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

Collecting

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.

Collecting

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.

Garbage In - Garbage Out

- Wood
- Plastics
- Metal
- Vinyl
- Garbage

This becomes...

…this

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

2. Recycling Site Separation

   A. Recycling Site Personnel

   B. Cooperation

Source Separation

- Easier to see potential contaminate as it comes off roof
- Smaller Volume of Material to Sort
- Most Cost Effective
- Most Convenient for All Parties

RECYCLING SITE SEPARATION

1. <u>DONE BY RECYCLING SITE PERSONNEL</u>
    - Prescreening
    - Picking Stations
    - Pre-shredding
    - Final Grinding
2. <u>DONE IN CONJUNCTION WITH ROOFING CONTRACTOR.</u>

Recycling Site Separation

Done by Recycling Site Personnel

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ShingleGrinding.com

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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

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.

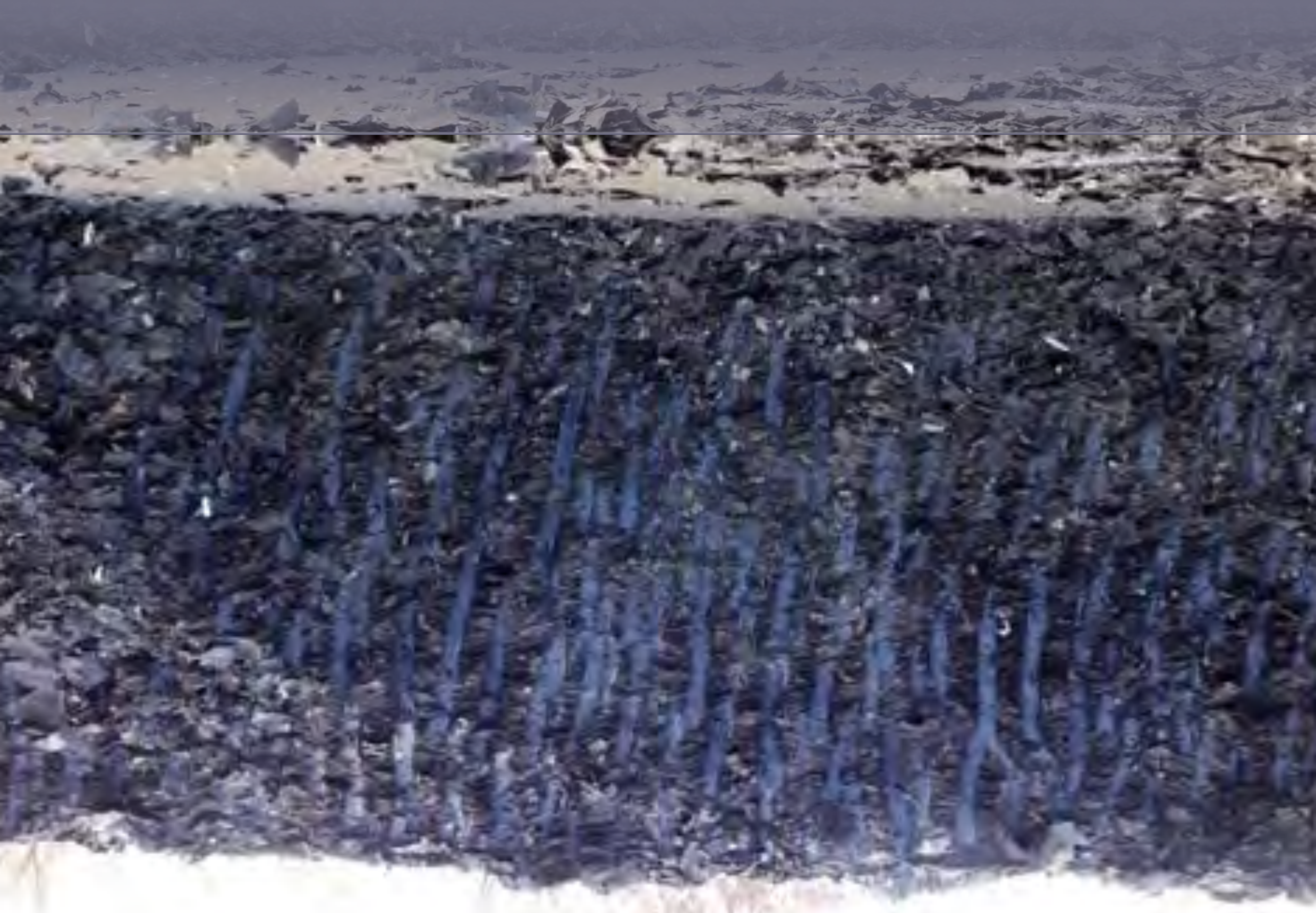
Asphalt Shingle Grinding Service
ShingleGrinding.com

