MoDOT Specification Update

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2025 MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION PDF FILES

SPECIFICATION BOOK	ADDITIONS/REVISIONS	DESIGN LETTER	EFFECTIVE LETTING DATE
2025 Missouri Standard Specifications for Highway Construction*	General Provisions and Supplemental Specifications	S-2026-02	April 1, 2026
2025 Missouri Standard Specifications for Highway Construction*	General Provisions and Supplemental Specifications	S-2026-01 G-2026-01	January 1, 2026
2025 Missouri Standard Specifications for Highway Construction*	General Provisions and Supplemental Specifications	S-2025-04	October 1, 2025
2025 Missouri Standard Specifications for Highway Construction	General Provisions	S-2025-03 G-2025-04	July 1, 2025

Official Signed Copy - 2025 Missouri Standard Specifications for Highway Construction

*General Provisions and Supplemental Revisions Incorporated (Information Only)

MoDOT Standard Specification Changes

- Sec 401 and 402 Changes – January 2025
  - Reducing the % ABR without performing an extraction and grading

Binder	Percent Effective Virgin Binder Replacement		
	RAP	RAS	RAP and RAS combination
Contract Grade Virgin Binder shall be used	0 – 20	0 -10	RAP + (2*RAS) ≤ 20
Virgin Binder shall be Softened One Grade[a]	21 – ~~40~~30	11 – ~~20~~15	20 < RAP + (2*RAS) ≤ ~~40~~30
Blend Chart[b]	0 – 100	N/A	N/A
Extraction and Grading of Binder from final Mixture[c]	0 - 100		

  - Adding sampling method for asphalt aggregates

MoDOT Standard Specification Changes

- Sec 403 Changes – January 2025
  - Revisions to Gyratory Compactors, Thermometers, Ovens, and Timers.
  - Added Asphalt aggregate test method

403.17.3.1 Calibration Schedule. The contractor shall calibrate or verify all significant test equipment associated with tests covered in this specification. Intervals as set by the contractor shall not exceed the following limits:

Equipment – Test Method (AASHTO)	Requirements	Interval (Month)
Gyratory Compactor – T 312	Calibrate – 1.16 ± 0.02° internal angle	12[a]
Gyratory Compactor – T 312	Verify	1[c] ~~Daily~~
Gyratory Molds – T 312	Check Critical Dimensions	12
Thermometers – T209, T 166, T312	Calibrate	12~~6~~
Vacuum System – T 209	Check Pressure	12
Pycnometer (Flask) – T 209	Calibration	Daily
Binder Ignition Oven - T 308	Verify	12[b]
Nuclear Content Gauge – T287 or MoDOT TM 54	Drift & Stability – Manuf. Recommendations	1
Mechanical Shakers – T27	Check Sieving Thoroughness	12
Sieves	Check Physical Condition	6
Weighted Foot Assembly – T 176	Check Weight	12
Mechanical Shaker – T 176	Check Rate & Length of Throw	12
Liquid Limit Device – T 89	Check Wear & Critical Dimensions	12
Grooving Tool – T 89	Check Critical Dimensions	12
Ovens	Verify Temp/ Settings	12~~4~~
Balances	Verify	12[b]
Timers	Check Accuracy	12~~6~~

[a]Calibrate and/or verify after each move.
[b]Verify after each move.
[c]Includes ram pressure, LVDT, frequency of gyration, and external angle.

