ANSI, Codes & Programs Update

Membership Meeting

June 27, 2012
The reason for developing a CRRC “standard” was in response to critics of the CRRC for not having a consensus developed independent document. In layman's terms, that meant a document that was developed under a consensus process, written in mandatory language, and which does not prescribe a proprietary policies, products or actions. (i.e.. Independent of the CRRC Product Rating Program)
• CRRC-1 Standard approved November 16, 2010
  – Can be used by the national model codes and standards developers
• CRRC-1 Program Manual now references the CRRC-1 Standard
Markets

• International Code Council:
  – International Energy Conservation Code
  – International Residential Code
  – International Green Construction Code
Markets

• American Society of Heating Refrigerating and Air-conditioning Engineers (ASHRAE)
  – Standard 90.1 (Commercial Energy),
  – Standard 90.2 (Residential Energy),
  – Standard 189.1 (Green Standard)
Markets

• Jurisdictions, US and foreign
• Government agencies
• Voluntary green, sustainable and/or high performance programs (e.g. LEED, GBI, ULE, ICC-ES, IAPMO, etc.)
The following entities are able to retain their current reference to the CRRC-1 “Roof Product Program”:

– US EPA Energy Star Roof Program
– California Energy Commission
Current Status

- Standard has undergone another public review and ANSI review.
- We are aiming for ANSI approval by the end of 2012.
- This revision is intended to be ready for inclusion/updating in the upcoming editions of ICC codes and ASHRAE standards.
## Consensus Body Members

<table>
<thead>
<tr>
<th>First</th>
<th>Last</th>
<th>Company</th>
<th>Member Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rick</td>
<td>Olson</td>
<td>Tile Roofing Institute</td>
<td>Producer</td>
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<tr>
<td>Richard</td>
<td>Snyder</td>
<td>CertainTeed Corporation</td>
<td>Producer</td>
</tr>
<tr>
<td>Dwayne</td>
<td>Wacenske</td>
<td>Firestone Building Products LLC</td>
<td>Producer</td>
</tr>
<tr>
<td>Joseph</td>
<td>Schwetz</td>
<td>Sika Sarnafil</td>
<td>Producer</td>
</tr>
<tr>
<td>Jonathan</td>
<td>Humble</td>
<td>American Iron and Steel Institute</td>
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<tr>
<td>Chris</td>
<td>Salazar</td>
<td>Karnak Corporation</td>
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<tr>
<td>Steve</td>
<td>Thorsell</td>
<td>ICC-ES</td>
<td>User</td>
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<tr>
<td>David</td>
<td>Yarbrough</td>
<td>R&amp;D Services</td>
<td>User</td>
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<tr>
<td>Peyton</td>
<td>Collie</td>
<td>Sheet Metal and Air Conditioning Contractors’ National Association</td>
<td>User</td>
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<tr>
<td>Mark</td>
<td>Graham</td>
<td>National Roofing Contractors Association</td>
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<tr>
<td>Stewart</td>
<td>Relyea</td>
<td>Intertek - Middleton</td>
<td>User</td>
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<tr>
<td>Ted</td>
<td>Michelsen</td>
<td>Michelsen Technologies, LLC</td>
<td>User</td>
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<tr>
<td>Mike</td>
<td>Ennis</td>
<td>SPRI</td>
<td>User</td>
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<tr>
<td>Hugo</td>
<td>Destaillats</td>
<td>Lawrence Berkeley National Laboratory</td>
<td>General interest</td>
</tr>
<tr>
<td>Andre</td>
<td>Desjarlais</td>
<td>Oak Ridge National Laboratory</td>
<td>General interest</td>
</tr>
<tr>
<td>Phillip</td>
<td>Smith</td>
<td>FM Approvals</td>
<td>General interest</td>
</tr>
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</table>
Next Steps

• Updating of new editions of the CRRC-1 Standard in national model codes and standards, as necessary.

• Will require oversight of national model codes and standards developers calendar.

• If other organizations adopt or incorporate the CRRC-1 Standard will require oversight to update, as necessary.
For More Info

Visit the ANSI webpage on the CRRC site

http://coolroofs.org/StandardReview.html
ASHRAE Standard 90.1 (Commercial Energy)

• ASHRAE 90.1-2010 was published in November 2010
• CRRC-1 Product Rating Program is referenced.
  – CRRC-1 Standard is included in the 2011 Addenda
• Mandatory prescriptive cool roof requirements:

<table>
<thead>
<tr>
<th>Minimum 3-year aged SR</th>
<th>Minimum 3-year aged TE</th>
<th>Minimum 3-year aged SRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.55</td>
<td>0.75</td>
<td>64</td>
</tr>
</tbody>
</table>
ASHRAE Standard 189.1 (High Perform. Green)

- Published in January 2011
- 75% of roof surface of buildings in climate zones 1-3 = covered with cool roofing
  - Surfaces covered in renewable energy systems or green roofs do not count towards total.

