



OCTOBER 2024

PREVENTING FORMWORK FAILURES

OVER THE YEARS, THERE HAVE BEEN MANY INCIDENTS (RESULTING IN FATALITIES AND SERIOUS INJURIES...) WHERE FORMWORK HAS FAILED DURING CONCRETE POURS – AND THIS IS TOTALLY UNACCEPTABLE!

Formwork failures can be caused by numerous things – including but not limited to:

- formwork not being designed by a competent person (i.e. a structural engineer experienced in formwork design);
- formwork not constructed in accordance with the formwork design or specifications;
- onsite modifications to formwork due to site conditions not addressed in the design documentation;
- damaged or sub-standard formwork components being used;
- removal of formwork before the concrete achieves adequate strength – as per the formwork documentation;
- overloading of the formwork during concrete pouring operations.

Safe work method statement (SWMS)

Safe work method statements (SWMS) MUST be developed for all high risk construction work that forms any part of the formwork erection, concrete pouring and formwork stripping processes.

SWMS assist employers and workers to consider the hazards and risks associated with the high risk construction work and implement the most effective and highest order control measures available.



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When erecting formwork:

- Ensure a competent person (i.e. a structural engineer with experience in formwork design) produces a formwork design capable of supporting the expected dynamic and static loads.
- Where proprietary formwork systems are used, ensure they are erected in accordance with the manufacturer's recommendations.
- Where a custom design is used, including when combining different formwork systems or using proprietary systems outside the manufacturer's recommendations, ensure the design is completed by an engineer experienced in formwork design.
- Ensure there is a maintenance and inspection regime available and proven to be implemented to identify all defective and/or damaged formwork equipment.
- Inspect formwork components before use, remove defective components from service and tag them out for disposal or repair. AS 3610 –: Formwork for concrete provides component inspection criteria.
- Before other trades access the formwork or the concrete is poured, ensure the erected formwork is inspected by a competent person (i.e. the structural engineer) to ensure it has been erected in accordance with the formwork design. The competent person needs to document the inspection and sign-off that the formwork is now ready for use.
- If the erected formwork does not comply with the formwork design:
 - Alter the formwork so it does comply with the design, and/or
 - Ensure the designer and/or an independent engineer (where necessary) inspects the formwork and verifies that the changes do not and will not compromise the structural integrity of the formwork.

Pouring concrete

- Ensure the structural integrity of the formwork has been verified before starting the concrete pour.
- Establish an appropriate exclusion zone to prevent any persons from accessing or entering the area under the formwork during the concrete pour. Maintain the exclusion zone until the concrete reaches the minimum strength required as specified in the formwork documentation.
- Monitor the formwork during the concrete pour to identify any early signs of failure. The monitors must not, under any circumstances - access areas under the formwork pour.
- Ensure the formwork is not overloaded during the concrete pouring operation.

Stripping formwork

Ensure the concrete has achieved its' minimum strength before formwork removal. This may be achieved by ensuring the minimum curing time specified in the formwork design has been achieved, or by receiving appropriate certification following concrete specimen testing.

Reference Documents:

Australian standards
AS 3610: Formwork for concrete
Preventing Formwork Failures WorkSafe Victoria Feb 2022.
Guide to Formwork – Safe Work Australia
Formwork Code of Practice Queensland 2016.
Code of Practice Formwork NSW 2020.

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