Green Building in Southern California

Culver City

April 2nd, 2005

"Then I say the earth belongs to each . . .

generation during its course,

fully and in its own right,

no generation can contract debts

greater than may be paid during

the course of its own existence."

-*Thomas Jefferson, September 6, 1798*

Why Support Green Building?

- **Santa Monica Sustainable City Survey**

Resource conservation	**69.9%**
Environmental and public health	**83.3%**
Transportation	**41.6%**
Economic development	**38.1%**
Open space and land use	**56.3%**
Housing	**48.0%**
Community education and civic participation	**32.7%**
Human dignity	**59.7%**

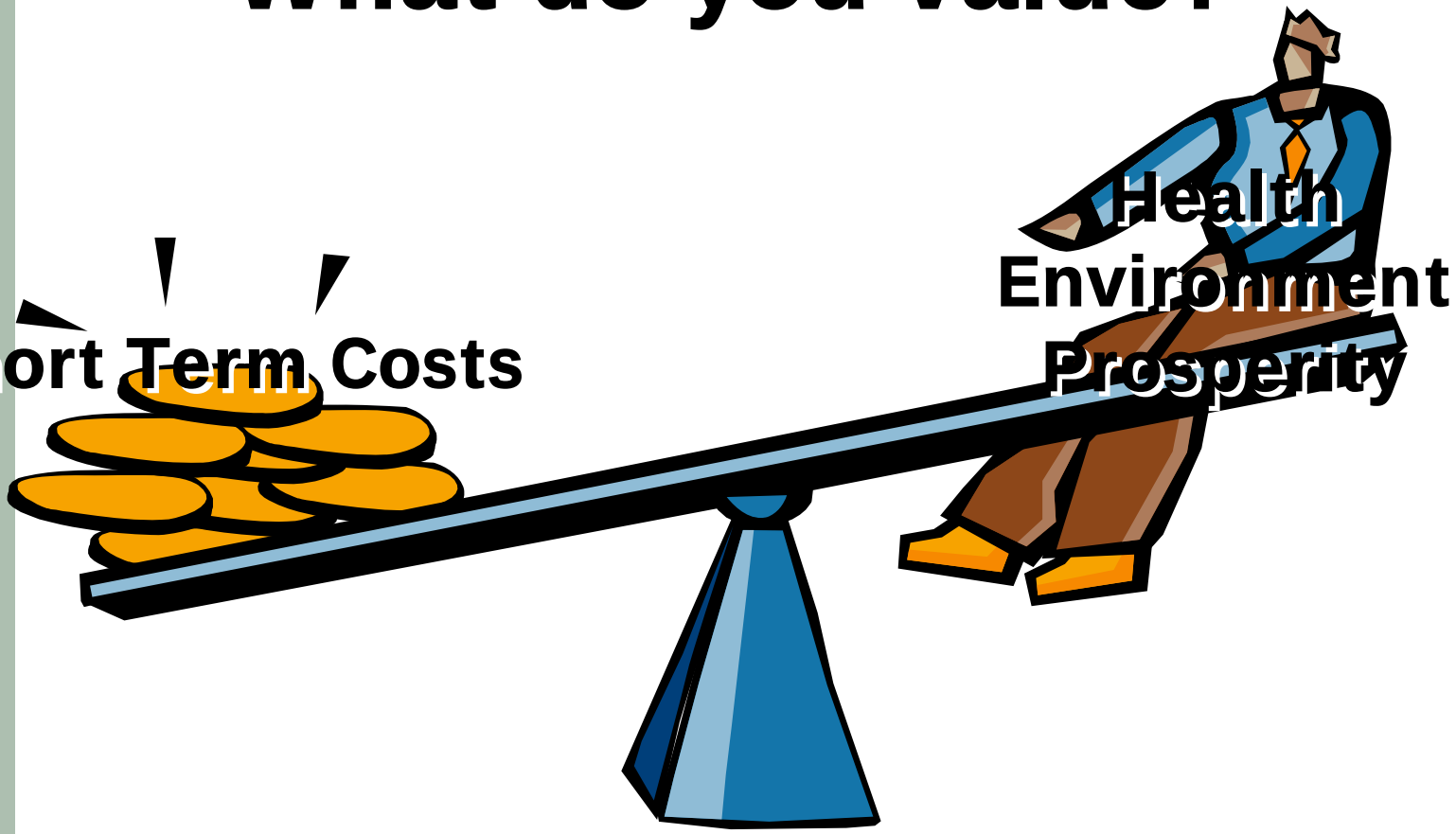
Why Support Green Building?

