

**ASTM C494 Admixtures Types A, F or G & Self Compacting Concrete (SCC) admixtures:**

Ready-mix, precast or prestressed concrete producers using the above listed admixtures as a normal superplasticizer (for concrete operations having up to a 10 inch slump) have no further requirements.

Precast concrete manufacturers choosing to use the above listed admixtures for **SCC** applications will meet the following requirements:

1. Submit a mix design showing that the minimum ACI over-design strength (at 28 days) is achieved. List the following (include the type, grade, size, source and brand names where applicable):

- a. Cement
- b. Pozzolans
- c. Aggregate
- d. Admixtures

Also report water/cement ratio and air content.

2. Contact ODOT/OMM to arrange an inspection and sampling of both completed and fresh concrete as follows:

a. Provide 4 inch core samples at locations selected by ODOT of both the originally accepted, non-SCC mix and the new mix being provided for SCC application. When pouring the SCC pieces, provide normal vibration for one piece and no vibration for another SCC piece.

b. ODOT will use the selected cores to perform hardened air, entrapped versus entrained, aggregate distribution, etc. testing to compare the equality (durability) of the two mixes.

c. Provide fresh concrete for both the old mix and the new SCC mix for ODOT to produce shrinkage beams. Shrinkage tests will be performed on both mixes and compared. The SCC mix will not be allowed to exhibit more shrinkage than the old mix.

3. Provide a list of ALL admixtures to be used in the SCC and the following

a. Provide written documentation from the SCC admixture producer that no incompatibilities exist between admixtures used.

b. State in writing that no admixtures will be changed in the SCC mix without retesting the total mix.

c. If using admixtures such as viscosity modifiers, The manufacturer is to provide the brand-name and specific production ranges for the material according to Supplement 1001. Use only a viscosity modifier designed to work in conjunction with the SCC admixture from the same company.

4. Provide written quality control procedures for:

a. Mixing of the SCC concrete

i. Time from addition to completion of placement

ii. State if you allow re-planting

b. QC testing of the SCC concrete including

i. Test to be used

ii. Test results required before placing the SCC mix (minimum and maximum diameters)

iii. Air content range

c. Requirements for placing the concrete

i. Lift heights

ii. Acceptable drop distance

iii. Vibration time, frequency, if required

iv. Set time

v. Requirements of moving the concrete in the forms

vi. Other requirements, if needed.

5. Obtain two cores (one from the highest area and one from the lowest area of the piece as placed) from one random component per day's production. If structural components [box culverts, three sided, beams] obtain two cores from at least 2 pieces. Identify the cores to the pieces and hold for QA inspectors.

6. If changing the SCC mix design or the QC requirements, obtain approval from OMM. Approval may require additional testing.

7. Submit requests and data to the Cement and Concrete Section of the Office of Materials Management.