Special Requirements	Test Method	Test Designation	Page
All technicians must certify for these tests, except, a technician can choose either T166 or T275.	Mech. Analysis of Extracted Aggregate	AASHTO T30*	2
	Bulk Specific Gravity Or Bulk Specific Gravity of Paraffin Specimens	AASHTO T166 AASHTO T275	4 5
	Reducing Samples of HMA to Testing Size	AASHTO R47**	6
	Theoretical Maximum Specific Gravity and Density of HMA	AASHTO T209	7
	Percent Air Voids	AASHTO T269	8
	Asphalt Content by Ignition Oven Method A only	AASHTO T308	9
	Preparation of Asphalt Mixtures by Means of the Marshall Apparatus	AASHTO R68	11
	Resistance to Plastic Flow of Bituminous Mixtures using Marshall Apparatus	AASHTO T245	12
ASPHALT EXTENDED			
Technician must certify in these tests.	Quantitative Extraction – Ashing Only	AASHTO T164	13

*Exempt if qualified in Aggregate Module (doesn't apply for written exam)

** Exempt if qualified in Sampling and Density Module (doesn't apply for written exam)

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

MECHANCIAL ANALYSIS OF EXTRACTED AGGREGATE (AASHTO T30)

Sample Preparation: Circle one Extraction sample Ignition sample

		1st	2nd
1.	Sample consists of all aggregate after extraction or ignition oven sample?		
2.	Minimum mass of mix sample based on nominal maximum size?		
3.	Sample dried to constant mass?		
4.	Sample weighed to nearest 0.1g (enter mass below)?		
5.	Extraction samples only: Total mass of aggregate for percent calculation includes mineral matter mass? Note: If from T308, sample agrees with mass after ignition from T308 (W_f) to within 0.1%		
Wash			
1.	After mass is recorded, sample placed in container and covered with water?		
2.	Small amount of wetting agent added?		
3.	Contents of container agitated vigorously?		
4.	Wash water poured through proper nest of two sieves?		
5.	Decantation of coarse particles onto the sieves avoided as much as possible?		
6.	Washing continued until wash water is clear?		
7.	Material retained on nested sieves avoided as much as possible?		
8.	Washed material coarser than 75-µm (No. 200) dried according to T255?		
9.	Mass Before Washing: Mass After Washing: Sample weighed to nearest 0.1g?		
10.	Amount of –No. 200 material removed by washing calculated?		
Sieve Testing: Circle which type(s) were used: 8 –in. sieves 12-in. sieves Other (such as square sieves)			
1.	Material sieved on specified sieves (including 75-µm)?		
2.	Sieving continued until not more than 0.5 percent by mass of the total sample passes a given sieve in 1 min. (check by hand with 8 in. diameter sieve)?		
Sieve size:	Total sample: Mass passing sieve: Percent Passing:		
	a. Mass retained on any sieve with openings smaller than No. 4 is less than 6 kg (4 g/in.^{2}) (200 g for 8in. diameter on any sieve, 438 g for 12 in. diameter sieve)?		
	b. Mass retained on any sieve with openings larger than No. 4 is less than 2.5 x (sieve opening mm) x (sieving surface area m^2) [see table below]? *Note to assessors: This is not identical to (T27) they are calculated differently.*		

Sieve	Opening (mm)	Mass (g) – 8 in. dia.	Mass (g) – 12 in. dia.
< #4	<4.75	200	438
#4	4.75	385	867
¼ in.	6.3	510	1149
3/8 in.	9.5	770	1734
½ in.	12.5	1013	2281
¾ in.	19.0	1539	3468

