Australian Standard®

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

Part 1: Safety requirements

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The following interests are represented on Committee BD/66:

Association of Consulting Engineers of Australia
Australian Federation of Construction Contracts
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
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
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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*. When complete, the series will be as follows:

AS 3850.1 *Safety requirements* (this Standard)
AS 3850.2 *Guide to design, casting and erection of tilt-up panels*
AS 3850.3 *Guide to erection of precast concrete members.*

The other Standards in the series provide additional information and recommendations on good working practices.

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STANDARDS AUSTRALIA

Australian Standard

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

Part 1: Safety requirements

1 SCOPE This Standard sets out safety requirements for the erection of —

(a) concrete tilt-up panels that are cast on site and tilted and lifted into place; and

(b) precast concrete building members that are transported to the site and lifted into place.

Requirements are also provided for the design and casting of these elements where they relate to the erection process.

These requirements are in addition to those in the appropriate Clauses of AS 3600.

NOTES:

1. Where design of elements, systems, components etc is specified in this Standard, it is intended that it be carried out by, or under the supervision of a suitably qualified engineer (see Clause 3.4).
2. In addition to the requirements set out in this Standard, recommendations on good design and practices for tilt-up panels are provided in AS 3850.2.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS
1012 Methods of testing concrete
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
3850.2 Part 2: Guide to design, casting and erection of tilt-up panels

ASTM
D 618 Methods for conditioning plastics and electrical insulating materials for testing
D 695 Test method for compressive properties of rigid plastics

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

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

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.

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

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.

3.4.1 *Certifying Engineer* — the engineer undertaking the certification of the shop drawings.

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

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.

3.7 Factor of safety against failure — the figure by which the failure load (see Clause 4.2) is divided to give the working load limit.