

simple, smart, sustaining solutions...



State of Hawaii Embracing Green Design



November 30th, 2006

Elaine Aye, IIDA
Principal
Green Building Services, Inc
elaine@greenbuildingservices.com

Ralph DiNola, Assoc. AIA
Principal
Green Building Services, Inc
ralph@greenbuildingservices.com

Agenda



1. The USGBC Today and Tomorrow
2. LEED EB and CI
3. LEED Lessons Learned

What is “Green Building”?



Design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants in five broad areas:

- Sustainable site planning
- Safeguarding water and water efficiency
- Energy efficiency and renewable energy
- Conservation of materials and resources
- Indoor environmental quality



*Implementation of “**Best Practices**”
Utilizes an **integrated design process***

U.S. Green Building Council



- National nonprofit organization based in Washington, DC
- Diverse membership of organizations
- Consensus-driven
- Committee-based product development
- Developer and administrator of the LEED Green Building Rating System



Why seek a green building rating?

Green Building Services



- Validates/Documents achievement
- Provides metrics, measurement of performance
- Energizes, motivates, informs those involved
- Provides a common vocabulary among participants



Leadership in Energy & Environmental Design

Green Building Services



A leading-edge system for designing, constructing, operating and certifying the world's greenest buildings.

LEED Market Transformation



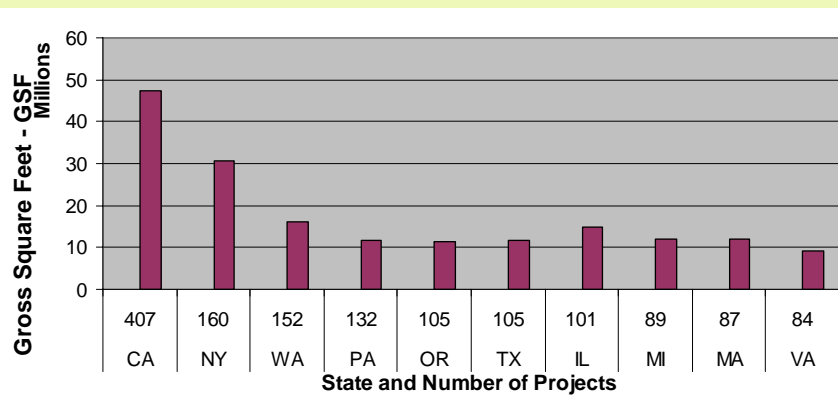
Total LEED Registered Projects: 4396 – 507 M gsf

Total LEED Certified Projects: 613 – 75 M gsf

Rating System	Project Status	# Projects	Million gsf
New Construction	Registered	3549	386
	Certified	349	39
Commercial Interiors	Registered	390	17
	Certified	44	3
Core & Shell	Registered	239	48
	Certified	11	5
Existing Buildings	Registered	218	56
	Certified	26	11

As of 09.18.06

Registered Projects by State



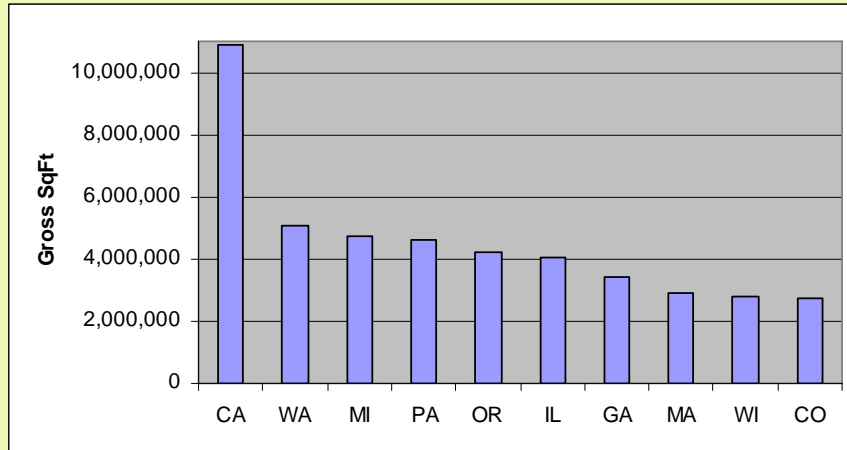
Hawaii: 25 Registered Projects, 4 Certified Projects