"I believe it is important that, in the future, our buildings are healthier, more resource efficient, and more environmentally friendly"

93% of Santa Monica Residents Agree

Why Support Green Building?

“What do you value?”



WHAT IS GREEN BUILDING?

"Green Building" is a <u>process</u> for creating buildings and supporting infrastructure that:

1) minimize the use of resources,

2) reduce harmful effects on the environment, and

3) create healthier environments for people.

ENVIRONMENTAL IMPACTS OF BUILDINGS

The construction and operation of buildings has numerous detrimental effects on the local, regional, and global environment:

- **40% of annual US energy use**
- **30% of US CO2 production**
- **25% of water use**
- **20% - 40% of solid waste**
- **30% of wood and raw materials**
- **30%+ of buildings have poor indoor air quality (people spend about 90% of their time indoors)**

- **Air pollution**
- **Global warming**
- **Water scarcity**
- **Landfills**
- **Deforestation**
- **Public Health**
- **Habitat loss**
- **Ozone layer depletion**
- **Urban Heat Island**

GREEN BUILDING BENEFITS

TO THE ENVIRONMENT:

- **Greenhouse gas reduction**
- **Improved water quality**
- **Solid waste reduction**
- **Improved air quality**

TO THE CITY:

- **Increase the value of existing programs**
- **Demonstrate environmental leadership**
- **Preserve local quality of life**

TO BUILDERS:

- **Lower waste disposal cost**
- **Reduced use of materials**
- **Unique marketing potential**

TO OWNERS/USERS:

- **Lower energy and water bills**
- **Healthier/more productive living/working environment**
- **Reduced maintenance costs**
- **Greater price appreciation and increased resale value**
- **Preferential mortgages**

Spheres of Green Building Benefit

Energy Savings

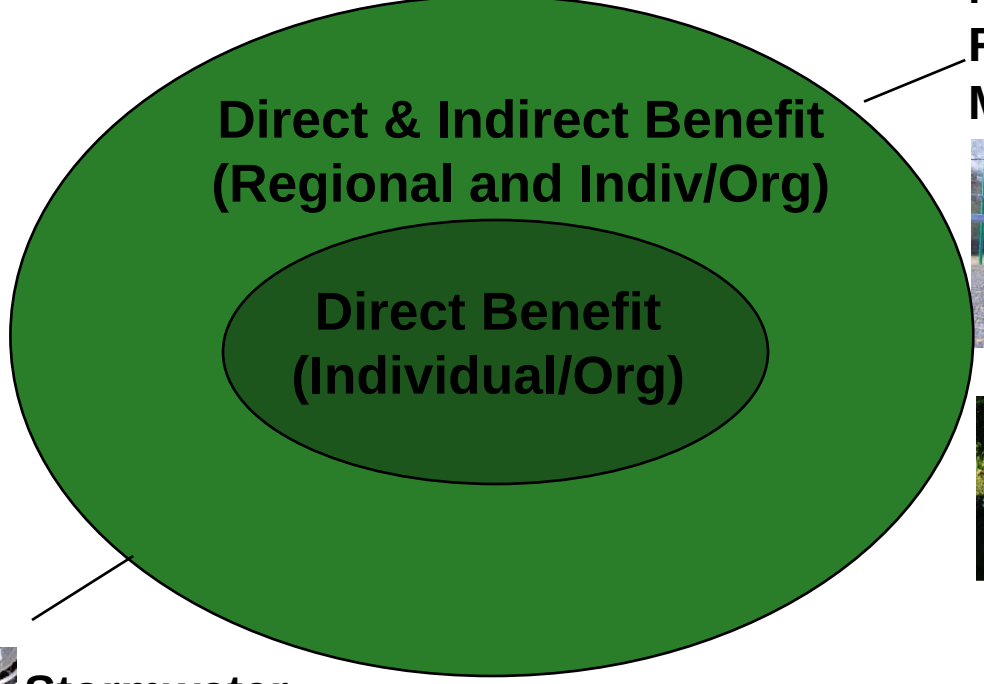
Improved Air Quality

Direct Benefit (Individual/Org)

