Safe Use of Pallet Racking Guideline

Section 1 - Purpose and Scope

(1) Pallet racking, composed of adjustable racking made of steel structural members, can be installed indoors or outdoors. This Guideline applies to all UQ Workers that procure, install, inspect, maintain and/or use pallet racking. These activities reflect the lifecycle of pallet racking. Storage racking which is not designed for use with pallets is outside the scope of this Guideline.

(2) Minimum requirements for the procurement, design, installation, inspection, use and maintenance of pallet racking at the University of Queensland are outlined in this Guideline. Most of the requirements within this Guideline are outlined in Australian Standard 4084 Steel Storage Racking (AS 4084).

(3) This Guideline should be read in conjunction with:

a. Health and Safety Responsibilities Procedure;
b. Safe Use Of Plant and Equipment Procedure; and
c. Safe Procurement and Acquisition of Plant and Equipment Procedure.

Section 2 - Responsibilities

(4) In addition to HSW responsibilities outlined under the Health and Safety Responsibilities Procedure, the following roles have responsibilities for pallet racking.

Heads of Organisational Units

(5) Heads of Organisational Units are responsible for ensuring that responsibility for pallet racking has been delegated to a supervisor or manager within their Organisational Unit, and provided with adequate resourcing and training to ensure effective risk management measures are in place.

Supervisors and Managers

(6) Supervisors and Managers are responsible for:

a. Collating and maintaining records of "AS 4084 built" rack drawings, relevant specifications, and certificates;
b. Arranging relevant training for UQ workers who use pallet racking and maintain training records for their work area;
c. Ensuring informal and formal inspections are undertaken by competent persons;
d. Managing an out of service system to prevent the use of unsafe racking;
e. Collating and retention of Inspection reports or documented evidence of regular inspection;
f. Ensuring corrective actions identified during inspections and audits are completed in a timely manner;
g. Ensuring risk assessments and SOPs are reviewed regularly;
h. Ensuring staff that conduct informal inspections are competent; and
i. Ensuring inspection reports or documented evidence of regular inspection are retained by the local area.

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UQ Workers

(7) UQ workers must not modify or alter pallet racking, unless under the supervision or direction of the original manufacturer/supplier or a structural engineer.

(8) Any damage, disrepair or collisions with the pallet racking must be reported by workers, immediately to their supervisor and then on the UQSafe incident system.

(9) Any systems that have been isolated, tagged out or otherwise labelled as unsafe, should not be used.

HSW Managers and Work, Health & Safety Coordinators (WHSCs)

(10) HSW Managers and Work Health and Safety Coordinators are responsible for:

a. Providing advice and guidance to UQ workers in their Organisational Unit on how to implement and operationalise this Guideline;
b. Assisting Managers, Supervisors and UQ workers to conduct and review risk assessments for tasks and activities involving the use of pallet racking;
c. Consulting with HSW Division on any constraints to implementing the requirements of this Guideline;
d. Ensuring a program of informal and formal (at least annually) inspection exists for all pallet racking;
e. Ensuring risk assessments and SOPs are reviewed regularly; and
f. Assisting with incident reports and implementation of corrective actions.

Section 3 - Managing the Lifecycle of Pallet Racking

Procurement and Design

(11) Procurement and Design outlines requirements for pre-acquisition checks and planning. In addition to these requirements, it is important to take into consideration:

a. The environment where the racking is to be installed, including layout, lighting, mobile plant and accessibility;
b. Potential for impingement on the correct operation and access for servicing of detectors, sprinklers and other safety devices:
c. Materials that will be stored on the racking, including size, contents and weight;
d. The type/s of pallets (material, size, etc) the racking is designed to be used for;
e. Lifting/moving equipment that will be used to access the stored items;
f. Durability and stability of racking, particular when installed outdoors;
g. Safety devices and features, including collision protection devices and rear protection if there is a risk of loads falling out of the back of the racking;
h. Compatibility with the material handling equipment employed in the workplace. This includes ensuring that the racking aisle widths are suitable for the manoeuvring of the forklift used; and
i. Emergency access, sufficient lighting, and any hazardous manual tasks.

(12) The racking supplier is responsible for supplying racking configuration drawings and specifications during installation, as well as providing user manuals and appropriate training to end-users for proper use and maintenance of the racking.

Installation

(13) Pallet racking must be installed by a competent person, in accordance with the manufacturer's specifications and

AS 4084 requirements. Acquired documentation from the supplier must contain information on safe working load limits, and the usage conditions of the system must be conspicuously marked on each rack. Signage requirements are outlined in the 'Signage' provisions below.

Use

(14) Only competent UQ workers are allowed to add or remove materials from pallet racking and must adhere to safe practices, including reporting damage, refraining from unauthorized modifications, and ensuring Safe Working Load limits are not exceeded.

(15) Pallet racking training records are to be recorded and accessible. Any pallet racking converted to general purpose shelving should affix signage advising "not suitable for storage of pallets", or similar.

Repairs and Modifications

(16) Damaged racking must not be used until it has been repaired and deemed safe by a competent person. For the purpose of repair, a competent person includes a representative of the manufacturer or a pallet racking technician/structural engineer.

