

Precast Tilt-Up and Structural Concrete

Business Name:	ABN:	
Business Address:		
Contact Person:	Phone:	Email:

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON THIS PROJECT

Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.

Full Name:		
Signature:	Title:	Date:

CLIENT OR PRINCIPAL CONTRACTOR DETAILS

Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date Risk Assessment supplied to Project Manager:	



RISK MATRIX									
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION	HIERARCHY OF CONTROLS	
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE			Elimination Remove the hazard.	
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	Substitution Replace the hazard.	
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Review before work starts.	Isolation Isolate People from the hazard	
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	2M MODERATE	Ensure control measures in place.	Engineering Isolate the hazard	
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records.	Administrative Change	
								PPE	

Risk Rating & Required Action:	
4A	Stop work. The risk is intolerable. Eliminate the hazard or redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or higher-level authorisation is required.
3H	Review and approve additional controls before task starts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions.
1L	Proceed, following standard operating procedures. Monitor and keep records.

Consequence Scale:			
Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
Catastrophic	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
Major	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
Moderate	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
Minor	First-aid only, no lost time	negligible delay	Isolated non-conformance
Insignificant	No injury	no schedule impact	Deviation caught and corrected on site

Notes on Hierarchy of Controls:
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. **Substitute**
3. **Isolate**
4. **Engineering**
5. **Administrative**
6. **PPE**

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

aligned with Safe Work Australia's Managing the risk of fatigue at work (2023) and ISO 45001:2018 clauses 6–8.

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
1. WHS Governance, PCBU Duties and Contractor Management	<ul style="list-style-type: none"> Ambiguous allocation of WHS duties between principal contractor, head contractor, precast supplier and erector Lack of formal WHS governance framework for precast and structural concrete activities Inadequate contractor prequalification focusing only on price and program rather than WHS capability Failure to ensure designers, manufacturers and installers consult, cooperate and coordinate activities under WHS Act 2011 Poor management of overlapping duties between crane provider, rigging crews, slipform contractor and site management Inadequate monitoring and review of WHS performance of subcontractors undertaking tilt-up, slipforming and heavy lifts Inadequate due diligence by officers to verify that resources and processes are in place for high-risk precast work Insufficient contractor compliance for compliance with AS 3850, AS 3600 and relevant Codes of Practice 	4A	<ul style="list-style-type: none"> Establish a documented WHS governance framework that clarifies PCBU roles, responsibilities and reporting lines for all precast, tilt-up and structural concrete activities in accordance with WHS Act 2011 Implement a formal contractor prequalification process that assesses WHS management systems, history of precast/tilt-up incidents, competency of supervisors and ability to comply with AS 3850 and other relevant standards Include explicit WHS requirements in contracts for precast manufacturers, transporters, erectors, crane providers and slipform contractors, including mandatory adherence to site-specific WHS management plans and safe design documentation Implement a system to coordinate, consult and cooperate between all PCBUs with overlapping duties, using regular coordination meetings, interface risk registers and shared lift/planning documents Require officers to demonstrate due diligence through periodic WHS leadership walks, documented reviews of risk assessments, and verification that adequate resources are allocated to high-risk precast activities Establish performance-based WHS KPIs for all precast-related contractors and review these at monthly governance meetings Implement a structured non-conformance and corrective action process for WHS system failings identified on precast and tilt-up works Ensure the project WHS management plan specifically addresses precast and tilt-up governance arrangements, including escalation pathways for critical risk deviations 	3H
2. Design, Engineering Verification and Safe Design (Precast & Structural Concrete)	<ul style="list-style-type: none"> Inadequate structural design for precast columns, wall panels, lift shafts, floor and ceiling slabs for construction and temporary stages Lack of explicit consideration of erection loads, temporary bracing and lifting points in design documentation Incompatible design between in-situ structural concrete and precast elements leading to load path uncertainties Insufficient engineering review of tilt-up and tilt-pouring methodologies, including hinge details and propping systems 	4A	<ul style="list-style-type: none"> Implement a formal Safe Design procedure requiring designers to document construction, erection and deconstruction risks for precast and structural concrete in accordance with WHS Act 2011 and Safe Design of Structures Code of Practice Require all precast and tilt-up panel designs to be certified by a suitably qualified structural engineer, covering all construction stages including lifting, transport, temporary bracing and final condition in accordance with AS 3850 and relevant standards Develop an engineering verification process ensuring compatibility between in-situ concrete structure, precast components and slipform systems, including documented load paths and deflection criteria Mandate design reviews and constructability workshops involving engineers, erectors, crane specialists and site supervisors to validate panel sizes, lift positions, brace layouts and installation sequences Ensure engineered lifting points, rigging details and tilt-up hinge locations are explicitly shown on shop drawings with clear capacity ratings, installation notes and inspection hold points 	2M