As of 03.22.06

All statistics exclude pilot projects

Source: USGBC

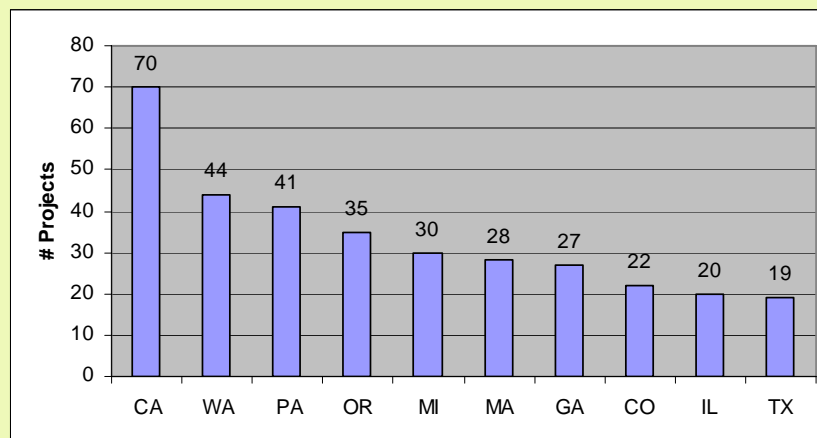
Certified Projects by State – Sq ft



As of 8.16.06

Source: USGBC

Certified Projects by State –



As of 8.16.06

Source: USGBC

Registered Projects in Hawaii



Project Name	City	LEED Rating System
Hawaii Baptist Academy Middle School	Honolulu	LEED NC 2.1
Kulamalu Mauka Block Bldgs. A - D, F	Maui	LEED NC 2.2
Kulamalu Mauka Block Bldg. E	Wailuku	LEED NC 2.1
Kulamalu Post Office	Kula	LEED NC 2.2
Makena Resort Condominiums	Maui	LEED NC 2.2
Makena Resort Recreation Center	Maui	LEED NC 2.2
Mauna Kea Astronomy Education Center	Hilo	LEED NC 2.1
Montessori School of Maui	Makawao	LEED NC 2.1
Volcano Art Center	Volcano	LEED NC 2.2

As of 10.06.06

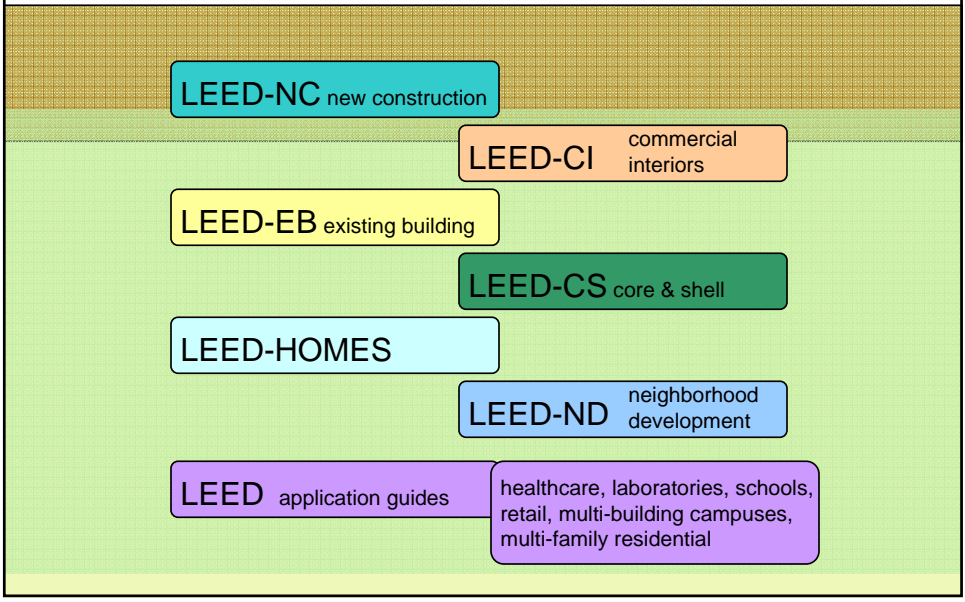
Source: USGBC

Certified Hawaii Projects



Project Name	City	LEED Rating
Case Middle School	Honolulu	Gold
AIA Honolulu Chapter Office	Honolulu	Gold
Dowling Company Office	Wailuku	Certified
Natural Energy Laboratory	Kailua-Kona	Platinum

