Australian Standard®

Methods of testing concrete

Method 14: Method for securing and testing cores from hardened concrete for compressive strength and mass per unit volume

PREFACE

This Standard was prepared by the Standards Australia Committee BD-042, Methods of Testing Concrete, to supersede AS 1012.14—1991.

The objective of this Standard is to set out a method for the securing, preparing and testing of cylindrical core specimens (cores) from hardened concrete for the determination of compressive strength and mass per unit volume.

This Standard has been revised to match the curing conditions and the tests which have been rationalised in the recent revisions to other methods within the AS 1012 series including renumbering of methods which are referred to in this method.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

METHOD

1 SCOPE

This Standard sets out a method for the securing, preparing and testing of cylindrical core specimens (cores) from hardened concrete for the determination of compressive strength and mass per unit volume.

NOTE: Interpretation of test results in order to estimate the in-service strength of a structure or part thereof and factors influencing core strength are discussed in Appendix A.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS		
1012	Methods of testing concrete	
1012.9	Method 9:	Compressive strength tests—Concrete, mortar and grout specimens
1012.12.1	Method 12.1:	Determination of mass per unit volume of hardened concrete—Rapid measuring method
1012.12.2	Method 12.2:	Determination of mass per unit volume of hardened concrete—Water displacement method
1379	Specification and supply of concrete	

STANDARDS Australia

AS
2758 Aggregates and rock for engineering purposes
2758.1 Part 1: Concrete aggregates

3600 Concrete structures

5100 Bridge design (series)

3 DEFINITIONS

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

3.1 Authority

A body or bodies having jurisdiction over the hardened concrete or concrete structure to be cored.

3.2 Designer

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

3.3 Location

A region of concrete that is being assessed and that for practical purposes is assumed to be of uniform quality.

3.4 Standard temperature zones

Australia is divided into two zones, as follows:

(a) The Standard Temperate Zone, which includes Australian Capital Territory, New South Wales, South Australia, Tasmania, Victoria and that portion of Western Australia, south of latitude 25°S.

(b) The Standard Tropical Zone, which includes Northern Territory, Queensland and that portion of Western Australia, north of latitude 25°S.

4 PRINCIPLE

Cores shall be secured from the hardened concrete by using a core drill, then trimmed, pre-conditioned and tested for mass per unit volume in accordance with AS 1012.12.1 or AS 1012.12.2 and for compressive strength in accordance with AS 1012.9.

5 APPARATUS

The following apparatus is required:

(a) A core drill with the facility to apply water to the cutting edge.

(b) A masonry or diamond saw for trimming the cores.

(c) Devices such as vernier calipers or rulers readable to 1 mm for measuring the core length and the location of any embedded reinforcement or other anomalies in the core.

(d) Devices such as vernier calipers readable to 0.2 mm for measuring core diameter.

(e) Facilities for conditioning in water at a temperature of 23 ±5°C for three days in the standard temperate zone or 27 ±5°C in the standard tropical zone, such as a water bath.

(f) Facilities for conditioning in air at a temperature of 23 ±5°C at a relative humidity of 50 ±10% for seven days immediately before testing.

(g) Facilities for capping and testing core for compressive strength and mass per unit volume.