

ITEM 04402.067201 M - 6.3 MM F2 SUPERTHIN HMA, 70 SERIES COMPACTION
ITEM 04402.067211 M - PLANT PRODUCTION QUALITY ADJUSTMENT TO
04402.067201 M
ITEM 04407.02 M TACK COAT

The requirements of Section 401 - Plant Production and Section 402 - Hot mix Asphalt (HMA) Pavements shall apply except as modified below.

DESCRIPTION

This work shall consist of developing Superthin HMA material using the Superpave Mix Design procedure detailed in Materials Method 5.16, “Superpave Hot Mix Asphalt Mixture Design and Mixture Verification Procedures,” except as modified and/or revised below. Superthin HMA is a mixture of Performance Graded Binder (PG Binder), mineral aggregate and mineral filler, if required. Superthin HMA pavement course shall be constructed in accordance with these specifications and in reasonable close conformity with the required lines, grades, thicknesses, and typical sections shown on the plans or established by the Engineer. This is a performance based specification in which the Contractor is responsible for compacting the pavement within a specified density range. Written instructions for determining pavement density are available from the Regional Materials Engineer or the Director, Materials Bureau. All necessary pavement repairs, crack sealing, joint sealing, pavement marking removal, tack coat, utility grade adjustments, and milling of rebates will be paid under appropriate items.

MATERIALS

A. Superthin Mixture

The materials and composition for Superthin mixtures shall meet the requirements specified in §401-2 Materials, except as noted herein.

Delete §401-2.01, Hot Mix Asphalt Designs, and replaced with the following:

“Produce Superthin HMA in accordance with the procedures outlined in this specifications and NYSDOT’s Material Method 5.16, Superpave Hot Mix Asphalt Mixture Design and Mixture Verification Procedures except as modified below:

Formulate and submit to the Regional Materials Engineer a Superthin HMA design, that satisfies design criteria outlined in this specification. The minimum PG Binder content shall not be less than 6.0%.

Table 1 - Superthin Design Control Points

Standard Sieves (mm)	Percent Passing Criteria	
	Maximum	Minimum
9.5		100
6.30	100	90
4.75	90	

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2.36	70	37
0.075	10	2

Table 2 - Superthin Mixture Additional Aggregate Criteria

Coarse Aggregate Angularity (Percent), minimum	Uncompacted Void Content of Fine Aggregate (Percent), minimum	Flat-and-elongated Particles (Percent), maximum	Sand Equivalent (Percent), minimum
95/90	45	10	45

Table 3 - Superthin Volumetric Design Criteria

% Gmm @ Ninitial	% Voids Filled with Binder		% Voids in the Mineral Aggregate, minimum
	Minimum	Maximum	
< 90.5	70	78	16

Table 4 - Design Number of Gyration

Compactive Effort Number of Gyration	Ninitial	Ndesign	Nmaximum
	7	75	115

Table 5 - Production Gradation Tolerances

Sieve Size (mm)	9.5	6.3	4.75	2.36	1.18	0.600	0.300	0.150	0.075
Tolerance	± 4	± 4	± 3	± 3	± 3	± 2	± 2	± 2	± 2

Delete §401-2.02 B. Coarse Aggregate Type F2 Conditions and replace with the following

- “1. Limestone having an acid insoluble residue content of not less than 20.0%, excluding particles of chert and similar siliceous rocks.
2. Dolomite having an acid insoluble residue content of not less than 17.0%, excluding particles of chert and similar siliceous rocks.
3. Sandstone, granite, chert, traprock, ore tailings, slag or other similar non-carbonate materials.

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4. Use gravel, or blend two or more of: gravel, limestone, dolomite, sandstone, granite, chert, traprock, ore tailing, or other similar materials to produce a final blend having at least 40% (by weight with adjustments to equivalent volumes for materials of different specific gravities) non-carbonate particles in each size fraction coarser than the 600µm sieve.

Non-carbonate particles are defined as having a minimum acid insoluble residue content of 80.0%.”

Delete §401-2.04 Performance-Graded Binder and replace with the following:

“Use PG64-28 in the production of this mixture that meets the AASHTO MP1-Standard Specification for Performance Graded Asphalt Binder. The PG 64-28 binder must also meet the following requirement:

TEST ON RESIDUE FROM ROLLING THIN FILM OVEN

Test	Requirement
Elastic Recovery, AASHTO T301-95 100 mm elongation and cut immediately at 25°C	60% minimum

Initial Acceptance of PG Binder is based on the primary source appearing on the State’s Approved List for Bituminous Material Primary Sources, A. Performance-Graded Binders for Paving.

Acceptance of the PG Binder is contingent upon satisfactory test results from samples taken, as required by the State’s procedural directives, at the location where the material is incorporated into work. A primary source is defined as a firm that samples, tests, and certifies by Production Lot that the PG Binder is in conformance with the specifications. The procedural directives for sampling, testing, and certifying the PG Binder, and for achieving and maintaining approved list status, are available from the Material Bureau.

The temperature of PG Binder delivered to HMA Production Facility will not exceed 175_C, unless the PG Binder supplier recommends it.”

B. Tack Coat

Use an asphalt emulsion as tack coat meeting the requirements of §702 - Bituminous Materials, RS-1, Item 702-3001 or CRS-1, Item 702-4001 with the following modifications:

Tests on Asphalt Base for Emulsion

Test on Base Asphalt	Min.	Max
Penetration, 25°C, 100 g, 5 s	60	100
Ductility, 25°C, 5 cm/min, cm	50	-

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Tests on Residue from Distillation Test

Test on Residue	Min.	Max
Penetration, 25°C, 100 g, 5 s	40	90

CONSTRUCTION DETAILS

The provisions of §401-3 and §402-3, Construction Details, shall apply.

METHOD OF MEASUREMENT

A. Superthin Mixture

The provisions of §401-4 and §402-4, Method of Measurement, shall apply.

B. Tack Coat

The quantity to be paid for will be the number of liters of asphalt emulsion for tack coat measured at 15°C incorporated into the work.

BASIS OF PAYMENT

A. Superthin Mixture

The provisions of subsection 402-5 Basis of Payment shall apply.

B. Tack Coat

The unit price bid per liter for tack coat shall include the cost of furnishing materials and all equipment and labor necessary to complete the work.

Payment will be made under:

ITEM NO.	ITEM	PAY UNIT
04402.067201M	6.3 mm F2 Superthin HMA, 70 Series Compaction	Metric Ton
04402.067211M	Plant Production Quality Adjustment to 04402.067201 M	Quality Unit
04407.02 M	Tack Coat	Liter