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Dual heat-bonded fabric (left) is very stiff, and wrinkles span the fabric width.

The bleed-through (right) here resulted from the use of dual heat-bonded fabric, which is thin and has poor absorption characteristics.

ric. This is similar to gluing and is seldom used. The fabric is thin, stiff, and has problems absorbing a tack coat.

Government reports

Numerous states have published dozens of reports with FHWA since 1975 concerning the use and performance of pavement fabrics under different climatic conditions. Temperatures ranged in excess of 104° F and as low as -30° F.

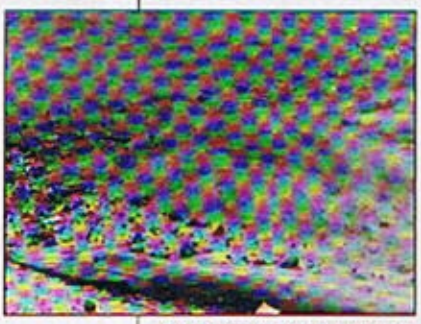
Most of these reports show great success with fabrics, but some show failures. In most instances the failures have been traced to improper installation techniques and the fabric chosen.

The most extensive studies were conducted by Caltrans and published in 1991 with the FHWA. The studies covered 24 test and control sections paved over 12 years and concluded:

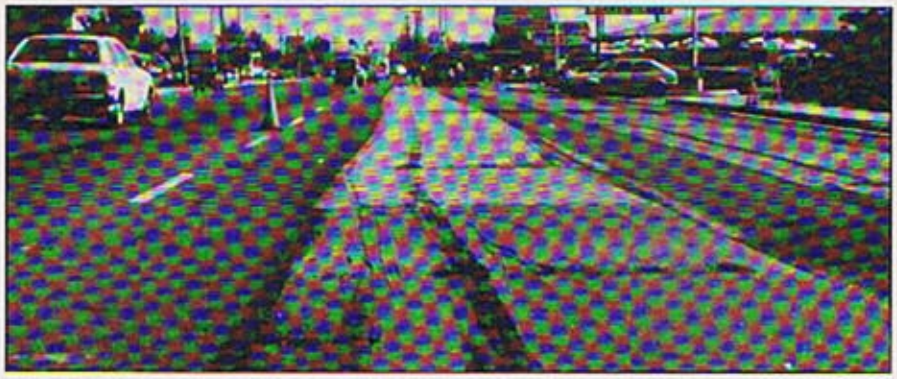
"Asphalt concrete overlays incorporating paving fabric interlays had less alligator cracking than conventional asphalt concrete overlays that were up to 0.10 foot thicker. It is recommended that [fabric interlayer membranes] be used to replace approximately .10 foot of [asphalt concrete] where additional tensile and flexural stiffness is not required."

This results in savings as much as $1.13 per square yard over a thicker overlay.

As far as overlays on PCC pavement are concerned, studies have found that "[paving fabric interlays] appear to reduce transverse cracking in thinner overlays. . . by .20 to .40 foot over distressed



A closeup of the fuzzing of a nonheat-bonded fabric.



This needle-punched fabric, heat-bonded on one side, was installed upside down, causing delamination of the fabric.

PCC pavement by approximately one transverse crack per 100 feet after eight years of service.

"In a comparison of performances of 12 different proprietary fabrics in 24 test sections over distressed PCC pavements, there were no significant differences in cracking between any of the fabrics." At least two other studies confirmed these observations, provided the fabric was placed properly.

In 1989, after 15 years of field evaluation, Caltrans changed its specifications to permit only nonwoven, needle-punched fabric, heat-bonded on one side. In 1991, Los Angeles County also changed to this type of fabric and has recently introduced the most comprehensive specification in existence today. PM

Mounque Barazone is president of Geotextile Apparatus Co. (GAC), San Diego, Calif. This is the first in a series of articles on the state-of-the-art of paving fabrics.