

REPORT

Date: June 27, 2006
To: ECT
From: CEAC LEED Subcommittee
Re: **CITY ADOPTION OF LEED STANDARDS FOR CITY BUILDINGS**
CEAC RECOMMENDATION

BRIEF

We believe that green building is an essential part of Minneapolis' sustainability effort. Given the profound impact of construction in particular on the environment, we applaud the city's resolution to apply green building standards for city construction of a certain magnitude.

Comparison of Leadership in Energy and Environmental Design (LEED) Program and Minnesota B3 (Buildings, Benchmarks, and Beyond) Guidelines

1. LEED developed as a measurement tool specific to the US building market and is used in both the US and Canada, whereas B3 is used only in Minnesota. Using LEED would afford uniformity of standard as well as compatibility with established national building metrics such as ANSI and EPA.
2. B3 is administered, and "theoretically" enforced, locally in Minnesota. It is an unfunded mandate at present. LEED has built-in oversight, project-specific interpretations, digital tabulation databases and spreadsheets, and other valuable services through the USGBC. The LEED infrastructure is fully in place and has been tested and improved by virtue of use.
3. LEED implementation costs (including registration, certification, consultant preparation fees, and construction premiums) are modest compared to building costs, adding an average premium of roughly two (2) percent for LEED Silver. [Source: Kats, Greg. "The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force." Oct. 2003.] B3 preparation costs are currently less extensive, due to more minimal enforcement infrastructure and documentation requirements at present time.

Preliminary Recommendations (subject to ongoing information gathering from precedent cities)

- The City should commit to the LEED certification process (pilot or permanent TBD).
- The City should commit to continuing research prior to executing a LEED program, to favor successful implementation. (This should include gathering additional information from precedent cities that have these programs in place.)
- LEED Silver certification is a meaningful start target for buildings over a minimum size (e.g. 10,000 SF).
- The city should consider committing to at least one "Gold" building in the future as a step toward gaining further institutional understanding.
- The city may investigate adopting a minimum achievement level in the area of "Energy & Atmosphere" given our climactic extremes and increasing public concern over CO2 and energy security.

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SUPPORTING INFORMATION

Preface

The built environment has a profound impact on our natural environment, economy, health, and productivity: According to the US Department of Energy (DOE), buildings in the US consume more than 30 percent of our total energy and 60 percent of our electricity annually. Five billion gallons of potable water are used to flush toilets daily. A typical North American construction project generates up to 2.5 pounds of solid waste per square foot of floor space. Real estate development appropriates land from other uses such as natural habitats and agriculture. In addition, buildings are a major source of the pollutants that cause urban air quality problems and contribute to climate change. By the year 2010, another 38 million buildings are expected to be built. Green building practices can substantially reduce the negative impacts associated with construction activities. In turn, incentives to build green create demand in affiliated industries to provide environmentally responsible resources and products. [Source: USGBC LEED Reference Guide]

Overview of Leadership in Energy and Environmental Design (LEED) Program History and Structure

Since the inception in 1993, the US Green Building Council (USGBC) quickly began researching existing green building metrics (including EPA, ASTM, and other established standards) and rating systems such as BREEAM and BEPAC from the UK. LEED developed as a measurement tool specific to the US building market. Its voice is credible and powerful because of the diversity and balance of LEED membership and staffing. Membership is comprised of leaders representing many categories, including (but not limited to) building owners, managers, users and brokers; architectural firms; consultants and engineers; contractors and builders; planners; government; environmental groups; utilities; manufacturers; universities and technical research institutes.

LEED utilizes a consensus-based rating system, striking a balance between established practices and emerging concepts. Points are garnered for documented achievement or performance in five (5) environmental categories: Sustainable Sites (prerequisite plus 14 possible credits), Water Efficiency (5 possible credits), Energy and Atmosphere (Prerequisites plus 17 possible credits), Materials and Resources (Prerequisite plus 13 possible credits), and Indoor Environmental Quality (Prerequisites plus 15 possible credits). In addition, 5 possible credits can be earned in an Innovation and Design category. A particular credit may or may not be achievable for a particular building, contingent on the particularities of site, climate, size and other issues. For example, the Sustainable Sites Brownfield Redevelopment credit would be available only to rehabilitated damaged sites where development is complicated by real or perceived environmental contaminants, reducing pressure on undeveloped land.

