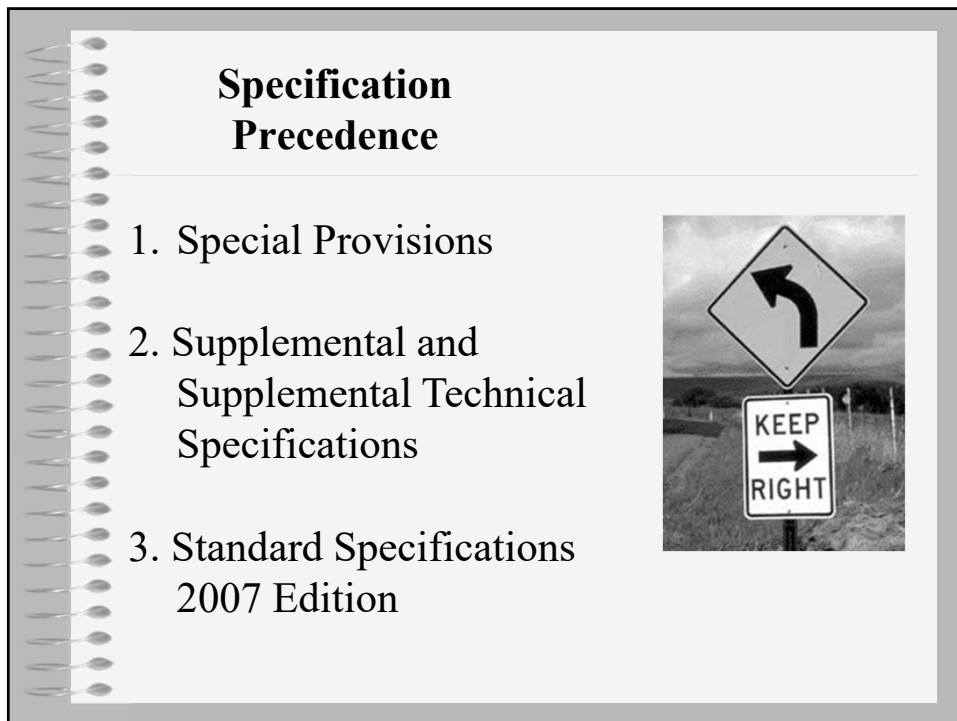


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2

Production / Hauling Requirements

(Section 401.3.2.2)



- Contractor Asphalt Plants / Labs – QPL # 76
- ~ 60 Contractor owned plants, drum mix is the most common used here in SC
- Trucks - smooth, clean, tight metal beds
- Beds - coated with an approved release agent
- (see SCDOT Qualified Product List 17)
- Beds – a hole in both sides for checking temperature – SC-T-84
- Waterproof covers –weather-tight and completely cover bed

3

Paver Requirements

(Section 401.3.2.3)



- Should be self-powered
- Capable of spreading and finishing the mixture without segregation
- Equipped with a hopper and distributing screws
- Automatics for controlling cross-slope and longitudinal profile
- Mobile stringline or ski pole*, electronics such as topcons, etc. (typical length ~30 feet)*
(required in mainline paving applications)

4

Roller Requirements

(401.3.2.4)

- Contractor should have manufacturer's literature on rollers being used at the job site
- Roller speeds – shall be that which gives maximum compaction and a smooth pavement.
- Suggested maximum speeds: “Best Practice”
- 3 mph max - steel wheel static/vibratory
- 5 mph max – pneumatic

Document all rollers on SCDOT Form 400.04

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Steel-Wheel Roller Requirements

(Section 401.3.2.4.2)

- Two-axle tandem - 8 to 12 tons
- Compression wheel - min. 250 psi
- Adjustable scrapers to keep rollers clean
- Means to wet wheels - prevent sticking

6

Pneumatic Tire Roller Requirements

(Section 401.3.2.4.3)

- Effective roller width min. of 60 inches
- Tire contact pressure of 60-80 psi
- Min. overlap of 1/4 in. on tracking wheels
- Wheels should not wobble
- Tire pressure - not vary more than 5 psi

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Vibratory Roller Requirements

(Section 401.3.2.4.4)

- Should weigh at least 8 tons
- Have either 1 or 2 vibrating wheels
- Operate at speed, frequency and amplitude to yield maximum compaction and a smooth pavement



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Construction Requirements

(Section 401.3)

- Weather and seasonal restrictions
- Conditions of existing surface
- Roadway mix temperature
- Tack coats
- Maximum lift thickness
- Joint construction
- Compaction

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Weather and Temperature Restrictions

(Section 401.3.5)

<u>Lift Thickness (inches)</u>	<u>Min. Ambient Temp. (F)</u>
1.0 or less	55
1.1 - 2.0	45
2.1 - 3.0	40
3.1 - 4.5	35

(Rate typically figured to be: 1" = 110#/SY)

- Asphalt mixture shall not be applied on wet or frozen surface
- Ambient temperature to be measured with calibrated thermometer away from artificial heat sources (SC-T-84)
- No Surface courses in Dec., Jan., and Feb – unless noted by DOC. - Cold Weather Paving Plans Required

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Roadway Mix Temperature Requirements

(Section 401.3.12 – See Supplemental Specification dated: 7-1-10)

- Mixtures containing: **PG 64-22**
- Mix temperature at the road => (265 - 325 F)
 - Only exception is the Base Type C/D=> (240-275 F)
- Mixtures containing: **PG 76-22**
- Mix temperature at the road => (300 - 350 F)

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Roadway Mix Temperature Requirements

(SC-M 408 – WARM MIX ASPHALT)

- Mixtures containing: **PG 64-22 and PG 76-22**
Mix temperature at the road => (225° - 285° F)
- Specialty Mixtures containing: **PG 76-22**
OGFC and SMA Only
Minimum 225°
Maximum – See Job Mix Formula!

