

ATTENTION:

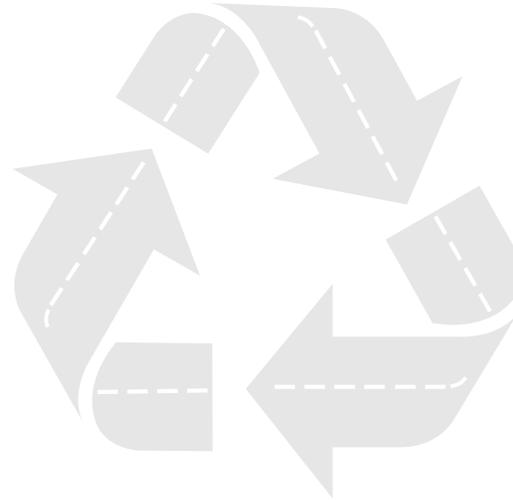
- Landfill Operators
- Engineers
- City Planners
- City Officials

And anyone involved in creating specifications or actually engaged in landfill project work

Recycling is the solution!

By adding asphalt shingles, recycling will:

- Improve rural gravel roads by mixing recycled asphalt shingles to minimize dust and reduce erosion.
- Provide a temporary surface for roads, driveways, and parking lots.
- Provide a source of aggregate and reduce the need for mined aggregate.
- Reduce the amount of new oil needed and may reduce dependence on foreign oil.
- Conserve natural resources by recycling the mineral particles in asphalt shingles.
- Save taxpayers money.
- Save contractors money by reducing energy, materials, and transportation costs.



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RECYCLING

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**From Roofs
To Roads**



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**ASPHALT &
SHINGLE
RECYCLING**



As landfill availability decreases and tipping fees increase, solid waste generators are becoming more interested in finding alternative ways to manage shingle waste.

Shingles are made up of asphalt, limestone, sand, and glass. All of these are materials that are commonly used in other construction materials. Grinding asphalt shingles is a recycling effort which diverts materials from the landfill and can be used in a variety of products, including:

- Asphalt pavement
- Aggregate base and sub-base
- Sidewalks, utility cuts, driveways, ramps, bridges, and parking lots
- Pothole patch
- Road and ground cover
- New roofing
- Fuel oil

Shingle Composition

- Asphalt roofing shingles are made of a felt mat saturated with asphalt with small rock granules added and are described as follows:
- Asphalt cement: 19 to 36 percent by weight. Asphalt used in shingles is considerably harder than asphalt used in pavement.
- Organic shingles contain 30 to 36 percent asphalt.
- Fiberglass shingles contain 19 to 22 percent asphalt.

ACCEPTABLE MATERIALS • PROCESSING STEPS

■ Old Shingles:

Roofs are replaced roughly every 20 years. Old roofs are often overlaid with new shingles, so some tear-offs contain a 20-year-old layer plus a 40-year-old layer. Twenty to forty years ago, most shingles contained organic mats. The load may contain contaminants such as nails and wood if the underlying plywood is also replaced. Nails don't have to be removed from the shingles since they can be recycled as scrap metal. Contaminated shingles with plywood are not generally acceptable material.

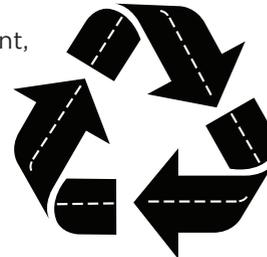
■ New Shingles:

After most shingles are manufactured, tabs are cut out to shape the shingles for assembly which contain fresh asphalt. New shingles that don't meet quality standards are also discarded. Today, most new shingles contain fiberglass mat.

■ Grinding

To prepare shingles for use in new products, the shingles must be ground to a specified size, and contaminants must be removed.

Grinding may be easier in the winter when the asphalt is more brittle. If the shingles begin to stick together in hot weather or from the heat of the equipment, spraying with water or blending with sand or gravel may help.



■ Grading

Depending on the use, the shingles may have to be sieved after grinding to conform to grading requirements.

For virtually all uses, contaminants must be removed. Possible contaminants may include:

- Metals, which can be removed by a rotating magnet.
- Wood, which sometimes accompanies shingles when the plywood is also replaced in a re-roof job. Wood can be removed by hand.

■ Asbestos

Asbestos is no longer used in the manufacture of asphalt roofing shingles.

The incidence of asbestos-containing shingles in roof tear-offs today is extremely low. The total asbestos content in asphalt shingles manufactured in 1963 is only 0.02 percent. In 1977, it dropped to 0.00016 percent. Due to the practice of covering a worn out roof with new shingles, there may continue to be a very small amount of asbestos. Shingles containing asbestos are not acceptable.

The agencies regulating asbestos are the EPA (Air Resources Board and Department of Toxic Substances Control), and the Occupational Safety and Health Administration.