



ARMA Board of Directors

May 14, 2009

Evanston, IL

***ARMA Low-slope Committee
Report***

Tim Kersey

Siplast, Inc.



ARMA Low-slope Committee

Discussion Topics

- Cool Roof Activities
 - Energy Star
 - California Title 24
 - California AB 32
 - ASHRAE 90.1
 - ASHRAE 189.1P
 - CRRC
 - USGBC/LEED
 - Potential state-by-state cool roof legislation



ARMA Low-slope Committee

Discussion Topics

- Sustainability Council Update
- Gravel Ban in Hurricane Zones Update
- FM Global / FM Approvals
 - FM standards 4470 and 4450
 - FM standard 4476 for flexible RIPV (roof integrated PV)
 - FM LPDS 1-35 for vegetative roofs
 - LPDS 1-52 update (field bubble test)



ARMA Low-slope Committee

Discussion Topics

- Underwriters Laboratories
- Other Committee Activities
 - Technical Document Review
 - Committee Programming



ARMA Low-slope Cool Roofing Activities

ARMA Cool Roof Steering Group (CRSG)

Purpose

To develop and implement the ARMA strategy to influence mandatory and voluntary initiatives associated with energy conservation, urban heat islands, air quality, and climate change as they relate to roofing products and systems.



ARMA Cool Roof Steering Group (CRSG)

- Darrel Higgs, Owens Corning (Chair)
- Richard Snyder, CertainTeed
- Lou Hahn, GAF-Elk
- Helene Hardy Pierce, GAF-Elk
- Eileen Dutton, GAF-Elk
- Sid Dinwiddie, PABCO
- Tim Kersey, Siplast
- Kirk Goodrum, Siplast
- Aaron Phillips, TAMKO
- John Goveia/Phil Dregger, Pacific Building Consultants
- Andre Desjarlais, Oak Ridge National Laboratories
- Reed Hitchcock and Jim Baker, ARMA



ARMA Low-slope Committee

CRSG (Cool Roof Steering Group)

Revised Mission Statement (approved November 2008)

ARMA views roof surface reflectance as but one component of the ***Whole Building Envelope Approach*** as an appropriate regulatory policy and design principle for energy conservation, mitigation of urban heat islands, and improved air quality. ***The Whole Building Envelope Approach is the best option for designing and optimizing performance-based, proven and cost effective commercial and residential buildings.*** It allows flexibility and consumer choice in the selection of roof systems.



ARMA Low-slope Cool Roof Activities

Title 24, Part 6 for 2008 www.energy.ca.gov/title24/

- Effective Date pushed back to August 1, 2009
 - SRI of 64 included for low-slope.
 - Aged reflectance value of new products with no aged reflectance data may be calculated (see ACM)
 - Example: $0.70 R_{\text{initial}}$ would equal $0.55 R_{\text{aged}}$
 - The CEC accepted minimum 8 inch flashing height, **BUT...**
 - Now prohibits trade-off if insulation cannot be added to compensate for lower reflectance, i.e., a high reflectance roof must be used.



ARMA Low-slope Cool Roof Activities

Title 24, Part 6: actions and priorities

- Last chance for input into T24.P6 compliance manuals (ACM) and public “CEC Blueprint” fact sheets for 2008 version.
- CRSG (Goodrum-Siplast, Desjarlais-ORNL) to review new 2008 trade-off calculator included in 2008 ACM by June 1.
- Stay closely engaged in California via Jim Mattesich, PBC (Dregger and Goveia), and direct staff contact with CEC.
- Develop and implement a communication plan to educate and inform the industry and public on the compliance options allowed in code. (Need new ARMA Q&A addressing 2008 T24)



ARMA Low-slope Cool Roof Activities

California AB 32

- California focusing on other environmental considerations for cool roofs – CO₂; UHI; greenhouse gases.
- CARB *Cool Communities Developer Project* has launched a joint research program with CEC/LBNL to qualify and quantify cool roofs and pavement over the next 4 to 5 years.
- Stay actively engaged via all ARMA resources.



ARMA Low-slope Cool Roof Activities

California AB 32

- CEC (with LBNL) and CARB collaborating to fund \$700,000 worth of research over 4 to 5 years
 1. Obtain utility cost, and other, data to determine the extent to which cool roofs can achieve energy savings.
 2. Conduct surveys to determine how consumers and businesses can be encouraged to adopt cool roofs.
 3. Cool roof training for roofers and other individuals.
 4. Research new forms of asphalt with reflective pigments embedded.



