

Special Provision to Item 348

Thin Bonded Friction Courses



For this project, Item 348, "Thin Bonded Friction Courses," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Table 8, "Laboratory Mixture Properties for Permeable Friction Course," is voided and replaced by the following.

Table 8
Laboratory Mixture Design Properties

Mixture Property	Test Method	PG 76 Mixtures		A-R Mixtures	Thin Bonded Wearing Course		
		Fine (PFC-F)	Coarse (PFC-C)	Coarse (PFCR-C)	Type A	Type B	Type C
Asphalt binder content, %	–	6.0–7.0	6.0–7.0	7.0–9.0	5.0–5.8	4.8–5.6	4.8–5.6
Film thickness, microns	–	–	–	–	9.0 Min	9.0 Min	9.0 Min
Design gyrations (N _{design})	Tex-241-F	50	50	50	50	50	50
Laboratory-molded density, %	Tex-207-F	78.0 Max	82.0 Max	82.0 Max	92.0 Max	92.0 Max	92.0 Max
Hamburg Wheel test, ¹ passes at 12.5 mm rut depth	Tex-242-F	10,000 Min	–	–	–	–	–
Overlay test, ¹ number of cycles	Tex-248-F	200 Min	–	–	–	–	–
Drain-down, %	Tex-235-F	0.10 Max	0.10 Max	0.10 Max	0.10 Max	0.10 Max	0.10 Max
Fiber content, % by wt. of total PG 76 mixture	Calculated	0.20 ² –0.50	0.20 ² –0.50	–	–	–	–
Lime content, % by wt. of total aggregate	Calculated	1.0 ³	1.0 ³	–	–	–	–
CRM content, % by wt. of A-R binder	Calculated	–	–	15.0 Min	–	–	–
Boil test ⁴	Tex-530-C	–	–	–	–	–	–
Cantabro loss, %	Tex-245-F	20.0 Max	20.0 Max	20.0 Max	20.0 Max	20.0 Max	20.0 Max

1. Mold test specimens to N_{design} at the optimum asphalt binder content (JMF1).
2. When at least 3% RAS is used in the mixture, the Contractor may reduce the amount of fibers to no less than 0.10% provided the mixture meets the drain-down requirement.
3. Unless otherwise shown on the plans or waived by the Engineer based on Hamburg Wheel results.
4. Used to establish baseline for comparison to production results. May be waived when approved.

Table 9, "Testing Frequency and Mixture Production Tolerances," is voided and replaced by the following.

Table 9
Testing Frequency and Mixture Production Tolerance

Test Description	Test Method	Minimum Contractor Testing Frequency	Minimum Engineer Testing Frequency	Operational Tolerance from Current JMF
Individual % retained for sieve sized larger than #200	Tex-200-F	1 per subplot	1 per 12 sublots	±5.0 ¹
% passing the #200 sieve				±2.0 ¹
Laboratory-molded density, %	Tex-207-F , Part VIII	1 per subplot	1 per lot	Table 8
Asphalt binder content, %	Tex-236-F ²	1 per subplot	1 per lot ³	±0.3 ⁴
Drain-down, %	Tex-235-F	1 per subplot	1 per 12 sublots	Table 8
Boil test ⁵	Tex-530-C	1 per project	1 per project	N/A
Membrane application rate	Tex-247-F	1 per lot	1 per 4 lots	±0.02
Cantabro loss, %	Tex-245-F	1 per project (sample only)	1 per project	Table 8
Asphalt binder sampling	Tex-500-C	1 per lot (sample only)	1 per project	N/A
Emulsion membrane sampling and testing	Tex-500-C , Part III	1 per lot (sample only)	1 per project	N/A
Thermal profile	Tex-244-F	1 per subplot	1 per project ⁶	N/A

1. Only applies to mixture produced for Lot 1 and higher. Aggregate gradation is not allowed to be outside the limits shown in Table 7.
2. Ensure the binder content determination excludes fibers. Add the recycled binder content to the flow meter readout when the asphalt mass flow meter is used to determine binder content.
3. May be obtained from asphalt mass flow meter readouts.
4. Asphalt binder content is not allowed to be outside the limits shown in Table 8.
5. The Engineer may reduce or waive the sampling and testing requirements based on a satisfactory test history.
6. Not required when a thermal imaging system is used.

Section 348.4.5.2., "Mixing and Discharge of Materials." The first paragraph is voided and replaced by the following.

Notify the Engineer of the target discharge temperature and produce the mixture within 25°F of the target. Monitor the temperature of the material in the truck before shipping to ensure that it does not exceed 350°F (or 275°F for WMA). The Department will not pay for or allow placement of any mixture produced above 350°F.

Section 348.4.7., "Placement Operations." The second paragraph is voided and replaced by the following.

Prepare the surface by removing raised pavement markers and objectionable material such as moisture, dirt, sand, leaves and other loose impediments from the surface before placing mixture. Remove vegetation from pavement edges. Do not allow any loose mixture onto the prepared surface prior to application of the membrane. Place the mixture to meet the typical section requirements and produce a smooth, finished surface with a uniform appearance and texture. Offset longitudinal joints of successive courses of hot-mix by at least 6 in. Place mixture so that longitudinal joints on the surface course coincide with lane lines, or as directed. Ensure that all finished surfaces will drain properly.

Section 348.4.7.3.1.3., "Thermal Camera," is voided and replaced by the following.

Take immediate corrective action to eliminate recurring moderate thermal segregation when a hand-held thermal camera is used. Provide the Engineer with the thermal profile of every subplot within one working day of the completion of each lot. When requested by the Engineer, provide the electronic files generated using the thermal camera. Report the results of each thermal profile in accordance with Section 348.4.2., "Reporting and Responsibilities." The Engineer will use a hand-held thermal camera to obtain a thermal profile at least once per project. Suspend operations and take immediate corrective action to eliminate severe thermal segregation unless otherwise directed. Resume operations when the Engineer determines that subsequent production will meet the requirements of this Section.