process of becoming LEED certified

52,000-75,000
buildings adding sustainable features but will not be LEED certified

30%
of high-quality new commercial development is LEED certified

Source: Estimates by the Green Building Finance Consortium

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Building for the Future
Investors Weigh the Costs and Benefits of Going Green

As a famous frog once said, “it’s not easy being green.” Nonetheless, the popularity of "green" investing is increasing. Since this is a relatively new trend, many institutional investors may not be familiar with what it means for a project to be “green,” as well as the unique legal issues to be considered before committing to green investments (see the related article "Investors Give the Green Light," page 49).

WHAT DOES IT MEAN TO BE “GREEN”? There is no single definition of what it means for a project to be green, and the label is applied to virtually all product types, including new commercial construction and renovation, neighborhood developments, and single-family homes. The label also can be applied to interior design and to existing building maintenance and operations. Generally, a project is considered green if it incorporates design, construction and management practices that consider environmental consequences and health issues. Because the definition is not precise, problems can arise in defining the scope of work of the project’s architect and contractor, in promises made to lenders funding the construction, and in representations made to prospective tenants or purchasers.

A number of organizations have attempted to provide a more uniform definition and a rating scheme for green projects. Although no official national standard has been adopted, perhaps the most well-known rating system is the Leadership in Energy and Environmental Design (LEED) rating system, established in 1998 by the United States Green Building Council (USGBC), a private, nonprofit organization. Alternatively, the Green Building Initiative, a competitor of the USGBC, partnered with the National Association of Home Builders to develop guidelines for green home building and, in 2004, created the Green Globes, an alternative rating system. There are also rating programs to evaluate the energy efficiency of appliances and equipment, such as Energy Star, a program jointly promulgated by the Environmental Protection Agency and the Department of Energy. The federal government and various state and local agencies may apply additional criteria to evaluate the compliance of projects with green standards in order to qualify for incentives such as construction, including expedited building approvals and tax incentives.

THE RATING SYSTEMS

The LEED rating system is arguably the most commonly used system for evaluating green buildings in the United States. To become LEED certified, a project is registered with the USGBC, and then it is evaluated in various categories. The USGBC awards a certification level based on the number of points earned in each category, ranging from the lowest certification, LEED Certified, through Silver, Gold and Platinum, the highest level.

The LEED ratings are based on the evaluation of six environmental and public health areas: sustainable site development, water efficiency, energy and atmosphere, material and resources, indoor environmental air quality, and innovation and design processes. Sustainable site development provides credits for selecting locations that minimize soil erosion, airborne dust generation and automobile usage. Water efficiency focuses on minimizing the use of potable water for landscape irrigation, decreasing the generation of wastewater and reducing the project’s overall amount of water usage. Energy and atmosphere requires optimization of energy usage through conservation and renewable energy sources, as well as enhanced refrigerant management to reduce ozone depletion. Material and resources promotes waste management and recycling processes, the re-use of materials and existing shell and nonshell components of the building, and the incorporation of environmentally friendly and regional building materials. Indoor environmental air quality focuses on improved ventilation, the application of low-emitting materials and indoor pollutant control. The innovation and design process category is essentially a catchall category in which points can be awarded for incorporating strategies that are not specifically addressed by the five other categories.
GREEN BUILDING INITIATIVES AND LEGISLATION

Many city, county and state governments provide expedited permitting and approvals for green projects, and those entities as well as the federal government provide a variety of financial incentives for green projects. New York, Maryland and Oregon each provide developers with tax credits for constructing green buildings. For example, the New York State Green Building Tax Credit Program and the Maryland Green Buildings Tax Credit provide tax credits to commercial developments incorporating certain green standards. Oregon offers the Business Energy Tax Credit for 35 percent of the eligible project costs of LEED-certified buildings. Local governments across the country, including in Chicago, San Francisco and Sarasota County, Fla., now offer fast-track or priority permit review for LEED-certified projects. Seattle provides height and density zoning bonuses for proposed projects that achieve at least a LEED Silver rating and contribute to affordable housing. Cities such as Cincinnati and Santa Monica, Calif., offer grants to developers to help offset the increased costs of constructing green buildings.

While most incentives incorporate LEED certification standards, other programs adopt their own criteria. For example, the Building Energy Efficient Structures Today (BEST) initiative, adopted in Marin County, Calif., requires that construction meet its own green building checklist or exceed the minimum state environmental standards by at least 20 percent to qualify for fast-track permitting.