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Tack Coats

(Section 401.3.13)

- Applied ***uniformly*** using spray bars
 - May use wand around man-holes & gutters
- Tack rate 0.05 to 0.15 gals/sq. yd. (SC-T-86)
- Acceptable grades of emulsion
 - MS-1, MS-2
 - HFMS-1, HFMS-2
 - SS-1 & RS-1
 - CRS-2, CMS-2, CSS-1, CRS-1
 - Trackless Products (Less Tracking)

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Maximum Lift Thickness (Compacted)

(Section 401.3.14)

- 4.5 inches - Asphalt Aggregate Base (A&B)
- 3.0 inches - Sand Asphalt Base (C&D) & Intermediate Courses
- 2.0 inches - Surface Courses

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Compaction

(Sections: 401.3.16/17)

- Heavy equipment of rollers are not allowed to stand on finished surface until it has cooled
- Rolling to start longitudinally at the sides and proceed to the center of the pavement
- Super-elevations - rolled from the lower to upper edge of pavement
- Intermediate rolling to be completed before the mix reaches 175F.
- Additional lifts may be applied after internal mat temperature is less than 175F.

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Joint Construction

(Section 401.3.19)

Longitudinal Joints

- Overlap previous lane by 1 – 1.5 inches onto cold side (previous lane)
- If proper overlap is utilized, no need to push back extra material with a lute
- Stagger joints at least 6 inches from previous courses when placing multiple lifts

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Joint Construction

(Section 401.3.19)

Longitudinal Joints – Best Practices

➤ *Paving Preparations*

- Set up paint or string-lines to assist equipment operators/drivers in maintaining straight lines during the paving operation.
- Attach a reference chain or other device to equipment so the reference lines can be easily followed by the paver operator.
- Clean the joint area to ensure excessively loose material is removed prior to paving.
- Apply additional tack at the joint face using a wand or angled spray bar to assist with cohesion at the joint.
- Tack a few inches past the full paving width to ensure the unrestricted edge will have minimum movement in the compaction process.
- Allow time for the tack to properly cure (break) before placing the layer of asphalt to minimize movement during the compaction process. This is especially critical near unrestrained edges.

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Joint Construction

(Section 401.3.19)

Longitudinal Joints – Best Practices

➤ *Paving Operations*

- Ensure the gate is extended far enough to allow for approximately 1.0 - 1.5'' of overlap to maintain sufficient material at the joint and prevent starving the joint.
- Properly lute the joint, only if necessary, to prevent pushing material out of and away from the joint.
- Ensure the height of the (loose) lift is higher than the adjacent lift so the final compacted height will be slightly higher than the previously constructed mat.
- Maintain a uniform head of material at the auger points to ensure enough material is consistently at the joints throughout the paving process.

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Joint Construction

(Section 401.3.19)

Longitudinal Joints – Best Practices

➤ *Compaction*

- Ensure the first pass of the breakdown roller is approximately 6” away from the joint to ensure material is being compressed towards the joint. Then, overlap the joint in all remaining passes with all rollers.
- Make sure all of the rollers are compacting at the joint, not just the breakdown roller.
- Overhang the roller by approximately 6” while compacting unrestrained edges.

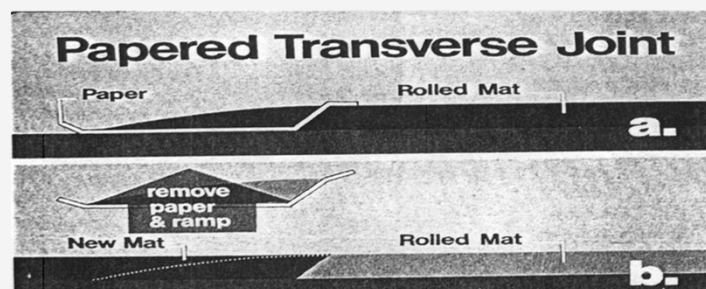
19

Joint Construction

➤ Transverse Joints

- Straight-edged or string-lined
- Papered (most common)

(Note: properly tack the joint!)



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Plant Tickets - Paper

(Section 401.3.25)

- Road inspectors - get original copy of plant ticket
- Check all information on ticket
- Check math on ticket (Missing loads?)
- Rejection of material
 - Should be noted on all ticket copies by the Engineer or Inspector
 - State reason why material was rejected

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Compaction Specifications

(401.3.16/17 => SC-M-400 / Section 3.6.3.2)

- SC-M-400 Specification is used for your binding contract – QA Roadway
- Acceptance based on:
 - Gauge Readings
 - SC-T-101
 - Or... (Mix Specific!)
 - 6" Core Samples required to be taken from roadway
 - SC-T-101



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Segregation Identification

(Section 401.3.23)

- Segregation is defined as areas of non-uniform distribution of coarse and fine aggregate particles in a compacted HMA pavement.
- Corrective Measure:
- Mill and Replace at contractors expense.



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Rideability

(Section 401.3.22.3/ 401.3.24 / SC-M-403)

- SC-M-403 contains HMA rideability requirements.
- Minimum Speed Limit of 45 mph
- Dynatest 5051 Mark III Road Surface Profiler with LMI 3D Gocator series wheel path lasers.
- Single lift overlays may require pre- and post-overlay rideability measurements.
- Final rideability requirement determined by initial roughness.

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Before starting a project.....

- Review and study the contract
- Note any changes in the Special Provisions
- Discuss project with RCE and Project Managers
- Do not be afraid to ask questions

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The End!

Thank You.



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