

Plumbing Suspended Pipework

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. Design Coordination & Engineering Verification	<ul style="list-style-type: none"> Inadequate engineering design for suspended waste pipe loads and deflection Lack of coordination between hydraulic, structural and architectural drawings leading to clashes and ad-hoc site changes Insufficient specification for hangers, supports, seismic restraint or fire-rated penetrations Undocumented design assumptions about occupancy loads, thermal movement and vibration Reliance on unverified supplier data or generic details not suited to the project No formal design review or sign-off process involving competent hydraulic and structural engineers 	4A	<ul style="list-style-type: none"> Establish a documented design management procedure requiring peer review of suspended pipework design by a competent hydraulic engineer and structural engineer in accordance with WHS Act 2011 s19 (primary duty of care) Implement a formal design coordination process (BIM or coordinated services workshops) to resolve clashes between pipework, structure, fire systems and electrical services prior to installation Specify design responsibilities and verification requirements in consultant and subcontractor contracts, including calculations for allowable pipe spans, hanger spacing, and loads on base building structure Require signed engineering certification for suspended waste pipe systems, including load paths, support types, seismic restraint (if applicable), and deflection criteria Maintain a controlled design register and revision control process so only current, approved drawings and specifications are used on site Include a change management procedure for any site-driven design deviations, requiring risk assessment, engineering review, and written approval before implementation 	3H
2. Structural Interface & Load Path Management	<ul style="list-style-type: none"> Fixing hangers into inadequately rated base materials (e.g. lightweight slab toppings, non-structural soffits, hollow-core units) No clear load path from pipe supports back to structural frame, leading to overloading of secondary members Unverified anchor selection and spacing for dynamic and sustained loads of full waste lines Uncontrolled cumulative loading where multiple services share support systems without engineering review Damage to structural elements during drilling or coring compromising building integrity Lack of communication between plumbing contractor and structural engineer on proposed support methods 	4A	<ul style="list-style-type: none"> Develop a structural interface procedure requiring review and written acceptance by the structural engineer of record for all support methodologies and anchor types for suspended waste pipework Adopt a standard for anchor selection referencing manufacturer data, base material capacity, edge distances and embedment depths, and document it in project procedures Use a services loading schedule to confirm cumulative loads from multiple services on shared supports remain within design limits Implement a permit-to-core or permit-to-drill system for penetrations into slabs and beams, including structural drawing review and scanning where required Maintain a register of approved anchor systems, installation torque settings, and testing requirements, with evidence of proof tests where specified Require as-installed records (marked-up drawings or BIM updates) documenting hanger locations, anchor types and loads for future verification and maintenance 	3H
3. Procurement & Verification of Materials and Components	<ul style="list-style-type: none"> Use of non-compliant or non-certified pipe, fittings, anchors and hangers not suitable for suspended waste applications 	3H	<ul style="list-style-type: none"> Develop a procurement procedure requiring verification that all pipework materials, supports and anchors comply with relevant Australian Standards (e.g. AS/NZS 3500, AS 1170, AS 4100, AS 3600) and project specifications 	2M

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	<ul style="list-style-type: none"> Substitution of specified products with cheaper alternatives without engineering or compliance review Incompatibility between pipe materials, support systems and fire-stopping products Supply chain issues leading to last-minute product changes without appropriate technical assessment Lack of traceability and documentation for critical components (e.g. anchor batch testing, manufacturer installation requirements) 		<ul style="list-style-type: none"> Implement a formal product substitution approval process involving the designer, principal contractor and WHS representative, supported by technical data and risk assessment Maintain a controlled register of approved products and suppliers for suspended pipework systems, including certification, test reports and installation instructions Require that tender and purchase documentation clearly state performance requirements (load capacity, corrosion resistance, fire performance) rather than just brand names Institute incoming goods inspection checks for critical components, confirming compliance markings, batch numbers and compatibility with the designed support system Ensure safe storage and handling procedures for pipes and fittings to prevent damage that could compromise structural integrity when suspended 	
4. Design for Access, Ergonomics & Manual Handling	<ul style="list-style-type: none"> System layout forcing work at excessive heights or awkward reaches during installation and maintenance Lack of access provisions for future inspection, cleaning and repair of suspended waste lines Insufficient planning of lifting and handling requirements for long or heavy pipe sections Congested ceiling voids creating constrained working postures and increased musculoskeletal risk No systematic assessment of manual tasks associated with prefabrication, lifting and installation 	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>	2M
5. Working at Height & Access System Governance	<ul style="list-style-type: none"> Inadequate planning for safe access to ceiling cavities and high-level pipework during installation and maintenance Unmanaged use of ladders, mobile scaffolds or elevating work platforms (EWPs) without appropriate selection and oversight Poorly maintained or uncertified access equipment within the plumbing contractor's fleet 	4A	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	2M

