

LEED-ership in Sustainable Building



Allison Fee, LEED AP BD+C
Project Manager
SMACNA

Goal



- Green Building & Role of USGBC & LEED
- Gain Knowledge on the Fundamentals & Intent of each LEED Rating System
- Understand Key Sustainability Concepts
- Identifying Best Management Practices to Guide through successful LEED Project
- Touch on Availability of Incentives & Exemptions that LEED Project can receive

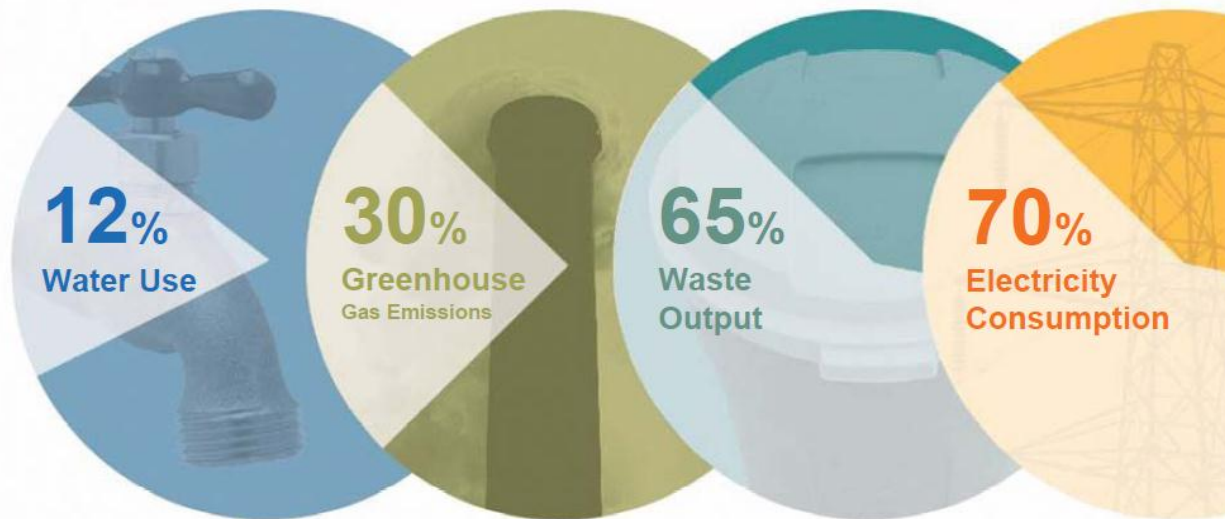


Why Build Green?