Achievement of LEED is possible at the following levels: Certified (26-32 points), Silver (33-38 points), Gold (39-51 points), and Platinum (52-69 points).

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Points for Consideration

1. LEED is universal in the United States with respect to climate, though there are multiple versions for new construction (NC), renovation, residential, and other categories. The universal aspect holds advantages, the most significant of which are uniformity in use, centralized enforcement infrastructure, and regular updating to parallel changes in science and industry. Much like the new International Building Code, which has been adopted here, the universal aspect helps eliminate confusion and mistakes, while a central governing body (USGBC) is available for interpretations.
2. Though LEED NC is not climate specific, there is flexibility built into LEED that accommodates innovation credits, including climate-specific solutions. In addition, since efficient energy usage is both required (through pre-requisite credits) and richly rewarded (through the LEED credit point system), LEED may be construed as highly applicable to our climate.
3. While State policy on the whole is compatible with national LEED guidelines, there are differences between B3 and LEED, both with respect to benchmarks and to documentation. Hence, a building that complies with B3 may not easily achieve LEED certification, until parallel LEED compliant documentation has been established. (*The correspondence between The State of Minnesota Sustainable Building Guidelines and LEED is shown in the [Appendix One](#) Guideline Summary Table excerpt from the State of MN Sustainable Building Guidelines.*)
Footnote: USGBC has recently introduced LEED Canada for New Construction and Major Renovations Version 1.0, which is an adaptation of USGBC's LEED Rating System, tailored in part specifically for Canadian climates (also construction practices and regulations).
4. The original proposed Resolution described "utilization" of sustainable guidelines (*Original text copied for reference in [Appendix Two](#) at the end of this document*). How and to what degree will a green standard be administered and enforced (e.g. Recommendation, pilot, or mandate? Regulation and / or incentive?) What will be the expectations for documentation? (LEED requires much more intense documentation than current MSBG requirements.) USGBC offers LEED oversight, project-specific interpretations, digital tabulation databases and spreadsheets, and other valuable services (and subsequently has associated costs). The LEED infrastructure is fully in place and has been tested and improved by virtue of use. B3 is administered and enforced locally, with associated staff and costs that will be required in proportion to desired future levels of enforcement.
5. Other cities nationally have adopted LEED standards, setting specific benchmarks either as suggested guidelines or enforceable mandates. Refer to attached documentation for comments from these cities regarding their experience implementing these programs. (*A list of American Cities who have adopted LEED standards is copied for reference in [Appendix Three](#) at the end of this document. Comments from some of these cities about their programs follow, in [Appendix Four](#).*)

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Appendices:

1. The State of MN Sustainable Building Guideline Summary: Correspondence of MSBG and LEED categories
2. Original Proposed City of Minneapolis Resolution
3. The Greening of North America: Other cities that have adopted LEED standards
4. Comments from these precedent cities regarding the success of their programs
5. Summary of LEED registration and certification fees
6. Comments about other cost considerations associated with LEED (e.g. consultant fees, operating cost reductions and payback, etc.) – **ADDITIONAL INFORMATION IN THIS APPENDIX IS PENDING.**

CEAC LEED Subcommittee Members :

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Appendix One: The State of MN Sustainable Building Guideline Summary