Date:_____ Participant Name:_____ Proctor:_____

MECHANCIAL ANALYSIS OF EXTRACTED AGGREGATE
(AASHTO T30)
-Continued-

		1st	2nd
3.	Each fraction of aggregate weighed, including minus 75-µn (No. 200)?		
4.	Does the final total mass after sieving agree with the mass after wash within 0.2 percent? Mass before sieving: Mass after sieving: % difference:		
5.	(a) Extraction samples (from T164): Total minus 75µm (No. 200) = minus 75-µm by sieving + minus 75-µm by washing + mass of mineral matter (ash + increase in filter mass from extraction)?		
Or	(b) Ignition samples (from T308): Total minus 75-µum (No. 200) = minus 75-µm by sieving + minus 75-µm by washing? *Note: Optionally, the wash water can be evaporated or filtered through tared filter paper, which is subsequently dried as check of wash over 75-µm (No. 200) sieve.*		
6.	Sizes larger than 75-µm (No. 200) reported to nearest 1.0 percent (at least)?		
7.	Minus 75-µm (No. 200) material reported to nearest 0.1 percent?		
8.	If sample obtained from T208, aggregate correction factor determined in T308 applied to final total passing percentages?		

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

BULK SPECIFIC GRAVITY OF COMPACTED BITUMINOUS MIXTURES USING SATURATED SURFACE-DRY SPECIMENS (AASHTO T166)

Method A		1st	2nd
1.	Dry sample used or sample dried at 52 ± 3°C (125 ± 5°F) to constant mass (0.05 percent)?		
2.	Sample cooled to room temperature, 25 ± 5°C (77 ± 9°F), and dry mass recorded?		
3.	Sample immersed for 4 ± 1 min?		
4.	Immersion water at 25 ± 1°C (77 ± 1.8°F)?		
5.	Each specimen immersed and weighed individually?		
6.	Immersed mass determined?		
7.	Sample removed from bath and quickly blotted with damp towel (not to exceed 5 s)?		
8.	Saturated surface-dry mass determined?		
9.	Bulk Specific Gravity calculated as {A / (B – C) }?		
10.	Percent water absorbed calculated { ((B – A) / (B – C)) x 100? }?		
Final Calculations			
1.	Percent water absorbed determined to be less than 2.0 percent?		
2.	If the percent of water absorbed by the specimen exceeds 2.0 percent, T275 or T331 used in determine the bulk specific gravity instead?		
3.	Bulk specific gravity reported to nearest 0.001?		
4.	Absorption reported to nearest 0.01?		

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

BULK SPECIFIC GRAVITY OF COMPACTED BITUMINOUS MIXTURES USING PARAFFIN-COATED SPECIMENS (AASHTO T275)

Specimens		1st	2nd
1.	(a) Recommended size:		
	1. Diameter (or side of sawed specimens) at least 4X maximum size of aggregate?		
	2. Thickness at least 1 ½ x maximum size of the aggregate?		
	(b) Drying to constant mass:		
	1. Distortion, bending, or cracking avoided and free of foreign material?		
	2. Overnight at 52 ± 3°C (125 ± 5°F)?		
	3. Additional 2 hour drying intervals?		
	4. Constant mass (change less than 0.05 percent)?		
Method A			
1.	Mass in air determined (dry; see 1 (b) above?		
2.	Allowed to cool in air at room temperature at 25 ± 5°C (77 ± 9°F) for 30 minutes?		
3.	Coated with paraffin, filling all voids?		
4.	Cooled at least 30 min., then weight in air?		
5	Immersed in water at 25 ± 1°C (77 ± 2°F) and weighted?		
6.	Sp. Gr. Of paraffin determined (if unknown)?		
7.	Bulk Specific Gravity calculated as follows?		

COMMENTS:

$$\text{Bulk Specific Gravity} = \frac{A}{D - [\, E - C + ((C-A)/F) \,]}$$

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

REDUCING SAMPLES OF HOT MIX ASPHALT (HMA) TO TESTING SIZE (AASHTO R47)

PROCEDURE			
Mechanical splitter method		1st	2nd
Using Type A Splitter			
1.	Checked the cleanliness and functionality of Type A splitter?		
2.	Applied approved asphalt release agent?		
3.	Positioned sample receptacles properly to prevent loss of material?		
4.	Hopper doors closed and secured?		
5.	Poured sample using a continuous or segmented pour from multiple directions around the hopper?		
6.	Quickly and continuously released the handle?		
7.	Any material retained on the surface?		
8.	If yes, removed and placed into the appropriate receptacles and reported for further evaluation?		

