

# Safety and health alert

# 35/00 Perimeter formwork construction

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## Incident

Several reports of unsafe construction of formwork support systems and associated cantilevered working platforms on low to medium rise multi storey buildings have recently been received.

Construction methods that endanger formworkers, scaffolders, other on-site construction workers and the general public include:

- erecting and dismantling shoring frames without adequate perimeter protection for formworkers and safeguards against falling objects endangering workers or the general public;
- constructing work platforms cantilevered from the shoring frames using unserviceable timbers or which do not otherwise meet the minimum design standards for safe platforms; and
- cantilevered platforms that cannot be safely erected and/or cannot be safely dismantled following the pouring and curing of the floor slabs or edge beams.

In most cases these unacceptable work practices do not occur when well designed and properly constructed full height perimeter scaffolds or floor-to-floor perimeter screen or shutter systems are provided.

Temporary working platforms cantilevered from shoring frames are a form of cantilevered scaffold. Where a person or object could fall more than 4 metres from the cantilevered structure, workers involved in their erection, alteration or dismantling must hold a valid scaffolding certificate of competency, or be under the direct supervision of a certificated scaffolder. The minimum nationally uniform certificate class for this type of work is **Intermediate Scaffolding** (Code SI).

AS/NZS 4576 *Guidelines for Scaffolding*, states:

***"The design of cantilevered scaffolds and the adequacies of their supporting structures must be verified for compliance with the relevant requirements of AS/NZS 1576.1 by a competent person, such as an engineer experienced in structural design."***  
(Clause 10.7)

AS/NZS 1576.1 is the Standard setting out the general design requirements for all types of scaffolding.

WorkSafe Western Australia recognises that where cantilevered working platforms do not consist of clearly defined bays, it will be more appropriate for the design engineer to design the platform for the live loads specified in AS 3610 *Formwork for Concrete* than the duty live



loads specified in AS/NZS 1576.1. Where this approach is adopted, allowing for the likelihood of loads from stacked materials, a minimum of 4 kPa should be used.

## Factors Recommendations

Compliance verifications shall include:

- the design loadings on the cantilevered needles and the reaction loads on the formwork;
- the method for securing the inboard end of cantilevered needles to resist platform loadings prior to the pouring of the concrete;
- the minimum dimensions and (in the case of structural timber) the minimum stress grading of needles and other structural load bearing members;
- the duty loading for the working platform (which would generally need to be at least medium duty or 4 kPa as appropriate);
- the specified platform width (which should be at least 900mm) with a minimum of 450mm of clear and unobstructed access, free of struts, braces and other protrusions, along the platform's full length;
- the specified method of securing guardrail stanchions, guardrails and midrails to ensure they will have the minimum strength and rigidity specified in AS 1657 *Fixed Platforms, Walkways, Stairways and Ladders – Design, Construction and Installation*;
- the specified method of maintaining safe access to and egress from the working platform (such as a temporary stair tower or ladder tower) bearing in mind that access and egress via wet concrete is unacceptable;
- the system of work for the scaffolders and formworkers in both the erection and the dismantling phase, so that they are safeguarded at all times and the risks to people in the vicinity have been eliminated or adequately controlled.

Before the cantilevered platform is handed over for use, the employer shall obtain a handover certificate from a suitably competent person which confirms that the cantilevered scaffold, including its anchorage fixings to the formwork support system is in accordance with the engineer's design.

The decision on the most suitable method of formwork construction for the particular design of the building and the nature of the site should be taken in active consultation with the elected safety and health representative(s). All available options should be considered and evaluated, particularly the provision of a full perimeter scaffold and the installation of perimeter screen or shutter systems.

Whatever the method selected, it shall provide a working environment which safeguards workers and the public no less than by providing a perimeter scaffold or perimeter screen system.

A Job Safety Analysis for the formwork construction shall include details of how the entire sequence of erecting and dismantling the formwork and the cantilevered scaffold (if chosen) will be carried out so as to prevent:

- anyone from falling, over-reaching or over-exerting; and
- anyone from being struck by falling material or debris, including the general public.

## Further Information

Further information can be obtained from the WorkSafe internet site

[www.worksafe.wa.gov.au](http://www.worksafe.wa.gov.au), or by contacting customer service on 1300 307 877 or email: [safety@docep.wa.gov.au](mailto:safety@docep.wa.gov.au).

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