Processing Asphalt Shingles for Use as an Asphalt Additive
Steps to Processing

• Collecting
• Sorting
• Storing
• Testing
• Grinding
• Stockpiling
Collecting

• First Step
• Roofers are Biggest Asset
• Cooperation Vital to Process
1116.02 Reclaimed Asphalt Shingle Material Requirements

Ensure RAS from tear-offs consists of asphalt roll roofing, cap sheets and shingles but not other debris from roofing such as coal tar epoxy, rubber materials, or other undesirable materials.
ITEM 401
ASPHALT CONCRETE PAVEMENTS—GENERAL
401.04-3

Ensure RAS has less than 1.0 percent deleterious materials and 0.1 percent metals by weight.

Collecting
Garbage In - Garbage Out

- Wood
- Plastics
- Metal
- Vinyl
- Garbage
This becomes...
Responsibility for Assuring Clean Raw Material

1. Roofing Contractor
2. Recycler
3. Processor
4. End User
Who is Impacted Most by Contaminated Material

1. End User
2. Processor
3. Recycler
4. Roofing Contractor
Methods of Separation

1. Source Separation
   A. Recycling Site Personnel

2. Recycling Site Separation
   A. Recycling Site Personnel
   B. Cooperation
Source Separation

- Easier to see potential contaminates as it comes off the roof
- Smaller Volume of Material to Sort
- Most Cost Effective
- Most Convenient for All Parties
1. **Done by Recycling Site Personnel**
   - Prescreening
   - Picking Stations
   - Pre-shredding
   - Final Grinding

2. **Done in Conjunction with Roofing Contractor.**
Recycling Site Separation
Done by Recycling Site Personnel
Asphalt Shingle Grinding Service
ShingleGrinding.com
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Recycling Site Separation
Done by Recycling Site Personnel
Pros

• Additional Revenue from other Recyclables
• Clean Raw Material
• Clean Product
Recycling Site Separation
DONE BY RECYCLING SITE PERSONNEL

Cons

• Labor Intensive
• Machine Intensive
• Higher Cost
Recycling Site Separation
In Cooperation with Roofing Contractor

EFFECTIVE MAY 1

SMALL TRAILERS $50
DUMP TRAILERS $75
DUMP TRUCKS $100
DUMPSTER CHARGE $25
Recycling Site Separation
In Cooperation with Roofing Contractor
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Recycling Site Separation

Done in Cooperation with Roofing Contractor

Pros

• Less Labor/Machine
• Additional Revenue from other Recyclables
• Clean Raw Material
• Clean Product
Recycling Site Separation

DONE IN COOPERATION WITH ROOFING CONTRACTOR

Cons

• ??
Asphalt Shingle Recycling

- Raw Material Must Be Clean.
- Easiest place to keep clean is as it comes off the roof.
- Clean it as it comes in to Recycling Site before stockpiling.
This is Easy
This is Hard
Storing

• Only Stack Clean Shingles
• Don’t stack too high.
• Stack on Hard Pad
• Water Drainage
• Neighborhood Considerations
Asbestos Testing

- Tonnage
- Loads
- Layers
Asbestos Testing

• ACM must be taken to appropriate facility

• Non ACM Stockpiled for processing
100 percent passing the 1/2 inch sieve and at least 85 percent passing the No. 4 sieve.
Grinding

Sieve Testing

- Sieve test
- Multiple times
- Various locations in pile
  - Bigger usually toward bottom of pile
  - Looser / Finer Material under belt and toward top of pile.
Grinding
Machines Needed

- Excavator
Grinding
Machines Needed

• Loader
Grinding
Machines Needed

- Grinder
Grinding
Machines Needed

- Screen
Grinding Area

- Plenty of Room
- Hard Surface
- Good Drainage
Grinding

Water

• Necessary
• Amount used varies by grinder
• Too much makes poor product
  • Water weight
  • Expense of drying
  • Sloppy working conditions
• Too little causes poor grinding
  • Keeps dust down
  • Keeps shingles cool

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ShingleGrinding.com
Grinding
Loading/Feeding Grinder

- Best with Excavator
- More control
- See Material as it drops on to feeder
- Consistent Feed Rate
Grinding

Product Size

- Size determined by:
  - Space
  - Sharpness
  - Speed
Grinding

Product Size

- Typical 3/8 minus
- 100% passing 3/8 minus
- 90%+ passing #4
Storing Finished Product

- Stockpile height regulated in some locations
- Avoid Compacting
- Do not stack higher than loader can reach
- Material compacts under its own weight
Storing Finished Product

- Do not let loader wheels touch final product
Storing Finished Product

- If compaction occurs may need to re-screen
  - Additional Cost
  - Machine
  - Manpower
  - Time
Storing Finished Product

- Stockpile on impervious pad or hard surface
- Keeps material clean
- Prevents pumping of soil into product
- Loader error
Storing Finished Product

- Provide for adequate drainage.
- Prevents run-off of finished product
- Easier loading of material
Storing Finished Product

- Tarp / Cover
- Windloss
- Nuisance
Steps to Processing

- Collecting
- Sorting
- Storing
- Testing
- Grinding
- Stockpiling
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