At the federal level, the Energy Policy Act of 2005 provides corporate tax deductions for energy-efficient property expenditures. Owners of commercial buildings can claim deductions of up to $1.80 per square foot for overall energy savings of 50 percent. Partial deductions of $0.60 per square foot are available with respect to energy savings in specific building systems, such as interior lighting, heating, cooling, ventilation, water and the building envelope.

For publicly owned commercial buildings, including public schools, the deductions may be allocated to the design team in lieu of the public entity. To date, the USGBC lists LEED initiatives in 55 cities, 11 counties, 22 states and 11 federal agencies, and the numbers continue to increase.

Certain federal agencies and at least 20 states have begun mandating or encouraging LEED certification for all new public building projects. Atlanta, Dallas, Denver, New York City, Seattle and Oakland, Calif., each require all or certain new publicly funded projects to achieve LEED Silver certification. The trend toward green building guidelines is also extending into private development, as cities such as Boston and Long Beach, Calif., require LEED certification for private development projects exceeding 50,000 square feet. Also, more and more colleges and universities are mandating LEED certification for new school buildings and renovations.

ISSUES TO CONSIDER

A significant issue for investors considering green investments is the lack of a precise, uniform definition of exactly what it means to be green and the resulting difficulty in complying with the requirements of the various incentive programs. A related issue is the difficulty in integrating the design process with the construction process, because the various professionals do not use uniform terms with precise definitions. This issue is gradually being addressed, as the rating systems become accepted, and the definitions and standards are refined by the applicable oversight agencies, but has not yet been resolved.

Care must be taken to assure that contracts with architects, designers, contractors and consultants precisely describe the design requirements, identify the applicable rating system to be applied to the project, as well as the level of certification expected, and provide for remedies if those expectations are not satisfied.

Care must be taken to assure that contracts with architects, designers, contractors and consultants precisely describe the design requirements, identify the applicable rating system to be applied to the project, as well as the level of certification expected, and provide for remedies if those expectations are not satisfied. Because an owner may desire ratings from different rating systems, the various (but sometimes overlapping) requirements can be difficult to integrate and document. If the service agreements do not clearly describe the owner's expectations, or sometimes even when they are clear but the professionals involved are inexperienced in green construction and its requirements, the owner may end up with a building that doesn't obtain the desired ratings. This can be especially problematic if the owner has promised specific ratings to obtain expedited permitting and zoning approvals from governmental officials, to receive attractive financing from lenders, to induce tenants to lease space in the project, or to arrange for the pre-sale of the project. Without appropriate contract provisions, the owner may not have recourse to the design professionals if the building doesn't achieve the expected ratings. For example, a customary construction warranty may not address compliance with green building requirements, and therefore would need to be specifically tailored to enable the owner to recover from the contractor if the project ultimately does not achieve the rating specified in the contract.
Also, standard indemnity provisions and professional liability coverages in contracts with green building consultants should be examined for coverage availability in the event the additional requirements for certification are not satisfied.

Although the overall economics of any transaction is a consideration in making any investment, evaluating the unique economics of green investments requires special attention. Studies suggest that construction costs of green buildings can be significantly higher than average construction costs. This may be due, at least in part, to the increased costs of architectural, engineering and design work necessary to integrate sustainable building practices and conform to the applicable rating requirements. Other studies suggest that the energy efficiency of green buildings, as well as the marketing value of being green, will ultimately offset the increased costs. Investors will need to weigh the overall costs of green buildings against the potential long-term benefits. This evaluation may not be simple because there are not yet many empirical studies on long-term savings and because available incentives are evolving.

The marketing of green buildings creates another set of problems for investors. Sometimes, touting the potential environmental and public benefits of green construction can backfire if the promised benefits cannot be documented. If green building systems are marketed as easier to maintain, a purchaser who disagrees may assert that the owner misrepresented the efficiency of the building operational systems. The marketing of green buildings sometimes also claims environmentally friendly construction techniques will reduce the building's impact on its occupants, resulting in more productive and happier workers, influencing worker productivity and performance. A disgruntled worker (or employer) may disagree. Therefore, care should be taken that such marketing efforts don't result in unintended representations about a building's beneficial effects.

**CONCLUSION**

As the debate over global warming continues and energy prices skyrocket, government initiatives and incentives for, and the popularity of, green building are likely to increase. Institutional investors should weigh the benefit of these incentives against the cost of going green. It’s not easy being green — but it just might be beneficial.

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