

New Spec for Quiet Bridge Decks



IN APRIL 2013 the International Grooving & Grinding Association reported California has instituted a new specification to reduce noise from concrete bridge decks.

Most states use sound walls; with approximately 400 miles of sound walls along its highways, California has the most in the United States. But Caltrans has determined that it's more economical to control the problem at its source, and reduce the amount of noise generated when tires interface with a bridge surface. Working in conjunction with the FHWA, the department has begun a major program to reduce bridge deck noise.

Prior to 2012, it was common practice in the state to transversely tine bridge decks. The Caltrans

Division of Environmental Analysis found they have noise levels that are generally greater than 105 dB, with some measuring as high as 110 dBA. Tining the surface longitudinally, as well as using a longitudinally tined polyester concrete surface, bring dBA levels down into the 103-105 range. Longitudinal textures created by dragging will achieve surface noise levels of 101-102 dBA. The recently implemented Standard Specification 51-1.03F(5)B requires that all bridges outside of freeze-thaw zones and within a Noise Sensitive Area have a grinding and grooving finish, which results in a 100-103 dBA level.

Grinding and grooving are accomplished by adding an additional 1/4-inches of concrete thickness to the

top of the deck, and then grinding it off to achieve a level, longitudinally grooved surface. For California bridges, this means that the initial clear cover to the top of the rebar will increase from 2- to 2.25-inches.

"For years, motorists and nearby residents have suffered with unwanted tire/pavement noise generated from heavily tined bridge deck surfaces," said John Roberts, executive director of the International Grinding & Grooving Association. "Caltrans is once again leading the way to a more sustainable transportation network by employing environmentally-friendly, saw-cut surface textures such as diamond grinding and grooving to reduce noise, while increasing safety and smoothness at a competitive cost."

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