

OFFICE OF STATE AID ROAD CONSTRUCTION STANDARD OPERATING PROCEDURES			S.O.P. NO. SA II-1-81 Page 1 of 2
Subject: S.O.P. PORTLAND CEMENT CONCRETE - DEFINITIONS AND TERMS			Distribution A, B, C, D, E
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PURPOSE: To Provide General Information Pertaining To Portland Cement Concrete.

REFERENCE: Section S-804 of the Standard Specifications.

1. CLASS CONCRETE:

The concrete will be classed according to master Proportion Table in Section S-804 of the Standard Specifications.

2. DEFINITION OF CONCRETE:

Concrete is a designed combination of sand, gravel, crushed rock, or other aggregates held together by a hardened paste of cement and water. When mixed thoroughly, these ingredients make a plastic mass, which can be cast or molded to a desired size or shape. Upon hydration of the cement by water, concrete becomes stonelike in strength and hardness.

With proper design, mixing and placing, concrete of almost any strength may be obtained and may be used for almost any purpose. It is the responsibility of those in charge of construction work to assure that concrete is of uniformly good quality.

3. IMPORTANCE OF SAMPLING AND TESTING:

Concrete is sold and accepted on the basis of certain specified qualities, such as cement factor, consistency, strength, etc.. It is of the utmost importance, therefore, that standard procedures, based on experience and reliability, be used from securing the sample through all phases of determining and reporting test results.

4. TERMS:

Listed below are some terms pertaining to concrete and their definitions:

- 4.1. Fineness Modulus (F.M.): An abstract figure derived by obtaining the sum of the cumulative percentages retained on each of the sieves listed below and dividing this sum by 100. This figure indicates the relative coarseness or fineness of an aggregate grading:

Sieve Designation

3"	#8
1 ½"	#16
¾"	#30
⅜"	#50
#4	#100

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- 4.2. Specific Gravity: The ratio of the weight of a volume of a substance to the weight of an equal volume of another substance, usually water. Example - concrete gravel having a specific gravity of 2.50 means that a cubic foot (solid volume) of this gravel is 2 ½ times as heavy as a cubic foot of water.
- 4.3. Water Cement Ratio: The ratio of the total mass of water used divided by the mass of cement. Example - a water-cement ratio of 0.720 indicates 360 pounds of water and 500 pounds of cement.
- 4.5. Slump Test: A test showing the vertical subsidence, or fall, of fresh concrete from a given height. (The procedure for making this test and its significance are explained elsewhere).
- 4.6. Concrete Cylinder: A specimen, normally 6 inches in diameter and 12 inches in height, made of concrete that is used in construction, and tested for compressive strength.
- 4.7. Concrete Beam: A specimen, normally 6 inches x 6 inches x 30 inches, made of concrete and tested for flexural strength.
- 4.8. Sand: A fine granular material resulting from the natural or mechanical disintegration of rock. Depending on its use, material may be classed as a sand if it passes 3/8 inch, No. 4 or No. 10 sieve.
- 4.9. Gravel: The granular, pebbly material (Usually retained on a No. 4 or a No. 10 sieve, depending on its use), resulting from the natural disintegration of rock.