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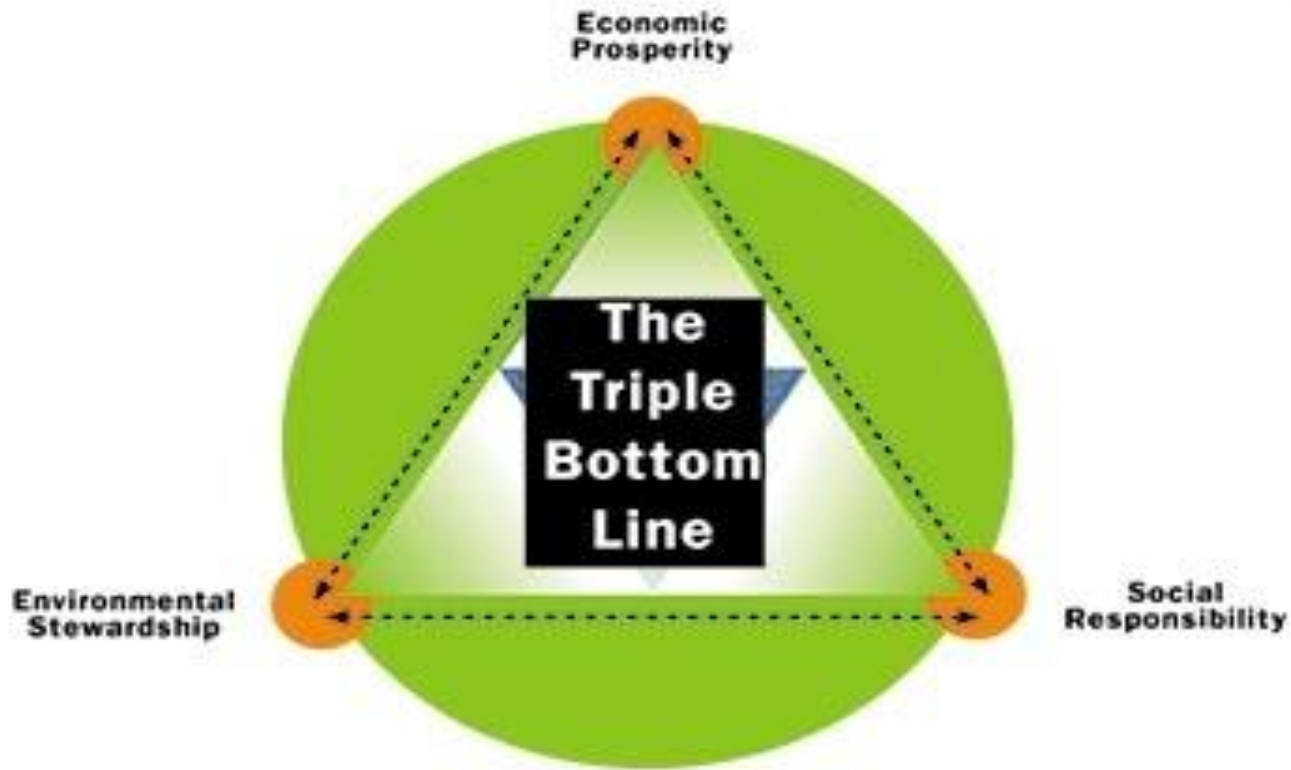
Buildings in the U.S. Account for:



Source: USGBC



Why Build Green?



Source: USGBC



USGBC LEED

- LEED (Leadership in Energy and Environmental Design) internationally recognized green building certification system developed by the US Green Building Council (USGBC) in 2000.



- LEED promotes sustainable building and development practices through several point-based rating systems



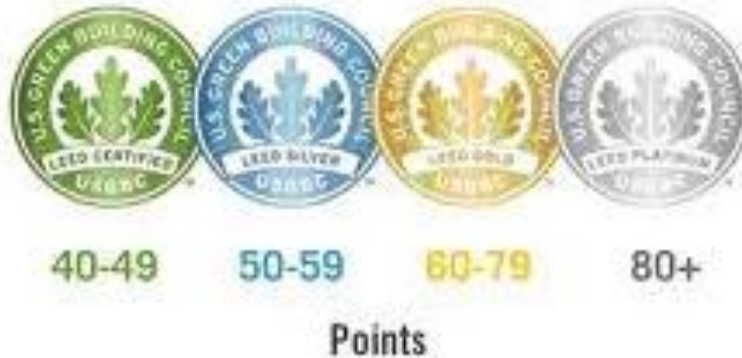
LEED



5 Fundamental Categories

-  Sustainable Sites
-  Water Efficiency
-  Energy & Atmosphere
-  Materials & Resources
-  Indoor Air Quality

4 Certification Levels



Fundamental LEED Building Concepts



Sustainable Sites



Intent: Addresses environmental concerns related to the building landscape, hardscape and building exterior

Key Items to considered

- Site Selection, Design & Management
- Consider alternative transportation methods
- Minimize the footprint impact
- Implement stormwater management
- Minimize hardscapes
- Use reflective materials with higher Solar Rating Index



Fundamental LEED Building Concepts



Sustainable Sites

Let's take look at an example:

- There is a new construction project proposed to be located on an old industrial site near Washington D.C. This proposed project will have access to a transit station to encourage environmentally friendly transportation. Additionally, underground vehicle parking will be provided decreasing its hardscape which would positively impact their contribution to stormwater and heat-island effect.

Which Sustainable Site best practices were applied?

