*INCLUDE SECTION 412 ON ALL PROJECTS WITH 401, 402, 403, 405, AND/OR 418 WORK AND WHEN RECOMMENDED BY THE PAVEMENTS REPORT/MEMO AND/OR BY THE MATERIALS ENGINEER*

$$412.00A

Section 412. — ASPHALT TACK COAT

Revised 25 January 2018

*INCLUDE CLAUSE $$412.05A WHEN ASPHALT PAVEMENT THICKNESS IS 1-INCH OR LESS. IF THE ASPHALT PAVEMENT THICKNESS IS GREATER THAN 1-INCH, THEN DO NOT USE THIS CLAUSE - VERIFY WITH PAVEMENTS/MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE*

$$412.05A

412.05(b). Delete the Subsection and substitute the following:

**(b)** Ambient air and pavement temperatures are above 60 °F and rising; and

*INCLUDE CLAUSE $$412.06A ON ALL PROJECTS WITH 412 ASPHALT TACK COAT APPLICATION - VERIFY WITH MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE*

$$412.06A

412.06. Delete the second paragraph and substitute the following:

Apply the asphalt tack coat according to Subsection 407.09 and at a rate indicated in Table 412-1.

Provide the CO with the target residual and bar application rates within the range specified in Table 412-1. Control the rate of application within plus or minus 0.01 gallons per square yard of the target application rate and within the allowable range. Provide the CO with the specific gravity of the bituminous material corrected for spray temperature.

Set spray bar height to ensure uniform coverage and at least a double overlap, but not to exceed triple overlap coverage. Set nozzle angle settings between 15 to 30 degrees from the center of the spray bar axis. Use the same size nozzles, all set at the same angle, open, and functioning properly.

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| --- | --- | --- | --- | --- |
| **Table 412-1**  **Asphalt Tack Coat Application Rate(1)** | | | | |
| **Pavement Type** | **Residual Rate(2)** | **Bar Rate**  **PG Binder(3)** | **Bar Rate**  **Undiluted Emulsion(4)** | **Bar Rate**  **Diluted Emulsion(5)**  **(1:1 Ratio)** |
| New Asphalt  Concrete Pavement | 0.020 - 0.045 | 0.025 - 0.045 | 0.030 - 0.065 | 0.060 - 0.130 |
| Existing Asphalt  Concrete Pavement | 0.040 - 0.070 | 0.040 - 0.060 | 0.060 - 0.105 | 0.120 - 0.210 |
| Milled Asphalt Concrete Pavement | 0.040 - 0.080 | 0.040 - 0.080 | 0.060 - 0.120 | 0.120 - 0.240 |
| Portland Cement  Concrete Pavement | 0.030 - 0.050 | 0.030 - 0.050 | 0.045 - 0.075 | 0.090 - 0.150 |
| (1) Application rates are in gallons/yd2.  (2) Residual asphalt: the remaining asphalt after an emulsion has completely cured or set.  (3) Maintain a PG binder application rate of 1.0 times the target residual tack coat rate.  (4) Maintain an undiluted application rate of 1.5 times the target residual tack coat rate.  (5) Maintain a diluted application rate of 3.0 times the target residual tack coat rate. | | | | |

*INCLUDE CLAUSE $$412.07A WHEN ONE OR MORE OF THE FOLLOWING SITUATIONS APPLY:*

1. *A 412 ASPHALT TACK COAT PAY ITEM IS INCLUDED.*
2. *FOR LARGE PROJECTS, WHICH ARE TYPICALLY DEFINED AS ONE OR MORE OF THE FOLLOWING:*

* *THE LENGTH OF THE PAVED ROADWAY IS 2-LANE MILES OR MORE OF CONTINUOUS ASPHALT CONCRETE PAVEMENT PLACEMENT; AND/OR*
* *THE AVERAGE DAILY TRAFFIC OF ANY ROAD ON THE PROJECT IS GREATER THAN 3000 VEH/DAY).*

*(THE LARGE PROJECT DEFINITION DOES NOT ALLWAYS DETERMINE WHETHER OR NOT TO INCLUDE A 412 PAY ITEM)*

1. *WHEN RECOMMENDED BY MATERIALS ENGINEER (VERIFY WITH MATERIALS ENGINEER IF CLAUSE IS APPROPRIATE TO USE).*

*(IF CLAUSE $$412.07A IS USED, ALSO INCLUDE CLAUSE $$412.09A)*

$$412.07A

412.07. Delete the Subsection and substitute the following:

**412.07 Acceptance.** See Table 412-2 for sampling, testing, and acceptance requirements.

Emulsified asphalt properties will be evaluated under Subsections 106.02 and 106.03.

Construction of the tack coat will be evaluated under Subsections 106.02 and 106.04.

Test distributor for residual application rate and frequency in accordance with Table 412-2, ASTM D2995, Option A, and the following:

1. Record the tare weight of the nonwoven geotextile materials;
2. Place the nonwoven geotextile on the road surface;
3. Apply the tack coat over the nonwoven geotextile;
4. Immediately record the weight of the nonwoven geotextile with tack coat;
5. Record the temperature of the tack coat;
6. Subtract the tare weight of the nonwoven geotextile to determine the weight of tack coat;
7. Convert the weight of tack coat to application rate according to ASTM D2995, Section 8, Calculation (Transverse Application Rate);
8. Correct the calculated application rate using temperature correction multiplier shown in the Asphalt Institute, *A Basic Asphalt Emulsion Manual*, Table B-1; and
9. Determine the tack coat residual application rate using the residual percentages shown in ASTM D2995, Table 1.

*INCLUDE EITHER CLAUSE $$412.08A OR $$412.08B BASED ON THE FOLLOWING INSTRUCTIONS:*

1. *INCLUDE CLAUSE $$412.08A WHEN 412 ASPHALT TACK COAT PAY ITEM IS* ***NOT*** *INCLUDED (IF CLAUSE $$412.08A IS USED, DO NOT INCLUDE CLAUSE $$412.08B)*
2. *INCLUDE CLAUSE $$412.08B WHEN 412 ASPHALT TACK COAT PAY ITEM IS INCLUDED (IF CLAUSE $$412.08B IS USED, DO NOT INCLUDE CLAUSE $$412.08A)*

$$412.08A

412.08. Delete the second paragraph and substitute the following:

Do not measure asphalt tack coat for payment.

$$412.08B

412.08. Add the following to the second paragraph:

Material quantities placed in excess of the application rates indicated in Table 412-1 will not be measured for payment.

*SEE INSTRUCTIONS FOR CLAUSE $$412.07A. INCLUDE CLAUSE $$412.09A WHEN CLAUSE $$412.07A IS INCLUDED*

$$412.09A

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 412-2**  **Sampling, Testing, and Acceptance Requirements** | | | | | | | | | |
| **Material or**  **Product**  **(Subsection)** | **Type of**  **Acceptance**  **(Subsection)** | **Characteristic** | **Category** | **Test Methods**  **Specifications** | **Sampling**  **Frequency** | **Point of**  **Sampling** | **Split**  **Sample** | **Reporting**  **Time** | **Remarks** |
| **Production** | | | | | | | | | |
| Emulsified  asphalt  or  asphalt  binder | Measured and  tested for  conformance  (106.04) | Quality | − | ASTM D2995, Option A | 1 at start of work  &  1 per  2500 linear feet | Behind distributor before material “breaks” and before paving | No | Upon  completion  of  measurement | Tested by  Government |