Cool Colored Shingle Initiative

Lessons Learned

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Quick Facts - Experience

- All GAF-Elk Cool Colored Shingles have been certified at 25% reflectance or above by an AITL and are listed by the CRRC.
- Samples of all Cool Colored Shingles have been submitted to the Atlas Test Farm for aging through the CRRC program.
- Samples exposed for 23 months have shown no significant loss in reflectance.
## Products In Market Today

Maintain Reflectance Overtime

<table>
<thead>
<tr>
<th>Shingle</th>
<th>Solar Reflectance Initial</th>
<th>Solar Reflectance Aged – 2 yr</th>
<th>Thermal Emittance Initial</th>
<th>Thermal Emittance Aged – 2 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool Weatheredwood</td>
<td>0.26</td>
<td>0.26</td>
<td>0.92</td>
<td>0.92</td>
</tr>
<tr>
<td>Cool Barkwood</td>
<td>0.27</td>
<td>0.26</td>
<td>0.92</td>
<td>0.93</td>
</tr>
<tr>
<td>Cool Antique Slate</td>
<td>0.27</td>
<td>0.27</td>
<td>0.92</td>
<td>0.91</td>
</tr>
</tbody>
</table>
Quick Facts - Experience

• Products launched in March 2005

• Products actively promoted in the industry, including advertising in various roofing magazines.

• Reception has been mixed.

• Sales… less than 1600 homes since introduction
Barriers To Greater Success

– Limited Color Palette… due to 25+ reflectance requirement
Reflectance of “20” Allows Full Range Of Shingle Colors Consumers Want

<table>
<thead>
<tr>
<th>Color Series</th>
<th>Color Intensity</th>
<th>Solar Reflectance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tan Shingle Series</td>
<td>Std Shingle (0.14)</td>
<td>(0.20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.30)</td>
</tr>
<tr>
<td>Grey Shingle Series</td>
<td>Std Shingle (0.09)</td>
<td>(0.20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.30)</td>
</tr>
<tr>
<td>Black Shingle Series</td>
<td>Std Shingle (0.04)</td>
<td>(0.20)</td>
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<tr>
<td></td>
<td></td>
<td>(0.25)</td>
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<tr>
<td></td>
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<td>(0.30)</td>
</tr>
</tbody>
</table>

9/13/2007 Cool Colored Shingle Implementation
Barriers To Greater Success

– Limited Color Palette... due to 25+ reflectance requirement

– High Costs
  • Slows manufacturing process by as much as 1/3
  • Requires higher usage of much more expensive reflective granules

– Logistic Difficulty... double inventories, product complexity and increased storage issues; complications for builder, distributor and contractor
What We Recommend To Help Assure Success

Modify the shingle requirement to allow greater color choice and lower cost.

- Reflectance: 20% minimum
  Emittance: 0.75 minimum
  OR
- SRI: 16

Same Requirements for new construction and alterations

Require the use of cool roofing products only in climate zones where economic justification can be made.

- California Zones 10-15 (New construction and alterations).
What We Recommend To Help Assure Success

Why?

1. Colors Consumers Want… allows broad selection; reduces complexity in the marketplace.

2. Reasonable Investment… more efficient manufacturing and logistics; more acceptable consumer value

3. Environmentally Effective… approximately double the current reflectance of shingles in the market; better than Energy Star™
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QUESTIONS?