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Building Energy Codes
Building Green

for Massachusetts
The Real Estate Bar Association
REBA
Agenda

- Challenges to sustainable standards
- Beyond Code
- Case in Point: Silver LEED-EB v2.0
- Energy Consumption Comparisons
- Building Energy Codes
- What is ‘green’ or ‘sustainable’?
What is Green or Sustainable?

A. Kermit the Frog’s House?
B. Any building painted with Benjamin Moore #2034-40
C. Cedar Green?
D. Any Ivy covered building at Harvard?

Also known as Green Construction or Sustainable Building, Green Building refers to building processes that are environmentally responsible and resource-efficient throughout a building’s life-cycle: from site selection to design, construction, operation, maintenance, renovation, and demolition.
What is Green or Sustainable?

- Energy use
  - Buildings account for 40% of U.S.

Sustainable architecture seeks to minimize the negative environmental impact of buildings by enhancing efficiency and moderating the use of materials, energy, and development space.

Energy Codes Today

In building energy usage over base
Stretch code dictates 35-40% reduction
Using the ‘stretch’ code
MA jurisdictions have the option of
Massachusetts has adopted IECC
Standardized through IECC
Energy codes in U.S. have been
Construction
Building codes start as life safety/

Energy Codes Today
Building codes

Relative to energy efficiency requirements in Denmark for single family houses in Denmark

Actual Energy Consumption Comparison
Beyond Code: References

- Net Zero Network: https://netzerobuildinggreen.com/
- Passive House US: www.passivehouse.us
- LEED USGBC: org
6 criteria for measurement

- Rates issues beyond energy
- Energy savings debated
- Program in the U.S.
- The largest sustainable rating
- Not-for-profit trade organization

USGBC LEED Program:

Beyond Code - LEED
Commissioning energy study

Conducted a retro-

Required a team approach

Opportunity

Needed to identify areas of

Minimize disruption

High traffic area, needed to

Right budget

Awareness

Occupant and Owner Green

Existing building vs. new

Challenges:

LEED-EB V2.0 Silver Certification

Case in Point:
Case Results

Noted for exemplary performance in public transportation, development density, program
shared green building exterior management practices and preventive maintenance
Delivered green education to occupants:

- High performance green cleaning featuring Green Seal certified cleaning products,
- 50% of office spaces have lighting controllability
- Sustained purchasing of office materials, Green cleaning paper products, and lightbulbs

Office efficiencies:
- 85% efficiency (MEER 14) air filters to provide proper indoor air quality
- Diverted over 70% of building waste from landfill
- Powered by green-energy for electricity
- Implemented extensive ozone protection through active management of refrigerants
- Reduced portable water by 10% over EPA 1992 standards

Operational gains:
- Provided 50% cost sharing
- Achieved ENERGY STAR score of 72
Sector
power plants go to supply the building
– 76% of all electricity generated by U.S.
– 48% of greenhouse gas emissions annually
shows buildings are responsible for:
• U.S. Energy Information Administration

Beyond Code: Passive House
Principles for a Passive House
Beyond Code - Zero-Net

By 2016, UK set the goal that all new buildings will have Zero-Net carbon footprint.

...a popular term to describe a building's use carbon emissions annually - Wikipedia with zero net energy consumption and zero...
Challenges

- Construction issues
- Lack of data on actual results
- "Shadow Government"
- Potential suits against USGBC

standards beyond the code: sustainable building
John Downie

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Contacts:

Thank you!

Questions