



ARMA Summer Committee Meetings
September 9 - 11, 2019

Crowne Plaza Crystal City
1480 Crystal Dr., Arlington, VA 22202



ARMA 2019 Summer Committee Meeting

September 9-11, 2019

Crowne Plaza Crystal City

1480 Crystal Dr., Arlington, VA 22202

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Thank You Sponsors!

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ARMA 2019 Summer Committee Meetings Schedule of Events

September 9-11, 2019

Crowne Plaza Crystal City

1480 Crystal Dr., Arlington, VA 22202

Monday, September 9

Time	Session or Event
1:00pm – 4:00pm	Communications, Marketing, and Education Committee Working Session Room: Arlington 1
12:30pm – 5:00pm	Codes Steering Group Room: Arlington 2

Tuesday, September 10

Time	Session or Event
7:00am – 8:15am	ARMA Breakfast - Room: Monticello
8:15am – 12:00pm	General Business Session Part One Room: Arlington 1
12:00pm – 1:00pm	ARMA Lunch - Room: Alexandria
1:00pm – 2:00pm	General Business Session Part Two Room: Arlington 1
2:15pm	Meet at Hotel Lobby for Tour Bus
2:30pm	<u>Bus Departs to Home Innovation Research Labs</u>
3:00pm – 5:00pm	<u>Home Innovation Research Labs Tour & Presentation</u> <u>400 Prince Georges Blvd, Upper Marlboro, MD 20774</u>
5:00pm – 6:30pm	<u>Home Innovation Research Labs Reception</u> 400 Prince Georges Blvd, Upper Marlboro, MD 20774
6:30pm	<u>Return to Hotel From Reception</u>

Wednesday, September 11

Time	Session or Event
7:30am – 8:30am	ARMA Breakfast – Room: Monticello

8:30am – 12:00pm	Health, Safety, and Environment Committee Session Part One Room: Arlington 2
8:30am – 12:00pm	Technical Affairs Committee Room: Arlington 1
12:00pm – 1:00pm	ARMA Lunch – Room: Jefferson
1:00pm – 4:00pm	Health, Safety, and Environment Committee Session Part Two



ARMA 2019 Summer Committee General Business Meeting

September 9-11, 2019

Crowne Plaza Crystal City

1480 Crystal Dr., Arlington, VA 22202

Tuesday, September 10

Time	Session or Event
7:00am – 8:15am	ARMA Breakfast - Room: Monticello
8:15am-8:30am	<u>Introduction and Opening Remarks</u> Call to Order and Introductions Review of Antitrust Policy
8:30am-9:30am	Justin Koscher, PIMA
9:30am-9:40am	Coffee Refresh
9:40am-10:30am	Jay Crandell, ARES Consulting Construction Codes & Standards: Aggregate and Shingle Standards Update
10:30am-10:40am	Coffee Refresh
10:40am-11:30am	Richard Willis, National Asphalt Pavement Association
11:30pm-12:00pm	Darrel Higgs, DPH Consulting
12:00pm-1:00pm	ARMA Lunch - Room: Alexandria
1:00pm – 2:00pm	<u>Panel Discussion – Codes 2020 Trends & Outlook</u> Mike Fischer, Vice President of Codes and Regulatory Compliance Craig Drumheller, NAHB Aaron Philips, TAMKO
2:00pm	Adjourn
2:15pm	Meet at Hotel Lobby for Tour Bus
2:30pm	Bus Departs to Home Innovation Research Labs
3:00pm – 5:00pm	<u>Home Innovation Research Labs Tour & Presentation</u> 400 Prince Georges Blvd, Upper Marlboro, MD 20774

5:00pm – 6:30pm	<u>Home Innovation Research Labs Reception</u> 400 Prince Georges Blvd, Upper Marlboro, MD 20774
6:30pm	<u>Return to Hotel From Reception</u>



To: ARMA Members and Staff

From: Reed Hitchcock, Executive Vice President

Re: Antitrust Compliance - Quick Reference

The Asphalt Roofing Manufacturers Association (“**ARMA**” or “**Association**”) has in effect an Antitrust Compliance Policy (“**Policy**”). The Policy is intended for the guidance of ARMA member company representatives, officers, directors and staff, when engaged in any activity conducted in the name of, or on behalf of, ARMA. All such persons are expected to be familiar with the Policy and to follow it both in letter and spirit.

The following cautionary statements are taken from the full Policy and are intended to be used as a quick reference tool. This document is not a substitute for the full Policy, which is available from the Association’s office and with which all are expected to be conversant. At all Association meetings and events, including informal gatherings before, during or following such meetings and events, **ARMA** members, their representatives and guests will not discuss any of the following competitively sensitive topics:

1. Current or future prices, price levels, costs or profit margins.
2. What is a fair or rational profit level.
3. Actions which could lead to standardizing or stabilizing prices.
4. Pricing or bidding methodologies or procedures.
5. Pricing practices or strategies, including methods, timing or implementation of price changes.
6. Whether or how prices, warranties or other terms of sale are advertised.
7. Cash or any other discounts, rebates, service charges or other terms and conditions of sale.
8. Credit terms.
9. Product warranty terms.
10. Actual, planned or projected production, production capacity or capacity utilization.
11. Projected demand.
12. Confidential company plans for new products.
13. Dividing or allocating geographic or product markets or customers.
14. Whether or on what terms to do business with a supplier, competitor or customer.
15. Whether or on what terms to solicit other companies’ employees for employment.
16. The business practices of individual firms.
17. The validity of any patent or the terms of any patent license.
18. Ongoing litigation, unless being reported upon by ARMA’s General Counsel or discussed appropriately at ARMA’s Counsel Forum.

We hope the above rules will be helpful as you participate in ARMA meetings and other activities. If you have any questions about antitrust compliance, do not hesitate to contact ARMA’s General Counsel:

C. Michael Deese
ARMA General Counsel
Howe & Hutton, Ltd.
Tel: (202) 466-7252 x103
Email: cmd@howehutton.com



ARMA Communications, Marketing, and Education Committee



Asphalt Roofing Manufacturers Association
 Communications, Marketing, and Education Committee
 (CMEC) Agenda
Monday, September 9, 2019

Communications, Marketing, and Education Committee

Chair: Carol Perkins, IKO

Vice Chair: Lynn Picone, GAF

Time	Discussion	Back-up Materials
1:00pm	Call to Order <ul style="list-style-type: none"> • Review of Antitrust Policy • Review of Meeting Agenda • Review and Approval of Previous Meeting Minutes 	- Previous Meeting's Minutes
1:05pm	CMEC Communications PowerPoint <ul style="list-style-type: none"> • Overview of 2019 Projects and Activities 	- August 2019 Activity Report
2:15pm	Networking Break	
2:30pm	Ongoing 2019 ARMA Activities: <ul style="list-style-type: none"> • Metrics/Analytics Update <ul style="list-style-type: none"> ○ Audience Survey Data ○ Asphaltroofing.org Analytics Review ○ Recommendations/Next Steps 	
2:45pm	2020 Program Planning	
3:45pm	Other Business / New Business	
4:00pm	Adjournment	



Asphalt Roofing Manufacturers Association
Communications, Marketing and Education
Committee (CMEC)
Telephone Conference Meeting Minutes
2:00 p.m. ET
Monday, August 12, 2019

Meeting Attendees

Lynn Picone	GAF
Mary Corbett	PABCO Roofing Products
Bobby Lambrix	Malarky Roofing Products
Mike DiStefano	Continental Materials
Jacques Martin	Building Products of Canada

ARMA Staff & Consultants

Katherine Hidchenko	ARMA Communications Manager
Bonnie Sonnenschein	ARMA Communications VP

Call to Order and Antitrust Reminder

The meeting was called to order at 2:04 p.m. ARMA Marketing/Communications VP Bonnie Sonnenschein reminded attendees that the meeting would be conducted in accordance with and subject to the ARMA Antitrust Compliance Policy.

