Electric Welder

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:

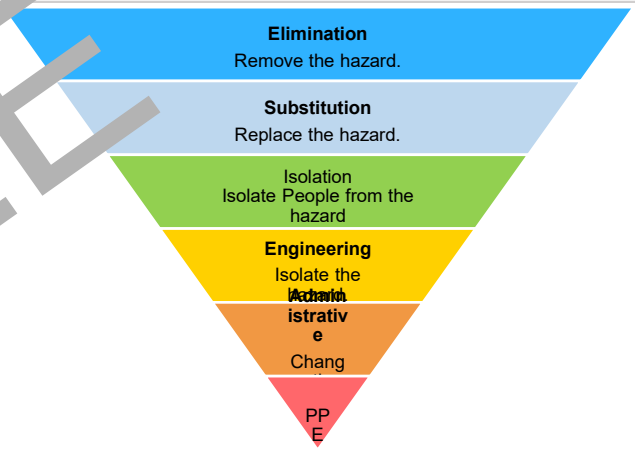
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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. Governance, WHS Duties and Legal Compliance	• Failure of PCBUs and officers to understand and discharge WHS Act 2011 due diligence obligations in relation to arc welding activities • Lack of a documented WHS management system specifically addressing welding and allied processes • Inadequate consultation with workers and Health and Safety Representatives (HSRs) about welding risks and controls • No formal process to identify, assess and review risks associated with electric/arc welding at a system level • Poor integration of welding risk controls into broader organisational policies (e.g. contractor management, purchasing, maintenance, incident management) • Inadequate resourcing (budget, time, competent people) to manage welding risks • Absence of clear roles, responsibilities and accountabilities for managing welding safety • Failure to monitor changes in legislation, standards and guidance relating to welding (e.g. Safe Work Australia welding guidance, AS/NZS standards)	High	• Establish and maintain a documented WHS management system that explicitly includes arc welding hazards and control standards, aligned with WHS Act 2011 and Regulations • Define and document responsibilities for welding risk management from officers and senior leaders through to supervisors and workers, including for contractors • Implement a formal risk management procedure requiring regular identification, assessment and review of arc welding hazards at a strategic level, not only task level • Ensure officers exercise due diligence by receiving periodic briefings on welding risks, incident trends and compliance status, and verify implementation of controls • Develop and maintain a Welding Safety Policy that sets minimum expectations for equipment selection, training, supervision, ventilation, PPE and isolation of welding areas • Establish structured consultation mechanisms (toolbox talks, WHS committee meetings, HSR forums) where welding risks and proposed control measures are tabled and documented • Implement a documented change management process for introduction of new welding processes, consumables, materials or equipment (including trial and approval steps) • Undertake scheduled internal WHS audits that include electric/arc welding controls, with corrective actions tracked to completion in a central system • Maintain a legislative and standards register that includes WHS Act 2011, WHS Regulations, relevant welding standards (e.g. AS/NZS 1674, AS/NZS 60974 series), and assign responsibility for periodic review and updates • Ensure procurement, contractor management, maintenance and HR procedures reference and support welding safety requirements (e.g. minimum competency, equipment standards, supervision expectations)	Medium
2. Procurement and Design of Arc Welding Plant and Infrastructure	• Purchase of sub-standard or non-compliant arc welding equipment lacking Australian approvals or unsuitable for the intended industrial environment • Inadequate consideration of electrical rating, duty cycle, ingress protection and ventilation requirements at purchase stage • Absence of engineered controls such as fume extraction, local exhaust ventilation or welding bays in the facility design	High	• Implement a formal procurement procedure that requires verification of compliance of all arc welding plant and accessories with relevant Australian standards and WHS legislation • Standardise preferred models and brands of welding machines, leads and accessories to simplify training, maintenance and spare parts management • Involve WHS, engineering and end users in pre-purchase evaluations of welding equipment, ensuring suitability for power supply, duty cycle, environmental conditions and ergonomics • Specify and procure appropriate fixed and/or mobile fume extraction and local exhaust ventilation systems designed for the specific welding processes and materials used • Integrate fire safety and segregation requirements into facility and workstation design, including non-combustible partitions, welding curtains, separation distances and dedicated welding bays where required	Medium

