
Pallet Racking Structural Integrity And Deflection Inspection

1.0 Objective & Scope

The objective of this procedure is to ensure the structural integrity of all pallet racking systems within the warehouse by identifying and documenting any damage, deflection, or safety hazards. This SOP applies to all warehouse personnel responsible for rack inspection, including the Warehouse Manager, Safety Coordinator, and Maintenance Technicians. The goal is to prevent rack collapse, protect inventory, and maintain a safe working environment.

2.0 Required Systems, Tools & Materials

- Racking inspection checklist (paper or digital form in SupplyGrid WMS)
- Digital camera or smartphone with camera for photo documentation
- Measuring tape (metric, 5m minimum)
- Spirit level (600mm or longer)
- Flashlight or headlamp for inspecting dark corners
- Red 'Quarantine' tags and zip ties
- Clipboard and pen (if using paper checklist)
- Access to racking manufacturer specifications for allowable deflection limits

3.0 Safety & Handling Precautions

- Wear CSA-approved steel-toed boots and high-visibility vest at all times.
- Hard hat required when inspecting racks above head height.
- Do not climb on racks or use ladders on uneven surfaces; use a scissor lift or aerial platform for high inspections.
- Ensure the inspection area is clear of forklift traffic; use cones or barriers if necessary.
- Do not remove or adjust any rack components unless authorized by the Warehouse Manager.
- If severe damage is found, immediately cordon off the area and report to management.

4.0 Step-by-Step Procedure

1. Obtain the racking inspection checklist from the SupplyGrid WMS or the designated clipboard. Confirm the date and shift.
2. Walk the entire length of the first rack row, visually scanning all uprights, beams, and bracing for any signs of damage such as bends, cracks, or missing bolts.
3. Using the spirit level, check the vertical alignment of each upright column. Place the level against the column and note any deviation from plumb. Record measurements in millimetres.
4. Inspect beam connectors and locking clips. Ensure all clips are fully engaged and not bent or missing. Gently tap each clip with a tool to verify it is secure.

5. Measure beam deflection by placing the spirit level across the beam span. Compare the measured sag against the manufacturer's allowable deflection limit (typically L/180 or as specified). Record any deflection exceeding 5mm.
6. Check floor anchors and base plates. Ensure all anchor bolts are present and tight. Look for signs of concrete spalling or cracks around the base plates.
7. Inspect all row spacers and wall ties for secure attachment. Verify that spacers are not bent or dislodged.
8. Photograph any damage or deflection found, including a reference scale (e.g., a ruler or tape measure) in the image. Upload photos to the SupplyGrid WMS inspection record.
9. If damage is minor (e.g., small dent < 10mm depth), tag the location with a yellow 'Inspect' tag and schedule repair within 30 days. If damage is severe (e.g., bent upright, cracked weld, deflection > 20mm), immediately tag with a red 'Quarantine' tag and cordon off the bay.
10. Complete the inspection checklist for the row, sign off, and move to the next row. Repeat steps 2-10 for all rack rows in the warehouse.
11. Submit the completed inspection report to the Warehouse Manager via SupplyGrid WMS or paper form by end of shift.

5.0 Verification & Discrepancy Reporting

1. The Warehouse Manager or Safety Coordinator will review the inspection report within 24 hours and verify any tagged damage locations.
2. If a discrepancy exists between the inspector's findings and a second opinion, the area must be re-inspected jointly and a final determination made.
3. For any red-tagged damage, the Warehouse Manager must immediately contact the racking manufacturer or a certified racking repair contractor for assessment and repair. Do not store any product in the affected bay until cleared.
4. All inspection records, including photos and repair documentation, must be retained for a minimum of 3 years per safety compliance requirements.

Regulatory Disclaimer: This document is a generic operational template provided for educational purposes. The end-user assumes all liability for reviewing, adapting, and validating all step sequences and material handling protocols against local shop capabilities.