Using Type B Splitter			
1.	Heated splitter at temperature lower than 110 ºC (230°F)?		
2.	If no, cleaned and applied release agent?		
3.	Assembled receptacles under the splitter properly?		
4.	Placed HMA sample carefully and uniformly into the hopper?		
5.	Allowed HMA sample to fall through the chutes and placed retained material into the corresponding receptacles?		

Quartering Method			
1.	Placed HMA sample on a non-stick, clean, and level surface?		
2.	Thoroughly mixed the material by turning it over at least 4 times?		
3.	Flattened the conical pile by pressing on the apex by a flat surface?		
4.	The diameter was at least four to eight time the thickness?		
5.	Pressed quartering template down and separated the material using the straight edge?		
6.	Removed opposite quarters, including the fines?		
7.	Repeated until desired sample is attained?		

Incremental Method			
1.	Spread a heat-resistant paper or sheet over a hard, clean, and level surface?		
2.	Thoroughly mixed the material by turning it over at least 4 times or lifting each corner and pulling it over the sample diagonally?		
3.	Created a conical pile?		
4.	Rolled the material into cylindrical roll (loaf), and flatten the top? During this operation segregation avoided?		
5.	Pulled the paper so at least one-quarter of the length of the loaf is off the edge? Or straight edge used to slice one-quarter of the length of the material?		
6.	Repeated until desired sample is attained?		

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

MAXIMUM SPECIFIC GRAVITY OF HMA (RICE TEST) (AASHTO T209)

	Sample Preparation:	1st	2nd
1.	Sample obtained by splitting or quartering?		
2.	Sample mass conforms to following tables (Note to assessors: Please mark which sample size was used.)?		
	Mass of sample as follows (samples larger than the capacity of the container may be divided into suitable increments, tested, and the results averaged):		

Nominal Maximum Aggregate	Minimum Sample Size, g
37.5 mm or greater (≥ 1.5 in.)	4000 g
19 mm to 25 mm (3/4 to 1 in.)	2500 g
12.5 mm or smaller (≤ ½ in.)	1500 g

Table not to be memorized

		1st	2nd
3.	Laboratory prepared samples cured and dried to constant mass (within 0.1%) in an oven at 135 ± 5°C for a minimum of 2 hours?		
4.	Particles of sample separated while warm by hand, using care not to fracture mineral fragments?		
5.	After separation, fine aggregate particles not larger than 6.3 mm (1/4 in.)?		
6.	Sample cooled to room temperature?		
Testing:			
1.	Placed in tared flask or bowl weighed and net mass of sample determined? (A)		
2.	Water at approx. 25°C (77°F) added to cover sample?		
3.	Vacuum increased until manometer reads 27.5 ± 2.5 mm Hg (3.7 ± 0.3 kPa)?		
4.	Container and contents agitated continuously by mechanical device? Method A		
Or	Method B: Container and contents agitated during the vacuum period by vigorously shaking at intervals of about 2 min?		
5.	Vacuum and agitation continued for 15 ± 2 min. after vacuum is achieved?		
6.	Vacuum released slowly [at a rate not to exceed 8 kPa per second]?		
Weighing in water determination:			
1.	Bowl (without lid) and contents suspended in water?		
2.	Net mass of contents in water determined after 10 ± 1 min immersion? (C)		
3.	If temperature is not 25 ± 1°C (77.0 ± 1.8°F), mass corrected to 25°C (77°F)?		
4.	Theoretical maximum specific gravity calculated {A / (A +-C)}?		
Weighing in air determination (any):			
1.	Flask, pyconmeter, or bowl filled with water?		
2.	Contents adjusted to 25 ± 1°C (77.0 ± 1.8°F)?		
3.	Mass of filled container determined 10 ± 1 min. after removal of entrapped air completed?		
4.	Theoretical maximum specific gravity calculated {A / (A + D – E)}?		
Supplemental Procedure for Mixtures Containing Porous Aggregate: *Note: This procedure is only performed if the aggregates are not thoroughly sealed.*			
1.	Water decanted from the container through towel?		
2.	Several large pieces of aggregate broken to examine for wetness?		
3.	If the aggregate has absorbed water, sample spread in front of a fan to remove surface moisture and stirred periodically?		
4.	Sample weighed at 15 min. intervals until constant mass (less than 0.05%) is reached?		
5.	Final surface dry mass substituted into the equation for the mass of the dry sample in air?		

