

Welding Cutting and Grinding General Hot Works

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, Leadership and Legal Compliance	<ul style="list-style-type: none"> Lack of documented hot works policy aligned with WHS Act 2011 and relevant regulations, codes of practice and Australian Standards (e.g. AS 1674 series) Unclear allocation of WHS responsibilities for approving and supervising hot works Failure to consult workers and Health and Safety Representatives (HSRs) on hot works risks and controls Inadequate monitoring of contractor compliance with site hot works requirements Poor integration of hot works risk management into overall WHS management system 	4A	<ul style="list-style-type: none"> Develop and implement a corporate Hot Works Management Standard referencing WHS Act 2011, WHS Regulations, relevant Codes of Practice and AS/NZS standards for welding and hot works Formally allocate WHS due diligence and hot works oversight responsibilities to officers, managers, supervisors and PCBU representatives, and document in position descriptions Establish a consultation procedure with workers and HSRs for development, review and communication of hot works risk controls and procedures Include hot works governance and compliance criteria in contractor pre-qualification, onboarding and ongoing performance review Integrate hot works risk management into the organisation's WHS management system, including policy, planning, implementation, measurement and review processes Schedule periodic legal compliance audits to verify ongoing alignment with WHS legislation and applicable standards for welding, cutting and grinding 	3H
2. Design, Layout and Engineering of Work Areas	<ul style="list-style-type: none"> Inadequate workshop layout leading to combustible materials near welding, cutting and grinding areas Lack of dedicated, fire-rated hot works bays or segregation from general work areas Inadequate fixed ventilation and fume extraction design for welding and grinding operations Insufficient provision of non-combustible barriers, screens and spark containment systems Poor design of storage areas for gas cylinders, flammables and welding consumables 	4A	<ul style="list-style-type: none"> Design and engineer fixed hot works zones with appropriate fire rating, separation distances, and non-combustible construction materials in accordance with applicable standards Install fixed local exhaust ventilation (LEV) and general ventilation systems suitable for welding fumes, gases and grinding dust, designed by competent persons Install non-combustible welding curtains, spark screens, and physical barriers to contain spatter, sparks and radiant heat within hot works areas Design segregated and ventilated storage areas for fuel gases, oxygen cylinders, flammable liquids and combustible materials with compliant separation distances and restraints Implement an engineering change management process to review hot works risks whenever plant layout or building use is modified Conduct periodic engineering inspections of hot works areas to verify effectiveness of ventilation, barriers and segregation controls 	2M
3. Hot Works Permit-to-Work and Authorisation System	<ul style="list-style-type: none"> Absence of a formal hot works permit system for non-designated or ad hoc hot works locations Inadequate assessment of fire and explosion risks before issuing permits Permits approved by persons without adequate competence or authority 	4A	<ul style="list-style-type: none"> Implement a formal Hot Works Permit-to-Work procedure for all welding, cutting, grinding and heating activities outside designated hot works bays or in higher-risk areas Develop a standardised hot works permit form that requires documented checks of isolation, housekeeping, atmosphere testing, fire protection and emergency arrangements Ensure only trained and authorised permit issuers (e.g. supervisors, permit officers) can approve hot works permits after verifying prerequisite controls 	2M

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	<ul style="list-style-type: none"> Failure to verify completion of isolation, housekeeping, gas monitoring and fire watch controls prior to authorisation Permit documents not standardised, incomplete or not retained for audit 		<ul style="list-style-type: none"> Require verification sign-off from the hot works operator and permit receiver confirming understanding of scope, hazards and specified controls Implement a permit register and retention system (paper or digital) for traceability, review and incident investigation support Undertake periodic audits of permit quality, completeness and compliance, and provide feedback and refresher training based on findings 	
4. Competency, Training and Supervision for Hot Works	<ul style="list-style-type: none"> Operators performing welding, cutting and grinding tasks without formal competency or verification of skills Supervisors lacking technical understanding of hot works hazards and control measures Insufficient training on specific site procedures, JHAs and SWMS related to hot works Lack of competency in gas cylinder handling, regulator use, purging and leak testing Inadequate supervision of apprentice, new workers or contractors performing hot works 	3H	[REDACTED]	2M
5. Plant, Equipment and Maintenance Systems for Hot Works	<ul style="list-style-type: none"> Use of poorly maintained or defective welding machines, grinders, torches and regulators Inadequate inspection regimes for electrical leads, plugs, welding cable and earth clamps Failure of extraction fans, filtration units or interlocks without timely repair Lack of documented preventive maintenance schedules for hot works plant Unauthorised modification of equipment (e.g. bypassed guards, altered regulators) 	4A	[REDACTED]	2M
6. Hazardous Substances, Fumes and Atmospheric Contamination	<ul style="list-style-type: none"> Exposure to welding fumes containing metals, gases and particulates without adequate controls 	4A	[REDACTED]	2M