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	<ul style="list-style-type: none"> • Failure to consider construction tolerances for precast and slipform systems, leading to forced fitting and damage • Limited documentation of engineered lifting points and rigging configurations for large precast components • Inadequate design for progressive vertical construction such as slipform cores and concrete lift shafts • Failure to incorporate edge protection, connection access, and working-at-height considerations into precast unit design • Insufficient interface design for terrazzo precast units, including anchorage to substrates and loadings from finishes 		<ul style="list-style-type: none"> • Require specific design documentation for slipform construction of lift shafts and cores, covering formwork pressures, rate of rise, reinforcement placement and concrete properties • Incorporate fall protection, access points, cast-in lifting systems and edge protection interface details into the design of precast floor, ceiling slabs and panels • Ensure terrazzo and architectural precast units are engineered for handling, transport and installation loads, including appropriate connection systems and tolerances • Establish a controlled change management process for any design modifications to precast or structural concrete systems, requiring certification and VWR risk review 	
3. Precast Manufacturing Quality, Inspection and Traceability	<ul style="list-style-type: none"> • Poor quality control in precast and terrazzo manufacturing leading to hidden defects (voids, honeycombing, inadequate cover) • Incorrect casting, placement or reinforcement detailing for cast columns, panels and floor slabs • Defective or incorrectly installed lifting anchors, ferrules, bracing inserts and connection hardware • Lack of traceability between engineering design, production records and delivered elements • Inadequate curing, handling and storage conditions at the precast yard impacting structural capacity at time of lift • Insufficient dimensional control resulting in misalignment, excessive tolerances and on-site rework pressures • Unverified concrete mix performance for slipform and tilt-up operations, affecting strength gain and stability • Lack of formal inspection and test plans (ITPs) for precast units, 	4A	<ul style="list-style-type: none"> • Require precast suppliers to operate under a certified quality management system (e.g. ISO 9001) with precast-specific procedures and hold points for high-risk elements • Develop and enforce project-specific ITPs for all precast and terrazzo units, including reinforcement checks, lifting inserts, cast-in hardware and dimensional tolerances prior to release • Implement a traceability system linking each precast unit to its engineering design, batch records, inspection reports and strength test results, using unique ID numbers • Specify minimum curing times, strength requirements and handling criteria in supply contracts, with test certificates provided prior to lifting or transport • Conduct periodic audits of precast yards to verify compliance with design, curing regimes, storage methods and handling procedures relevant to large and complex units • Require third-party or independent engineering review for critical elements such as large tilt-up panels, slender columns and lift shaft segments • Mandate sign-off by a competent engineer that lifting anchors and bracing inserts are installed, oriented and embedded as per design, before units are cleared for transport • Ensure slipform and tilt-up concrete mixes are pre-qualified and trialed, with documented performance on rate of strength gain, workability and temperature sensitivity • Establish a non-conformance reporting and rectification system for any manufacturing defects discovered either at the yard or on site 	2M