Reduced Maintenance

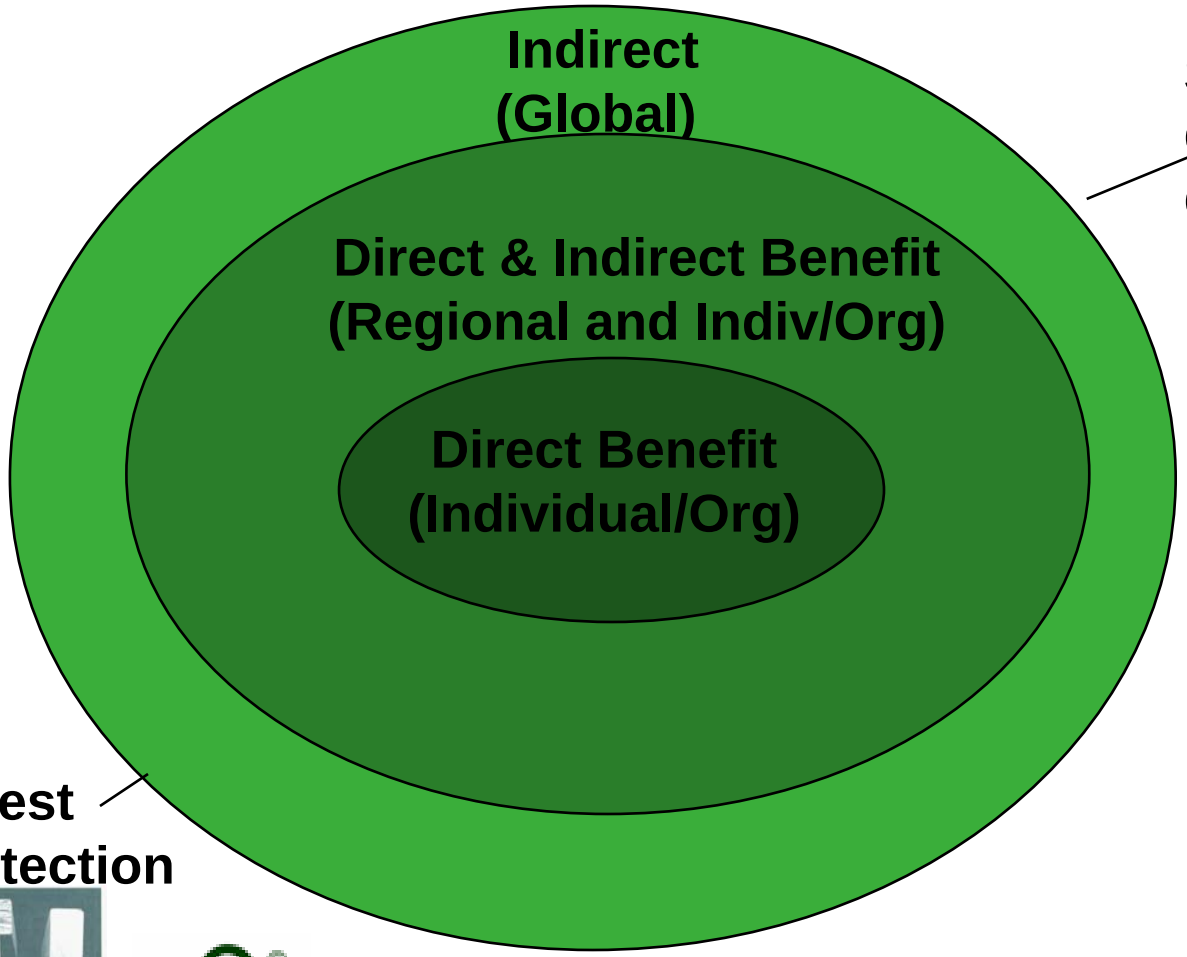
Spheres of Green Building Benefit

Waste Management/ Recycled Materials

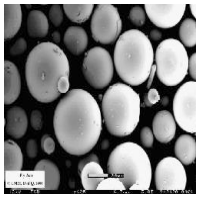


Stormwater Retention

Spheres of Green Building Benefit



Stemming Climate Change



Forest Protection

FSC

Costs of Green Building

First Cost vs. Life Cycle Cost

- First cost looks only at the cost to purchase. Life cycle cost looks at all costs and savings for a products entire life (purchase, installation, maintenance, disposal). For example a less expensive product may be more expensive over the long run due to high maintenance or poor performance.

