

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

METHODS OF SAMPLING AND TESTING MORTAR FOR MASONRY
CONSTRUCTION

AS 2701.9
METHOD FOR DETERMINATION OF
LENGTH CHANGE

1 SCOPE. This standard sets out the method for the determination of the length changes of mortar due to causes other than externally applied forces and temperature changes.

NOTE: This method is sufficiently rigorous to be used as a basis for acceptance testing, but can be readily adapted, if desired, to studies of volume change involving different schedules or environmental treatment from these standard procedures.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 2701 Methods of Sampling and Testing Mortar for Masonry Construction
 Part 3—Method of Preparation of Fresh Mortar for Testing
 Part 7—Method for Determination of Water Retention

ASTM E 337 Test for Relative Humidity by Wet- and Dry-Bulb Psychrometer.

3 DEFINITION. For the purpose of this standard, the following definition applies:

Length change—an increase or decrease in a linear dimension of a test specimen resulting from any factor other than externally applied forces and temperature changes.

4 PRINCIPLE. Specimens are moulded and measured. They are kept under standard conditions, and re-measured at regular intervals to accurately determine changes in length.

5 APPARATUS. The following apparatus is required:

(a) *Moulds.*

- (i) *Construction.* Moulds for test specimens shall be constructed as shown in Fig. 1, and may have either one or two compartments. Each compartment shall provide for prisms of 25 mm × 25 mm × 285 mm with an effective gauge length of 250 mm.

The parts of the moulds shall be tight fitting and firmly held together when assembled, and their surfaces shall be smooth and free of pits. The moulds shall be made of steel or other hard metal not readily adhering to mortar. The sides of the moulds shall be sufficiently rigid to prevent spreading or warping. For the moulds shown in Fig. 1, the distance between opposite faces shall be within 10 mm of the prescribed distance, and the height, measured separately for each specimen compartment, shall be within 1.0 mm of the prescribed height both for new moulds and for moulds in use.

- (ii) *End plates and gauge studs.* Each end plate of the mould shall be equipped to hold properly in place, during the setting period, one of the stainless steel gauge studs shown in Fig. 1. The effective gauge length shall be considered to be the length between the innermost ends of the gauge studs. To prevent restraint of the gauge studs during initial shrinkage of the specimen, the device for holding them in position shall be arranged so that, if necessary, it can be partially or completely released after the compaction of the mortar into place in the mould. The gauge studs shall be set so that their principal axes coincide with the principal axis of the test specimen. For the moulds shown in Fig. 1, gauge studs shall extend into the specimen 17.5 ± 1.0 mm and the distance between the inner ends of the gauge studs shall be 250 ± 2.5 mm.

- (b) *Length comparator.* The comparator for measuring length change shall hold the size of specimen used, and shall provide or permit a positive means of contact with the gauge studs for convenient and rapid measurement of lengths.