ARMA Low-slope Cool Roof Activities

California AB 32

- Other research “in the pipeline” per Jim Mattesich memo.
 1. Cool Pavements research with Cal-Trans
 2. Cool Roofing direct and indirect benefits, i.e., energy savings and potential global warming benefits.
 3. Can vegetative roofs simulate “cool roofs”?
 4. Will dust and other contaminants interfere with the reflectance of cool roofs and inhibit effectiveness?

THESE PROJECTS WILL BE PURSUED ONLY AS STAFF AND FUNDS PERMIT.
THEY ARE CURRENTLY ON HOLD.



ARMA Low-slope Cool Roof Activities

ASHRAE standard 90.1 – review

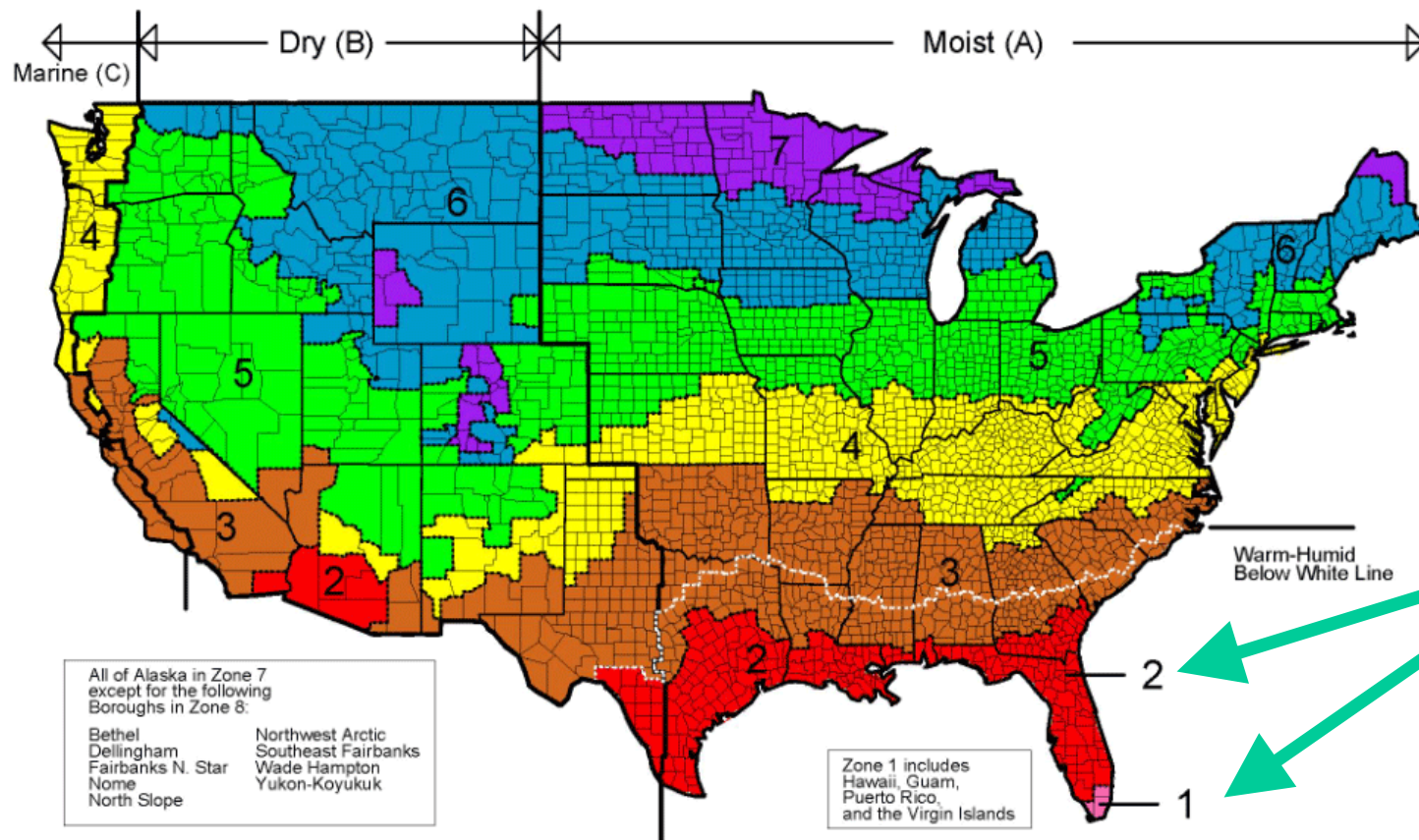
- ARMA opposed *Addendum “f” to standard 90.1, Energy Standard for Building Except Low-Rise Residential Buildings*
 - *ARMA Position submitted May 2008*: cost effectiveness; alternate compliance options, and exclusion of certain roof membrane market segments, i.e., BUR and MB systems.
 - Face-to-face meeting in Salt Lake City (June 20-22, 2008)
 - ASHRAE direction to eliminate steep-slope requirement and reduce low-slope requirements to Climate Zones 1,2, and 3.