MoDOT Standard Specification Changes

- Sec 403 Changes – October 2025

403.13.1 ~~Paving Widths~~Uneven Lanes. ~~The following shall apply for roadways constructed under traffic. For pavements having a width of 16 to 24 feet, inclusive, the asphaltic concrete pavement shall be laid in lanes approximately one half the full width of the completed pavement, and the full width shall be completed as soon as practical. Unless otherwise permitted, a single lane of any course shall not be constructed to a length that cannot be completed to full width of the pavement the succeeding operating day. For pavements greater than 24 feet wide, single lane width construction shall be limited to one day's production and completion to full width shall be accomplished as soon as practical.~~ For roadways constructed under traffic, u~~U~~neven pavement lanes shall not be left in place for ~~no~~ more than seven days, unless approved by the engineer. ~~Removal of pavement to be in accordance with this specification shall be at the contractor's expense.~~

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Missouri Standard Specifications for Highway Construction

2025 Missouri Standard Specifications for Highway Construction

General

The standard specifications book contains material, equipment and construction requirements for items specified in the construction of Missouri's transportation infrastructure.

Disclaimer

By providing the standards specifications in this electronic format, the Missouri Highway and Transportation Commission and the Missouri Department of Transportation do not intend to form a contract with any person, nor shall any of the information may be relied upon by any person as forming a part of any contract.

The published contents of the Missouri Standard Specifications for Highway Construction, 2025 Edition PDF, adopted by the Commission at its meeting on April 14, 2004, as they have been revised by the General Special Provisions or Job Special Provisions of the bidding and contract documents for a particular project shall always control over the information provided in the ePub electronic publication.

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The standard specifications are provided in an ADOBE PDF format and in an ePub file format. To use the ADOBE PDF specifications as intended download the Adobe Acrobat Reader (Free Acrobat Reader download). Downloadable ePub files can be found at the bottom of this page.

If you wish to be notified when revisions are posted to this site, please sign up for E-Update notices by clicking here. To receive notices regarding Engineering Policy Revisions, select Engineering Policy then mark the appropriate subjects of interest.

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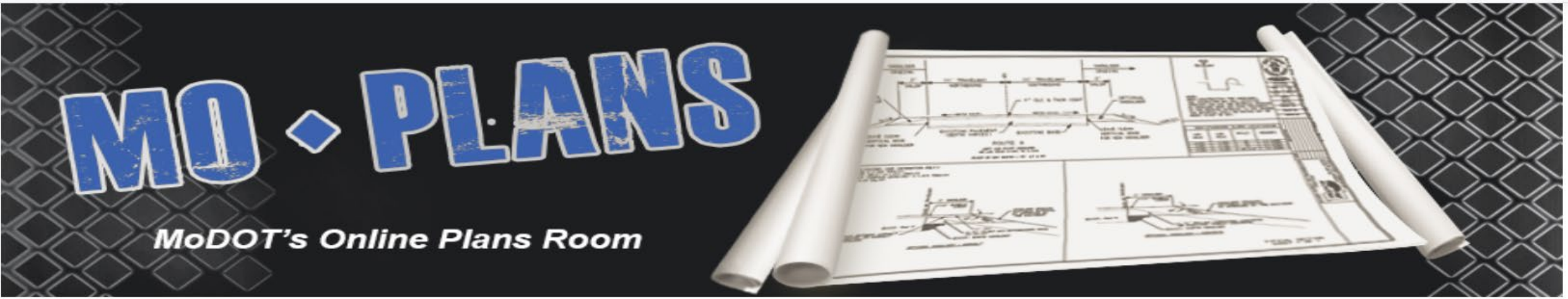
Standard Specifications are difficult to change and fit all scenarios; Job Special Provisions address project specific needs.

Job Special Provisions - Engineering Policy Guide



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Notice of Bid Openings	1/15/2026
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Preliminary Quantities	1/15/2026
State Wage Rates	1/8/2026
General Provisions and Supplemental Specs	1/8/2026
Supplemental Plans	1/8/2026

Call for 260220	Description	Bid Book	Road JSPs	Bridge JSPs	Plans	Cross Sections	Electronic Deliverables Roadway	Electronic Deliverables Bridge	Download Files