The LEED Family of Rating Systems

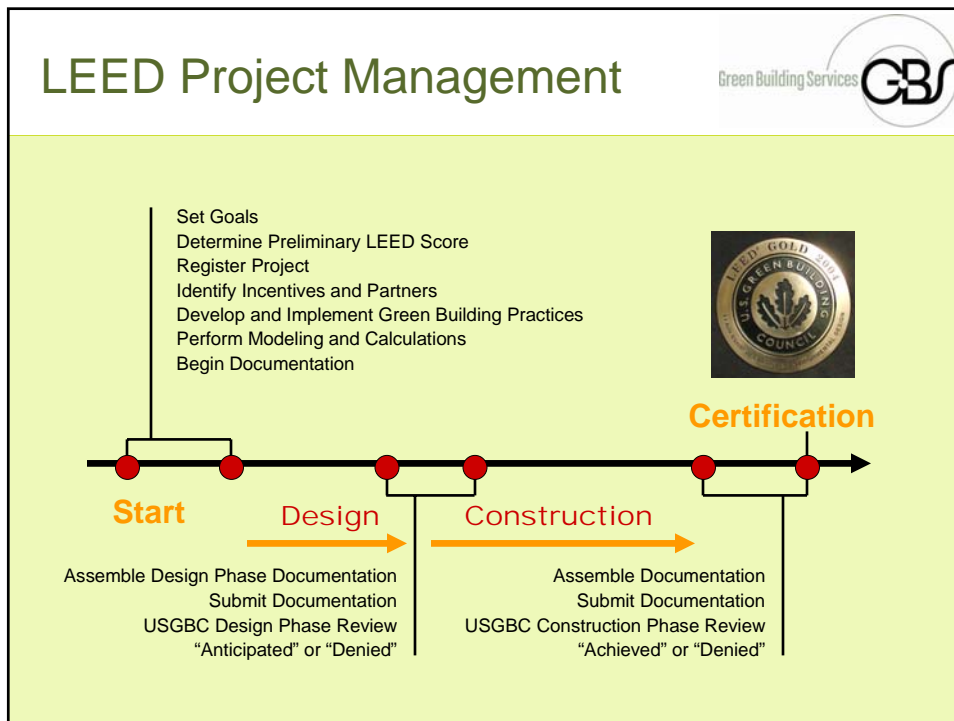
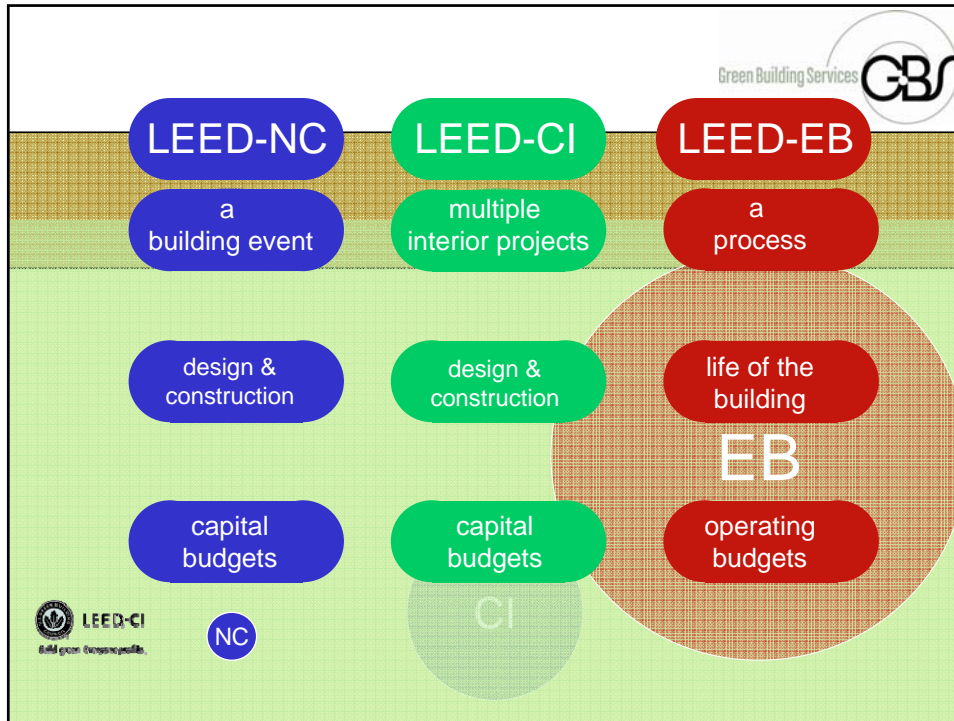