- A. Restores a contaminated site
- B. Supports alternative transportation
- C. Manages stormwater
- D. Reduces excessive heat



Fundamental LEED Building Concepts



Water Efficiency



Intent: Encourage the use of strategies and technologies that reduce the amount of potable water consumption in buildings (indoor & outdoor use)

Strategies to considered

- Use of low flow fixtures
- Repurpose “non-potable” water for other uses such as irrigation and flushing of toilets



Fundamental LEED Building Concepts





Water Efficiency

Let's take look at an example:

- The Potomac River Protection Partnership is promoting a safe drinking water initiative. They are challenging all commercial developments along the Potomac to implement water efficiency best practices. The ABC Building decided to reduce their water usage by installing low-flow facets throughout their building which also were recaptured and circulated to flush their low-flow water closets. The additional graywater “non-potable” was used for their outside irrigation

Which water efficiency best practices were applied?

-  A. Install high-efficiency fixtures
-  B. Install systems that appropriately reuse non-potable water
- C. Establish process for improving water performance over time
- D. Install submeters to track water consumption



Fundamental LEED Building Concepts



Energy & Atmosphere



Intent: Promote sustainable building by reducing the amount of energy required for build operations and encourage the use of renewable energy sources

Strategies to considered

- Reduce the buildings energy demand by taking advantage of the buildings layout to optimize on its natural energy potential
- Maximize on energy efficiency
- Track building's ongoing performance through M&V
- Use Renewable Energy Supply (when possible)



Fundamental LEED Building Concepts







Energy & Atmosphere

Let's take look at an example:

- While attending a town hall meeting, Company ABC found out that DC Energy was promoting a rebate program to offset the cost for the development of on-site renewable energy. ABC was making some building upgrades anyway, and it was a great time for them to evaluate several renewable energy options. They determined that a roof-top solar panels would give them the largest ROI. Since ABC building was already oriented in such a way that all regularly occupied office spaces allowed for the use of natural day lighting and with the installation of high-performance windows and mechanical shades, the loading on the energy system would be decreased. In addition, they invested in an energy efficient HVAC, energy-saving appliances, and interior fluorescent lighting.

Which energy and atmosphere best practices were applied?

-  A. Generate on-site renewable energy
-  B. Took advantage of natural solar energy & daylighting
-  C. Monitored performance over time
-  D. Reduced energy demand



Fundamental LEED Building Concepts



Materials & Resources

Intent: Reduce the quantity of waste while improving the building environment through responsible waste management and material selection

Strategies to considered

- Life Cycle impacts of materials used
- First Reduce, Reuse, then Recycle



Fundamental LEED Building Concepts



Materials & Resources



Match each intent with an example of a building feature that it supports.

Reduce the amount of materials needed

Use materials with less environmental impact

Reduce and manage waste

Cotton batt insulation

Concrete recycled into an aggregate for road beds

A new building designed to incorporate existing walls and floors.