Sheet Vinyl

5,000 sq. ft.

$1.50/sq.ft.

Replace every 10 years

Total 40 yr. Cost: $30,000

Linoleum

5,000 sq. ft.

$5/sq.ft.

Replace every 40 years

Total Cost: $25,000

Economic Benefits

Competitive first costs

- **Integrated design allows high benefit at low cost by achieving synergies between disciplines and between technologies**

Reduce operating costs

- **Lower utility costs significantly**

Optimize life-cycle economic performance

Economic Benefits

Increase building valuation and ROI

- **Using the income-capitalization method: asset value = net operating income (NOI) divided by the capitalization rate (return). If the cap rate is 7%, divide the reduction in annual operating costs by 7% to calculate the increase in the building's asset value**
- **Quantify financial benefit in terms of Return On Investment (ROI) instead of payback time.**

Decrease vacancy, improve retention

- **Marketing advantages**

Reduce liability

- **Improve risk management**

Productivity Benefits

Improve occupant performance

- **Estimated $29 –168 billion in national productivity losses per year [1]**
- **Student performance is better in daylit schools. [2, 3]**

Reduce absenteeism and turnover

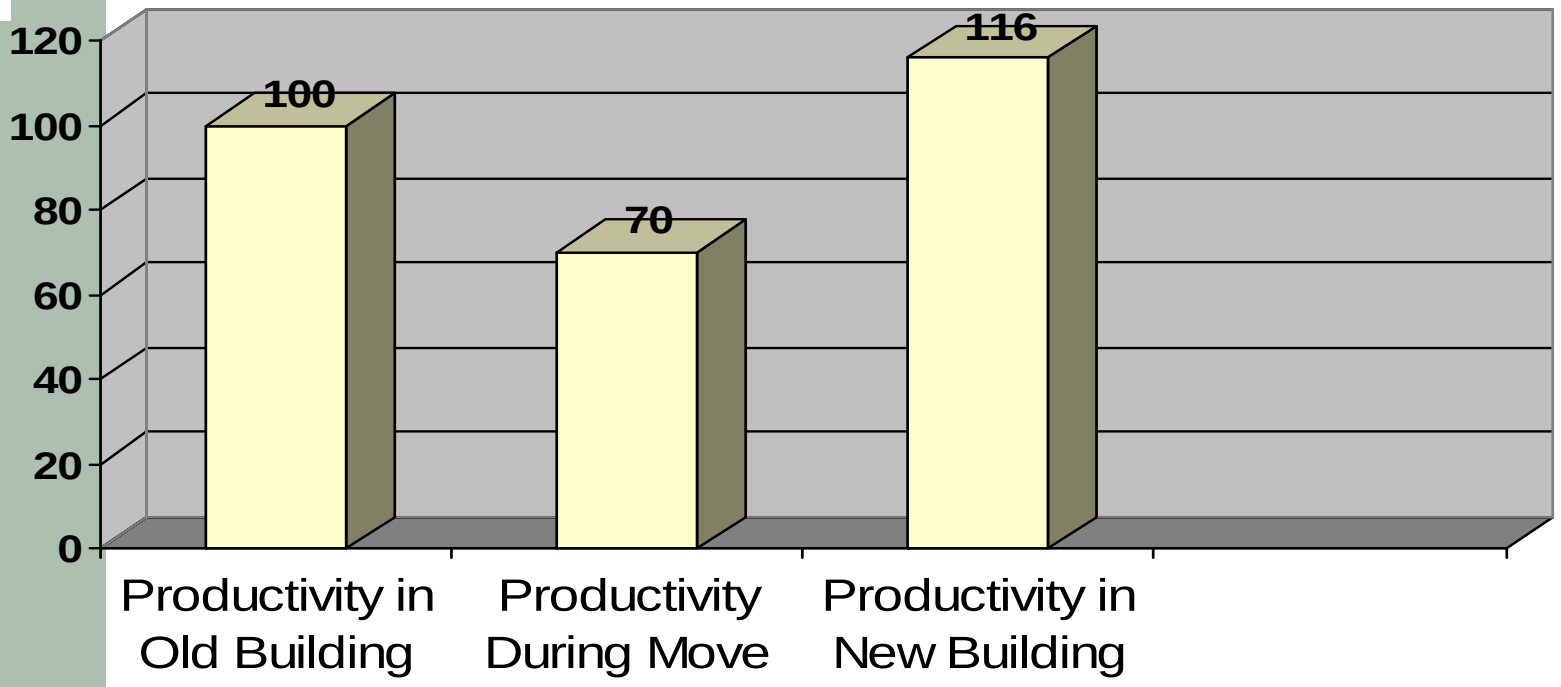
- **Providing a healthy workplace improves employee satisfaction**