Call for 260116	Description	Bid Book	Road JSPs	Bridge JSPs	Plans
A01	(1): Job JNW0041 Route 46 ATCHISON, NODAWAY County. Resurface from Route 59 east to Nodaway River, the total length of improvement being 15.045 miles. (2): Job JNW0163 Route E,EE NODAWAY County. Resurface on Route E from Iowa Line to Route 136, on Route EE from Route NN to Route 136, the total length of improvement being 27.225 miles.	View ☐	View ☐		View ☐
A01	ADDENDUM A01-001 View	View ☐	View ☐		View ☐

Recent Job Specials Provisions

- JSP2501 – Modified Tack
- JSP2402 – Non-Tracking Tack
- JSP2502 – HiMod Asphalt Mixtures
- JSP2401 – Balanced Mix Design (Stay Tuned to Tomorrow)
- JSP2506 – Additional Research
- JSP2303 – Rapid Penetrating Emulsion
- JSP2101 – Low Type Asphalt Requirements
- JSP1706 – Reinforcing Fibers for Bituminous Mixtures
- JSP0401 – Geosynthetic Interlayers Specifications for Hwy App
- JSP1811 – Rigid Geogrid Enhanced Aggregate or Rock Base

JSP 2501 – Modified Tack Coat

- Used when placing a single lift of asphalt on concrete.

  - Uses a high application rate of 0.20 gal/yd^2.

- Tack applied with two different options:
  - Spray Paver using a polymer emulsion membrane
  - Two passes of Non-Tracking Tack Coat @ 0.1 gal/yd^2 per pass.

- Discontinued with Hot Applied Tack.

JSP 2402 – Non-Tracking Tack Coat

- Prevention of tack loss from the surface – Reduced Tracking
- Comes with an approved tack coat product list –
  - CATT-TR by Wright Asphalt
  - DuraTac – Zydex
  - SS1-VH – Heartland Materials
  - UltraTack – Blacklidge Emulsions
- Other products are allowed at the contractor's risk.

JSP 2402 – Non-Tracking Tack Coat

- Very difficult to measure and predict tracking of tack coat.
  - Time – Track free within 30 minutes of being applied.
  - Surface Cleanliness – Impossible for some milled surfaces
  - Weather – Humidity and Wind
  - Surface moisture, Pre-Wetting, and % Dilution

