

**SECTION 312  
BITUMINOUS CRACK RELIEF LAYER**

**312-1 Description.**

Construct a crack relief layer composed of a separate application of bituminous material covered with a single application of aggregate.

**312-2 Composition and Proportioning.**

Use the composition and proportioning for the crack relief layer as shown in the table below. The range of bituminous material and cover material are approximate. The Engineer may increase or decrease the range.

NON SI UNITS			
Proportions For Crack Relief Layer			
Aggregate Grade	Cover Material ft <sup>3</sup> /yd <sup>2</sup>	Bituminous Material gal/yd <sup>2</sup>	
		Asphalt Cement	Emulsified Asphalt
67	0.32 - 0.38	0.20 - 0.30	0.29 - 0.43

SI UNITS			
Proportions For Crack Relief Layer			
Aggregate Grade	Cover Material m <sup>3</sup> /m <sup>2</sup>	Bituminous Material L/m <sup>2</sup>	
		Asphalt Cement	Emulsified Asphalt
67	0.011 - 0.013	0.9 - 1.4	1.3 - 1.9

**312-3 Materials.**

Meet the following requirements:

(1) Bituminous Material:

- Asphalt Cement, Viscosity Grade AC-5 .....916-1
- Asphalt Cement, Viscosity Grade AC-10.....916-1
- Emulsified Asphalt, Grade RS-2.....916-4

(2) Cover Material:

- Stone, Slag, or Crushed Gravel..... Section 901

**312-4 Equipment.**

**312-4.1 Pressure Distributor:** Provide a pressure distributor that meets the requirements of 300-3.1.

**312-4.2 Spreading Equipment:** Provide spreading equipment that meets the requirements of 310-4.2.

**312-4.3 Rollers:** Provide pneumatic-tired traffic type rollers equipped with at least seven smooth-tread, low-pressure tires and capable of carrying a gross load of at least 8 tons [7 metric tons]. Maintain the inflation of the tires such that in no two tires the air pressure varies more than 5 psi [35 kPa]. Load the traffic roller as directed by the Engineer.

**312-5 Limitations to Width of Application.**

Confine the application of bituminous and cover material to one lane at a time, leaving all additional lanes open to traffic.

**312-6 Preparation of Road Surface.**

**312-6.1 Cleaning:** Sweep the surface to be covered clean and free of sand, dirt, dust, and other deleterious material by means of mechanical rotary sweepers or other approved methods, and keep the surface free from moisture.

**312-6.2 Condition of Underlying Surface:** Do not construct the crack relief layer over any loose or unstable pavement that results in excessive penetration of the cover material during the rolling operations.

### **312-7 Protection of Adjacent Surface.**

Where constructing a crack relief layer adjacent to curb and gutter, valley gutter, or any other concrete surface, cover the concrete surfaces with heavy paper or other protection approved by the Engineer during application of bituminous material. Immediately remove any bituminous material deposited on such concrete surfaces.

### **312-8 Weather Limitations.**

Do not apply bituminous material when the air temperature in the shade and away from artificial heat is less than 45°F [4°C] or when weather conditions or the surface conditions are otherwise unfavorable.

### **312-9 Application of Bituminous Material.**

**312-9.1 Distributor Pressure:** After cleaning the surface to be treated to the satisfaction of the Engineer, uniformly spray the bituminous material over the surface by means of a pressure distributor. Use a distributor that maintains a consistent pressure of at least 20 psi [135 kPa], but not more than 75 psi [520 kPa].

**312-9.2 Application Temperatures:** For asphalt cement, maintain an application temperature between 300 and 325°F [149 and 163°C]. For emulsified asphalt, maintain an application temperature between 140 and 180°F [60 and 82°C].

**312-9.3 Uniformity of Distribution:** Adjust and operate the distributor to maintain an even and uniform distribution of the bituminous material. Immediately remove excessive deposits of bituminous material upon the road surface caused by stopping or starting the distributor, by leakage, or otherwise.

**312-9.4 Limitations to Application:** Ensure that the area to be covered by any one application of bituminous material is no greater than the aggregate can cover without interruption due to limitations of hauling and spreading equipment or to any other cause.

### **312-10 Spreading Cover Material.**

**312-10.1 Spreading:** Spread the cover material immediately following the application of bituminous material. Uniformly distribute the cover material over the bituminous surface in one course. Do not drive trucks, spreaders, or other vehicles on the uncovered bituminous material.

**312-10.2 Brooming and Dressing:** Immediately after applying the cover material, broom the surface in order to secure a uniform distribution of cover material and a smooth surface. Place additional aggregate by hand on any areas not properly covered. If deemed necessary by the Engineer, drag the surface with a light drag broom or other dragging equipment approved by the Engineer, of a type that will not disturb the embedded aggregate. Supplement this operation by additional hand brooming until obtaining a smooth and even surface. Repeat the dragging and brooming, in conjunction with the rolling, for as long as required to ensure a uniform surface.

### **312-11 Rolling.**

Immediately after the spreading and dragging of cover material, roll the entire surface. Begin rolling at the edge of pavement, and progress toward the centerline, uniformly lapping each preceding

pass and thoroughly covering the entire surface. During rolling, perform additional dragging and hand brooming as specified in 312-10.2.

**312-12 Surface Requirements.**

Remove all joints or portions of the completed surface that are defective, not properly finished, or not in conformance with these Specifications, and replace them with a satisfactory surface. The Department will not pay for the defective work and its removal.

**312-13 Covering Crack Relief Layer.**

Cover the crack relief layer with an asphaltic concrete layer prior to opening it to traffic.

**312-14 Method of Measurement.**

**312-14.1 Bituminous Material:** The quantity to be paid for will be the volume, in gallons [liters], applied on the road and accepted, determined as provided in 300-8.

**312-14.2 Cover Material:** The quantity to be paid for will be the area, in square yards [square meters], applied on the road and accepted, determined by surface area.

**312-15 Basis of Payment.**

**312-15.1 Bituminous Material:** Price and payment will be full compensation for furnishing all the materials and for heating, hauling, and applying.

**312-15.2 Cover Material:** Price and payment will be full compensation for all the work described in this Section, except for the work paid for under the item of Bituminous Material.

**312-15.3 Payment Items:** Payment will be made under:

- |                |     |   |
|----------------|-----|---|
| Item No. 300-  | 1-  | Bituminous Material - per gallon.                         |
| Item No. 2300- | 1-  | Bituminous Material - per liter.                          |
| Item No. 312-  | 70- | Cover Material for Crack Relief Layer - per square yard.  |
| Item No. 2312- | 70- | Cover Material for Crack Relief Layer - per square meter. |