Version 1.1 7/1/04

Part of the Buildings, Benchmarks, and Beyond (B3) Project

MSBG GUIDELINES (Required except as noted by * which indicates recommended.)	COMPARISON TO LEED™ **		
	Potential LEED™ Credits	Potential LEED™ Points For MSBG Requirements	Potential LEED™ Points For MSBG Requirements & Recommendations
PERFORMANCE MANAGEMENT			
P.1 Guideline Management			
P.2 Planning for Conservation			
P.3 Integrated Design Process			
P.4 Design and Construction Commissioning	EA Prereq 1, Credit 3 EQ Credits 3.1, 3.2	3	3
P.5 Operations Commissioning	EA Credit 5 EQ Credit 1	2	2
P.6 Lowest Life Cycle Cost			
P.7 Process Documentation for Performance Management			
SITE AND WATER			
S.1 Avoid Critical Sites	SS Credit 1	1	1
S.2 Appropriate Location and Density	SS Credit 2	0	1
S.3 * Brownfield Redevelopment	SS Credit 3	0	1
S.4 Erosion and Sedimentation Control	SS Prereq 1	0	0
S.5 Stormwater Management	SS Credit 6.1, 6.2	2	2
S.6 Reduce Site Disturbance and Restore Site	SS Credit 5.1, 5.2	2	2
S.7 * Restorative Design			
S.8 Reduce Site Water Use for Plant Materials	WE Credit 1.1, 1.2	1	2
S.9 Reduce Light Pollution	SS Credit 8	1	1
S.10 * Reduce Heat Island Effect	SS Credit 7.1-7.2	0	2
S.11 * Encourage Efficient Transportation Alternatives	SS Credit 4.1—4.4	0	4
S.12 Building Water Efficiency	WE Credit 3.1, 3.2	2	2
S.13 * Use Gray Water to Reduce Wastewater Treatment Impacts			
S.14 * Use Biological Wastewater Treatment System	WE Credit 2	0	1
S.15 Outcome Documentation for Site and Water			
ENERGY AND ATMOSPHERE			
E.1 Reduce Energy Use by at least 30%	EA Prereq 1, Credit 1.1—1.5	4	10
E.2 Efficient Equipment and Appliances			
E.3 Evaluate Renewable and Distributed Energy Generation	EA Credit 2.1—2.3, 6	0	4
E.4 * Atmospheric Protection	EA Prereq 3, Credit 4	0	1
E.5 Outcome Documentation for Energy and Atmosphere			
INDOOR ENVIRONMENTAL QUALITY			
I.1 Restrict Environmental Tobacco Smoke	EQ Prereq 2	0	0
I.2 Indoor Air Quality and Ventilation Baseline			
I.3 Specify Low-emitting Materials	EQ Credit 4.1—4.4	4	4
I.4 Ventilation Based on Anticipated Pollutants	EQ Credit 5	1	1
I.5 Ventilation Based on Carbon Dioxide Limits			
I.6 Moisture Control	EQ Prereq 1, Credit 2	1	1
I.7 Thermal Comfort	EQ Credit 7.1	1	1
I.8 * Daylight	EQ Credit 8.1	0	1
I.9 Quality Lighting			
I.10 * View Space and Window Access	EQ Credit 8.2	0	1
I.11 Eliminate Whole Body Vibration in Buildings			
I.12 Effective Acoustics & Positive Soundscapes			
I.13 * Personal Control of IEQ Conditions & Impacts	EQ Credit 6.1, 6.2	0	2
I.14 * Encouraging Healthful Physical Activity			
I.15 Outcome Documentation for Indoor Environmental Quality			
MATERIALS AND WASTE			
M.1 Evaluation of Design for Minimum Resource Use	MR Credits 1, 3	0	5
M.2 Evaluation of Material Properties for Improved Performance	MR Credits 4—7	0	6
M.3 Waste Reduction and Management	MR Credit 2.1, 2.2	1	2
M.4 Outcome Documentation for Materials and Waste			
**Comparison to LEED™ points is estimated. MSBG requirements overlap with LEED™ credits, however, following MSBG does not require, nor automatically result in LEED™ certification.	TOTALS Corresponding LEED™ Certification Level	26 (Certified)	63 (Platinum)

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Appendix Two: Original Proposed Resolution for the City of Minneapolis

Now, Therefore, Be It Resolved by The City Council of the The City of Minneapolis:

That City staff, led by the Department of Public Works, will utilize the Minnesota Sustainable Building Guidelines or Leadership in Energy and Environmental Design (LEED) standards as the basis for decision making for the planning, design, construction and commission of new buildings, major renovations, and upgrades to building systems over \$100,000 that are owned and financed by the City of Minneapolis and utilized by the City's Charter Departments.