LEED Rating System Certification Levels



LEED-EB		LEED-CI	
Certified	32-39 points	Certified	21-26 points
Silver	40-47 points	Silver	27-31 points
Gold	48-63 points	Gold	32-41 points
Platinum	64-85 points	Platinum	42-57 points

LEED-NC		LEED-CS	
Certified	25-32 points	Certified	24-29 points
Silver	33-38 points	Silver	30-35 points
Gold	39-51 points	Gold	36-47 points
Platinum	52-69 points	Platinum	48-64 points



LEED Initiatives: Fed/State/Local



- Provide tax incentives (tax credit programs)
- Expedite permitting process for green/leed projects
- Specific government office dedicated to providing green resources: guidelines, advocacy, education, technical assistance, grant money
- Reduce county taxes and/or impact fees in proportion to measured efficiency standards (i.e. water conservation, onsite treatment)

LEED Initiatives: Fed/State/Local



Initiatives by Type

Type	#
Ordinance	20
Incentives	17
Resolution	16
Executive Order	14
Policies	10
Federal Initiatives	9
Legislation	6
Private Sector	6
TOTAL	98

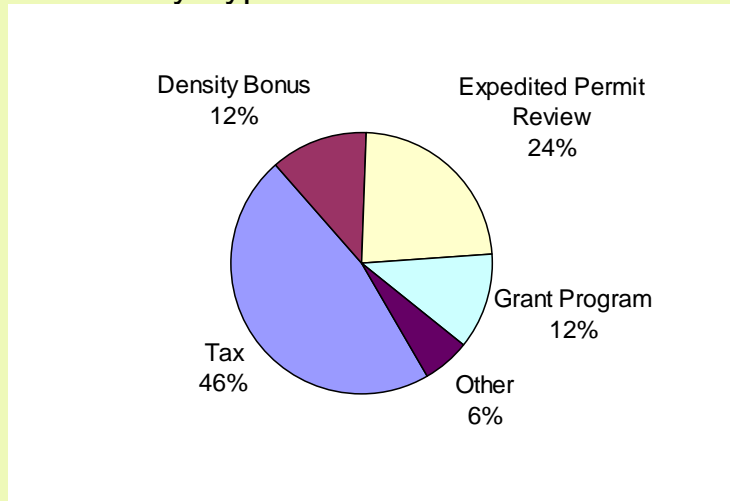
- Across 56 cities and 16 states

USGBC, August 2006

LEED Initiatives: Fed/State/Local



Incentives by Type



LEED Initiatives: Fed/State/Local



- <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1496>
- <https://www.usgbc.org/ShowFile.aspx?DocumentID=691>

USGBC
August 2006

LEED® Initiatives in Government by Type

Various LEED initiatives including legislation, executive orders, resolutions, ordinances, policies, and incentives are found in 56 cities and 16 states across the United States and Canada and also in the Federal government. Below is a breakdown of the types of initiatives and their locations; for a more detailed summary of initiatives with links to specific documents, see www.usgbc.org. Resources- Government- LEED Initiatives in Government and Schools (PDF).

