
Process for Compressive Strength Testing of Portland Cement Concrete Cylinders

SC T 50

1. Scope

This process covers determination of compressive strength of cylindrical concrete specimen such as molded cylinders, drilled cores, and cylinders which are in sets of three that are typically obtained from Department projects. Each cylinder is cured and tested following established ASTM and AASHTO procedures.

This procedure is also intended to address the selection of cylinders for testing and the formatting of test results. Intermediate strength tests, such as early breaks, are reported as “Information Only” and would not have to adhere strictly to this procedure.

2. Referenced Documents

2.1 ASTM Standards

C 39 Guidelines for compressive Strength Testing of Portland Cement Concrete Cylinders

3. Apparatus - None

4. Test Specimens

4.1 Portland cement concrete cylinders

5. Procedure

5.1 Selection of Cylinders to test following ASTM C39

5.1.1 Test at least two cylinders from every set of three.

5.1.2 Do not test any damaged cylinders.

5.1.2.1.1 The only exception will be if more than one cylinder is damaged. If this is the case, test all three cylinders and use the average of the highest two compressive strengths.

5.1.2.1.2 Make a note on the test report indicating the damaged cylinders.

6. Calculations

6.1 Determining compressive strength

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- 6.1.1 If both of the tested cylinders meet or exceed the minimum required compressive strength, use the average of the two strengths.
- 6.1.2 If one of the tested cylinders does not meet or exceed the minimum required compressive strength, test the third cylinder and use the average of the two highest strengths.
- 6.1.3 If both of the tested cylinders do not meet or exceed the minimum required compressive strength, test the third cylinder and use the average of the highest two strengths.

7. Report

None.

Note: When testing is performed on a group of related cylinder samples, adhere to the following instructions:

- *Note only the cylinder strengths used for the final calculations.*
 - *Round each strength to the nearest 10 psi or 0.1 mpa.*
 - *When the strengths are averaged, round the average to the nearest whole number.*
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