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	• Incompatible combinations of leads, plugs, extension cords and welding accessories increasing the risk of electrical failure or overheating • Procurement of consumables that generate excessive fumes or are incompatible with existing fume control systems • Lack of standardisation across welding units, making training, maintenance and risk control more complex • Failure to design work areas to segregate welding from other workers, flammable materials and pedestrian/vehicle traffic • No systematic assessment of ignition sources and fire loading in areas where arc welders will be used		• Ensure all electrical accessories (extension leads, plug tops, power outlets, isolation switches) are rated for industrial welding use and compatible with the welding plant • Include in procurement specifications requirements for built-in safety features such as VRD (Voltage Reduction Device) where suitable, over-current protection and robust insulation • Require suppliers to provide technical documentation, safe use information, specific control recommendations (e.g. fume management for particular consumables) and training material as part of the purchase contract • Implement a pre-commissioning checklist for all new welding plant and infrastructure confirming correct installation, ventilation, fire protection, signage and emergency access • Ensure any temporary or mobile welding set-ups are planned through a documented risk assessment considering power supply, cable management, fire load and impact on other workgroups	
3. Electrical Safety Systems and Isolation Controls	• Inadequate systems for inspection, testing and tagging of electric welders, leads and associated electrical equipment • Uncontrolled use of damaged or modified welding machines, electrode holders, earth clamps or cables • Lack of clear procedures for isolation, lock-out and tagging of welding equipment prior to maintenance or fault finding • Use of arc welders on unsuitable or unprotected electrical circuits leading to overload, fire or electric shock • Inadequate protection of cables from mechanical damage, water ingress, heat and vehicles • Poor earthing practices and unclear responsibilities for verifying earth integrity • Inadequate management of welding in damp, confined or conductive environments increasing shock risk	High	• Establish and enforce an electrical safety procedure covering inspection, testing, tagging and isolation of all arc welding equipment and associated accessories • Implement scheduled testing and tagging of welding machines and leads in accordance with AS/NZS 3760 or relevant equivalent, recorded in an asset management system • Introduce mandatory pre-use visual checks supported by a documented checklist or digital app, and a clear process for immediate withdrawal from service of defective equipment • Implement a lock-out/tag-out system for welding plant maintenance, including training for supervisors and electricians on correct application and verification • Ensure electrical installations and circuits intended for welding are designed and certified by a competent electrician, with appropriate circuit protection and capacity for foreseeable loads • Establish standards for routing and securing welding leads (e.g. overhead where practicable, protection from traffic and hot work) and enforce these through supervision and inspections • Develop specific procedures and additional controls for welding in damp, conductive or restricted environments, including RCD use, portable isolation transformers and extra supervision • Define responsibilities for checking correct earthing and connection of return leads, and incorporate into pre-start checks and supervision activities • Prohibit unauthorised repairs and modifications to welding machines and cables; require repairs to be carried out only by competent electrical tradespersons • Monitor electrical loading where multiple welders operate concurrently, using planning tools or engineering assessment to avoid overloading supply infrastructure	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
	• Failure to monitor and manage the cumulative electrical load from multiple welders operating simultaneously			
4. Welding Fume, Atmospheric Contaminants and Health Monitoring	• Chronic exposure to welding fumes, metal oxides, gases and particulates due to inadequate engineering controls or poor system design • Absence of a documented fume management strategy for different welding processes, metals, coatings and consumables • Lack of air monitoring and verification that ventilation and extraction systems are effective and maintained • Insufficient information provided to workers on the health impacts of welding fumes, including long-term respiratory and carcinogenic risks • Poor integration of respiratory protection programs wi… …il welding safety management • Failure to consid… fume mig… …to adjacent work area… …throu… general ventilation systems • Inadequate health surveillance f… workers with ongoing hig… exposure to welding fumes and associated substances	High	[redacted]	Medium
5. Fire, Explosion and Hot Work Management	• Inadequate organisational controls around hot work leading to fires from sparks, spatter and hot slag generated by arc welding • Lack of a formal hot work permit system for welding outside designated welding bays	High	[redacted]	Medium

