

5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

RAS in Colorado:
A Model for Supply, Demand and Construction Culture

Presented by DAVID CODDINGTON
3R Roofing Boulder, Colorado



Overview

- 1) My story: how 3R Roofing became involved with RAS
- 2) The Roofs to Roads Colorado Model

Source testing and source separation, a method with a data base

Creating Credibility: engaging roofers, haulers, paving contractors, DOTs, municipalities and the public

- 3) Lessons Learned/Where do we go From here



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

Background



David Coddington and 3R Roofing – member of the Boulder Green Building Guild since 2004

Led to the Question –

What to do with tear off shingle waste?

Asphalt Shingle Recycling
Paving Roads with Tear-off Shingles  **is HERE!**

- COST SAVINGS
- CO₂ REDUCTION
- JOB CREATION
- LANDFILL DIVERSION
- BETTER QUALITY ROAD PAVEMENT

Roofs to Roads (720) 333-7416
www.roofs2roadscolorado.org

Roofs to Roads started in 2009 through a partnership with Work Life Consulting, Inc by securing grant funding for startup



Boulder County supports Roofs to Roads by offering training as part of the BuildSmart program



R2R Colorado Model

1. Contractor Training: Roofers, Haulers, Building Officials

- *Source separation to prepare load for collection point
- *Source testing for asbestos, before tear off, if possible
- *Sales, savings, stewardship for roofers and haulers

2. Creating Credibility

- *Local projects initiated
- *Roofer and Hauler response
- *Municipal and CDOT backing
- *Landfill diversion, CO₂ reduction
- * Project savings, profit



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

Steps to Recycle Asphalt Tear-off

- STEP 1:** Get Permission from the Homeowner
- STEP 2:** Take 3 Shingle Samples from the Roof for Up-Front Testing:
 - 1/2 Inch Square
 - Create Unique Labeling for Lab Testing
- STEP 3:** Mail Sample Shingles to a nearby Lab for Asbestos Testing
 - RAS approved for recycling if results are negative
- STEP 4:** Tear off the Roof – Keeping Shingles Separate from other debris
- STEP 5:** Bring “CLEAN” RAS to Recycling Facility



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

SSS

SALES
SAVINGS
STEWARDSHIP (sustainability)



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

SSS will Make Shingle Recycling Mainstream

Sales:

- *Owners hire contractors who recycle

Savings:

- *Roofers, haulers save on tipping fees
- *Paving Contractors and end users save

Stewardship:

- * Landfill diversion, CO 2 reduction
- * Benefits for all



Creating Local Credibility

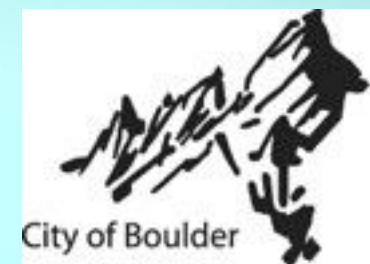
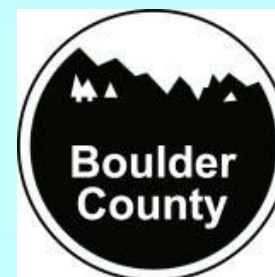
- Local Projects: North 63rd St. in Boulder; Hwy 36 north at Broomfield
- Positive response from roofers and haulers
- Municipalities and CDOT back these projects
- Landfill Diversion, Co2 reduction



recycled roadway



RAS Collection Site



Municipal Partnerships

5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

Local Colorado Projects

- Asphalt Specialties paved a section of N. 63rd Street with Manufacturer's Scrap
- Highway 36 North outside of Boulder has been repaved with Manufacturer's Scrap



R2R Response

- Contractors in Colorado were paying less for recycling than they were for landfill tipping fees (*80% said recycling costs were less or same to landfill fees*)
- (*70%*) of contractors were doing source testing for asbestos and *40%* were recycling weekly as part of their business practice.

-OTHER SURVEY INFORMATION:

- Most contractors recycled at least **15 tons and some up to 2500 tons of RAS** in 2010, the average being around 500 tons.
- This translates to **75,000+ tons diverted from the local landfills** by just a fraction of the contractors who do roofing tear off as part of their projects.
- Other issues were: training the crew, language barriers, proper source separation and keeping roll offs free of neighborhood debris



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

Working with CDOT

- In March of 2011 CDOT approved a revision of Section 401, Reclaimed Asphalt Shingles.
- Smaller projects ongoing.
- New Demand for RAS needed



Landfill Diversion

- The U.S. Environmental Protection Agency estimates that shingle waste makes up 8% of the total building-related waste stream and 1-10% of annual construction and demolition debris (C&D)
- Asphalt roofing shingles constitute nearly two-thirds of the roofing market for both new homes and roof replacements
- Approximately 12 Million Tons of tear off shingles and manufacturer's scrap are discarded each year, with only about 10% currently being recycled nationally in select states, including Colorado



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

R2R Model Details

**Roofer Team Training Video
In English and Spanish**

www.youtube.com/user/RootCycleusa

BLOG Site

<http://roofcycle.blogspot.com>



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

Where do we go from here?

R2R Colorado Model and lessons to Apply:

- *Establish Demand first, to the greatest extent possible
- *Start by promoting smaller projects to create momentum
- *Training: for source separation and testing, where practical & possible
to establish clean, dependable supply of RAS
- *Know your Local Construction Culture to gain support



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

STEP 1: Create Demand

- Engage Municipalities, DOTs and paving associations
- Promote ongoing discussion with policy makers on recommendations for RAS
- Talk to HOAS and commercial entities to promote start up projects using RAS
- Present Model for Delivery of RAS



STEP 2: Create Support

- Connections in local green building associations
- Contractor Education
- Municipal Motivations
- Special programs: Boulder County EnergySmart**
EnergySmart contractors are encouraged to recycle any tear-off shingle waste from local projects...

www.energysmartyes.com



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

STEP 3: Create Supply

- Standards for clean loads, tipping fees, appropriate to area
- RAS collection sites, conveniently located
- Public/Private partnerships with C & D waste sites
- Co-Ops of roofer/hauler collectives



5TH ASPHALT
SHINGLE 
RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

RoofCycle USA

David Coddington

303-956-9519

david@roofcycleusa.com

www.roofcycle.blogspot.com



5TH ASPHALT SHINGLE RECYCLING FORUM

October 27-28, 2011
Dallas, TX

ShingleRecycling.org

Other Resources for RAS Program Development:

California Integrated Waste Management Board (CIWMB)

<https://www.ciwmb.ca.gov>

The CIWMB has published four different fact sheets on asphalt shingle recycling opportunities.

Construction Materials Recycling Association (CMRA)

<http://www.cdrecycling.org>

Distributes the *Construction Material Recycler* which covers asphalt shingle recycling as well as other aspects of the industry.

Minnesota Department of Transportation

<http://mnroad.dot.state.mn.us>

Contains results and analysis of test pavement performance and various mix designs.

NAPA—National Asphalt Pavement Association

www.hotmix.org

Evaluates pavement mix design, equipment, operational, and economic considerations involved in using recycled shingles in pavement mixtures from the paver's perspective.

NAHB Research Center

www.nahbrc.org

A general resource for builders interested in reducing disposal of construction waste or developing a waste management plan.

NCAT—National Center for Asphalt Technology

www.eng.auburn.edu/center/ncat

Contains literature review and discussion of results of recycled-content pavement mixes.

Texas Transportation Institute

<http://ttinet.tamu.edu>

Contains discussion of previous shingle-content pavement research, lab analysis of TX samples, and materials specifications and construction guidelines.