Legislation (6)

Arkansas
Baltimore County, MD
Maryland
Nevada
Pennsylvania
Washington State

Resolution (16)

Austin, TX

Ordinance (20)

Alameda County, CA
Atlanta, GA
Calabasas, CA
Chapel Hill, NC
Chatham County, GA
Cook County, IL
Cranford, NJ
Frisco, TX
Gainesville, FL

Local Challenges



- Design and Construction Team Experience
- Construction and Demolition
- Construction Waste Management / Recycling
- Product Availability
- Local/Regional Materials and Products
- FSC Wood Suppliers
- Cost

Hawaii Initiatives



- Developing Capacity
- Stakeholder engagement
 - Creating Incentives
 - Code Advocacy
 - Expediting Permitting
 - Developing resource databases
 - Bioregional considerations
 - Leveraging current initiatives

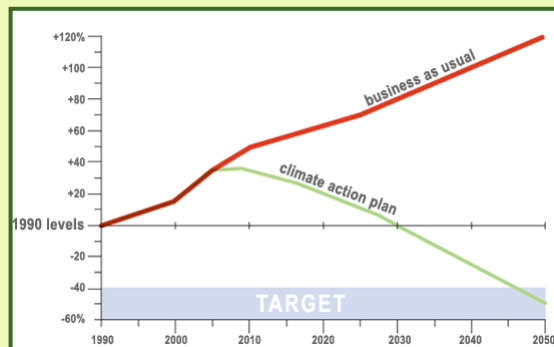
The Next Generation



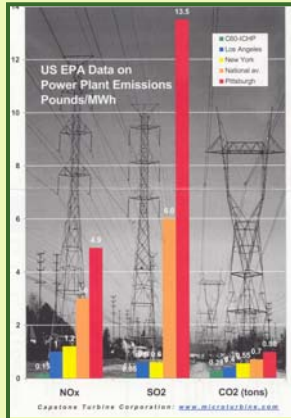
Greenbuild Initiatives

Proposals from USGBC's board and LEED Steering Committee:

"Immediate and measurable" carbon dioxide reduction and to advance the green building industry.



Proposal #1:

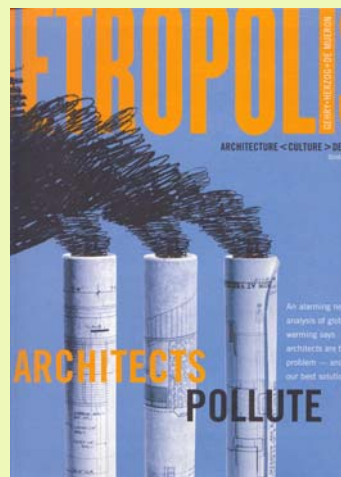


Once approved by membership:

- All LEED-NC projects required to earn at least two EAc1
- All LEED-NC projects required to reduce CO₂ emissions by 50%

Proposal #2:

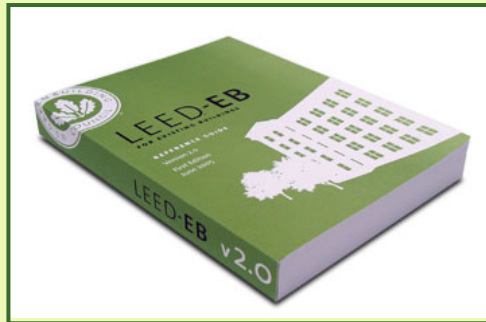
- USGBC will develop a carbon dioxide offset program relying on verified performance of LEED-certified buildings.
- USGBC is developing a robust metric for quantifying CO₂ output



Proposal #3:



All LEED-NC and LEED-CS automatically registered for LEED-EB (Existing Buildings), which focuses on ongoing building Operations & Maintenance.



Proposal #4:



Buildings certified LEED Platinum will receive reimbursement of their certification fees.



=



Proposal #5:



USGBC's Portfolio Performance Program will help companies achieve LEED certification quickly on a large number of buildings.



Proposal #6:



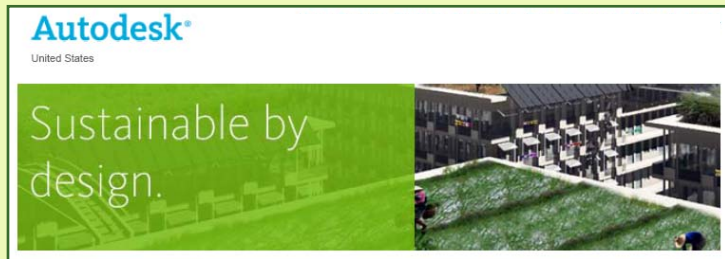
- In response to the Cascadia Chapter's "Living Building Challenge," an uncompromising vision in the form of a rating system: 16 prerequisites and no credits
- USGBC has announced a Living Buildings Design Competition.