Approval of Past Meeting Minutes

MOTION (Lynn Picone / GAF and Mary Corbett / PABCO Roofing Products): To approve the draft minutes of the Monday, July 15 Communications, Marketing and Education Committee Meeting. The motion passed unanimously.

Media Updates

Ms. Hidchenko gave a brief program update. The 2019 Bronze winner from ARMA's Excellence in Asphalt Roofing awards program will be featured in *Western Roofing Magazine*. Staff edited the article into a refined draft and it will be reviewed both internally and by ARMA's legal counsel. The second technical article is being written by ARMA's Director of Codes and Standards, Mike Fischer, on the "lessons learned" from Hurricanes Michael and Irma. The article will run in IIBEC's journal, *Interface*. Both the 2019 Gold winner from ARMA's Excellence in Asphalt Roofing awards program and a column on the labor issue are being written and placed to run in *Roofing Contractor*.

Awards Program

Mrs. Sonnenschein announced that submission outreach began and will be ongoing until the final deadline. Additionally, the team is launching social media ads promoting the awards program this week.

The circulated "What's New" and Submission Guidelines documents should be distributed by CMEC members to help ensure all parties involved in the awards program are aware of the program changes and submit their projects accordingly. The internal team will address prior submissions about the new criteria personally and will place the submission documents on the ARMA website.

ARMA Webinar Update

Mrs. Sonnenschein announced that the webinar will most likely be held November 21st in partnership with *Roofing Contractor*. The contract is currently being reviewed. The internal ARMA team will send a save the date calendar invite to membership. Mrs. Sonnenschein also said the member survey will be sent to the CMEC this week with the directive that this is being distributed via the CMEC because it is part of a marketing initiative. For this reason, it is the CMEC members' responsibility to broadcast this survey throughout their respective companies to those who should be contributing to the survey. Each company should have one submission.

Other Business / New Business

Mrs. Sonnenschein brought up the Summer Meeting CMEC agenda for review. It was communicated that the hotel room block and discounted rate will cease August 19th and reservations are encouraged prior to that date. Additionally, the internal ARMA team will update collateral with the new tagline.

Also, Mrs. Sonnenschein mentioned the potential for a future partnership with AI, and informed the committee that Katherine Hidchenko is joining the ARMA communications team, effective immediately.

Adjourn

The meeting was adjourned at 2:21 p.m.



Communications, Marketing and Education Committee (CMEC)

August 2019

Committee Chair: Carol Perkins, IKO Industries

Committee Vice Chair: Lynn Picone, GAF

ARMA Staff: Bonnie Sonnenschein

Media items we are focusing on include the second technical article expected to run in *Interface's* October issue, the Gold Award Winner's case study to be placed in *Professional Roofing*, a column on the labor shortage, and a column in *FMD* regarding low-slope roofing trends. Additionally, there is progress on the development of the first ARMA webinar as a date was set for November 21st. The 2020 Excellence in Asphalt Roofing awards program was officially launched with an email campaign this month as supporting documents were finalized and placed on the website.

Recent ARMA Activities or Accomplishments:

- **Awards Program**
 - **The 2020 Excellence in Asphalt Roofing** cycle has continued with submission outreach for the awards over the past month, and a social media ad program was launched targeting a wide audience within the industry.
 - A **"What's New" one-pager** and updated **submission guidelines** were finalized, shared with the CMEC committee for their outreach, and posted on the ARMA website for **2020 Excellence in Asphalt Roofing** submissions.
- **Webinar Program**
 - Our first **webinar**, which will be on the labor issue, is currently slated to run on November 21, 2019, through *Roofing Contractor* magazine. The contract is under internal legal review. The next webinar, proposed for January 2020, is slated to be on trends in asphalt roofing.
 - Details on the best distribution method for the ARMA member survey on labor initiatives were finalized.
- **Media**
 - Excellence in Asphalt Roofing – Gold: **Placed** for placement in *Professional Roofing*.
 - Excellence in Asphalt Roofing – Bronze: **Secured** for placement in *Western Roofing*.
 - *Roofing Contractor* – Column Contribution: **Secured** for an upcoming edition.
 - *FMD* – Column Contribution: **Secured** for an upcoming edition.
 - *Interface* – Technical article on lessons learned from prior hurricanes: **Secured** for an upcoming edition.
 - *Roofing Contractor* – ARMA Accident Prevention Awards coverage: **Ran** in August issue.



Upcoming Initiatives:

- Continue writing the many placed editorial opportunities
- Secure new media opportunities, next technical article
- Create a general outline for the second webinar
- Approve and sign the webinar contract with *Roofing Contractor*
- Continue placing the new tagline on website
- Run formal website audit and make adjustments as needed
- Preparing for the Summer Meeting



ARMA Codes Steering Group



ARMA 2019 Summer Committee Meetings
 Codes Steering Group - Working Meeting Agenda
Monday, September 9, 2019
Room: Arlington 2

Codes Steering Group

Chair: Aaron Phillips, TAMKO Building Products, Inc.

TRG Chair: Greg Keeler, Owens Corning

Time	Discussion Topic	Back-up Materials
12:30 PM (15 minutes)	Call to Order <ul style="list-style-type: none"> • Self-Introductions • Antitrust Reminder • Agenda Review • Approval of Past Meeting Minutes 	-Antitrust Quick Reference -Previous Meeting Minutes
12:45 PM (60 minutes)	Stakeholder Discussion <ul style="list-style-type: none"> • IBHS • RICOWI • FM Approvals 	
1:30 PM (45 minutes)	State and Local Code Activity <ul style="list-style-type: none"> • Florida Building Commission • State and Local Adoptions 	
2:15 PM (15 minutes)	Break	
2:30 PM (60 minutes)	Codes and Standards Update <ul style="list-style-type: none"> • ICC Code Development – Public Comment Hearing • ASHRAE • California Energy Commission • AB660 	
3:30 PM (60 minutes)	Task Force & Technical Resource Group (TRG) Activities ASTM D 7158 Texas Department of Insurance	
4:30 PM (30 minutes)	CRRC Update Darrel Higgs	
5:00PM	Adjournment	



Attendance

Aaron Phillips	TAMKO
Jonathan MacBride	Specialty Granules LLC
Jay Keating	IKO Production, Inc.
Sid Dinwiddie	PABCO Roofing Products
Mark Harner	CertainTeed Corporation
William Liu	IKO Production, Inc.
Marty Ward	GAF
Greg Keeler	Owens Corning
Ed Harrington	Owens Corning
Andrew Dwyer	Owens Corning
Brendan Dineen	Malarkey Roofing
Jim Hilyard	Consultant
Steve Wadding	Polyglass USA, Inc.
Mike Fischer	ARMA Staff
Chadwick Collins	ARMA Staff
Drew Brackbill	ARMA Staff

Call to Order

Chairman Aaron Phillips called the meeting to order at 2:02 pm EDT. Drew Brackbill read the roll, reviewed the ARMA Antitrust Compliance Policy, and provided an overview of the agenda.

MOTION: To approve the ARMA Codes Steering Group minutes from the July 23, 2019 teleconference (Keating/Harner). The motion to approve the minutes passed.

Codes and Standards Update

Mike Fischer provided an overview of the ICC 2021 Group B Code Development cycle.

