Longitudinal Joint Construction – Why Straightness Matters

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Straight Longitudinal Joint
Not a Straight Longitudinal Joint?

How Does VDOT specify a straight Longitudinal Joint?
Why do we need a good Longitudinal Straight Joint?

“A chain is only as strong as its weakest link and for asphalt pavement that link is often the longitudinal joint” – Asphalt Institute

- Improperly constructed longitudinal joints can cause premature deterioration of multilane AC pavements in the form of cracking and raveling.

- Because joint overlaps are so small, it is critical that the paver be operated in as straight a path as possible for both the cold lane and the hot lane.

- A straight longitudinal joint sets-up a consistent offset line of striping and snow-plowable marker alignment.

- The solution to a good longitudinal joint construction involves several aspects of the paving operation.
Sufficient Depth on 2nd lane

Overlap Existing Lane

Overlap

- Sufficient Depth on 2nd lane
Typical Overlap on Longitudinal Joints

1 to 1.5 inches (25 - 30 mm)

Thickness of Rolldown

Uncompacted Mat

Compacted Mat
Mat Compaction - Subsequent Pass

- The mat should be rolled from the unconfined/outside edge to the longitudinal joint (number of passes to cover the mat depends on the roller widths).
Confined Edge Compaction

- Adjacent Lane Open to Traffic
Joint Straightness

Section 315.05(c) – Placing and Finishing

• This applies only to Interstate and Primary Roads.

• The joint shall offset that in the layer immediately below by at least 6 inches.

• The joint in the wearing surface shall be offset 6 inches to 12 inches from the centerline of the pavement if the roadway comprises two traffic lanes.

• The joint shall be offset approximately 6 inches from the lane lines if the roadway is more than two lanes in width.

• If the offset for the longitudinal joint varies from a straight line more than 3 inches in 50 feet on tangent alignment, or from a true arc more than 3 inches in 50 feet on curved alignment, the Engineer may reject the paving.

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All longitudinal joints will be subject to this requirement, however, our hope is that few will be measured. As the job progresses, the inspection team will visually inspect joint straightness. If the joint appears to be out of tolerance, the inspection team will communicate this to the contractor. If the contractor believes that the joint appears to be in tolerance, then the joint will be measured by the inspector and the contractor jointly.

Only the portion out of tolerance will require corrective action. That said, if most of the joint is out of tolerance and an only a small percentage of joint is within tolerance, the entire joint will likely be rejected.
Not a Straight Longitudinal Joint?

The new specification will clarify what is acceptable and what is not.
Related Links:

http://www.pavementinteractive.org/article/longitudinal-joint-construction/
http://www.pavetechinc.com/jointbond-asphalt-maintenance.asp