

## Green Building: Certificates, Tax Credits, Requirements and Clean Energy Funding

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## The State of Green Construction in Connecticut

- Two Significant Developments:
  - Likely shift in owner profile
  - Mandates and incentives
- Implications:
  - Marketing
  - Compliance
  - Amplification of risks associated with green building projects



## A Word About LEED

- Leadership in Energy and Environmental Design
- Developed by the US Green Building Council
- Most Popular Third-Party Green Certification System in the US
- Awards Points for each “Green” Strategy Executed



## What LEED Measures

- Sustainable Sites
  - encourages regionally appropriate landscaping;
  - rewards smart transportation choices;
  - controls stormwater runoff;
  - reduces erosion, light pollution, heat island effect and construction-related pollution.
- Water Efficiency
  - more efficient appliances, fixtures and fittings
  - water-wise landscaping
- Energy & Atmosphere
  - commissioning
  - energy use monitoring
  - systems and lightin
  - renewable and clean sources of energy

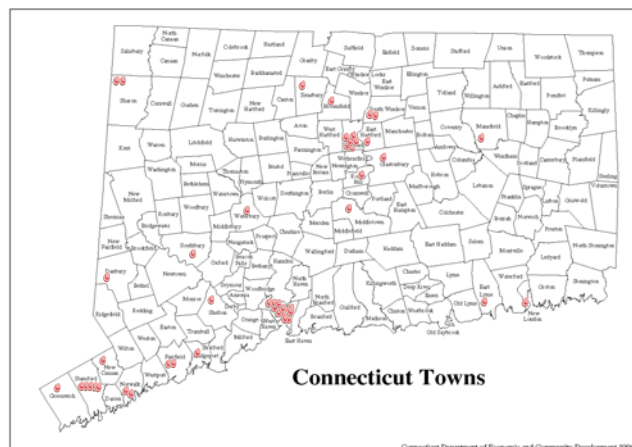


## What LEED Measures

- Materials & Resources
  - sustainably grown, harvested, produced and transported products and materials.
  - reduction of waste
  - reuse and recycling
- Indoor Environmental Quality
  - strategies that can improve indoor air
  - natural daylight and views



## Where are Green Projects being built in Connecticut?



## Who is Building Green in Connecticut?

CERTIFIED PROJECTS	
User Constructed	23
Higher Education	14
Primary and Secondary Schools	10
Investor Constructed	4
Other	1
<b>TOTAL</b>	<b>52</b>



## Who is Building Green in Connecticut?

REGISTERED PROJECTS		
Type	Greater than a year ago	Within the past year
User Constructed	14	33
Investor Constructed	16	32
Primary & Secondary Schools	10	19
Higher Education	13	11
Other	1	2
<b>TOTAL</b>	<b>54</b>	<b>97</b>



## Who is Building Green in Connecticut?

REGISTERED PROJECTS		
Type	Greater than a year ago	Within the past year
User Constructed	26%	34%
Investor Constructed	30%	33%
Primary & Secondary Schools	19%	20%
Higher Education	24%	11%
Other	1%	2%



## Who is Building Green in Connecticut?

Estimated Success Rate	
Primary & Secondary Schools	100%
Higher Education	93%
User Constructed	60%
Investor Constructed	25%



## Connecticut Green Building Laws

- Public School mandate (CGS §16a-38k)
- State Facilities mandate (CGS §16a-38k)
- No mandate applicable to private buildings (CGS §29-256a)
- Building Code revisions (CGS §29-256a)
- Green Building Tax Credit (PA 09-8)



## State Facilities

- Must comply with High Performance Building Standards
- Oversight/enforcement by OPM and DPW
- Application:
  - New construction over \$5M approved and funded after January 1, 2008
  - Renovations over \$2M with state funding over \$2M approved and funded after January 1, 2008.



## Public Schools

- Must comply with High Performance Building Standards
- Oversight/enforcement unclear (Commissioning Agents beware)
- Application:
  - New construction over \$5M of which \$2M or more is state funding authorized by General Assembly after January 1, 2009.
  - Renovations over \$2M with state funding over \$2M or more is state funding authorized by General Assembly after January 1, 2009.



