Warehouse Racking Storage and Stacking Safety

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:

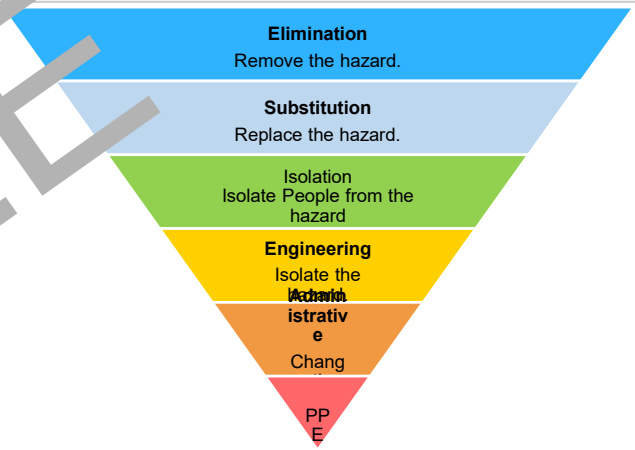
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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. WHS Governance, Legal Compliance and Consultation	• Lack of documented WHS policies and procedures specific to warehouse racking storage and stacking • Failure to align racking and storage practices with WHS Act 2011, WHS Regulation and relevant Australian Standards (e.g. AS 4084 Steel Storage Racking, AS 1891, AS 1657) • Inadequate consultation with workers and Health and Safety Representatives (HSRs) about storage system changes and racking layouts • Poor integration of cold storage racking risks into the broader WHS management system • No clear allocation of WHS duties and due diligence responsibilities for officers regarding storage and racking • Failure to review and update policies following incidents, near misses or legislative changes	4A	• Develop and implement a written Warehou Storag nd Racking Safety Policy aligned to the WHS Act 2011 and WHS Regulation, referencing releva Au alian Standards and industry codes of practice • Formally assign WHS respo ibilities for rackin nd storag CBU, officers, supervisors, workers, contractors) within position de iptions and WHS g verna e documents • Establish a structu sultat process (toolbox aks, safety committees, HSR forums) specifically addressing stora and st ing h rds includi cold storage and finished panel stacking • Ensure due igence by c cers thro h ular WHS reporting on storage system risks, inspection outcom s, inci ts and rrective acti s • Emb orage a acking safety requirements into procurement, contractor management, mainte an traini and change management procedures • Sched e a al revi s of all storage and racking policies and procedures, or earlier following cidents audit r significant workplace changes	3H
2. Warehouse and Racking System Design and Layout	• Poor warehouse layou ting in pinch points, conges n and unsafe interaction betwee edestrians, forklifts and storage syste • Inadequate aisle wi hs for materia handling equipment turning circles a load dimensions • Racking design not appropriate for cargo storage operations, cold storage operations or finished panel stacking (e.g. incorrect beam type or configuration) • Insufficient allowance for fire egress, emergency access and fire-fighting equipment around racking • Inadequate lighting and visibility around high-bay and cold storage racks • Incompatibility between existing floor capacity and proposed racking loads leading to structural failure risk	4A	• Engage a competent racking designer/engineer to design warehouse racking systems in accordance with AS 4084 and manufacturer specifications, taking into account cargo type, finished panels, pallet size and load characteristics • Undertake an engineering assessment of slab and floor load capacity prior to installation of new racking or significant modifications • Design warehouse layout to segregate pedestrian and mobile plant zones, with adequate aisle widths, turning spaces and clearance above racks for safe stock stacking and unstacking • Incorporate emergency egress routes, fire hose reels, sprinklers, and extinguishers into layout design, ensuring racking does not compromise required clearances or access • Specify appropriate lighting levels for all aisles, pick faces and high-bay racking, including cold storage areas where visibility can be reduced by fogging or condensation • Include designated laydown, assembly and dismantling zones in the design for safe storage, stacking and unstacking of racking components and oversized materials • Implement a formal management of change (MOC) procedure requiring risk assessment and sign-off by a competent person before any racking layout or configuration changes	2M