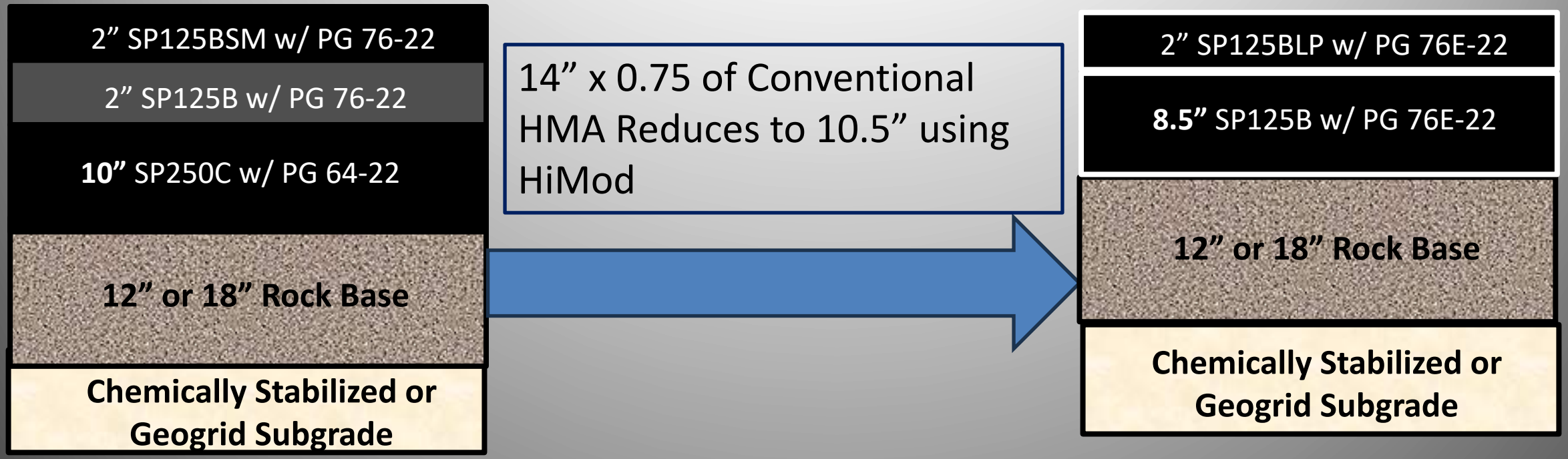
JSP 2502 – HiMod Asphalt Requirements

- SuperPave mixes with high polymer (~7- 8%) polymer modification in the asphalt binder.
  - MSCR Graded System – PG 76E-28
    - Super Crack and Rut Resistant Mixture
  - 50 gyrations, 0.5 to 1.5 % Air Voids; 6.2 – 6.3 % AC.
  - 15 % Maximum RAP content,
  - 94% - 99% In-Place Mat Density
  - Thick Lift Paving – 8-inch+ lifts in one lift
  - Micro-Mill - Then surface lift of SMA or HiMod LP mix

Figure 1. Styrene-butadiene styrene polymer pellets. (Source: NCAT)

JSP 2502 – HiMod Asphalt Requirements

- 25 % Thickness Reduction
  - Upcoming Research needs to validate further reductions
- Using Minimum of 12” Rock Base
- Subgrade Modification or Geogrid Required



Construction Guidance

- HiMod binders should not be stored for more than 3–7 days; ideally used immediately.
- Storage temperature should not exceed 320°F; overheating increases viscosity.
- Maintain proper mixing temperature (320–330°F) and avoid excessive heat.
- Transport loads covered with tarps; insulation may be needed for long hauls.
- Surface preparation: milling if needed, tack coat for bonding.

Maintenance Practices

- Monitor binder viscosity daily (AASHTO T 316).
- Avoid multiple heating/cooling cycles; use dedicated tanks to prevent contamination.
- Maintain proper temperature during production; avoid overheating.
- Balance plant production, hauling, and paving to ensure continuous operation.
- Night paving possible; maintain minimum ambient temperature of 50°F.

Key Takeaways

- HiMod mixtures extend pavement life with minimal design changes.
- Minimum overlay thickness: 1.25 inches for proper compaction.
- Storage and temperature control are critical for binder quality.
- Continuous paving operation ensures optimal density and performance.
- Communication among agency, contractor, and supplier is essential.

2026 HiMod Pilot Projects

- J9I3838 I-55 – small test section
  - January Letting
- KU0198 I-49 - 2-inch overlay
  - April Letting
  - Over 18 lane miles

JSP 2506 – Additional Research

- BMD effects on asphalt properties need to be quantified and need Contractor's Assistance!

JSP 2506 – Additional Research

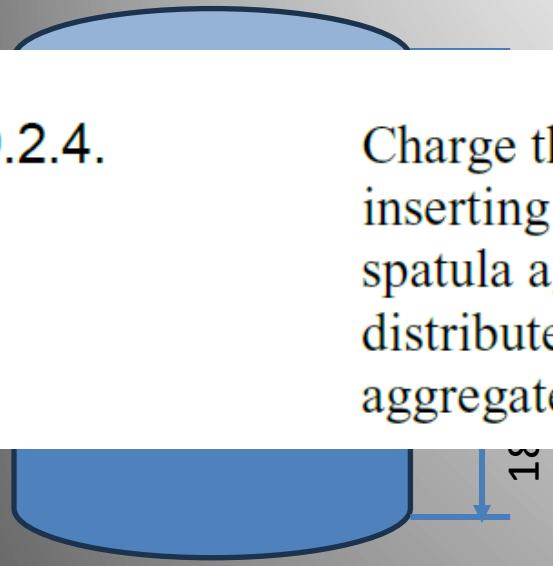
- Consists of the contractor producing four (4) 150-mm diameter by 180-mm tall SGC specimens at the correct air voids to ship to the research entity for testing.

