STANDARDS NEW ZEALAND
PAEREWA AOTEAROA

NZS 3109:1997

Incorporating Amendment No. 1 and No. 2

New Zealand Standard

Concrete construction

Superseding NZS 3109:1987

NZS 3109:1997

COMMITTEE REPRESENTATION

This Standard was prepared by the Concrete Construction Committee (P 3109), for the Standards Council established under the Standards Act 1988.

The Concrete Construction Committee consisted of representatives of the following organizations:

Association of Consulting Engineers New Zealand

Building Research Association of New Zealand

Cement and Concrete Association of New Zealand

Institution of Professional Engineers New Zealand

New Zealand Contractors Federation

New Zealand Master Builders Federation

New Zealand Ready Mixed Concrete Association

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AMENDMENTS

No.	*Date of issue*	*Description*	*Entered by, and date*
1	August 2003	This amendment is a result of NZS 3104:2003 being published. This fully revised Standard no longer refers to 'grades of concrete'. The terminology is now Normal Concrete, Special Concrete and Prescribed Mix Concrete. This amendment applies to Sections 1, 6 and 9 of NZS 3109.	Incorporated in this edition.
2	March 2004	Amended to provide for reinforcing steel manufactured to AS/NZS 4671:2001.	Incorporated in this edition.

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RELATED DOCUMENTS

Reference is made in this Standard to the following:

NEW ZEALAND STANDARDS

NZS 3101:- - - -	Concrete structures Standard
Part 1:1995	The design of concrete structures
Part 2:1995	Commentary on the design of concrete structures
NZS 3104:1991	Concrete production – High grade and special grade
NZS 3108:1983	Concrete production – Ordinary grade
NZS 3112:- - - -	Methods of test for concrete
Part 1:1986	Tests relating to fresh concrete
Part 2:1986	Tests relating to the determination of strength of concrete
Part 4:1986	Tests relating to grout
NZS 3113:1979	Chemical admixtures for concrete
NZS 3114:1987	Concrete surface finishes
NZS 3121:1986	Water and aggregate for concrete
NZS 3122:1995	Portland and blended cements (General and special purpose)
NZS 3123:1974	Portland pozzolan cement (type PP cement)
NZS 3125:1991	Portland-limestone filler cement
NZS 3421:1975	Hard drawn mild steel wire for concrete reinforcement
NZS 3422:1975	Welded fabric of drawn steel wire for concrete reinforcement

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JOINT AUSTRALIAN/NEW ZEALAND STANDARDS

AS/NZS 1554:- - - -	Structural steel welding
Part 3:2002	Welding of reinforcing steel
AS/NZS 4671:2001	Steel reinforcing materials

Amd 2 Mar '04

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AMERICAN STANDARDS

ACI SP-47	Durability of concrete
ASTM A820-90	Specification for steel fibers for fiber reinforced concrete
ASTM A497-95	Steel welded wire fabric, deformed for concrete reinforcement
ASTM C42-94	Obtaining and testing drilled cores and sawed beams of concrete
ASTM C309-95	Liquid membrane-forming compounds for curing concrete
ASTM C1116-95	Fiber-reinforced concrete and shotcrete
ASTM C1152-90	Test method for acid-soluble chloride in mortar and concrete

AUSTRALIAN STANDARDS

AS 1012:- - - -	Methods of testing concrete
Part 14-1991	Method of securing and testing cores from hardened concrete for compressive strength
AS 1311-1987	Steel tendons for prestressed concrete – 7-wire stress-relieved steel strand for tendons in prestressed concrete
AS 1313-1989	Steel tendons for prestressed concrete – Cold worked high tensile alloy steel bars for prestressed concrete
AS 1478-1992	Chemical admixtures for concrete
AS 3600-1994	Concrete structures
AS 3610-1995	Formwork for concrete
AS 3799-1990	Liquid membrane-forming curing compounds for concrete

BRITISH STANDARDS

BS 4486:1980	Hot rolled and hot rolled and processed high tensile alloy steel bars for the prestressing of concrete
BS 5896:1980	High tensile steel wire and strand for the prestressing of concrete

OTHER PUBLICATIONS

Building Industry Authority. New Zealand Building Code Handbook and Approved Documents, 1992.

Cement and Concrete Association of New Zealand, TR 3, 1991. Alkali aggregate reaction – Minimising the risk of damage to concrete.

Lewis, R.K. and Blakey, F.A. 1969. The interpretation of core strength results. CSIRO.

The Concrete Society (U.K.) Technical Report No. 11, 1987.

NEW ZEALAND LEGISLATION

Building Act 1991
Building Regulations 1992

The users of this Standard should ensure that their copies of the above-mentioned New Zealand Standards and referenced overseas Standards are the latest revisions or include the latest amendments. Such amendments are listed in the annual Standards New Zealand Catalogue which is supplemented by lists contained in the monthly magazine *Standards Update* issued free of charge to committee and subscribing members of Standards New Zealand.

FOREWORD

The objectives of this revision are to:

1. Update NZS 3109 in the light of the recently published NZS 3101 Concrete Design Standard.

2. Structure the revised NZS 3109 in a form which is compatible with the building control regime established under the Building Act 1991.

3. Reflect the developments in materials and practices which have occurred since the last revision of this Standard.

REVIEW OF STANDARDS

Suggestions for improvement of this Standard will be welcomed. They should be sent to the Chief Executive, Standards New Zealand, Private Bag 2439, Wellington 6020.

NEW ZEALAND STANDARD

CONCRETE CONSTRUCTION

1 GENERAL REQUIREMENTS

1.1 Scope and application

1.1.1
This Standard provides a means of compliance with the construction requirements for structures designed in accordance with NZS 3101. This Standard may also provide minimum requirements for the construction of reinforced concrete, unreinforced concrete, prestressed concrete or a combination, in elements of any building or civil engineering structure designed on any other basis.

1.1.2
For the production of concrete, compliance with this Standard is satisfied through compliance with NZS 3104.

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Aug '03

1.2 Interpretation

1.2.1
In this Standard the word "shall" indicates a requirement that is to be adopted in order to comply with the Standard, while the word "should" indicates a recommended practice.

1.2.2
Subject to 1.2.1, clauses prefixed by "*C* " are comments, explanations, summaries of technical background, recommended practice or suggest approaches which satisfy the intent of the Standard. They relate to the corresponding mandatory clauses where present. They are not to be taken as the only or complete interpretation of the corresponding clause nor should they be used for determining in any way the mandatory requirements of compliance within this Standard. The Standard can be complied with if the comments are ignored.

1.2.3
Cross-references to other clauses or sub-clauses within this Standard quote the number only, for example ".... slump required by 6.8.1".

1.2.4
Where this Standard contains non-specific or unqualified requirements (such as where provisions are required to be acceptable, adequate, applicable, appropriate, relevant, satisfactory, suitable or the like,) or where it refers to work complying with drawings and specifications other than those prepared in accordance with NZS 3101 then these do not form parts of the means of compliance with construction requirements for structures designed in accordance with NZS 3101 as a verification method for compliance with the New Zealand Building Code.

C1.2.4
Where the non-specific or unqualified requirements of 1.2.4 are applied, then such application is treated as an alternative solution to the New Zealand Building Code and needs to be to the satisfaction of the territorial authority.

NZS 3109:1997 Concrete construction

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