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AS 3610 Supplement 2—1990

Formwork for concrete

(Supplement to AS 3610—1990)

STANDARDS AUSTRALIA

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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

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PREFACE

This Supplement was prepared by the Standards Australia Committee on Formwork as a commentary on AS 3610—1989, *Formwork for Concrete.*

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.

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

CONTENTS

FOREWORD

In this commentary the terms 'Project Designer' and 'Formwork Designer' are used. Neither term should be considered to refer to a single individual, as each may comprise several organizations or individuals of varying qualifications.

For example—

(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 by personnel engaged by the formwork contractor; and

  (iii) footings (if necessary) by personnel engaged by the building contractor; and

(b) within the term 'Project Designer', a structural engineer could be responsible for the concrete structure, and an architect for the surface finish.

STANDARDS AUSTRALIA

Australian Standard
Formwork for concrete—Commentary
(Supplement No 2 to AS 3610—1990)

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:

(i) *Structural.* As a structure the member needs to remain secure from collapse, and from damage that may affect its performance in late 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.

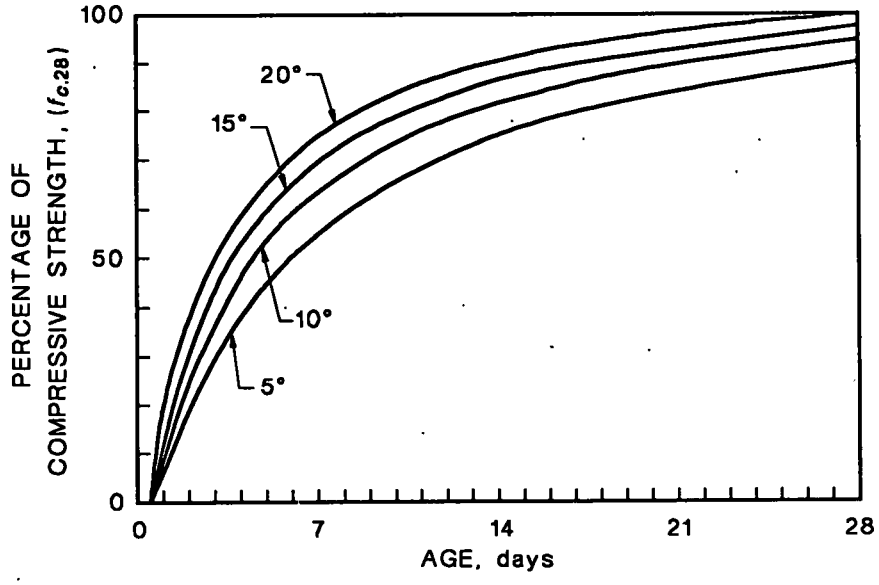

FIGURE C2.1 TYPICAL COMPRESSIVE STRENGTH DEVELOPMENT OF PORTLAND CEMENT CONCRETE UNDER DIFFERENT AVERAGE AMBIENT TEMPERATURES