Recycling Roofing Materials: Developing Best Practices for Roofing Contractors

A presentation to:
NRCA 2011 International Roofing Symposium

By Dan Krivit
Wednesday, September 7, 2011
4:30 p.m.
NRCA
2011 International Roofing Symposium

Emerging Technologies and Roof System Performance

Sept. 7-9, 2011 | Washington, D.C.
Team Members

- **RoofCycle, USA**
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  Boulder, Colorado

- **Foth Infrastructure & Environment, LLC**
  Lake Elmo, MN

- **Environmental Property Audits, Inc.**
  Anoka, MN
My Rap Sheet

- Over 10 years consulting on shingles recycling
- Author of the *Shingles Recycling Best Practices Guide*
- Assist with specifications and quality control guidelines
- Serve CMRA as technical advisor on ASR Forum, ShingleRecycling.org and webinars
- Multiple clients throughout the U.S. & Canada
Presentation Outline

- Recycling – Overview & history of technology
- Benefits to roofing contractors
- How to supply clean tear-off shingles
- Asbestos management
- Recycling of low slope roofing materials
- Trends and future predictions
History of Shingles Recycling (continued)

- Primary market for recycled asphalt shingles (RAS) is hot mix asphalt (HMA)
- Shingles have been tested and used successfully for over 20 years
- 21 state DOT’s allow the use of RAS in HMA
- Post-consumer, “tear-off” shingles regulated differently than manufacturers’ shingle scrap
Environmental Regulations

- Help assure steady market growth by providing reasonable standards
- Vary by state
- Based in part on existing asbestos management programs for each state
Background

- Asphalt shingle recycling is growing rapidly, especially from residential homes
- Recycling from commercial roofs for single-ply membranes & insulation is here
- BUR & other materials using adhesives is up and coming
Shingle Recycling Steps

- Clean supply
- Grinding, screening
- Use in hot mix asphalt (HMA)
- Quality control throughout
Source: APAC - Texas
(Dallas)
Source: APAC – Texas:
*New Dallas Cowboys Stadium*
(Arlington, TX)
Asphalt Shingle Scrap

- Manufacturers’ scrap (Pre-consumer / post-industrial)
- Tear-off shingles (Post-consumer)
Benefits to Contractors

- Reduced costs
- Increased sales
- Contribution to recycling and the environment
- Enhanced safety awareness
Reduced Costs

- Recycling fees are cheaper
- Recycling facilities are closer
- Unloading scrap is quicker
Barriers

- Lack of recycling infrastructure
- Market demand needs to increase
- Need DOT specifications
- Environmental standards not consistent
Supply Development

- Clean tear-off shingles
- Emphasis on front-end separation
- Inspections, testing and tracking
- Source separation and Mixed roofing material
Clean Recyclable Materials

- Sorted at the job site
- Debris separated:
  - Metal
  - Plastic
  - Wood
  - Trash
- Residential vs. commercial jobs
Roles of Contractors

- Quality supply of tear-off scrap
- Market development through supply assurance
- Help manage insurance claims
- Set up recycling systems and training programs
Snapshot of Two Training Programs

- RoofCycle roofing contractor training
- EPA, Inc. / Foth asbestos training
RoofCycle Training

- Hands-on information transfer
- Evolving sorting and testing requirements
- By roofing contractors for roofing contractors
RoofCycle’s Video

- Recycled Asphalt Tear Off Shingle Training Video (English)
- Spanish version of the RoofCycle's Training Video
ARG Video

Asphalt Recycling Group (ARG) training video:
http://asphaltrecyclinggroup.com/get-certified/video/

See also: ARG Shingle Recycling program
Roofing Manufacturers

- CertainTeed
- GAF
- Owens Corning
GAF University course

Asphalt Shingles and the Green Home

www.EZLearnU.com/?refcode=GAF
Other Roofing Materials

- NFI recycles EPDM, TPO and PVC membranes
- Duro-Last and KIKA Sarnafil: single-ply PVC
- Derbigum recycling of modified bitumen
EPA / Foth Asbestos Training

- Compliance with OSHA regulations
- Practical tools for visual identification
Metal Step Flashing –
With ACM Plastic Roofing Cement
Built Up Roofing
(Sample #1)

Top (Showing exposed asbestos fiber highlighting)

Exposed asbestos fiber highlighting

Bottom (Unexposed)
Built Up Roofing
(Sample #2)

Top (Showing exposed asbestos fiber highlighting)

Bottom (Unexposed)
ACM Coating
On a standard fiberglass shingle

Source: King County, WA
ACM Aluminum Coating On BUR

Source: King County, WA
ACM Aluminum Coating
On BUR

Source: King County, WA
Future Outlook

- RAS in HMA - Huge growth
- RAS as a commodity
- More state DOT specifications
- Environmental regulations: Continued state-by-state
- Increased role of contractors and roofing industry
Future Outlook (continued)

- More recycling of roofing “systems”
- More recycled content in roofing materials
- Design for recycling
- Strategies for supply development
- Tear-off material salvage rights may be claimed by insurance carriers

- ShingleRecycling.org
- Produced by the Construction Materials Recycling Association (CMRA)
Q&A and Discussion

- Questions
- Open discussion
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Plastic Roofing Cement – Historical Sample: “Fry”

Contains asphalt, asbestos and petroleum for patching.