

## 8 Inspection and maintenance

### 8.1 Inspection

#### 8.1.1

Owners should ensure that there is a systematic pallet rack inspection program in place and that a competent person performs the inspection. Persons conducting an inspection should be provided with current storage rack drawings, operational procedures, material handling equipment specifications, and product load details.

#### 8.1.2

A rack inspection program should be developed that includes routine inspections (typically monthly), and a more rigorous expert inspection that is performed by persons with special knowledge and training with respect to structural engineering concepts and rack inspection procedures. The expert inspection is typically performed by

- a) a company that specializes in structural inspections;
- b) an internal specialist who has training specific to rack inspection and a job function that demands frequent performance of expert inspections; or
- c) a rack manufacturer's representative who has intimate knowledge of the product specifications and system design.

**Note:** Expert inspections are key elements of a rack inspection program because the experts have a perspective that is developed over a large number of facilities and they are able to provide an audit of the quality and effectiveness of the routine inspections.

Expert inspections are typically done under the supervision of an engineer, with the engineer taking responsibility for the damage inspection process and reporting.

#### 8.1.3

The inspection should identify any variance from the provided layout and elevation drawings, as well as structural damage and/or missing, modified, or out-of-position components. Examples include:

- a) damaged, or corroded posts;
- b) damaged or missing horizontal and/or diagonal braces;
- c) sheared or missing anchors;
- d) damaged or permanently deflected (yielded) beams;
- e) improper beam bracket engagement;
- f) missing or improper safety pins;
- g) missing or misaligned row spacers;
- h) misplaced, missing, or damaged pallet safety bars;
- i) safety bars that are not positively restrained against lateral displacement; and
- j) out-of-plumb posts.

#### 8.1.4

The inspection should also make note of poor operating practices such as:

- a) unstable or unapproved pallet loads such as excessive overhang of goods, fanning and bulging loads (see Figure 25);
- b) use of damaged pallets;
- c) storage of improperly sized pallets;
- d) overload conditions;
- e) unsafe material handling equipment operation;

- f) pallet loads that result in unanticipated loads on the structure, typically from pallets that are not centered on the beams (unequal overhang) (see Figure 26 a), and pallet loads that are centrally located on the beam resulting in a concentration of load at the middle of the beam (not uniformly over the length of the beam) (see Figure 26 b);
- g) double stacking of pallets;
- h) housekeeping items such as shrink wrap and debris on the floor;
- i) encroachment of clearance established by Clause 4.3.3; and
- j) pallets encroaching into the clearance required for sprinkler deflectors.

**Note:** Sprinkler designs require varying clearances and early suppression fast response (ESFR) sprinkler heads typically require larger clearances.

**Figure 25**  
**Pallet loads**  
[See Clause 8.1.4 a).]

