Understanding Part 6 of Title 24, California Building Standards Code
Meeting the code requirement using the Performance Approach

This approach requires a detailed assessment of the energy efficiency of all of the components of the building using California’s Energy Commission approved software. The sum of the efficiencies must meet the required energy budget. Typically, energy consultants are often used with this approach due to its complexity.

Meeting the code requirement using the Standard Prescriptive Approach

To meet the code using this approach a homeowner simply needs to install a roofing product that complies with CRRC (California Cool Roof Rating Council) approvals. By installing a product such as CertainTeed Landmark Solaris, which complies with all CRRC requirements, a home will automatically comply with the new code requirements.

Meeting the code requirement using the Prescriptive Trade Off Approach

A homeowner can install a non-cool roof and compensate with attic insulation, however the overall required energy budget must be met and requires documentation. CertainTeed’s TrueComfort™ blow-in insulation is an ideal choice to reach the Title 24, part 6 standards using this method.

Beginning January 1, 2010, the California Energy Commission’s updated Title-24 Building Energy Efficiency Standards for residential and non-residential roofing went into effect. The new Standards affect new construction, significant repairs of existing roofs, re-roofing, plus additions and alterations of existing buildings and homes.

Previously, a residential cool roof was an optional energy efficiency measure, however beginning in 2010, Title 24 Part 6 mandates that steep-slope roof assemblies comply with either the performance or the prescriptive requirements of the building code in numerous climate zones throughout the state of California. All roofing products must be certified and labeled according to the Cool Roof Rating Council (CRRC) to comply with the Standards. There are exceptions to both residential and non-residential requirements.

Cool roof standards are designed to reduce air conditioner demand and the consequent power demand, thereby extending the current energy infrastructure while saving the consumer money and reducing the urban heat island impact. Title 24 Part 6 recognizes three methods whereby homes within the climate zones impacted by the code requirement can comply:

- Standard prescriptive approach
- Prescriptive trade off approach
- Performance approach

This brochure is intended to provide you with a basic understanding of California’s new roof requirements and the products manufactured by CertainTeed that will enable a building owner in California to be compliant with the new building codes.
How do Cool Roofs Work?
Cool Roofs have reflective coatings or reflective granules that reflect the sun's rays, lowering the surface temperature of the roof thereby reducing the amount of heat transferred into the structure below. CertainTeed’s Landmark Solaris shingles use state-of-the-art, patented technology to achieve solar reflectance while maintaining superior aesthetics.

What is Solar Reflectance?
It is the amount of solar energy that is reflected away from the roof, usually expressed in a ratio between 0 and 1. The higher the percentage, the more reflective the surface.

What is Thermal Emittance?
It is a measurement of absorbed heat energy that is radiated away from the surface, usually expressed in a ratio between 0 and 1. The higher the percentage, the more emissive the surface.

Are there any exceptions to installing a Cool Roof?
There are 16 climate zones in California. Some do require Title 24 cool roof standards, others do not.

The major cities within these climate zones are:
- Arcata (1)
- Santa Rosa (2)
- Oakland (3)
- Sunnyvale (4)
- Santa Maria (5)
- Los Angeles (6)
- San Diego (7)
- El Toro (8)
- Pasadena (9)
- Riverside (10)
- Red Bluff (11)
- Sacramento (12)
- Fresno (13)
- China Lake (14)
- El Centro (15)
- Mount Shasta (16)

Climate zones 10 to 15 require a cool roof in residential new construction and re-roof applications.

Climate zones 2-16 require a cool roof in non-residential steep-slope new construction and re-roof applications.

For more information, you can visit the following websites:
- www.energy.ca.gov/maps/building_climate_zones.html
- www.coolroofs.org
- www.energystar.gov
Consumer benefits of cool roofs:
Lower roof temperatures result in less heat being absorbed into the buildings interior and results in greater occupant comfort while lowering air conditioning demand and lowering energy costs.

Cool roofs can also better withstand the negative effects of expansion and contraction caused by heating and cooling, light and moisture, extending the overall life of the roof.

