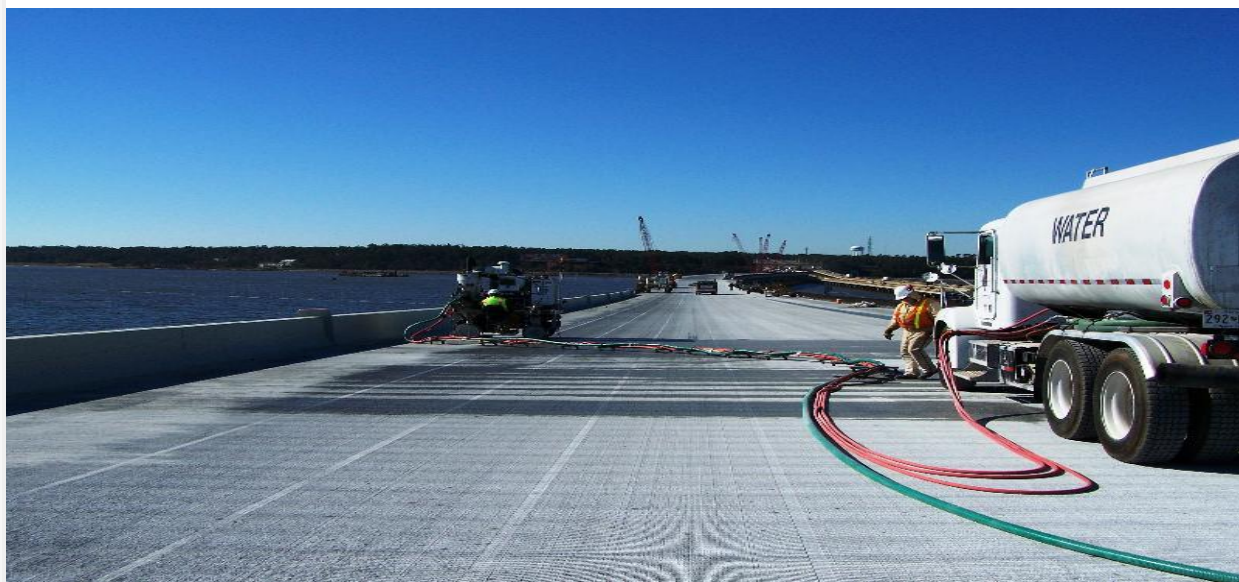




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Caltrans Creates New Specification for Construction of Quiet Bridge Deck Surfaces

Noise from bridges is an ongoing problem along U.S. highway systems, and efforts at noise mitigation can be costly as well as time-consuming. For example, sound walls, which work by interrupting the pathway between a noise source and the receiver, are often constructed along bridges that are close to residential neighborhoods. Most states use sound walls; with approximately 400 miles of sound walls along its highways, California has the most in the U.S.

The California Department of Transportation (Caltrans) has determined that it would be 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

Upcoming Events

June 3-5 / 2013 Transportation Construction Coalition (TCC) Fly-In, Washington, D.C., Hyatt Regency on Capitol Hill. To make reservations, please call 1-888-421-1442 or 1-202-737-1234. Request the TCC Fly-In rate of \$309/night. More [here](#).

June 9-12 / [ASCE 2013 Airfield and Highway Pavements Conference](#), Sheraton Los Angeles Downtown, Los Angeles, CA. Phone 213-488-3500. Click [here](#) for a program. Register online [here](#). Note you must first log in to the ASCE website.

June 10-11 / IGGA Mid Year Meeting, ACPA Mid Year Meeting & ACPA Chapter/State Paving Association Meeting, Eaglewood Resort & Spa, Itasca, IL. Call [Michele Rivenburg](#) at 518-731-7450.

July 16-19 / [MAASTO 2013 Annual Meeting](#), [Milwaukee](#)

transversely tined bridge decks (although this method was not explicitly required by the Standard Specifications). The Caltrans Division of Environmental Analysis has conducted studies on these surfaces and found that they have noise levels that are generally greater than 105 decibels (dB), with some measuring as high as 110 dB. Sound walls are typically built when they can be expected to reduce the noise level by 5 A-weighted decibels (dBA). Caltrans has identified several strategies to reduce the noise level of the decking and bring it down to around 100 dB. 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 (NSA) have a Grinding and Grooving finish, which results in a 100-103 dBA level.

Grinding and grooving are accomplished by adding an additional ¼-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 ¼-inches. Concerns that this process may shorten bridge deck life were dispelled during an in-depth investigation by Caltrans engineers in which it was determined that grinding and grooving (as well as other noise reduction strategies called for in the new spec) do not have a negative impact on long-term deck performance or constructability, even for decks that are skewed or curved in plan. Furthermore, there is no compromise in terms of bridge drainage or safety.

"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."

For additional information, refer to the [Bridge Construction Records and Procedures Manual, Volume II, Section 112-6](#).

Also visit:

[Diamond Grinding Specification from IGGA](#)
[Diamond Grinding Bridge Deck Information](#)
[Bridge Deck Fact Sheet from IGGA](#)

[Hilton Hotel](#), Milwaukee, WI. Click [here](#) for more information.

August 4-8 / WASHTO 2013 Annual Meeting, San Francisco, CA. The meeting will be held at the [Parc 55 Wyndham-San Francisco-Union Square](#). Visit [online](#).

August 12-13 / Arkansas Chapter Meeting, Oklahoma/Arkansas Chapter ACPA, Embassy Suites Hotel, Little Rock, AK.

August 15-16 / 2013 Mid-Continent Transportation Research Symposium, Ames, IA. Click [here](#) for details. For more information, contact [Judy Thomas](#) at 515-294-1866.

August 24-25 / SASHTO 2013 Annual Conference, [Grove Park Inn](#), Asheville, NC. For reservations, call 1-800-438-5800.

August 25-27 / American Public Works Association's International Public Works Congress & Exposition, Chicago, IL.

September 17-19 / Road Profile Users' Group (RPUG) 25th Anniversary Meeting, [Sheraton Gunter](#), San Antonio, TX.

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