

**HVAC Maintenance Mechanical and Electrical Service**

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			<b>Elimination</b> Remove the hazard.	
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	<b>Substitution</b> 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.	<b>Engineering</b> Isolate the hazard	
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records.	<b>Administrative</b> Change	
								<b>PPE</b>	

  

Risk Rating & Required Action:	
<b>4A</b>	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.
<b>3H</b>	Review and approve additional controls before task starts. Senior supervisor sign-off needed.
<b>2M</b>	Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions.
<b>1L</b>	Proceed, following standard operating procedures. Monitor and keep records.

  

Consequence Scale:			
Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
<b>Catastrophic</b>	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
<b>Major</b>	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
<b>Moderate</b>	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
<b>Minor</b>	First-aid only, no lost time	negligible delay	Isolated non-conformance
<b>Insignificant</b>	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. Governance, WHS Leadership and Legal Compliance	<ul style="list-style-type: none"> <li>Lack of clear WHS accountability for HVAC mechanical and electrical service activities</li> <li>Inadequate understanding of duties under WHS Act 2011 and WHS Regulations, including plant and electrical safety</li> <li>Absence of documented WHS objectives, KPIs and due diligence processes for HVAC operations</li> <li>Poor integration of contractor activities into the PCBU's WHS management system</li> <li>Inadequate consultation with workers, HSRs and subcontractors about HVAC-specific risks</li> <li>Failure to monitor legal changes relevant to HVAC, refrigeration, electrical and working at height requirements</li> </ul>	4A	<ul style="list-style-type: none"> <li>Establish and document a WHS governance framework that clearly defines PCBUs, officers, and worker responsibilities for HVAC mechanical and electrical service operations</li> <li>Ensure officers exercise due diligence by regularly reviewing WHS performance reports, incident trends and audit findings specific to HVAC activities</li> <li>Maintain a legal register covering WHS Act 2011, WHS Regulations, electrical safety, plant, hazardous substances and dangerous handling and review it at least annually</li> <li>Integrate HVAC maintenance contractors into the organisation's WHS management system through prequalification, WHS onboarding and contractual WHS requirements</li> <li>Implement structured consultation mechanisms (toolbox talks, WHS committee, project pre-starts) that specifically address HVAC system and management risks</li> <li>Periodically commission external WHS audits of the HVAC maintenance management system and close out findings within defined timeframes</li> </ul>	3H
2. Competency, Licensing and Training Management	<ul style="list-style-type: none"> <li>Unlicensed personnel performing electrical work on HVAC systems and associated controls</li> <li>Inadequate training in refrigerant handling, heat exchanger operation and cooling system maintenance</li> <li>Insufficient competency in fault-finding on complex systems such as rooftop package units and under-ceiling split systems</li> <li>Lack of training in air balancing works and maintaining temperature-controlled environments</li> <li>Inadequate induction of new workers and subcontractors into site-specific and HVAC-specific risks</li> <li>Skills fading due to infrequent exposure to high-risk tasks such as roof-mounted unit repairs and live testing</li> </ul>	4A	<ul style="list-style-type: none"> <li>Establish a competency framework that specifies required licences, trade qualifications and endorsements for mechanical, electrical and refrigerant work on HVAC systems</li> <li>Maintain a training and competency matrix for all HVAC personnel, including expiry dates for electrical licences, ARCTick refrigerant handling licences and high-risk work licences</li> <li>Implement formal verification of competency (VOC) processes for critical tasks such as electrical testing, rooftop package unit servicing and working at heights</li> <li>Provide regular refresher training on air balancing principles, temperature and humidity management, and heat exchanger operation and maintenance</li> <li>Ensure structured induction programs cover site rules, emergency procedures, confined or restricted access areas, plant rooms and rooftop access arrangements</li> <li>Require subcontractors to provide documented evidence of competencies and licences, and verify these before engagement</li> <li>Audit field work periodically to confirm correct application of training, isolation procedures and testing methods</li> </ul>	2M