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	<ul style="list-style-type: none"> • Insufficient control over third-party cranes and rigging crews regarding site lifting procedures • Inadequate monitoring of exclusion zones during panel, slab and column lifting and placement • Poor maintenance and inspection systems for lifting gear, spreader beams, strongbacks and panel lifters • Lack of pre-lift verification that concrete strength and lifting inserts have achieved required capacities 		[REDACTED]	
6. Temporary Works, Bracing and Stability Management	<ul style="list-style-type: none"> • Inadequate design and management of temporary bracing for precast panels, columns and lift shaft elements • Failure of temporary works during wind events, progressive erection or adjacent excavation • Uncontrolled removal or adjustment of braces and props without engineering approval • Over-reliance on generic bracing details instead of project-specific engineered solutions • Inadequate inspection regimes for braces, props, anchors and fixings prior to installation and during construction • Insufficient consideration of progressive loading on partially complete structures, including slipformed cores and partially grouted connections • Unclear ownership of temporary works responsibilities between precast erector, builder and engineer 	4A	[REDACTED]	2M
7. Working at Heights, Fall Protection and Edge Management	<ul style="list-style-type: none"> • Inadequate systems to control falls from edges of precast floor and ceiling slabs during installation 	4A	[REDACTED]	2M

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	<ul style="list-style-type: none"> • Insufficient engineering of edge protection interfaces with precast and tilt-up panels • Gaps between precast units and in-situ structure creating unprotected openings • Reliance on ad hoc anchorage points not designed for fall arrest or restraint systems • Poorly planned access for installation of lift shaft precast units and slipform decks • Uncoordinated removal of temporary edge protection to facilitate installation, leaving edges unprotected • Inadequate review of working-at-heights risks during design and constructability stages 		<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	
8. Structural Concrete Pouring, Slipforming and Curing Management	<ul style="list-style-type: none"> • Inadequate control of slipform rates leading to concrete failure, deformation or collapse of lift shafts and cores • Uncontrolled cold joints or poor compaction at interfaces between precast and in-situ concrete • Insufficient monitoring of concrete temperatures and strength development for critical lifts and prop removal • Lack of clear procedures for pour sequencing around precast columns, panels and tilt-up elements • Inadequate supervision of pump locations, hose routing and access during complex pours • Poor communication between concrete supplier, slipform contractor and site management on mix changes and environmental impacts • Insufficient curing regimes for high-performance or architectural concrete 	3H	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	2M

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	affecting long-term performance and bond with precast units		[REDACTED]	
9. Competency, Training and Supervision for Precast and Slipform Operations	<ul style="list-style-type: none"> • Use of personnel without demonstrated competency in precast, tilt-up or slipform erection methods • Supervisors lacking specific experience in managing complex precast sequencing and structural concrete interfaces • Inadequate induction content related to precast-specific hazards such as panel stability, brace management and large lifts • Over-reliance on informal on-the-job learning rather than structured competency assessment • Insufficient verification of high-risk work licences for crane, dogging, rigging and elevated work platforms • Lack of refresher training on critical roles in response to changes in design, methodology or equipment 	3H	[REDACTED]	2M
10. Planning, Scheduling and Interface Management with Other Trades	<ul style="list-style-type: none"> • Compressed programs leading to unsafe shortcuts during panel, column and slab installation • Conflicting activities in the same work area, such as other trades working beneath or adjacent to precast lifts • Unplanned changes to sequence leading to temporary instability or overloading of partially complete structures • Lack of coordination between tilt-up works, slipform operations and follow-on trades (services, façade, fit-out) 	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> Insufficient consideration of crane time, laydown areas and access requirements in the master program Inadequate planning for noisy or vibration-intensive structural concrete work impacting neighbouring operations 		[REDACTED]	
11. Plant, Equipment and Technology Management	<ul style="list-style-type: none"> Inadequate selection, maintenance and inspection of plant used for precast and structural concrete works (cranes, EWPs, concrete pumps, slipform rigs) Use of incompatible lifting devices, strongbacks or proprietary panel systems without engineering verification Poor integration of digital tools (e.g. BIM, lifting simulations) leading to outdated or conflicting information on site Uncontrolled modification of plant or proprietary systems contrary to manufacturer instructions or engineering designs Insufficient systems for managing breakdowns of critical equipment impacting safe erection sequences Lack of clear procedures for pre-start checks, fault reporting and tagging-out defective equipment 	3H	[REDACTED]	2M
12. Site Layout, Traffic Management and Public Protection	<ul style="list-style-type: none"> Poor site layout leading to interaction between mobile plant, precast deliveries and pedestrian workers Inadequate separation of public areas from lifting zones, panel erection and structural concrete pours Uncontrolled movement of delivery vehicles carrying large tilt-up or precast units through shared access points Insufficient planning for emergency vehicle access during critical lifting or slipform operations 	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> Debris, slurry or concrete run-off from precast and pouring activities impacting public areas or neighbouring properties Limited signage and communication regarding high-risk lifting and pour operations near site boundaries 		[REDACTED]	
13. Environmental Conditions, Structural Monitoring and Emergency Preparedness	<ul style="list-style-type: none"> Adverse weather (wind, rain, heat, lightning) impacting stability of precast panels, cranes and slipform operations Lack of systematic monitoring of structural behaviour during critical stages (e.g. early-age concrete, progressive panel erection) Insufficient emergency response planning for panel collapse, formwork failure or crane incident Poor communication systems for evacuating workers during structural or lifting emergencies Inadequate consideration of after-hour risks (e.g. braced panels left exposed overnight without monitoring) No predefined criteria or authority for stopping work under unsafe environmental or structural conditions 	4A	[REDACTED]	2M
14. Documentation, Communication and Continuous Improvement	<ul style="list-style-type: none"> Incomplete or inaccessible WHS documentation for precast and structural concrete works (drawings, certificates, plans) Outdated lift plans, bracing designs or shop drawings being used in the field Ineffective communication of critical risks and changes to frontline supervisors and workers Failure to capture and act upon lessons learned from incidents, near misses or non-conformances 	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> Inconsistent record keeping affecting ability to demonstrate due diligence under WHS Act 2011 Overreliance on verbal instructions rather than controlled written procedures for complex operations 		<div style="background-color: black; height: 15px; width: 100%;"></div> <div style="background-color: black; height: 15px; width: 100%;"></div> <div style="background-color: black; height: 15px; width: 100%;"></div>	

