



Nonwoven Geotextile Interlayers for Concrete Pavements and Overlays

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National Concrete Pavement Technology Center

 Uniting agencies, industry, and researchers to advance concrete pavement technology

Robert O. Rasmussen, PhD, INCE, PE (TX)

CP Road Map

■ Concrete Pavement Construction, Reconstruction, and Overlays



CP ROAD MAP
shaping the future of concrete pavement

www.CPRoadMap.org

Germany





Property	Requirements	Test Procedure
Geotextile Type	Nonwoven, needle-punched, no thermal treatment (calendering or IR)	EN 13249, Annex F (Certification)
Color	Uniform/nominally same color fibers	(Visual Inspection)
Mass per unit area	$\geq 500 \text{ g/m}^2$ (14.7 oz/sq.yd) $\leq 550 \text{ g/m}^2$ (16.2 oz/sq.yd)	ISO 9864 (ASTM D 5261)
Thickness under load (pressure)	[a] At 2 kPa (0.29 psi): $\geq 3.0 \text{ mm}$ (0.12 in.) [b] At 20 kPa (2.9 psi): $\geq 2.5 \text{ mm}$ (0.10 in.) [c] At 200 kPa (29 psi): $\geq 1.0 \text{ mm}$ (0.04 in.)	ISO 9863-1 (ASTM D 5199)
Wide-width tensile strength	$\geq 10 \text{ kN/m}$ (685 lb/ft)	ISO 10319 (ASTM D 4595)
Wide-width maximum elongation	$\leq 130\%$	ISO 10319 (ASTM D 4595)
Water permeability in normal direction under load (pressure)	At 20 kPa (2.9 psi): $\geq 1 \times 10^{-4} \text{ m/s}$ ($3.3 \times 10^{-4} \text{ ft/s}$)	DIN 60500-4 (mod. ASTM D 5493)
In-plane water permeability (transmissivity) under load (pressure)	[a] At 20 kPa (2.9 psi): $\geq 5 \times 10^{-4} \text{ m/s}$ ($1.6 \times 10^{-3} \text{ ft/s}$) [b] At 200 kPa (29 psi): $\geq 2 \times 10^{-4} \text{ m/s}$ ($6.6 \times 10^{-4} \text{ ft/s}$)	ISO 12958 (ASTM D 4716)
Weather resistance	Retained Strength $\geq 60\%$	EN 12224 (ASTM D 4355 @ 500 hrs. exposure)
Alkali resistance	$\geq 96\%$ Polypropylene/Polyethylene	EN 13249, Annex B (Certification)

Vendor	Material
BECO Bermüller & Co. GmbH	Betex TP 50
Heusker, Inc.	HaTe B 500
NAUE GmbH & Co.	Secutex R 501 (PP white)
Propex, Inc.	Geotex 1341
TenCate	Polyfelt P 50 Mirafi 1160N Mirafi 1450B

Why use it?

\$1.00 to \$2.00 / sq.yd. installed



How much does the alternative cost???

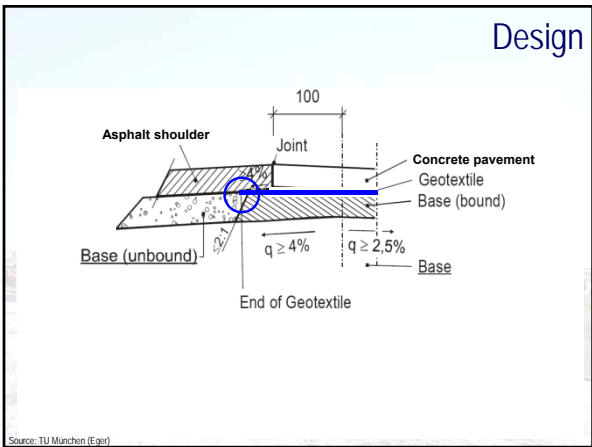
How is it placed?

■ Overlays

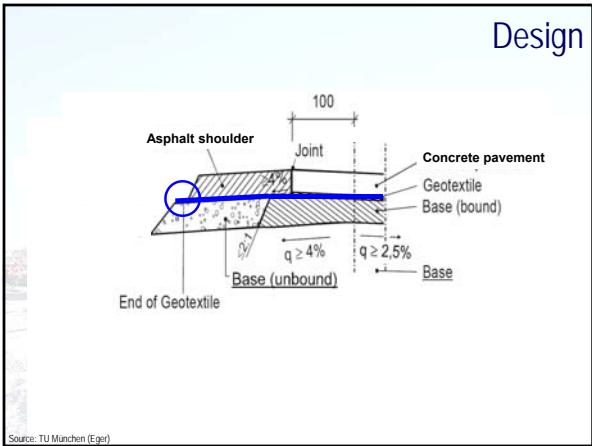
■ New Construction



Design



Design



Construction – Geotextile Installation

- *Prep the surface and roll geotextile out tight (no wrinkles/folds)*



Source: BASI

Construction – Geotextile Installation

- *Do not use on crossovers/driveway access until immediately before paving*



Source: BASI (Holler)