Increase retail sales with daylighting

- **Studies have shown ~40% improvement [4]**

West Bend Mutual Insurance Company

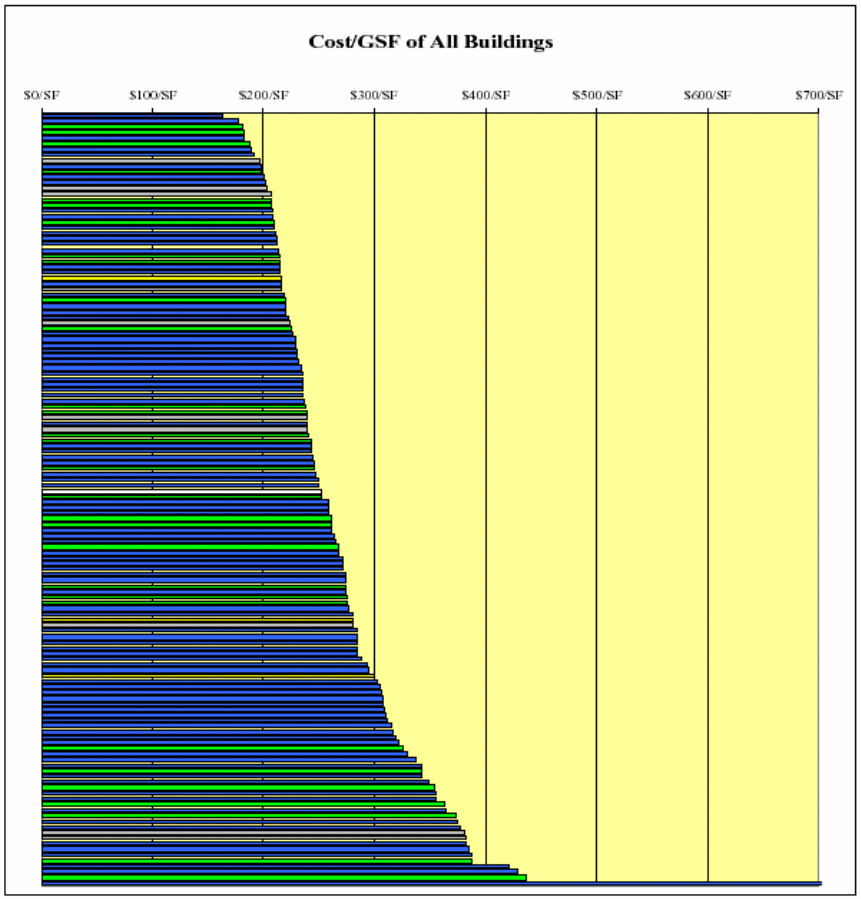
(West Bend, WI)



Business Case for Sustainability

Comparison of 93 non-LEED and 45 LEED buildings shows no statistical difference in cost.