Proposal #7:



With a new alliance, USGBC and Autodesk, the makers of Autocad, will work on integrating building performance modeling tools with building design software.



Other Highlights



LEEDv3

While it's still in the 'gestation' phase, major ideas in the works include a harmonization of all LEED rating systems, benchmarking tools, regional credits or weighting of credits, and user-generated content through Wikipedia.

Other Highlights



The USGBC will be working with Enterprise Community Partners on a Green Communities Initiative to build **5 million green homes** and mainstream sustainability in the housing industry.



Other Highlights



USGBC Announces Green Homes Commitment for Clinton Global Initiative:

USGBC launched the first program in a comprehensive year-long campaign to educate consumers about the benefits of green homes. The first product of this joint effort will be an online consumer education resource at usgbc.org, which will leverage USGBC's 300,000+ website users per month.



Other Highlights



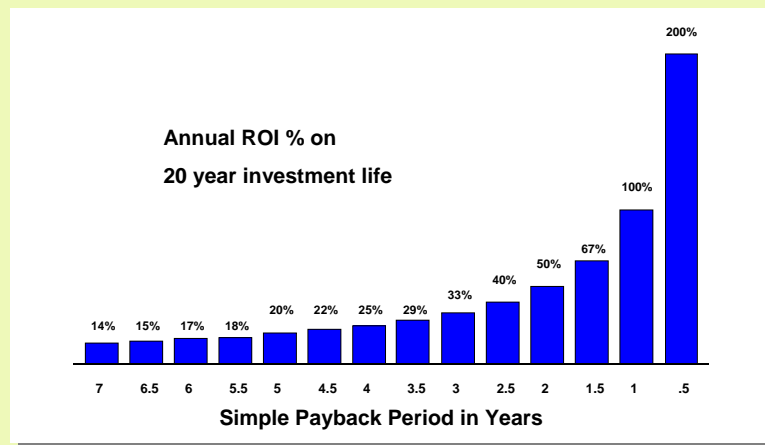
Sustainable Design Code Language



ASHRAE/IESNA Standard 189 P – A Green Building Code:

- Many gov't agencies use LEED like a code
- As a result, people forced to use LEED creates worst-case-scenario of low-hanging-fruit and point-chasing
- USGBC, ASHRAE and IESNA to develop standard sustainable design code language
- This code language could be used in a similar manner to the Appendices of the International Building Code
- The design of this standard is still in the very early phases and the USGBC is still soliciting input

Payback vs Return On Investment



Cost & Benefit Studies



- A positive return on investment for building owners, especially in long-term occupied buildings
- Studies released focusing on the incremental capital costs:
 - *The Costs and Financial Benefits of Green Building*, by Greg Kats and colleagues at Capital E
 - *The GSA LEED® Cost Study*, Steve Winter Associates
 - *Costing Green: A comprehensive Cost Database and Budgeting Methodology*, by Davis Langdon Adamson

Cost & Benefit Studies



The Costs and Financial Benefits of Green Building

by Greg Kats and colleagues at Capital E

- 33 green buildings (public & private) compared to conventional
- Average construction premium <2% (\$3-5/s.f.)
- Present value benefit of \$50-75/s.f.
- 70% of benefit from improved health & productivity
- Study used discount rate of 5%

Cost & Benefit Studies



The GSA LEED® Cost Study, Steve Winter Assoc.

- Studied new courthouses and existing office building modernizations
- Incremental cost of green/LEED -0.4% - +8%
- Recommended GSA LEED project allocation of 2.5% - 4%

