AS 3610 Supplement 2—1996

Formwork for concrete—Commentary (Supplement No. 2 AS 3610—1995)

Standards Australia

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PREFACE

This Supplement was prepared by the Standards Australia Committee BD-043 on Formwork as a commentary on AS 3610—1995, *Formwork for concrete*.

This new edition of this supplement incorporates several corrections and amendments to the previous edition. These include changes to Clauses C2.3, C3.2, C3.3.1, C3.5.1, C3.5.2, C4.4.3, C4.4.5.1, C4.4.5.2, C4.4.5.3, C4.4.5.7, C4.4.6, C4.4.7, C4.5.4.1, C4.5.5.1, C4.6.3, C4.7.1, C5.4.1.4, C5.4.1.7, C5.4.2, C5.6.2.2 and CA3.1; Paragraph CA4.4.4; Figures C4.1, C4.4.4, C4.4.5, C4.4.7, C4.4.8, C4.4.9, C4.4.10, C4.4.11, C5.4.1, C5.4.5, C5.4.7, C5.4.12, C5.4.15, CA1 and Addendum. The changes required by this Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure, or part thereof affected.

This Standard incorporates Amendment No. 1 (March 2003). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The Supplement includes background information on the Standard, guidance on its use and suggestions on good practice.

The Paragraphs in this Commentary refer directly to the respective Clauses in the Standard, e.g. Paragraph C5.3.1 refers to Clause 5.3.1, and Appendix CA refers to Appendix A. Gaps in the numerical sequence of this Commentary's Paragraph numbering means that no explanation of or background to the relevant Clauses is necessary.

Details on references and documents referred to in this Supplement are provided in the Addendum at the end of the document.

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FOREWORD

In this Commentary the terms ‘project designer’ and ‘formwork designer’ are used. Neither term should be taken as referring to a single individual, as each may comprise several organizations or individuals of varying qualifications.

Consider the following examples:

(a) Within the term ‘formwork designer’—

(i) proprietary items used in the formwork assembly could be designed by the manufacturer;

(ii) forms, bearers and joists could be designed by personnel engaged by the formwork contractor; and

(iii) footings (if necessary) could be designed by personnel engaged by the building contractor.

(b) Within the term ‘project designer’, a structural engineer could be responsible for the concrete structure, and an architect could be responsible for the surface finish.

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SECTION C2 THE PROJECT DOCUMENTATION

C2.3 INFORMATION TO BE PROVIDED IN THE PROJECT DOCUMENTATION

It is necessary for the project designer, through the project documentation, to communicate specific requirements. The list given in Clause 2.3 is only a general list. For particular projects many other aspects may require attention, with appropriate limitations on the formworker's actions being specified. This Clause covers only those matters affecting the structural aspects of the concrete. The quality of the surface finish is discussed in the commentary to Section 3: Surface finish.

(a) *Minimum formwork stripping times* This is primarily directed towards in situ concrete, although much of it can apply to precast concrete. The stripping times provided in the formwork documentation should be in accordance with AS 3600 (see also Clause 5.4.3.2).

Three criteria apply generally to the removal of all forms and their supports, as follows:

(i) *Structural* As a structure, the member needs to remain secure from collapse, and from damage that may affect its performance in later service, e.g. cracking or deformation in excess of that anticipated by the project designer.

(ii) *Surface finish* Premature stripping may adversely affect the surface condition through scaling, spalling of edges or corners, or cause non-uniformity of colour.

(iii) *Durability* An important factor in the achievement of optimum durability is adequate hydration. As economic considerations often call for early stripping, attention to curing is vital.

A controlling factor in these three matters is the strength development of the concrete at early ages, which is in turn related to the rate of hydration of the cement.

Although strength development is influenced by the ambient humidity, most recognized models for strength gain are related only to time and temperature. Figure C2.1 (see Ref. 1) shows the variations of strength growth with temperature.

It is recommended that the specification should state the minimum strength of the concrete to be attained before removal of the forms or shores. An effective method of strength determination is the testing of cylinders, stored and cured under the same conditions as the permanent structure, or non-destructive tests of the in-place concrete. In this way the effect of the actual temperature regime is reflected in the test results.