

General Electrical Installation, Wiring and Switchboards

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, Legal Compliance and Electrical Safety Management System	<ul style="list-style-type: none"> Lack of documented WHS and electrical safety management system aligned with WHS Act 2011, WHS Regulations and AS/NZS 3000 Unclear responsibilities between PCBUs, principal contractors, electrical contractors and subcontractors for electrical safety No formal process to monitor updates to legislation, standards and network operator requirements Inadequate consultation, cooperation and coordination between multiple duty holders on shared worksites Absence of an electrical safety policy addressing work on or near energised equipment, temporary power, demolition and maintenance activities Inconsistent application of safe design principles to electrical installations, switchboards and associated mechanical and plumbing interfaces Failure to integrate electrical risk management into overall WHS risk register and management processes 	4A	<ul style="list-style-type: none"> Establish and maintain a documented Electrical Safety Management System (ESMS) that integrates with the organisation's WHS management system and complies with WHS Act 2011, WHS Regulations and applicable Australian Standards (e.g. AS/NZS 3000, AS/NZS 3012, AS/NZS 3439 / AS/NZS 61439, AS/NZS 4836) Define and document roles, responsibilities and accountability for officers, managers, supervisors, electricians and contractors regarding design, installation, maintenance and decommissioning of electrical systems and switchboards Implement a formal legal and standards compliance register with scheduled reviews, assigning responsibility for tracking and acting on changes to WHS and electrical requirements Develop documented procedures for consultation, cooperation and coordination between PCBUs on multi-employer sites including clear rules for isolation ownership, temporary supplies and demolition interfaces Adopt a written policy prohibiting live work except where permitted under legislation and only under a formal risk assessment, documented justification and approved safe work instructions Integrate safe-by-design processes into project planning for new installations, upgrades, lightning protection systems, temporary power and mechanical services switchboards Include electrical system and switchboard risks within the corporate WHS risk register, subject to scheduled management review, audit and continuous improvement processes 	2M
2. Electrical Design, Engineering and System Configuration	<ul style="list-style-type: none"> Inadequate system design leading to overloaded circuits, nuisance tripping or overheating of wiring and switchboards Incorrect selection or coordination of circuit breakers, fuses and residual current devices (RCDs) for the intended load and fault levels Poorly designed earthing, bonding and surge protection arrangements, including for rooftop equipment and lightning protection systems Failure to consider power factor correction design, capacitor locations and protection, leading to fire or equipment damage Improper integration of low voltage power supply with backup power 	4A	<ul style="list-style-type: none"> Require all electrical system design, including switchboards, transformers, temporary power and lightning protection, to be completed or reviewed by a suitably qualified and competent electrical engineer Mandate adherence to relevant Australian Standards and network service provider rules for load calculations, short-circuit ratings, discrimination, and protective device coordination Implement a formal design review and verification process, including peer review for complex installations involving power factor correction, backup power supply systems and surge protection devices Specify earthing and bonding systems in accordance with AS/NZS 3000 and related standards, including dedicated design for wet areas, exposed conductive parts and rooftop installations Include documented design requirements for the selection and protection of power factor correction capacitors, including ventilation, isolation and fault protection Standardise cable selection criteria (type, size, insulation class, protective coating, UV resistance, moisture rating) based on environment (e.g. underground, rooftop, plant rooms, wet areas) 	2M