(17) Any alterations to pallet racking systems, whether during or after installation, should only be carried out or approved by the original manufacturer/supplier or a structural engineer. Pallet racking should consider the nature of goods in the unit load. An assessment of any change to the pallet design should be done by a competent person to prevent problems. Examples include changing from timber pallets to post pallets will apply concentrated loads on racking beams and the pallets may not key into the beams, using pallets larger than in racking design can overlap pallets behind or push them off their supports, using pallets smaller than allowed for, in the racking, can make them drop through, using skid pallets in racking without timber decks can allow them to drop through.

(18) Potential problems that may require changes to racking design include:

a. Boxes, cartons and other items overhanging the pallet they are stored on (unless the racking structure has the correct clearance);
b. Falling items from boxes, cartons and other loose loads stored on upper levels (unless this is prevented by wrapping, strapping or by some other means – e.g., end frame extensions and pallet safety backstop); and
c. Overseas pallets often differ in size and may not fit Australian Standard racking. Operating procedures, signs and drawings should be amended accordingly.

(19) Replacement of uprights, bracings, beams, clips, or other components should be with compatible parts. If not practicable, an engineering report should be obtained confirming the integrity and working load limits of the racking with these alternative replacement parts.

(20) Physical alterations to uprights, bracings, beams, or components, such as welding on additional cleats or bearers, should not be made.

Reporting Damage

(21) If any damage to pallet racking is detected (including corrosion) or collision occurs, users must immediately notify their supervisor or manager and lodge a report on the UQSafe incident system. Following damage, a competent person must inspect the racking and determine whether it is safe to unload. A decision should also be made as to whether unloading is necessary.

(22) There should be no initial attempt to remove stored items from damaged pallet racking until a competent person has determined the extent and outcome of the damage. If deemed necessary, the area surrounding the racking where objects, or the racking itself may fall, must be barricaded/physically isolated.

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(23) Damage to the pallet rack should be recorded visually. For example, using coloured stick-on tags to show the location and level of damage. Refer to UQ Pallet Racking inspection tool.

Standard Operating Procedures (SOPs)

(24) Standard operating procedures (SOPs) should be developed for UQ workers using pallet racking. The standard operating procedure should consider the manufacturer's instructions, traffic management plans (where applicable), the risk assessment and competency levels and assessment. For day-to-day operation, storage system users are responsible for ensuring the systems are properly used and maintained and continue to meet the standard.

(25) SOPs should also include:

a. correct use and application of equipment;
b. permitted goods for storage;
c. correct securing of loads;
d. safe working loads (for each unit, bay and beam level);
e. emergency procedures;
f. reporting damage to equipment;
g. authorised access arrangements;
h. exclusion of unauthorised modifications; and
i. safe pedestrian management (a separate traffic management plan may be required.

Safe Working Loads (SWL)

(26) Pallet racking will have maximum load limits for storage determined by the manufacturer. This information must be available to UQ workers using the racking, be clearly displayed on the racking and not obstructed by any infrastructure. Typically this information displays safe working limits for each unit, bay and beam level.

(27) The configuration of pallet racking must not be modified, without the involvement and approval of the original manufacturer/supplier or a structural engineer. Please see 'Repairs and Modifications' provisions above.

Signage

(28) Specific safety information signage is required to be affixed to the pallet racking. This should be requested from the supplier and be affixed as part of the installation process. It must be visible to all users and must consist of the following information:

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

(29) An example of safe working load (SWL) signage is linked: Safe Working Loads Diagram
(Diagram sourced from AS 4084, Steel Storage Racking: Part 2 Operation and Maintenance)

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Inspections (Informal and Formal)

(30) Informal inspections should occur at least six monthly and more frequently if indicated by risk assessment, incident, or advice of a competent person. Informal inspections are predominantly conducted visually from ground level using the UQ Steel Racking Inspection template on iAuditor, with the aid of simple gauges and measuring tools to check for level and physical distortions (for example 1m spirit level, small ruler, measuring tape). This inspection may be treated as a pre-start process and can be combined with the pre-start process with the mobile plant associated with the pallet racking.

(31) Any hazardous or very serious damage identified during the informal inspection should prompt the isolation of the equipment/area, and the engagement of a specialist contractor to conduct a formal inspection.

(32) Pallet racking must be formally inspected at least annually by a competent person. Given the training, qualification and experience required this should be undertaken by an external pallet racking contractor.

Record Keeping

(33) Local areas are responsible for keeping the following records; these will be checked during inspections.

a. Safe operating procedures (SOPs);
b. Training (competency records of both users and those conducting informal inspections);
c. Procurement, installation, commissioning and maintenance documentation;
d. Manufacturer's instruction and operating manuals (including plant developed at UQ, where UQ is the manufacturer);
e. Inspections; and
f. Modifications or repairs to structure.

Section 4 - Appendix

Definitions

Term	Definition
Pallet racking	A material handling storage system designed specifically to store materials on and accessed by mechanical handling equipment. Pallet racking is designed to be used only with loads stored on pallets and is typically constructed from steel.
UQ worker	A UQ Worker for the purposes of this Guideline includes: 1. Staff - continuing, fixed-term, research (contingent funded) and casual staff; 2. Visiting academics and researchers; and 3. Higher degree by research students.
Competent person	A person who has acquired through training, qualification or experience, or a combination of these, the training and knowledge and skills to carry out that task.
Lifecycle of pallet racking	All activities related to pallet racking for the duration of its existence including procurement, installation, inspection, maintenance, repair, use, decommissioning and disposal.
SWL	Safe working limits
Unit load	Individual stored item that can be placed or retrieved in one operation. Usually this is one pallet and its contents.

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