ARMA Low-slope Cool Roof Activities

ASHRAE 90.1, Addendum f

- Since the November 2008 board meeting **Climate Zone 3 has been dropped** from the prescriptive cool roof language.
- **Climate Zone 2, however, remains** and ARMA should be steadfast in efforts to remove it because it is not cost effective. (Limited data submitted to ASHRAE in May 2008.)





ARMA Low-slope Cool Roof Activities

ASHRAE 90.1, Addendum f: actions

- The **primary problem for ARMA** in this particular matter is **insufficient cost-effectiveness data**.
 - Next meeting in Louisville on June 19 will address Addendum f.
 - Please get involved with appropriate personnel in your companies to solicit contractor installed cost data. ARMA is paying a \$400 stipend to participating contractors.



ARMA Low-slope Cool Roof Activities

DOE Roof Assembly Grants Solicitation and Projects

Energy programs included in the bill is estimated at \$50 billion.

ARMA Suggested Programs

- Low-slope
 - Comprehensive field study of real world roof reflectance.
 - Cool roofing map (modeled after fenestration industry map) zoned by cost effectiveness of energy savings.
 - Validate the modeling for insulation trade-offs – “non cool” roofs with added R-value vs. highly reflective “cool” roofs.



ARMA Sustainability Council

Mission:

“To develop unbiased and universally accepted sustainability information pertaining to asphalt roofing systems. Further we will utilize this information to educate stakeholders and encourage the use of asphalt roofing systems via various forms of media.”



ARMA Sustainability Council

Members

- Bob Klutz, Kraton Polymers - chairman
- Allen Weidman, ARMA Staff – facilitator
- Andy Lodge, IKO
- Darrell Higgs, OC
- Tim Kersey, Siplast
- Sid Dinwiddie, PABCO
- Bill Woodring, GAF-Elk
- Helene Hardy-Pierce, GAF-Elk
- Travis Wallace, Performance Roof Systems
- Travis Turek, TAMKO
- Ed Kane, Firestone
- Richard Snyder, CertainTeed



ARMA Sustainability Council

Accomplishments

- Defined sustainability position.
- Identified low-slope green attributes.
- Developed key audience list and message points to promulgate green message.
- *Joined forces with ASSSTF to develop common areas for mutual advancement, support and defense under the “ARMA Sustainability Council.”*
- Begun monitoring/participating in ASHRAE 189.1P process.



ARMA Sustainability Council

Audience and/or Partners

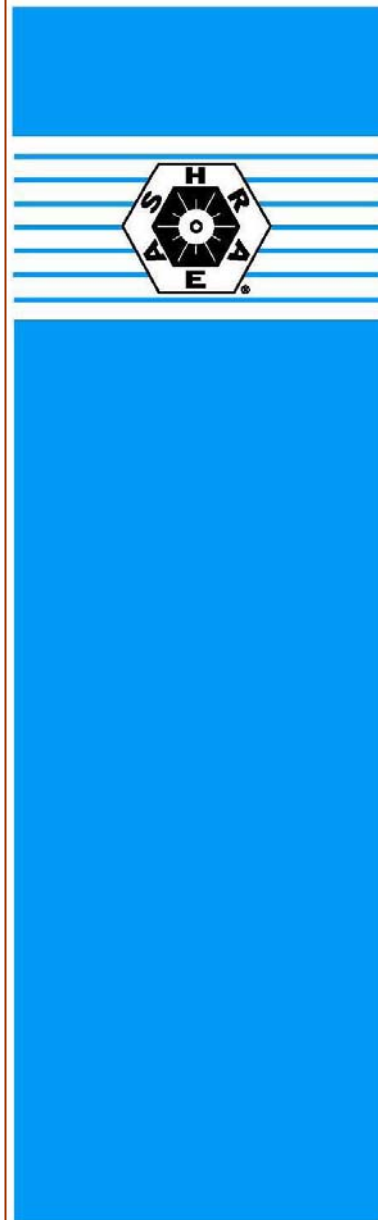
- External
 - ASHRAE
 - ASTM
 - USGBC LEED
 - State of California
 - Decision Influencers
 - RCI Consultants
 - Architects
- Internal
 - Allied associations
 - Member companies



ARMA Sustainability Council

Key Message Points

Sustainable asphalt roofing systems are those designed, constructed, maintained, rehabilitated, and demolished with an emphasis on preserving the global environment.