This is Easy

This is Hard

Storing

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

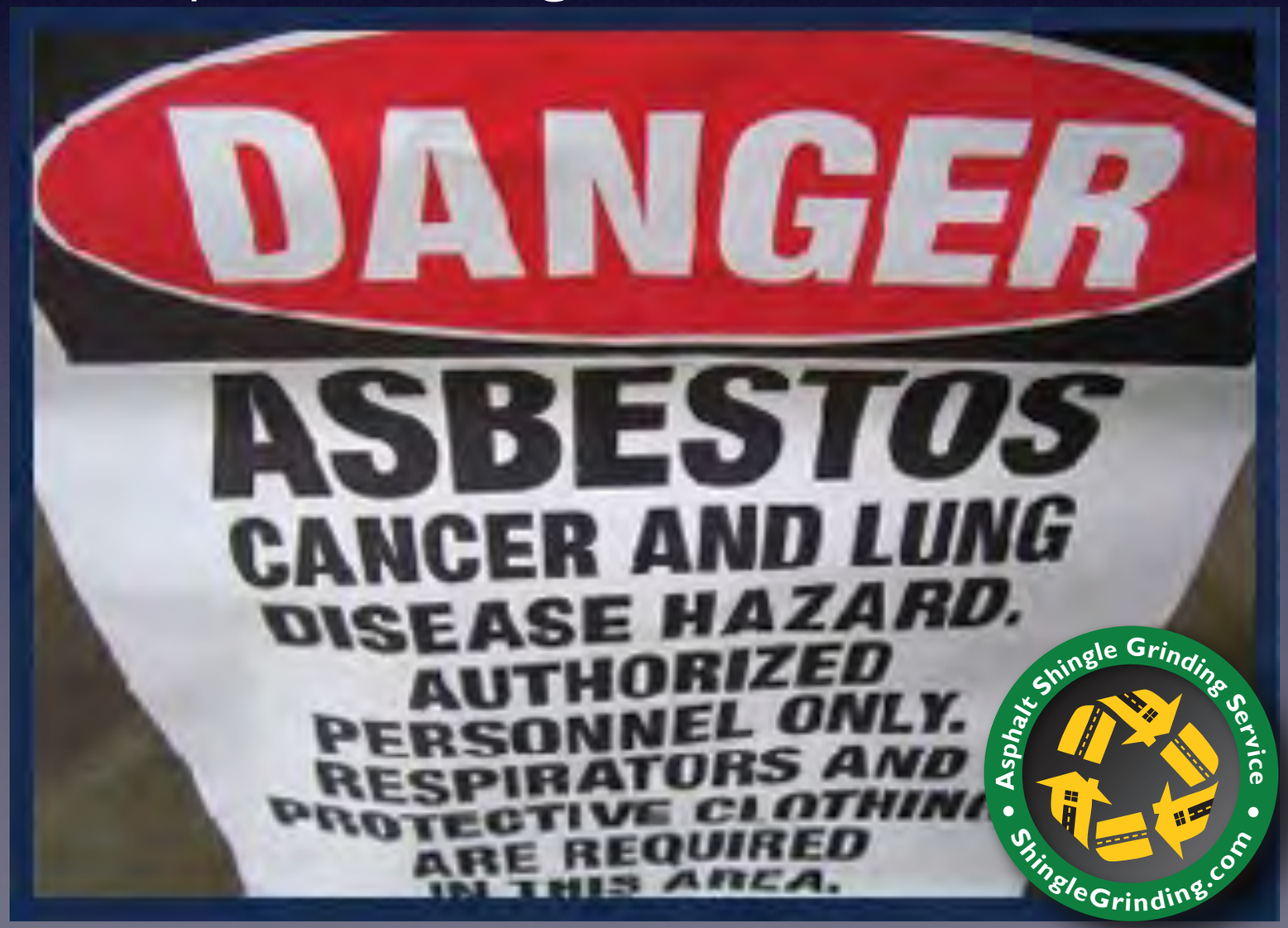


Asbestos Testing

- Tonnage
- Loads
- Layers

Asbestos Testing

- ACM must be taken to appropriate facility
- Non ACM Stockpiled for processing



Size Testing

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

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

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- Sorting
- Storing
- Testing
- Grinding
- Stockpiling

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