Engineering Grinding Linishing and Abrasive Wheels

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:

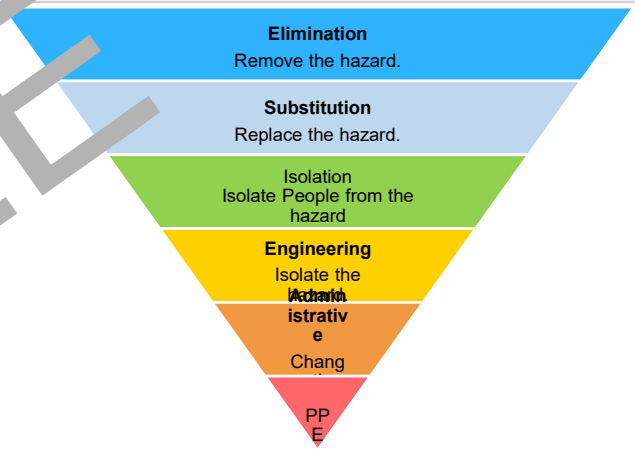
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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	• Lack of clear WHS roles, responsibilities and accountability for abrasive wheels and grinding activities • Failure to identify and comply with WHS Act 2011, WHS Regulations and relevant Codes of Practice for abrasive tools and plant • Inadequate consultation with workers and Health and Safety Representatives (HSRs) about grinding, linishing and abrasive wheel risks • No formal WHS objectives or performance indicators for engineering grinding and cabinet-making abrasive wheel work • Inadequate resourcing for WHS (time, budget, competent personnel) to manage abrasive wheel risks	4A	• Define and document WHS responsibilities f… CBUs, officers, managers, supervisors and workers specific to abrasive wheels, grinders, linish… and related …ngineering tasks • Maintain a current legal register identifying W…S A… 2011 obligations, plant and hazardous manual task requirements, and industry standards relevant t… …nders, linish… and abrasive wheels • Establish a formal WHS gov… …ance structure (e.… WHS …mittee, toolbox forums) that routinely reviews abrasive wheel incident …ta, risk assessme… …d audit outcomes • Set measurable …HS ob…tives … KPIs for g…nding/linishing activities (e.g. % trained, inspection completion ra…, corrective …ction c…e-out t…s) • Ensur… senio… …anagem…t provides …quate budget and resources for training, guarding upgrades, extra… syste… m…tenance, and health monitoring where required • Imple…e… a docu…nted procedure requiring consultation with workers and HSRs before introducing new ab…sive …roces… wheels, machines or production lines	3H
2. Plant Procurement, Design and Guarding	• Purchase of non-compliant or poorly designed grinders, linishers and wire brushing machines without appropriate guarding or safety features • Lack of standardis…n of machines across cabinet ma…g, kitchen manufacturing and …ngineeri… workshops leading … …istency … controls • Inadequate guarding of abrasiv… wheels, belts and wire br… …exposing workers to entanglement, contact, ejection and pinch points • Failure to consider whole-of-life safety (maintenance access, isolation points, noise, dust control) when selecting plant • Use of homemade or modified grinders, stands and tool rests that do not meet Australian Standards	4A	• Implement a formal plant procurement procedure requiring WHS review and sign-off before purchasing or leasing any grinding, linishing or abrasive wheel equipment • Specify compliance with relevant Australian Standards and manufacturer safety requirements in purchase contracts for all bench grinders, angle grinders, linishers and wire brushing equipment • Standardise preferred makes and models of abrasive wheel plant across sites to simplify training, guarding standards, spares and maintenance procedures • Require documented supplier evidence of safety features (guards, emergency stops, auto shut-offs, no-volt release, tool rests, work supports) before commissioning • Ensure all new plant undergoes a pre-commissioning WHS inspection and risk assessment that verifies guarding effectiveness, access for maintenance and compatibility with dust extraction systems • Prohibit the introduction or fabrication of non-engineered or unverified homemade grinding or linishing set-ups unless assessed and approved by a competent engineer	2M
3. Abrasive Wheel and Accessory Selection, Compatibility and Storage	• Use of incorrect wheel type, size, grade or speed rating for the grinder or linisher • Use of incompatible or damaged wheels, wire brushes, linishing belts and	4A	• Develop and enforce a procedure for abrasive wheel and accessory selection, specifying approved wheel types, sizes and maximum operating speeds for each machine	2M

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	cutting discs, increasing risk of bursting or ejection • Lack of system to check spindle speed vs wheel rating for new or replacement wheels • Poor storage conditions leading to deterioration of resin-bonded or vitrified wheels and belts • Informal use of engineering grinders for cabinet making or kitchen manufacturing materials without checking suitability		• Maintain an approved products register for abrasive wheels, cutting discs, wire brushes, linishing belts and sharpening wheels, cross-referenced to each plant item • Introduce a mandatory compatibility verification ch (including speed rating and mounting system) prior to issue or fitting of any abrasive wheel or essory • Provide dedicated, dry, well-ventilated st e with rack helves or bins that prevent wheel damage, contamination and distortion • Label machines clearly with maximum spindle eeds and com tible wheel types, and include this information in the plant regist and pre-use chec • Prohibit the use of unapprove generic wheels a ushes, with purchasing controls to block non-listed product • Include peri c audits of eel co tion an torage practices in WHS inspection programs	
4. Training, Competency and Authorisation for Abrasive Wheels	• Workers using grinders, linishers and abrasive wheels without formal competency for mounting, dressing, balancing and inspection • Cabinet making and kitchen manufacturing staff receiving only informal 'on-the-job' instruction for sharpening blades, changing teeth and wire brushing • No system to verify mpetency for specific tasks (e.g. ange cutting teeth of grinder, sharpe lades and s, remove sharp edge s) • Training that omits system risks su as speed compatibility, guarding requirements and emerg sponse • Outdated or one-off training with no refreshers or assessment of retained knowledge	[redacted]	[redacted]	2M
5. Safe Work Procedures, SWMS and Work Instruction Management	• Absence of documented safe systems of work for engineering grinding, linishing, cabinet making sharpening and wire brushing activities • Inconsistent or outdated SWMS and work instructions across departments (engineering vs cabinet making vs kitchen manufacturing)	3H	[redacted]	2M