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

PERCENT AIR VOIDS IN COMPACTED DENSE AND OPEN BITUMINOUS PAVING MIXTURES (AASHTO T269)

Procedure		1st	2nd
1.	For Dense Bituminous Paving Mixtures		
	(a) Bulk specific gravity determined by either AASHTO T166 or AASHTO T275 or T331?		
	(b) Theoretical maximum specific gravity determined by AASHTO T209		
2.	For Open Bituminous Paving Mixtures (10% air voids or higher)		
	(a) Density of bituminous mixture determined from its dry mass and its volume?		
	(b) Height of specimen determined?		
	(c) Volume of specimen determined based on average height and diameter measurement?		
	(d) Density converted to bulk specific gravity?		
	(e) Theoretical maximum specific gravity determined by AASHTO T209?		
Calculations			
1.	Percent air voids calculated in accordance with method?		
Percent air voids = 100 [1- (bulk sp gr / theoretical max sp gr)]			

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

DETERMINING THE ASPHALT CONTENT OF HOT MIX ASPHALT (HMA) BY THE IGNITION METHOD – Method A only (AASHTO T308)

		1st	2nd
Sampling Preparation			
1.	Mixture warmed in an oven at 110 ± 5°C (230 ± 9°F) until it can be handled if necessary?		
2.	Sample not warmed in oven for extended period of time?		
3.	Particles of mixture separated with spatula or trowel?		
4.	Sample obtained by reducing a larger sample?		
5.	Sample mass at least as much as indicated on table below?		
	1200 g for No. 4?		
	1200 g for 3/8 in.?		
	1500 g for ½ in.?		
	2000 g for ¾ in.?		
	3000 g for 1 in.?		
	4000 g for 1 ½ in.?		
6.	Specimen mass not more than 500 g greater than the minimum recommended mass?		
7.	Sample divided into suitable increments and tested if necessary?		
Ignition Procedure by Method A (Internal Balance)			
1.	Convection-type furnace preheated to 538±5°C (1000±9°F) or the correction factor temperature?		
Or	Direct Irradiation-type furnace use the same burn profile as used to determine the correction factor?		
2.	Convection-type furnace, temperature recorded prior to test (can be automatic)?		
3.	Sample dried to constant mass at 110 ± 5°C (230 ± 9°F)?		
Or	Test specimen for moisture determination obtained if necessary and moisture content determined according to AASHTO T239?		
4.	Correction factor entered for the mix or manually recorded?		
5.	Basket(s) placed in catch pan and weighed with guards in place?		
6.	Sample evenly distributed in the basket, material kept away from edges and leveled?		
7.	Total mass of the sample, basket, catch pan and basket guards recorded?		
8.	Initial mass of the specimen calculated?		
9.	Initial mass entered into the furnace controller and verified?		
10.	Baskets placed in the furnace and chamber door closed?		
11.	Pressing the start button locks the door and starts the blower?		
12.	Test continued until change in mass does not exceed 0.01 percent for three consecutive minutes? Note: Ending mass loss percentage of 0.02 percent may be used for excessive aggregate lass.)		
Ignition Procedure by Method B (External Balance)			
1.	Pressing the stop button unlocks the door and prints the test results?		
2.	Corrected asphalt content (%) from the printed ticket reported?		
Or	If asphalt content on ticket is not corrected, the asphalt binder correction factor subtracted?		
Or	Percent moisture subtracted from the printed ticket and the resultant value reported?		
3	Baskets removed and allowed to cool in room temperature for approximately 30 minutes?		
Gradation			
1.	Contents emptied into a flat pan, including any residual fines?		
2.	Gradation analysis performed according to AASHTO T30?		
3.	Sample allowed to cool in room temperature in sample baskets?		

