



## Precast panels and mobile cranes

This document provides employers, the self-employed and employees with information about WorkSafe's current construction safety focus on precast and tilt-up concrete panels and mobile cranes.

WorkSafe inspectors are visiting construction sites to ensure the risks associated with precast or tilt-up concrete panels (panels) are being identified and effectively controlled and mobile cranes on site are safe for use.

### Background

Working with or around panels or braces is high risk, as an error of judgement or failure of a crane, rigging, bracing or panel component can put the public and workers at serious risk. Incidents in Victoria have included:

- a worker suffered fatal injuries when crushed by a collapsing panel
- a worker suffered fatal injuries when struck by a brace while it was being removed from a panel
- a number cars were crushed by panels that fell into the adjoining property's public car park
- a mobile crane's operator cabin was crushed when a panel being lifted fell onto it.

The risk of panel collapse exists during the construction process, from the unloading from the delivery truck to the removal of the panel braces (braces). The risks must be controlled, so far as reasonably practicable, until the panels are effectively tied into the building's permanent structure.

### Common issues

Inspectors routinely find and take enforcement action over unsafe plant, work practices for the erection of panels, works around temporary braced panels and the removal of braces, including but not limited to:

- **Design**
  - shop drawings don't contain the required information or design details are unclear
  - critical erection design issues not addressed
- **Panel manufacture**
  - panels not compliant to the design
  - structural and lifting components substituted without designer's approval
  - concrete not achieving minimum strength
  - missing or deficient panel birth certificates
- **Delivery**
  - defective trucks or A-frames (eg damage to truck/trailer, fall risks not controlled)
  - inadequate load restraints on A-frames and panels (eg panel lashing sequence, over-centre-dogs used)
  - panels delivered out of erection sequence
  - inadequate site access for panel trucks
- **Panel erection**
  - inadequate crane hard standings
  - inadequate inspections or maintenance of crane (eg lack of major inspection)
  - lifting gear not inspected or maintained

- inadequate or no rigging plan/diagram
- no erection design/sequence or not followed
- single used panels lifted multiple times
- inadequate safe work method statements (SWMS) or not being followed
- non-compliant brace anchors or anchor bolts
- brace anchor bolts under or over torqued
- braces skewed or at incorrect angle of incline
- panel released from crane before being braced adequately.
- **After erection**
  - inadequate controls or SWMS for powered mobile plant operating around or near braces
  - inadequate welding of stitch plates
  - lack of periodic checks and re-torquing of brace anchors while braces are required for panel stability
  - panel risks not included in site induction
  - interference with or damage to braces
  - premature removal of braces without engineer's approval.

### Duty to control risks

Employers and self-employer persons have duties in relation to construction work, including to:

- eliminate risks to health and safety, if it is not reasonably practicable to eliminate the risks, then reduce risks so far as reasonably practicable
- ensure that high risk work is only performed by appropriate licensed persons (eg rigging work)
- ensure high risk construction work (HRCW) is not performed unless a SWMS is prepared and followed. HRCW includes but is not limited to construction work:
  - involving precast or tilt-up concrete
  - where there is any movement of powered mobile plant
  - involving structural alterations that require temporary support to prevent collapse.

Employers must also:

- provide and maintain plant or systems of work, so far as reasonably practicable, that are safe
- provide employees undertaking construction work with site specific training (site induction) including the onsite risks associated with panels. For example, site rules for working around the alteration of or removal of braces.

### Risk control measures

WorkSafe has range of guidance for employers and self-employed persons involved in the design, manufacture, erection and onsite management of panels including:

- The Industry Standard – *Precast and tilt-up concrete for buildings* for advice on;
  - the design of panels and erection sequencing

# Construction Safety Focus

- erection of panels
- the onsite management of braced panels.

Persons with any responsibility for panels should make themselves familiar with the relevant sections; to assist them in providing and maintain a safe workplace, safe plant and safe systems of work.

- The Guidance Note – *Major inspections of cranes, hoists and winches* provides advice on the inspection requirements for cranes and elevating work platforms (EWP) to ensure they remain safe for use.

*Note: This guidance material has been prepared using the best information available to WorkSafe, and should be used for general use only. Any information about legislative obligations or responsibilities included in this material is only applicable to the circumstances described in the material. You should always check the legislation referred to in this material and make your own judgement about what action you may need to take to ensure you have complied with the law. Accordingly, WorkSafe cannot be held responsible and extends no warranties as to the suitability of the information.*

## Consultation

An employer must consult affected employees including health and safety representatives when identifying or assessing hazards and risks, and when determining or reviewing risk controls, so far as is reasonably practicable.

## Further Information

Visit [www.worksafe.vic.gov.au](http://www.worksafe.vic.gov.au) to download the following publications:

Industry Standard:

- [Precast and tilt-up concrete for buildings](#)

Safety Alerts:

- [Crane inspection records](#)
- [Panel axis is critical for single crane rotation](#)
- [Securing concrete panels](#)
- [Torqueing fasteners with rattle guns](#)
- [Skewed panel braces can be dangerous](#)

Information for employers:

- [Structural welding](#)
- [Working safely in general construction](#)

Guidance Note:

- [Major inspection of cranes, hoists and winches](#)
- [Brace footings for concrete panels – Selecting the correct anchors](#)
- [Safe handling when securing loads on trucks](#)

Information About:

- [Safe Work Method Statements](#)
- [Precast and tilt-up concrete construction](#)

Construction focus

- [Powered mobile plant](#)
- [Structural collapse](#)

Australian Standards

- AS 2550 series - Cranes, hoists and winches

Contact WorkSafe's Advisory Service on (03) 9641 1444 or free call 1800 136 089.