



Structural collapse

This document provides employers, self-employed and employees with information about WorkSafe's current construction safety focus on structural collapse during construction work.

WorkSafe Inspectors are visiting construction sites to raise awareness about structural collapse and to ensure any risks associated with structural collapse are being identified and effectively controlled.

Background

Structural collapse during construction work has resulted in the deaths of workers and the public. Incidents have included the collapse of:

- a free standing unsupported brick wall
- a site hoarding that fell onto a footpath
- a precast panel during bracing work
- an inadequately braced portal steel frame
- a house during re-stumping work
- an overloaded incomplete upper floor
- formwork during a concrete pour
- a house chimney after the removal of roof beams.

Common stability issues

Inspectors routinely find and take enforcement action over unstable structures and structural stability risk factors, including but not limited to:

- inadequately braced precast panels
- unsupported brick and block walls
- inadequately braced portal steel frames
- inadequate temporary propping of roof structures (eg during roof tiling works)
- demolition of a structure's supporting elements
- overloading floors (eg flooring packs)
- vibration from powered mobile plant, which affects the stability of an adjacent structure
- excavation works undermining adjacent structures
- absence of, or non-compliance with, the engineered erection sequence or temporary bracing design
- temporary supports not inspected or maintained
- failing to verify the structural adequacy of an existing structure before starting the work
- poorly designed or erected temporary structures that are unable to withstand wind loads
- inadequate welding of structural steel.

Duty to control risk

Employers and self-employed persons have duties in relation to controlling the risks to persons, including to:

- eliminate risks, if not reasonably practicable to eliminate the risk then reduce it so far as reasonably practicable (see risk control section)
- ensure high risk construction work (HRCW) is not performed unless a safe work method statement (SWMS) is prepared and followed, the SWMS must document the risk controls eg structural collapse).

HRCW that may involve the risk of a structural collapse includes but is not limited to, construction work:

- involving demolition, or precast and tilt-up concrete
- involving structural alterations that require temporary support to prevent collapse

- where there is movement of powered mobile plant.

Employers must provide employees undertaking construction work with site-specific training (site induction) on the site risks including:

- any risks of structural collapse
- any site rules associated with the removal, installation, alteration or working near structural supports.

Risk control measures

The risk of a structural collapse must be controlled in accordance with the highest level of risk control, so far as reasonably practicable, as outlined in the table below. A combination of risk control measures will usually be required.

Hierarchy of risk control for construction work

Level 1 Eliminate all (or part) of the risk, (eg avoid undermining the adjacent property's wall by not excavating along the boundary line).

Level 2 Reduce the remaining risk or part of this risk by implementing one or more of the following controls:

- substitute a new procedure, activity, or plant of lesser risk (eg masonry is laid in stages so the mortar has time to develop full strength before laying the next stage)
- isolate persons from the hazard (eg establish a secure exclusion zone around the fall shadow of a braced structure)
- use engineering controls (eg follow the engineered installation design sequence and temporary bracing arrangements).

Level 3 Any remaining risk or part of the risk must be reduced with administrative controls (eg site induction, work processes, warning signage and weather monitoring).

Level 4 Any remaining risk or part of the risk must be reduced by providing appropriate personal protective equipment (eg helmets, boots, etc).

Review Review and, if necessary, revise risk control measures:

- before making a change to the way the work (eg system of work) is performed, or
- if new or additional information about the hazard becomes available, or
- if the measures do not adequately control the risks; or
- after receiving a request from a health and safety representative (HSR).

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Consultation

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

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.

Further Information

Visit worksafe.vic.gov.au to download the following publications:

Code of Practice: [Demolition](#)

Safety Alerts:

- [Preventing structural collapse](#)
- [Danger of freestanding masonry walls](#)
- [Preventing floor collapse](#)
- [Preventing roof collapse in housing](#)
- [Temporary site structures](#)
- [Masonry Structures - Instability leads to collapse](#)
- [Preventing formwork failures](#)
- [Securing precast panels](#)

Health and Safety Solution:

- [Preventing masonry structures from collapsing](#)

Information for employers:

- [Structural welding](#)

Guidance Note:

- [Restumping buildings](#)

Information About:

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

Industry Standards:

- [Precast and tilt-up concrete for buildings](#)
- [Safe erection of structural steel for buildings](#)

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

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