

SECTION 02001 - CONCRETE

(Follow all instructions and make all edits with “Track Changes” turned on. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the Project. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

Comply with Section 02001 of the Standard Specifications modified as follows:

02001.15(b)(1) Trial Batch Plastic Properties - Replace the test method that begins "AASHTO T 23..." with the following test method:

AASHTO R 100 or R 39 ³

02001.15(b)(2)(a) Compressive Strength Tests - Replace this subsection, except for the subsection number and title, with the following:

For each trial batch, cast and cure at least three test cylinders according to AASHTO R 100 or AASHTO R 39, in 6-inch by 12-inch or 4-inch by 8-inch single use plastic molds. The use of unbonded caps according to ASTM C1231 is permitted. Test at 28 Days according to AASHTO T 22.

02001.15(b)(2)(b) Flexural Strength Tests - Replace this subsection, except for the subsection number and title, with the following:

For each paving concrete trial batch, cast and cure at least three flexural beams according to AASHTO R 100 or AASHTO R 39. Test flexural beams at 28 Days according to AASHTO T 97.

02001.15(b)(2)(c) Length Change Tests - Replace this subsection, except for the subsection number and title, with the following:

For all HPC mix designs, except for precast or prestressed elements, make at least three specimens from the trial batch for length change testing. Provide sample prisms that have a square, 4-inch by 4-inch Cross Section. Wet cure the samples until they have reached an age of 28 Days, including the period in the molds. Following the wet cure, air store and measure samples according to AASHTO T 160, Section 11.1.2 for 28 Days. Report length change results at total specimen age of 56 Days.

02001.15(b)(2)(d) Permeability Tests - Replace this subsection, except for the subsection number and title, with the following:

For alternate HPC mix designs, select from the following options:

- Make at least three specimens from the trial batch for permeability testing. Prepare, cure, dry and test according to AASHTO T 277. Report permeability in coulombs at 90 Days.
- Make at least two specimens from the trial batch for resistivity testing. Prepare, cure and test according to AASHTO T358 using the sealed conditioning method. Report resistivity in $k\Omega \cdot cm$ at 56 Days.

02001.20(e) Durability - Replace this subsection, except for the subsection number and title, with the following:

For HPC designs the following additional requirements apply:

Test	Test Method	Acceptance Value
Length Change	AASHTO T 160	-0.045% ¹
Permeability	AASHTO T 277	1,000 Coulombs (max.) at 90 Days ²

¹ Not required for precast or prestressed elements.

² Only required for alternate HPC designs. See 02001.30(b)(2). A minimum resistivity of $37.0 k\Omega \cdot cm$ at 56 Days for 4x8 inch cylinders and $29 k\Omega \cdot cm$ at 56 Days for 6x12 inch cylinders are accepted as equal when tested according to AASHTO T 358 using the sealed conditioning method.

(Use the following lead-in paragraph and subsection .20(f) when IC is specified.)

Add the following subsection:

02001.20(f) Internal Curing - For HPC(IC) concrete, internally cure the mixture according to the following:

- Substitute 350 lbs (SSD) LWFA for standard Fine Aggregate.

(Use the following lead-in paragraph and subsection .20(g) when lightweight concrete is required. Contact the Statewide Structural Materials Engineer who will provide densities to be used to fill in the blanks.)

Add the following subsection:

02001.20(g) Unit Weight - Furnish high performance lightweight concrete with a maximum plastic density of _____ pounds per cubic foot at time of placement and a maximum calculated approximate equilibrium density of _____ pounds per cubic foot.

02001.30(a) Portland Cement - Replace this subsection, except for the subsection number and title, with the following:

For structural or paving concrete applications use cement according to 02010.10 or 02010.20, excluding Type III. Use Type III cement for precast prestressed concrete.

02001.30(b)(2) HPC Cementitious Composition - Replace this subsection, except for the subsection number and title, with the following:

Cement with SCM proportioned according to 02001.30(b)(1) and with trial batches performed to demonstrate that the proposed alternate mix design provides a maximum of 1,000 coulombs at 90 Days when tested according to AASHTO T 277 or a minimum resistivity of 37.0 k Ω ·cm at 56 Days for 4x8 inch cylinders and 29 k Ω ·cm at 56 Days for 6x12 inch cylinders are accepted as equal when tested according to AASHTO T358 using the sealed conditioning method.

02001.30(f) Synthetic Fiber Reinforcing for Concrete - Replace this subsection, except for the subsection number and title, with the following:

Except for precast or prestressed elements, use synthetic fiber reinforcing from the QPL and according to Section 02045 in all HPC. Use synthetic fiber reinforcing according to the manufacturer's recommendations at the rate designated on the QPL. Fiber packaging is not allowed in the mixed concrete.

02001.40(b) Adjusting Concrete Proportions - Replace the bullet that begins "Large admixture dosage changes..." with the following bullet:

- Large admixture dosage changes, excluding adjustments for air entraining agents and Type A or D water reducers ($\pm$ 25 oz/cubic yard).

02001.60(c) Hardened Concrete - Replace the paragraph that begins "Cast and cure test specimens ..." with the following paragraph:

Cast and cure test specimens according to AASHTO R 100 in 6-inch x 12-inch or 4-inch x 8-inch, single-use plastic molds and test at 28 Days according to AASHTO T 22.