

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1289.6.1.2—1998

Methods of testing soils for engineering purposes

Method 6.1.2: Soil strength and consolidation tests—Determination of the California Bearing Ratio of a soil—Standard laboratory method for an undisturbed specimen

RECONFIRMATION NOTICE

Technical Committee CE-009 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 13 June 2013.

The following are represented on Technical Committee CE-009:

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NOTES

Australian Standard™

Methods of testing soils for engineering purposes

Method 6.1.2: Soil strength and consolidation tests — Determination of the California Bearing Ratio of a soil — Standard laboratory method for an undisturbed specimen

1 SCOPE This Standard sets out the procedure for the determination of the California Bearing Ratio (CBR) of an undisturbed sample of soil. The method is applicable to both fine-grained and medium-grained soils as defined in AS 1289.0.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

1152	Specification for test sieves
1289	Methods of testing soils for engineering purposes
1289.0	Method 0: General requirements and list of methods
1289.2.1.1	Method 2.1.1: Soil moisture content tests—Determination of the moisture content of a soil—Oven drying method (standard method)
1289.5.3.1	Method 5.3.1: Soil compaction and density tests—Determination of field density of a soil—Sand replacement method using a sand-cone pouring apparatus
1289.5.3.2	Method 5.3.2: Soil compaction and density tests—Determination of field dry density of a soil—Sand replacement method using a sand pouring can, with or without a volume displacer
1289.5.8.1	Method 5.8.1: Soil compaction and density tests—Determination of field density and field moisture content of a soil using a nuclear surface moisture-density gauge—Direct transmission mode
1289.6.1.1	Method 6.1.1: Soil strength and consolidation tests—Determination of the California Bearing Ratio—Standard laboratory method for a remoulded specimen
2103	Dial gauges and dial test indicators
2193	Methods for calibration and grading of force-measuring systems of testing machines

3 APPARATUS The following apparatus shall be used:

- (a) Steel penetration piston of a 49.6 ± 0.1 mm diameter over the length of penetration and at least 150 mm long. The length of the piston will depend upon the number of surcharges and the depth of penetration required.

- (b) Loading machine equipped with —
 - (i) a moveable head or base capable of travelling at a uniform (not pulsating) rate of 1 ± 0.2 mm/min for use in forcing the penetration piston into the specimen; and
 - (ii) a force-measuring device meeting the accuracy and repeatability requirements of AS 2193 Grade C testing machines for the range of forces used in the test. The force-measuring device shall be capable also of indicating seating loads of approximately 50 N and approximately 250 N (see Note 1).
- (c) Metal cylinder (see also Note 2) which shall be either continuous or split and firmly clamped, with an internal diameter of 152 ± 1 mm and a known height of at least 152 mm, provided with tight-fitting lids or other suitable devices capable of preventing moisture loss from the undisturbed sample during transport to the laboratory and storage. If the specimen is to be soaked, the cylinder shall be capable of being clamped on to the baseplate (see Figure 1 of AS 1289.6.1.1 — 1998).
- (d) Steel spacer disc (see Figure 2 of AS 1289.6.1.1 — 1998) which shall be of 150 ± 0.5 mm diameter and 30 ± 1 mm high.
- (e) Metal stem and perforated plate with a mass of 1.00 ± 0.025 kg (see Figure 3 of AS 1289.6.1.1 — 1998).
- (f) Metal surcharges, with each surcharge having a mass of 2.25 ± 0.025 kg, diameter of 150 ± 0.5 mm and with a centre hole of 55 ± 1.0 mm diameter (see Figure 4 of AS 1289.6.1.1 — 1998 and Note 3).
- (g) Two displacement measuring devices (e.g. dial gauges) capable of measuring the expected range of travel, be graduated to 0.01 mm and meet the accuracy and repeatability requirements of AS 2103.
- (h) 19 mm sieve complying with the requirements of AS 1152.
- (i) Balance of sufficient capacity and a limit of performance not exceeding ± 5 g.
- (j) Jack, lever, frame or other suitable device for extruding specimens from the cylinder (optional).
- (k) Metal tripod, if swell is to be measured, to support the dial gauge or displacement measuring device for measuring the amount of swell during soaking (see Figure 5 of AS 1289.6.1.1 — 1998).
- (l) Water tank or container capable of maintaining water at a level above the moulds during soaking.
- (m) Setting piece, if swell is to be measured and the tripod or displacement measuring device is removed from the mould during the test, to set the reading on the dial gauge or measuring device attached to the metal tripod prior to each reading in the swell test.
- (n) Other apparatus such as a mixing bowl, straightedge, filter paper, microcrystalline wax or suitable waterproof membranes for sealing the ends of the specimen and dishes.

4 COLLECTION OF THE TEST SPECIMENS Undisturbed specimens shall not be less than 151.5 mm diameter and not less than the height of the cylinder. They shall be obtained in such a way that the disturbance to the soil is minimal (see also Note 2), as follows:

- (a) Excavate a test pit leaving a pillar of the soil to be sampled projecting from the bottom.