Date:_____ Participant Name:_____ Proctor:_____

DETERMINING THE ASPHALT CONTENT OF HOT MIX ASPHALT (HMA) BY THE IGNITION METHOD – Method A only (AASHTO T308)
-Continued-

Correction Factors for Asphalt Binder and Aggregate			
1.	Aggregate sample and asphalt binder obtained and reduced to the test size according to the appropriate standards?		
2.	Prepared a 'butter mix' and discarded?		
3.	Prepared 2 correction specimens at the JMF design asphalt binder content and gradation?		
4.	Additional 'Blank' (aggregate only) samples prepared and gradation determined?		
5.	Asphalt binder content of both specimens determined using either method A or method B?		
6.	Repeated with 2 additional specimens if the difference between the asphalt binder contents of the two specimens exceeds 0.15%?		
7.	Discarded the highest and lowest values and obtained the average of 2?		
8.	Correction factor, the average of the differences expressed as a percentage by initial mass of the HMA?		
9.	If the correction factor exceeds 1.0%, the temperature of the furnace lowered and repeated the above process?		
10.	The gradation analysis performed on the residual aggregate and the correction factor for aggregate gradation obtained and reported to the nearest 0.1%?		
11.	Average difference for the 2 values obtained and checked against the allowable difference in the standard?		
12.	If the difference for any single sieve exceeds, correction factor for all sieves applied?		
13.	If No. 200 sieve is the only sieve outside the limits, applied the aggregate correction factor to only No. 200 sieve?		

Sieve	Allowable Difference
Sizes larger than or equal to 2.36 mm (No. 8)	±5.0 percent
Sizes larger than 0.075 mm (No. 200) and smaller than 2.36 mm (No. 8)	±3.0 percent
Sizes 0.075 mm (No. 200) and smaller	±0.5 percent

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

Preparation of Asphalt Mixtures by Means of the Marshall Apparatus (AASHTO R68)

	Preparation of Mixture	1st	2nd
1.	Initial batch prepared for "buttering" the mixing bowl and stirrers and bowl and stirrers cleaned by scraping, not wiped with cloth or solvent?		
2.	At least 3 specimens prepared for each combination of aggregates and bitumen content?		
3.	Amount of each aggregate size fraction required for each specimen weighed into a pan and thoroughly mixed?		
4.	Pan containing aggregate placed on a hot plate or in an oven and heated to a temperature not exceeding the mixing temperature by more than approx. 28°C (50°F)?		
5.	Aggregate dried to constant mass?		
6.	Hot aggregate placed in bowl, mixed with spoon for approx. 5 seconds & crater formed?		
7.	Required amount of preheated bituminous material added to aggregate?		
8.	Temperature of the aggregate and bituminous material still within the established mixing temperature limits?		
9.	Aggregate and bituminous material rapidly mixed until thoroughly coated?		
10.	If hot plate used during mixing, wire mesh (or similar material) used to prevent direct contact between hot plate and mixing bowl (to avoid localized overheating)?		
Compaction of Specimens			
1.	Specimen mold assembly and face of the compaction hammer clean?		
2.	Mold assembly and hammer heated in boiling water, on a hot plate or in an oven at 93.3 to 148.9°C (200 to 300°F)?		
3.	Filter paper or paper toweling placed in bottom of mold?		
4.	Entire batch of mixture placed in mold?		
5.	Mixture spaded vigorously with heated spatula or trowel?		
a.	Spaded 15 times around perimeter?		
b.	Spaded 10 times over the interior?		
6.	Surface of mix smoothed to slightly rounded shape?		
7.	Temperature of the mixture immediately prior to compaction within the limits of established compacting temperature?		
8.	Filter paper placed on mixture, and mold assembly placed in mold holder on compaction pedestal?		
9.	50 or 75 blows applied unless otherwise specified, with hammer held perpendicular to base of mold?		
10.	Mold and contents reversed?		
11.	Same number of blows applied to reversed specimen?		
Removal from Mold			
1.	Sample extractor placed on the end of the specimen?		
2.	Assembly, with collar up, placed in testing machine?		
3.	Pressure applied to collar via load transfer bar?		
4.	Specimen forced into collar or otherwise extruded up into collar (no free-fall of specimen)?		
5.	Collar lifted from specimen and specimen transferred to smooth flat surface?		
6.	Allowed to stand overnight at room temperature? (ORAL)		
7.	Specimen mass determined and recorded?		
8.	Specimen measured, height: 63.5 ± 1.27 mm (2.5 ± 0.05 in.)?		

