AS 3850.2—1990

Australian Standard®

Tilt-up concrete and precast concrete elements for use in buildings

Part 2: Guide to design, casting and erection of tilt-up panels

This Australian Standard was prepared by Committee BD/66, Tilt-up Construction. It was approved on behalf of the Council of Standards Australia on 6 August 1990 and published on 12 November 1990.

The following interests are represented on Committee BD/66:

Association of Consulting Engineers of Australia
Australian Assembly of Fire Authorities
Australian Federation of Construction Contractors
Australian Institute of Building Surveyors
Building Workers Industrial Union
Cement and Concrete Association of Australia
Concrete Institute of Australia
Crane Industry Council of Australia
Department of Employment, Vocational Education, Training and Industrial Relations, Queensland
Department of Labour, Victoria
Federated Engine Drivers and Firemens Association
Master Builders Construction and Housing Association, Australia
National Ready Mixed Concrete Association
Precast Concrete Manufacturers Association of New South Wales
Precast Concrete Manufacturers Association of Victoria
Steel Reinforcement Institute of Australia
Tilt-up Construction Contractors Association of Australia
Tilt-up Construction Association of Queensland
Workcover Authority, New South Wales

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PREFACE

This Standard was prepared by the Standards Australia Committee on Tilt-up Construction in response to the call from industry organizations for assistance in this rapidly expanding form of construction.

The Standard should be read in conjunction with AS 3600, *Concrete structures* and AS 3850, *Tilt-up concrete and precast concrete elements for use in buildings*, Part 1: *Safety requirements*.

This series, when complete, will consist of the following Standards:

AS 3850.1 *Safety requirements*

AS 3850.2 *Guide to design, casting and erection of tilt-up panels* (this Standard)

AS 3850.3 *Guide to erection of precast concrete members.*

FOREWORD

This Standard provides guidance and recommendations on the design, casting and erection of tilt-up panels.

Some of these recommendations contained in this Standard are considered to be essential to the safety of the tilt-up procedure and as such are contained in a separate Standard, AS 3850, *Tilt-up concrete and precast concrete elements for use in buildings*, Part 1: *Safety requirements*, which is primarily intended for use in contracts and legislation.

In order to preserve the 'user-friendliness' of this Standard, and yet not undermine the status of AS 3850.1, the requirements of the 1990 edition of AS 3850.1 are reproduced exactly in the appropriate Clauses of this Standard, using italics and enclosed by quotation marks.

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Australian Standard

Tilt-up Concrete and Precast Concrete Elements for Use in Buildings

Part 2: Guide to design, casting and erection of tilt-up panels

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard provides guidance on the design, casting and erection of concrete tilt-up panels which are normally cast on site and tilted or lifted into place. The recommendations are in addition to the requirements of AS 3850.1, which have been reproduced in this Standard, and AS 3600.

This Standard does not apply to precast concrete members that are transported to the site and lifted into place.

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

AS
1110 ISO metric hexagon precision bolts and screws

1170 SAA Loading Code
1170.1 Part 1: Dead and live loads and load combinations
1170.2 Part 2: Wind loads

1418 SAA Crane Code

1544 Methods for impact tests on metals
1544.2 Part 2: Charpy V-notch
1544.5 Part 5: Assessment of fracture surface appearance of steel

3600 Concrete structures

3610 Formwork for concrete

3850 Tilt-up concrete and precast concrete elements for use in buildings
3850.1 Part 1: Safety requirements

1.3 DEFINITIONS For the purpose of this Standard, the definitions given in AS 3600 and those below apply.

1.3.1 Casting bed—a surface upon which the tilt-up panels are cast.

1.3.2 Edge-lifting—a method of lifting whereby lifting inserts are cast within the element edge, generally resulting in incomplete development of the concrete shear cone.

NOTE: Edge-lift inserts normally rely on component reinforcement ('shear bars' and 'tail bars') to achieve their working load capacities.

1.3.3 Element (building element)—either a tilt-up panel or a precast member.

1.3.4 Engineer—a person qualified for Corporate Membership of the Institution of Engineers, Australia, or equivalent and competent to practice in the appropriate field required by this Standard.

1.3.4.1 *Certifying engineer*—the engineer undertaking the certification of the shop drawings.

1.3.5 Erection platform—the base upon which the crane is supported during erection of the elements.

1.3.6 Face-lifting—a method of lifting whereby lifting inserts are cast within the element face at a sufficient distance from any element edge to ensure the complete development of the concrete shear cone.

1.3.7 Factor of safety against failure—the figure by which the failure load (see Clause 1.4) is divided to give the working load limit.

1.3.8 Insert—any one of the following, as appropriate:

(a) *Bracing insert*—a component or system cast or fixed into the element, or into an element-supporting member, for later attachment of a temporary brace.

(b) *Fixing insert*—a component or system cast into or fixed to the element and subsequently used to tie the structure together or support other structural members.

(c) *Lifting insert*—a component or system cast or fixed into the element for later attachment of the lifting device.