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	<ul style="list-style-type: none"> • Generation of respirable crystalline silica or metal dust from grinding operations • Formation of toxic gases from coatings, solvents, paints or cleaning agents on workpieces • Inadequate systems for airborne contaminant monitoring in confined or poorly ventilated areas • Lack of documented process for substituting hazardous consumables with lower hazard alternatives 		[REDACTED]	
7. Fire, Explosion and Ignition Source Management	<ul style="list-style-type: none"> • Lack of systematic identification of combustibles and flammables within the hot works impact zone • Inadequate control of ignition sources when working near flammable liquids, gases, dusts or process lines • Failure to maintain fire watch arrangements during and after completion of hot works • Inappropriate or insufficient extinguishers and fire suppression systems in hot works areas • Uncontrolled hot works on containers, tanks or pipework that may contain flammable residues 		[REDACTED]	2M
8. Electrical Safety and Power Supply Management	<ul style="list-style-type: none"> • Use of non-tested or damaged extension leads and power tools for grinding • Inadequate protection from electric shock from welding power sources • Poor earthing/grounding systems and bonding of workpieces • Overloading of circuits or use of non-compliant power boards and adaptors 	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> Lack of Residual Current Device (RCD) protection for portable electrical equipment 		[REDACTED]	
9. Confined Space and Restricted Area Hot Works	<ul style="list-style-type: none"> Hot works conducted in confined spaces without formal confined space entry procedures Oxygen enrichment or depletion due to shielding gases and combustion Accumulation of flammable vapours or toxic gases in enclosed or poorly ventilated spaces Inadequate rescue planning and standby arrangements for hot works in restricted areas Lack of coordination between confined space permits and hot works permits 	4A	[REDACTED]	2M
10. Noise, Vibration and Ergonomic Risk Management	<ul style="list-style-type: none"> Chronic exposure to high noise levels from grinding, gouging and arc processes without hearing protection Hand-arm vibration exposure from prolonged use of grinders and associated tools Poor ergonomic design of workstations leading to awkward postures and repetitive movements during welding or cutting Lack of systems to manage cumulative exposure where hot works are combined with other noisy or vibration-generating tasks 	3H	[REDACTED]	2M
11. Housekeeping, Storage and Waste Management for Hot Works	<ul style="list-style-type: none"> Accumulation of combustible waste (rags, offcuts, packaging) in hot works areas 	3H	[REDACTED]	1L

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	<ul style="list-style-type: none"> Improper storage of gas cylinders, combustible materials and flammable liquids near welding and grinding tasks Uncontrolled build-up of grinding dust, metal swarf and offcuts that may contribute to fire or slip hazards Lack of systematic process for removal and disposal of hot wastes and slag 		[REDACTED]	
12. Contractor and Visitor Management for Hot Works	<ul style="list-style-type: none"> Contractors performing hot works without alignment to site-specific procedures and permit systems Inadequate verification of contractor competencies and insurances for welding and cutting activities Visitors or non-involved workers entering hot works exclusion zones unknowingly Multiple contractors conducting simultaneous hot works with poor coordination 		[REDACTED]	2M
13. Emergency Preparedness and Response for Hot Works Incidents	<ul style="list-style-type: none"> Inadequate planning for fires, explosions, burns or welding-related medical emergencies Workers unaware of emergency procedures and local response arrangements in hot works areas Insufficient first aid equipment for burns, eye injuries and fume inhalation incidents Delayed emergency response due to poor communication systems in remote or isolated hot works locations 	3H	[REDACTED]	2M

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			[REDACTED]	
14. Health Surveillance, Fatigue and Fitness for Work	<ul style="list-style-type: none"> Undetected health conditions that may be aggravated by exposure to welding fumes, radiant heat or noise Workers performing hot works while fatigued, impaired by substances or unfit for duty Lack of systematic health monitoring for workers with significant exposure to welding fumes and noise Insufficient processes to manage shift patterns, overtime and workload in hot works operations 	3H	[REDACTED]	2M
15. Documentation, Monitoring and Continuous Improvement	<ul style="list-style-type: none"> Outdated or inconsistent procedures, SWMS and risk assessments for welding, cutting and grinding Lack of structured monitoring of hot works performance indicators (e.g. near misses, permit breaches) Failure to investigate and learn from hot works incidents and near misses Inadequate document control leading to multiple versions of hot works procedures in circulation 	3H	[REDACTED]	1L

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.