*UNHIGHLIGHTED CLAUSES INDICATE VERBIAGE CURRENTLY IN THE LOS AND THEREFORE PROPER ORDER OF INCLUSION OF THE CORRESPONDING SAFETY EDGE OR WARM MIX ASPHALT CLAUSE IS REQUIRED.*

$$401.00A

Section 401. — SUPERPAVE HOT ASPHALT CONCRETE PAVEMENT

Revised 1 June 2012 DRAFT Pending

*INCLUDE THE FOLLOWING FOR WARM MIX ASPHALT*

401.01. Delete the first paragraph and substitute the following:

This work consists of constructing one or more courses of Superpave hot asphalt concrete pavement using hot or warm mix asphalt.

*INCLUDE THE FOLLOWING FOR SAFETY EDGE*

401.01. Add the following:

This work includes constructing a safety edge as shown in the plans.

*INCLUDE THE FOLLOWING FOR WARM MIX ASPHALT*

401.03. Delete the second paragraph and substitute the following:

Volumetric mix properties will be determined at Ndesign according to AASHTO T 312 and R 35.

Apply all mix design requirements for hot mix asphalt to the development of the warm mix asphalt mix design. Provide any modifications to the process required for the specific warm mix asphalt technology. Submit modifications to the mix design process in accordance with AASHTO R 35 for approval by the CO.

*INCLUDE THE FOLLOWING FOR WARM MIX ASPHALT*

401.03(b). Add the following:

**(5) Warm mix technology and additive information.**

*(a)* 1-gallon sample of warm mix asphalt additive and methodology for incorporating into mix design process.

*(b)* Warm mix asphalt manufacturer’s recommendations for usage and established target rate for the additive.

*(c)* Documentation of at least three successful warm mix asphalt technology field applications including project type, project owner, tonnage placed, mix design, mixture volumetrics, and performance.

*(d)* Temperature range for laboratory mixing and compacting.

*(e)* Asphalt binder performance grade test data over the range of warm mix asphalt additive percentages proposed for use, if applicable.

*(f)* Compatibility of warm mix asphalt additive with asphalt binder and anti-stripping agent.

*(g)* Temperature range for field mix production, delivery, lay-down and compaction.

401.04. Add the following:

**(d) Warm mix asphalt plant modifications.**

**(1)** Modify the mixing plant as required by the manufacturer to introduce the warm mix asphalt technology. Interlock the warm mix asphalt additive delivery system with the automated proportioning system.

**(2)** Comply with manufacturer’s recommendations for incorporating additives and warm mix asphalt technologies into the mix. Comply with manufacturer’s recommendations regarding delivery and storage of additives.

**(3)** Modify the plant burner and/or drum flights in order to operate at lower production temperatures.

*INCLUDE THE FOLLOWING FOR SAFETY EDGE*

401.05. Add the following:

**(i)** Equipped with a safety edge device that attaches to the screed of the paver. Use a device capable of the following:

**(1)** Confining the asphalt material at the end gate and extruding the material in a compacted wedge-shaped edge of 30 degrees (not steeper than 35 degrees).

**(2)** Maintaining contact with the road shoulder surface.

**(3)** Allowing for automatic transition to cross roads, driveways, and obstructions.

**(4)** Constraining the asphalt material head while reducing the area by 10 to 15 percent, increasing the density of the extruded profile.

Do not use a conventional single plate strike off.

When commercial devices are used, submit catalog data and supporting calculations to the CO for approval at least 7 days before performing the work, indicating the device’s salient characteristics as shown in Table 401-2A.

