

U.S. DEPARTMENT OF ENERGY



SOLAR DECATHLON 2009

LEED for Homes and REGREEN:

Solutions from Remodel
to Gut-Rehab

U.S. DEPARTMENT OF
ENERGY



National Renewable
Energy Laboratory
Innovation for Our Energy Future



Your life. Plugged in.™





U.S. Green Building Council

- **Founded in 1993**
- **Non-profit: 501(c) 3**
- **Mission-based organization**
- **Committed to expanding sustainable building practices**
- **Headquarters in Washington D.C.
(residential: San Diego, CA)**





USGBC's Mission

To transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy and prosperous environment that improves the quality of life.





Environmental Impact of Homes

In the United States, residential units consume 22% of the nation's energy and cause 20% of its greenhouse gas emissions.

Source: "Income, Energy Efficiency and Emissions: The Critical Relationship," Energy Programs Consortium, February 26, 2008.





USGBC Residential Programs

REGREEN

Green residential remodeling: guidelines and strategies for all projects, regardless of scope or type

LEED for Homes

Rating System offering certification: new construction and gut-retrofits



What Green Residential Remodeling Addresses

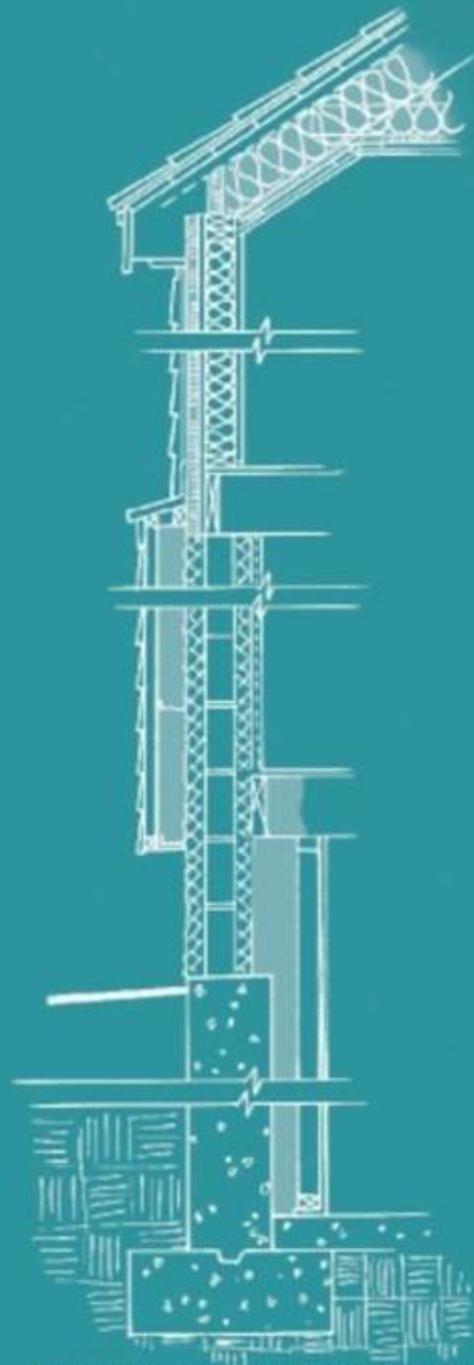
- Climate control
- Resource depletion
- Water consumption
- Degradation of ecosystems/habitat
- Indoor environmental quality
- Occupant comfort and health
- Long term durability and maintenance costs



Education
Programs
Projects
Guidelines
& Beyond

Focus of REGREEN

- Whole house, systems-thinking (process and products)
- Professional integration – architects, interior designers, engineers, builders, trades
- Good design, green design





What's in the Guide...

- Introduction: Green from the Start
- 10 Different Projects Types
- Project Resources
 - Integrated pre-design issues
 - Strategy library
 - Case study



Case Studies

- Kitchen
- Bedroom
- Living and Working
- Bathroom
- Outdoor Living Space



Case Studies

- Finished Basement
- Home Performance
- Major Addition
- Gut Rehab
- Deep Energy Retrofit





Available Education

- REGREEN Webinar Series
- REGREEN Online Learning Series
- REGREEN 2-day Workshop (USGBC)
 - Offered at GREENBUILD!
- REGREEN Certificate of Completion (Info to come 4th quarter '09)





Looking Ahead to 2009

REGREEN will become...