http://www.davislangdon-usa.com/publications.html

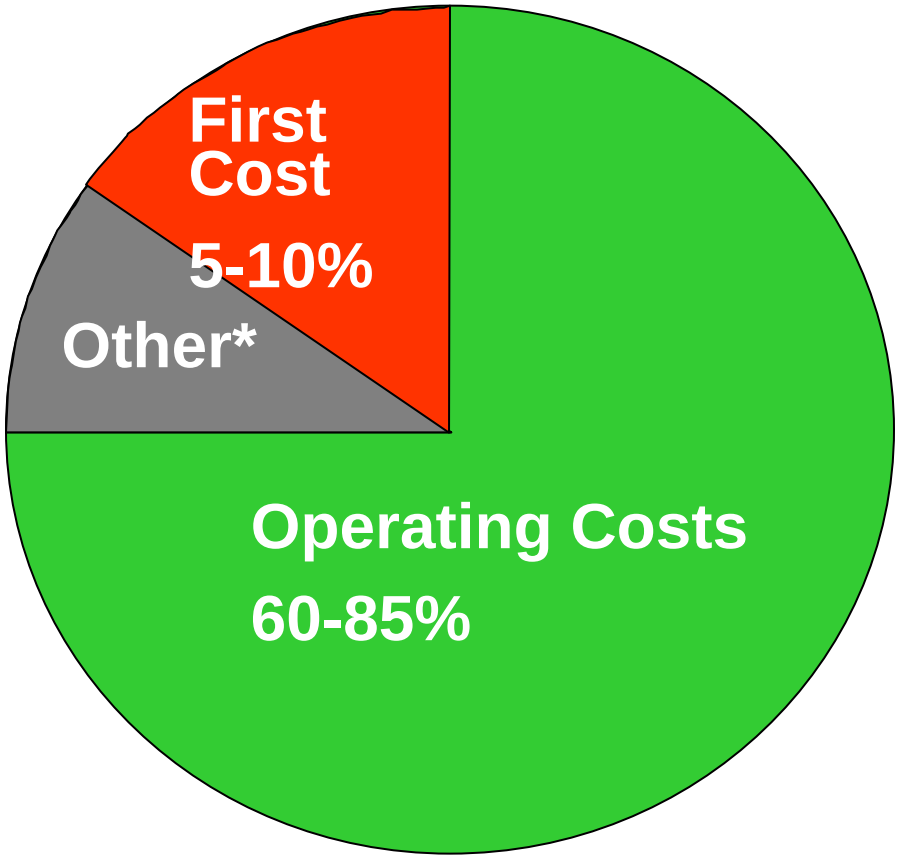


Business Case for Sustainability

- What is the cost?
  - Green: 0%
  - Greener: 1 – 3%
  - Greenest: 5 – 10%

…and what is the value?

Business Case for Sustainability



From: National Research Council, 1998

*Other includes land acquisition, conceptual planning, renewal or revitalization, and disposal.

EPA Campus in RTP

- **1,000,000 SF Office / Lab Building Research Triangle Park, North Carolina:**

	Buildings, interiors & site	NPV
Similar Facilities	$200 - 280 /SF	$188 / SF *
EPA Campus	$213 / SF	

Added value of $25 million!

* NPV is calculated based on a hurdle rate of 5%, with a time period of 20 years. Operating cost is approximately $2.00 less per SF, maintenance cost is equal, no escalation for energy costs included.

Emory University

- **325,000 SF Academic Lab Building in Atlanta, Georgia**
- *** LEED certified silver**

	Building, interiors & site	NPV
Cost without LEED strategies	$65 million	
Cost with LEED strategies	$66 million	$64.4 million

Added value of $1.6 million!

* NPV is calculated based on a hurdle rate of 8%, with a time period of 20 years. Operating cost is approximately $.50 less per SF, maintenance cost is equal, no escalation for energy costs included.

Green Building Costs and Financial Benefits

by Gregory H. Kats

Making
The Business Case
For High Performance
Green Buildings

Contract No. GS–11P–99–MAD–0565
Order No. P–00–02–CY–0065

GSA

LEED® Cost Study

Final Report

Submitted to:
U.S. General Services Administration

Submitted by:
Steven Winter Associates, Inc.

