CRRC RETESTING WORKING GROUP UPDATE

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CRRC Board Treasurer

Annual General Membership Meeting
Las Vegas, NV
June 12, 2019
• In 2011, the Board established Retesting Working Group, with the following objective:

*Establish a retesting protocol to handle changes/updates to CRRC test methods that maintains the technical accuracy and credibility of the CRRC rating program and allows sufficient transition to the roofing industry participants with CRRC ratings.*
• Tasked with tackling policy-related questions, such as:
  - When new test methods are adopted, what should trigger retesting?
  - Is both initial and aged retesting required?
  - What timeline should be enforced?
• Working group developed a set of factors that must be considered related to retesting
Factors provide a balanced approach

- Technical accuracy of reflectance and emittance properties
- Communication plan to roofing industry
- Cost, complexity and implementation of labeling requirements
- Cycle time and implementation for retesting
- Existing ratings are used in CRRC participants literature, packaging and websites
- Cost and implementation to the CRRC program
• In April 2012, Method Evaluation Working Group established under Technical Committee

• Objective:
  – Develop a technical basis for determining whether re-testing of CRRC products is necessary
  – Establish technical evaluation criteria
METHOD EVALUATION WORKING GROUP

• Retesting guidelines approved by Technical Committee in 2015
  – Provides guidance on answering the technical questions related to a test method change
  – Statistical significance work with help from ARMA

• Practical significance methodology approved in 2018
Retesting Guidelines is the technical foundation

1. Is the new method at least as accurate as current method?
   a. Relative to a standard (an accepted reference specimen, such as a NIST traceable calibration standard)
   b. Based on known scientific principle (in absence of a standard).

2. Conduct Interlaboratory study comparing two methods
   a. Within lab (repeatability)
      i. Is precision of new method at least as good as old method?
   b. Between lab (reproducibility)
      i. Can different labs obtain similar results?

3. Technical analysis: Should a switch be made to new method?
   a. More accurate and more precise – Yes
   b. More accurate but less precise – Case-by-case to be evaluated by Technical Committee and Board
   c. Less accurate but more precise - Case-by-case to be evaluated by Technical Committee and Board
   d. Less accurate and less precise – No
Retesting Guidelines is the technical foundation

4. Evaluate benefit of switching to new method
   a. Evaluate the effect of improving the accuracy of the measurements on the accuracy of the estimate of energy savings, potentially using Roof Savings Calculator

5. Decide whether to switch to new method (Board approval required).

6. Apply statistical methodology to determine which products in the CRRC Rated Products Directory must be retested
   a. Detectable difference
   b. Reasonable sample size
   c. Alpha
   d. Beta

7. A product is deemed to “Pass” the practical significance test (i.e. it is not necessary to undergo retesting) if:
   a. The change in SR between the old test method and new test method is less than or equal to ± 0.05
   b. The change in TE between the old test method and new test method is less than or equal to ± 0.10
Practical significance

• “What change in Solar Reflectance or Thermal Emittance will significantly affect roof surface temperature and conduction of heat into the conditioned space?”

• Modeling help from Bob Zabcik, NCI Building Systems; Ronnen Levinson, LBNL

$\Delta T_E = +0.10$
• Retesting Working Group reconvened by Board vote in January 2019
  – Building from Method Evaluation Working Group efforts
• Current focus:
  – Development of policies and procedures related to retesting due to test method changes
Current working group members:
- Darrel Higgs, ARMA – Working Group Chair
- Andre Desjarlais, ORNL
- Mike Ennis, SPRI
- George Daisy, Dow
- Stuart Ruis, R&D Services
NEXT STEPS

• Retesting Working Group will continue to meet throughout 2019
• Goal: present packet of policy guidelines to CRRC Board at September 2019 meeting
• Board will review and consider adoption of policy guidelines and retesting needs
QUESTIONS?