

## Basics of Sustainability and LEED Design

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## Basics of Sustainability & LEED Design

Introduction – What We Will Learn Today

- What is Sustainability?
- The Basics of Sustainability
- How Using the LEED Green Building Rating System Can Demonstrate a Project's Sustainability
- How the Connecticut High Performance Buildings Requirements Furthers a Project's Sustainability Goals
- Resources You Can Use

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## Basics of Sustainability & LEED Design

What is Sustainability?

### Original Definition

**"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."**

Bruntland Report for the World Commission on Environment and Development (1992)

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## Basics of Sustainability & LEED Design

What is Sustainability?

### Newer Definition

**"A sustainable future is one in which a healthy environment, economic prosperity and social justice are pursued simultaneously to ensure the well-being and quality of life of present and future generations."**

Learning for a Sustainable Future - Teacher Centre

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## Basics of Sustainability & LEED Design

What is Sustainability?

**"Living in such a way so as to meet the needs of the present without compromising the ability of future generations to meet the needs of the future."**

- Sustainability Is a Social, Environmental, and Economic Concept

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## Basics of Sustainability & LEED Design

What is Sustainability?

**"Living in such a way so as to meet the needs of the present without compromising the ability of future generations to meet the needs of the future."**

- Sustainability Is a Social, Environmental, and Economic Concept
- Concept Goes Beyond a Single Building

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## Basics of Sustainability & LEED Design

What is Sustainability?

*“Living in such a way so as to meet the needs of the present without compromising the ability of future generations to meet the needs of the future.”*

- Sustainability Is a Social, Environmental, and Economic Concept
- Concept Goes Beyond a Single Building
- Sometimes Used Interchangeably With “Green” or “Environmentally Friendly”

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## Basics of Sustainability & LEED Design

What is Sustainability?

- Sustainably Designed Building Sometimes Referred to as “High Performance Building”
- High Performance Building Usually Performs Substantially Better Than a Standard One
  - Energy
  - Economically
  - Environmentally

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## Basics of Sustainability & LEED Design

Basics of Sustainability

- Design a Building That:
  - Conserves Energy
  - Conserves Water
  - Provides Healthy Indoor Environment for Occupants and Visitors

Attributed to Ross Spiegel

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## Basics of Sustainability & LEED Design

### Basics of Sustainability

- On a Broader Scale It Means Buildings That:
  - *Conserve Energy Through The Use Of:*
    - ✓ *Well-Designed, Energy-Saving Mechanical & Control Systems*
    - ✓ *Commissioning to Ensure Proper Functioning*
    - ✓ *Innovative, Renewable, and Low-Emission Technology*

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## Basics of Sustainability & LEED Design

### Basics of Sustainability

- On a Broader Scale It Means Buildings That:
  - *Utilize Green Power to Greatest Extent Possible:*
    - ✓ *Buying Renewable Energy Certificates (RECs)*
    - ✓ *Wind, Wave, Tidal, and Small Scale Hydropower*
    - ✓ *Biomass*
    - ✓ *Landfill Gas*
    - ✓ *Geothermal*
    - ✓ *Solar*

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## Basics of Sustainability & LEED Design

### Basics of Sustainability

- On a Broader Scale It Means Buildings That:
  - *Conserve Through Reduced Use of Water:*
    - ✓ *Landscaping and Irrigation*
    - ✓ *Sanitary Fixtures*
    - ✓ *Boiler & Hot Water Systems*
    - ✓ *Single-Pass Equipment Cooling*
    - ✓ *Cooling Tower Management*
    - ✓ *Commercial Kitchen Equipment*
    - ✓ *Steam Sterilizers, Reverse Osmosis, Etc.*

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## Basics of Sustainability & LEED Design

### Basics of Sustainability

- On a Broader Scale It Means Buildings That:
  - *Divert Waste To The Greatest Extent Possible:*
    - ✓ *Source Reduction*
    - ✓ *Recycling, Reuse, or Composting*
    - ✓ *Construction & Demolition Waste Management*

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## Basics of Sustainability & LEED Design

### Basics of Sustainability

- On a Broader Scale It Means Buildings That:
  - *Better Manage Stormwater Through Use of Best Practices Such As:*
    - ✓ *Bioretention Cells*
    - ✓ *Elimination of Curb & Gutters*
    - ✓ *Grassed Swales*
    - ✓ *Infiltration Trenches, Inlet Protection Devices*
    - ✓ *Permeable Pavement & Pavers*
    - ✓ *Rain Barrels & Cisterns*

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## Basics of Sustainability & LEED Design

### Using LEED to Demonstrate Sustainability

- LEED = Leadership in Energy & Environmental Design
  - *Voluntary, Consensus-based, Market-driven*

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## Basics of Sustainability & LEED Design

Using LEED to Demonstrate Sustainability

- **LEED = Leadership in Energy & Environmental Design**
  - *Voluntary, Consensus-based, Market-driven*
  - *Based on Existing & Proven Technology*

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## Basics of Sustainability & LEED Design