Goal - New “Thinner” Pavement Design Thicknesses for Full Depth Asphalt Pavement and Overlays due to Better Quality Materials

JSP 2506 – Additional Research

- SGC Specimen Compaction - Carefully follow Sections 9.2.2 – 9.2.4 of AASHTO PP 99-23
  - A Mixture Transfer Funnel is Required
    - Pour the mixture into the center of the mixture transfer

9.2.4. Charge the mold in two equal lifts. After each lift, use the spatula to scrape the walls of the mold, inserting the spatula 8–10 times around the circumference of the mold with the flat side of the spatula against the mold. Insert the spatula into the center of the mixture 10–12 times in an evenly distributed pattern. Insert the spatula as far as possible into the mixture without damaging aggregates.



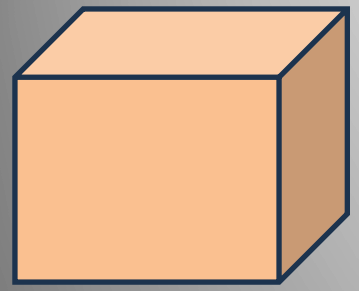
Fabricate 150 mm x 180 mm tall (min)and Record Gmb, % Air Voids, and Record SGC Mass

(a) (b)

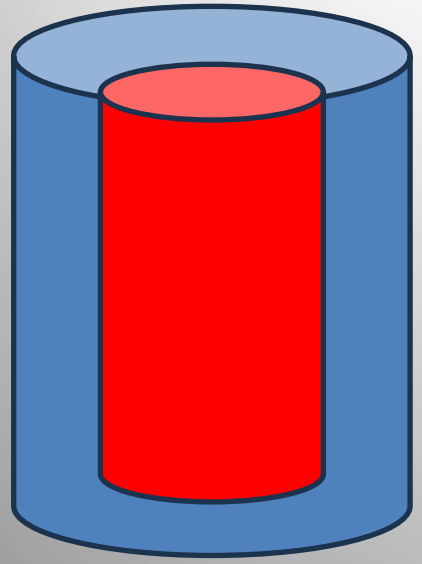
Figure 2—Another Mixture Transfer Funnel Option

JSP 2506 – Additional Research

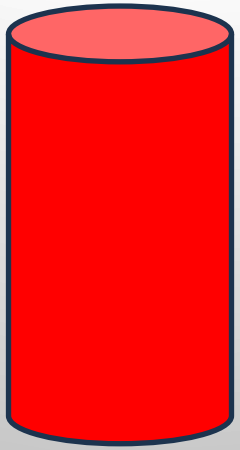
- Key Instructions – Follow AASHTO PP 99-23
  - Acceptable air voids determined by coring out smaller (100-mm diameter by 150-mm tall) specimens out of the larger SGC specimens.



Calculate Gmm



Fabricate 150 mm x 180 mm tall (min)and Record Gmb, % Air Voids, and Record SGC Mass



Sawn 100 mm x 150 mm specimen, and Record new Gmb and calculate the new % Air Voids

- Repeat and Adjust SGC Mass until…….
  - New % Air Voids of the sawn 100 mm x 150 mm specimens are as follows:
  - 7.0 +/- ½ % for SuperPave
  - 6.0 +/- ½ % for SMA
  - 3.0 +/- ½% for HiMod

JSP 2506 – Additional Research

– After Verifying % Air Voids of 100 mm x 150 mm specimens, Fabricate four (4) 150 mm x 180 mm SGC specimens at the new SGC Mass.

– Specimen Refrigerator Storage – 34 F – 40 F

4.0 Basis of Payment. The accepted lump sum quantity of SGC specimens will be paid for at the fixed unit price for the pay item number found below. Failure to produce the research work items in the workplan or an invalid AMPT sample will result in a contract deduction equal to that of the fixed unit cost.

