

Contractor will not be required to saw the texture unless the deck texture is required to be sawn. If the workability of the trial batch is not acceptable, the Contractor will modify the mix design or batching sequence and retest as per 844.03. Payment for the trial batch or batches and test slabs will be at the lump sum price bid for High Performance Concrete Trial Mix.

844.06 PLACEMENT LIMITATION. Concrete deck pours will begin only when favorable atmospheric conditions exist and are predicted to stay favorable for the duration of the pour.

Favorable atmospheric conditions exist when the surface evaporation rate, as affected by the ambient air temperature, concrete temperature, relative humidity, and wind velocity is 0.1 pounds per square foot per hour (0.49 kg per square meter per hour) or less. Figure 1 ACI 308 (see Item 842.08) will be used to determine graphically the surface evaporation rate.

To meet favorable atmospheric conditions, the Contractor may be required to place concrete at night. Actual measurement of data required in Figure 1 will be within 10 feet (3 m) of the area where the concrete is to be placed. For piers, abutments, and poured parapets, Figure 1 will not apply. Figure 1 will apply for slip formed parapets.

If placement is to be made at night, the Contractor will submit a plan which provides adequate lighting for the work area at least 15 calendar days in advance, and receive written approval from the Engineer before placing the concrete. The lights will be so directed that they do not affect or distract approaching traffic.

The Contractor will ensure that concrete pumping lines do not displace reinforcing steel during placement.

844.07 EQUIPMENT FOR BRIDGE DECKS. Concrete will be mixed in a central mixing plant or by a ready-mixed truck capable of discharging concrete having a maximum water cementitious ratio of 0.38. Mixing equipment will meet the requirements of 899.06(b). Admixtures will be introduced into the concrete in such a manner as to facilitate dispersion throughout entire load. Batch plants will meet the requirements of 899.06(a) and will be located such that the maximum time required from start of mixing to completion of discharge of the concrete at the site will not exceed 90 minutes.

An approved self-propelled finishing machine will be used. The finishing machine will be equipped with forward and reverse drive mechanisms that enable precise velocity control of the machine while it is moving in either direction. It will be equipped with two or more rotating rollers. It will be equipped with augers and either a vibrating pan or vibrating rollers. Vibrating frequency for pan or rollers will vary from 1500 to 5000 pulses per minute. The Contractor will furnish the necessary verification of these vibration frequencies. Screeds will have provisions for raising above the finished concrete surface. Roller tampers attached to finishing machines which have fins protruding more than 1/4 inch (6mm) from the roller are not allowed.

Concrete shall be placed no more than 10 feet (3.1 m) directly in front of the finishing machine.

Standard hand vibration equipment shall be used. Because high performance concretes are more cohesive, more vibration is required for proper consolidation than for

Class C and S mixes. Vibration, often between each rebar, will be required to adequately consolidate a bridge deck even though the surface appears well consolidated.

Finishing machines will be supported by rail and supports made of steel. Rail will be furnished in sections not less than 10 feet (3.1 m) in length and be sufficient cross-section so that the weight of the finishing machine causes zero vertical deflection while in motion. Rail will be straight with no sections exceeding a tolerance of 1/8 inch in 10 feet (3 mm in 3.1 m) in any direction. Rail supports will be screw-type adjustable saddles and will be of sufficient number under the rail so that zero vertical deflection occurs under the weight of the finishing machine.

A flexible blue steel blade with rounded edges is recommended for finishing.

844.08 SUPERSTRUCTURE DECK CURING AND TEXTURING. After the concrete is placed, finished and bullfloated if necessary, the surface of the concrete shall immediately receive a broom finish. Immediately after the completed brooming, the finished surface will be covered with a single layer of clean wet burlap. The burlap will be kept wet by a continuous flow of water through soaker hoses and covered with a 4 mils (100 μm) white opaque polyethylene film or a wet burlap - white opaque polyethylene sheet for 7 days. At the end of 7 days, the deck will be allowed to surface dry. After the deck has air dried but within 12 hours, the surface shall be membrane cured as per 842.14 method(b).

When pouring under provision of 842.12, the deck will be kept continuously wet with hoses and the curing will be 7 days with the surface being maintained between 50 °F (10 °C) and 100 °F (38 °C) as specified. At the end of 7 days, the deck will be allowed to surface dry. After the deck has air dried but within 12 hours, the surface shall be membrane cured as per 842.14 method(b).

After the water curing is completed, and prior to the application of the curing compound, the Contractor shall saw transverse grooves into the deck. In lieu of sawing the grooves into the deck prior to the application of the curing compound, the Contractor may elect to saw the grooves into the deck some period after the curing compound is placed. However, in every case it will be necessary to saw the deck prior to opening the bridge to traffic. If the Contractor does elect to saw the deck after the curing compound has been applied, it will be necessary, at no additional costs, to reapply the curing compound immediately after the surface of the deck has air dried but within 12 hours after the sawing operation.

The grooving shall conform to the following requirements: Grooving shall be done utilizing diamond blades, mounted on a multi blade arbor on a self-propelled machine which has been built for grooving of concrete surfaces. The groove machine shall have a depth control device which will detect variations in the pavement surface and adjust the cutting head height to maintain the depth of the groove specified. The grooving machine will be provided with devices to control alignment. Flailing or impact type grooving equipment will not be permitted.

Grooves shall begin and end approximately one foot from any curb, parapet toe or deck edge and shall be perpendicular to the bridge center line.

The Contractor shall provide an experienced technician to supervise the location, alignment, layout, dimension, and grooving of the surface.