

# Chicago Energy Efficiency Code

- Part of the Building Code
- Urban Heat Island section
- New definitions
- New reflectivity requirements

# Chicago Energy Efficiency Code Passage Timeline

- Departments of Environment and Buildings worked to draft an energy efficiency code based on International Energy Efficiency Code
- Presented to City Council in September 2002
- Amended January 2003; passed by City Council except for medium sloped roof reflectivity requirements
- DOE conducts reflectivity tests in 2003 of readily available asphalt shingles; based on tests, medium sloped requirements amended; outreach to industry
- Amended medium slope requirements considered by City Council August 2004 and passed September 2004

# General Concerns

- Available colors of asphalt shingles; asphalt shingles are approximately 85% of roof stock in Chicago
- Union and asphalt shingle manufacturer's concerns
- Building owner's cost savings
- Research that demonstrates benefits

# Roof Reflectivity Requirements

## LOW SLOPED

- Between 0 in 12 and 2 in 12
- 0.25 reflectivity on roofs installed prior to and including 12/31/08
- Energy Star reflectivity on roofs installed after 12/31/08

## MEDIUM SLOPED

- Between 2 in 12 and up to and including 5 in 12
- 0.15 reflectivity for roofs on buildings built after 1/1/05 (new construction)
- Multiple sloped roofs are subject to this requirement if the majority of the roof is medium sloped

# Roof Reflectivity Verification

- Department of Construction and Permits issues all permits
- For new construction, DCAP requires architect of record to certify materials meet requirements
- DOE maintains a website with a non-comprehensive list of asphalt shingles that meet 0.15 reflectivity

# Definitions

- **Green Roofs.** Roofs that are surfaced with soil and plant materials to reduce heat absorption and/or for water retention, but are not intended for human visitation, recreation and social gatherings.
- **Roof Top Garden.** A roof area covered wholly or in part with plants and landscaping materials in accordance with a plan approved by the Building Department and which may be used for human occupancy.
- **Solar Photovoltaic Equipment.** A device such as solar cells and inverters used to transform solar insolation into energy.
- **Solar Reflectance.** The fraction of solar flux reflected by a surface, expressed as a percent or within the range of 0.00 to 1.00.
- **Solar Thermal Equipment.** A device which uses solar radiation to heat water or air for use within the facility for service water heating, space heating or space cooling.
- **Urban Heat Island.** A built environment wherein the large proportion of dark absorbing surfaces (such as asphalt paving and dark roofs) trap energy from sunlight and radiate it back into the atmosphere, causing higher ambient temperatures and higher pollution levels.

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