Foundation for Historical Louisiana

The "Green" Movement and Historic Preservation

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The "Green" Movement and Historic Preservation

"Historic preservation is intrinsically a form of sustainable conservation. The built environment represents the embodied energy of past civilizations... historic preservation is conservation in every sense of the word."

Guiding Principles for Sustainable Design, [Draft], August, 1993; NPS Denver Service Center

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Interesting facts….

- Buildings are the largest source of energy consumption and greenhouse gases in the world
- Buildings account for 48% of all greenhouse emissions
- Buildings account for 68% of electricity consumptions
- US energy consumption is expected to rise by 37% in 20 years
- Compact fluorescent lamps are 70% more efficient than incandescent lamps
- Population has grown from 2 billion to over 6 billion in my father’s life time

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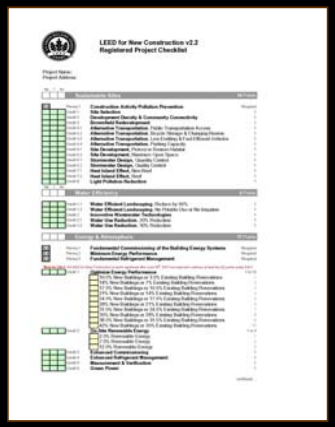
US Green Building Council-LEED Checklist



Building Rating System and LEED

Levels of achievement

Certified – 26-32 points
Silver – 33-38 points
Gold – 39-51 points
Platinum – 52 -69 points

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Leadership in Energy and Environmental Design - LEED

- The LEED Green Building Rating System is the national benchmark for the high performance green building.

LEED for New Construction

LEED For Existing Buildings

LEED for Commercial Interiors

LEED for Core and Shell

LEED for Homes

LEED for Neighborhood Development

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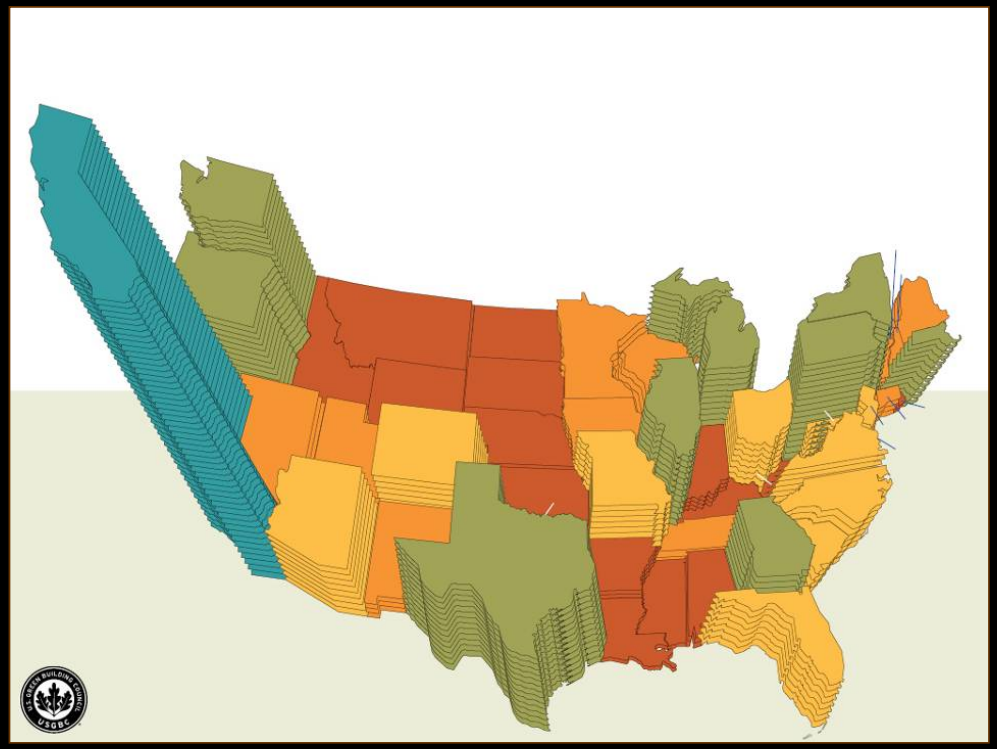
Where is “Green” building design occurring?…..



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Green design…

…is about using a more holistic view of the relationships between design and development activities…

Preservation…

…..is about maximizes the use of existing materials and infrastructure, reduces waste, and preserves the historic character of older towns and cities.

