

# Sustainable Facility Design



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# What is LEED®

- The **Leadership in Energy and Environmental Design (LEED)** Green Building Rating System™ encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria. (source [www.usgbc.org](http://www.usgbc.org))
- Developed and maintained by **US Green Building Council**.
- **Evaluation process** to determine the sustainability of a facility.
- **LEED Rating Systems:**
  - New Construction and Major Renovation (NC)
  - Existing Building: Operation & Maintenance (EB)
  - Core and Shell (CS)
  - Commercial Interiors (CI)
  - Schools (S)
  - Homes
  - Pilots - Retail, Healthcare, New Development



<http://www.usgbc.org/>

- Primary sustainable design rating system used in US
  - 4 levels of achievement
  - Alliance with AIA
  - Used by Federal Agencies
- Revisions underway to enhance application & results
  - LEED is a tool
  - LEED doesn't always apply
  - Sustainability always applies
- Integrated team approach to optimize for building life – not just “designed in”
  - Owner
  - Occupant/User
  - Maintenance & Operations
  - Designer
  - Contractor
  - LEED AP
- Owner's role
  - Site selection
  - Modes of transportation
  - Energy sources
  - Maintenance & Operations
  - Commissioning



# LEED Categories



- Sustainable Sites
  - Minimize sprawl, reduce environmental impact, reduce vehicle usage
- Water Efficiency
  - Reduce water usage
- Energy & Atmosphere
  - Efficient, effective, renewable energy use
- Materials & Resources
  - Reduce, renew, reuse, recycle, regional
- Indoor Environmental Quality
  - Healthy, comfortable, connected to environment

# 3 P's of Sustainable Design



- **PLANET:**
  - Reduce Environmental Impact
  - Optimal Performance
  - Reduce, Re-use, Recycle
- **PEOPLE:**
  - Increased Occupant Satisfaction
  - Improved Productivity
  - Reduced Absenteeism
- **PROFIT:**
  - Lower Operational Costs
  - Increased Occupancy Rates
  - Increased Net Operating Income & Asset Value

# Why Sustainable Facility Design?

## US Building Impacts on Resources

- 39% of total energy consumption
- 71% of electricity consumption
- 39% of CO<sub>2</sub> emissions
- 30% of raw materials use
- 30% of waste output
- 12% of potable water consumption

## Perceived Advantages of Building Green

- 8 – 9% decrease in operating costs
- 7.5% increase in building values
- 6.6% improvement in ROI
- 3.5% increase in occupancy
- 3% rent increase





# Why LEED® Certify

- Validate Sustainable Design Commitment
  - Reduced Construction/Operating Waste
  - Conserve Energy and Water
  - Improved Environment for Occupants
- Tax Rebates, Zoning Allowances, Other Incentives
- Recognition of Commitment to Environmental Stewardship and Social Responsibility

# Key Strategies

- Site Selection & Commuting Policies
  - Reduce development impacts
  - Reduce commuting impacts
- Facility & Material Life Cycle Considerations
  - Flexibility in configuration for future adaptation
  - Renewable, durable & recyclable materials
- Balance Natural Light with Heating & Cooling Loads
  - Site orientation
  - Good insulation
  - Internal zoning



- Energy Efficient & Controllable (e.g., schedules, occupancy detection) Systems
  - Lighting (zoned & local)
  - HVAC equipment
  - Office equipment
- Water Efficiency
  - Inside: low flow fixtures
  - Outside: native plants, minimal irrigation
- Convenient Recycling Areas
- Sustainable Operations
  - ‘Green’ Housekeeping & maintenance supplies & performance
  - Office Supplies



# Final Thoughts

- Sustainability is a goal, LEED is a tool that supports the goal
- Expectations for sustainable practices are increasing rapidly, as are the tools, products, and resources available
- Sustainability is a mindset – it may be a culture shift

***Thank You***

**Questions?**