When non-commercial devices are used, provide shop drawings of the device and supporting calculations to the CO for approval at least 7 days before performing the work, indicating the device’s salient characteristics as shown in Table 401-2A.

|  |  |  |
| --- | --- | --- |
| Table 401-2A  Safety Edge Device | | |
| **Property** | **Value** | **Tolerance** |
| Pavement edge slope | 30° | +5° |
| Wedge compaction – reduction of asphalt pavement head | 10% - 15% | --- |

The following companies supply wedge shape compaction devices that produce an acceptable safety edge:

* **TransTech Systems, Inc.**

1594 State Street

Schenectady, NY 12304

1-800-724-6306

[www.transtechsys.com](http://www.transtechsys.com)

* **Advant-Edge Paving Equipment LLC.**

1197 Hillside Avenue, Suite B47

Niskayuna, NY 12309

1-518-280-6090

[www.advantedgepaving.com](http://www.advantedgepaving.com)

If electing to use a similar device not listed above for constructing the safety edge, provide proof that the device has been used on previous projects with acceptable safety edge results or construct a safety edge test section prior to the beginning of work and demonstrate the safety edge construction and compaction to the satisfaction of the CO.

*INCLUDE THE FOLLOWING FOR MATERIAL TANSFER VEHICLE (COORDINATE THE USE OF AN MTV WITH MATERIALS ENGINEER AND PAVEMENTS TO VERIFY EXISTING PAVEMENT STRUCTURE CAN HANDLE THE WIEGHT OF THE MTV)*

Add the following after Subsection 401.05:

**401.05A Material Transfer Vehicle.** Use a material transfer vehicle with storage and remixing capabilities on all mainline construction when placing asphalt concrete mixtures. Use a material transfer vehicle that will independently remix and deliver the mixture from the hauling equipment to the paving equipment. Furnish a material transfer vehicle equipped with the following features:

**(a)** A loading system with the ability to receive mixtures from the hauling equipment;

**(b)** A minimum storage capacity of 13 tons (11.8 metric tons) with a remixing system in the material transfer vehicle storage bin;

**(c)** A discharge conveyor to deliver the mixture to the paver hopper; and

**(d)** A total weight of the system that does not exceed maximum legal loadings on structures.

Pick-up machines, hopper inserts, and material transfer devices are not considered material transfer vehicles.

*INCLUDE THE FOLLOWING FOR WARM MIX ASPHALT*

401.13. Add the following:

Place warm mix asphalt at temperatures conforming to the warm mix asphalt technology manufacturer’s guidelines for lift thickness and road surface temperatures.

*INCLUDE THE FOLLOWING FOR MATERIAL TANSFER VEHICLE (DO NOT INCLUDE INSTRUCTION IF ALREADY INCLUDED FOR WARM MIX ASPHALT)*

401.13. Add the following:

Furnish a material transfer vehicle for all lifts of asphalt concrete pavement to deliver the mixture from the hauling equipment to the paving equipment and to prevent segregation of the mixture. Coordinate the number of haul units, speed of the paver, plant production rate, and speed of the material transfer vehicle to avoid stop and go operations.

In the event the material transfer vehicle malfunctions, suspend paving operations. However, asphalt concrete already in transit or in the storage bin at the time of breakdown may be placed without the use of a material transfer vehicle. Do not resume paving until the material transfer vehicle is operational.

Acceptable material transfer vehicle models include, but are not limited to, the following:

* Barber Greene MTV-3500
* Roadtec SB-1500
* Roadtec SB-2500
* Terex CR662RM

*INCLUDE THE FOLLOWING FOR SAFETY EDGE (DO NOT INCLUDE INSTRUCTION IF ALREADY INCLUDED FOR WARM MIX ASPHALT OR MATERIAL TANSFER VEHICLE)*

401.13. Add the following:

Place surface course to maintain the existing edge of pavement. If surface course exceeds the exiting edge of pavement or intermediate asphalt layers, trim surface course in accordance with Subsection 401.15. Trim and/or saw cut pavement and provide 100-foot minimum tapers to match the existing pavement width and re-stripe edge line, if required.

Short sections of handwork to construct the safety edge will be allowed when necessary for transitions and turnouts or otherwise authorized by the CO.

*INCLUDE THE FOLLOWING FOR WARM MIX ASPHALT*

401.17. Delete the first paragraph and substitute the following:

**401.17 Acceptance.** Mineral filler, antistrip additives, recycling agent, and warm mix asphalt additives will be evaluated under Subsections 106.02 and 106.03.