The group discussed the public comments submitted on behalf of ARMA:

Aggregate Roofing:

Public comments supporting the action taken by committee were submitted by ARMA. The only public comments received were ours, in support of the committee, so these proposals will go on the consent agenda. With this action, the ban on aggregate roofs will be removed from the 2021 IBC and replaced with options for parapet control of aggregate materials.

ACTION: Chadwick Collins to add aggregate roofing follow-up, including technical bulletins, as an agenda item on the next TAC call.

Peel and Replace:

ARMA submitted public comments on peel and replace; these also received no other public comments, so the actions from the committee hearings will go on the consent agenda for disapproval.

ICC 600:

The group discussed ICC 600, a standard for High Wind residential construction. ICC is forming a new consensus committee on this issue. Fischer recommended that the CSG work to review and update the High Wind residential construction standard.

ACTION: Circulate last version of ICC 600 standard out to group. Staff to send the standard out as written and then examine the standard for the purpose of suggesting updates.

The group discussed ASTM standards development, including the process of developing ASTM D7158. At the request of Aaron Phillips, Task Group Chair for D7158, the next round of balloting for that standard has been delayed until the in-progress ballot action finishes.

State and Local Activity

Florida:

Mike Fischer provided an overview of the plan for the upcoming meeting of the Florida Building Commission. Fischer will attend this meeting. Significant discussions are expected on re-roofing provisions and underlayment application. Potential action items for the Technical Affairs Committee may also come out of these meetings, and staff will keep the relevant committees up to date on the results of the Commission meetings.

ACTION: Chadwick Collins to add TAC agenda item about Florida Building Commission results.

California:

Fischer discussed Title 24 Part 6 Energy Conservation Code and the CASE Review. California is likely to identify a potential for energy savings from reflective roofing. Implementation will likely be challenging, however, due to the complexity of the energy efficiency issue. Fischer also provided an update on the progress of the roofing industry coalition opposed to AB-660, a “cool roof” bill in the California legislature. ARMA is spearheading the opposition effort to the bill. Members seeking more information were asked to contact staff.

ACTION: Agenda item dealing with AB660 to be added to August TAC call.

Chadwick Collins discussed the LA County Building Codes, amendments to which have been posted to the Los Angeles County website. Foremost takeaways from these amendments are as follows: wood shingles and shakes are being banned, as all roofing materials for both residential and commercial construction must be class A. Additional solar reflectivity tables are being added to the code. A requirement is now in effect that a certain percentage of all building debris be diverted away from landfills, approximately 65% by weight or volume, but not by both. Additionally, concrete and clay tile must be installed over solid sheet now, rather than spaced boards.

ACTION: Chadwick Collins to update the group in more detail about the proposed changes to Los Angeles County building codes, including the necessary timetable for any responses from the group.

Texas:

Mike Fischer also updated the group on the Texas Department of Insurance codes education presentation.

ACTION: Mike Fischer to send slides to the TAC for approval prior to their call on August 20th.

Stakeholder Discussion

IBHS/FRSA:

Mike Fischer will meet with Eric Stafford and FRSA Stakeholder Mike Silvers during next week's Florida Building Commission meetings.

NRCA:

Mike Fischer met with Mark Graham, NRCA, to discuss ICC Public Comments before the submittal deadline. Based on initial feedback from ICC Staff, the proposals of common interest to ARMA and NRCA are in a good position. Fischer will meet with Graham again at a later date to re-address and prepare for the public comment hearings in October.

FEMA:

The FEMA Recovery Advisory reports from the Hurricane Michael MAT were distributed to the group in advance of the call. RCI and IBEC reached out to ARMA for content on a potential article dealing with building performance during recent hurricanes. This article will focus heavily on the importance of proper installation. ARMA's content for this article is due next week.

New/Other Business

The Ventilation Research Project was discussed by Fischer. The Technical Affairs Committee will see the first draft of the research plan on their next call. This project will look specifically at the impact of ventilation on the temperature of steep-slope asphalt shingle roofing systems.

Action Item Review

ACTION: Chadwick Collins to add aggregate roofing follow-up as agenda item on next TAC call.

ACTION: Circulate last version of ICC 600 standard out to group. Staff to send the standard out as written and then examine the standard for the purpose of suggesting updates.

ACTION: Chadwick Collins to update the group in more detail about the proposed changes to Los Angeles County building codes, including the necessary timetable for any responses from the group.

ACTION: Chadwick Collins to add TAC agenda item about Florida Building Commission results.

ACTION: Agenda item dealing with AB660 to be added to August TAC call.

ACTION: Mike Fischer to send TDI slides to the TAC for approval prior to their call on August 20th.



Adjournment

There being no further business to come before the group, the meeting was adjourned by general consensus at 2:48 pm EDT.

DRAFT



ARMA Health, Safety, & Environment Committee



ARMA 2019 Summer HSE Committee Meeting Schedule of Events

September 11, 2019

Crowne Plaza Crystal City

1480 Crystal Dr., Arlington, VA 22202

Wednesday, September 11, 2019

Time	Session or Event
7:30am – 8:00am	ARMA Breakfast – Room: Alexandria
8:00am – 12:00pm	Health, Safety, and Environment Committee Session Part One Room: Arlington 2
8:00-8:15am	Opening/Welcome/Roll call Antitrust policy review Fischer – Approval of previous meeting minutes
8:15- 9:15am	Asphalt RTR comments/Fumes TF/Formaldehyde Emissions; Art Sampson, ARMA Regulatory Counsel (30 min.) IH QA/QC database status; Mark Klein, GAF (15 min.) CAO/General HSE initiatives/Accident Prevention contest reminder; Devlin Whiteside, Owens Corning (15 min)–
9:15-9:45	Washington State Study (30 min.), <ul style="list-style-type: none"> • Group discussion regarding next steps • Additional potential ARMA activities re: promotion, etc.
9:45-10:00am	Coffee refresh
10:00-10:25am	OSHA Presentation – LOTO/PSR/Safety and Health Program Recommended Practices – Lisa Long, Director, Office of Engineering Safety, OSHA Directorate of Standards and Guidance
10:25-10:45am	Q&A with Ms. Long
10:45-11:15am	LOTO Discussion within HSE committee - Melissa Spittler, CertainTeed
11:15am-12:00pm	Emission Factors report-out – Susan Barnes, Trinity Consultants
12:00pm – 1:00pm	ARMA Lunch – Room: Jefferson
1:00pm – 4:00pm	Health, Safety, and Environment Committee Session Part Two
1-2:00pm	NIOSH Presentation – Occupational Exposure Banding process – Melissa Seaton, Industrial Hygienist at the Centers for Disease Control and Prevention
2-2:15pm	Q&A
2:15-2:30pm	BREAK
2:30-3:15pm	State GHG Regulations – Wendy Merz, Principal Consultant, Trinity Consultants
3:15-4:00pm	Risk Management Plans – Curt Petrosky, Managing Consultant, Trinity Consultants
4:00pm	Adjournment



**Asphalt Roofing Manufacturers Association
Health, Safety, And Environment
Committee Meeting Minutes
Tuesday, April 9, 2019, 1:00PM – 5:00PM
and Wednesday, April 10, 2019, 8:30AM – 12:00PM
Chicago, IL**

Attendees (April 9, 2019)

Frank Klink	3M
Devlin Whiteside	Owens Corning
Vlada Stanishevsk	Owens Corning
Tony Silva	Marlarkey Roofing Products
Sid Dinwiddie	PABCO Roofing Products
Tom Lecorchick, Jr.	Bitumar USA Inc.
Regent Bedard	Building Products of Canada
Melissa Spittler	CertainTeed Corporation
Matt Reynolds	Firestone Building Products
Stephen Masciangelo	IKO Industries
Sanjiv Sooriyadevan	IKO Industries
James Larke	Soprema
Todd Jackson	Soprema
Mark Klein	GAF
Phil Kehoe	Harsco
Randy Hughes	Mid-States Asphalt
Reed Hitchcock	ARMA Executive Vice President
Art Sampson	ARMA Regulatory Counsel
Jim Hilyard	ARMA Consultant
Mike Deese	ARMA General Counsel
George Fischer	ARMA HSE Director

Call to Order

ARMA HSE Director George Fischer, convened the meeting at 1:00 pm CT and requested that meeting attendees introduced themselves. Mike Deese, ARMA General Counsel, reminded the attendees that the meeting would be conducted in compliance with the ARMA Antitrust Compliance Policy. Fischer reviewed the agenda.

