Air Powered Tools

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

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE 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:

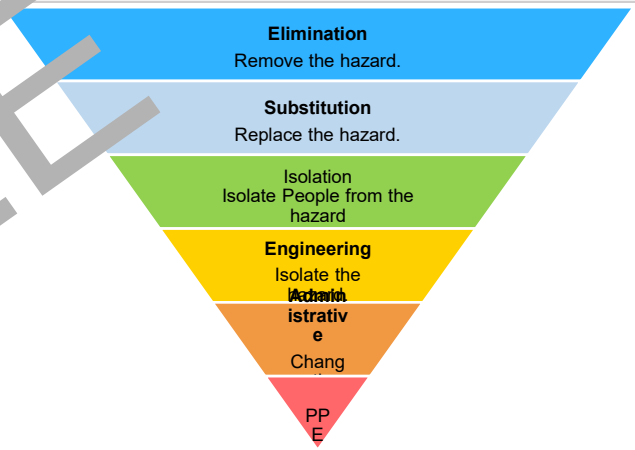
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE		
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Rev before work
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACU	2M MO RATE	Ensure control measures in place.
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 H	1L LOW	Monitor and keep records.

HIERARCHY OF CONTROLS



Risk Rating & Required Action:

4A	Stop work. The risk is intolerable. E inate the hazar redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi er-level authorisati is required.
3H	Review and approve additional c rols b ask arts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in ace and effe ive. 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. Procurement, Design and Selection of Air Powered Tools and Pneumatic Systems	• Selection of air tools, fittings, hoses and couplings that are incompatible with existing compressed air systems, leading to hose failure, violent hose whipping or connection blow-outs • Procurement of low-quality or non-certified pneumatic tools without adequate pressure ratings, guarding, vibration control or noise suppression • Failure to consider ergonomic design (weight, grip, vibration levels) contributing to musculoskeletal disorders and hand–arm vibration syndrome • Inadequate specification of pressure regulators, relief valves, filters, lubricators and isolation valves, increasing risk of over-pressurisation and component rupture • Lack of consideration for intrinsically safe or anti-spark tools in hazardous atmospheres, increasing risk of fire or explosion • No documented technical standards for compressed air and pneumatic equipment selection, resulting in ad-hoc purchasing and inconsistent safety controls • Failure to ensure tools and components comply with relevant Australian Standards and manufacturer ratings for compressed air and pneumatic operation • Procurement decisions driven solely by cost and productivity without consulting WHS, maintenance, or end users about safety and suitability	High	• Establish and implement a formal procurement procedure for air powered tools and pneumatic systems that requires WHS, engineering, maintenance and end-user consultation prior to purchase • Specify compliance with relevant Australian Standards, codes of practice and manufacturer pressure ratings for all air tools, hoses, couplings, regulators, valves and fittings • Develop an approved product list for pneumatic tools, airlines, quick-connect couplings, pressure regulators and safety devices (whip-check, hose restraints, isolation valves, pressure relief valves) • Include ergonomic criteria (tool weight, handle design, vibration emission values, trigger design, balance and noise levels in technical specifications and tender evaluations • Require suppliers to provide documentation on maximum working pressure, vibration data, noise levels, maintenance requirements and compatible accessories for each pneumatic tool • Mandate that tools intended for use in hazardous or flammable atmospheres are rated and certified for the specific hazardous zone, with procurement sign-off from a competent person • Standardise airline connection types and pressure ratings across the site to minimise incompatible fittings and unauthorised modifications • Incorporate life-cycle considerations (spare parts availability, maintenance requirements, calibration, service intervals, training needs) into procurement evaluations for compressed air and pneumatic equipment • Require supplier pre-delivery inspection reports and safety documentation (instructions, risk information, guarding details) before acceptance of new air powered tools • Implement a pre-use commissioning checklist for new or modified pneumatic systems, including verification of pressure relief devices, isolation points and emergency shut-off capability	Medium
2. Governance, WHS Legislative Compliance and Management Responsibilities	• Lack of clear WHS governance for compressed air and pneumatic tool operations, resulting in unmanaged system-level risks • Failure to identify and manage duties under the Work Health and Safety Act 2011 and associated Regulations for	High	• Integrate compressed air and pneumatic tool safety into the organisation's WHS management system, referencing WHS Act 2011 duties for plant and the management of risk • Formally allocate WHS responsibilities for pneumatic systems and air powered tools to identified managers, supervisors and plant owners/controllers in position descriptions and WHS plans	Medium