## High Performance Building Standards

- Mandatory Practices
  - Commissioning
  - Base Minimum Energy Performance
  - Others
- Menu of Practices:
  - Energy Efficiency and Renewable Energy
  - Indoor Environment/Air Quality
  - Water Efficiency
  - Recycling, Reuse, and Sustainability
  - Site Selection and Development
- Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings.
  - Energy Modeling Specs



## High Performance Building Standards

- Reporting Requirements
  - Upon award of design contract
  - At the end of design development
  - At the end of construction documents phase (showing proposal's cost savings)
  - Preoccupancy commissioning report confirming compliance
  - Changes in "menu" selections must be approved
  - Post-occupancy commissioning report including one year of energy and water usage data
  - Unclear how involved oversight entity (particularly SDE) will be
- "Alternative Compliance"
  - Third-party certified (LEED, Green Globes, etc.)
  - Meets mandatory practices
- Exemption Process
  - Determined by OPM, in consultation with the commissioner and the Institute of Sustainable Energy
  - Awarded if the cost of compliance significantly outweighs its benefits



## Private Buildings

- PA 07-242: required the Building Code to require LEED-like performance for many buildings
- PA 09-192: Building Code revisions need only
  - apply to the thermal envelope and mechanical systems
  - "reference" LEED and other third-party standards
- Adoption of 2006 International Energy Conservation Code
- Eventual Adoption of 2012 International Energy Conservation Code mandated



## Tax Credit Public Act 09-8

- Value:
  - between 5% and 10.5% of “allowable costs”
  - credited only toward the Connecticut Corporation Business Tax
- Application:
  - projects that obtain a certificate of occupancy no earlier than January 1, 2010;
  - are designed to meet or exceed LEED® Gold Certification or equivalent (but not necessary to actually obtain certification);
  - use 70-80% less energy than required under the Building Code (usage based vs. cost based); and
  - use equipment and appliances that meet Energy Star standards.
- Initial Credit Voucher
- Fully Transferable
- OPM to adopt implementation regulations by January 1, 2011



## ASHRAE Standard 189.1

- Applies to all buildings except low rise residential (< 3 stories )
- Broad Categories:
  - Sustainable Sites
  - Water Use Efficiency
  - Energy Efficiency (more energy efficient than Standard 90.1)
  - Indoor Environmental Quality
  - Building's Impact on the Atmosphere, Materials & Resources
  - Construction and Operations Plans



## Increased Participation by:

- Public Schools
- Users
- Investors



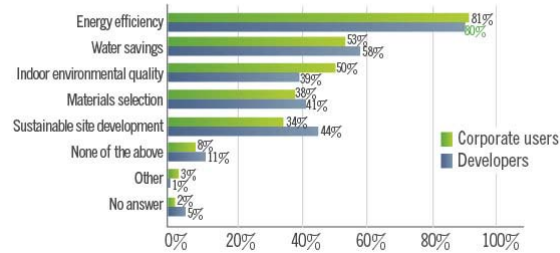
## Amplification of Green Building Risks

- Unarticulated Expectations
- Warranties/Failure to meet third-party or regulatory standards
- Insurance/surety



## Unarticulated Expectations Varied Definitions of “Green”

**FIG. 5. FOUR OUT OF FIVE RESPONDENTS SAY ENERGY EFFICIENCY IS AN IMPORTANT FACTOR WHEN SELECTING A GREEN BUILDING**



Credit: Beth Mattson-Teig, “Why Green Building has Staying Power,” National Real Estate Investor, October 31, 2007



## “LEED” is NOT a Spec

- Over 20,000,000,000,000,000 different combinations of 26 credits
- VERY broad focus
- Median LEED NC has an Energy Star Rating of 68
  - Turner C. and M. Frankel. 2008. “Energy Performance of LEED for New Construction Buildings – Final Report.” *New Buildings Institute*, White Salmon, WA.
- “Builders covet LEED certification...[but there remains a] gap between design and construction...”
  - NY Times, August 30, 2009



## A Goal-Oriented Approach

- Articulate the project's goals
- Prioritize the goals
- Select team best suited for top priorities
- Adjust goals as necessary due to cost constraints
- Consider third-party certification
- Track goals over project phases



## Warranties/Failure to Meet Standards

- The Problem:  
Owners want warranties that service providers and contractors cant or wont provide
- The Solution:  
Efficient and equitable allocation of risk and reward



## Insurance/Surety

- CGL
  - Typically only covers physical harm or impairment, not diminution in value
- Professional Liability
  - Typically excludes representations and warranties
- Property Insurance more advanced, but most still require property damage
- Reputation endorsements
  - Typically will only cover the cost of defense, not rebuilding
- Sureties unlikely to bond



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  - Mandates
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# State Incentives for Renewable Energy

See handouts



## Questions



# THANK YOU FOR LISTENING!

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