

Concrete Machinery (Mixers Agitators and Pumps)

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 for the task parts. 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, Duties and Legal Compliance	<ul style="list-style-type: none"> Lack of clear WHS roles, responsibilities and accountabilities for concrete machinery operations under WHS Act 2011 and WHS Regulations Failure to identify concrete mixers, agitators, pumps and batching equipment as plant requiring formal risk assessment and management Inadequate consultation with workers, health and safety representatives and contractors about concrete machinery risks No documented WHS objectives, targets or key performance indicators (KPIs) specific to concrete machinery and pumping activities Poor integration of WHS obligations into procurement, planning and contract management for concrete machinery hire and supply Non-compliance with relevant Australian Standards, Codes of Practice and manufacturer instructions for concrete equipment 	4A	<ul style="list-style-type: none"> Establish and document a WHS governance framework that clearly allocates PCBU, officer, manager and supervisor duties for concrete machinery in line with WHS Act 2011 Develop and maintain a concrete plant and pumping WHS management procedure that references WHS Regulations, plant regulation and applicable Australian Standards (e.g. AS 2550 series, AS 1418, AS 1379, AS 5328 where applicable) Implement a formal risk management procedure for all concrete mixers, agitators, pumps, mobile batching machines and table vibrators including initial and periodic review of risk assessments Ensure consultation arrangements (e.g. WHS committees, toolbox meetings, pre-starts) include concrete machinery risk review as a standing agenda item Embed WHS requirements for concrete machinery (guarding, emergency stops, interlocks, maintenance history open for training evidence) into procurement and contractor engagement processes Under take periodic compliance audits against WHS legislation, Codes of Practice and manufacturer instructions for agitator trucks, grout pumps, planetary mixers, rapid concrete mixers and vibratory equipment Require officers to receive briefings on key concrete machinery risks and verify due diligence through documented inspections and review of WHS performance data 	3H
2. Plant Selection, Design and Procurement	<ul style="list-style-type: none"> Procurement of concrete mixers, agitators and pumps that do not fit purpose or not compliant with Australian Standards Absence of documented design risk assessments for new concrete batching systems, self-loading mixers and rapid concrete mixers Inadequate guarding and interlocking on mixers, planetary mixers, table vibrators, rotating drums and moving augers Incompatible components (hoses, couplings, clamps, valves) on grout and concrete pumps leading to line failure or hose whip Lack of engineered controls to prevent over-tilting of cement mixers and 	4A	<ul style="list-style-type: none"> Implement a formal plant procurement standard that mandates compliance with WHS Regulations, relevant Australian Standards, and evidence of conformity from suppliers for all concrete machinery Require design risk assessments and hazard analyses from manufacturers for concrete mixers, agitators, pumps, mobile batching machines and mortar mixers prior to purchase or hire Specify engineered guarding, interlocks and emergency stop devices for mixers, planetary mixers, table vibrators and rotating drums in accordance with AS 4024 series Standardise hose systems, couplings and pressure ratings for grout and concrete pumps and require supplier verification of compatibility and pressure testing regimes Specify built-in stability controls, tilt-limiting devices, load cells and chassis ratings for agitator trucks and over-tilting cement mixers to prevent rollover or structural failure Require access platforms, ladders, steps and handrails to be designed to Australian Standards and assessed for safe access to filler ports, inspection hatches and maintenance areas Include vibration-damping, noise-reduction features and remote-control options in specifications for table vibrators, rapid mixers and pumps to reduce operator exposure 	2M

