Sustainable Development Revolution

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Sustainable Development Revolution

- What is Sustainable?
- History and Growth
- Regional Applications
- What is “Too Green”?
- Costs
- The Future
- Conclusion

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What is Sustainable?

Encompasses many elements

- Green Buildings
- Sustainable Communities
  - ✓ Smart Growth
  - ✓ New Urbanism

The Office of the Federal Environmental Executive definition for Green Buildings is the practice of

1) increasing the efficiency with which buildings and their sites use energy, water and materials.
2) reducing building impacts on human health and the environment through better siting, design, construction, operation, maintenance and removal - the complete building life cycle.

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What is Sustainable?

- ✓ **Smart Growth**

  An Urban Planning and Transportation Theory that concentrates growth in the center of a city to avoid urban sprawl; and advocates compact, transit-oriented, walkable, bicycle-friendly land use, neighborhood schools, complete streets and mixed-use development with a range of housing choices.

- ✓ **New Urbanism**

  Is an urban design movement, which promotes walkable neighborhoods that contain a range of housing and job types.

This presentation focuses on concepts behind Sustainable (Green) Buildings.

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History and Growth

- Sustainability has been practiced for centuries through indigenous cultures and early settlement periods.
- Recently with focuses on the dependency for foreign oil, depleting ozone and global warming, organizations have been created to offset these issues.
- In 1993 the US Green Building Council (USGBC) was formed to address how buildings are designed, built and operated through a collaboration of industry professionals, organizations and institutions.
- In 1994 Leadership in Energy and Environmental Design (LEED®) was developed through USGBC.
- From 1994 - 2006 it evolved a comprehensive standard for development and construction processes which led to 6 interrelated standards.

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History and Growth

- In 2009 these standards were modified and are in place today under the LEED 2009 program
  - Sustainable Sites
  - Water Efficiency
  - Energy & Atmosphere
  - Materials and Resources
  - Indoor Environmental Quality
  - Innovation in Design
  - Regional Priority
- LEED evaluates buildings through a point system
  - Certified: 40 - 49 points
  - Silver: 50 - 59 points
  - Gold: 60 - 79 points
  - Platinum: 80+ points

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History and Growth

- LEED rating systems are available for the following:
  - New Building Construction
  - Existing Buildings
  - Commercial Interiors
  - Core and Shell
  - Schools
  - Retail
  - Homes
  - Neighborhood Developments
  - Health Care

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History and Growth

LEED Growth*

– Certified New and Existing Buildings doubled in a 2 year period

– As of April 2009, 2488 commercial projects had been certified under LEED ratings systems

– 19,524 projects are currently seeking registration

** Figures from Greener Buildings report in Summer 2009 RCA Report*

Regional Applications

- Sustainable practices can, and are being implemented in Guam and the Pacific Islands.

- LEED is required on most projects with Federal Agencies and Department of Defense (DoD).

- The Guam Transformation will see a significant increase in sustainable buildings and will influence local, private sector markets and development.

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Joint Region Marianas Headquarters

Pursuing LEED® NC v2.2, Silver Level
Size: 61,715 SF
Estimated Construction Cost: $16 Million
Completion Date: March 2010

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Eielson Visitors Center –
Denali National Park & Preserve, Alaska

LEED® NC 2.1 Platinum (2008)
Size: 8,500 SF
Construction Value: $5.5 Million
Completion Date: Summer 2008

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Denali Visitors Center –
Denali National Park & Preserve, Alaska

LEED® NC v2.0 Silver (2005)
Size: 15,000 SF
Construction Value: $4.5 Million
Completion Date: Summer 2008

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JL Tower – Anchorage, Alaska

LEED® for Core & Shell Development 2.0 Silver (2009)
Size: 300,000 SF
Construction Value: $60 – 70 Million
Completion Date: June 2008

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“Can We Afford This?”

- No single answer. Costs vary on what you are comparing them to and the level of application you use.
  - Original Budget
  - Buildings without features
  - Costs can be offset by other technology, design or material comparisons
- Costs are specific to your project
- Most research tends to support a 2-4% increase. We are seeing about a 5% increase in Guam. Higher costs for advanced technologies
- Costs minimized with qualified and experienced LEED professionals, contractors, building users and operators.

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What is “Too Green”

- When project costs become unsustainable and cannot meet reasonable financial goals.
- Any project that does not provide a reasonable ROI.
- When technology is too sophisticated for users to maintain and use.
- When sustainable methods are not practical for the region they are designed for.

There must be a balance between business and the environment. We must recognize the opportunities and support what makes sense, while continuing to find better ways to improve a serious situation.

