

Green Building: Risk Avoidance and Pitfalls

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Discussion Topics

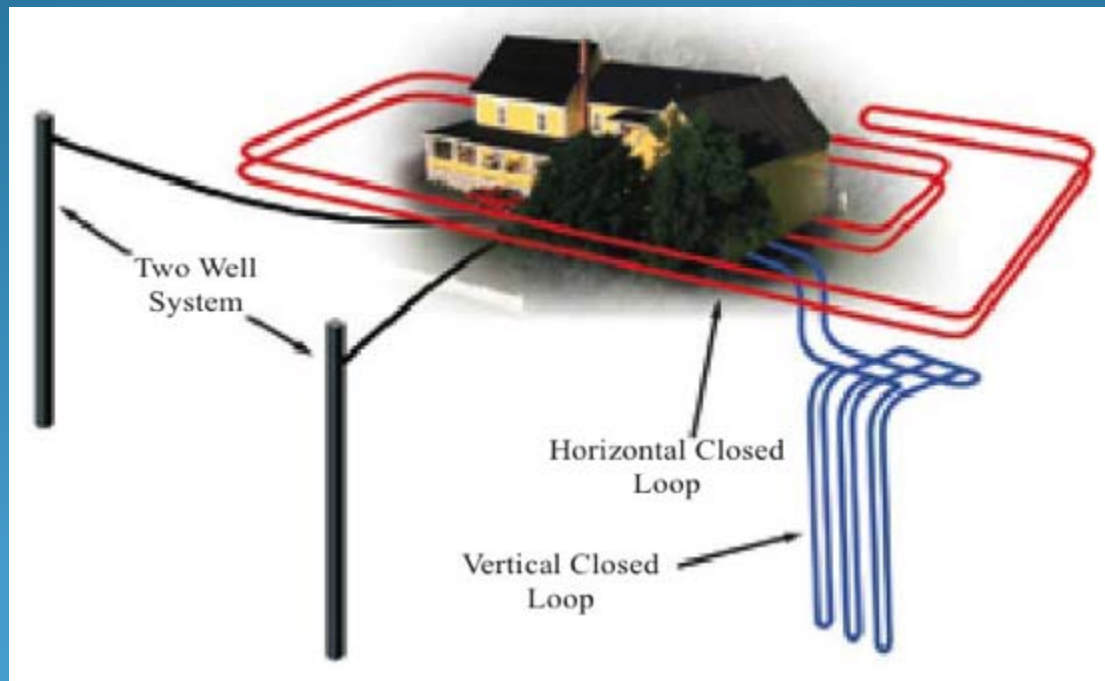
- What is a “Green Building”
- Principles of LEED
- USGBC Standards
- FGBC Standards
- How the status is determined
- When & by whom is the status determined
- Government and Private contracts



Discussion Topics

- Florida Specific Standards
 - Florida Point System
- Contract provisions
 - Is LEED certification a goal or a standard?
 - What level of certification?
 - Are maintenance cost-savings a contract provision?
- What else should Design Professionals be concerned about
- Where to find information on LEED

Background



What is a “Green (Sustainable) Building”

- “Green (sustainable) buildings are structures that more efficiently use valuable resources such as energy, water, materials and land compared to buildings constructed to basic building codes. Green buildings are better for the environment and provide healthy, comfortable, productive indoor spaces.”
 - *US Green Building Council*



Principles of LEED

- Leadership in Energy & Environmental Design (LEED) was developed as a consensus rating system based on accepted energy and environmental principles that strives to strike a balance between proven practices and emerging concepts

Core Elements Of A Sustainable Jobsite Plan

1. Economic sustainability—the ability to improve stakeholder value and improve the economic sustainability of the building
2. Social sustainability—prevention of work-related injuries and giving back to communities where work is performed
3. Environmental sustainability—a jobsite that manages the emissions, water consumption and waste disposal on the jobsite



National Issues

- According to the AIA, the number of cities with Green Building programs rose from 22-92
- With 1 in 7 cities having a Green Building program, 39% of citizens live in cities with green building programs
- 36 cities have advanced stage Green Building programs
- As of 2006, 10 Federal Agencies, 19 States and 48 cities have Green Building programs in place



