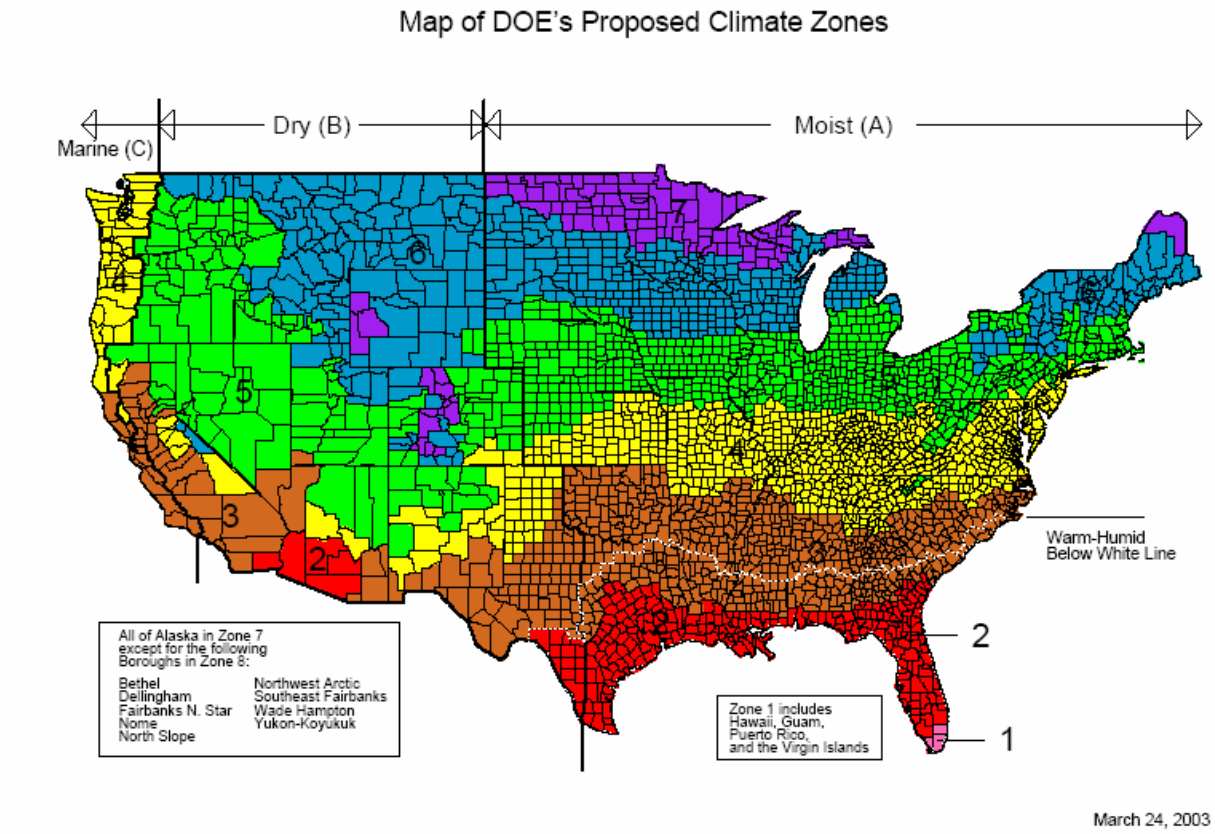
Cool Roof Rating Council

Ratings Codes and Standards

8 June 2007

Cool Roofs-Zones 1, 2, & 3



ASHRAE 90.1

- Energy Standard for Buildings Except Low-Rise Residential Buildings
- Next edition in 2007
- Cool Roof provisions will remain voluntary
- Minimum Solar Reflectance 0.70 and Thermal Emittance 0.75, or Minimum SRI of 82

ASHRAE 90.1

- 2010 edition proposal for cool roofs to be mandatory
- Solar reflectance 0.70 and thermal emittance 0.75, or
- Minimum SRI of 82, or
- Ballasted roof or green roof, or
- Vented sloped roofs with Solar Reflectance of 0.40 or greater