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	• Procedures focused only on task steps, not underlying hazards such as wheel burst, entanglement, fire, dust and noise • Poor communication of procedures leading to informal or shortcut practices when removing sharp edges, filing or changing grinder teeth • Lack of version control causing workers to follow superseded instructions		[redacted]	
6. Plant Inspection, Maintenance and Isolation Systems	• Inadequate preventative maintenance for grinders, linishers, spindle assemblies and wire brushing machines • Lack of systematic pre-use inspection of wheels, guards, tool rests and linishing belts • Failure to remove defective or vibrating machines and wheels from service promptly • No formal lockout-tagout (LOTO) process for changing wheels, replacing cutting teeth, dressing wh[redacted]or clearing jams • Unplanned down[redacted]e leading to rushed, unsafe ma[redacted]	4A	[redacted]	2M
7. Work Environment, Layout and Access Control	• Crowded or poorly laid out grindi[redacted]and linishing areas leading to [redacted] bumping of operators or contact with moving wheels • Uncontrolled access by untrained workers or visitors into grinding, sharpening or wire brushing zones • Inadequate lighting, creating difficulty in observing wheel condition, edges and tool positioning • Poor housekeeping resulting in build-up of off-cuts, swarf and dust around grinders and linishers	3H	[redacted]	2M

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	• Shared use of equipment between engineering and cabinet making without clear demarcation or workflow design		[redacted]	
8. Hazardous Substances, Dust, Fumes and Noise Management	• Generation of fine metal, wood, composite and coating dusts during grinding, linishing and removing sharp edges • Exposure to dust and fumes from sharpening blades, cutters and changing or dressing abrasive wheels • Noise exposure from grinders, linishers and cutting tools exceeding exposure standards • Lack of system for identifying hazardous materials being ground (e.g. treated timber, stainless steel, coated products) • Inadequate maintenance of extraction systems, filters and noise control measures	4A	[redacted]	2M
9. Ergonomics, Manual Handling and Fatigue Management	• Poor workstation design causing awkward postures during prolonged grinding, linishing or fi[illegible] of sharp edges • Manual handling [illegible] heavy [illegible]rd components (e.g. la[illegible]rs, benchtops, steel sections) to and fro grinding and linishing areas • Static loading of hands, [illegible] and shoulders when sharpening blades and cutters or using hand grinders for extended periods • Fatigue from repetitive tasks and high production demands leading to reduced alertness and errors in wheel mounting or grinder teeth changes • Lack of rotation and task variation between abrasive wheel work and other duties	3H	[redacted]	2M

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10. Personal Protective Equipment (PPE) Management System	• Over-reliance on PPE as the primary control for flying particles, sparks and dust from abrasive wheels and linishers • Inconsistent provision, selection and fit of eye, face, hand and respiratory protection for grinding and sharpening tasks • No system to ensure PPE suitability for specific tasks (e.g. wire brushing vs linishing vs cutting teeth changes) • Poor storage, cleaning and replacement systems leading to degraded PPE performance • Workers not trained in the limitations of PPE, leading to inappropriate risk-taking behaviours	3H	[redacted]	2M
11. Contractor, Labour Hire and Visitor Management	• Contractors or labour hire workers performing grinding, linishing or sharpening tasks without being inducted into site-specific systems and hazards • Reliance on contractor company procedures that may not meet the PCBU's WHS standards [illegible] rasive wheel work • Visitors entering [illegible] nding or lini[illegible]hing areas without awa[illegible]ess [illegible]clusi[illegible] zones and required controls • No mechanism to verify external technicians' competency [illegible] rvicing grinders or changing wheels and cutting teeth • Poor communication between host employer, labour hire agency and contractors about roles and responsibilities under the WHS Act 2011	3H	[redacted]	2M
12. Emergency Preparedness and Incident Response	• Lack of specific emergency response planning for abrasive wheel incidents (e.g. wheel burst, eye injuries, fires from sparks and dust) • Inadequate first aid resources and trained first aiders in areas where	3H	[redacted]	1L

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	grinding, linishing and sharpening are undertaken • Delayed response to serious near misses or minor incidents, leading to repeat events • No system to isolate and preserve equipment for investigation after an abrasive wheel failure • Poor communication of learnings from incidents across engineering, cabinet making and kitchen manufacturing teams		[redacted]	
13. Consultation, Communication and Worker Engagement	• Workers not involved in identifying risks and solutions for grinding, linishing and abrasive wheel tasks • Information about changes to plant, wheels, procedures or layouts not effectively communicated • Lack of feedback mechanisms for workers to raise concerns about grind condition, wheel selection or workflow pressures • Cultural barriers lead to normalisation of un e shortcuts in sharpening and de urring tasks • Poor coordination nation between engineering workshops and cabinet making / kitchen manufact g areas		[redacted]	2M
14. Performance Monitoring, Auditing and Continuous Improvement	• No structured monitoring of abrasive wheel risk controls to ensure they remain effective over time • Failure to analyse incident data, inspection findings and maintenance records to identify systemic issues • Audits focusing only on paperwork rather than field verification of grinding and linishing practices • Inadequate corrective action management, resulting in repeated findings and non-compliance	3H	[redacted]	2M

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	• Complacency as incident numbers appear low, leading to erosion of control measures		[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