Florida LEEDs The Way

- St. Petersburg promotes private Green Building through expedited permitting and lower fees
- Lee, Dunedin, Davie, Indian River, Orange and Sarasota counties have indicated their intent to go through the LEED certification process
- Orlando committed \$500,000 to fund 33 sustainable projects
- Orlando also has a goal to obtain at least 40% tree coverage



Florida LEEDs The Way

- Orlando has taken the initiative to train 50 of their permitting and planning personnel in LEED principles
- Tallahassee has an aggressive power program that has one of two hydroelectric plants in the state and is in the process of building a water-reuse plant
- By 2009, St. Lucie County will implement the first plasma arc, biomass plant for reduction of solid waste, the first in the USA
- By 2010, Tallahassee plans on utilizing a biomass plant and a plasma arc process to generate power and reduce solid waste



The Green Market

- Carlisle Development Group is now putting Green standards into their low-income projects
- Part of these are powering the apartments with solar energy, reduction in water usage and locations that discourage the use of gasoline powered cars by residents
- Pizza Fusion is a chain of organic pizza shops who are delivering the pizza in hybrid cars
- The Pizza Fusion building in Weston is also Certified under LEED by the USGBC

Certification



What Types of Buildings Can Be Certified?

- Residential Construction
 - Both homes and residential high-rises
- Commercial/Public Buildings
- Schools
- Community Developments
 - Typically housing developments that encourage green space, reduction in traffic and natural resource conservation

Certification Process Through USGBC

- LEED certification is a three step process
 1. Project registration with USGBC.org
 - This is done through an online form
 - Templates for designs are used to help the design professional during the design process
 2. Application Submittal online with USGBC
 - This is where you specify which rating system you are applying under
 - The application is not done until the construction is completed
 3. Building Certification
 - A certified Project Evaluator will grade the building based on the checklist for the project type and make the determination of whether or not the building meets the standards



USGBC Standards

- USGBC LEED standards are based on a point system that ranges from 0-69 points possible
- Points are awarded in categories
 - Sustainable Sites—14 points possible
 - Water Efficiency—5 points possible
 - Energy & Atmosphere—17 points possible
 - Materials & Resources--13 points possible
 - Indoor Environmental Quality—15 points possible
 - Innovation & Design Process—5 points possible



How “Green” Status Is Determined

- Once the certified Project Evaluator goes through the building and awards points in each category, the total number of points received determines the “Green” status
 - LEED Certified between 26 and 32 points
 - LEED Silver Certified between 33 and 38 points
 - LEED Gold Certified between 39 and 51 points
 - LEED Platinum Certified between 52 and 69 points



When “Green” Status Is Measured

- “Green” status is measured after the construction has been completed
- This is partially to avoid having a “Green” design, but a material swap during construction that changes the “Green” status
- The question for design professionals is who is responsible if the building does not live up to its intended “Green” status

By Whom “Green” Status Is Measured

- Certified Project Evaluators for the USGBC are building professionals with “the knowledge and skills to successfully steward the LEED certification process”
 - This is demonstrated by the taking of an exam administered by GBCI
- Certifying Agents in Florida are people who have taken an exam that tests their knowledge in each of the categories to ensure a uniform evaluation of projects
- There are 43,000 USGBC certifying agents, 950 in Florida and 12 FGBC certifying agents in Miami-Dade



Certification Through the FGBC

- The Florida Green Building Coalition operates for certification in the same manner as USGBC, but the building is registered through the FGBC instead, and one of their inspectors is responsible for rating the building
 - FGBC certifies agents take a course through the Florida Solar Energy Center and then take an exam to become certified
 - Certification Agents must disclose any financial interest between them and the Agent/Builder when they are certifying a building

Contracts

TEMPLATE AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

Editing Template

CAUTION: Take care not to remove or otherwise edit the FillPoint areas when making custom edits to this document.

for the following PROJECT:
(Name and location address)
%Owner/Name]
%Owner/Address]

THE OWNER:
(Name and address)
%Owner/Full/Name/Name]
%Owner/Address]

THE ARCHITECT:
(Name and address)
%Architect/Full/Name/Name]
%Architect/Address]

TABLE OF ARTICLES

- 1 GENERAL PROVISIONS
- 2 OWNER
- 3 CONTRACTOR
- 4 ARCHITECT
- 5 SUBCONTRACTORS
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
- 7 CHANGES IN THE WORK
- 8 TIME
- 9 PAYMENTS AND COMPLETION
- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS

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Contracts

- Some government contracts will contain provisions about the “Green” status of the construction project
- In Florida, there are now local government standards for Green Cities and Green Counties



Contracts

- There are no requirements for private contracts to contain green standards
- But many developers are starting to use this as a selling point
 - This selling point is both targeted towards those looking for an environmentally conscious home as well as those who take the more economical look at a home with lower maintenance costs and lower energy consumption



Contracts

- Because this is a valid selling point developers will most likely start including “Green” certification provisions within their contracts
- The question will be, how “Green”, who is responsible if materials are changed, what are the repercussions to each of the parties involved



Contracts

- The USGBC standards are only applicable when the building is to be certified as “Green”
- These standards can be changed by the local entities like the Florida Green Building Coalition



Contracts

- The Florida Green Building Coalition has standards that can be adopted by local governments for use in certifying themselves as “Green”
- This is not a standard that is in the Florida Building Code, yet...
- A draft proposal for “Green” requirements was submitted by the Green Building Workgroup of the Florida Building Commission on Jan. 16, 2008 for approval and implementation of both USGBC and FGBC standards into the Florida Building Code

Florida Specific Standards

- Schedule A for Homes on the Florida Green Building Coalition website has the rating specifications

- Home Check List
- High-Rise
- Commercial



Florida Green Building Coalition, Inc.

Green Home Certification

Schedule A, Version 5.0
July 1, 2007— June 30, 2008

NEW HOME REQUIREMENTS

- Comply with two prerequisites
- Obtain the minimum points indicated in each category*
- Obtain a TOTAL of 100 points

*WHAT IF I MISS A CATEGORY MINIMUM

Can I still be certified? YES
But you will need more than 100 points. You must add the points you missed to your total score your homes needs for certification. For example, if you can only achieve 8 points in a category with a 10 point minimum requirement— you now need 102 points for certification.

A NOTE ABOUT ENERGY

You may wonder why many energy saving features do not appear as line items in this standard. The FGBC has selected to use a whole house performance based energy rating for points versus create an exhaustive list of energy saving alternatives. The performance based Energy Rating is called a HERS INDEX (previously HERS score).

WHAT IS INCLUDED IN A HERS INDEX

Energy Gauge USA / HERS Index		
Envelope		
Floors	Windows	Roof
Foundation type	# & size of windows	Roof Configuration / Slope
Insulation value	Tint / U-factor	Roof Material / Color
Perimeter / Area	Type of Frame	Attic Details
Floor covering	Overhang details	Conditioned ceiling Area
Walls	Ceilings	Solar absorbance
Orientation	Ceiling style	Roof deck insulation level
Area	Insulation value	Radiant barrier system
Insulation value	Area	Attic Ventilation ratio
Doors	Garage	Infiltration
Door Area / U Value	Attached or not	Building envelope leakage
Equipment		
Cooling	Ducts	Appliance and Lights
System Type	Insulation value	Programmable Thermostat
Capacity	Duct Location	Refrigerator
SEER	Air Handler Location	% fluorescent lighting
Hot Water	Amount of leakage	Ceilings fans
Type / location	Duct surface area	Dishwasher
Efficiency	Heating	Photovoltaic's
Daily usage	System Type	Array
Set Temperature	Efficiency	Inverter
Solar or heat recovery	Capacity	Batteries

The Florida Point System For Homes

- Categories for Assessment, lower points are the required number of points in that category
- 100 points are necessary to be certified
- Category 1: Energy 30—75
- Category 2: Water 15—40
- Category 3: Lot Choice 0—15
- Category 4: Site 5—30
- Category 5: Health 15—35
- Category 6: Materials 10—35
- Category 7: Disaster Mitigation 5—30
- Category 8: General 0—40
- TOTAL POSSIBLE 80—300

The Florida Point System For High-Rise Residential

- 50 points are necessary to be certified
- Category 1: Energy 3-18
- Category 2: Water 3-12
- Category 3: Site 3-14
- Category 4: Health 5—25
- Category 5: Materials 3-18
- Category 6: Disaster Mitigation 0-5
- Category 7: General 2-7
- TOTAL POSSIBLE 99

The Florida Point System For Commercial Buildings

- 50 points are necessary to be certified
- Category 1: Energy 3-23
- Category 2: Water 3-12
- Category 3: Site 3-14
- Category 4: Health 5—20
- Category 5: Materials 3-15
- Category 6: Disaster Mitigation 0-5
- Category 7: General 2-11
- TOTAL POSSIBLE 100