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Mission:
The Foundation for Historical Louisiana

…organization (is) committed to the safeguarding of our state's cultural and architectural heritage for generations to come.

Mission:
US Green Building Council (USGBC)

…to advance our mission of transforming the building industry to sustainability…

Mission
AIA Committee on the Environment (COTE)

Sustainability envisions the enduring prosperity of all living things.

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There is a growing confluence of "Green" design and preservation…

- People and other species on earth
- Property use and re-use
- Environmental concerns and influences
- Materials use and re-use
- Energy demand and consumption

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Historic buildings…

- traditionally designed buildings have many sustainable features that responded to climate and site.

- effectively restored and reused buildings take into account the historic building's original climatic adaptations

- today's sustainable technology can supplement inherent sustainable features without compromising unique historic character

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New vs. Renovated - A shared outlook…

- Despite opposing reference points there are shared opportunities for implementation

- Short-term thinking, in which buildings are designed and built for the moment, without thought of the long-term consequences of the design choices being made is wrong.

- Both the environment and cultural heritage suffer when buildings are treated as disposable.

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New vs. Renovated - A shared outlook (cont)...

- New construction is often more readily adaptable to sustainable design features
- New trends usually start in the new construction market
- There is value in understanding “old” design theories
- The majority of today’s building will still be here by mid-century
- Retrofitting buildings will be a big industry for years to come

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Technology Opportunities….

Building envelopes

Watch pathways of energy migration
Intrinsic value of embodied energy in an existing building

Roofs

Heat islands, reflectivity
Insulation value

Wall systems

Design solution can change insulation value by over 50%
Migration of moisture a major design factor

Windows

Radiant heat transfer, conduction and leakage
Good windows are 6 times more efficient than bad windows

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Technology Opportunities (cont.) ….

Air infiltration

A big enemy and energy waster

A balance between energy efficiency and moisture control

Thermal storage and insulation

Mass of old buildings can be your friend and enemy
Insulation value is a major factor in controling energy use

Lighting

Incandescent
Fluorescent
LED – Light emitting diode

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Technology Opportunities (cont.)....

HVAC systems

15-20% savings are available when using smart, efficient systems
size matters- you can get too big

Water heaters

Instantaneous
solar

conventional

Solar Photovoltaic Systems

stand alone - off the grid — storage required
grid connected — no storage required
building integrated systems — more will come

Expensive and not very efficient

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Embodied energy in old buildings…

Many historic buildings contain materials and features that are valuable from several perspectives:

- The energy and materials expenditure that reuse of existing materials
- The architectural features and workmanship that may be impossible to replace
- The societal value of maintaining artifacts
- Example: ……(7) 40-yard containers and counting

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The AIA Committee on the Environment's MEASURES OF SUSTAINABLE DESIGN

Measure 1: Design & Innovation

Sustainable design is an inherent aspect of design excellence. Projects should express sustainable design concepts and intentions, and take advantage of innovative programming opportunities.

Measure 2: Regional/Community Design

Sustainable design values the unique cultural and natural character of a given region.

Measure 3: Land Use & Site Ecology

Sustainable design protects and benefits ecosystems, watersheds, and wildlife habitat in the presence of human development.

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The AIA Committee on the Environment's MEASURES OF SUSTAINABLE DESIGN (cont….)

Measure 4: Bioclimatic Design

Sustainable design conserves resources and maximizes comfort through design adaptations to site specific and regional climate conditions.

Measure 5: Light & Air

Sustainable design creates comfortable interior environments that provide daylight, views, and fresh air.

Measure 6: Water Cycle

Sustainable design conserves water and protects and improves water quality.

Measure 7: Energy Flows & Energy Future

Sustainable design conserves energy and resources and reduces the carbon footprint while improving building performance and comfort. Sustainable design anticipates future energy sources and needs.

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The AIA Committee on the Environment's MEASURES OF SUSTAINABLE DESIGN (cont….)

Measure 8: Materials & Construction

Sustainable design includes the informed selection of materials and products to reduce product cycle environmental impacts, improve performance, and optimize occupant health and comfort.

Measure 9: Long Life, Loose Fit

Sustainable design seeks to enhance and increase ecological, social, and economic values over time.

Measure 10: Collective Wisdom and Feedback Loops

Sustainable design strategies and best practices evolve over time through documented performance and shared knowledge of lessons learned.

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Questions and comments…

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