Be it Further Resolved that City staff, led by Public Works, engage in dialog with the U.S. Green Building Council on the development of a LEED standard that addresses the design strategies that are aligned with northern climates.

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Appendix Three: The Greening of North America

(List is not all-inclusive)

Municipalities in both the United States and Canada have LEED standards for city-owned building projects.

Here's a cross-section of those that are moving and shaking in terms of green buildings:

- **Atlanta:** All city-funded projects larger than 5,000 square feet in size, or costing at least \$2 million, must meet a LEED Silver-rating level.
- **Austin, TX:** LEED certification is required of all public projects larger than 5,000 gross square feet.
- **Berkeley, CA:** In 2004, municipal buildings larger than 5,000 square feet were required to be LEED certified. In 2006 and beyond, these buildings must achieve LEED Silver certification.
- **Boston:** The city established LEED Silver as the goal for all city-owned projects.
- **Boulder, CO:** All new or significantly renovated city facilities must be built to a LEED Silver standard.
- **Calgary, AB:** The city's Sustainable Building Policy requires new or significant renovations larger than 500 square meters to achieve LEED Silver certification or higher.
- **Chicago:** All new city-funded construction and major renovation projects will earn LEED Silver certification at minimum.
- **Dallas:** All city buildings larger than 10,000 square feet are required to have at least LEED Silver certification.
- **Houston:** All city-owned buildings and facilities larger than 10,000 square feet must use LEED "to the greatest extent practical and reasonable," with a target of LEED Silver.
- **Kansas City, MO:** All new city buildings must be designed to meet LEED Silver (at minimum). Also, the city is participating in a LEED-EB pilot program for the city hall.
- **Los Angeles:** All building projects funded by the city are required to be LEED certified.
- **Portland, OR:** LEED certification is required of all public projects, both new construction and major retrofits.
- **San Diego:** All municipal projects must meet a minimum of LEED Silver.
- **San Francisco:** All municipal new construction, additions, and major renovation projects larger than 5,000 square feet must achieve LEED Silver certification.
- **Scottsdale, AZ:** In late March, the city passed Resolution 6644 that requires all new public buildings to be certified as LEED Gold.
- **Seattle:** LEED Silver certification is required of all city-owned projects larger than 5,000 gross square feet.
- **Vancouver, BC:** All new civic buildings larger than 500 square meters have adopted green building standards, LEED for British Columbia (LEED-BC). New public buildings must achieve LEED Gold certification.

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Appendix Four: Precedent City LEED Program Feedback

Austin, Boulder, Portland and Chicago were contacted regarding their respective LEED programs, with the following responses. CEAC recommends continued information gathering from precedent cities to favor successful implementation.

Date of inception and LEED level adopted?

Austin: 2000, LEED Silver.

Boulder: Pilot Program 2001 and formally adopted 2005, LEED Silver.

Portland: 2001 as LEED Silver, updated 2005 to LEED Gold.

Chicago: June 2004, LEED Silver.

Mandate or a recommendation? (If it's a mandate, did it start as one or as a recommendation?)

All four cities currently implement LEED as mandates. Boulder started their program as a pilot and formally adopted it four years later.

Quantity of buildings LEED certified since the city's inception of LEED standards? At what level?

Austin: Two (2) Silver and one (1) Gold (above the mandated standard).

Boulder: One (1) Silver.

Portland: Zero.

Chicago: Two to three Silver.

How happy is the city with the LEED program?

Austin: They are happy with LEED

Boulder: They are very happy with LEED

Portland: They are a little frustrated. It was "sold" as no additional cost, which has not been the case.