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	<p>systems, temporary power and mechanical services</p> <ul style="list-style-type: none"> Underspecified or incorrect cable types, insulation ratings or protective coatings for wet areas, corrosive environments or rooftop exposures Insufficient segregation of control wiring, communications and public address system cabling from power circuits Poor design of access for future maintenance of switchboards, transformers and distribution equipment 		<ul style="list-style-type: none"> Require design drawings to clearly show segregation of high-voltage, low-voltage, ELV, control and communication wiring, and to specify minimum clearances within switchboards and mechanical services panels Incorporate safe access, working space, lockable enclosures, lifting arrangements and maintenance clearances into design of switchboards, transformers and distribution equipment 	
3. Procurement, Supplier Management and Equipment Selection	<ul style="list-style-type: none"> Procurement of non-compliant switchboards, distribution equipment or components not suitable for Australian conditions or voltage systems Use of low-quality or counterfeit circuit breakers, fuses, power factor correction capacitors and surge protection devices Selection of wiring, coatings, fittings and enclosures not rated for wet, corrosive, high-temperature or rooftop environments Inadequate specification of lightning protection, earthing, surge protection and bonding hardware in purchase documents Backup power systems, transformers and PA systems sourced without appropriate certification and documentation Lack of compatibility between new components and existing installations, creating fault, arcing or overheating risks Failure to procure lockable isolation devices, labelled isolators and test equipment to support safe systems of work 	3H	<ul style="list-style-type: none"> Develop and enforce procurement standards for electrical equipment, requiring compliance with relevant Australian standards, regulatory approvals and network operator requirements Prequalify suppliers and manufacturers based on demonstrated quality systems, product certification and history of compliance for switchboards, breakers, fuses, capacitors and surge protection devices Include environmental and duty-specific requirements in purchase specifications (e.g. IP ratings, UV stability, corrosion resistance, temperature ratings, protective coatings for cables in wet areas) Specify that all transformers, lightning protection components, PA systems and backup power supplies must be provided with type test certificates, compliance documentation and manufacturer installation instructions Standardise brands and models of critical protective devices and switchgear where possible, to ensure coordination, compatibility and simplified maintenance Include requirements for lockable isolators, clearly labelled main and sub-circuit isolations, and suitable test instruments as part of project procurement Implement incoming goods inspection procedures to verify markings, certification, ratings and condition before installation 	1L
4. Electrical Competency, Licensing,	<ul style="list-style-type: none"> Unlicensed or inadequately licensed persons performing electrical 	4A		2M

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Training and Supervision	<p>installation, demolition, repair or reconnection work</p> <ul style="list-style-type: none"> • Insufficient training in WHS obligations, electrical risk control, lock-out tag-out (LOTO) and permit systems • Lack of competency in specialised tasks such as mechanical services switchboard work, PFC capacitor replacement, transformer installation, grounding operations and lightning protection works • Poor understanding of risks associated with exposed wiring in wet environments, rooftop electrical work and plumbing interfaces • Inadequate supervision of apprentices, trade assistants and contractors performing electrical work on machines and distribution equipment • Failure to train workers in correct use of test equipment and verification of isolation before drilling, cutting or demolition near electrical services 		[REDACTED]	
5. Electrical Isolation, Lock-Out Tag-Out and Permit Systems	<ul style="list-style-type: none"> • Failure to properly isolate circuits before maintenance, demolition, drilling or corrections to faulted or overloaded wiring • Inadequate verification of de-energisation leading to contact with live wires in walls, ceilings, switchboards or plant • Unclear isolation points for backup power supplies, generators, UPS systems and low voltage power distribution • Back-feed from temporary power systems, transformers or interconnected boards during work on electrical systems • Inadequate control of isolation during disconnect/reconnect of hardware and removal of old wiring systems 	4A	[REDACTED]	2M

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	<ul style="list-style-type: none"> Absence of formal permits to work for complex isolations, rooftop systems and critical plant 			
6. Installation, Construction and Modification Management	<ul style="list-style-type: none"> Uncontrolled changes to electrical layouts, wiring routes, bonding, grounding and circuit loading during construction Inadequate management of temporary power supplies, leading to exposed live parts, poor earthing or overloading Poor coordination between electrical works and other trades, causing damage to cables, incorrect penetrations or contact with live circuits while drilling or fixing Improper application of protective coatings, cable supports and segregation leading to insulation damage, moisture ingress or mechanical damage Inconsistent standards for terminations, labelling and dressing wiring in switchboards and junction boxes Work on live or partially energised systems due to schedule pressures or poor planning 	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
7. Inspection, Testing, Verification and Commissioning	<ul style="list-style-type: none"> Failure to identify incorrect wiring, polarity, earthing defects or circuit overloads prior to energisation Inadequate testing of RCDs, surge protection, power factor correction systems and backup power interfaces Insufficient insulation resistance, continuity and earth fault loop impedance testing on new and modified circuits Lack of verification of bonding and grounding for mechanical services, plumbing connections and metallic building components Commissioning of PA systems, lightning protection and low voltage 	3H	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	1L

