

## 20.1: Introduction to Walking and Working Surfaces

### Introduction

Workers in many diverse general industry workplaces are exposed to walking-working surface hazards that can result in slips, trips, falls and other injuries or fatalities. According to the Bureau of Labor Statistics (BLS) data, slips, trips, and falls are a leading cause of workplace fatalities and injuries in general industry, which indicates that workers regularly encounter these hazards.

In **January 2017** OSHA finalized rulemaking that increased safety expectations for all surfaces, including but not limited to, floors, ladders, stairways, runways, dock boards, roofs, scaffolds, and elevated work surfaces and walkways. Within the new rules there were changes to safety requirements for fixed ladder standards, rope descent systems, fall protections systems, and training. The intent of the changes was to reduce the risk of falls by any means or cause. The best interpretation is that the surface shall not contribute to a fall and that protection be used to minimize serious injury.

### General Requirements

The following general requirements for surface conditions and working surfaces to include ladders and rope descent systems cover traditional surfaces such as floors, subfloors, grounds, platforms, and even flat surfaces such as rooftops. Employers must consider all surfaces that employees occupy for the purposes of performing work to meet requirements for cleanliness, physical condition, load capacity, and maintenance. The standards detailed are not a comprehensive list for each surface type but rather a representation of selected minimum expectations.

A. Surface conditions. The employer must ensure:

1. All places of employment, passageways, storerooms, service rooms, and walking-working surfaces are kept in a clean, orderly, and sanitary condition.
2. The floor of each workroom is maintained in a clean and, to the extent feasible, in a dry condition. When wet processes are used, drainage must be maintained and, to the extent feasible, dry standing places, such as false floors, platforms, and mats must be provided.
3. Walking-working surfaces are maintained free of hazards such as sharp or protruding objects, loose boards, corrosion, leaks, spills, snow, and ice.

B. Loads. The employer must ensure that each walking-working surface can support the maximum intended load for that surface.

C. Access and egress. The employer must provide, and ensure each employee uses, a safe means of access and egress to and from walking-working surfaces.

D. Inspection, maintenance, and repair. The employer must ensure:

1. Walking-working surfaces are inspected, regularly and as necessary, and maintained in a safe condition;
2. Hazardous conditions on walking working surfaces are corrected or repaired before an employee uses the walking-working surface again. If the correction or repair cannot be made immediately, the hazard must be guarded to prevent employees from using the walking-working surface until the hazard is corrected or repaired; and
3. When any correction or repair involves the structural integrity of the walking-working surface, a qualified person performs or supervises the correction or repair.

### Ladders

E. General requirements for all ladders. The employer must ensure:

- Ladder rungs, steps, and cleats are parallel, level, and uniformly spaced when the ladder is in position for use;
- Ladder rungs, steps, and cleats are spaced not less than 10 inches (25 cm) and not more than 14 inches (36 cm) apart, as measured between the centerlines of the rungs, cleats, and steps, except that:
- Ladder rungs and steps in elevator shafts must be spaced not less than 6 inches (15 cm) apart and not more than 16.5 inches (42 cm) apart, as measured along the ladder side rails; and
- Fixed ladder rungs and steps on telecommunication towers must be spaced not more than 18 inches (46 cm) apart, measured between the centerlines of the rungs or steps;
- Steps on stepstools are spaced not less than 8 inches (20 cm) apart and not more than 12 inches (30 cm) apart, as measured between the centerlines of the steps.

- Stepstools have a minimum clear width of 10.5 inches (26.7 cm);
- Wooden ladders are not coated with any material that may obscure structural defects;
- Metal ladders are made with corrosion-resistant material or protected against corrosion;
- Ladder surfaces are free of puncture and laceration hazards;
- Ladders are used only for the purposes for which they were designed;
- Ladders are inspected before initial use in each work shift, and more frequently as necessary, to identify any visible defects that could cause employee injury;
- Any ladder with structural or other defects is immediately tagged "Dangerous: Do Not Use" or with similar language in accordance with § 1910.145 and removed from service until repaired in accordance with § 1910.22(d), or replaced;
- Each employee faces the ladder when climbing up or down it;
- Each employee uses at least one hand to grasp the ladder when climbing up and down it; and
- No employee carries any object or load that could cause the employee to lose balance and fall while climbing up or down the ladder.

## Step Bolts

F. Step bolts. The employer must ensure:

- Each step bolt installed on or after January 17, 2017 in an environment where corrosion may occur is constructed of, or coated with, material that protects against corrosion;
- Each step bolt is designed, constructed, and maintained to prevent the employee's foot from slipping off the end of the step bolt;
- Step bolts are uniformly spaced at a vertical distance of not less than 12 inches (30 cm) and not more than 18 inches (46 cm) apart, measured center to center (see Figure D-6 of this section). The spacing from the entry and exit surface to the first step bolt may differ from the spacing between the other step bolts;
- Each step bolt has a minimum clear width of 4.5 inches (11 cm);
- The minimum perpendicular distance between the centerline of each step bolt to the nearest permanent object in back of the step bolt is 7 inches (18 cm). When the employer demonstrates that an obstruction cannot be avoided, the distance must be at least 4.5 inches (11 cm);
- Each step bolt installed before January 17, 2017 is capable of supporting its maximum intended load;
- Each step bolt installed on or after January 17, 2017 is capable of supporting at least four times its maximum intended load;
- Each step bolt is inspected at the start of the workshift and maintained in accordance with § 1910.22; and
- Any step bolt that is bent more than 15 degrees from the perpendicular in any direction is removed and replaced with a step bolt that meets the requirements of this section before an employee uses it.

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