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	plant, pressure equipment and hazardous energy • No formal process for identifying, assessing and reviewing risks related to air powered tools, pneumatic systems and compressed air use across the organisation • Inadequate integration of compressed air and pneumatic tool safety into the overall WHS management system and safety planning processes • Absence of defined roles, responsibilities and accountabilities for senior management, line managers, supervisors and workers regarding pneumatic tool safety • Insufficient consultation with workers and Health and Safety Representatives (HSRs) about system-level changes, procedures, and controls linked to pneumatic operations • Lack of documented escalation pathways for reporting and addressing critical pneumatic system issues such as repeated hose failures or regulator malfunction • Inadequate monitoring and review of incident trends, near misses and audit findings linked to compressed air and pneumatic equipment		• Develop and maintain a documented, high-level risk register for air powered tools, compressed air systems and associated operations, with scheduled periodic review • Establish a governance framework that requires review of pneumatic system risks at WHS committee meetings and senior management forums, including trend analysis of incidents and near misses • Implement a formal consultation process with workers and HSRs for development, review and change management of policies, procedures and controls relating to pneumatic tools • Create a documented escalation and approval process for significant changes to compressed air systems, including addition of new tools, lines, regulators or pressure changes • Ensure WHS legal and regulatory requirements relating to pressure equipment, plant, noise, vibration and hazardous atmospheres are identified and incorporated into policies and procedures • Establish internal WHS audit and inspection programs that specifically include governance and management controls for compressed air tools and pneumatic systems • Set organisational performance indicators (KPIs) related to pneumatic system safety, such as number of hose failures, reported near misses, and completion of scheduled inspections • Require annual management review of pneumatic and compressed air safety arrangements, including evaluation of resource allocation, training effectiveness and control adequacy	
3. System Design, Installation and Configuration of Compressed Air and Pneumatic Infrastructure	• Poorly designed compressed air reticulation resulting in excessive pressure drops, over-pressurisation or unstable supply to air tools • Lack of appropriate isolation valves, lockable shut-off points, and emergency stops for compressed air systems feeding multiple work areas • Incorrect selection or installation of hoses, connectors, and couplings, resulting in hose blow-off, violent whipping and physical impact to workers	High	• Engage competent engineers or suitably qualified persons to design and review compressed air and pneumatic system layouts, pressure rating, and capacity requirements • Develop and maintain as-built drawings and schematics of compressed air distribution systems, including isolation points, regulators, filters, and emergency shut-off valves • Specify and install pressure regulators, pressure relief valves and safety devices in accordance with manufacturer instructions and relevant Australian Standards for pressure equipment and plant • Standardise the use of compatible, rated hoses and quick-connect couplings with safety locking mechanisms and whip-check restraints where there is risk of hose whip • Install clearly identified isolation valves and emergency shut-off devices for each major branch or area, with access kept free from obstruction	Medium

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• Inadequate placement or sizing of pressure regulators and relief valves, increasing risk of component rupture, tool failure or hose bursts • Absence of engineered controls for compressed air exhaust, leading to high noise levels and potential hearing damage • Insufficient drainage, filtration and drying leading to moisture, oil and particulate contamination within airlines, resulting in tool malfunction and unexpected behaviour • No documented engineering drawings, schematics or as-built documentation for compressed air and pneumatic systems, making maintenance and change management difficult • Improvised or non-standard modifications to airlines, fittings or pressure limits by unqualified personn • Inadequate segregation of pneumatic lines from hazardous zones (e.g. vehicl travel paths, sharp edg surfaces) causing accelerated ear and accidental damage		• Incorporate properly designed filtration, drying and lubrication systems into the compressed air network to maintain air quality and reduce tool malfunction and unpredictable operation • Design airline routing to minimise exposure to me ical damage, vehicle impact, pinch points, sharp edges, high heat areas, and potential chemical ck • Implement engineering controls and muff to manage haust noise from pneumatic tools and compressed air releases, supporting compli e with se regulations • Establish design standards for mounting and s orting airlines manifolds and hose reels to avoid strain on fittings and reduce likeliho of failure • Introduce a formal change ma ement and engin g approval process for any modification to compressed air and atic in structure, including documented risk assessment prior to changes	
4. Organisational Procedures, Safe Systems of Work and Documentation	• Absence of formal procedures for s e use of air drills, pneumatic riveters, pneumatic hammers and other ai ols, leading to inconsistent pr • No standardised procedure for connecting and disconnecting airlines, resulting in hoses being coupled under pressure or without proper isolation • Lack of guidance on compressed air safety, including prohibition of using air to clean clothing or skin, increasing risk of injection injuries and eye damage • Inadequate procedures for operating in confined spaces or restricted areas where noise, vibration and compressed air release pose elevated risks	High	[redacted]	Medium