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

RESISTANCE TO PLASTIC FLOW OF BITUMINOUS MIXTURES USING MARSHALL APPARATUS (AASHTO T245)

		1st	2nd
Testing of Specimens			
1.	Specimens brought to test temperature by immersing in water bath for 30 to 40 min. or placing in an oven for 2 hours?		
2.	Bath or oven maintained at 60 ± 1°C (140.0 ± 1.8°F)?		
3.	Guide rods and inside surfaces of breaking head cleaned?		
4.	Guide rods lubricated?		
5.	Temperature of breaking head maintained at 21.1 to 37.8°C (70 to 100°F)?		
6.	Specimen removed from bath or oven and placed in lower segment of breaking head?		
7.	Breaking head and specimen positioned on testing machine?		
8.	Flow meter (if used) placed over guide rod and adjusted to zero?		
9.	Load applied to specimen until maximum load is reached?		
10.	Maximum load applied within 30 seconds after removal of specimen from bath or oven?		
11.	Maximum load and flow value recorded the instant the load begins to decrease?		
12.	Load Correction:		
	a. For core specimens: load corrected when thickness of specimen is not 63.5 mm (2 ½ in.) by multiplying by factor from table1?		
	b. For lab-molded specimens: shall conform to thickness requirement of 63.5 mm (2 ½ in.) by multiplying by factor from table 1?		

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____

APPARATUS FOR QUANTITATIVE EXTRACTION OF BITUMEN FROM BITUMINOUS PAVING MIXTURES (AASHTO T164)

		1st	2nd
Sample Preparation			
1.	(a). If necessary, mixture warmed in the pan at 230 ± 9°F (110 ± 5°C) until it can be handled?		
2.	(b). Particles of mixture separated with spatula or trowel?		
3.	(c). Sample obtained by splitting or quartering conforms to minimum sample mass table below?		