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	<ul style="list-style-type: none"> power supplies without integrated system testing No documented evidence of test results, inspections or defects prior to handover 		[REDACTED]	
8. Operation, Maintenance and Inspection of Electrical Installations and Switchboards	<ul style="list-style-type: none"> Lack of planned maintenance for circuit breakers, RCDs, fuses, power factor correction capacitors and surge protection devices Switchboards and distribution equipment operating with undetected damage, contamination or loose connections Inadequate inspection of rooftop, external and wet-area installations leading to corrosion, insulation breakdown or water ingress Failure to identify and correct overloaded circuits, faulty wiring or recurring blown fuses and tripped breakers Unmanaged deterioration of backup power systems, transformers, UPS systems and central heating wiring Ad hoc replacement of fuses, circuit breakers or components without root cause analysis or compliance checks 	4A	[REDACTED]	2M
9. Demolition, Decommissioning and Removal of Electrical Systems	<ul style="list-style-type: none"> Live circuits remaining energised during electrical demolition and removal of old wiring and equipment Inaccurate or outdated drawings leading to contact with live conductors while cutting, drilling or removing services Uncontrolled abandonment of cables, bonding and earthing conductors in walls, ceilings or underground Failure to isolate and make safe power factor correction capacitors, transformers, backup power systems and mechanical services controls prior to demolition 	4A	[REDACTED]	2M

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	<ul style="list-style-type: none"> Exposure to damaged insulation, unprotected terminations and energised circuits in partially demolished areas Inadequate coordination between demolition contractors, plumbers and electricians regarding shared services 		[REDACTED]	
10. Work Environment, Access, Housekeeping and Physical Protection of Electrical Installations	<ul style="list-style-type: none"> Obstructed access to switchboards, isolators and distribution equipment hindering emergency isolation or maintenance Water ingress, condensation and wet environments causing deterioration of exposed wiring, junction boxes and terminations Unprotected rooftop work areas exposing electrical installations to physical damage, UV, wind and lightning Mechanical impact on cables and conduits from other trades, materials handling equipment or building movements Poor housekeeping leading to combustible materials near switchboard and electrical equipment Inadequate guarding or enclosure of live parts in plant rooms, gangways or service risers accessible to non-electrical workers 	3H	[REDACTED]	1L
11. Interface with Other Services, Trades and Building Systems	<ul style="list-style-type: none"> Electrical wiring and components installed too close to plumbing, gas, HVAC ducting or other services, creating cross-risk of electric shock, fire or flooding Damage to electrical wiring during plumbing works, drilling, sawing or installation of mechanical services Inadequate bonding between metallic plumbing, mechanical systems and electrical earthing Poorly managed integration of electrical controls with central heating, 	3H	[REDACTED]	1L

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	<p>mechanical plant, PA systems and automation</p> <ul style="list-style-type: none"> Lack of coordinated shut-down procedures affecting electrical systems when other services are isolated or modified 		[REDACTED]	
12. Emergency Preparedness, Fault Response and Incident Management	<ul style="list-style-type: none"> Delayed or ineffective response to electrical faults, fires, shocks or arc incidents involving wiring, switchboards or machines Workers resetting circuit breakers or replacing fuses repeatedly without fault diagnosis, leading to escalation of hazards Inadequate procedures for managing failures of backup power systems, transformers, PA systems and mechanical services switchboards during emergencies Lack of clear instructions for isolating electrical systems in the event of flooding, roof leaks or water ingress into electrical areas Poor reporting and investigation of electrical near misses, minor shocks or equipment failures 	3H	[REDACTED]	1L
13. Documentation, Labelling, Drawings and Information Management	<ul style="list-style-type: none"> Outdated or inaccurate single line diagrams, circuit schedules and as-installed drawings for switchboards and wiring systems Inadequate labelling of circuits, isolators, earthing points, PFC units, surge devices and temporary power equipment Loss or poor control of test records, certificates of compliance and maintenance histories Lack of readily available information for workers about underground services, rooftop circuits and mechanical services wiring 	3H	[REDACTED]	1L

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	<ul style="list-style-type: none"> Misidentification of circuits during repair, modification or demolition activities 			
14. Contractor Management and Site Access Control for Electrical Works	<ul style="list-style-type: none"> Use of unvetted electrical contractors with unknown competency, safety performance or compliance with legislation Contractors performing electrical demolition, temporary power set-up or switchboard modifications without following site ESMS requirements Inadequate site induction and communication regarding unique electrical hazards such as exposed wiring in wet areas or rooftop installations Uncontrolled after-hours access to switchrooms, plant rooms and roof areas by contractors Poor coordination between multiple electrical contractors working on interconnected systems, leading to conflicting isolations or re-energisation 	3H	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	1L

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.