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	• Insufficient assessment of combustible materials, flammable liquids, gases and hidden fire loads in or near welding areas • Improper storage and segregation of gas cylinders, flammable aerosols and combustible waste around welding locations • Inadequate fire detection, firefighting equipment and emergency response planning specific to welding operations • Absence of post-weld fire watch or systematised checks after hot work is completed • Poor management of welding near confined spaces, tanks or lines that may contain flammable or explosive atmospheres		[redacted]	
6. Worker Competency, Training and Supervision	• Use of electric welders by workers or contractors who lack formal training or assessed competency • Inconsistent unde anding of system-level contr (permits ion, fume management, olding personnel • Inadequate supervision of appre ces, new starters, labour hire or contractors performing welding work • Training focused only on welding technique, with insufficient coverage of WHS duties, risk controls and emergency procedures • No structured competency assessment and refresher process for welders and supervisors • Poor communication of site-specific welding rules, including designated areas, electrical safety and PPE requirements	High	[redacted]	Medium

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			[redacted]	
7. Safe Systems of Work, Procedures and Work Planning	• Absence of documented safe systems of work for routine and non-routine use of arc welders • Reliance on informal practices and individual experience instead of consistent organisational procedures • Inadequate planning and coordination when welding activities interact with other high-risk work (e.g. lifting operations, confined spaces, energised plant) • No structured pre-job risk assessment and authorisation process for complex or non-standard welding work • Failure to consider environmental conditions (wind, temperature, confined areas) in planning, leading to ineffective controls • Poor control of simultaneous operations where multiple trades or contractors are working near welding activities	Hi	[redacted]	Medium
8. Personal Protective Equipment and Fit-for-Work Management	• Inadequate organisational standards for selection, issue and maintenance of PPE for arc welding (helmets, eye protection, gloves, clothing, RPE, hearing protection)	Medium	[redacted]	Low

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	• Reliance on PPE as the primary control without ensuring higher-order controls are in place • Poor management of PPE hygiene, replacement and storage leading to ineffective protection • Workers performing welding when not fit for work due to fatigue, health issues, drugs or alcohol • Lack of integration of welding-related health risks into pre-employment and ongoing fitness for work assessments • Inconsistent enforcement of PPE and clothing requirements across shifts and contractors		[redacted]	
9. Plant Maintenance, Inspection and Asset Management	• Lack of a structured asset management system for all arc welders and associated equipment • Infrequent or undocumented maintenance leading to progressive degradation and increased fire risk • Unclear responsibilities between operations and maintenance for reporting, tagging out and repairing defective welding plant • Use of non-genuine or incompatible spare parts and accessories that compromise safety performance • Failure to detect early signs of overheating, insulation damage, loose connections or degraded earth clamps • Inadequate records to demonstrate compliance with inspection, testing and	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
	maintenance obligations in the event of an incident		[redacted]	
10. Contractor and Labour Hire Management for Welding Activities	• Contract welders and labour hire workers using different standards or practices to those required on site • Inadequate verification of contractor competency, licences and training for arc welding and related WHS responsibilities • Poor communication of site-specific welding procedures, permit systems an emergency arrangeme ntractors • Unclear allocatio WHS duties between PCBUs w ere multipl businesses share r on y for welding work • Limited supervision of contractor undertaking high-risk we ivities, particularly after hours or in remote areas • Contractor-supplied equipment not meeting site standards for electrical safety, fume control or fire prevention	High	[redacted]	Medium
11. Incident Reporting, Investigation and Continuous Improvement	• Under-reporting of welding-related incidents, near misses and health concerns due to cultural or system barriers	Medium	[redacted]	Low

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	• Inadequate investigation of welding incidents, failing to identify root causes and systemic contributing factors • Lack of follow-up on corrective actions arising from incidents, audits and inspections related to welding • Limited analysis of incident trends specific to arc welding and associated hazards such as electrical shock, burns and fume exposure • Failure to share lessons learned from welding incidents across different workgroups, shifts and sites		[redacted]	
12. Emergency Preparedness and First Aid for Welding Operations	• Poor organisation [redacted] welding-related emergencies such as burns, electric shock, eye injuries, fire or fume inhalation • Lack of clear emergency response procedures specific to welding locations and activities • Insufficient first aid resources and trained first aiders with knowledge of welding-specific injuries • Inadequate communication systems and access routes for emergency services to welding areas, particularly remote or temporary work sites • Failure to review emergency arrangements after changes to welding layouts, processes or staffing	Medium	[redacted]	Low

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			[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 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