Date:
October 2004

LEED

- Sustainable Sites
- Energy and Atmosphere
- Water Efficiency
- Materials and Resources
- Indoor Environment Quality
- Innovation

LEED™
LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

Green Building Model Program Elements

- **Regulation**
  - **Raise standards and level playing field**
  - **Lessons:**
    - **plan for enforcement**
    - **consider effectiveness**
- **Motivation**
  - **Grants, rebates, expedited plan check, density bonus**
  - **Lesson: Get what you pay for: start trend**
- **Facilitation**
  - **Remove obstacles, educate plan check engineers**
  - **Lesson: Get out of the way!**
- **Education**
  - **Seminars, expos, tours, resources**
  - **Lesson: determine target audience**

Green Building Model Program Elements

- Lead by Example

ESTABLISHING A LOCAL PROGRAM

- HOW TO GET STARTED -

1. Inventory existing City policies and programs, identify relationship to green building components, identify gaps.
2. Conduct outreach with key City and private-sector stakeholders
3. Determine the program focus (municipal, residential, commercial)
4. Develop a program implementation plan, taking advantage of LEED rating system, Alameda County guidelines, CIWMB guides.
5. Establish incentives and create program marketing materials
6. Provide training for City staff, local designers, and builders
7. Green an upcoming municipal project to build community interest and support for the program.

CITY OF SANTA CLARITA

- City currently has policies in various elements of the General Plan that support sustainable building practices.
- Existing Community Energy Efficiency Program (CEEP) Program provides a foundation:
  - Requires energy efficiency improvements
  - Offers expedited permit processing and fee reductions to participating builders
  - Experience with recognition programs such as “Caught You Doing Something Good” awards.

CITY OF SANTA CLARITA

Current

- Demonstrating leadership by “greening” several upcoming municipal projects.
- Exploring options for adopting LEED as a local standard for municipal projects.

Future

- Establish Residential Program by adding several components to the existing CEEP Program.
- Use LEED as the basis for a Commercial Program.

POSSIBLE TIME LINE

YEAR 1: Initiate Sustainable Building Program by "greening" several upcoming projects:

- *Aquatic Center*
- *Transportation Facility*

YEAR 2: Adopt LEED Gold as local standard for municipal projects.

YEAR 2: Launch Residential Program

YEAR 3: Launch Commercial Program

Southern California USGBC Members (11/04)

- City of Burbank Building Division, California 5/19/2004
- City of Calabasas, California 9/03/2003
- City of Encinitas, California 6/25/2003
- City of Irvine, California 5/21/2004
- City of Long Beach, California 10/25/2001
- City of Los Angeles, California 3/12/2001
- City of Pasadena, California 4/08/2003
- City of San Diego, California 1/15/1997
- City of Santa Barbara, California - Solid Waste Program 2/11/2004
- City of Santa Monica, California 1/15/1997
- City of Ventura 10/18/2004
- Upper San Gabriel Valley MWD 1/22/2004

Municipal Programs

- City of Los Angeles
- City of Santa Monica
- City of Long Beach
- City of Calabasas
- City of San Diego
- San Diego County
- Santa Barbara County
- City of Santa Clarita

LEED Mandate
City Buildings

- City of Los Angeles – Certified
  - Resolution: All City Buildings > 7500 s.f.
- City of Santa Monica – Silver
  - Resolution: Wherever feasible
- City of Long Beach – Certified
  - Resolution: All City Buildings > 7500 s.f. (2-year phase in)
- City of San Diego – Silver
  - Resolution: > 5k s.f.
- City of Calabasas – Certified/ Silver
  - Ordinance: < 5k s.f. “Certified”, > 5k s.f. “Silver”

LEED Mandate
Private Developments

- City of Calabasas
  - Ordinance: All non-residential buildings

Incentives

Grants

- Pasadena
- City of Santa Monica

Expedited Permitting/ Reduced Fees

- City of Santa Barbara
- City of San Diego
- San Diego County
  - Expedited plan check
  - 7.5% fee reduction

Other Regulations

- Improved Energy Efficiency (Santa Monica)
  - 10-15% better than Title 24

- Recycled Content Building Materials (SM)

- Require low-water landscapes (SM)

Other Regulations

- Require urban runoff mitigation (SM)
- Require Construction & Demolition waste recycling (SM, LA)
- Allow flushless urinals (DSA)

Resources

State and Local Toolkit
http://usgbc.org/Resources/local_government.asp

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