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• No clear procedural controls for simultaneous operations where multiple pneumatic tools share the same air supply, leading to pressure fluctuations and tool malfunction • Incomplete or unclear documentation on required PPE, pre-use checks, and fault reporting for pneumatic tools • Failure to integrate pneumatic tool controls into existing permit systems (e.g. hot work, confined space, hazardous area work) where relevant • Procedures not updated following incidents, changes to equipment, or legislative updates, leading to outdated or unsafe instructions		[redacted]	
5. Competency, Training and Supervision for Pneumatic Tool Operations	• Workers using pneumatic tools such as air drills, riveters and hammers without adequate training in compressed air hazards and safe practice • Supervisors lacking understanding of system-level risks associated with compressed air, resulting in poor oversight of safe work methods • No competency assessment or verification of skills before allowing workers to operate or maintain pneumatic tools • Insufficient training on hazard recognition related to hose condition, fittings, abnormal tool behaviour, noise and vibration exposure • Failure to provide refresher training after changes to equipment, procedures, or legislation, leading to outdated knowledge and unsafe assumptions • Language, literacy or cultural barriers that prevent workers from fully understanding training content and safety instructions • Inadequate mentoring or direct supervision of new or inexperienced	High	[redacted]	Medium

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	workers during initial use of pneumatic tools and compressed air systems		[redacted]	
6. Inspection, Maintenance and Asset Management of Pneumatic Tools and Systems	• Lack of scheduled inspection and maintenance for air powered tools, hoses, fittings, regulators, filters and compressors, leading to undetected defects and failures • Use of damaged or degraded air hoses, quick-connect couplings and whip restraints that are not identified and removed from service • Inadequate servicing of pneumatic tools, causing sticking triggers, erratic operation, unexpected start-up or failure under load • No system for tracking service histor faults and repairs on air drills, riveters, pneumatic hammers and associated pneumatic systems • Uncontrolled use ion-genuine parts or improvised repa on critical components such regul safety valves • Failure to maintain air quality (moisture, oil, particulates) caus corrosion, freezing, malfunction or sudden release of contaminants • Maintenance tasks carried out without proper isolation, lock-out and depressurisation procedures, increasing risk of serious injury	[redacted]	[redacted]	Low
7. Hazard Identification, Incident Reporting and Corrective Actions for Pneumatic Operations	• Under-reporting of near misses and minor incidents involving air tools, airlines and compressed air releases, leading to missed learning opportunities • No structured mechanism to identify and review hazards associated with	Medium	[redacted]	Low

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	pneumatic systems across different work areas • Failure to perform root cause analysis of recurring issues such as hose failures, coupling disengagements or abnormal tool behaviour • Inadequate follow-up on corrective and preventive actions, allowing system-level risks to persist • Lack of feedback to workers on reported issues, reducing engagement and trust in the reporting process • Insufficient linkage between hazard reports, maintenance requests and risk assessments, preventing systemic fixes		[redacted]	
8. Contractor and Supplier Management for Pneumatic and Compressed Air Work	• Contractors using their own pneumati tools and compressed air equipment th do not meet site standa ustralian requirements • Inconsistent safe expectatio d procedures betwee organisation and con actors regardi connection/disconnection of airlines nd compressed air safety • Suppliers and service providers conducting maintenance or installation on pneumatic systems without adequate understanding of site-specific hazards and controls • Lack of verification of contractor competencies in pneumatic system design, installation and servicing • No mechanism to ensure that contractor-installed pneumatic equipment is documented, inspected and integrated into the site maintenance and risk management systems	High	[redacted]	Medium

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			[redacted]	
9. Exposure to Noise, Vibration and Ergonomic Risks from Pneumatic Tool Use	• Prolonged exposure to high noise levels from air drills, pneumatic riveters, pneumatic hammers and exhaust air releases leading to noise-induced hearing loss • Hand–arm vibration from extended use of pneumatic tools contributing to vibration-related injury or disease • Poor ergonomic layout of workstatio and awkward postures during pneuma tool use, increasing risk of musculoskeletal disorder • Inadequate planni for job rotation and rest breaks wh high-vibration or high-force tools ar sed r • Lack of system-level assessment o cumulative noise and vibration exp ure across multiple tasks and work as	igh	[redacted]	Medium
10. Emergency Preparedness, Isolation and Energy Control for Compressed Air Systems	• Inadequate emergency response arrangements for hose failures, component rupture or serious injury caused by compressed air or pneumatic tools • Lack of clearly identified isolation points and procedures to rapidly shut down air supply during emergencies or maintenance activities • No formal lock-out tag-out (LOTO) system for compressed air and	High	[redacted]	Medium

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
	pneumatic energy sources, leading to unexpected energisation of tools or equipment • Insufficient first aid capability for injuries associated with high-pressure air, foreign body eye injuries and impact trauma from hose whip or tool ejection • Failure to plan for and manage potential secondary consequences of pneumatic system failures, such as dropped tools, flying debris, or release of stored energy in connected machinery		[redacted]	

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

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-of-codes-of-practice

Northern Territory
Work Health and Safety (National Uniform Legislation) Act 2011
Work Health and Safety (National Uniform Legislation) Regulations 2011
Legislation NT: https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws
Codes of Practice NT: https://worksafe.nt.gov.au/forms-and-resources/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

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.

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

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

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

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