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	<ul style="list-style-type: none"> No clear interface between principal contractor access plans and subcontractor WHS systems Lack of rescue planning for work at height incidents involving suspended pipework areas 		[REDACTED]	
6. Coordination with Other Trades & Site Logistics	<ul style="list-style-type: none"> Simultaneous operations in ceiling spaces leading to congestion, dropped objects and conflicting work activities Lack of clear sequencing between pipe installation, structural works, electrical, HVAC and fire services Uncontrolled access to work zones under active suspended pipework installation Poor material staging and storage causing trip hazards and blocked emergency egress routes Communication failures between subcontractors regarding high-risk activities and exclusion zones 	3H	[REDACTED]	2M
7. Competency, Licensing & Supervision of Plumbing Personnel	<ul style="list-style-type: none"> Unlicensed or inadequately supervised workers performing installation of suspended waste pipework Insufficient understanding of design requirements, support spacing, and installation tolerances among installers Lack of formal training in working at height, confined spaces (ceiling cavities) and use of access equipment Inadequate supervision ratios leading to poor quality control and unsafe shortcuts Limited awareness of legal duties under the WHS Act 2011 and associated Regulations 	3H	[REDACTED]	2M

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			[REDACTED]	
8. WHS Management System, Consultation & Planning	<ul style="list-style-type: none"> Fragmented WHS responsibilities between principal contractor, plumbing contractor and other PCBUs Absence of a documented WHS management system tailored to suspended pipework activities Inadequate consultation with workers regarding system risks and controls for overhead work Poor integration of WHS planning into project programming and procurement Limited monitoring and review of WHS performance for suspended pipework activities 	3H	[REDACTED]	2M
9. Quality Assurance, Inspection & Testing of Suspended Pipework	<ul style="list-style-type: none"> Inadequate inspection of hanger spacing, anchor installation and pipe falls prior to concealment Lack of systematic testing of joints and connections before ceilings or bulkheads are closed No formal process to identify and rectify non-conforming work that could cause leaks or structural failure Reliance on informal or undocumented checks by individuals rather than a structured QA system Hidden defects in pipework or supports remaining undetected until significant damage occurs 	3H	[REDACTED]	2M
10. Ceiling Space Environment, Confined	<ul style="list-style-type: none"> Working in poorly ventilated ceiling voids with potential build-up of dust, fumes or heat stress 	3H	[REDACTED]	2M

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Space & Atmospheric Risks	<ul style="list-style-type: none"> • Unrecognised confined space characteristics in specific ceiling areas (limited entry/exit, poor ventilation) • Exposure to existing contaminants such as mould, rodent droppings, asbestos-containing materials or silica dust • Uncontrolled access near live electrical services, unprotected edges or fragile surfaces in ceiling spaces • Lack of documented assessment for atmospheric and environmental risks prior to entry 		[REDACTED]	
11. Fire, Penetrations & Compliance with Fire Safety Systems	<ul style="list-style-type: none"> • Improper fire-stopping around pipe penetrations compromising fire and smoke compartmentation • Use of non-approved fire collars, sealants or systems inconsistent with tested configuration • Uncoordinated penetrations through fire-rated elements resulting in damage to fire protection systems • Lack of documentation and traceability for fire-stopping installation and fire audits • Potential for hot works (e.g. cutting supports) near combustible materials without control 	3H	[REDACTED]	2M
12. Change Management, Design Variations & Site Instructions	<ul style="list-style-type: none"> • Uncontrolled design variations leading to unverified changes in load paths, pipe falls and support requirements • Verbal site instructions resulting in non-documented deviations from approved drawings 	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> • Pressure to accelerate program causing bypassing of engineering review for design changes • Inadequate communication of design revisions to installation crews and supervisors • Lack of retrospective risk assessment for variations impacting suspended pipework 		[REDACTED]	
13. Incident Reporting, Investigation & Continuous Improvement	<ul style="list-style-type: none"> • Under-reporting of near misses related to suspended pipework (e.g. dropped objects, minor leaks, anchor failures) • Superficial incident investigations that do not identify root causes in design, procurement or management systems • Failure to share lessons learned across projects, leading to repetition of systemic issues • Inadequate monitoring of performance trends related to suspended plumbing systems • Lack of escalation of serious or recurring issues to senior management 	3H	[REDACTED]	2M
14. Commissioning, Handover & Operational Readiness	<ul style="list-style-type: none"> • Incomplete documentation and training for building operators on limitations and maintenance requirements of suspended waste pipe systems • Failure to identify outstanding defects or temporary supports prior to handover • Lack of integration between as-built pipework information and asset management systems • Operational staff unaware of access constraints, load limitations or inspection requirements for ceiling spaces • Inadequate communication of residual WHS risks to the building owner/PCBU 	2M	[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.