Longitudinal Joint Construction

- Discuss longitudinal joint construction at pre-pave meeting
- Stagger joints at least 6” horizontally from layer below
- Follow all best practices for HMAC placement
- Apply tack including face of the joint
- Overlap existing lane 1” +/-0.5” (overlap milled edge 0.5” for inlays)
- Avoid pushing material away from the joint. Don’t rake!
- First pass of breakdown roller should be on the hot mat 6” from the cold joint or with a 6” overhang on the cold mat.
- Check compacted joint to ensure that overlap height is 0.1”, confirming that no bridging occurred.

Resources

- 2008 Oregon Standard Specifications for Construction Sec. 00745.61

Technical Contact

Larry Ilg, Pavement Quality & Mat’l’s Engineer Phone: 503-986-3072 larry.d.ilg@odot.state.or.us

Spec Notes are prepared by the Construction Section QA Unit for inspectors to provide background information around design elements and specifications.

If you have a topic you would like to see addressed in this format, please contact Jim Doll at ODOT.
Q – What if the contractor doesn’t rake the joint but places hot mix right at the face of the cold joint?

A – This method would be good and fine if all pavements were uniform and smooth. Most contractors use a ski to determine pavement depth that is averaged over the length of the ski.

If there are intermittent high spots along the length of the cold joint, insufficient material will be placed to provide a tight joint. Also, the high spots could be bridged creating marginally compacted areas as shown above.

Q – What is the best process for building a longitudinal joint?

A – Best practices include:

- First, overlap the existing lane (of a butt joint constructed with the paver) 1 inch +/-0.5”. When the butt joint is constructed by milling or cutting back the existing lane, the overlap should be about ½ inch. If the overlap exceeds 1.5”, carefully remove the excess with a shovel. See Figure 2.

- Don’t rake the joint and only bump the joint if more material is needed. Ensure that enough material is at the joint - thickness of rolldown – 25% (2” lift – ½”).

- Compact the supported edge of joint with the first pass of vibratory roller drum on the hot mat, but staying back from the joint 6 to 8” on the 1st pass. The 2nd pass should then overlap onto the cold mat 4 to 6”. Watch for any stress cracks developing in the mat that are parallel and 6 to 8” off the joint. If cracks develop, switch to the method presented in the next bullet.

- An alternative compaction process is to have the 1st pass of the vibratory roller on the hot mat overlapping 4 to 6” onto the cold mat. A concern is that if an insufficient depth of HMAC is placed next to the cold mat (starving the joint), the roller will bridge over and not compact the hot material completely as shown in Figure 1.

Figure 1. Pushing too much material away from the joint will result in low density at the joint as shown in Box C.

Figure 2. Best practices for placing mix at a longitudinal joint.