BSR/ASHRAE/USGBC/IESNA Standard
189.1P

Public Review Draft

ASHRAE® Standard

Proposed Standard 189.1P, *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings*

Second Public Review (February 2008)
(Complete Draft for Full Review)

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed addendum, use the comment form and instructions provided with this draft. The draft is subject to modification until it is approved for publication by the ASHRAE Board of Directors and ANSI. Until this time, the current edition of the standard remains in effect. The current edition of any standard may be purchased from the ASHRAE Bookstore @ <http://www.ashrae.org> or by calling 404-636-8400 or 1-800-527-4723 (for orders in the U.S. or Canada).

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AMERICAN SOCIETY OF HEATING, REFRIGERATING
AND AIR-CONDITIONING ENGINEERS, INC.
1791 Tullie Circle, NE Atlanta GA 30329-2305



Why Does ASHRAE Matter?

- ASHRAE is an ANSI accredited standards-making organization (anything they publish can be, and is, adopted by the AHJ).
- ASHRAE has building design industry credibility that is sorely lacking in the other organizations like USGBC and GBI.
- ASHRAE energy conservation standards, 90.1 and 90.2, are already referenced and adopted by federal, state and local governments in their building codes.
- ASHRAE 189.1 is intended to supplant 90.1.
- ASHRAE 189.1 started with USGBC LEEDS standards for commercial buildings, and then turned left.
- ASHRAE 189.1 is intended, in the words of the committee, to significantly exceed the energy conservation requirements of 90.1 and "push" the building industry to adopt "sustainable building practices."



Why Does ASHRAE Matter?

- Economic justification for ASHRAE 189.1 proposals will NOT be considered, i.e., "this is too costly" will not be accepted as a rationale for rejection.
- The roofing industry's significant impact areas are not in the roofing section, but are contained in sections that reference:
 - Renewable Energy (5%, and most likely installed on the roof),
 - Recycling of Materials (50% of the construction and demolition waste must be recycled),
 - Recycled Content (10% by weight) and
 - Regionally Extracted/Harvested/Recovered or Manufactured Materials (15% within 500 miles of the site).
- *ASHRAE 189.1 could be in the market place ready for adoption in 12 months.*



ARMA Sustainability Council

Next Steps

- Carefully track ASHRAE 189.1 as it will have a significant, and quick, impact on the marketplace (next meeting in June in Louisville)
- Implement industry strategy to respond to ASHRAE (and other sustainability guidelines) by developing roofing systems LCI (life cycle inventory) benchmark program & data sets.
- Prepare for US introduction of Environmental Product Declarations (EPD)



ARMA Sustainability Council

ASTM E60.01.04

(Thanks to Sid Dinwiddie, PABCO)

DRAFT: Standard Guide for Marketing and Product Claims Related to Sustainable Building

1.Scope

1.1 This guide provides information on marketing and product claims related to sustainable building. While consistent with regulatory requirements, such as the FTC Green Guides, it also outlines market expectation for communication of environmental data related to sustainable building.

1.1.1 Market expectations for communication of environmental data related to sustainable building re identified in ASTM E2129. This guide relies upon E2129 as a consensus-based communication standard on the topic.



ARMA Sustainability Council

ASTM E60.01.04 continued

1.1.2 This guide outlines market sensitivities for greenwash.

1.2 This guide assumes compliance with all applicable regulations.

1.2.1 Product claims related to sustainable building are typically developed and published at the manufacturer's option. They provide marketing data in addition to data regarding environmental regulatory compliance. Thus, the manufacturer is exceeding minimum requirements for communication of product data. This standard is applicable to that additional communication and is intended to provide guidance for both the manufacturer developing environmental claims as well as the user who relies on the environmental claims to inform purchasing decisions.



