

# Gemaco

Supporting Environmental Solutions



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## Recycled Asphalt Shingles (RAS)

- RAS Facts
- RAS Benefits
- Why Now
- A Proven Concept
- Recycling Procedure
- Your Local RAS Station

# RAS Facts

- Currently, asphalt shingles represent a major and non-degradable waste stream in landfills
- In Canada up to 1.25 million tonnes per year of asphalt based roofing waste is generated
- In greater Vancouver up to 80,000 tonnes per year (75 lb per person equivalent) asphalt based roofing waste is sent to landfills
- Primary use for Recycled Asphalt Shingle (RAS) product
  - Contains 20 to 30 % asphalt cement (binder) and is used to supplement virgin/new asphalt cement in any paving mixture
  - Eg. roads, road shoulders, parking lots, bike paths, driveways etc.
- Other RAS product uses
  - Fuel for industrial burners eg. cement kilns
  - Simply spread and compact on dirt roads for dust control

# RAS Benefits

## Environmental

- Diverts non-degradable material from landfills
- Conserves 2 barrels of oil per 1 tonne RAS in pavement
- Reduces greenhouse gas emissions

## Economic

- Lower tipping fees, 50% savings
- Over \$100/t at Metro Vancouver Facilities
- Roughly \$5/t savings in pavement production, as RAS is a fraction of the cost of new asphalt cement (ref. OldCastle Materials, Atlanta)

## Pavement quality

- Performance tests prove that adding RAS produces a better quality road, with longer life span, and less cracking and rutting

# RAS Benefits for Roofers

## Save Time

- No lines
- Average time on site less than 10 minutes

## Save Money

- Low tipping fees
- Discounts for volume customers
- Customer accounts available

## Grow Your Business

- Competitive advantage, market yourself as environmentally friendly
- Homeowners are going green
- Way of the future

## Save the Environment

- RAS used in asphalt mixtures
- Reduce landfill volumes
- Virtually all in-bound material is recycled



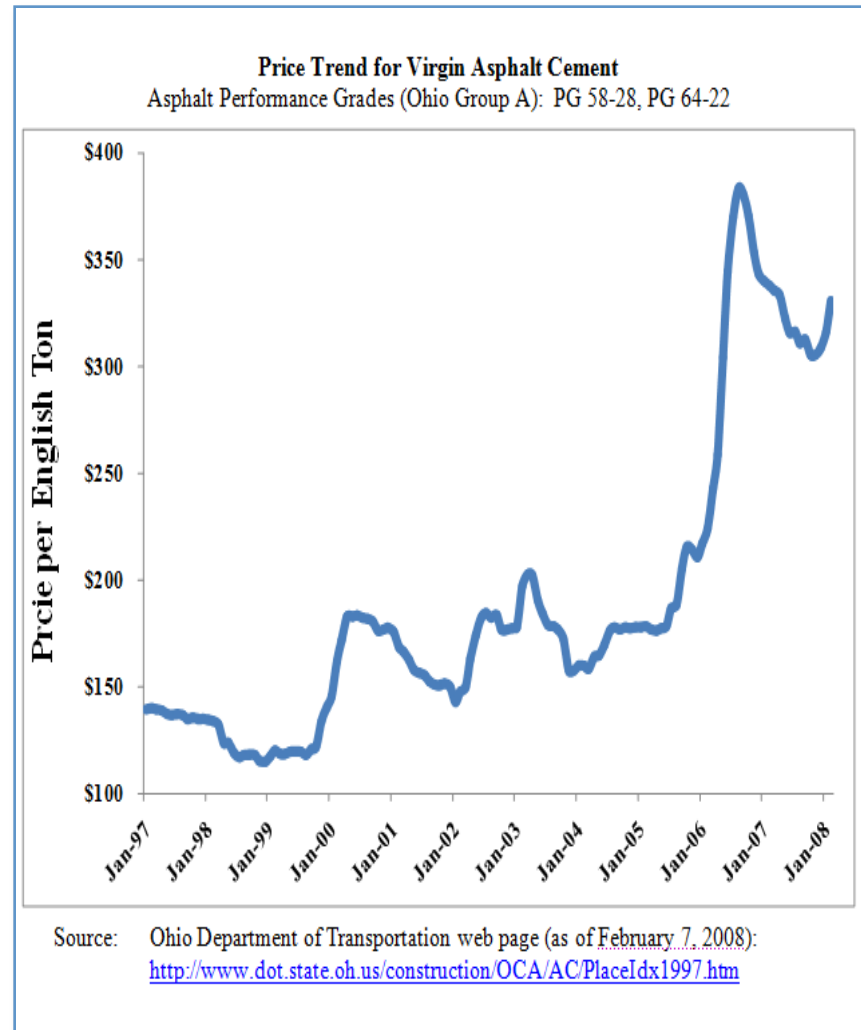
# Why Now? Motivation for Change

## Prices

- Increases in tipping fees at landfills
- Increases in crude / asphalt cement prices creating a demand for RAS
- “Green to be green” it has to make some economic sense to stakeholders