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	<ul style="list-style-type: none"> instability of agitator trucks during filling or discharge Poor ergonomic design for controls, access platforms and maintenance points leading to musculoskeletal disorders Insufficient noise and vibration control inherent in plant design, particularly for table vibrators and high-speed mixers 		<ul style="list-style-type: none"> Apply a plant change management process for any retrofitting, modification or upgrade of concrete machinery, ensuring engineering assessment and WHS sign-off 	
3. Contractor, Supplier and Transport Interface Management	<ul style="list-style-type: none"> Unclear WHS responsibilities between principal contractor, concrete supplier, pump operator and transport company Inconsistent operating procedures between different agitator truck operators, grout pump contractors and batching plant providers Inadequate site induction and communication for visiting agitator trucks, mobile concrete batching machines and self-loading mixers Misalignment of safe work procedures for agitator truck filling, pump set-up and table vibrator use between parties Lack of competency verification for subcontractor drivers and pump operators operating on site Inadequate traffic and delivery coordination resulting in congestion, near misses or collisions during concrete delivery and pumping 	4A	<ul style="list-style-type: none"> Establish written WHS interface agreements between the PCBU, concrete supplier, pumping contractor and transport providers that clearly set out roles, responsibilities and communication protocols Require all contractors operating concrete mixers, agitators, pumps or mobile batching machines to submit their WHS management plans, risk assessments and plant maintenance records for review Implement a mandatory induction program for all visiting agitator truck drivers, pump operators and mobile batching crews that addresses site-specific hazards, traffic routes and emergency arrangements Standardise critical procedures (e.g. agitator truck filling at plant, pump line set-up, line cleaning, table vibrator use) via documented interface procedures endorsed by all parties Verify high-risk work licences, VOC (verification of competency) and experience for pump operators, agitator drivers and mobile batching machine operators before site access is granted Implement a delivery scheduling and traffic management plan that covers queuing, set-down areas, reversing controls and communication between spotters, drivers and pump operators Conduct regular joint audits with key suppliers and contractors to review WHS performance, incident trends and improvement actions relating to concrete machinery interfaces 	2M
4. Competency, Training and Supervision for Concrete Machinery	<ul style="list-style-type: none"> Operators of concrete pumps, mixers and agitator trucks lacking formal training and site-specific competency Supervisors not adequately trained to identify unsafe operation of concrete pumps, mixers or table vibrators Over-reliance on informal, on-the-job learning leading to inconsistent practices and normalisation of deviance Inadequate training on over-pressurisation, hose whip and line 	4A	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	2M

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	<p>blockage hazards for grout and concrete pumps</p> <ul style="list-style-type: none"> • Insufficient instruction on safe operation of self-loading concrete mixers, planetary mixers and rapid mixing systems • Lack of refresher training resulting in skill fade and failure to incorporate new technology or updated procedures 		[REDACTED]	
5. Plant Registration, Inspection and Preventive Maintenance Systems	<ul style="list-style-type: none"> • Failure to identify which concrete pumps and concrete placing booms require design registration and/or item registration • Inadequate preventive maintenance leading to mechanical failure of mixers, agitators, pumps, vibrators and batching systems • Lack of systematic inspection of agitator drums, chutes, guards, emergency stops, pressure gauges and relief valves • Use of worn or incompatible hose clamps and gaskets on grout concrete pumps increasing likelihood of rupture or leakage • Bypassing of safety devices, limit switches and interlocks on mixers or batching machinery to improve productivity • Poor record-keeping for maintenance and statutory inspections, resulting in plant being used beyond safe service life 	4A	[REDACTED]	2M
6. Safe Work Procedures and	<ul style="list-style-type: none"> • Absence of standardised operating procedures for filling agitator trucks, 	4A	[REDACTED]	2M

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Operating Systems for Concrete Machinery	<p>operating mixers and managing over-tilt risks</p> <ul style="list-style-type: none"> • Inconsistent control of start-up, shut-down and cleaning sequences for mixers, planetary mixers and rapid concrete mixers • No documented process for managing pump blockages, line failures, back-pressure and emergency depressurisation • Unsafe practices during use of table vibrators and compaction processes due to lack of defined controls • Informal practices for loading, discharging and re-tempering in mobile batching machines and self-loading mixers • Inadequate procedures for isolating and cleaning mixers, hoppers and pumps exposing workers to entanglement or engulfment 		[REDACTED]	
7. Traffic, Site Layout and Delivery Coordination	<ul style="list-style-type: none"> • Restricted access and poor traffic flow for agitator trucks and concrete batching machines creating collision risks • Inadequate separation of pedestrian from vehicle paths around pump set zones and mixer discharge points • Uncontrolled reversing of trucks near pump hoppers or trenches leading to crush injuries • Insufficient planning for multiple deliveries causing congestion and time pressure at pour locations • Inadequate ground bearing assessment where pumps, agitators or self-loading mixers are parked or set up, leading to ground collapse or instability • Poor lighting and signage around night works, underground pours or complex sites 	4A	[REDACTED]	2M

