

Australian Standard[®]

Methods of testing concrete

Method 8.2: Method for making and curing concrete—Flexure test specimens

1 SCOPE

This Standard sets out the method for the making and curing of flexure test specimens of concrete sampled in the laboratory or in the field.

NOTE: This Standard may involve hazardous materials, operations, and equipment. This Standard does not purport to address all of the safety problems associated with its use. The user of this Standard should establish appropriate safety and health practices and determine the applicability of regulatory limitations before use.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1012	Methods of testing concrete
1012.1	Method 1: Sampling of fresh concrete
1012.2	Method 2: Preparation of concrete mixes in the laboratory
1012.3.1	Method 3.1: Determination of properties related to the consistency of concrete—Slump test
1012.3.2	Method 3.2: Determination of properties related to the consistency of concrete—Compacting factor test
1012.3.3	Method 3.3: Determination of properties related to the consistency of concrete—Vebe test
1012.3.4	Method 3.4: Determination of properties related to the consistency of concrete—Compactibility index
1012.3.5*	Method 3.5: Determination of properties related to the consistency of concrete—Flow test and J ring
1012.8.1	Method 8.1: Method of making and curing concrete—Compression and indirect tensile test specimens
1012.11	Method 11: Determination of the modulus of rupture
1152	Test sieves
2758	Aggregates and rock for engineering purposes
2758.1	Part 1: Concrete aggregates

3 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

3.1 Designer

The person, persons or organization responsible for the design of the structure.

* To be published.

3.2 Concrete supplier

The person, persons or organization responsible for the supply of the concrete mix.

3.3 Self compacting concrete (SCC)

Concrete that is able to flow and consolidate under its own weight, completely fill the formwork or bore hole even in the presence of dense reinforcement, whilst maintaining homogeneity and without the need for additional compaction. SCC is also known as 'self-consolidating concrete' and 'super-workable concrete'.

4 SAMPLING

4.1 Field sampling

For concrete sampled in the field, the test sample shall be obtained in accordance with the requirements of AS 1012.1.

4.2 Laboratory sampling

For concrete made in the laboratory, the test sample shall be prepared in accordance with AS 1012.2.

5 SHAPE AND SIZE OF STANDARD TEST SPECIMENS

5.1 Shape

The shape of the standard test specimen shall be a rectangular beam.

5.2 Size

The standard test specimen shall be in accordance with either of the following:

- (a) If the concrete does not exceed 40 mm, have a cross-section of 145 mm to 155 mm by 145 mm to 155 mm, with a length of at least 500 mm formed with the long axis horizontal and the nominal maximum size of the aggregate, in accordance with AS 2758.1.
- (b) If the concrete does not exceed 20 mm, have a cross-section of 95 mm to 105 mm by 95 mm to 105 mm, with a length of at least 350 mm formed with the long axis horizontal and the nominal maximum size of aggregate, in accordance with AS 2758.1.

5.3 Limitations

The following limitations shall apply:

- (a) Data from the 100 mm and 150 mm nominal size beam specimens shall not be combined.
- (b) If the nominal maximum size aggregate in the concrete exceeds that permitted for standard test specimens, then the project specification shall provide detailed clauses regarding the making, curing and testing of appropriate test specimens.

6 EQUIPMENT

6.1 Moulds

6.1.1 General

The complete moulds, including baseplates, shall be capable of providing test specimens complying with the requirements of AS 1012.11. They shall be made of non-absorbent material, which does not react with cement paste, and their internal surfaces shall have a smooth finish. Each mould shall be provided with a baseplate, which may be integral or separate. The complete mould shall be substantial enough to prevent any spread or warp during the casting of specimens and shall be leakproof. The moulds shall be constructed with the longer dimension horizontal, and in such a manner as will facilitate the removal of the moulded specimens without damage.

Moulds shall be provided with suitable covers that are designed to minimize the loss of moisture from the specimens.

The moulds, when assembled, shall be capable of forming moulded specimens complying with the following requirements:

- (a) The height of the cast specimen at any point along its length shall not vary from the average for that specimen by more than ± 1 mm.
- (b) The width of the cast specimen at any point along its length shall not vary from the average for that specimen by more than ± 1 mm.
- (c) The angle between the sides of the specimen and the top and bottom planes of the specimen shall be $90 \pm 0.5^\circ$. The base and sides of the cast specimen shall be plane surfaces within ± 0.1 mm in any 100 mm, and ± 0.2 mm overall. The ends of the moulds may be sloped to facilitate removal of the cast specimen.
- (d) Mark each mould for identification.

6.2 Rod for hand compaction

The rod used for the hand compaction of concrete in flexure beam moulds shall comply with the relevant requirements of AS 1012.3.1.

6.3 Vibrators

Internal vibrators used for the compaction of concrete shall have a frequency of vibration of at least 115 Hz. The outside diameter of the vibrating element inserted into the concrete shall be not more than 20% of the least dimension of the mould to be filled, and shall be at least 15 mm.

External vibrators used for the compaction of concrete shall have a frequency of vibration of at least 50 Hz. Provision shall be made for clamping the mould securely to the vibrator.

7 MOULDED SPECIMENS

7.1 General

The specimen shall be moulded in accordance with Clause 7.2. The aim is to achieve full compaction of the concrete. As the method of compaction can have an influence on the strength and density of the concrete, the method of compaction used shall be subject to the following limitations:

- (a) Rodding shall not be used for concrete having a slump less than 40 mm or self compacting concrete. (See Notes 1 and 3.)
- (b) Internal vibration shall not be used for self compacting concrete and for concrete having a slump less than 10 mm, or a vebe value greater than 10, or a compacting factor less than 0.80.