



# Specifications for Heater Scarification Asphalt Surface Recycling

## Scope

The work covered by this specification consists of furnishing all plant, labor, equipment, and materials in performing all operations by Heater Scarification Asphalt Surface Recycling in complete and strict accordance with these specifications.

## Heater Scarification Asphalt Surface Recycling

**A. Description** This work shall consist of rehabilitating an asphalt pavement by heating, rejuvenating, scarifying and compacting the existing pavement.

**B. Procedure** The entire surface to be rehabilitated shall be cleaned of water, earth and foreign material. All base failures shall be repaired in accordance with local specifications and paid for separately. Rehabilitation work shall be performed only when the air temperature in the shade is at least 45°F. and the forecast is for rising temperatures.

Utilizing a one-pass, continuous process, the surface of the existing pavement shall be heated, rejuvenated and scarified to a one inch nominal depth (Note 1) with the surface temperature of the old pavement not to exceed 375°F. Heat shall be applied under an enclosed or shielded hood and shall extend at least four inches beyond the width of scarification on both sides. Scarifying shall be accomplished with pressure scarifiers. The scarifying unit shall be equipped to scarify and move material away from the gutter flags for a depth of 1/2 inch by 4 inches wide. The heating-scarifying operation shall not exceed 30 feet per minute. When a repaving pass is being made adjacent to a previously placed mat, the longitudinal repaving seam shall extend at least two inches into the previously placed mat.

**C. Note 1** The depth of scarification will be determined by scraping out and weighing the heated and scarified material from a one square foot area. This weight shall be 75% of the theoretical weight of one square foot by 1" of compacted bituminous surface course. Total equipment length of the pre-heater and heater-scarifier shall not exceed 115 feet.

Immediately before the scarifying operation, an approved asphalt modifier shall be applied at the approximate rate of 0.10 gallon per square yard. The engineer may waive or adjust the requirement for the asphalt modifier if the existing pavement condition warrants this action. The surface shall then be leveled by distributing the heated, scarified and treated (HST) material over the width being processed, so as to produce a uniform cross section. The minimum temperature of the HST material after leveling shall be 175°F. The HST material shall be compacted before the temperature of the mix drops below 150°F.

Compaction shall be accomplished with an 8 to 10-ton steel wheel roller in static mode. The roller shall be equipped with an adequate scraping or cleaning device on each wheel to prevent the accumulation of material on the wheels. When used for the compaction of bituminous mixtures, the roller shall be equipped with a water system, which will keep all wheels uniformly wet to prevent material pickup when required.

**D. Method of Measurement** The heat-scarifying process will be measured in place and the area computed in square yards. The asphalt modifier will be measured in gallons. If provided as a payment item, the preparation of the base will be measured in square yards.

**E. Basis of Payment** This work will be paid for at the contract unit price per square yard for HEATER-SCARIFYING, and per gallon for ASPHALT MODIFIER. If provided as a pay item, the preparation of the base (exclusive of additional material required) will be paid for at the contract unit price per square yard for PREPARATION OF BASE.

# Sample Specification

## Emulsified Rejuvenating Seal



Test	Test Method	Requirement Minimum	Requirement Maximum
Residue from distillation, % <sup>1</sup>	ASTM D244 <sup>1</sup>	60.0	65.0
Viscosity, SF @ 25°C, seconds		15	100
Oil distillate by distillation, %	ASTM D244 <sup>1</sup>		2.0
Sieve Test, %	ASTM D244 <sup>1</sup>		0.1
Storage Stability, 24 hrs, %			1.0
Penetration @ 4°C, 100g, 5s, dmm <sup>2</sup>	ASTM D5 (modified)	-25%	+25%
Asphaltenes, %	KDOT Method 1007		15

<sup>1</sup>Modified ASTM D244 procedure—distillation temperature of 177°C with a 20 minute hold. The ASTM D244 vacuum distillation procedure may be substituted once the maximum oil distillate is satisfied.

<sup>2</sup>The penetration value will be +/- 25% of that value reported in the project design. Example: if the penetration is reported to be 200 dmm, the acceptable range would be 150-250 when testing QC/QA samples.

# Heater Scarification Asphalt Surface Recycling



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Two machines operating in tandem insure deep heating and softening of the aged pavement.

## Application

Roadways that possess a stable and structurally adequate base are appropriate candidates for this process. The depth and nature of the existing materials must be evaluated prior to construction.



The recycled material levels the previously deformed surface in preparation for an overlay or seal coat.



Application of rejuvenating agent improves the viscosity of the aged asphalt.



Multiple rows of spring loaded scarifiers penetrate the softened asphalt to the desired depth.



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**“This is a No-Brainer”** – Public Works Superintendent

Resurface 13 miles with a budget that only covers 10 miles by recycling your current road surface using our SCARIFY or our Re-HEAT process. Each has a long list of benefits for agencies that need each dollar to go farther.

Gallagher Asphalt Corporation is one of the oldest and largest asphalt producers in Illinois. We’ve been building roads for more than 80 years and recycling them for over 65 years.

**SIDE-BY-SIDE  
COMPARISON**



Need for Surface Treatment/Overlay	No	Yes
Materials Added During Process	Asphalt Rejuvenator	Asphalt Rejuvenator
SYs per Day	4,500	9,000
Pavement Penetration Depth	Up to 2" (Depending on Surface Course Thickness)	Up to 1.5" (Depending on Surface Course Thickness)
In-Place Mixing Capability	On-board drum mixer	Scarifying Tines & Augers
Thermal Bond Effect	Moderate – High	Low – Moderate
Mat Re-Placement	Conventional paving screed	Conventional paving screed
Compaction Equipment	Double Drum Vibratory Roller	Double Drum Vibratory Roller
Budgetary Price per SY		