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8. Structural Stability, Over-Tilting and Mechanical Integrity	<ul style="list-style-type: none"> Over-tilting of cement mixers or agitator trucks during loading, mixing or discharge causing rollover or ejection of material Failure of support structures, chutes, platforms or outriggers under dynamic loads from mixers and pumps Incorrect set-up of mobile concrete batching machines leading to instability, tipping or collapse Structural fatigue or corrosion of mixer drums, mounting frames, turntables and support beams Overloading of mixers, planetary mixers or self-loading units beyond design capacity, compromising braking and handling Vibration-induced loosening of fasteners and connections on pumps, table vibrators and mixers 	4A	[REDACTED]	2M
9. Pressure Systems, Pumping Lines and Hose Management	<ul style="list-style-type: none"> High-pressure lines or hose whip from concrete pumps and grout pumps Inadequate design, installation, securing of delivery lines and clamps leading to uncontrolled release of concrete Blockages in pipelines causing sudden release of energy during clearing operations Uncontrolled modifications to line layout, including sharp bends or unsupported spans increasing stress on components Failure of pressure relief devices or inaccurate pressure indications on pumps Lack of defined exclusion zones around high-pressure lines and discharge points 	4A	[REDACTED]	2M

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			[REDACTED]	
10. Electrical, Noise and Vibration Exposure Management	<ul style="list-style-type: none"> • Electric shock from powered mixers, table vibrators, pumps and mobile batching equipment due to faulty insulation or earthing • Contact with overhead or underground electrical services during set-up of pumps, agitator chutes or mobile batching plants • Excessive noise from rapid concrete mixers, vibratory equipment and pumps leading to hearing loss • Prolonged hand-arm or whole-body vibration from table vibrators, handheld vibrators and poorly isolated mixers • Inadequate tagging and testing programs for portable electrical equipment used with machinery 	3H	[REDACTED]	2M
11. Hazardous Substances, Silica, Cement Burns and Housekeeping	<ul style="list-style-type: none"> • Exposure to respirable crystalline silica from dry cement, aggregates and dust from mixers and batching equipment • Chemical burns and dermatitis from wet concrete, mortar and grout contacting skin or eyes • Inhalation of cement dust and admixture vapours in poorly ventilated areas around mixing and pumping plant • Uncontrolled spillage, splashing and build-up of concrete residues around mixers, pumps and table vibrators creating slip, trip and fall hazards • Improvised wash-out practices for agitators and pumps leading to 	4A	[REDACTED]	2M

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	environmental contamination and unplanned exposures		[REDACTED]	
12. Safe Access, Working at Height and Confined Space Risks	<ul style="list-style-type: none"> • Unsafe access to mixer hatches, agitator truck tops, batching plant bins and hoppers leading to falls from height • Use of ad-hoc platforms, ladders or climbed components of concrete machinery to gain access for inspection or cleaning • Uncontrolled entry into mixer drums, hoppers, pits or tanks that may constitute confined spaces • Entrapment or engulfment risks in bins and hoppers during manual clearing of concrete build-up • Inadequate planning for rescue from elevated positions or confined areas associated with concrete plant 	4A	[REDACTED]	2M
13. Fatigue, Work Scheduling and Environmental Conditions	<ul style="list-style-type: none"> • Long shifts and irregular hours for agitator drivers, pump operators and batching personnel leading to fatigue • High time pressure to complete pours before concrete sets, promoting risk-taking behaviours and shortcutting procedures • Adverse weather (heat, cold, rain, wind) affecting stability of equipment, control of concrete setting and operator performance • Night works and remote or isolated pours reducing supervision quality and support availability 	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> Inadequate planning for contingency mixes, equipment breakdowns or supply delays 		[REDACTED]	
14. Emergency Preparedness, Incident Response and First Aid	<ul style="list-style-type: none"> Lack of clear emergency procedures for pump line failure, hose whip, mixer entrapment or structural collapse of formwork during pumping Delayed response to cement burns, crush injuries, eye injuries and respiratory exposures Inadequate communication systems during emergency situations involving mobile concrete batching plants or remote pumping sites Failure to report and investigate near misses related to concrete machinery, leading to repeated events Insufficient availability of spill control wash stations and rescue equipment near high-risk concrete plant 	3H	[REDACTED]	1L
15. Documentation, Records and Continuous Improvement	<ul style="list-style-type: none"> Inadequate record keeping for inspections, training, plant maintenance and risk assessments relating to concrete machinery Failure to track and close out corrective actions from audits, incident investigations Lack of trend analysis for incidents, near misses and equipment failures involving mixers, agitators and pumps Outdated procedures and documents remaining in circulation, causing confusion and non-compliance Limited worker involvement in reviewing the effectiveness of controls and proposing improvements 	3H	[REDACTED]	1L

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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.