IH Task Force Presentation

Mark Klein of GAF reviewed the Industrial Hygiene Database program in detail. There are currently 6 member companies who submitted data during the last review period. 18 member companies are eligible and 15 have submitted data at some point during the program, but additional participation is requested by the Task Force. Only participating members have access to the database and will receive periodic reports summarizing worker exposures.

Action: Participation issues to be discussed in general during the April 10 ARMA Counsel Forum meeting.

Action: Art Sampson will request written confirmation of continued participation in program when the first periodic report is sent to participating members. Written confirmation of intention to

continue data submission will define “participation,” at least for the present. Individual companies may reach out directly to Art Sampson to ascertain their current status in the program.

OSHA Silica Standard FAQ Presentation

Mark Klein delivered a presentation on the clarifications of the OSHA Silica Standard provided by OSHA. There has been very limited targeted enforcement by OSHA to date.

Regulatory Update

Art Sampson gave an update on the Risk and Technology Reviews (RTRs). Miriam Higginbotham is monitoring the docket of the DC Circuit Court of Appeals to identify any challenges to the Wet Formed Fiberglass Mat RTR, which would most likely cause ARMA to move to intervene. He also gave an update on the Asphalt RTR. Initial indications are that risk levels do not warrant additional emission limitations. He then discussed EPA’s review, under TSCA, of formaldehyde as a candidate for inclusion as a high risk chemical; a decision is required by December 19. The American Chemistry Council (ACC) is in the process of forming an industry consortium regarding the TSCA effort. ARMA member companies will likely have formaldehyde sampling data, which is expected to show exposures below the OSHA permissible exposure limit.

ACTION: Addition of formaldehyde to the ARMA emissions database program to be discussed with the Executive Committee, together with whether ARMA should participate in the ACC consortium.

Sampson then discussed the status of asphalt fumes projects (lung function decline and carcinogenicity). ARMA is monitoring activity by various U.S. scientific and regulatory bodies that are expected to evaluate the health effects of exposure to asphalt fumes. A proceeding to list roofing asphalt and emissions therefrom under California’s Proposition 65 will likely be the first such evaluation, and is expected between end-2019 and 2021. The scientific questions that will be addressed in that and other upcoming evaluations were identified and discussed.

ACTION: Sampson to discuss whether ARMA should engage an outside consultant to identify research options with the Executive Committee, as ARMA does not currently have the expertise in-house.

Sampson reported that counsel and staff have recommended no further action by ARMA on the NRCA Silica Study. NRCA is satisfied with the results and has posted information on their website without identifying ARMA as involved in the study. Sampson also discussed the OSHA injury reporting rule, the status of EPA’s new position on the reclassification of major sources of hazardous air pollutants under the Clean Air Act, and OSHA’s new interpretation of the Occupational Safety and Health Act’s general duty clause as it applies to exposures to toxic air contaminants without an OSHA PEL. He reviewed recent news reports on the current administration’s track record in court challenges to de-regulatory actions.

General HSE Activities

Devlin Whiteside of Owens Corning, HSE Committee Chair, delivered a presentation of other HSE committee activities.

Emissions Factor Database

Whiteside gave an overview of the database program and provided an update regarding the status of the most recent submissions. She then discussed the potential inclusion of formaldehyde into the database program.

ACTION: Addition of formaldehyde to the emissions factors database program to be discussed with the Executive Committee.

Washington State Run-Off Study Review

Devlin Whiteside began discussing the Washington State Run-Off Study Review conducted by EcoStat at ARMA's request. She reviewed the past timelines and gave a brief overview of the high-level points that will be presented during EcoStat's presentation to the HSE committee.

ACTION: Further committee discussion to be conducted after the EcoStat presentation at the second session of the HSE meeting on April 10, 2019.

Other Updates

Cleaner Air Oregon (CAO) rule review. ARMA members have been identified as lower priority by ODEQ. It is unlikely that any ARMA members will be called in for risk assessments until 2-3 years at a minimum.

The ARMA Accident Prevention Contest winners will be recognized at the Board of Directors meeting on April 11. Staff is now sending monthly HSE updates.

New Business

Devlin Whiteside opened the floor to new business. A question was posed regarding monitoring of individual states.

ACTION: Staff will start monitoring of member states for regulatory changes.

Recess

There being no further business before the committee on today's agenda, a recess was called at approximately 4:45 p.m., the committee to re-convene at 8:30 a.m. on Wednesday, April 10, 2019.

Attendees (April 10, 2019)

Frank Klink	3M
Maureen Kavanaugh	3M
Rebecca Everman	3M
Randy Morgan	3M
Devlin Whiteside	Owens Corning
Jerri Fajardo	Owens Corning
Brent Tracey	Johns Manville
Tony Silva	Marlarkey Roofing Products
Sid Dinwiddie	PABCO Roofing Products
John Corbett	PABCO Roofing Products
Martin Ruando	PABCO Roofing Products
Tom Lecorchick, Sr.	Bitumar USA Inc.
Tom Lecorchick, Jr.	Bitumar USA Inc.
Regent Bedard	Building Products of Canada

Melissa Spittler	CertainTeed Corporation
Michelle Benati	Firestone Building Products
Jay Keating	IKO Industries
Stephen Masciangelo	IKO Industries
Sanjiv Sooriyadevan	IKO Industries
Mark Klein	GAF
Mike Sullivan	MTi Polyexe Inc.

Reed Hitchcock	ARMA Executive Vice President
Art Sampson	ARMA Regulatory Counsel
Jim Hilyard	ARMA Consultant
Mike Deese	ARMA General Counsel
George Fischer	ARMA HSE Director
Edwin Foulke	Fisher-Phillips, LLC - Speaker

Phone participants

Tina Mumm	3M
Jennifer Hatfield	3M
Dr. William Warren-Hicks	EcoStat - Speaker

Call to Order

ARMA HSE Director George Fischer, re-convened the meeting at 8:30 a.m. CT and requested that meeting attendees re-introduce themselves. Mike Deese, ARMA General Counsel, reminded the attendees that the meeting would continue to be conducted in compliance with the ARMA Antitrust Compliance Policy.

Washington State Run-Off Study Review

Dr. William Warren-Hicks presented a summary of his review the Washington State Run-Off Study. He reviewed comparisons of the study data versus the write up of findings based on the data and whether a statistical analysis of the study would lead an independent party to come to the same conclusions as the report writers. Dr. Warren-Hicks indicated that, though there was value to be found in the data, the conclusions may not be supported statistically. Further discussion commenced among the attendees after Dr. Warren-Hicks' presentation. Statistical analysis of the study indicated that enough deficiencies exist in the study methodology and data collection that it would be wise to convince the Stormwater Center not to publish it. Dr. Warren-Hicks will be preparing a white paper summary of his findings for ARMA.