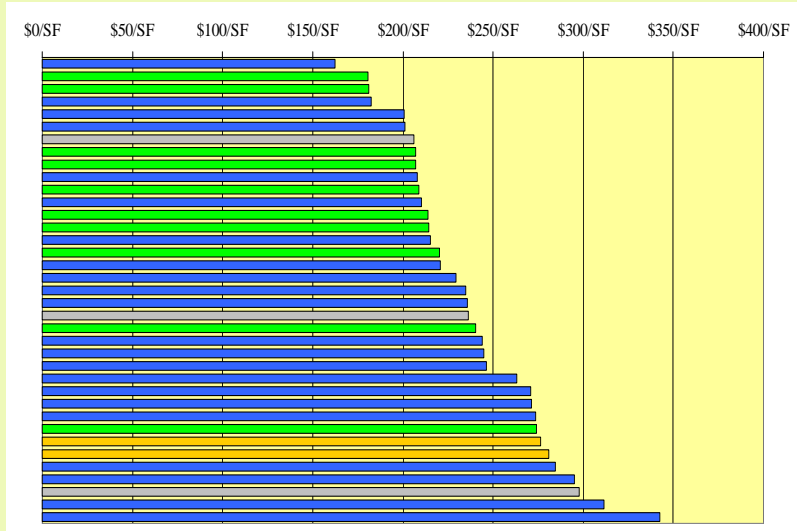
Cost & Benefit Studies



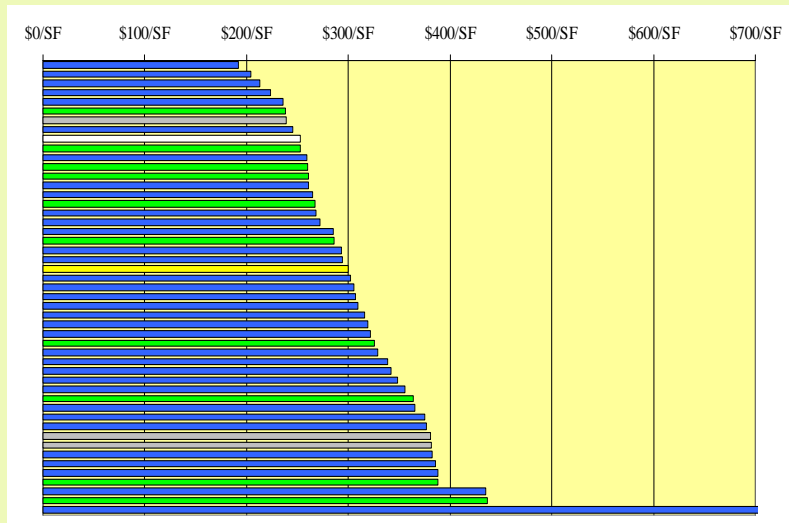
Costing Green: A comprehensive Cost Database and Budgeting Methodology, by Davis Langdon Adamson

- Studied academic buildings, labs & libraries
- 93 non-LEED buildings & 46 seeking LEED
- LEED seeking projects below average cost
- LEED/green less of cost influence than other factors

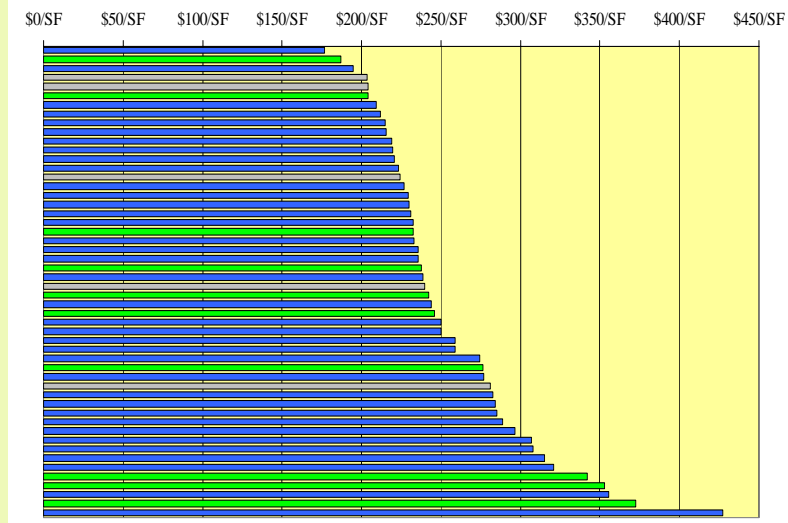
Cost Analysis: Libraries



Cost Analysis: Laboratories



Cost Analysis: Academic



Cost Analysis: Summary



- 12 Points typically embedded in base design
- 18 additional points achievable at minimal cost using integrated design
- Over half of LEED Projects received no supplemental budget
- <5% if supplemented
- PV most common supplemental funding
- No significant difference between LEED & non-LEED, thus, most projects can achieve LEED within available funds