The USGBC Point System For Schools

- Florida does not have a school specific standard, but the USGBC does
- Levels of certification:
 - Certified 29-36
 - Silver 37-43
 - Gold 44-57
 - Platinum 58-79



The USGBC Point System For Schools

- 29 points are necessary to be certified
- Category 1: Sustainable Site 0-16
- Category 2: Water 0-7
- Category 3: Energy & Atmosphere 0-17
- Category 4: Materials & Resources 0-13
- Category 5: Indoor Environmental Quality 0-20
- Category 6: Innovation & Design Process 0-6
- Category 7: EA Credit 1 2-10
- TOTAL POSSIBLE 89



Contract Provisions

- There are no standard contracts with the “Green” provisions, but the AIA B141 (1997) allows for them to be included under Article 12, while the AIA B102 (2007) has Article 8 for Special Terms and Conditions
- Once these are included there are other articles within the contract that will allow the owner to enforce the “Green” standards on the design professional
- The wording of the “Green” standards along with the requisite standard of care within this article is very important and will determine the exposure



Concerns With The Contract

- Is “Green” a goal of the Contract?
 - Within the contract, the wording of the Green standards is very important
 - If the contract specifies that the purpose of the inclusion of the Green standards is to have a certified building, then the design professional must ensure that they review the criteria for meeting the certification



Concerns With The Contract

- Is “Green” a goal of the Contract?
 - If the contract does not specify that Green certification is necessary, then the inclusion of the provision will be ambiguous
 - Even with an ambiguous clause as to whether Green is a requirement or not, the design professional is still open to exposure on this item if Green certification is not met



Concerns With The Contract

- What level of certification?
 - Currently, USGBC is the only entity with levels of certification
 - But the question still remains under the FGBC standards, what number above certification is required?
 - Houses range from 100-300 for certification, with the minimum being 100 points
 - To limit exposure, the contract should specify the necessary level of certification or points



Concerns With The Contract

- Cost Increase v. Cost Savings
 - Not every owner seeks “Green” certification for the label, some seek it for the long-term cost savings
 - The initial concern here is that the upfront costs associated with many of the Green materials or energy sources are more expensive to purchase or install
 - Some of the Green energy sources are sought to decrease the maintenance costs and increase the energy efficiency of the building



Concerns With The Contract

- Cost Increase v. Cost Savings
 - Many state and local governments give tax breaks for implementing Green Building initiatives
 - They also give energy discounts that come along with the cost savings
 - Some lending institutions also give lower rates



Concerns With The Contract

- Cost Increase v. Cost Savings
 - A few concerns with this type of owner are:
 1. Knowledge of the increased costs
 2. Ensuring that the materials are not substituted for cheaper, less efficient, materials by the contractor
 3. “Guaranteed” costs savings by the design professional



Concerns With The Contract

- Are maintenance cost savings a provision?
 - If the design professional includes a statement re: cost savings or a guarantee thereof, this will increase their exposure
 - It is better to keep this type of statement out of the contract or any incorporated documents
 - This doesn't mean that owners can't be told about the possible cost savings associated with some Green components, but it should be kept out of the contract documents

What Else Should Design

Professionals Be Concerned About

- AIA B141 (1997) contract clauses that could be used to enforce the Green Standards and blur the line between design and construction services
 - 2.6.2—Construction Administration
 - Under this provision the Architect has the duty to monitor the construction of the building
 - 2.6.11—Non-conforming work
 - Under this provision, the Architect has the ability to reject non-conforming work
 - 2.6.12—Samples
 - This provision also allows for the Architect to see samples of the work prior to use

What Else Should Design

Professionals Be Concerned About

- AIA B201 (2007) contract clauses that are used to hook a design professional in a suit later and blur the line between design and construction services
 - 2.6.1.1—Administration of the Contract
 - Under this provision the Architect has the duty to monitor the construction of the building
 - 2.6.2.2—Non-conforming work
 - Under this provision, the Architect has the ability to reject non-conforming work
 - 2.6.4.2—Samples
 - This provision also allows for the Architect to see samples of the work prior to use

