Key changes to Tilt-up and pre-cast construction Code of Practice 2003

The Office of Industrial Relations (OIR)—the Queensland Government agency responsible for the coordination and regulation of workplace health and safety, electrical safety, and workers' compensation regulations in Queensland—initiated a comprehensive review of the Tilt-up and pre-cast construction Code of Practice 2003 (the Code) to ensure it reflects current industry practices, emerging safety evidence, and lessons learned from serious incidents.

- The review of the Code proceeded in consultation with the Tilt-up and pre-cast construction Code of Practice 2003 Steering Group (the group), which included representatives from industry and employer groups, union organisations, and government. The group met eight times between March 2018 and February 2019.
- The review was paused while the safety of backup lifting systems, specified in the 2003 Code, was tested following industry concern about their effectiveness in supporting precast panels during lifting.
- Testing demonstrated that backup lifting systems were deficient and should not be used to support precast panels during lifting. OIR instead considered alternative safety measures that more effectively eliminate hazards during lifting.
- On 15 April 2025, OIR released a position paper outlining five control measures to mitigate the risk of lifting failure through the use of specific lifting hardware, along with enhanced inspection, maintenance, and training requirements.
- Following favourable responses from industry, OIR published a safety alert on 19 December 2025 that established OIR's position on replacing backup lifting systems with the five control measures.
- Evidence from construction site investigations resulted in the decision to remove the mandatory 45km/h wind speed cap and replace it with a risk-assessment process for any lifted loads affected by the wind.
- Industry stakeholders agreed to other significant changes to the reviewed code during the steering group meetings. These changes are outlined in the table below. These changes reflect either standard industry practice in the period since 2003, or the result of incidents investigated by OIR, with new measures promoted in safety alerts and adopted into the Code to prevent future injuries or fatalities.
- The Code adopts the control measures developed in response to the 2016 Eagle Farm racecourse fatalities, where two workers were crushed by pre-cast panels after becoming trapped in a drainage pit with no escape route.

Change	Description	Benefits
Section 5.1 **Wet concrete loading – Additional loading on concrete elements and bracing**	This section provides new information on the impact of wet concrete pours on bracing systems for panels/elements. It provides a description of the potential hazards if applied loads are not taken into account. It also advises that an engineer may need to nominate a pour sequence to minimise the load on the bracing system and the element itself. The section states that an engineering certificate verifying the additional loading is to be available.	• This section alerts workers and the person conducting a business or undertaking (PCBU) to the danger of extreme pressure of wet concrete applied to the element/panel without adjusting the design of the brace, bracing insert, anchors, and related components. • Checking by an engineer adds an additional control measure to prevent an incident in which the element/panel fails or cracks, with potentially catastrophic consequences. • This section will only apply in relatively rare circumstances – less than 10 per cent of jobs where pre-cast elements are used and an engineer will already be engaged to design the formwork and pre-cast.
Section 8.4 **Consultation**	This section states that a structural engineer for the building holds responsibility for the final sign-off of the total structure after consulting with the other engineers involved in the construction.	• There are a number of engineers involved in construction projects of this type, with expertise in different fields such as formwork, bracing, cranes, and related areas. • A structural engineer for the building is usually on site to provide clarity about who holds final responsibility for the project after consulting with the other engineers. • This section reinforces usual practices on construction sites.

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Section 12.2 **Safe wind speeds for tower cranes**	The 2003 Code states that *"It is recommended that the lifting of concrete elements should not continue under any circumstances when the wind speed exceeds 45km/h (12.5m/s). In practice, wind speeds lower than this figure can be unsafe depending on the surface area of the pre-cast element."* This mandatory wind cap has now been replaced by the requirement to apply a specific risk assessment process to lifted loads that are readily affected by the wind, including pre-cast wall panels or elements, or any other suspended load that has a large frontal area. The risk assessment process should consider: • current and predicted environmental conditions • the range of loads being lifted (size, shape, weight) • surroundings and nearby structures that could affect wind flow and wind speed • location and complexity of the lift • skills and experience of those involved • any relevant manufacturer information • any limits specific to the lift (company limits, engineer specified limits, site limits, crane limits). A new checklist has been provided at Appendix B of the updated Code to document the risk assessment.	• The mandatory wind speed cap of 45km/h in the 2003 code is to be replaced with a risk assessment process applied to any lifted loads that are affected by the wind. • Evidence from investigations at construction sites demonstrates that a 'one size fits all' wind cap is not effective. • Instead, a risk assessment process can be a better tool in measuring the impact of wind on different loads.
Section 12.4 **Lifting pre-cast hollow core floor planks**	The updated Code provides instruction on the best practice method for lifting and installing hollow core floor planks. It outlines safe lifting practices.	• This section specifically relates to the use of a certain product. • The information on safe lifting practices is supplied by the hollow core manufacturer and replicating

