

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION  
SUPPLEMENTAL SPECIFICATION 842

CONCRETE FOR STRUCTURES

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**842.01 Description.** This item shall consist of furnishing and placing portland cement concrete including reinforcing steel in accordance with these specifications and in reasonably close conformity with the lines, grades and dimensions shown on the plans. This item shall also include all costs associated with saw cutting grooves into the surface of superstructure concrete after the concrete has cured. Falsework and forms shall be in accordance with 508.

For prestressed concrete, see Supplemental Specification 865.

Concrete for structures shall meet the requirements of Supplemental Specification 899 (Concrete - General), except as modified herein.

**842.02 Materials.** Materials shall conform to 899.02 except as follows:

Aggregate; all concrete above the ground line in a given substructure unit or all concrete for any given superstructure shall be made of aggregates of the same kind and colors, except upon permission of the Engineer.

Reinforcing materials; 509.02.

Curing materials; 705.05, 705.06 (white opaque), 705.07 Type 1 or 1D.  
Joint filler; 1/4 inch (6 mm) gray sponge 711.28, or preformed filler 705.03.  
Seals; preformed elastomeric compression joint seals, 705.11.

**842.03 Proportions.** Concrete for structures shall be proportioned according to 899.03, using Class C or Class S as specified.

**842.04 Concrete Test Specimens.** On structures over 20 foot ( 6.1 m) span, two test cylinders will be made from each 200 cubic yards (150 m<sup>3</sup>), or fraction thereof, of concrete that is incorporated each day in the work. On structures of 20 foot ( 6.1 m) span or less, not less than two cylinders will be made for each 50 cubic yards (35 m<sup>3</sup> ) of concrete.

When necessary to permit early removal of falsework or to permit backfilling, concrete test beams shall be made and tested according to standard methods on file in the office of the Director.

**842.05 High-Early-Strength Concrete.** The use of high-early-strength concrete shall be in accordance with 899.03. Curing and loading shall be in accordance with 842.14.

**842.06 Mixing of Concrete.** Mixing shall be according to 899.09.

When mixed, all concrete shall have a temperature of not more than 90 °F (32 °C ), and the concrete shall be maintained under this temperature until deposited in the work.

When an air temperature of 60 °F (16 °C) or higher prevails at the time of placing concrete in a bridge superstructure over 20 foot (6.1 m) span, the Contractor shall add an approved chemical admixture (705.12, Type B or D) to the concrete.

**842.07 Slump.** Concrete shall have a slump such that it will be workable in the required position. It shall be of such a consistency that it will flow around reinforcing steel, but individual particles of coarse aggregate, when isolated, shall show a coating of mortar containing its proportionate amount of sand.

The slump of concrete placed by the vibration method shall be in accordance with 899.03, the slump being determined according to ASTM C 143.

**842.08 Placing Concrete.** The Contractor shall submit according to 501.06, a description of the procedures he proposes to use and notify the Engineer at least 24 hours in advance of placing concrete.

Superstructure concrete shall be placed only when the surface evaporation rate determined by using Figure 1 in ACI 308 is equal to or less than 0.2 lb./sq. ft./hour(1.0 kg/m<sup>2</sup>/hour ). The Contractor shall determine and document the ambient air temperature, concrete temperature, deck surface temperature, relative humidity, and wind velocity, subject to verification by the Engineer. No superstructure concrete shall be placed if the ambient air temperature is 85 °F(30 °C) or higher or predicted to go above 85 °F(30 °C)