We can make buildings more efficient using a comprehensive framework.

- Technology
- Policy
- Capacity
- Finance
What is Green Building?
Buildings Around the World that Have Received a Third-Party Green Building Certification Score
Green Building Certification Programs

Common features

- Third party review
- Above baseline buildings
- Credits or points
  - Minimum requirements
  - Optional
- Systems updated to stay above code
- Different building types, new and existing
Green Building Certification Programs

Thematic considerations

- ✔ Performance & measurement
- ✔ Life Cycle Assessment
  - Whole Building
  - Materials
- ✔ Life Cycle Cost Analysis
- ✔ Environmental Product Declarations
- ✔ Health Product Declarations
- ✔ Local Materials
- ✔ Innovation
- ✔ Flexibility
How Green Building Certification Systems Work
Green Building Certification Programs

Green Building Systems

✓ Categories of building impacts
  - Environmental
  - Human health & wellness
  - Social

✓ Documentation, worksheet, and/or score

✓ Pass/fail certification, or different levels/ratings
Location & Transportation
Sustainable Sites
Water Efficiency
Energy & Atmosphere
Materials & Resources
Indoor Envtl. Quality
LEED v4 TECHNICAL IMPROVEMENTS: ENERGY & ATMOSPHERE

Prerequisites
- ✔ Fundamental Commissioning and Verification
- ✔ Minimum Energy Performance
- ✔ Building-Level Energy Metering
- ✔ Fundamental Refrigerant Management

Optional Credits
- ✔ Enhanced Commissioning
- ✔ Optimize Energy Performance
- ✔ Advanced Energy Metering
- ✔ Demand Response
- ✔ Renewable Energy Production
- ✔ Enhanced Refrigerant Management
- ✔ Green Power and Carbon Offsets
Green Building Certification Programs

Certification models promote accountability and provide assurance

- ✓ Documentation
- ✓ Operating data
- ✓ Third party review
Green Building Certification Programs

- Commissioning
- Onsite RE
- Demand Response
- HVAC
- Appliances
- Lighting
- Envelope

- Third Party Validation
- Benchmarking
Benefits for Cities
Green Buildings Can Reduce...

- **Energy Use**: 24% - 50%
- **CO₂ Emissions**: 33% - 39%
- **Water Use**: 40%
- **Solid Waste**: 70%


Green Building Certification Programs

Potential benefits to cities

- Assurance from third party certification
- Value creation
- New market development
- Cost savings across society
- Potential health and productivity gains
- Supports skills development in building workforce
- Competitive distinction
Arlington County, Virginia
Density Bonus Incentive Program
“If your actions inspire others to dream more, learn more, do more and become more, you are a leader.”

John Quincy Adams
1767-1848
Thank You
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