What Else Should Design

Professionals Be Concerned About

- AIA B141 & B201 contract clauses that could be used to enforce the Green Standards
 - Each of the above mentioned provisions could be used by an Owner to enforce the Green standards in the contract
 - The Architect must be cognizant of the wording of any Green standards and whether or not they are to be standards or goals

What Else Should Design Professionals Be Concerned About

- Exposure—Standard of Care
 - Another sword that the Owner could use to sue the Architect is the Standard of Care
 - If a design professional puts themselves out as LEED certified, then they might be held to a higher standard of care than a non-LEED certified individual with similar qualifications
 - With the proper wording in the contract, or possibly as little as inclusion of the Green standards, the Architect could be exposed to a Standard of Care claim if the Green certification is not met
 - Another reason that proper wording in the contract is important

What Else Should Design

Professionals Be Concerned About

- What could lead to a lawsuit?
 - Building is not certified as Green because initial design did not have the elements necessary
 - Building is not certified because the materials used were not in conformance
 - Building reached the standard minimum points, but this particular building required a greater number of minimum points
 - i.e. Minimum is 50 points, but this building did not meet the minimum required in two categories, so the minimum for certification of this specific building is 53 points, but the building only scored a 52

What Else Should Design Professionals Be Concerned About

- What could lead to a lawsuit?
 - Building constructed outside of Florida using the USGBC standards
 - Contract called for certified, Owner's intent was to have it Silver, Gold or Platinum Certified for marketing reasons
 - Building was certified, but not at Silver, Gold or Platinum levels
 - Owner sues for not getting what they intended

What Else Should Design Professionals Be Concerned About

- What could lead to a lawsuit?
 - Cost savings are not realized at all
 - Cost savings are not realized to the level specified in the contract
 - Cost savings do not payback within the specified timeframe
 - Failure to meet certification leads to higher taxes or loan rates, loss of potential grants
 - Zoning becomes an issue where the county required a LEED building at the site location where area is zoned as “Green”

What Else Should Design Professionals Be Concerned About

- What could lead to a lawsuit?
 - There be suits from the property purchasers where the property was marketed as “Green” but failed to be certified

How Design Professionals Can Protect Themselves





Contract Clauses

- Technology changes are a concern in any project, especially in an area that is changing as quickly as this
- A clause to have in the contract or to suggest to the owner is one where if a better technology becomes commercially available during construction, then this may be implemented at the owner's request for only the material/labor cost difference without the typical change order markup



What To Be Aware Of

- Scope of services
- Standard of Care
- The blurring of design and construction services
- Review/Clarification of the Change Order process
- Limiting of the exposure of the consequential losses
- Know what your client wants
- Limit the clientele expectations
 - Partially by knowing if the owner is sophisticated on these issues in particular and construction in general



What To Be Aware Of

- Does the client have expectations for warranties/guarantees/performance
- Have a dispute resolution process in place
- Check the Contractual Liability Exclusion in your Professional Liability coverage



Contract Clauses

- Protection clauses
 - These can be used to place responsibility for the monitoring of the changes on one party in order to indemnify the others
 - Have a clause that would indemnify the design professional if it were Owner initiated changes that lead to a lower score in any area than the initial plans called for



Contract Clauses

- Protection clauses
 - The change order process should allow the architect to evaluate the Green level and the effect the change order has on the Green level certification
 - Along with the Green check in the Change Order, have any Owner approved change order that lowers the Green level of the building indemnify the design professional in that area, if not for the overall certification



Contract Clauses

- Remedies
 - The change order should place the burden on the Contractor to certify that the change order does not impact the Green level
 - Have a clause in the contract that passes the burden of certification to the Contractor if the design itself would meet the desired certification level
 - Along with this would be a clause that non-compliance with the plans would place the burden on the Contractor

Recommendations



The plasma-heating unit creates the plasma arc used to turn trash into gas and rock-like material.



Recommendations

- Never have a Green level score, or certification level guaranteed in your contract
- Never guarantee cost savings
- Have “Green Certification” listed as a goal of the project, but not as a guaranteed outcome
- Always review the current scoring sheet when the building is being designed, as well as during construction, the standards may change between these two times

Where To Find Information On LEED

- USGBC.org
 - Criteria and scoring sheets are available online
- Floridagreenbuilding.org
 - Criteria and scoring sheets are available online
- GBCI.org
 - This is the testing center to become USGBC LEED certified