ARMA Sustainability Council

Future Project Suggestions

- Life Cycle Analysis (cradle-to-grave)
- Comparative cost analysis of competing products
- Compare sustainability factors of roofing products



ARMA Sustainability Council

Future Meeting Suggestion

- Have a presentation to the committees, and to the BOD, reviewing this topic:
 - Overview of North American, and European, activity
 - EPDs
 - ASTM
 - And more.....



ARMA Sustainability Council

Action Item

- Draft RFP for a consultant to write a paper for peer review to show longevity/durability of ARMA roof systems relative to other roof membrane types. (Part of LCA, life cycle assessment.)
 - **BOD Action: proposed that BOD handle by phone/e-mail vote due to time sensitivity of this issue.**
 - Present RFP to BOD for approval between now and next committee meeting in August.
 - Once RFP approved by BOD, proceed with solicitation process for a consultant.
 - Bring proposals to BOD to approve the hire before the Nov. BOD meeting.



ARMA Low-slope Codes Activity

Gravel Ban in Hurricane Zones

- Aaron Phillips, Mike Fischer, and Codes Committee have done an excellent job working with Loraine Ross and Jay Crandall on this issue. Ask Aaron for details.
- Mr. Crandall's work, presented in March, is based on sound science and will give ARMA a strong position with the codes bodies.



ARMA Low-slope FM Issues

- FM Approvals standards 4470 and 4450 will be combined, and 4450 (Class I Insulated Decks) will become obsolete.
- FM Approvals is developing a new standard for BIPV (flexible building integrated photovoltaics), and should be out for review later this year.
- Property Loss Prevention Data Sheet (PLPDS 1-35) for Green Roof Systems to be revised in 2009.
- FM 1-52 Property Loss Prevention Data Sheet (PLPDS)
Field Uplift Tests



ARMA Low Slope FM Issues

- **FM 1-52 Property Loss Prevention Data Sheet (PLPDS)**
Field Uplift Tests
 - Tim and Reed have been in contact with FM Global multiple times requesting a meeting.
 - Another draft revision to 1-52 (April 2009) is available for review on the RoofNav Web site.
 - Individual companies encouraged to comment to FM Global.
 - Industry Coalition on standby to address this matter.



ARMA – Underwriters Laboratories Issues

- Dwayne Sloane addressed the Low-slope committee in March asking for support to include UL 55A and 55B in an ANSI standard.
- This was little or no support from ARMA. These UL documents pertain to products that are already covered by ASTM standards such as D 4601, D 2178, etc.
 - No value in having separate ANSI and ASTM standards.



ARMA Low-slope Technical Document Review

- Yes, it is true.



ARMA Low-slope Technical Document Review

- Yes, it is true.
- There is progress with the Low-slope **Technical Bulletin Review!**



ARMA Low-slope Technical Document Review

Priority	Document	Plan
1	Aggregate Retention	On hold, awaiting final code action.
2	Self Adhesive Modified Bituminous Membranes	Awaits BOD approval today.
3	Decking Recommendations	Address in August 2009
4	Effects of Ponding Water	Address in August 2009
5	Greases Oils and Materials	Address by March 2010
6	Handling Coal Tar	Targeted for deletion.



ARMA Low-slope Technical Document Review

- Task Force charged with remainder of the technical bulletin catalog.
 - Jim Baker (ARMA Staff)
 - Bill Woodring, GAF-Elk
 - Bob Kluttz, Kraton Polymers
 - Tim Kersey, Siplast
 - Aaron Phillips



ARMA Low-slope Committee Priorities

1. Cool Roof challenges for Asphalt Roofing Products
 - CEC and CARB
 - ASHRAE 90.1
 - EPA
 - USGBC/LEED
 - State (AR, OK, TX , ...?)
 - Municipal (Houston, Dallas, Albuquerque, ?)

2. Sustainability
 - Proceed with third party LCI study process.
 - ASHRAE 189.1P and ASTM involvement



ARMA Low-slope Committee Priorities (continued)

3. Gravel/aggregate/ballast activity with codes bodies
 - (Aaron P., Mike F., et al)
4. FM Global 1-52
 - Industry Coalition on standby.
5. Technical document review.



Questions?





Actions for BOD

- Approval of revised Self-adhesive MB Membrane technical bulletin.
- Approval to proceed with draft RFP with intent to hire a consultant to generate LCI (life cycle inventory) data.
 - Once RFP document is completed, send to BOD for final approval and proceed with consultant search, and propose final candidate consultant for BOD approval before November BOD meeting.
 - Anticipated cost range: \$50K – \$100K
- Approval of the Low-slope Committee report as presented.





Thank you!