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	• Insufficient space or systems for safe unstacking and re-stacking of racking components during maintenance or reconfiguration			
3. Racking Structural Integrity, Load Rating and Engineering Controls	• Overloading racks due to unclear or missing load rating signage • Use of non-compatible or damaged beams, uprights, base plates and connectors • Unsecured racking (no floor anchoring or inadequate fixings) leading to collapse from impact or vibration • Modifications to racking by unqualified personnel (e.g. drilling, cutting, adding beams) compromising structural integrity • Inadequate design for specific materials such as finished panels, long product, or irregular loads • Failure to consider seismic, wind or dynamic loads from mobile plant and stacking operations	4A	• Ensure all racking systems are specified, designed and certified by a competent engineer or manufacturer in accordance with AS 4084 and site-specific loading requirements • Install legible and permanent load rating signs at each racking installation, clearly indicating maximum unit load, bay load and beam levels in kilograms and overall configuration • Mandate that only compatible manufacturer-approved components are used; prohibit mixing components from different racking systems unless engineered and certified • Implement a system requiring racking to be securely anchored with appropriate fixings and base plates, verified at commissioning and during periodic inspections • Formalise a modification control procedure where any changes to racking (height, beam level, bracing, decking) must be designed, reviewed and signed off by a competent engineer • Specify engineered solutions (e.g. bespoke cradles, stillages, mesh decks, pallet supports) for storage of long, irregular, loose or panel-type products to prevent sagging or dislodgement • Maintain engineering records including design drawings, certifications, load calculations and commissioning checks, accessible for audit and review	2M
4. Storage Planning, Stock Stacking Configuration and Material Segregation	• Unsafe stacking and storage handling practices leading to unstable pallet stacks or panel stacks • Mixed incompatible materials within the same racking bays (e.g. heavy items above light or crushable items) • Inconsistent stock stacking and storing methods between shifts and teams, creating variable risk profiles • No defined rules for floor stacking heights, pallet stack limits or storage of overhanging loads • Poor segregation of high-risk materials (e.g. chemicals, flammables, fragile finished panels, temperature-sensitive goods) • Uncontrolled temporary storage in aisles or in front of fire exits and electrical switchboards	4A	[redacted]	2M

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5. Cold Storage and Environmental Conditions Management	• Reduced structural performance of racking and fasteners due to cold temperatures and condensation in cold rooms and freezers • Ice and frost build-up on floors, racking members and pallets increasing risk of slips and product instability • Poor visibility from fog, condensation or inadequate lighting in cold storage aisles • Thermal stress on workers resulting in fatigue, reduced concentration and errors during stacking and unstacking • Corrosion of racking components from moisture and temperature cycling in chilled environments • Inappropriate material selection for cold storage (e.g. non-galvanised steel where corrosion is likely)	4A	[redacted]	2M
6. Inventory Management, Housekeeping and Space Utilisation	• Overcrowded storage areas resulting blocked aisles and emergency exits • Excess stock levels leading to informal floor stacks and unsafe ad-hoc storage on top of racks or non-designated areas • Poor housekeeping increasing the risk of trip hazards and impact with loose packaging, pallets and wrapping materials • Use of damaged pallets and packaging compromising load stability within racks • Lack of visibility over inventory locations leading to unsafe searching, climbing or over-reaching • Uncontrolled accumulation of combustible packaging materials in and around storage areas	3H	[redacted]	2M