Chicago: They love LEED.

What was the process of adopting LEED? (Were there local amendments to the LEED standards? Do they provide local administration that supplements LEED oversight? Do they administer LEED via enforcement, incentives, or other measures?...)

Austin: City Manager and City Council, through Resolution.

Boulder: Started as a Pilot, where Facilities were told to do their best. Promoted by a sub-committee with two to three City Councilors. It is now formally incorporated into their Master Plan.

Portland: The Office of Sustainable Development was the initiator, working with the City Council

Chicago: Totally the Mayor's initiative.

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Appendix Five: LEED Registration Fee Summary (from www.usgbc.org)

FEE SUMMARY FOR NC, EB & CI

As of November 15, 2005

Note: NC v2.1 registration available until December 31, 2005. NC v2.2 registration available now.

Registration Fees

Charges	Fixed Rate
Members	\$450.00
Non-Members	\$600.00

Note: All fees are subject to change. Sorry, no refunds.

Certification Fees*

	Less than 50,000 Square Feet	50,000 - 500,000 Square Feet	More than 500,000 Square Feet
LEED-NC & LEED-CI	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Design Review			
Members	\$1,250.00	\$0.025/Square Ft.	\$12,500.00
Non-Members	\$1,500.00	\$0.03/Square Ft.	\$15,000.00
Construction Review			
Members	\$500.00	\$0.01/Square Ft.	\$5,000.00
Non-Members	\$750.00	\$0.015/Square Ft.	\$7,500.00
LEED-NC & LEED-CI	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Combined Design & Construction Review			
Members	\$1,750.00	\$0.035/Square Ft.	\$17,500.00
Non-Members	\$2,250.00	\$0.045/Square Ft.	\$22,500.00
LEED-EB	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Combined Design & Construction Review			
Members	\$1,250.00	\$0.025/Square Ft.	\$12,500.00
Non-Members	\$1,500.00	\$0.030/Square Ft.	\$15,000.00

Note: All fees are subject to change. Sorry, no refunds.

*Certification fee for projects registered under NC Version 2.0 (prior to November 15, 2002) is \$1200 (members) or \$1500 (non-members).

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Appendix Five: LEED Registration Fee Summary (continued)

Certification fee for projects registered under NC Version 2.1 from November 15, 2002, to November 15, 2005 NOT using LEED Online. Certification fee for projects registered under EB and CI v2.0 before November 15, 2005, NOT using LEED Online. These fees are:

	Less than 75,000 Square Feet	75,000 - 300,000 Square Feet	More than 300,000 Square Feet
Charges	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Certification			
Members	\$1,500.00	\$0.02/Square Ft.	\$6,000.00
Non-Members	\$1,875.00	\$0.025/Square Ft.	\$7,500.00

Note: All fees are subject to change. Sorry, no refunds.

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Appendix Six: Additional Costs Associated with LEED

More information about costs associated with LEED is being prepared by Rick Carter, with LHB Architects, on behalf of the city. His report is expected to be available for review by ECT on June 27, 2006, though it is not currently contained within this CEAC brief.

As a note, in his report, "The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force" from October 2003, author Greg Kats suggests that the life cycle savings over a 20 year building life exceeds approximately ten-fold the initial investment associated with implementing LEED Silver. This figure includes an estimated one (1) percent increase in worker productivity associated with sustainable initiatives such as daylighting.

Recently published cost-benefit studies on green buildings include the following:

- Davis Langdon. "Costing Green: A Comprehensive Cost Database and Budget Methodology." July 2004.
- Gregory H. Kats. "The Costs and Financial Benefits of Green Buildings, A Report to California's Sustainable Building Task Force." October 2003.
- Steven Winter Associates, Inc. "GSA LEED Cost Study." October 2004.
- Gregory H. Kats. "Green Building Costs and Financial Benefits." Massachusetts Technology Collaborative, 2003.
- RICS. "Green Value." November 2005.