No. 4	3/8 in.	½ in.	¾ in.	1 in.	1.5 in.
½ kg	1 kg	1.5 kg	2 kg	3 kg	4 kg

4.	(d). Sample divided into equal portions for multiple extractions if necessary?		
5.	(f). If necessary, test specimen for moisture determination obtained?		
Water Determination			
1.	Mass of extraction test portion determined? (W_1)		
2.	If recovery of bitumen is NOT required entire test specimen may be dried using a or b instead of c: (a) Dried in an oven at 105 - 165°C (221 – 329°F) until constant mass prior to extraction?		
or	(b) Moisture determined by T329? [min. 1000g sample, oven at either JMF mixing range or at 163 ± 14°C (325 ± 25°F), dried for 90 ± 5 minutes, and then weighed at 90 ± 5 minutes intervals]?		
Or	(c) Moisture determined by T110 (apparatus must be available, must be used for recovery)?		
Extraction Procedure by Method A (Centrifuge Method)			
1.	Filter ring dried to constant mass in oven 230 ± 9°F (110 ± 5°C) and weighed?		
2.	Sample covered with solvent and allowed to disintegrate for not more than 1 hr?		
3.	Bowl with solvent and sample placed in extraction apparatus?		
4.	Weighed test portion placed into bowl?		
5.	Dry filter ring fitted around edge of bowl and cover clamped rightly on bowl?		
6.	Container placed under drain to collect extract?		
7.	Centrifuge started revolving slowly and speed increased gradually?		
8.	Maximum speed not greater than 3500 rpm?		
9.	Centrifuge continued until solvent ceases to flow?		
10.	Centrifuge stopped and 200 mL or more of solvent added?		
11.	Steps (6) through (10) repeated, adding at least 3 increments of solvent?		
12.	Last extract clear and not darker than light straw color?		
13.	Content dried in air under a hood until fumes dissipate?		
14.	Sample can be dried by:		
	(a) Filter ring and aggregate transferred to tared metal pan, then dried to constant mass in an oven at 110 ± 5°C (230 ± 9°F?		
Or	(b) Aggregate dried to constant mass in an oven or on a hot plate at 110 ± 5°C (230 ± 9°F, filter ring dried separately to constant mass in an oven at 110 ± 5°C (230 ± 9°F.		
Or	(c) Aggregate and filer ring dried in the bowl to constant mass in an oven at 110 ± 5°C (230 ± 9°F?		
15.	(Optional) If low ash filter paper is used, dried filter ring folded, stood on aggregate, and then burned in pan with aggregate to avoid loss?		
16.	Initial dry mass of filter ring subtracted from mass of contents in pan to determine mass of extracted aggregate? (W_3)		
17.	Mineral matter in the extract determined by one of the specified procedures?		

COMMENTS:

Date:_____ Participant Name:_____ Proctor:_____

APPARATUS FOR QUANTITATIVE EXTRACTION OF BITUMEN FROM BITUMINOUS PAVING MIXTURES (AASHTO T164)
-Continued-

		1st	2nd
Total Mineral Matter Determination by Ashing Method			
1.	Volume of total extract and washings recorded? (W_1 or V_1)? *Note: Watch out, AASHTO labels both this volume and the original sample mass as W_1.*		
2.	Ignition dish conditioned in furnace or on Bunsen burner, then cooled in a desiccators?		
3.	Ignition dish mass determined to 0.001 g?		
4.	Extract thoroughly agitated, approx. 100 mL immediately measured into ignition dish?		
5.	Ignition dish evaporated to dryness on steam bath or hot plate?		
6.	Residue ashed at dull red heat 500 – 600°C (932 to 1112°F) and cooled?		
7.	Mass of the ash determined?		
8.	5 mL of saturated ammonium carbonate solution added per 1 g of ash?		
9.	Digested at room temperature for 1 hour?		
10.	Dried in oven to constant mass at 110 ± 5°C (230 ± 9°F.?		
11.	Cooled in desiccators and net mass of ash determined on analytical balance to nearest 0.001 g? (G)		
12.	Mass of mineral matter calculated {G x (W_1 / 100)}?		
Calculation of Asphalt Binder Content			
1.	Asphalt binder content percentage calculated?		

% Asphalt Binder content $= \dfrac{(W_1 - W_2) - (W_3 + W_4)}{(W_1 - W_2)} \times 100$

Where:
W_1 = mass of test portion
W_2 = mass of water in test portion
W_3 = mass of extracted mineral aggregate
W_4 = mass of mineral matter in the extract

COMMENTS:

1st	2nd
Pass	Pass
Fail	Fail

Date:_____ Participant Name:_____ Proctor:_____