

**OKLAHOMA DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISIONS  
FOR  
MOISTURE BARRIER MEMBRANE  
PROJECT NUMBER, JP NO. 00000(04), COUNTY**

This special provision amends and where in conflict, supersedes applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

**325.01 DESCRIPTION** *(Add the following:)*

This work consists of installing a moisture barrier membrane for control of expansive soils beneath the pavement section.

**325.02 MATERIALS** *(Add the following:)*

Provide fabric for moisture barrier membrane that meets the following requirements:

Table 325:1 Mechanical Property Requirements for Moisture Barrier Membrane			
Mechanical Properties	Test Method	Typical Roll Value	
		MD	CD
Nominal Tensile Strength (680F)	DIN 53455	1,919 lb/ft [28.0 kN/m]	1,782 lb/ft [26.0 kN/m]
Elongation at Max Tensile (680F)	DIN 53455	27 %	26 %
Nominal Tensile Strength (1,580F)	DIN 53455	1,370 lb/ft [20.0 kN/m]	1,233 lb/ft [18.0 kN/m]
Elongation at Max Tensile (1,580F)	DIN 53455	47 %	43 %
Grab Tensile Strength	ASTM D 4632	342 lbs [1.52 kN]	299 lbs [1.33 kN]
Grab Tensile Elongation	ASTM D 4632	31 %	40 %
Trapezoid Tear Strength	ASTM D 4533	67 lbs [0.30 kN]	65 lbs [0.29 kN]
Puncture Strength	ASTM D 4833	128 lbs [0.57 kN]	
Dimensional Stability (1,580)	DIN 53377	1.45 %	
Permeability	ASTM D 4491	[< 1 x 10 <sup>-14</sup> cm/sec]	
Water - Tightness (72 hrs)	DIN 16726	4 Bar	
Abrasion Resistance	ASTM D 4886	90 % Strength Retained	
UV Resistance (after 500 hrs)	ASTM D 4355	> 90 % Strength Retained	

Table 325:2 Physical Property Requirements for Moisture Barrier Membrane		
Physical Properties	Test Method	Typical Value
Mass/Unit Area	ASTM D 5261	8.4 oz/yd <sup>2</sup> [287 g/m <sup>2</sup> ]
Thickness	ASTM D 5199	17.0 mils [0.43 mm]
Roll Dimensions (width x length)	-	13.1 ft x 328 ft [4 m x 100 m]
Roll Area	-	478 yd <sup>2</sup> [400 m <sup>2</sup> ]
Estimated Roll Weight	-	266 lbs [120 kg]

**325.03 EQUIPMENT** *(Add the following:)*

Use an automated welding machine such as the Leister Twinny T or an approved equal will be allowed for field welding of the membrane joints. This unit shall provide:

welding pressure	[≤ 1,000 N] (steplessly adjustable)
temperature	[≤ 600 °C](steplessly controlled)
air flow	Step 2: [150 L/min]
	Step 3: [190 L/min]
drive	[0.8 - 3.2 L/min] (steplessly controlled)
air pressure	Step 2: 15 MBAR [1,500 Stat.]
	Step 3: 21 MBAR [2,100 Stat.]

**325.04 CONSTRUCTION METHODS** *(Add the following:)*

Exercise caution when placing the moisture barrier membrane. Ensure the membrane is free of holes, except in areas where guardrail posts or sing posts are needed. Use tack coat to seal these areas as needed. Repair damages to the membrane at no additional cost to the Department.

Field weld joints between moisture barrier panels to form a water tight seam. The use of an automated welding machine such as the Leister Twinny T or an approved equal will be allowed for field welding of the membrane joints.

Exercise caution when field heat welding moisture barrier membrane joints. Avoid burning holes through the membrane while heat welding.

Ensure the seam is free of voids between the two layers of membrane material. Before welding, ensure the membrane is free of debris and moisture. Overlap the membrane a minimum of 1 ft while field welding.

Extend the moisture barrier membrane across the entire grading section of the roadway, or as specified in the typical section of the plans.

**325.05 METHOD OF MEASUREMENT** *(Add the following:)*

Measure and pay for accepted quantities of moisture barrier membrane by the square yard in place with no allowance for laps.

**325.06 BASIS OF PAYMENT** *(Add the following:)*

The Department will pay for each pay item at the contract unit price per the specified pay unit as follows:

<b>Pay Item:</b>	<b>Pay Unit:</b>
<i>MOISTURE BARRIER MEMBRANE</i>	Square Yard

Payment is considered full compensation for furnishing all material, equipment, labor, and incidentals to complete the work as specified.

SAMPLE