Pay Item	Unit	Fixed Unit Cost
401-03.01, Asphalt Research – SP125C	Lump Sum	$ 10,000

Attention: David Wang

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Phone: (336) 285-2453 Cell: (919) 749-1679

JSP 2303 – Rapid Penetrating Emulsion

Longitudinal Joint Density (Percent of G_{mm})	Pay Factor (Percent of
For all SP mixtures other than SP125xSM	
90.0 to 96.0 inclusive	100
96.1 to 96.5 or 89.5 to 89.9 inclusive	90
96.6 to 97.0 or 89.0 to 89.4 inclusive	85

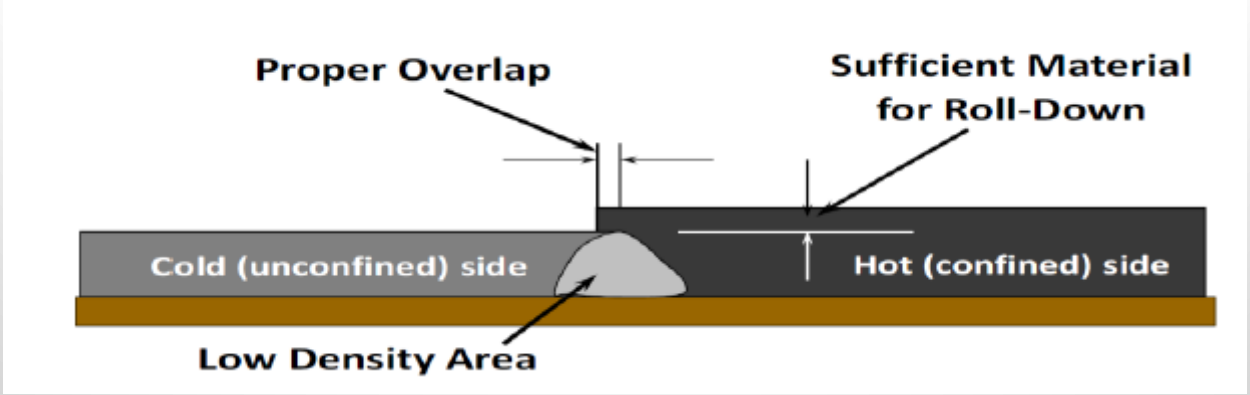
- Enforced specification leads to cutting off 6-inches off an unconfined joint.
- Impacts production, safety, and was relatively ineffective.