SAMPLE

EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

LEGISLATIVE REFERENCES

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES FOR ANY STATE THAT ARE NOT APPLICABLE

Queensland & Australian Capital Territory

Work Health and Safety Act 2011
 Work Health and Safety Regulations 2011
 Legislation QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws>
 Codes of Practice QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice>
 Legislation ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations>
 Codes of Practice ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice>

Victoria

Occupational Health and Safety Act 2004
 Occupational Health and Safety Regulations 2017
 Legislation VIC: <https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations>
 Codes of Practice VIC: <https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice>

New South Wales

Work Health and Safety Act 2011
 Work Health and Safety Regulations 2025
 Legislation NSW: <https://www.safework.nsw.gov.au/legal-obligations/legislation>
 Codes of Practice NSW: <https://www.safework.nsw.gov.au/resource-library/list-codes-of-practice>

Western Australia

Work Health and Safety Act 2020
 Work Health and Safety Regulations 2022
 Legislation Western Australia: <https://www.commerce.wa.gov.au/worksafe/legislation>
 Codes of Practice WA: <https://www.commerce.wa.gov.au/worksafe/codes-practice>

Northern Territory

Work Health and Safety (National Uniform Legislation) Act 2011
 Work Health and Safety (National Uniform Legislation) Regulation 2011
 Legislation NT: <https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws>
 Codes of Practice NT: <https://worksafe.nt.gov.au/laws-and-compliance/codes-of-practice>

Safe Work Australia Links

Law and Regulation (All States): <https://www.safeworkaustralia.gov.au/law-and-regulation>
 Model Codes of Practice: <https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice>

South Australia

Work Health and Safety Act 2012 (SA)
 Work Health and Safety Regulations 2012 (SA)
 Legislation for SA: <https://www.safework.sa.gov.au/resources/legislation>
 Codes of Practice for SA: <https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs>

Model Codes of Practice

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work

Tasmania

Work Health and Safety Act 2012
 Work Health and Safety (Transitional and Consequential Provisions) Act 2012
 Work Health and Safety Regulations 2012
 Work Health and Safety (Transitional) Regulations 2012
 Legislation for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations>
 Codes of Practice for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice>

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.