<table>
<thead>
<tr>
<th>Roof Slope</th>
<th>Minimum Initial SRI</th>
<th>Or</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2:12</td>
<td>78</td>
<td>ENERGY STAR</td>
</tr>
<tr>
<td>&gt;2:12</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>
• Exceptions
  – A non-cool roof can be used if simulation shows that the roof demonstrates at least 2% less annual energy cost and CO$_2$ production than a qualifying cool roof
  – Roofs over parking or semi-heated spaces must have minimum SRI of 29
   • New concrete without added pigment can assume and SRI of 35 without measurement
ASHRAE Standard 189.1 (High Perform. Green)

- 2011 edition only references individual ASTM test methods.
- Standard 189.1 committee is working on updating to recognize CRRC-1 Standard for future edition.
International Energy Conservation Code

- 2012 version published April 20, 2011
- Contain cool roof provisions, but only ASTM test methods.
- Focus will be 2013 code cycle to introduce CRRC-1 Standard.
- See [www.iccsafe.org](http://www.iccsafe.org).
International Green Construction Code

- 2012 IgCC published March 27, 2012
- The language references the CRRC-1 Standard, and also the ASTM test methods.
- See [www.iccsafe.org](http://www.iccsafe.org) for more info.
International Green Construction Code

• 75% of roof surface of buildings in climate zones 1-3 are to be covered with green or cool roofing
  – Surfaces covered in solar thermal collectors or PV systems do not count towards total.

<table>
<thead>
<tr>
<th>Roof Slope</th>
<th>Minimum Aged SR</th>
<th>Minimum Aged TE</th>
<th>Minimum Aged SRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2:12</td>
<td>0.55</td>
<td>0.75</td>
<td>60</td>
</tr>
<tr>
<td>&gt; 2:12</td>
<td>0.30</td>
<td>0.75</td>
<td>25</td>
</tr>
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</table>
CALGreen Building Standards Code

• 2010 CALGreen Code requirements effective January 1, 2011.
• Applicable to all building types.
• State jurisdictions can adopt
  – Tier 1 (SBD requirements), or
  – Tier 2 (15% > than SBD)
## Tier 1 Cool Roof Requirements

<table>
<thead>
<tr>
<th>Roof Slope</th>
<th>Roof Weight</th>
<th>Climate Zone</th>
<th>Minimum 3-year SR</th>
<th>Thermal Emittance</th>
<th>SRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2:12</td>
<td>N.A.</td>
<td>13 &amp; 15</td>
<td>0.55</td>
<td>0.75</td>
<td>64</td>
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<tr>
<td>&gt; 2:12</td>
<td>&lt; 5 lbs./ft²</td>
<td>10-15</td>
<td>0.2</td>
<td>0.75</td>
<td>16</td>
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<tr>
<td>≥ 5 lbs./ft²</td>
<td>1-16</td>
<td></td>
<td>0.15</td>
<td>0.75</td>
<td>10</td>
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</tbody>
</table>
### Tier 2 Cool Roof Requirements

<table>
<thead>
<tr>
<th>Roof Slope</th>
<th>Roof Weight</th>
<th>Climate Zone</th>
<th>Minimum 3-year SR</th>
<th>Thermal Emittance</th>
<th>SRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2:12</td>
<td>N.A.</td>
<td>2, 4, 6-15</td>
<td>0.65</td>
<td>0.85</td>
<td>78</td>
</tr>
<tr>
<td>&gt; 2:12</td>
<td>N.A.</td>
<td>2, 4, 6-15</td>
<td>0.23</td>
<td>0.85</td>
<td>20</td>
</tr>
</tbody>
</table>
CALGreen Building Standards Code

- Exceptions for thermal mass construction projects of 25 lb/ft².
- Roofing Products not certified with the CRRC are provided default values
  - Asphalt shingles = (SR) 0.08 (TE) 0.75
  - All other products = (SR) 0.10 (TE) 0.75
CA Title 24 Energy Code

- 2013 Version approved May 31, 2012
- Effective January 1, 2014
- New prescriptive standards
- New insulation tradeoff for prescriptive
• Prescriptive standard for **low-slope** products
  – Non-residential buildings in all CZ
  – High-rise residential buildings and hotels and motels in CZ 2-15

<table>
<thead>
<tr>
<th>Title 24 Version</th>
<th>Minimum 3 year Aged SR</th>
<th>Minimum TE</th>
<th>Minimum SRI</th>
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</thead>
<tbody>
<tr>
<td>2008</td>
<td>0.55</td>
<td>0.75</td>
<td>64</td>
</tr>
<tr>
<td>2013</td>
<td>0.63</td>
<td>0.75</td>
<td>75</td>
</tr>
</tbody>
</table>
CA Title 24 Energy Code

- Prescriptive standard for **steep-slope** products
  - Non-residential buildings in all CZ
  - High-rise residential buildings and hotels and motels in CZ 2-15

<table>
<thead>
<tr>
<th>Title 24 Version</th>
<th>Minimum 3 year Aged SR</th>
<th>Minimum TE</th>
<th>Minimum SRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>0.20</td>
<td>0.75</td>
<td>16</td>
</tr>
</tbody>
</table>
Future Work

• When the CRRC-1 Standard is updated, we will also submit comments to update:
  – ASHRAE Standard 90.1 (Commercial Energy Code)
  – ASHRAE Standard 189.1 (High Performance Green Standard)
Future Work

• Obtain recognition in:
  – Other state or jurisdictional code adoptions
Existing References

• In 2012 the CRRC-1 Product Rating Program and the CRRC-1 Standard will be coordinated so that there will not be a need for existing jurisdictions, who reference the CRRC-1 Product Rating Program, to modify the technical provisions of their adopted code.
Existing References

• The Program will reference the Standard.  
• However, the Standard will NOT reference the Program. The Standard will remain independent from the Program.
• The reference date of the Program by the jurisdiction may need to be updated when appropriate.
Questions