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	<ul style="list-style-type: none"> <li>No verification of competency for use of test instruments, isolation procedures and access equipment</li> </ul>			
3. Asset Design, Specification and Procurement of HVAC Plant	<ul style="list-style-type: none"> <li>Procurement of HVAC plant without adequate safety features (e.g. guarding, isolation points, lockable switches)</li> <li>Complex or poorly designed control systems increasing risk of misoperation or bypassing of safety devices</li> <li>Specification of roof-mounted and under-ceiling systems without considering safe access, maintenance clearances and fall risks</li> <li>Selection of equipment incompatible with existing electrical infrastructure or fault protection systems</li> <li>Inadequate consideration of noise, vibration and air quality impacts on building occupants and workers</li> <li>Use of non-standard or obsolete components making safe maintenance and fault-finding difficult</li> </ul>	3H	<ul style="list-style-type: none"> <li>Adopt a formal plant procurement procedure that requires WHS and maintenance review of all HVAC designs prior to purchase</li> <li>Specify engineering controls such as fixed guarding, lockable isolation switches, clearly labelled disconnects and safe access platforms for rooftop units</li> <li>Require designers and suppliers to demonstrate compliance with relevant Australian Standards for HVAC equipment, electrical installations and pressure equipment</li> <li>Include maintainability criteria in specifications, such as adequate working space around fans, heat exchangers, filters and control panels</li> <li>Standardise on preferred HVAC makes and models to ensure compatibility with existing systems, spares and maintenance procedures</li> <li>Assess noise, vibration, and airflow impacts during design reviews and incorporate mitigation measures (acoustic treatment, isolation mounts, duct design) where required</li> <li>Ensure procurement contracts mandate provision of as-built drawings, manuals, safety data, commissioning reports and OEM maintenance recommendations</li> </ul>	2M
4. Preventive Maintenance and Inspection Systems	<ul style="list-style-type: none"> <li>Inadequate preventive maintenance on axial and centrifugal fans, increasing risk of mechanical failure or imbalance</li> <li>Failure to maintain heat exchanger leading to overheating, corrosion or loss of thermal control</li> <li>Irregular or reactive-only servicing of rooftop package units, split systems and temperature-controlled environments</li> <li>Lack of systematic checks on electrical components, controls, thermostats and protective devices</li> <li>Missing or outdated air balancing, leading to poor ventilation and comfort issues</li> <li>No system for tracking defects, overdue maintenance or repeated failures</li> </ul>	4A	<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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5. Electrical Safety Management and Isolation Systems	<ul style="list-style-type: none"> <li>• Uncontrolled energisation during maintenance on HVAC switchboards, contactors, fans and compressors</li> <li>• Inadequate lockout/tagout procedures for roof-mounted and remote units</li> <li>• Poor labelling of circuits, isolators and thermostats leading to incorrect isolation</li> <li>• Non-compliant or degraded cabling, earthing and protective devices for HVAC plant</li> <li>• Inadequate management of live testing requirements where de-energisation is not reasonably practicable</li> <li>• Failure to coordinate electrical isolation across multiple PCBUs on shared sites</li> </ul>	4A	[REDACTED]	2M
6. Working at Heights, Roof Access and Plant Room Access Control	<ul style="list-style-type: none"> <li>• Uncontrolled access to roofs for servicing roof-mounted units and rooftop package systems</li> <li>• Inadequate or poorly maintained fixed ladders, walkways and guardrails</li> <li>• Inability to safely carry tools and components to elevated work areas using equipment</li> <li>• Congested plant rooms creating trip hazards and obstructed access for maintenance</li> <li>• Lack of systems to prevent falls through fragile surfaces or near edges adjacent to HVAC plant</li> <li>• Poor emergency access to workers performing tasks on roofs or high-level under-ceiling split systems</li> </ul>	4A	[REDACTED]	2M
7. Environmental Conditions, Thermal Stress and Indoor Air Quality Management	<ul style="list-style-type: none"> <li>• Exposure of workers to extreme temperatures when maintaining rooftop units or plant in poorly ventilated rooms</li> </ul>	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> <li>Inadequate management of temperature and humidity affecting occupants and sensitive processes</li> <li>Uncontrolled changes in ventilation and air balancing resulting in poor indoor air quality</li> <li>Condensation and moisture problems leading to mould growth in ducts and units</li> <li>Lack of monitoring of temperature-controlled environments for critical storage or process areas</li> <li>Inadequate response systems for HVAC failures impacting vulnerable occupants</li> </ul>		[REDACTED]	
8. Refrigerants, Hazardous Substances and Pressure Systems Management	<ul style="list-style-type: none"> <li>Uncontrolled release of refrigerants during cooling system maintenance or repairs</li> <li>Inadequate identification and management of different refrigerant types and associated hazards</li> <li>Lack of procedures for recovery, storage and disposal of refrigerants</li> <li>Failure of pressurised components such as heat exchangers, valves and piping due to corrosion or overpressure</li> <li>Insufficient information for workers regarding health effects of refrigerants and cleaning chemicals used in HVAC servicing</li> <li>Non-compliance with licensing and record-keeping requirements for refrigerant handling</li> </ul>	4A	[REDACTED]	2M
9. Control Systems, Thermostats, Automation and Energy Management	<ul style="list-style-type: none"> <li>Faulty or poorly calibrated thermostats leading to overheating, overcooling or energy waste</li> <li>Uncontrolled changes to building management system (BMS) settings causing comfort, condensation or IAQ issues</li> </ul>	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> <li>• Cybersecurity vulnerabilities in connected HVAC control systems</li> <li>• Conflicting control strategies between local thermostats and central BMS controls</li> <li>• Lack of version control and documentation for BMS logic changes and thermostat replacements</li> <li>• Inadequate alarm configuration and response procedures for critical faults</li> </ul>		[REDACTED]	
10. Contractor, Subcontractor and Supplier Management	<ul style="list-style-type: none"> <li>• Use of subcontractors without adequate WHS systems or HVAC-specific competencies</li> <li>• Poor coordination between multiple contractors working on shared HVAC assets or in common plant rooms</li> <li>• Inadequate communication of site-specific risks and isolation arrangements to visiting technicians</li> <li>• Lack of clarity about who controls and supervises HVAC tasks on multi-tenant or shared sites</li> <li>• Inconsistent quality of work on air balancing, fan maintenance and electrical checks due to varying contractor practices</li> <li>• Insufficient contractor incident reporting and learning integration into the host PCBU's WHS system</li> </ul>		[REDACTED]	2M
11. Documentation, Information, Labelling and Change Management	<ul style="list-style-type: none"> <li>• Outdated or missing schematics, wiring diagrams and airflow drawings for HVAC systems</li> <li>• Poor labelling of plant, isolators, circuits, ducts and setpoints leading to errors in maintenance or isolation</li> <li>• Uncontrolled modifications to ductwork, fans, thermostats or control wiring without updating documentation or risk assessments</li> </ul>	3H	[REDACTED]	1L

