

# Key Risk Area (KRA) KRA 3.9 Pallet Racking

### 1. Purpose

This document provides guidance to ensure the safe installation, maintenance and use of pallet and steel storage racking to prevent incidents and injuries, so far as is reasonably practicable.

# 2. Scope

This Guideline applies to all health, safety and wellbeing activities of staff, students, visitors (including volunteers and contractors), Council members, and other persons interacting with the University of Newcastle (workers); the operations of staff of University aligned Research Centres and controlled entities; and all activities conducted by or on behalf of the University of Newcastle on and outside of the University's campuses.

### 3. Guidelines

### 3.1. Risk Identification and Assessment

Leaders and Supervisors will ensure that a risk assessment is conducted by a competent person and recorded in writing for all work involving racking installation and use, so that risk elimination or control measures can be determined, so far as is reasonably practicable, and in accordance with Guideline <u>HSG 3.1 Health and Safety Risk Management.</u>

### 3.2. Specific Risk Controls

All racking installation will be conducted under a Permit to Work issued by IFS or the nominated representative. The Permit will be signed by the contractor and all the workers involved in the job to confirm that they understand the risk elimination and control measures that will be applied. Refer to the <u>IFS Permit to Work Procedure</u> for further details.

IFS or the nominated representative will ensure that contractors conducting work have Safe Work Method Statements (SWMSs), Job Safety Analysis (JSAs) or Standard Operating Procedures (SOPs) specific for the work which have appropriate risk elimination or control measures, and which have been signed off by all workers who will be conducting the work.

Refer to Guideline <u>HSG 6.1 Contractor Health and Safety Management</u> for details on further requirements.

Suitable and adequate information, training and instruction in relation to the work will be provided to relevant workers when required by the Work Health and Safety Regulation 2017 (NSW). Refer to Guideline <u>HSG 4.2 Health, Safety and Wellbeing Induction, Training and Competency</u> for competency requirements.

### 3.3. Design

Steel Racking systems shall be properly designed, fabricated, maintained and used in accordance with the current version of AS 4084-2012 Steel Storage Racking. The structural adequacy of the design shall be checked by an appropriately qualified engineer.

Storage racking shall be designed specifically for the size, weight and shape of the products being stored. The design of the racking shall be compatible with the pallets and the materials handling equipment used.

The width of aisles shall be sufficient to accommodate the loading and unloading movements of forklift trucks and other material handling equipment. For designs where pedestrians can access the back of the racking, and single rows have been installed, rear protection should be fitted to prevent loads falling out of the back of the racking.

#### 3.4. Installation

Leaders should obtain and retain "as built" rack drawings and associated specifications and certificates when racking is purchased and permissible safe stacking loads and the conditions of use of the system shall be clearly marked on each rack.

The following information shall be displayed:

- Racking manufacturer's name, supplier's name and trademark, and the installation date;
- Designer's name;
- Working unit load limit;
- Safe working unit load for each shelf beam level;
- Safe working total unit load for each bay; and
- Maximum distance from the base plate level to the first beam level and maximum distance between adjacent beam levels.



Figure 1 Typical Racking Safe Working Load Sign

### 3.4.1. Modifications

Modifications from 'as built' manufacturer's drawings are not permitted without sign-off from the manufacturer, supplier or other competent person e.g. structural engineer.

### 3.4.2. Collision Protection

To prevent damage to pallet racking, the lower parts of the frames that are exposed to potential collision or impact by forklifts or other moving equipment shall be protected, for example by upright protector and end-of-rack protectors. Protection devices shall comply with the requirements of AS 4084-2012 Steel Storage Racking. A traffic and pedestrian plan should be developed where collision is a potential risk.

### 3.5. Racking Use

All operators who add or remove materials from pallet and steel storage racking shall be trained in the correct practices, including reporting of damage, prohibitions on unauthorised alterations and understand the limits imposed by Safe Working Loads. Any damage to racking, however minor, must be reported so that it can be immediately assessed. Failure to report damage will be considered a serious safety breach.

Site / area specific work procedures should be developed at each location where storage racking is in place.

### 3.6. Damage Reports

Workers should report any damage to a Leader/Supervisor immediately for inspection and assessment. Racking shall be assessed immediately upon damage and a decision made regarding:

- The need to unload the racking and the safety of doing so;
- Barricading the vicinity where product may fall;
- Applying 'Do Not Use' or 'out of service' labels and tape.

The damage should be recorded in the University's incident reporting system and identified, where safe to do so, on the racking. Refer to Appendix 1 Damage Action Flowchart (as per AS 4804-2012) to guide the recording of damage.