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		this information in the Code provides consistency and clarity for PCBUs.
Section 13.1 **Exclusion zones**	The 2003 Code states that an exclusion zone should be established to prevent unauthorised persons, including workers, from gaining access during the installation of panels/elements. The updated Code specifies that the size of the exclusion zone should be 1.25 times the height of the element both in front and behind.	• Specifying the size of the exclusion zone adds clarity to safe installation processes. • Where the required space is not available, the use of risk control measures is required. • In the event that other building activity is occurring concurrently, consultation is required between the installer and those in the exclusion zone to ensure that installation can proceed safely.
Section 13.3 **Additional risk controls for lifting pre-cast concrete elements**	The 2003 Code states that, '*where an exclusion zone for lifting pre-cast elements is not possible, a back-up lifting system for the panel/element is necessary to prevent failure of primary lifting system.*' As a result of testing conducted in February 2023, which indicated that back-up lifting systems were unsafe and not recommended, the updated Code has removed information on backup lifting systems for pre-cast elements. Instead, the updated Code proposes alternative risk controls to replace back-up lifting systems: • Use of a locking lifting clutch with a mechanism that locks the engagement pin in place so it remains engaged with the lifting insert in the concrete panel.	• Industry supports the removal of back-up lifting systems, which they proposed in the review conducted by Workplace Health and Safety Queensland (WHSQ) after the results of testing were confirmed. Industry considers that the additional risk control measures are a more acceptable alternative to back-up lifting systems. • The familiarisation training requirement aims to address a gap in the licence training for intermediate riggers regarding the rotation of precast elements, which would benefit industry.

Change	Description	Benefits
	• Enhanced periodic inspections of lifting clutches – to be visually inspected and proof tested to 1.2 times their working load limit (WLL) at intervals not exceeding 12 months. • Enhanced periodic inspections of snatch block sling assemblies by an independent lifting gear specialist at intervals not exceeding 12 months. • Enhanced inspection during manufacture of all installed lifting insets in accordance with the manufacturer's recommendations and engineered design drawings for the precast element. • Familiarisation training for riggers erecting precast panels.	
Section 13.4 **Installing panels where there is no escape route**	This section is new and addresses circumstances that led to the fatalities at Eagle Farm racecourse in 2016, when two workers were crushed by pre-cast panels after becoming trapped in a drainage pit. This new section relates specifically to installing panels in a pit or a confined space where workers have no escape route. It outlines safe lifting and installing practices to prevent workers from being trapped by falling panels. Refer to our safety alert Concrete wall panels | WorkSafe.qld.gov.au.	• Under section 64 of the Work Health and Safety Regulation 2011 (WHS Regulation), a person who installs or constructs a structure must ensure that the need to enter a confined space must be eliminated so far as is reasonably practicable; or the space is designed with a safe means of entry and exit. • The updated Code requires practices that prevent workers from entering a pit if there is no escape route unless a safe means of exit can be designed. • While the existing WHS Regulations apply in these circumstances, OIR has found that replicating this information in the Code provides significant consistency and clarity for PCBUs.

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Section 14.3 **Suspended wall elements**	This section is new and provides information against the use of welding for critical connections to secure concrete elements on building perimeters. This advice is based on incidents that have exposed the risk of using welding in this circumstance. The section advises that the use of bolted connections between elements, brackets, and the building is considered a more reliable method. In June 2018, a six-tonne pre-cast concrete wall panel fell from the seventh floor of a building under construction from the failure of two brackets welded to steel insert plates. Refer to our safety alert Precast wall panel failure | WorkSafe.qld.gov.au.	• This section was added to the updated Code following an incident in 2018 in which a six-tonne pre-cast concrete wall panel fell from the seventh floor of a building under construction after brackets welded to steel insert plates failed. • The investigation found that the welding process was unsafe in securing the panel to the building and should be replaced by more reliable methods
Throughout the revised code	Updates to technical information including revising factors of safety, ensuring the section on post installed anchors is consistent with AS 3850, revising regional wind loading, discussing the lifting of unusually shaped concrete elements and amending technical errors.	• Upgraded technical information, removed out-of-date references and errors, and added new sections on safe practices. • The majority of the amendments in this table have been supported by members of the Tilt-up and pre-cast construction Code of Practice 2003 Steering Group.