Australian Standard®

Methods of testing soils for engineering purposes

Method 6.2.2: Soil strength and consolidation tests—Determination of the shear strength of a soil—Direct shear test using a shear box

1 SCOPE This Standard sets out a method for determining the shear strength of a soil (in terms of effective stress) by direct shearing in a shear box. Separate test procedures are described for the testing of low permeability soils such as clays or sandy clays (herein called 'cohesive soils') and highly permeable soils such as sands. For cohesive soils, different procedures are described for carrying out drained (or slow) shearing tests for determining the peak shear strength and for determining the residual shear strength. A procedure for obtaining the undrained strength of a cohesive soil is not given. The test procedures apply only to small shear boxes which are usually designed to test specimens 60 mm to 100 mm square. The procedures do not apply to large shear boxes which are generally 300 mm square, as the method of assembly of the larger boxes differs from that used for small boxes.

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

AS

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)
1289.2.1.2	Method 2.1.2 Soil moisture content tests—Determination of the moisture content of a soil—Sand and bath method (subsidiary method)
1289.2.1.4	Method 2.1.4: Soil moisture content tests—Determination of the moisture content of a soil—Microwave-oven drying method (subsidiary method)
1289.2.1.5	Method 2.1.5: Soil moisture content tests—Determination of the moisture content of a soil—Infrared lights method (subsidiary method)
1289.2.3.1	Method 2.3.1: Soil moisture content tests—Establishment of correlation—Subsidiary method and the standard method
1289.F6.1	Method F6.1: Soil strength and consolidation tests—Determination of the one- dimensional consolidation properties of a soil

3 APPARATUS The following apparatus is required:

(a) A shear box consisting of two separate halves which can be moved relative to each other, thus shearing a soil sample along a predetermined plane. The shear box shall be designed so that the soil sample can be subjected to a normal stress applied perpendicular to the plane of shearing, and allow porous stones (see Note 1) to be placed above and below the soil specimen to be tested so that drainage can be provided, if required. The normal load is to be applied through a plate which rests on top of the soil specimen and upper drainage stone, if used.