ACTION: HSE committee will recommend to the Executive Committee that, once the EcoStat white paper is completed and reviewed, it be shared with the Washington State Stormwater Center.

Messrs. Hitchcock and Deese left the meeting at this point.

ISO 45001 – The New Gold Standard for Safety and Health Management

Edwin Foulke Jr. of Fisher-Phillips, LLC, gave a presentation regarding the ISO 45001 Safety program and answered questions.

Adjournment

There being no further business before the committee, the meeting was adjourned at approximately 11:40 a.m.

ARMA HSE Committee Meeting, Summer 2019

Speaker Biographies and Topics



Susan Barnes – Ms. Barnes is a Managing Consultant and Office Manager of Trinity’s Washington, DC office. In this role, Ms. Barnes is responsible for management of Trinity’s consulting services in Maryland, Washington, DC, and northern Virginia. During her career at Trinity, she has worked on preparing state and federal air quality permit applications, air quality dispersion modeling, emissions calculations, and Greenhouse Gas emissions quantification and reporting, as well as providing clients with multi-media permitting and compliance support. She has assisted clients from the natural gas, lime manufacturing, cement manufacturing, asphalt roofing manufacturing, and printing industries

throughout the northeast with a variety of projects including developing environmental management systems, and preparing NA NSR, PSD, and state permitting application packages. Ms. Barnes earned her bachelor’s degree in Mechanical Engineering from Bucknell University.

Susan will be presenting a report-out of the recently updated ARMA Emissions Factors report.



Curt Petrosky, PE, CSP - Mr. Petrosky serves as a Managing Consultant in Trinity's Pittsburgh office and is an expert in Process Safety Management (PSM) and Risk Management Program (RMP) implementation. He’s held PSM and RMP compliance responsibilities since the 1990’s at a variety of chemical manufacturing sites. His previous work experience also includes environmental compliance, personnel safety program implementation, project management, maintenance management, and process engineering within the chemical manufacturing industry. Mr. Petrosky was responsible, at the site level, for the Prevention Program elements and Emergency Response requirements of PSM/RMP including Management of Change (MOC), Pre-Startup Safety

Review (PSSR), Mechanical Integrity, Process Hazard Analysis (PHA), Facility Siting, Incident Investigation, and Emergency Response Team Training. He has led numerous PHAs and LOPAs for both batch and continuous processes and has led PSM and/or RMP Compliance Audits at a variety of chemical manufacturing facilities.

Curt will deliver a presentation regarding Risk Management Plans.



Wendy Merz – Ms. Merz is a Principal Consultant in Trinity’s Philadelphia office and has over twenty years of environmental consulting experience specializing in Clean Air Act compliance. She has worked with clients representing a variety of industries including power generation, petroleum refining, natural gas production, transmission and distribution, cement, lime, steel, asphalt roofing and aluminum manufacturing. Her experience includes regulatory compliance strategy development, air construction and operating permit application preparation, New Source Review permitting, Greenhouse Gas (GHG) reporting, and NSPS/NESHAP applicability and compliance. She has assisted

clients with the development of corporate-wide GHG emissions inventories in accordance with WRI/WBCSD protocols for voluntary disclosure and to implement reporting in accordance with the US EPA's Mandatory GHG Reporting Rule. Ms. Merz has an undergraduate degree in Chemical Engineering from Lehigh University and a master’s degree in environmental engineering from the University of Cincinnati.

Wendy will conduct a presentation regarding State Greenhouse Gas Regulations.



Lisa A. Long – Lisa is currently the Director of the Office of Engineering Safety in OSHA's Directorate of Standards and Guidance where she manages OSHA's work on standards and guidance for issues related to engineering (chemical, mechanical, and electrical). Prior to her work in the Directorate of Standards and Guidance, Lisa was a Safety Engineer in OSHA's Directorate of Enforcement. Before coming to OSHA in 2007, Lisa worked for the US Chemical Safety Board for seven years participating in and leading investigations of major chemical incidents. Prior to her work at CSB, Lisa had ten years of experience in the chemical industry in process engineering and production management. Lisa holds a B.S. in Chemical Engineering

from Virginia Tech.

Lisa will give an update on several initiatives and projects with its Directorate of Standards and Guidance (DSG) - , Recommended Practices for Safety and Health Programs, Leading Indicators, rulemaking considerations for Process Safety Management, and the Control of Hazardous Energy Lockout/Tagout.

- OSHA recently updated its Recommended Practices for Safety and Health Programs. The updated recommendations are designed to be adaptable to all workplaces and OSHA believes they will help employers improve safety and health performance. (<https://www.osha.gov/shpguidelines/>).
- OSHA has issued guidance on Using Leading Indicators to Improve Safety and Health Outcomes. The document is designed to help employers start using leading indicators. A webpage list additional resources and a stakeholder meeting is planned to gather information to create additional tools and resources (<https://www.osha.gov/leadingindicators/>).
- OSHA's regulatory projects are listed in the Federal Regulatory Agenda (<https://www.osha.gov/laws-regs/unifiedagenda/currentagenda>). Two projects of interest to this group are Process Safety Management (long term action) and Control of Hazardous Energy (Lock-Out/Tag-Out).



LT Melissa Seaton, M.S. - LT Melissa G. Seaton is an industrial hygienist working in the Division of Science Integration (DSI) of the National Institute for Occupational Safety and Health (NIOSH). She has earned a B.S. in Environmental Science from the University of Michigan and a M.S. in Environmental Health from the Harvard School of Public Health, where she specialized in Occupational Hygiene and Hazardous Substances. At NIOSH, LT Seaton is engaged in several projects, including the development of the NIOSH Occupational Exposure Banding methodology and the development of a high priority Criteria for a Recommended Standard document. LT Seaton takes a special interest in

emergency response and operations and has deployed 3 times in support of the CDC Ebola Response in West Africa.

Occupational Exposure Limits (OELs) provide a foundation for assessing chemical exposures and informing risk management decisions according to the hierarchy of controls, including identifying chemicals for elimination or substitution, and determining best practices and engineering controls. However, OELs have not been established for most chemicals available in commerce. In the absence of an OEL, Occupational Exposure Banding is a process that uses available toxicological data to identify a range of concentrations, called Occupational Exposure Bands (OEBs), for which decisions can be made about exposure control strategies. This presentation will describe the recently published NIOSH Occupational Exposure Banding Technical Report and the utility of the Occupational Exposure Banding process for making exposure-control decisions. This presentation will also introduce the Occupational Exposure Banding E-tool, and online tool designed to assist users with the banding process.



ARMA Technical Affairs Committee



ARMA 2019 Summer Committee Meetings
 Technical Affairs Committee Working Session
Wednesday, September 11, 2019

Technical Affairs Committee

Co-Chair: Jean-Francois Cote, SOPREMA, Inc.

