

The different sizes of material shall be kept in at least four separate metal bins, one for sand and three for broken stone or gravel. Each bin shall be provided with an overflow vent or other suitable warning-device, approved by the engineers, to prevent overflow into adjacent bin.

An armoured thermometer, reading from 200° to 400° F., shall be installed and maintained in the sand-bin in such a position as to be readily observed.

A similar armoured thermometer shall be fixed in the asphalt line at a suitable location, as directed by the engineer.

Weighing Materials.—The mineral aggregate passing through the bins shall be weighed into a weigh-box placed above the mixer by means of multiple-beam charging-scales. These scales shall be enclosed in a box which shall be locked after beam weights have been set to the required weights.

Asphaltic cement and stone-dust shall each be weighed by means of dial scales having a capacity not more than three times the weight of the material to be weighed. Pointers shall be set and maintained at zero with scale ready for weighing.

All scales shall meet the requirements as to accuracy and the tolerances provided by the rules and regulations of the California State Department of Weights and Measures, and shall be approved by the engineer and under his control.

The hot aggregate and cold stone-dust or other fine material, properly proportioned by weight, shall be thoroughly mixed together in a pug-mill mixer, the paddles of which rotate at a speed of from seventy to ninety revolutions per minute. Asphaltic cement heated to a temperature of between 250° and 325° F. shall be added during the mixing, and the operation continued until a thoroughly homogeneous mixture is obtained.

The amount of asphaltic cement to be added, and the time at which it shall be introduced into the mixture, shall be fixed by the engineer. The total time of mixing a batch shall begin with the finish of dumping of asphaltic cement into the mixer and end when the mixer is dumped. The time of mix shall not be less than sixty seconds, but shall be continued until a homogeneous mix of unchanging appearance is secured.

The mixer-paddles shall be of the number and type approved by the engineer. The mixer-platform shall be of ample size to provide safe and convenient access to the mixer and other equipment.

Placing.—The mixture as above prepared shall be brought to the work in suitable wagons or trucks. Tarpaulins shall be provided and used upon all loads unless other methods of covering the mixture during hauling are approved by the engineer. Mixtures shall leave the plant at a temperature between 260° and 320° F., and shall be spread upon the highway at a temperature of not less than 250° F. It shall be dumped at such a distance from the mixture previously laid that all of the mixture must be turned and distributed by means of shovels or forks to the place at which it is to be laid. Should the contractor so elect, however, the mixture may be distributed from the trucks, if suitable equipment is provided to distribute the load at a carefully evened thickness throughout the entire length which a truck-load should cover, and also equipment must be provided for breaking up any compressed masses of mixture as they leave the truck.

The mixture shall be spread to such a thickness by means of rakes that after receiving its compression it shall have the thickness called for in the plans and specifications.

Rolling.—After the asphalt concrete has been uniformly spread as above specified the pavement shall be rolled with two steam or gasoline rollers, neither of which shall weigh less than 8 tons, and one of which shall be a standard three-wheeled roller weighing not less than 10 tons. The rolling shall continue until all possible compression has been obtained and the surface is even and true to cross-section. Where more than 2,500 square yards of pavement are laid as an average day's run a tandem roller weighing not less than 5 tons shall be provided for rolling the seal coat. Rolling shall be continued until the compressed pavement has a specific gravity of not less than 88 per cent. of the specific gravity of the stone.

All rolling shall be done with the temperature of the mixture such that the sum of the sun temperature plus the temperature of the mixture is between 300° and 325° F.

All places inaccessible to the roller must be tamped with a hot iron tamper.

The resulting pavement must show an even and smooth surface with rock uniformly distributed, true to grade and cross-section, and free from elevations or depressions. When a straight-edge 15 ft. long is laid on the rolled mixture or finished surface parallel with the line of the highway, the surface shall in no place vary from the lower edge of the straight-edge more than $\frac{1}{4}$ in.

No traffic shall be allowed on the pavement until it is thoroughly cooled and set.

No asphalt concrete shall be laid in rainy weather, or when the base is wet from rain or any other cause.

WEARING-COURSE.

Description.—Upon the base course prepared as hereinbefore specified shall be laid the asphalt-concrete surface, composed of broken stone, sand, and stone-dust combined in a dry mixture, to which shall be added the asphaltic cement, the whole mixed together as hereinafter specified.

The materials composing the dry mix shall be combined in such proportions that the percentage composition by weight shall be within the following limits when tested with laboratory screens of the sizes specified:—

- Passing 200-mesh screen—between 5 and 7 per cent.
- Passing 80-mesh screen—between 12 and 20 per cent.
- Passing 40-mesh screen—between 20 and 30 per cent.
- Passing 10-mesh screen—between 30 and 40 per cent.
- Passing screen having $\frac{1}{4}$ in. square openings—between 50 and 60 per cent.
- Passing screen having $\frac{1}{2}$ in. round openings—between 70 and 80 per cent.
- Passing screen having $1\frac{1}{4}$ in. round openings—between 90 and 100 per cent.
- To the above shall be added asphaltic cement—5 to 8 per cent.