### 3.7. Inspections

Three types of inspections shall be carried out on a regular basis. These shall be determined upon the frequency of use and previous history. These include:

- 1. Inspection undertaken by the forklift driver as they load and unload racking.
- 2General inspection of the condition of the racking, loads and area as part of a workplace inspection. These shall be documented and may be included into the regular site Workplace Inspection program. See Attachment 2 for minimum guidance.
- 3. 3Inspections by persons competent in the requirements of AS 4084-2012 Steel Storage Racking. These shall occur on a regular basis (typically annually) and as required (if damage reported). These shall be documented and include recommended actions.

Inspection reports and other associated documentation must be kept and filed in accordance with Guideline <u>HSG 7.1 Health and Safety Records and Document Control.</u>

### 3.8. Used Racking

Where used storage racking is to be purchased by the University, the integrity of the racking system should be inspected by a qualified structural engineer, prior to the purchase of the racking.

If used racking is sold by the University, the purchaser must be advised in writing that the integrity of the racking system should be inspected by a qualified structural engineer prior to re-assembly.

# 4. Definitions

Competent Person	A person who has, through training, qualification or experience, acquired the knowledge and skills to carry out a specified task.
Employer	Means the University of Newcastle (the University).
Executive Committee	Consisting of the Vice-Chancellor, the Deputy Vice-Chancellors, the Pro Vice-Chancellors, the Chief Operating Officer, Chief People and Culture Officer and the Chief Financial Officer, the University Secretary and the President of Academic Senate.
Leader / Supervisor	Any member of the University who is responsible for supervising staff and/or undergraduate or postgraduate students and/or for leading research projects.
Pallet racking	A material handling storage aid system, designed specifically to store materials on pallets and accessed by mechanical handling equipment.
Worker	Includes an employee, conjoint, student on work experience, contractor, sub-contractor, and volunteer. A person is a worker if the person carries out work in any capacity for the University or another person conducting a business or undertaking, including work as: (a) an employee, or (b) a contractor or subcontractor, or (c) an employee of a contractor or subcontractor, or (d) an employee of a labour hire company who has been assigned to work in the person's business or undertaking, or (e) an outworker, or (f) an apprentice or trainee, or (g) a student gaining work experience, or (h) a volunteer, or (i) a person of a prescribed class.

In the context of the Health and Safety Management System Framework:

### 5. Responsibilities

A comprehensive list of health, safety and wellbeing responsibilities is provided in <u>HSG 1.2</u> <u>Roles and Responsibilities Guideline</u>.

Specific responsibilities under this Guideline include:

### Infrastructure and Facility Services (IFS)

- Ensure that contractors who are required to instal racking have the appropriate procedures, equipment and competent persons to undertake the work;
- Ensure that installation is conducted under a Permit to Work issued by IFS or a nominated representative.

#### Leaders and Supervisors

- Ensure University staff and students under their supervision are aware of, and comply with, the requirements relating to installation, maintenance and use of steel storage racking;
- A risk assessment is undertaken for the lifecycle of steel storage racking;
- Procedures for safe operation and use are in place and developed, including reporting of damage or unsafe situations;
- An annual inspection of the racking is undertaken by a competent person and that safe load bearing signage is maintained;
- Inspection of the racking is included in regular site safety inspections conducted by staff.

### Health, Safety and Wellbeing Team

- Provide professional input regarding racking when required; and
- Support IFS in risk assessment and review of racking.

#### Workers

- Provide input to the risk assessment and safe operating procedures when required;
- Comply with the requirements of the risk assessment and procedures relating to pallet and steel storage racking as directed by the Leaders/Supervisor or their delegate, and any Health and Safety related processes;
- Report any damage or defects identified to a Leader/Supervisor.

# 6. References & Related Documents

The following documentation is referenced in, or applicable to this Guideline: <u>HSG 1.2 Roles and Responsibilities</u> <u>HSG 3.1 Health and Safety Risk Management</u> <u>HSG 4.2 Health, Safety and Wellbeing Induction, Training and Competency</u> <u>HSG 6.1 Contractor Health and Safety Management</u> <u>HSG 7.1 Health and Safety Records and Document Control</u> <u>IFS Permit to Work Procedure</u>

# 7. Amendment History

Version	Date of Issue	Approval	Section(s) Modified	Details of Amendment
1	December 2017	Director, People and	-	Original version

		Workforce Strategy		
2	October 2023	CPCO	All	<ol> <li>All sections reviewed for legal compliance</li> <li>Updated content in all sections</li> <li>Added new/renamed Related Documents</li> <li>Added Amendment History</li> <li>Amended document control header and footer</li> </ol>

