

## "C" mix vs. "SUPERPAVE"

In 1998, the MaineDOT changed its method of designing "hot mix" for Maine roads. The change involved a switch from the "old" Hveem design method to the "Superpave" design method. Generally, this results in a paving mix which is coarser, has less sand, and less liquid asphalt. It does "lay down" differently than the "old" B,C or D mixes.

### Here are some other important facts

- Superpave stands for "SUPERior PERforming Asphalt PAVement" and was developed through a Federal government program whose goal was to relate characteristics of hot mix asphalt (HMA) to pavement performance. The result was the Superpave system for the design and analysis of asphalt mixes.
- Superpave raises expectations of a "super" pavement compared to the conventional mixes. In reality, it is a better mix which combines the best design methods in the industry and relates them to real life conditions.
- MaineDOT has accepted this system of designing asphalt pavements and almost all designs since 1998 have been under this new system.
- MaineDOT placed millions of tons of this HMA and mostly successfully. Rate of failure is about same as the old design mixes and mostly due to construction practices or poor bases.
- Superpave mixes should be much better than the previous "Hveem-designed" mixes, as long as drainage and base conditions are adequate.
- Density and rideability is the goal of a quality Superpave mix.
- There is no such thing as a Superpave equivalent for MaineDOT's "skinny mix" (maintenance mulch).
- There is no such thing as a State-approved B, C, or D mix anymore. (they may be available but they are probably the plant's local recipe).
- All towns should require a State-approved mix design for its hot mix pavements.
- Although not exact matches, the "old" designation of a D mix is similar to a 9.5 mm mix; a C mix is similar to a 12.5 mm mix; and a B mix is similar to a 19 mm mix.
- The "mm" designation relates to the nominal maximum size of the aggregate (not the layer thickness !!)
- Superpave must be put down thicker than the conventional mixes. Generally, the minimum compacted lift thickness of a Superpave mix should be about 2-1/2 to 3 times the "mm" designation. (ie. min. thickness of a 19 mm mix is about 2 inch (50 mm)).
- Superpave mixes have high quality aggregate, very little sand, and less liquid asphalt binder, making them more rut-resistant and durable, as long as they are applied correctly.
- Any pavement is only as good as the underlying material and whether good drainage exists. A super clean surface must be ready prior to paving.
- Compaction is even more critical with Superpave mixes and must be started earlier than normal and have the rollers close behind the paver. Densities should be 92% to 97%.

- The liquid asphalt binder used is now a "performance-graded" binder and is specified as PG 64 -28. The numbers relate to the average maximum and minimum temperatures in Celsius which the mix can withstand. In Maine and other New England states, PG 64 -28 is the most common liquid asphalt used in Superpave mixes.
- Prices for Superpave are not much different than the previous mixes. The extra benefits of Superpave will far outweigh any extra tonnage costs.
- No special equipment is needed for Superpave laydown.
- MaineDOT does QC/QA testing on Superpave mixes and most towns will not require this testing. "QC" is quality control and is what a producer does to its product to track its quality. "QA" is what the buyer does to track the mix quality.
- Towns should require some testing of the mix either by the contractor or a private testing firm. Gradations, asphalt contents, and densities should be performed for every 1000 tons.