

PAVING FABRIC INTERLAYER GUIDE SPECIFICATION WHEN USED UNDER CHIP OR CAPE SEALS

Water is known to be the source of premature deterioration of roadway sections 80% of the time. The primary source of water getting to the base aggregate is water that passes through the asphalt. The use of paving fabric interlayers in conjunction with chip seals or cape seals is a very cost effective way to provide a new wear surface and provide waterproofing. An added benefit is the retardation of reflective cracking present in the underlying asphalt concrete pavement. Chip or Cape sealing over fabric is a surface treatment for roads that have a sound structural section, that do not deform under load. The chip or cape seal extends the life of the asphalt surface by providing an all weather surface-wearing course with improved skid resistance. The load bearing capacity of the road section is maintained because the base aggregate is kept dry by applying these surface treatments.

The fabric must be completely saturated and bonded to the underlying asphalt concrete pavement by applying a liquid asphalt/bituminous tack coat, such as paving asphalt, prior to placing the fabric. Emulsions are NOT recommended to be used to bond and saturate the paving fabric.

Fabric placement with chip or cape seal is not recommended at the following locations: 1) the bubble portion of cul de sacs, 2) intersection radii 3) the last 100 linear feet approaching an intersection that requires traffic to stop or slow down and 4) and in areas where subsurface water penetrates the existing pavement from underneath.

MATERIAL SPECIFICATIONS

Fabric Binder

Please refer to AIA Standard Specification for binder.

Paving Fabric

Please refer to AIA Standard Specification for Paving Fabric

Sand

A chip or cape seal over fabric system can be successfully accomplished with or without the use of sand after placement of the paving fabric. NOTE: Sanding is beneficial during seating of the fabric in to the asphalt binder because it serves as a bond breaker between vehicle tires (either construction or public vehicles) and any asphalt binder that may surface on top of the fabric. The tires may then pull the saturated fabric from the pavement. Therefore, if sanding is not to be used, the complete embedment of the fabric must occur during fabric laydown or with subsequent rolling without sand prior to placing the chip or cape seal. If sand is not used, it will be necessary to use a parting agent. The use of the parting agent shall be used in a manner that will keep the fabric from being pulled up by the tires but yet not in any way affect the binder for the chip. In the case of any petroleum distillates (diesel or kerosene), the use must be very judicious such that none of the liquid drips or runs on to the placed fabric surface. Tire spray nozzles should have check valves to disallow siphoning and spraying operation limited to one rotation of the roller tire. It is recommended that chip operations commence as soon as the fabric rolling is complete. Opening the placed fabric to public traffic (without sanding) prior to chip placement is NOT recommended. In-place paving fabric can become slick when exposed to moisture, either from rain, dew or irrigation water and can present a hazardous condition for public traffic.

If sanding is the desired method (this does not imply poor fabric embedment can be corrected by sanding and rolling), the following information is provided:

Cover sand shall be uniform, clean and free from deleterious matter and organic contaminants conforming to the following gradation:

<u>Sieve Size</u>	<u>Percent Passing</u>
3/8-inch	100
No. 4	90-100
No. 200	0-5

Chip Seal Materials – In conformance with Agency requirements.

WEATHER REQUIREMENTS

Paving asphalt shall be applied when the atmospheric temperature is 60°F and rising, and atmospheric temperatures are not expected to reach 100°F that day. Pavement surface is dry and shall be 55°F and rising. Inclement weather is not predicted from the time fabric placement begins to 24 hours after chip sealing is completed. It is also recommended the ambient/pavement temperatures required of the chip and cape seal are also present. If not, fabric placement is not recommended if ambient /pavement temperatures cannot be obtained for each phase of the operation (fabric, chip, and cape seal).

MATERIAL PLACEMENT

Place Fabric Binder (Tack Coat)

Liquid paving asphalt for tack coat shall be applied between 290°F and 350°F. The application rate of paving asphalt, including overlaps, shall be a minimum of 0.28 gal per square yard. The application rate of the tack coat needs to be sufficient to ensure the fabric is fully impregnated with bitumen (liquid paving asphalt), but not so heavy that there is free bitumen on the surface of the fabric. This is a critical judgment decision that must be made as the project proceeds. Varying quantities of cracks, pavement roughness and porosity of the existing asphalt will require varying applications rates of tack coat. Insufficient tack coat will not fully saturate the fabric. Binder applied for the chips will therefore be absorbed into the mat and chips will not be adequately adhered. In contrast, excessive tack coat application may result in pick-up by construction equipment and vehicles used during the seating of the fabric or the construction of the chip seal. Excessive tack coat application may also result in the fabric moving during hot weather when the asphalt binder typically softens. Liquid paving asphalt shall be placed on pavement, 2 to 4 inches beyond all edges of the fabric where fabric will not be lapped (e.g., outside edge). Where fabric and chip will be butted (e.g., roadway centerlines & lane lines) care must be taken not to overlap tack coat on either the paving fabric or the chip seal. When overlapping fabric, apply paving asphalt between all overlaps and avoid spraying beyond the overlap.

Place Fabric

Paving fabric must be completely embedded in the liquid paving asphalt tack coat immediately after the tack coat is placed. It is imperative that broom pressure must be applied uniformly across the full width of the fabric being placed. Transverse and longitudinal joints shall be butt joints and shall not overlap. If paved shoulders exist, fabric shall be placed on shoulders before placing fabric on travel lanes. Longitudinal joints shall be placed in the same location as travel lane delineation (striping). When desired, fabric and chip seal can be held back 4-6 inches from all valve covers and curbs to provide a more aesthetically pleasing transition for cape seals.

Place Sand (Optional)

Prior to opening to traffic or rolling operations, the fabric may be sanded by a mechanical sand spreader at a uniform application rate of 2 to 6 pounds per square yard. Sand should be rolled immediately with pneumatic-tired rollers to insure proper seating of the fabric in the fabric binder.

Rolling Operation (Sanded and un-sanded operations)

Rollers shall be pneumatic tired and should not exceed speeds of 10 miles per hour during all passes. Rolling should begin immediately behind the fabric placement and/or the mechanical sand spreader (if sand is applied). Enough rolling has been done when the texture of the underlying pavement surface is visible on the surface of the fabric. Excess sand shall be removed immediately prior to beginning chip seal operations.

Place Chip Seal

Materials and placement requirements should be in conformance with Agency requirements. Chip seal can be placed as soon as the fabric is fully embedded.

Place Slurry Seal

Materials and placement requirements should be in conformance with Agency requirements.

The slurry seal being used to complete the Cape Seal system can be placed immediately after the initial sweeping of the chip seal. This means the next day after the chip has been placed, if desired. Many agencies, however, allow the chip to be exposed to vehicle traffic for about a week. If this is done, another sweeping must occur prior to placement of the slurry seal to be certain all loose chips are removed. Type I slurry seal will provide the smoothest surface. Type II will be slightly more costly but provides longer wear and more texture.

Word/ AIA Specification fabric under chip or cape seal with parting agent 01/01/2004.doc