- Web-based tool
- Dynamic
- Interactive





4 Levels of LEED Certification

Varying Performance Levels





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2009

regreenprogram.org
greenhomeguide.org





Existing Housing Stock Numbers In the United States

- 77% of houses in the U.S. were built before 1990
- The median home was built in 1973
- 82% of the current housing stock will still be in use in 10 years

Source: U.S. Census Bureau, 2007





Pertinence of Greening our Existing Housing Stock

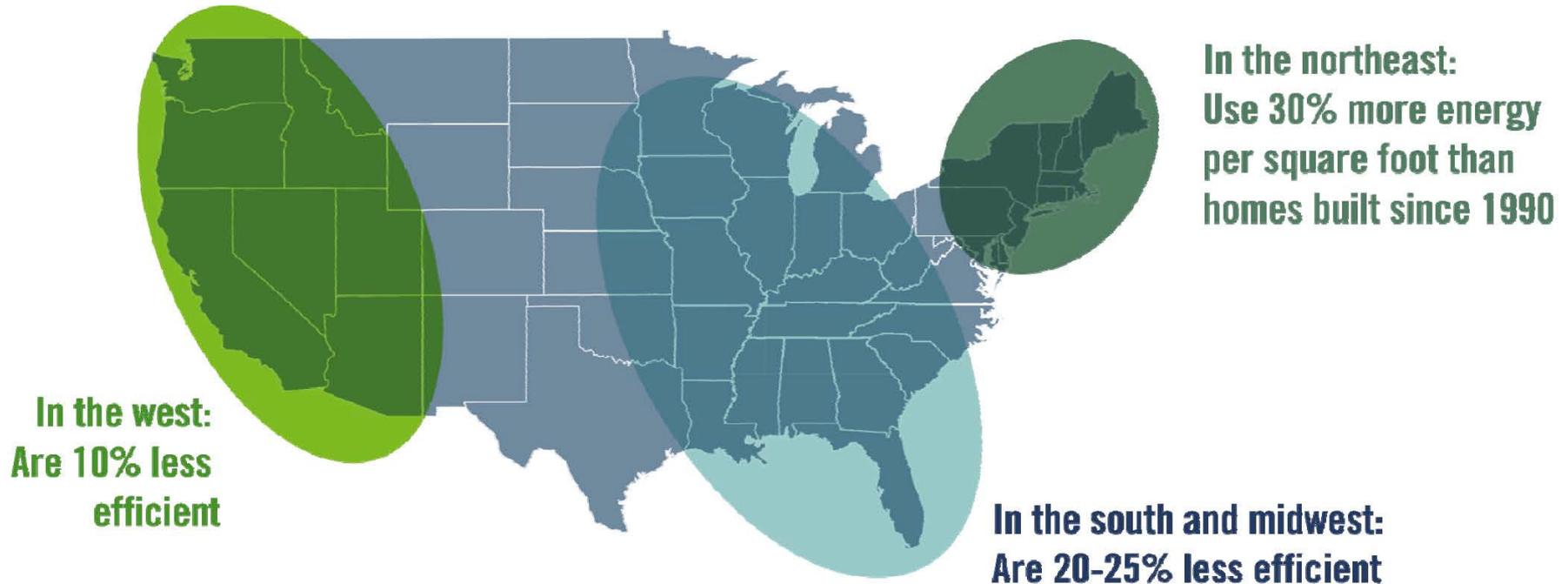
- **Unpredictable energy and water cost/supplies**
- **Unpredictable weather events and climates**
- **Energy consumption is of high value; not just a commodity**
- **New construction is just one part of the solution**

Source: Linda Wigington, Affordable Comfort, Inc; Thousand Home Challenge



Older Homes Are Less Efficient

Homes Built prior to 1970...



**In the west:
Are 10% less
efficient**

**In the northeast:
Use 30% more energy
per square foot than
homes built since 1990**

**In the south and midwest:
Are 20-25% less efficient**