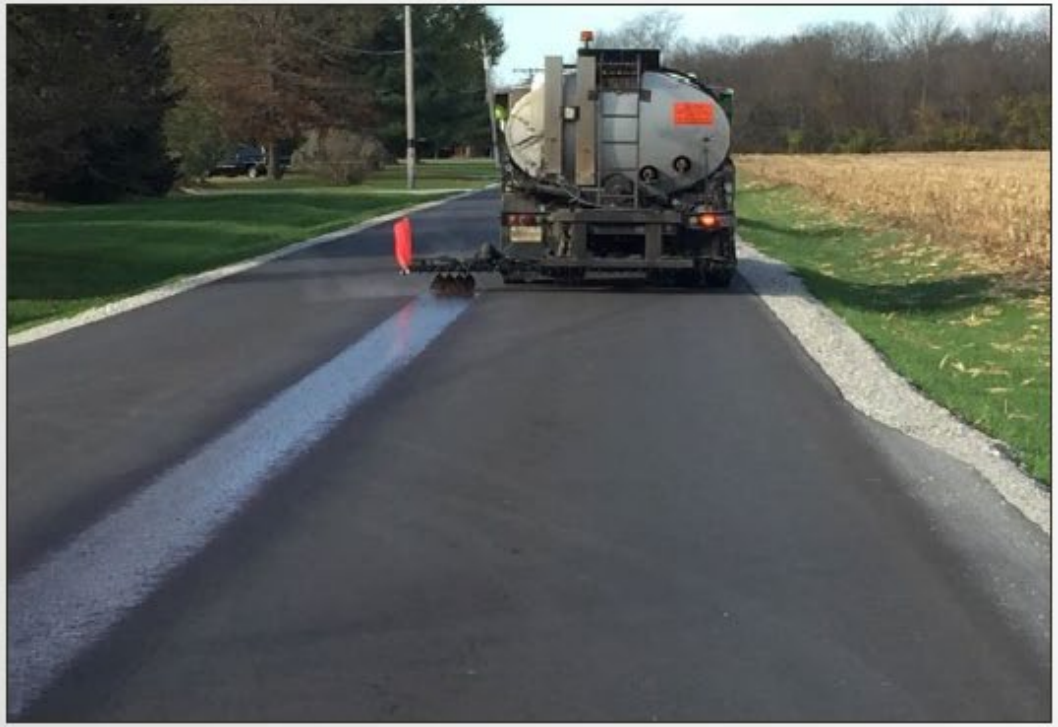
Longitudinal Joint Density	
Field Density (Percent of Laboratory Max. Theoretical Specific Gravity)	Percent of Contract Unit Price
SuperPave Mixtures	
≥ 90.5	PF_{Total} not changed by longitudinal joint density
89.5 – 90.4	Maximum PF_{Total} = 100%; Correction Required[(a)]
< 89.5	Remove and Replace
SMA Mixtures	
≥ 92.0	PF_{Total} not changed by longitudinal joint density
90.0 – 91.9	Maximum PF_{Total} = 100%; Correction Required[(a)]
< 90.0	Remove and Replace

(a) Correction requires spraying rapid penetrating emulsion on deficient density areas in accordance with JSP2303. All costs associated with correction shall be at the contractor's expense with no additional payment.

RPE Required

Rapid Penetrating Emulsion





JSP 2101 – Low Type Asphalt Requirements

- BP-1LT w/ PG 64-22 – Used on Low Volume Routes with Heavy Truck Volumes.
  - SuperPave aggregate mix without the testing
    - Fine Aggregate Angularity Requirement - Minimum of 40
    - Marshall Stability Requirement - Minimum of 1500.

JSP 1706 – Reinforcing Fibers for HMA

- Increase rut resistance at intersections or heavy truck routes.
- QC/QA Responsibility – Make sure product has met the below requirements and submit the manufacturer's certifications @ the dosage rate that meets the below requirements.

2.2 Performance Testing. A FRAC mixture shall meet the following performance test detailed in Table 2 below. Non-aramid fiber blends will not be considered alternatives to this specification. All performance testing results from previous laboratory trial FRAC mixtures shall be submitted to the engineer along with the job mix formula.

Table 2 – FRAC Mixture Performance Requirements

Performance Measure	Test Method	Standard	Requirement
Dispersion Efficiency, %	Aramid Dispersion State Ratio (ADSR)	Modified ASTM D2172	≥ 85 %
Cracking Resistance, % increase	Indirect Tensile Strength (IDT)	AASHTO T 322 or ASTM D6931	≥ 20 % increase
Resistance to Permanent Deformation (Rutting)	Flow Number	AASHTO TP 79	≥ 35 % increase
	Hamburg	AASHTO T 324	< 3 mm

JSP 1706 – Reinforcing Fibers for HMA

- Fibers introduced by an additive machine for tonnage > 2000 tons
- Manual feeding allowed for tonnage < 2000 tons

JSP0401 – Geosynthetic Interlayers

- Provides a moisture barrier and stress relieving membrane beneath a HMA overlay
  - System A through C
- QC/QA needs to supply manufacturer's certification that meet the specification!

JSP1811 – Rigid Geogrid Enhanced Aggregate or Rock Base

- Used on poor unstable subgrades instead of removal or chemical stabilization.
- Used to promote thinner Rock Base or thinner HMA structure.
- QC/QA needs to supply manufacturer's certification that meet the specification!

Questions?