## Crisis

- Imparts a sense of urgency
- Global warming, now a known fact, an accepted reality
- Landfill space issues eg. Cache Creek
- Toronto municipal solid waste crisis eg. Summer 2009



# A Proven Concept

- The re-use of asphalt shingles in asphalt pavement is broadly used in the USA and Canada. Some examples include:
  - Manufacturer's reject RAS has been used in asphalt mixtures for 15 years across Canada.  
<http://www.cdworldmag.com/index.php/features/140-ras-in-hma-understanding-of-value-grows.html>
  - Metro Vancouver recognizes asphalt shingles as a significant single waste stream currently entering landfills, wants it out of landfills, and various pavers using product in roads
  - City of King County, Washington installed a 2 mile test road with 3% RAS and 15% RAP September 2009.  
<http://your.kingcounty.gov/solidwaste/linkup/shingles/paving-demo.asp>
  - Minnesota using RAS product in their roads since 2003.  
<http://www.modot.mo.gov/RASWorkshop/>
- Large volume of independent research material support the use and viability of recycled asphalt shingles in pavement
  - Alberta Construction Industry
  - US Department of Transportation (DOT)
  - Construction Materials Recycling Association (Best Practices Guide)
  - <http://www.shinglerecycling.org/>

# A Proven Concept, Canada

## GreenSite, Winnipeg



## Lafarge, Ontario

**LAFARGE**

**Field Validation**  
*Highway 20 experience*



After 2 years of service: Excellent behavior :  
**No sign of rutting**  
Transverse and longitudinal cracking rates are very low (<math><0.01\text{ m}^2</math> for longitudinal cracks & <math><0.049\text{ m}^2</math> for transverse cracks)

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# A Proven Concept, USA

King County, Washington



Washington State  
Department of Transportation

Missouri, Dept of Transport

**No Reflective Cracking or  
Rutting to Date...**





# Recycling Procedure



## Receiving

- Receive tear-off shingle material from roofers and contractors
- Must be free of contaminants such as flashing, wood and plastic wrappers
- Source separation is best, easiest, and helps maintain lower tipping fees
- Will take other roofing waste material, in bags or on top of load

## Processing

- Purpose built shingle grinding equipment
- No need to remove nails, cross belt magnet extraction during grinding
- Collected nails also recycled, so virtually all in-bound material is recycled
- Strict guidelines for cleanliness ensure a superior product to the end user
- Shingles are ground into clean 3/8" minus ready for use

## End Product Use

- Guaranteed product specification eg. asphalt cement content, sieve size
- Shipped to asphalt manufacturers and used in hot/warm asphalt mixtures

# Your Local RAS Station

## Gemaco

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### Recycling Asphalt Shingle Station

669 Derwent Way, Delta  
Entrance on Caldew Street

Roofing contractors, roofing supply companies, commercial haulers, landfill operators, and homeowners can now recycle residential asphalt shingles.

#### Services

- Shingle Recycling
- Contract Shingle Grinding

#### Hours of Operation

- Mon - Fri 7am to 4pm
- Closed statutory holidays

#### Rates

- \$40 - \$55 per tonne depending on volume
- \$20 minimum charge per load

#### Payment accepted

- On Account, Cash, Debit, MasterCard, Visa

#### Site Management

- Hilary Hanna, ph. 604-540-7574
- Terry Charles, NEW ph. 604-353-3221

#### Acceptable Material

- Residential asphalt roofing shingles
- Manufacturers remnants and retailers rejects/unusable/unsellable asphalt shingles
- Asphalt roofing shingles may include nails and tar paper backing.
- Small amounts of non-hazardous/roofing debris, paper, plastic, metal and wood separated from the recyclable shingle materials. Please place on top of clean load.

#### Unacceptable Material

- Asbestos, construction debris, household trash, furniture, yard waste, paint, solvents, gasoline, anti-freeze, electronics, batteries etc.
- Loads containing > 50% non-shingle material.
- Torch on, tar and gravel, cedar shakes

#### Inspection

Incoming loads are inspected for deleterious material, weighed, and randomly tested for asbestos.

#### Head Office/Scale Office

- 669 Derwent Way, Delta, BC, V3M 5P7
- Enter off of Caldew Street by train tracks
- ph. 1-800-663-7574 or 604-540-7574
- fax 604-540-7594
- Email us at [info@gemacosales.com](mailto:info@gemacosales.com)
- Visit our website at [www.gemacosales.com](http://www.gemacosales.com)

# About Gemaco

- Gemaco's main operation is the Recycle Asphalt Shingle (RAS) Station on Annacis Island in Delta
- Gemaco also provides contract shingle grind/sell services to other collection sites
- Gemaco also supplies equipment for organic waste reduction and reuse, such as:
  - Grinders
  - Wood chippers
  - Wood chip coloring equipment
  - Bagging equipment
  - Compost turners
  - Air curtain burners

# Thank You!

- Q&A