Societal benefits of cool roofing:
Cool roofs can help to reduce the urban heat island effect. The urban heat island is the commonly understood fact that urban areas are generally warmer than the surrounding suburbs due to the congestion of buildings, cars, and infrastructure that makes urban, built-up areas hotter and produces unhealthy air.

Cool Roofs and Commercial Applications:
Cool commercial/low-slope roofs have been common practice for many years, typically consisting of liquid white coatings applied on-site. CertainTeed still offers those white coatings and now also supplies “CoolStar™” cap sheets that feature factory-applied super-white coatings. When applied on the roof, all CertainTeed CoolStar products comply with California Title 24/Part 6 code requirements. On January 1, 2010, the California Title 24 2008 Building Energy Efficiency Standards went into effect. To comply, non-residential, low-slope roofs may prescriptively meet the code by having a minimum 3-year aged Solar Reflectance of 0.55 (or minimum initial Solar Reflectance of 0.70) and minimum initial Thermal Emittance of 0.75, or a Solar Reflectance Index (SRI) of 64.

Landmark Solaris™: ENERGY STAR® Cool Roof Technology
Landmark Solaris is a brilliant breakthrough that puts cool roof technology to work. The advanced roofing granules reflect solar energy and radiate heat far better than standard shingles and meet or exceed Title 24 standards and are ENERGY STAR rated. Available in a color palette of rich, authentic colors, the shingles may qualify for credits/points in LEED, NAHB and other “green” programs also.

Solaris shingles are available in an array of max def colors, a rich mixture of surface granules helps make for a more vibrant dramatic appearance and depth of color.

Specifications:
- Meets or exceeds Title 24 standards for Cool Roofs
- Two-piece laminated fiber glass – based construction
- Classic shades and dimensional appearance of natural wood or slate
- 300lbs per square
- Meets ENERGY STAR requirements
- UL Class A fire resistance
- UL certified to meet ASTM D3462 AND D3018 Type 1
- Lifetime limited transferable warranty on residential applications
- 50-year limited warranty on group-owned or commercial
- 10-year SureStart protection
- 10-year 90mph wind-resistance warranty

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Everyday, CertainTeed makes a commitment to sustainability.

CertainTeed Roofing recycles, reuses and re-visions our environment. Here are 6 ways we put ideas into action with green as our goal.

**Recycling and the road to success.**
We recycle nearly 90% of our manufacturing production waste into asphalt materials for road construction.

**Bring nature back.**
Our Oxford facility, the world’s largest roofing plant, has its own wetlands and a water management system where wildlife thrives.

**Use it (don’t lose it).**
We use recycled content including slag, stone granules, corrugated mixed paper and sludge, reducing landfill waste and carbon emissions.

**We believe in leading by example.**
We belong to the U.S. Green Building Council and champion their Leadership in Energy and Environmental Design (LEED) Green Building Rating System™. And we also strongly support the National Green Building Standards™ of the National Association of Home Builders.

**Energy Star® rated products.**
These products lower rooftop and attic temperatures by reflecting the sun’s rays from the building’s roof helping reduce energy costs.

CertainTeed Energy Star rated products include:

- **Landmark Solaris® Series Designer Shingles**
  - Crystal Gray
  - Aged Cedar
  - Sunset Shake
  - Dusky Clay
  - Max Def Weathered Wood
  - Max Def Burnt Sienna
  - Max Def Reawn Shake
  - Max Def Heather Blend

- **Landmark® Series Designer Shingles**
  - Silver Birch

- **CT 20 Traditional Shingles**
  - Star White

**Reaching for the Energy Stars.**
As the 2010 Energy Star Partner of the Year for Energy Management, we are proud of our commitment to designing high quality, sustainable roofing products.

For more Information:  [www.energy.ca.gov/title24](http://www.energy.ca.gov/title24) • [www.CRCC.gov](http://www.CRCC.gov) • [www.certainteed.com](http://www.certainteed.com)