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	<ul style="list-style-type: none"> <li>Lack of accessible operating and maintenance manuals for technicians in the field</li> <li>Inadequate recording of historical issues with temperature-controlled environments and IAQ complaints</li> <li>Failure to communicate design and configuration changes to all relevant stakeholders</li> </ul>		[REDACTED]	
12. Emergency Preparedness, Incident Response and Business Continuity	<ul style="list-style-type: none"> <li>Inadequate planning for HVAC-related emergencies such as refrigerant leaks, electrical fires or loss of critical cooling</li> <li>Lack of clear response roles for building management, HVAC contractors and occupants during HVAC incidents</li> <li>Insufficient backup arrangements for critical temperature-controlled environments and essential services</li> <li>Poor communication channels for notifying occupants and responders during HVAC failures or unsafe conditions</li> <li>Failure to investigate HVAC-related incidents and near misses to identify systemic causes</li> </ul>	3H	[REDACTED]	2M
13. Consultation, Worker Participation and Fatigue/Psychosocial Risk Management	<ul style="list-style-type: none"> <li>Lack of worker input into HVAC maintenance planning leading to impractical or unsafe procedures</li> <li>Fatigue arising from after-hours call-outs to restore temperature-controlled environments or respond to HVAC failures</li> <li>Stress and conflict associated with repeated comfort complaints, high workload peaks (e.g. heat waves) and tight response time expectations</li> <li>Poor reporting culture where technicians do not raise near misses, system defects or unsafe conditions</li> </ul>	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> <li>Insufficient support for workers dealing with aggressive or frustrated occupants during service disruptions</li> </ul>		[REDACTED]	
14. Traffic, Materials Handling and Logistics for HVAC Components	<ul style="list-style-type: none"> <li>Unsafe manual handling of heavy components such as fan motors, compressors and heat exchangers</li> <li>Uncontrolled movement of vehicles and delivery trucks around loading areas during HVAC equipment transport</li> <li>Inadequate planning for crange or lifting of roof-mounted units and rooftop package systems</li> <li>Poor storage and housekeeping of HVAC spares, filters and duct components in plant rooms and workshops</li> <li>Lack of systems for safe transport and storage of refrigerant cylinders and gas bottles</li> </ul>	3H	[REDACTED]	2M

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.