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“Can We Afford This?”

- Return on Investment
  - – Improved employee and student health and comfort increases productivity and lessens absenteeism
  - – Increased sales value (increases seen over **$171/sf** above Non-LEED Bldgs)*
  - – Increased rental rates (rent premiums have been seen at **$11.24/sf** over non LEED buildings)*
  - – Higher occupancy rates (3.8% higher occupancy rates)*
  - – Tax incentives through SBA
  - – Money available through Stimulus funds and other programs

** Study by Costar Group in March 27, 2009 Green Suite Publication – “Costar Study Finds LEED, Energy Star Buildings Outperform Peers”*

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The Future

- Guam will see significant impacts to its environment and quality of life. The built environment should improve based on the principles discussed.

- Green Technology will continue to drop in cost, as more competition enters the market and products become widely available.

- Buildings will evolve to a “net-zero” base where they will be totally self sufficient.

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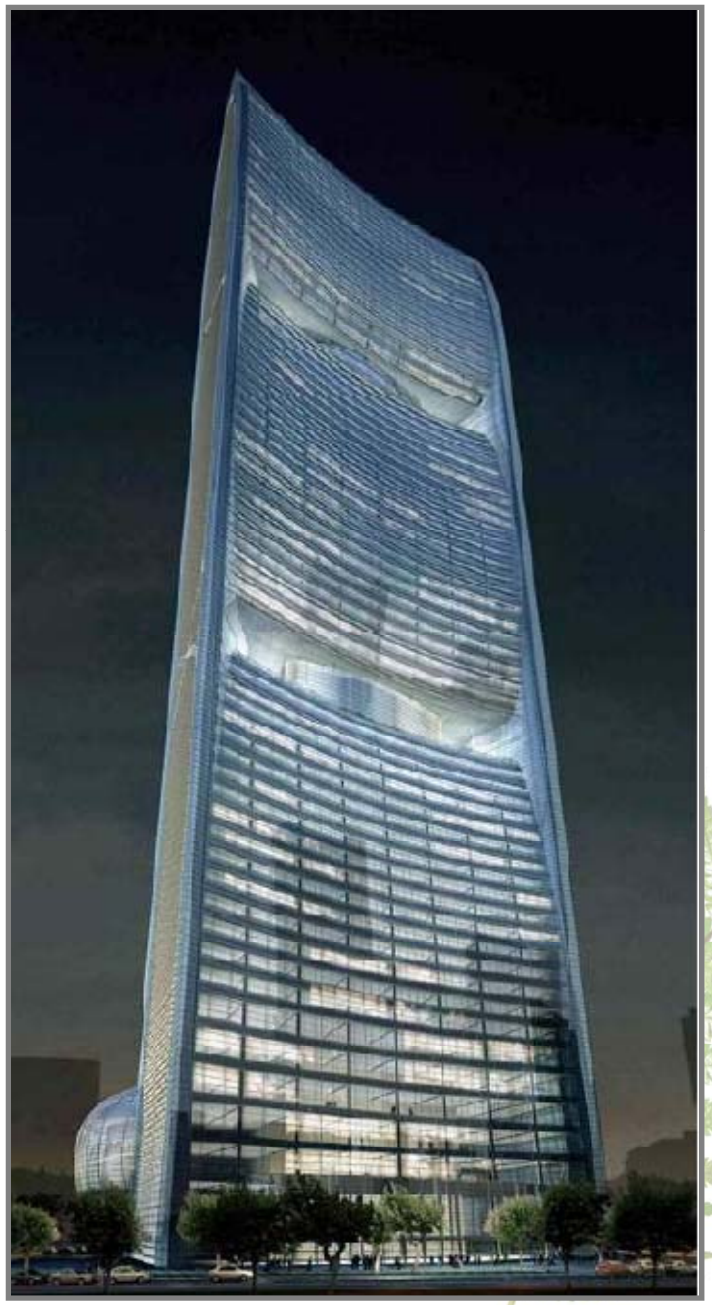
The Future

Guangzhou, China

In 2005, SOM presented plans for a new headquarters tower in Guangzhou that would incorporate the latest sustainable technology and engineering know-how in an attempt to create the world's most energy efficient high-rise structure—a tower that could significantly reduce its dependency on the city's infrastructure.

Project Facts

Completion Year: 2010
Site Area: 10,635 m2
Project Area: 214,100 m2
Building Height: 309.60 m
Number of Stories: 71



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The Future

www.treehugger.com/city-in-the-forest-atlanta.jpg

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The Future

Conclusion