Co-Chair: Greg Keeler, Owens Corning

Time	Session	Back-up Materials
8:30 AM (10 minutes)	<u>Introduction and Opening Remarks</u> -Call to Order and Introductions -Review of Antitrust Policy -Review of Meeting Agenda -Approval of Minutes (TBD)	Antitrust Quick Reference Minutes
8:40 AM (10 minutes)	<u>ARMA Meeting Education Task Force</u> Chair: Michelle Benatti	
8:50 AM (10 minutes)	<u>ARMA Ventilation Task Force</u> Chair: Paul Scelsi	
9:00 AM (60 Minutes)	<u>FM Approvals Update</u> Richard Davis, FM Approvals	
10:00 AM (20 minutes)	<u>ARMA Sustainability Task Force</u> Chair: Jean Francois Cote	French Translations UL Quote
10:20 AM (20 minutes)	<u>ARMA Asphalt Shingle Recycling Task Force</u> Chair: Ana Meyer	Asphalt Recycle Primer Shingle Mountain Updates
10:40 AM (40 minutes)	<u>ARMA Research Proposal</u>	Research Project Outline
11:20 AM (40 minutes)	<u>ARMA Technical Review Task Force</u> Chair: Lynn Picone	Residential Asphalt Roofing Manual (2014)
12:00 PM	Adjournment	



Members

- Akins, Jim
- Barton, Larry
- Bédard, Régent
- Benensky, Paul
- Bestor, Glenn
- Boss, Dan
- Campbell, Casey
- Cano, Beth
- Casseri, Paul
- Chich, Adem
- Clifton, Mark
- Cockrell, Sheila
- Corley, Todd
- Cote, JF
- Dietzel, Jonathan
- Dinwiddie, Sid
- DiStefano, Mike
- Doucet, Guylaine
- Dreas, Daniel
- Dutton, Eileen
- Dwyer, Andrew
- Everman, Rebecca
- Feinstein, Abby
- Ford, Andrew
- Franks, Todd
- Goodrum, Kirk
- Goodwin, Keely
- Graco, Frank
- Grohman, Martin
- Guglielmo, Angelo
- Hardy Pierce, Helene
- Harner, Mark
- Harrington, Edward
- Heaps, Jacob
- Higgins, Liz
- Hunt, Ken
- Jacobs, Jeffrey
- Janicki, Richard
- Jenkins, Robert
- Jones, Lori
- Kalkanoglu, Husnu
- Keating, Jay
- Keeler, Greg
- Kersey, Timothy
- Klein, Mark
- Kluttz, Robert
- Kouba, John
- Lecorchick, Tom
- Lecorchick Jr., Tom
- Liu, William
- Malarkey, Greg
- Martin, Jacques
- Martucci, Lee
- McIntosh, Walt
- Meyer, Ana
- Mia, Riad
- Moeini-Nombel, Leila
- Mohseen, Shaik
- Mollenoff, Jim
- Morrison, Scott
- Perry, Darren
- Phillips, Aaron
- Picone, Lynn
- Pohorsky, John
- Rardon, Daniel
- Scelsi, Paul
- Sharp, Chris
- Shaw, Don
- Teachey, Sid
- Thomas, Geoff
- Vukas, Jason
- Wadding, Steven
- Ward, Marty
- Welp, Keith
- Woodring, William
- Worms, Tim
- Young, Theodore
- Zickel, Tom

Staff

- Collins, Chadwick
- Deese, Mike
- Fischer, Mike
- Andrew Brackbill
- Hitchcock, Reed
- Quinonez, Dan
- George Fischer

Call to Order

ARMA staff called the meeting to order at 1:05 PM EST. Daniel Quinonez reminded all that the meeting would be subject to ARMA’s Antitrust Compliance Policy. A review of the agenda was provided by Mike Fischer.

Review

Research Proposals – Ventilation



Mike Fischer discussed the draft outline of the ARMA Research Project Phase One Proposal. He noted that the objective is to determine the impact of sealed attics on the temperature of roofing systems. While previous studies did measure temperature, their conclusions made no statements to the impact on the roofing system, as they were not the focus. The research project will be on the agenda for the September TAC meetings; staff requested initial feedback on the draft outline. Hitchcock noted a possible project start date in 2020 depending on budgeting for the next year. He mentioned that the approval process could take six-months. Chadwick Collins is the staff point of contact; members were asked to direct questions to him.

Code Steering Group Update

Aggregate Roofing Update

Mike Fischer discussed code proposal S21-19 - 1504.8 Wind resistance of aggregate surface roofs – shall comply with Table 1504.8 - approved with minor edits, public comment period - no public comments in opposition so ARMA removed our public comments. The proposal will be on the consent agenda at the Public Comment hearing this fall. Mike pointed out that the timeline between now and publication of the 2021 code allows ARMA the opportunity to look as possibility of drafting technical bulletins to explain the changes in the code, one for new construction and one for existing construction. ARMA will likely need ICC interpretations to determine path forward. If accepted, the requirements will become part of 2021 IBC. Reed Hitchcock encouraged TAC members to discuss internally with their companies and bring back any concerns. This item will be on the agenda for the summer meeting in D.C. and decide on next steps at that time.

Florida Building Commission

Mike Fischer detailed the Florida Building Commission meeting he attended last week. He detailed issues regarding Miami-Dade proposals as well as synthetic underlayment. ARMA will work on modifications to underlayment requirements during the 2020 Rule Development Workshop process.

TDI Roofing Education Slides

ARMA has an agreement with TDI to provide educational materials related to changes in their approval process. Slides were provided to TAC as read-aheads – Staff requests review and comment prior to or at D.C. summer meeting.

LA County Amendments

Chadwick to participate on LAC conference call later this week. He will provide a separate communication after the meeting.

AB 660

Reed Hitchcock discussed changes to the current legislation. The bill has been given a fast track to bypass the Appropriations Committee. ARMA's detailed arguments did not appear to sway the committee, but additional input from coalition members helped to get the legislation back on the agenda for further review. More information will be available from Chris Bollinger, the ARMA Lobbyist, on the next coalition call.



Task Force Updates

Mike Fischer provided an overview of recent activities and updates regarding the following ARMA Task Forces:

Asphalt Recycling Task Force

Strategy will be discussed at the ARMA Summer Meeting. EPD will be discussed. Eileen Dutton and Reed Hitchcock reported little discussion during recent AI (Asphalt Institute) meetings.

Sustainability

French Translations update – The drafts are back from the vendor with the changes from our members' feedback implemented. We have only heard back from 3 members in regard to the UL quote for translation verification and to post on UL Spot. Staff requested that ARMA members complete their review and report back

Technical Publications

Residential Asphalt Manual Update – biggest focus right now. Finished review of chapters 1-4, task group meets weekly. Cancelling this week's call due to Chadwick's health, no meeting Labor Day week.

New/Other Business

Reed Hitchcock discussed that he is was working on scheduling visit to FM Mutual early December.

Action Item Review

Meeting cancellation needs to be sent out for the August ARMA – TAC - TRTF: Residential Asphalt Roofing Manual Working Group call.

Adjournment

Meeting adjourned at 2:02 pm EST.



UL Verification Services Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096
USA

Asphalt Roofing Manufacturers Association
Account No.:1506856

Quote Date: 2019/03/13
Valid Until: 2019/09/30
Quote Number: 1101669914
Version: 1

Account No.:1506856
Chadwick Collins
Asphalt Roofing Manufacturers Association
529 14th Street, NW
750 National Press Building
Washington, DC 20045
United States

EPD Verification - Translation Service

Greetings,

On behalf of UL, it is my pleasure to submit to you this quotation for services.

Around the globe, UL works to help customers, purchasers and policymakers navigate market risk and complexity. UL builds trust in the safety, security and sustainability of products, organizations, and supply chains –enabling smarter choices and better lives.

With more than 14,000 employees dedicated to delivering testing, inspection, auditing, certification, marketing claim verification, training, advisory services, and software solutions in more than 143 countries, we are present everywhere you need us to be. In all we do, we apply science and expertise to enable the responsible design, production, marketing and purchase of the goods, solutions and innovations of today and tomorrow.

Thank you for this opportunity. We look forward to the opportunity to help your business.

