Elk Cool Shingle

CEC PAC Meeting
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Elk Cool Shingle

• Three Key Parameters:
  – Performance
  – Aesthetics (Color)
  – Cost

• Goal is to achieve the proper balance.
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- 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
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- Factors that affect shingle reflectivity
  - Granule angularity causes cross reflectance
  - Asphalt background – minor (3%)
  - Necessity for double coating granules impacts
    - Cost
    - Color
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• 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.
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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.
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• 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