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7. Plant, Equipment and Attachment Selection for Storage Operations	• Use of forklifts or reach trucks not suitable for racking height, aisle width or load type • Inappropriate attachments (e.g. tyne extensions, drum clamps) affecting stability when loading/unloading racks • Lack of integrated safety systems such as load weight indicators, mast tilt limits or height limiters • Uncontrolled introduction of new plant for warehousing tasks without risk assessment (e.g. stock pickers, turret trucks) • Insufficient maintenance systems leading to plant failure during stacking and unstacking near racking • Use of non-rated equipment in cold storage (e.g. batteries, hydraulics not suited to low temperatures)	4A	[redacted]	2M
8. Worker Competency, Training and Supervision for Storage and Stacking	• Lack of training on safe ge and stacking of materials cluding finished panels, irregular lo s and fragile stock • Inadequate induc and esh training for new or transferred worke in warehouse racking environments • Forklift and high-risk wo e holders not trained in site-specific racking rules and limitations • Insufficient supervision leading to drift from safe procedures over time • Language, literacy or cultural barriers preventing workers from understanding storage procedures and signage • No verification of competency for workers tasked with configuring racking, unstacking racking components or conducting inspections	4A	[redacted]	2M

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			[redacted]	
9. Traffic Management and Pedestrian–Mobile Plant Interaction around Racking	• Pedestrians entering forklift operating zones near racking without controls • Collisions between mobile plant and racking uprights causing structural damage and potential collapse • Inadequate line marking and signage to delineate pedestrian walkways and equipment operating zones • Poor management of visitors, contractors and delivery drivers in warehouse storage areas • Reverse manoeuvres in narrow aisles increasing impact risk with racks and stored loads • Lack of speed control systems in warehouse and cold storage areas	4A	[redacted]	2M
10. Inspection, Maintenance, Damage Reporting and Repair of Racking	• Unreported or unrepai[redacted]nage to racking components[redacted]ading to progressive structu[redacted]l weakening • Lack of systemati[redacted] preventing early detection of bent uprights, beams, braces or loose anchors • Uncontrolled temporary repairs (e.g. welding, bracing) by unqualified persons • No formal process for quarantine or de-rating of damaged racking bays • Incomplete or inaccurate asset registers preventing effective lifecycle management of racking systems • Failure to adjust inspection frequency for higher-risk zones (e.g. cold stores, busy loading aisles, panel storage zones)	4A	[redacted]	2M

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			[redacted]	
11. Contractor and Third-Party Management for Racking and Storage Activities	• Uncontrolled contractor activities during racking installation, unstacking racking, modification or removal • Contractors working without awareness of site-specific storage and traffic management procedures • Use of non-compliant or uncertified racking components supplied by third parties • Inadequate supervision of contractors performing high-risk warehousing tasks near live operations • Conflicting procedures between contractor WHS systems and the PCBU's storage and stacking procedures	3H	[redacted]	2M
12. Emergency Preparedness, Incident Management and Structural Failure Response	• Inadequate planning for racking collapse, falling loads or major structural failure events • Obstructed or poorly signposted emergency exits due to storage encroachment • Workers not trained in response to partial racking collapse, product spills or entrapment incidents • Delayed emergency response due to poor communication systems in cold storage or remote warehouse zones • Failure to investigate and learn from racking-related near misses, load losses and incidents	3H	[redacted]	1L

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13. Manual Handling, Ergonomics and Work Organisation around Storage Systems	• Workers manually lifting, pushing or pulling loads due to poor access to racking or inappropriate storage design • Storage of heavy or high-turnover items at heights or locations that encourage over-reaching and unsafe postures • Fatigue and time pressure during peak warehousing tasks leading to shortcuts in safe storage and stacking • No consideration of ergonomic principles in the design of pick faces, shelving and storage locations • Inconsistent team-based handling of bulky finished panels or long product	3H	[redacted]	2M
14. Documentation, Data Management and Continuous Improvement	• Outdated or inconsistent procedures for storage and stacking of materials n available at point of use • Poor record-keeping of i ctions, maintenance, trainin d incidents related to racking • Lack of data anal is on strikes, product drop al misses a d overloading events • Failure to capture lesso lea d from storage-related incidents and implement systemic improvements • Inadequate version control leading to multiple conflicting copies of storage and racking procedures	3H	[redacted]	2M

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