AS 3610—1990

Australian Standard®

Formwork for concrete

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee BD/43, Formwork. It was approved on behalf of the Council of Standards Australia on 20 October 1989 and published on 9 April 1990.

The following interests are represented on Committee BD/43:

Aluminium Development Council

Association of Consulting Engineers, Australia.

Australian Federation of Construction Contractors

Australian Precast Concrete Manufacturers Association

Austroads

Cement and Concrete Association of Australia

CSIRO, Division of Building, Construction and Engineering

Department of Employment, Vocational Education, Training and Industrial Relations, Qld.

Department of Occupational Health Safety and Welfare, W.A.

Formwork Contractors of Western Australia

Master Builders Construction and Housing Association Australia

Metal Trades Industry Association of Australia

Plywood Association of Australia Ltd

Precast Concrete Manufacturers Association of New South Wales

Public Works Department New South Wales

Queensland University of Technology

Workcover Authority New South Wales

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For history before 1989 see Preface.
AS 1509—1974, 1510.1—1974 and AS 1082—1971 revised, amalgamated and redesignated AS 3610—1990.

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PREFACE

This Standard was prepared by the Standards Australia Committee on Formwork as a replacement for AS 1509—1974, *SAA Formwork Code—Metric,* AS 1510 *Code of Practice for Control of Concrete Surfaces,* Part 1—1974: *Formwork* and AS 1082—1971 *Glossary of Formwork Terms.* AS 1509, and AS 1510.1 were both first published in 1971 as AS CA 70 and AS CA 72.1 respectively.

Being the product of a review of three current Standards, this edition is a totally new document and its arrangement bears no resemblance to that of its predecessors. Care has been taken to group in specific sections the requirements that are relevant to specific parties, namely the project designer (Sections 2 and 3), the formwork designer (Section 4), those involved in the erection and supervision of formwork on site, and those matters related to the evaluation of completed work and repairs (Section 5).

Where mandatory notes to tables are used in this Standard, they are deemed to form an integral part of the Standard.

Photographic charts for the assessment of colour and surface finish are provided in the Appendices. Additional copies of these charts are available as AS 3610, Supplement 1.

AS 3610 Supplement 2 provides a commentary on this Standard. The commentary includes background information on the Standard, guidance on its use, and suggestions on good practice.

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SECTION 1. GENERAL

1.1 SCOPE. This Standard sets out requirements for the design, fabrication, erection and stripping of formwork, as well as the specification, evaluation and repair of the quality of the formed concrete surface and the influence of this activity on the design and construction of an *in situ* concrete structure. Design by testing is considered separately, the requirements being set out in Appendix A . Some Sections of the Standard are also applicable to precast concrete, in particular some aspects of Sections 3 and 5.

This Standard does not apply to unformed concrete surfaces, eg tops of slabs.

1.2 APPLICATION. Formwork requirements in the project documentation shall comply with Section 2. The concrete surface finish shall comply with Section 3. The structural design of formwork shall comply with Section 4. The procedures to be followed in construction, checking the completed work and carrying out repairs shall be in accordance with Section 5.

1.3 REFERENCED DOCUMENTS. The documents below are referred to in this Standard:

AS
1170 SAA Loading Code
1170.2 Part 2: Wind loads
1250 SAA Steel Structures Code
1315 Portland cement
1317 Blended cement
1575 Tubes, couplers and accessories used in metal scaffolding
1576 SAA Metal Scaffolding Code
1657 SAA Code for Fixed Platforms, Walkways, Stairways and Ladders
1664 SAA Aluminium structures code
1720 SAA Timber Structures Code
2082 Visually stress-graded hardwood for structural purposes
2121 SAA Earthquake Code
2269 Structural plywood
2271 Plywood and blockboard for exterior use
2327 Composite construction in structural steel and concrete
2858 Timber—Softwood—Visually stress-graded for structural purposes
3600 SAA Concrete Structures Code
3700 SAA Masonry Code

BS
5975 Code of practice for falsework.

CIRIA Report 108 Concrete Pressure on Formwork (published by the Construction Industry Research and Information Association (UK)).

1.4 NEW MATERIALS OR METHODS. Provided the requirements of this Standard are met, this Standard shall not be interpreted to prevent the use of materials or methods of design or construction not specifically referred to herein.

1.5 DEFINITIONS. For the purpose of this Standard, the definitions below apply:

1.5.1 Administrative definitions.

Engineer—a person qualified for Corporate Membership of the Institution of Engineers, Australia, and with experience in the area of formwork.

NOTE: The definition of 'Engineer' does not require that an Engineer be a Corporate Member of the Institution of Engineers, Australia.

Formwork documentation—drawings, specifications, brochures and associated documents that describe the formwork assembly to be erected.

May—indicates a practice which complies with the requirements of this Standard.

Project documentation—drawings, specifications and associated documents that describe the permanent structure to be constructed.

Regulatory Authority—a body having statutory powers to control the design and erection of the formwork.

Shall—indicates a mandatory statement to be adopted in order to comply with this Standard.

1.5.2 Technical definitions.

Adjustable prop (also called 'telescopic prop')—a prop (see 'prop') capable of coarse and fine adjustment of its overall length.

Backpropping—process by which adjustable supports are placed to give support to the permanent structure during the removal of the formwork to the soffit. (See Figure 1.5.1.)

Bearing area—effective area over which a force is transferred to a supporting structural system.

Blowhole—indentation in the formed surface of the concrete caused by a bubble of fluid or air trapped against the form surface.

Bracing—secondary structural members which normally do not support gravity loads but are required to provide lateral stability to other structural members or to transfer horizontal loads to supports.

Camber—the intentional curvature of formwork prior to concrete placement to compensate for the deflection of the formwork or the permanent structure under load.

Cast-in situ concrete—concrete which is placed, as plastic concrete, in its final location as part of the permanent structure.

Class of surface finish (or 'Class')—Standard of the untreated concrete surface of the formed concrete.