Source: USGBC



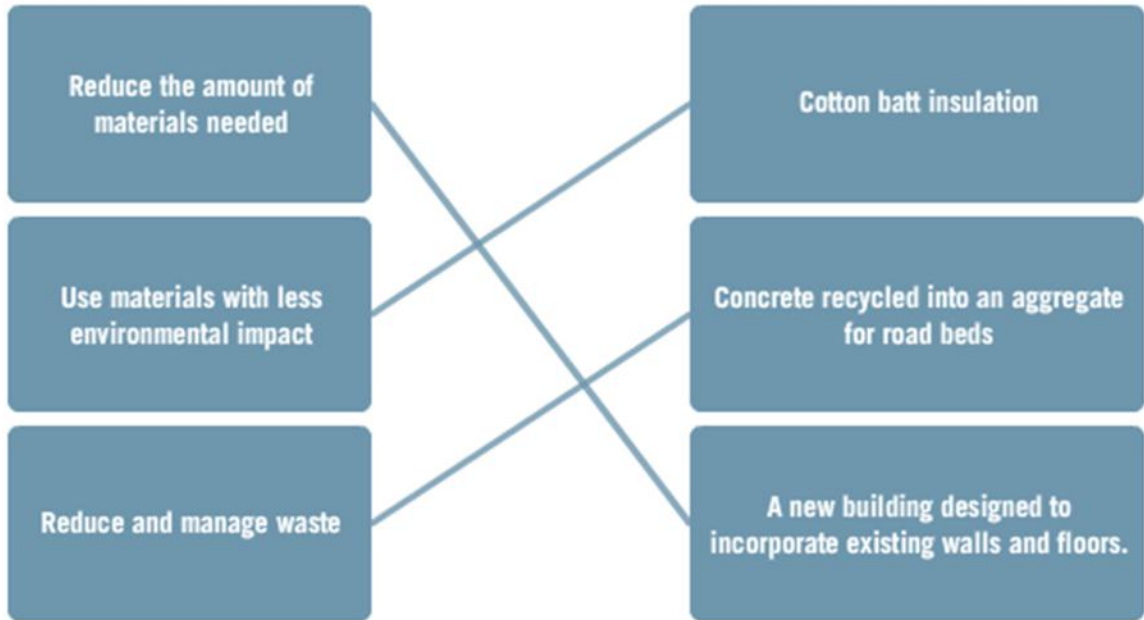
Fundamental LEED Building Concepts



Materials & Resources



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Fundamental LEED Building Concepts



Indoor Environmental Quality



Intent:

- Provide systems to ensure quality to meet indoor air standards such as:
 - Min Ventilation Rates per ASHRAE 62.1
 - Thermal Comfort per ASHRAE 55
 - Energy Levels per ASHRAE 90.1
 - Acoustics ASHRAE S12.60
 - SMACNA's IAQ Guidelines for Occupied Buildings
- Address the needs of the building occupant's health, safety and comfort



Fundamental LEED Building Concepts



Indoor Environmental Quality

Let's take look at an example:

- A new commercial building features an open floor plan to maximize daylighting and views to its occupants. The office has numerous operable windows throughout the building that allow for natural ventilation, and monitors were install to ensure that the mechanical ventilation is provided if the indoor air quality standards are not met. During the office's recent remodel, it was decided that they would cover the walls with a low-VOC paint, and they selected "Green Label Plus" (met stringent criteria for low-emissions) carpet tile flooring.

Which IEQ best practices were applied?

- A. Illuminating with daylight
- B. Offers outdoor views to occupants
- C. Provide control of temperature, light and ventilation
- D. Prevent potential harmful indoor air quality contaminants



Fundamental LEED Building Concepts



Innovation in Design

Intent: Rewarding projects for implementing a strategy that results in Exemplary Performance greater than what was required per credit.
Or project implemented new technology or method not addressed by any LEED prerequisite or credit



Regional Priorities

Intent: Earn Credit for addressing environmental issues that were identified and unique to locale (zip code)



Future Changes



LEED 2012 version is scheduled for release Nov. 2012

Major changes from the 2009 versions include:

- NEW “Integrated Design Process” which encourages integrated, cost effective adoption of green design and construction strategies
- NEW “Performance” Category which requires on-going M&V & reporting to USGBC of energy and water use

Also worthy to note:

- IGCC is in their final review of adopting their green code which closely mimics the outline of LEED



LEED Professional



LEED Green Associate



For professionals who want to demonstrate green building expertise in non-technical fields

LEED Accredited Professional with Specialty



Recommended for design professionals-engineers & architects

LEED Fellow



Developed to honor distinguished LEED APs who have made a significant contribution to the field of green building and sustainability at a regional, national, or international level.



Incentives

- Energy-Efficient Commercial Building Tax Deduction
- American Recovery and Reinvestment Act (ARRA)
- State Incentive Programs
 - incentives according to the Database of State Incentives for Renewables and Efficiency (DSIRE)
- Non-Financial Incentives
 - Expedited permitting for “green” projects
- Other options include:
 - loan programs, property tax incentives, rebate programs, sales tax incentives, utility rate discounts



Check out links below for more specific information:

- <http://www.energytaxincentives.org/>
- <http://www.dsireusa.org/>
- <http://www1.eere.energy.gov/financing/>
- <http://www.recovery.gov/Pages/default.aspx>



Thank You
Questions?