Construction – Geotextile Installation



Source: BASI (Holler)

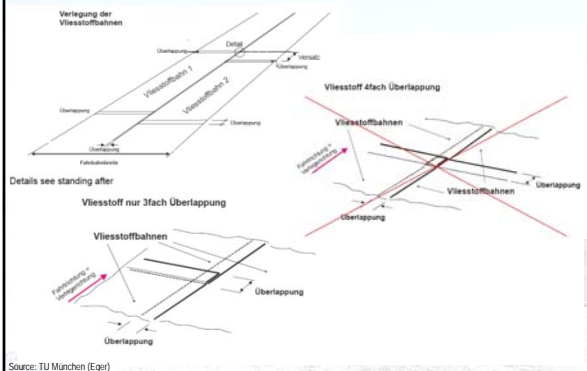
Construction – Geotextile Securing/Lapping

■ *Secure to underlying layer every 6 ft.*



Source: BASI (Höller)

Construction – Geotextile Securing/Lapping



Source: TU München (Eger)

Construction – Geotextile Installation

■ *Free edge should extend beyond the edge of new concrete and into drainage layer by 4 in. or more.*



Field Trials

■ Missouri – Overlay

■ Oklahoma – New Construction

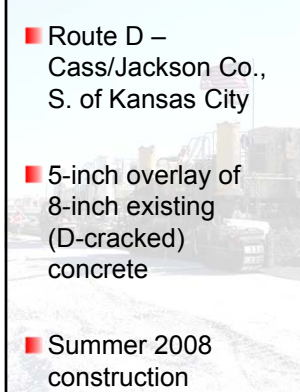
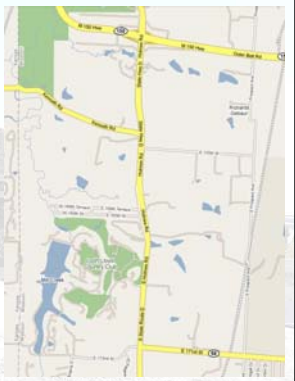


Field Trial – Missouri

■ Route D –
Cass/Jackson Co.,
S. of Kansas City

■ 5-inch overlay of
8-inch existing
(D-cracked)
concrete

■ Summer 2008
construction



Field Trial – Missouri



Field Trial – Missouri



Field Trial – Missouri



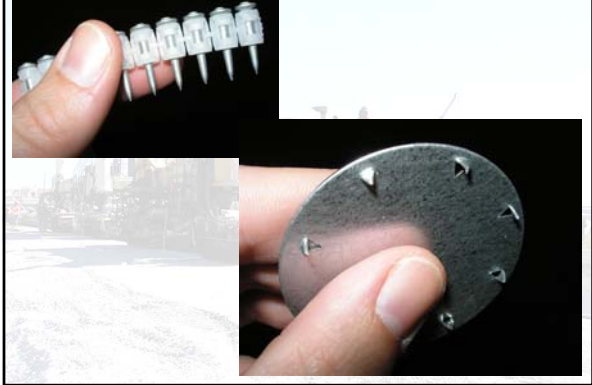
Field Trial – Missouri



Field Trial – Missouri



Field Trial – Missouri



Field Trial – Missouri

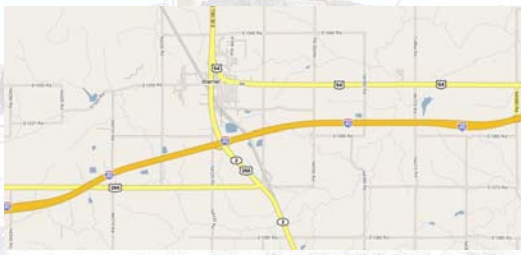


Field Trial – Missouri



Field Trial – Oklahoma

- WB I-40 near Warner
- New concrete pavement on CTB
- Fall 2008 construction



Field Trial – Oklahoma



Field Trial – Oklahoma



Field Trial – Oklahoma



Lessons Learned

- Don't over-saturate the geotextile
- Be sure the material meets the recommended specifications



What's next?

- More projects!
- ETG
 - To develop guidance and specifications
 - To help identify projects past, ongoing, and planned
 - To facilitate technology transfer



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Thank You!