# 8. Appendices

Appendix 1 Racking Damage Action Flowchart

Appendix 2 Inspection Checklist for Pallet and Steel Storage Racking

#### **Appendix 1 Racking Damage Action Flowchart**



Figure taken from SafeWork NSW – Pallet racking fact sheet (Catalogue No. WC01277)

### Appendix 2 Inspection Checklist for Pallet and Steel Storage Racking

### Inspection - Pallet and Steel Storage Racking



Campus:			Racking Location:		
Date:			Inspection completed by:		
Note: Sheet. below.	The follo Please	owing checklist has been dev refer to Guidance (over pag	eloped from guidance provided in e) when completing the inspectio	n SafeWorl n for inform	< NSW – Pallet Racking Fact nation about inspection items
Inspe	ction It	em	r l	(es / No	Comments
Rackii	ng and	Pallets - Overview			
1.1	Is the	re any damage to racking?			
1.2	Are lo	ads clear of lights and sprir	klers?		
1.3	Are S	afe Working Load signs pre	sent on each rack?		
1.4	Are th	e collision protective device	es damaged?		
1.5	Are g	oods stored on racking stab	le?		
1.6	Are g	oods on pallets not overhan	ging the pallet?		
1.7	Are g	oods stored on upper levels	effectively prevented from		
	falling	by wrapping, strapping or o	other means, such as		
	barrie	rs?			
Beam	S				
2.1	Are b	eams overloaded?			
2.2	Are b	eams or welds damaged?			
2.3	Are b	eam connectors or safety cl	ips missing?		
2.4	Has a	beam popped out of its up	right?		
2.5	Are the anchor bolts that secure the racking to the ground				
	loose	?			
2.6	Ratec	Capacity:			
	-	Are the rack load signs le	gible?		
	-	Can the markings / signs	displaying the rated		
	_	Racking configurations h	ave not been altered?		
1 los viert	-	facture configurations in	ave not been altered :		
Oprigr	nts and				1
3.1	Are u	orights damaged?			
3.2	Are s	blices in good condition?			I
Out of	f Plumb				1
4.1	ls rac	king vertical?			
Brace	Braces				
5.1	5.1 Are racking braces damaged?				
Floor Fixings					
6.1	6.1 Are floor fixings installed?				
Comm	nents:	-			l

# Inspection - Pallet and Steel Storage Racking



Guidance for	completing Inspection
Information fro	m Safe Work NSW Pallet Racking Fact Sheet (WC01277)
Inspection Item number:	Guidance information
2.1	Are beams overloaded? Deflection indicates overloading of the racking. Where two beams connect at an upright, the beam connectors should be parallel. If racking is or has been overloaded, the beam connectors may be deformed (forming a 'V'). The amount of permanent deformation should not exceed the maximum allowed by the manufacturer. In this situation, the racking should be inspected by a competent person.
2.2	Are beams or welds damaged? Check for obvious signs of beams being hit by a pallet or forklift. Damaged beams should be replaced. If a beam has been hit and is only showing minor damage, ensure welds are checked for cracks by a competent person.
2.3	Are beam connectors or safety clips missing? Examine beams for damage and replace missing clips. The design of the replacements must be approved by the racking manufacturer. If clips are regularly being dislodged, contact the manufacturer or installer to determine why, and take the necessary action to fix it.
2.4	Has a beam popped out of its upright? If a beam has popped out this will mean it is only suspended on one end connector and could collapse.
2.5	Are the anchor bolts that secure the racking to the ground loose? Inspect anchor bolts regularly to ensure they are appropriately tightened. Adjust as required.
3.1	Are uprights damaged? If an upright shows damage (See figure below), is twisted or contains splits or cracks, replace it or splice in a new section. Splices should be approved by the racking manufacturer. Replace any damaged uprights and footplates.
	install racking with beams at knee height in the bottom bay. This can also assist with manual picking activities as it raises the height of the items to be picked. Note: with permissions from standards Australia this diagram has been reproduced from AS 4084-2012: Steel storage racking for Safe Work NSW.
3.2	Are spices in good condition? Check the condition of all splices. They should be above the first beam level, not below 1.5m, and no more than one splice should be between any two adjacent beam levels
4.1	Is the racking vertical? Out of plumb racking is usually caused by incorrect installation but can also be the result of impact, overloading, or settling of the floor slab. Contact the manufacturer or installer.
5.1	Are racking braces damaged? Replace bent, horizontal or diagonal braces. For bracing, the member deviation from a 1m long straight edge in either plane should not exceed 10mm.

# Inspection - Pallet and Steel Storage Racking



6.1	Are floor fixings installed? Check floor fixings are installed and undamaged. If damaged, replace it and the footplate. At least two anchors are required in each footplate.
	two anchors are required in each tooplate.