Yours sincerely,

Sales Contact
Zachary MacDowall
Phone: +16784444036;
E-mail Zachary.Macdowall@ul.com



Quotation

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333 Pfingsten Road
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USA

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Account No.:1506856
Chadwick Collins
Asphalt Roofing Manufacturers Association
529 14th Street, NW
750 National Press Building
Washington, DC 20045
United States

This Quotation is provided by or on behalf of UL Verification Services Inc.. We are pleased to provide you with the following Quotation and we will make every effort to exceed your expectations as we fulfill this work.

EPD Verification - Translation Service

#	Product/Services Quoted (Summary table of requested product/services.)	Quantity	Unit Price (USD)	Net Price (USD)
1	Environmental Product Declaration Services			
	Custom EPD Services	7	1,050.00	7,350.00
	Subtotal			7,350.00
	Total			7,350.00

The price is based on the information provided in your request. Please note that additional expenses such as travel costs, shipping, disposition of samples, local taxes, and others may be incurred. If these are required for your project, they will be billed to you. Invoicing for this project will occur at the times stated in this Quotation or at completion of the project.



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Quote Date: 2019/03/13
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Quotation is based on the following conditions:

Services Information
<p>UL is unable to provide actual translation services into various languages, rather we will need to verify/ensure that the translated documents upon completion align with their original English versions.</p> <p>UL has third party verifiers proof read the translations against their original publication and provide feedback to ensure accuracy. Once accuracy is ensured, we can verify translated documents and publish to SPOT.</p>

Terms and Conditions

All product/services provided under this Quotation are governed by and incorporate by reference the following terms and conditions which are either provided with this Quotation or which you have previously accepted: Global Services Agreement (GSA). For a copy of your terms and conditions on file, please contact the sender and reference the above Quotation number.

In addition to the Global Services Agreement, your terms and conditions also include the Service Terms identified in Attachment A.

The terms and conditions will take precedence over any preprinted, additional, or different terms and conditions on your requests for quotation, POs, invoices, sales or marketing materials, or other business documents.

Payment

Unless credit has been established, a 100% deposit of quoted fees will be required prior to your project start date.

Additional Services and Fees

For services that result in the authorization of a certification mark, Follow-up or surveillance services may be required and additional fees will apply and will be charged separately. Generally these fees cover the periodic examinations or tests of the certified products at the factories where the products are produced and other administration fees. Follow-up Services for services related to the UL certification mark may be covered by a separate service agreement with a different UL company.

To expedite your project, please provide any relevant requested additional information upon acceptance of the Quotation. Soon after receipt of both your Quotation acceptance and relevant requested information, a member of our UL staff may contact you to confirm the required items and finalize the scope of work. Any necessary information should be provided within a time frame mutually agreed by both parties at the start of the project.

If your Accounts Payable process requires a Purchase Order (PO) to be referenced on UL's invoice to facilitate payment, please provide the PO number below, or simply reply to sender with PO number.

Your issuance of a PO to UL is for accounting purposes only and does not constitute your counter offer. Any additional or conflicting terms and conditions on your PO do not apply to any Services or bind us.



Quotation

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Quote Date: 2019/03/13
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Version: 1

Acceptance Instructions:

To accept this quotation, you can do one of the following:

- 1) Electronically sign by adding the word "ACCEPT" in the e-mail and reply to sender. Your electronic acceptance will create a valid, binding service agreement.
- 2) Sign below by an authorized company representative and return to sender.

By accepting this Quotation, you certify that you have read and agreed to the referenced terms and conditions; you are authorized to accept this Quotation on behalf of your company, and authorize us to commence work on the services described above.

Quotation Accepted by:

Signature

TITLE

Name (Printed)

DATE

Purchase Order #

Thank you for choosing UL

Ryan Robinson
Authorized Representative of UL Verification Services Inc.



Quotation

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Valid Until: 2019/09/30
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Version: 1

Attachment A

This Quotation incorporates the Global Services Agreement and the following additional Service Terms. The Service Terms can be accessed by clicking the link provided below:

If you are unable to access the Service Terms, please call your local customer service representative or send an e-mail request to your local customer service contact identified at: <http://www.ul.com/contactus>.

#	Product/Services Quoted	GSA Service Terms
1	Environmental Product Declaration Services	
	Custom EPD Services	Environmental Product Declaration Program Services



Date: June 27, 2019
Attention: ARMA members
From: Chadwick Collins, ARMA Technical Director
Issue: Asphalt Recycling Primer & Update
Background: ARMA Asphalt Recycling Task Force

In November 2008, ARMA created a task force with a focus on Post-Consumer Asphalt Shingle Recycling. In its original incarnation, the task force developed both long-term and short-term objectives as outlined below:

Long-Term: Help catalyze the capability to recycle a majority of post-consumer shingles in 5 years.

Short-Term:

- 1. Measure & track current quantities of shingle tear-offs and the percentage recycled.*
- 2. Identify the most significant issues limiting shingle recycling.*
- 3. Benchmark other successful industry efforts at promoting post-consumer recycling (e.g. tires) that may have developed solutions to these issues.*
- 4. Develop potential solutions to these issues.*
- 5. Participate in shingle recycling related studies such as the Iowa State paving program.*
- 6. Interface with governmental agencies (FHWA, DOE, EPA, etc) to remove barriers.*
- 7. Interface with other industry groups (NAPA, AI, etc.) to develop markets.*

Metrics:

Measure of success in short term will be doubling the level of recycled asphalt shingle tear-offs year after year going forward.

A review of documentation does not reveal any further minutes or agenda for the task force until January 2018. That meeting's agenda contains a review of the task force's 2008 objective, an overview of the Construction & Demolition Recycling Association (CDRA) and report out of the Recycling forum, and a review of ARMA's two recycling technical bulletins, *Asphalt Shingle Recycling FAQs* and *Asphalt Shingle Recycling Do's and Don'ts*. Meetings occurred in June 2018, July 2018, and March 2019. Meetings scheduled in May 2019 did not have sufficient participation to conduct the meetings and postponed.

The task force has developed a draft of a white paper on comparing Recycled Asphalt



Pavement (RAP) versus Recycled Asphalt Shingles (RAS) over the meetings of 2018. The task force presented the draft for review at the Spring Committee Meetings in Chicago in April 2019 to the Technical Advisory Committee.

Recent Developments & Concerns

In December 2018, ARMA learned that Fort Collins, Colorado was considering an amendment regarding Asphalt Shingle Impact Resistance due to an increase of volume into their landfill after a hail event. ARMA's staff research toward a response discovered that the State of Colorado's Department of Public Health and Environment adopted a [policy](#) in September 2015 that shingles are no longer considered a recyclable material in Colorado. As a result, all tear-off shingles went into other waste streams (i.e. landfills). Despite ARMA's efforts, Fort Collins adopted their amendment and now the City of Boulder is in early discussions at their planning board level on similar amendments with the landfill volume again being the catalyst.

Further press since December is not positive to asphalt recycling:

February 21 (Driggs, ID) - [Sort and Save: Construction Waste](#) (asphalt shingles not included as part of program)

March 4 (Roads & Bridges) - [A New Chapter](#) (the only sample discussed with RAS was a sample that crack during the study overviewed in the article)

March 15 (Dubuque) - [Dubuque landfill ends shingle recycle program due to little market demand](#)

March 20 (Dallas) - [Shingle Mountain fight came to City Hall, just as Dallas moved to shut down asphalt recycler](#)

April 18 (Lubbock) - [City, county still pushing to get abandoned recycling center cleaned up](#)

Possible Partners in Advocacy:

National Asphalt Paving Association

In May, ARMA staff connected with Richard Willis with the National Asphalt Paving Association (NAPA). He directed us to their free available resources (found [here](#)). Of particular interest is their [Sustainability in Practice for Asphalt & LEED v4](#) that outlines credits under LEED, including an example using RAS as a percentage of the hot mix for site pavement.

