

Elk Cool Shingle

CEC PAC Meeting

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- Three Key Parameters:
 - Performance
 - Aesthetics (Color)
 - Cost
- Goal is to achieve the proper balance.

- Cool Shingle Performance
 - Must meet all current performance requirements of an asphalt shingle.
 - ASTM Test Standards
 - Elk internal standards
 - Must meet technically achievable energy saving targets.
 - Energy Star
 - CRRC
 - California Title 24

- Factors that affect shingle reflectivity
 - Granule angularity causes cross reflectance
 - Asphalt background – minor (3%)
 - Necessity for double coating granules impacts
 - Cost
 - Color

- Shingle Aesthetics-
 - Color must be other than white.
 - Dimensional appearance must be maintained
 - laminated shingle.
 - Must be attractive to the consumer.
 - Must be compatible with other building design elements.

- Cost
 - Must be affordable to the consumer.
 - Provide demonstrable energy savings (lower utility bills) to the home owner.
 - Provide overall economic benefits due to reduced energy consumption.
 - Fewer brownouts.
 - Fewer power plants.
 - Rebates

- Cool Shingle Performance Results
 - As-manufactured properties are equivalent to conventional products.
 - Durability including color appears to be equivalent to current products.
 - Solar reflectance values greater than 25% have been achieved with colored shingles.
 - Instrumented panels installed at ORNL.
 - Instrumented test roofs constructed in Redding, California.

- Shingle Aesthetics
 - Four initial colors were selected – two different shingle designs.
 - The first is based on Weatheredwood – the most popular shingle color nationwide.
 - All four colors are distinctive and non-white.
 - The appearance on the roof should be very acceptable to the consumer.

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- Summary
 - Elk is strongly committed to the concept of energy saving roofing products and believes that cool asphalt shingles have a vital role to play in the steep slope marketplace.
 - Elk has introduced four cool-colored shingle products to the marketplace.

- Future Development for the Industrial Partners Team:
 - Continue working with the labs to produce colored cool shingles at attractive cost
 - Finalize the use of the Devices and Services Solar Spectrum Reflectometer (ASTM C1549) for all shingle reflectance testing.
 - Software to estimate the cooling energy savings and peak demand reduction achieved by installing cool shingles on specific buildings
 - Monitor the solar reflectance and color change of the shingles installed at the California weathering sites
 - Monitor the solar reflectance, color change, and thermal performance of shingles at ORNL test facilities