ASHRAE AEDG

- Advanced Energy Design Guides
- Retail, Office, Storage, Schools
- Designed for buildings to achieve 30% greater energy efficiency than 1999 edition Standard 90.1
- Includes cool roofs, and cites Cool Roof Rating Council

Arizona

- Municipal Based Code Adoption:
- 2004 IECC supplement: Phoenix
- 2003 IECC: Benson, Cochise County, Goodyear, Oro Valley, Peoria, Queen Creek, Scottsdale, Show Low, Sierra Vista, Surprise, Tucson
- 2000 IECC: Florence, Pinal County

Florida

- CRRC submission to have program recognized in 2003
- 2007 hearings for updating Florida Energy Code recognized CRRC as one of the programs for determining values
- Should become effective October 2008

Georgia

- Uses IECC, which refers to Standard 90.1-1999
- Standard 90.1-1999 contains high albedo roof provisions.
- CRRC not recognized

Louisiana

- Act #12 of State Legislature mandates statewide enforcement of 2006 International Energy Conservation Code, which refers to 2004 Standard 90.1
- Recognize high albedo roofs, but not CRRC

Mississippi

- ASHRAE 90-1975 mandatory for state owned or funded buildings
- No energy code for other buildings
- Voluntary for jurisdiction to adopt an energy code
- ASHRAE 90-1975 does not have high albedo roof provisions

New Mexico

- 2003 International Energy Conservation Code for non-residential and residential buildings
- Standard 90.1 embedded in non-residential provisions
- CRRC not recognized

North Carolina

- Non-residential must comply with 2003 IECC and Standard 90.1-2004
- Standard 90.1-2004 contains high albedo roof provisions
- Residential must comply with 2000 IECC
- CRRC not recognized

Oklahoma

- Municipal based adoption type state
- 2003 International Energy Conservation Code to be adopted to jurisdictions that do not adopt their own code
- 2001 Standard 90.1 included, and contains high albedo roof provisions
- CRRC not recognized

South Carolina

- 2003 International Energy Conservation Code adopted state wide
- References Standard 90.1-2001 edition
- CRRC not listed in this edition
- Planning to adopt 2006 IECC, where it will reference Standard 90.1-2004, which contains high albedo roof provisions

Texas

- State requires minimum IECC 2000 with 2001 supplemental modifications
- Municipal based adoption process, meaning each jurisdiction adopts the 2000 edition or more recent editions

High Performance Buildings

- Act of Congress, July 2005
- Energy Policy Act, Section 914
- Definition of High Performance Building … means a building that integrates and optimizes all major high-performance building attributes, including energy efficiency, durability, life-cycle performance, and occupant productivity.

High Performance Buildings

- 1)…Conduct and assessment (in cooperation with industry, standards development organizations, and other entities, as appropriate) of whether the current voluntary consensus standards and rating systems for high performance buildings are consistent with the current technology state of the art, including relevant results from the research, development and demonstration activities of the Department;…and

High Performance Buildings

- 2)…determine if additional research is required, based on the findings of the assessment; …and

High Performance Buildings

- 3)…recommend steps for the Secretary to accelerate the development of voluntary consensus-based standards for high performance buildings that are based on the findings of the assessment.

High Performance Buildings

- Council organized under National Institute of Building Sciences
- Goal is to develop a “Guide”
- Scheduled to be completed by end of 2007
- Will most likely include high albedo roofs

Net Zero Energy Building

- A **zero energy building** (**ZEB**) or **net zero energy building** is a general term applied to a building with a net energy consumption of zero over a typical year. This can be measured in different ways (relating to cost, energy, or carbon emissions) and, irrespective of the definition used, different views are taken on the relative importance of energy generation and energy conservation to achieve energy balance.

  (Source: Wikipedia.org)

Net Zero Energy Building

Goals:

- Climate Specific Design
- Passive Solar Heating and Cooling
- Energy-efficient construction, appliances, and lighting
- Solar thermal and solar electric systems

ORNL Project, Tennessee

Sources

- www.iccsafe.org, see “adoptions by state”
- www.becap-energy.org, see “code adoption process”