

## LABORATORY EVALUATION OF PERFORMANCE OF HOT MIX ASPHALT MIXES CONTAINING RECLAIMED ASPHALT ROOFING SHINGLES

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### *ABSTRACT*

The most common residential roofing product in use in Canada is asphalt shingles. Thus post-consumer roofing shingles represent a significant component of construction generated waste, despite the fact that they comprise high quality fine aggregate, asphalt cement and fibre. As part of its overall waste diversion and recycling strategy, Metro Vancouver commissioned a study into the feasibility of incorporating recycled asphalt shingles (RAS) into conventional road asphalt paving mixes.

This paper describes a laboratory research study to establish how much RAS could be added to asphalt mixes without impairing performance. Six mix types were included in the study. Besides a control mix incorporating all virgin materials, various percentages of RAS and Reclaimed Asphalt Pavement (RAP) were added to the other mixes, with a rejuvenator also added to some mixes. The asphalt mix performance testing included dynamic and resilient modulus testing, rut and fatigue endurance testing and low temperature cracking susceptibility. The overall conclusions of the study are that the addition of 5% recycled asphalt shingles to conventional asphalt mixes containing up to 15% RAP and appropriate rejuvenator, will perform in a similar manner to conventional paving mixes used in the Vancouver area.

**KEY WORDS:** Recycled roofing shingles, asphalt mix performance.