Using LEED to Demonstrate Sustainability

- **LEED = Leadership in Energy & Environmental Design**
  - *Voluntary, Consensus-based, Market-driven*
  - *Based on Existing & Proven Technology*
  - *Evaluates Environmental Performance From a Whole-building Perspective Over Building's Life Cycle*

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## Basics of Sustainability & LEED Design

Using LEED to Demonstrate Sustainability

- **LEED = Leadership in Energy & Environmental Design**
  - *Voluntary, Consensus-based, Market-driven*
  - *Based on Existing & Proven Technology*
  - *Evaluates Environmental Performance From a Whole-building Perspective Over Building's Life Cycle*
  - *Definitive Standard for What Constitutes Sustainable Design, Construction, & Operation*

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## Basics of Sustainability & LEED Design

Using LEED to Demonstrate Sustainability

- **LEED = Leadership in Energy & Environmental Design**
  - *Used for Rating New & Existing Commercial, Institutional, & Residential Buildings*

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## Basics of Sustainability & LEED Design

Using LEED to Demonstrate Sustainability

- **LEED = Leadership in Energy & Environmental Design**
  - *Used for Rating New & Existing Commercial, Institutional, & Residential Buildings*
  - *Based on Accepted Energy & Environmental Principles*

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## Basics of Sustainability & LEED Design

Using LEED to Demonstrate Sustainability

- **LEED = Leadership in Energy & Environmental Design**
  - *Used for Rating New & Existing Commercial, Institutional, & Residential Buildings*
  - *Based on Accepted Energy & Environmental Principles*
  - *Strikes Balance Between Established Practices & Emerging Concepts*

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## Basics of Sustainability & LEED Design

Using LEED to Demonstrate Sustainability

- **LEED = Leadership in Energy & Environmental Design Categories**
  - *Sustainable Sites*
  - *Water Efficiency*
  - *Energy and Atmosphere*
  - *Materials and Resources*
  - *Indoor Environmental Quality*
  - *Innovation in Design*
  - *Regional Bonus Points*

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## Basics of Sustainability & LEED Design

Using LEED to Demonstrate Sustainability

- **Categories Contain Prerequisites & Credits**
  - *Prerequisites are Mandatory Requirements*
  - *Must Achieve ALL Prerequisites to Quality*
  - *Credits Achieved Determines Level of Certification*
  - **Levels of Certification:**
    - ✓ *40-49 Points Certified*
    - ✓ *50-59 Points Silver*
    - ✓ *60-79 Points Gold*
    - ✓ *80 Points & Higher Platinum*

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## Basics of Sustainability & LEED Design

**LEED for New Construction 2009  
System Currently in Use**



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**Basics of Sustainability & LEED Design**

**LEED Version 4 Launched November 2013  
Will Be Required June 2015**



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**Basics of Sustainability & LEED Design**

**LEED Version 4  
But First A Word From Our Sponsor...**

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**Basics of Sustainability & LEED Design**

**LEED Version 4 Project Checklist**



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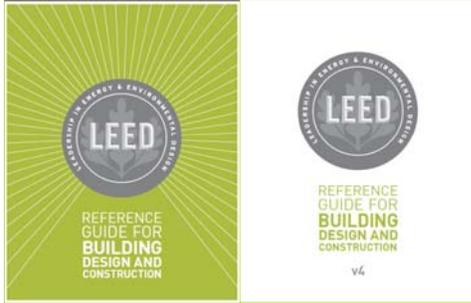
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## Basics of Sustainability & LEED Design



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## Basics of Sustainability & LEED Design

Connecticut High Performance Buildings  
Requirements and Sustainability

- Applies to State-Funded Buildings
- Requires State-Funded Buildings to be Built Using a High Performance Building Standard
- Similar to LEED But Without Reporting Requirements and Registration
- Includes Mandatory Requirements and Optional Strategies

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## Basics of Sustainability & LEED Design

Connecticut High Performance Buildings  
Requirements and Sustainability

- **Compliance Manual Updated September 2011**
  - > Detailed Descriptions of Requirements and Strategies
  - > Compliance Checklists for State Facilities and Schools
  - > High Performance Buildings Glossary

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## Basics of Sustainability & LEED Design

### Resources You Can Use

- **LEEDUser Subscription Service**  
<http://www.leaduser.com/>
- **The Integrative Design Guide to Green Building**  
7group and Bill Reed / John Wiley & Sons - 2009
- **The HOK Guidebook to Sustainable Design – 2<sup>nd</sup> Ed.**  
Mendler & Odell / John Wiley & Sons - 2005
- **Sustainable Commercial Interiors**  
Penny Bonda & Katie Sosnowchik / Wiley & Sons-2014
- **Sustainable Design: Architecture, Planning, & Ecology**  
Daniel Williams / John Wiley & Sons - 2007

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## Basics of Sustainability & LEED Design

### Review And Summary

- What is Sustainability?
- The Basics of Sustainability
- How Using the LEED Green Building Rating System Can Demonstrate a Project's Sustainability
- How the Connecticut High Performance Buildings Requirements Furthers a Project's Sustainability Goals
- Resources You Can Use

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## Basics of Sustainability & LEED Design

Thank You For Attending Today and Keep Working  
Toward a Greener Future!

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## Basics of Sustainability & LEED Design

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