

ROAD COMMISSION OF
KALAMAZOO COUNTY

SPECIAL PROVISION
FOR
HMA, (TYPE), MODIFIED

RCKC

1 of 3

07/26/24

a. Description. This work consists of furnishing and constructing a hot mix asphalt (HMA) mixture in accordance with section 502 of the 2020 Michigan Department of Transportation (MDOT) Standard Specifications for Construction except as modified herein.

b. Materials. Furnish materials meeting the requirements of sections 902 and 904 of the 2020 MDOT Standard Specifications for Construction except as modified herein.

1. MDOT approved mix designs (Form 1931) shall be presented by the Contractor meeting all requirements of these specifications to the Engineer, a minimum of two (2) weeks in advance of paving operations. All work required to adjust and/or modify previously approved mix designs shall be done prior to the two week deadline stated above. All work required to conform to these specifications is included in the respective HMA items.

Table 1 provides the mix design criteria and volumetric properties. Table 2 provides the required aggregate properties. Use the mixture designation number shown in the contract item name when determining mix design properties from Tables 1 and 2.

2. Reclaimed Asphalt Pavement (RAP) use in the any pavement courses shall not exceed 25%.

Add the following subsection to subsection 501.02A.2 of the Standard Specifications for Construction:

Reclaimed Asphalt Pavement (RAP) Percentages and Binder Grade Selection. The Method for determining the binder grade in HMA mixtures incorporating RAP shall be as follows:

- **0% to 25% RAP by weight of the total binder in the mixture.** No liquid asphalt binder grade adjustment is made to compensate for the stiffness of the asphalt binder in the RAP.
- **No HMA mixtures shall have more than 25% RAP by weight of the total binder in the mixture.**

c. Construction. Complete all work in accordance with the standard.

Table 1: Mix Design Criteria and Volumetric Properties

	Mixture No.		
	13A, Modified	36A, Modified	Ultra-Thin, Modified
Target Air Void, % ⁽¹⁾	3.0	3.0	4.5
VMA Min % ⁽²⁾	14.0	15.5	15.5
VFA	68 – 81	75 – 88	65 – 78
Fines / A.C. Ratio Max. ⁽³⁾	1.2	1.2	1.4
Flow (0.01 inch)	8-16	8-16	8-16
Stability (min.), lbs	900	900	1200
Asphalt	6.0-8.0	6.5-9.0	5.7-6.3
<ol style="list-style-type: none"> 1. Air Void Target will be 3% if a separate shoulder paving operation is used. Provide a regression table (mix properties) to allow the designation of liquid asphalt based upon the air void target. 2. VMA calculated using Gsb of the combined aggregates. 3. Ratio of the weight of aggregate passing the No. 200 sieve to total asphalt binder content by weight; including fines and binder contributed by RAP. 			

Table 2: Aggregate Properties

	Mixture No.		
	13A, Modified	36A, Modified	Ultra-Thin, Modified
1 ½ inch			
1 inch			
¾ inch	100		
½ inch	75-90	100	100
3/8 inch	60-85	92-100	99-100
No. 4	45-75	65-90	75-95
No. 8	30-65	55-75	55-75
No. 16	20-50		
No. 30	15-40	25-45	25-45
No. 50	10-25		
No. 100	5-15		
No. 200	3-6	3-10	3-8
Crushed (min), % (MTM 117)	80	60	95
Soft Particle (max), % ⁽¹⁾	8.0	8.0	8.0
Angularity Index (min) ⁽²⁾	2.5	3.0	4.0
L.A. Abrasion (max), % Loss ⁽³⁾	40	40	35
Sand Ratio (max.) ⁽⁴⁾	50	50	
Asphalt Binder ⁽⁵⁾	PG 58-28	PG 58-28	PG 58-28
Asphalt Binder ^(5, 6)	PG 64-28	PG 64-28	PG 64-28
PM Asphalt Binder ^(5, 7)	PG 70-28		
<ol style="list-style-type: none"> 1. The sum of the Shale, Siltstone, Structurally Weak, and Clay-Ironstone particles shall not exceed 8.0 percent for aggregates used in top course. The sum of the Shale, Siltstone, Structurally Weak, and Clay-Ironstone particles shall not exceed 12.0 percent for aggregates used in base and leveling courses. 2. The fine aggregate angularity of blended aggregates, determined by MTM 118, must meet the minimum requirement. In mixtures containing RAP, the required minimum fine aggregate angularity must be met by the virgin material. NAA Fine Aggregate Angularity must be reported for information only and must include the fine material contributed by RAP if present in the mixture. 3. L.A. Abrasion Maximum loss must be met for the composite mixture; however each individual aggregate must be less than 50. 4. Sand Ratio for 13A, 13A, Modified, and 36A no more than 50% of the material passing the No. 4 sieve is allowed to pass the No. 30 Sieve. 5. Maximum RAP allowed in the HMA is 25% with no binder grade adjustment in HMA Mixes 13A Mod, 36A Mod, and Ultra-Thin HMA Overlay (top course). 6. Binder for use on Primary Roads only when specified on plans. 7. Polymer Modified Asphalt Binder. 			

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
HMA, <u>(type)</u> , Modified.....	Ton