NAPA has published an annual *Asphalt Pavement Mix Production Survey* since 2009 (archive [here](#)).

US Department of Transportation's Federal Highway Administration

The US DOT Federal Highway Administration (USFHWA) has a [Recycled Materials Policy](#), with an issued date of February 7, 2002. A [TechBrief](#) addressing RAS use published in



September 2018 addresses concerns when using RAS. Survey results from May 2017 on State Highway Agency Usage of RAS conducted by the USFHWA are [here](#).

American Association of State Highway and Transportation Officials

The American Association of State Highway and Transportation Officials ([AASHTO](#)) is the authoring body of PP78 (Standard Practice for Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in Asphalt Mixtures) and MP 23 (Standard Specification for Reclaimed Asphalt Shingles for Use in Asphalt Mixtures).

Construction & Demolition Recycling Association

The CDRA operate [Shinglerecycle.org](#) and host the Asphalt Shingle Recycling Forum (last held in 2017). DOT officials, recyclers, asphalt plant operators, and road pavers attend the forum. ARMA has sponsored forums in the past.

Additional Possible Partners:

- [Asphalt Institute](#)
- [National Center for Asphalt Technology at Auburn University](#)
- [Asphalt Recycling & Reclaiming Association](#)
- [National Association of Home Builders](#)
- [National Roofing Contractors Association](#)

Possible Opposition in Advocacy:

State/Local Governments

Some state and local governments have already enacted positions in opposition to recycling (see State of Colorado). Given these stances, when we approach these legislating bodies to move toward opening up to recycling and accepting RAS into specifications, opposition to the changing the status is expected.

Community Activists

In some communities (see Dallas above), there is strong local activism against shingle recyclers. These recyclers typical have not been the best advocates or representatives of asphalt recycling or asphalt roofing within their communities. Advocating in these jurisdictions for recycling presents a delicate challenge.

Concrete Paving Advocates

Organizations that support the selection of concrete over asphalt for pavement selection (i.e. Portland Cement Association) would present an opposing argument against use of asphalt, including when RAS is involved. Examples of their position are:

- Concrete is lighter in color, hence higher reflectivity
- Concrete is 100% recyclable



Natural Paving/Permeable Paving Advocates

Manufacturers of natural or permeable paving (see example [here](#)) clearly present an alternative to asphalt paving in the private sector. Their talking points on the natural material usage, water drainage or retention, and aesthetic properties are clear items to address when advocating for asphalt using RAS. There are also associations (such as [Interlocking Concrete Pavement Institute](#)) that advocate for permeable paving options.

Internal Asphalt Industry Opposition

While the larger issue is use of recycled asphalt, there are publications (see [Road & Bridges article](#) for example) where RAS is negatively presented in relation to RAP in studies. When working with our colleagues within the asphalt industry, we have to be diligent in ensure RAS is presented accurately and fairly in relation to other sustainable options.

Analysis:

Staff has identified the following:

- 1) Per USFHWA survey, only 31 of 55 State Highway Authorities (SHA) allow RAS. Of those 31, 6 only allow manufactured waste sourced RAS only. The SHAs that do not allow use of RAS is Alaska, Arizona, California, Colorado, Florida, Hawaii, Idaho, Louisiana, Maine, Mississippi, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Puerto Rico, Rhode Island, South Dakota, Utah, Vermont, West Virginia, Wyoming.
- 2) Of those 31 SHAs, 11 use less than 500 tons of RAS.
- 3) Texas provided additional days that from 2012 to 2016, its use of RAS declined by 80%.
- 4) Looking at NAPA's 2017 report, DOTs (SHAs) are still the leading user of RAS, followed by Commercial & Residential segments.
- 5) NAPA's 2017 report lists California, Colorado, Florida, Georgia, Hawaii, Mississippi, Montana, Nevada, New Hampshire, North Dakota, Rhode Island, South Dakota, Utah, West Virginia, and Wyoming as responding that RAS is not allowed in DOT mixtures. The states of Hawaii, North Dakota, Rhode Island, South Dakota, and Wyoming do not allow RAS in other agency mixtures (Local/Municipal road departments) or in commercial and residential mixtures.
- 6) Per the NAPA report, the leading limitation on using RAS is specification limits, followed by availability of RAS and mixture performance.
- 7) With states that classify asphalt shingles as not recyclable (see Colorado), the real threat that shingles being classified as such widespread would cascade into impacting our Product Category Rules, Life Cycle Analysis, and Environmental Product Declarations.



Next Steps

- 1) In the states that use RAS, evaluate their usage rate and determine “best practices” that help RAS work in that market.
- 2) In states that allow RAS, but do not use, identify the gaps in comparison to states that use RAS
- 3) In states that do not allow, identify the blocks to use and develop plans for each.

In each of these, a ranking of the markets to prioritize targets for the strategy is paramount. NAPA and USFHWA are great resources for data. As we continue to reach out to our possible partners, identifying where those partnerships fall into the strategy will take place.

Next Steps: Schedule a conference call for July 2019 to begin to develop the strategy for ARMA

Follow Up: For additional information, please reach out to Chadwick Collins, ARMA Technical Director.

DRAFT

I. Pertinent Research

- a. [Winandy, Jerrold E.; Beaumont, Rhett. 1995. Roof temperatures in simulated attics. Res. Pap. FPL-RP-543. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 14 p](#)
 - i. Experiment
 1. Five structures in Madison, Wisconsin
 2. 3:12 pitch, shed monoslope, uninsulated structures, 12'x16'
 3. Three with black granule shingle, two with white granule shingle
 4. Temperature collected inside, top of sheathing/under the underlayment in two locations, bottom of the sheathing in two locations, exterior of structure
 - ii. Data
 1. Temperature collected from October 1991-September 1994
 2. Data presented in total hours at a given temperature (Tables 1 through 6) for both the black and white shingles and in log tables showing the same data (Figures 6 through 13)
 3. Data for specific times in June 1992 and June 1994 showing actual temperatures (Figures 14 and 15)
 - b. [Miller, William; Raikar, Sudhir; Shiao, Ming; Desjarlais, Andre. 2016. Sealed Attic Exposed to Two Years of Weathering in a Hot and Humid Climate. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., ASHRAE Transactions, Vol XXX, Part Z.](#)
 - i. Experiment
 1. One structure in Charleston, South Carolina segmented into eight test chambers
 2. 3:12 pitch, gable roof (ridge runs E-W), segments configured with controlled airspace, 12'x12'
 3. Where shingles used, dark colored shingles selected. Underlayments varied
 4. Thermistors were placed between shingle overlap, between underlayment and sheathing, bottom of sheathing, attic ambient. Sensor placement mirrored on both slopes.
 - ii. Data
 1. Data collected from September 2013 through December 2015.
 2. Only graph showing temperature data is in relation to moisture content (from October 10 through October 13, 2014)
- II. While research has tracked the temperature, the effects on the roofing systems were not assessed.
- a. Phase 1
 - i. 3 structures, shed style, oriented southerly, optimized slope for location, same roofing system
 - ii. One location (consider climate of location)
 - iii. Ventilated, Non-ventilated with air-permeable insulation, Non-ventilated with air-impermeable insulation
 - iv. Two-Three years of data collection (allows confirming temperature trends to similar timelines)



**Asphalt Roofing Manufacturers Association
2019 Summer Committee Meetings Attendee List
September 9-11, 2019
Arlington, VA**

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