

nor more than 10 inches (25.4 cm); a depth of not less than seven inches (17.7 cm); and a minimum width of 16 inches (40.6 cm). The slope created by the steps shall be a maximum of 60 degrees measured from the horizontal.

(6) *Locking the unit.* Units shall be locked in position using at least two means of locking when units are in use. Swivel casters, if used, shall be provided with a positive lock on the swivel or wheel or both.

(7) *Riding on units.* Employees shall not ride on mobile ladder stands.

(e) *Powered industrial truck platforms.* (1) *Platforms.* Platforms shall be secured to the lifting carriage or forks of the industrial truck.

(2) *Protection from moving parts.* Employees on a platform shall be protected from the moving parts of the truck.

(3) *Overhead protection.* Overhead protection shall be provided when employees are exposed to objects falling from above.

(4) *Minimum width.* The minimum width of the platform shall be 18 inches (46 cm).

(5) *Fall protection system.* Employees on platforms four feet (1.2 m) or more off the ground shall be protected by a fall protection system meeting the requirements of § 1910.28.

§ 1910.32 Special surfaces.

(a) *Scope and application.* This section regulates fall protection for the walking and working surfaces specified herein. The requirements located in other sections of this subpart apply when not in conflict with the requirements in this section.

(b) *Specific requirements.* (1) *Repair pits and assembly pits.* Repair pits and assembly pits over four feet (1.2 m) but less than 10 feet (3 m) deep need not be protected by a fall protection system meeting the requirements of § 1910.28, provided that the following requirements are met:

(i) Access within six feet (1.8 m) of the edge of the pit is limited to authorized employees;

(ii) Authorized employees shall be trained to recognize and avoid the hazards involved with work around the pit area. (iii) Floor marking in colors contrasting to that of the surrounding area shall be applied, or rope, wire or chain with support stanchions meeting the requirements of § 1910.28(d), or a combination of these, shall be placed at a distance of at least six feet (1.8 m) from the edges of the pits;

(iv) Caution signs stating "Restricted area," "Authorized employees only," or a similar legend, and meeting the requirements of § 1910.145 of this part shall be used to limit entry into the area to authorized employees.

(2) *Slaughtering facilities platforms.* Where the placement of guardrails would cause carcasses being processed under Federal meat inspection regulations to contact working surfaces, the perimeter protection requirements in § 1910.27 do not apply, but the following requirements do apply:

(i) Access to the platform is limited to authorized employees only.

(ii) Toeboards meeting the requirements in § 1910.28(b)(7) or equivalent similar means shall be provided at these work locations to prevent employees from sliding off or falling off the exposed perimeter.

(iii) All of the other sides of platforms shall be guarded as required by § 1910.27 by a fall protection system meeting the requirements of § 1910.28.

(iv) Employees working on the unprotected side of a slaughtering platform shall be trained to recognize and avoid hazards, such as slippery surfaces, that are involved with their work and to understand the importance of the toeboard or other available protective devices.

(3) *Loading racks.* (i) The working side of loading rack platforms which are used for access to tank cars, tank trucks, or similar equipment, need not have fall protection meeting the requirements of § 1910.28.

(ii) All of the other sides of the loading rack shall be guarded as required by § 1910.27 by a fall protection system meeting the requirements of § 1910.28.

(iii) All runways shall be at least 18 inches (46 cm) wide.

(iv) Employees who may be exposed to fall hazards shall be trained to recognize and avoid hazards associated with this type of work.

(4) *Loading docks and teeming tables.*

(i) Employers are not required to install guardrail systems on the working side of platforms such as loading docks and teeming tables, where the employer can demonstrate that the presence of guardrails would prevent the performance of work.

(ii) All of the other sides of the loading docks and teeming tables shall be guarded as required by § 1910.27 by a fall protection system meeting the requirements of § 1910.28.

(iii) Employers shall ensure that employees that may be exposed to fall hazards, are trained to recognize and avoid the hazards associated with this type of work such as, but not limited to, hot surfaces and securing trailers.

(5) *Qualified climbers.* As provided in § 1910.23(a)(2), ladders and step bolts on triangulation, telecommunication, electrical power towers and poles and similar structures, including stacks and chimneys, need not have ladder safety devices, cages or wells if only qualified climbers are permitted to use these ladders or step bolts. Such qualified climbers shall meet the following requirements:

(i) Qualified climbers shall be physically capable (demonstrated through observations of actual climbing activities or by a physical examination) of performing the duties which may be assigned to them;

(ii) Qualified climbers shall have successfully completed a training or apprenticeship program that covered hands-on training for the safe climbing of ladders or step bolts and shall be retrained as necessary to ensure the necessary skills are maintained;

(iii) The employer shall ensure through performance observations, and formal classroom or on-the-job training that the qualified climber has the skill to safely perform the climbing;

(iv) Qualified climbers shall have climbing duties as one of their routine work activities;

(v) Qualified climbers, when reaching their work position, shall be protected by a fall protection system meeting the requirements of § 1910.28.

Appendix A to Subpart D—Compliance Guidelines

Note: The following appendices to subpart D serve as nonmandatory guidelines to assist employers and employees in complying with these sections and to provide other helpful information. These appendices neither add to nor detract from the obligations contained in the OSHA standards.

Section 1910.22 General Requirements.

1. *Surface conditions.* The purpose of this section is to provide information to assist employers and employees to assure that walking and working surfaces are maintained free of hazards such as physical obstructions, debris, protruding nails or other fasteners or similar conditions, that could cause employees to slip, trip or fall.

Some hazards, such as snow, water, or ice, which by reason of recent weather or work operations may be present on workplace surfaces, present a slippery surface problem to employers. When these conditions cannot be eliminated completely, the employer can use alternatives such as slip-resistant footwear or handrails or stair rails to aid employees in maintaining their balance on the hazardous surfaces. Normally, slippery surfaces would occur only where snowfalls or freezing weather are of such frequency to make continued clearing or shoveling of workplace parking lots and sidewalks impractical, or where continuous use of water for washing down walking and working surfaces results in constantly slippery surfaces.

An effective housekeeping program may be used to minimize fall hazards where slippery surfaces are due to temporary or intermittent conditions. Absorbents can be used to clean up a spill where oily materials or corrosive liquids are accidentally spilled onto the floor.

2. *Slip-resistance.* A reasonable measure of slip-resistance is static coefficient of friction (COF). A COF of 0.5, which is based upon studies by the University of Michigan and reported in "Work Surface Friction: Definitions, Laboratory and Field Measurements, and a Comprehensive Bibliography," is recommended as a guide to achieve proper slip-resistance. A COF of 0.5 is not intended to be an absolute standard value. A higher COF may be necessary for certain work tasks, such as carrying objects, pushing or pulling objects, or walking up or down ramps.

Slip-resistance can vary from surface to surface, or even on the same surface, depending upon surface conditions and employee footwear. Slip-resistant flooring material such as textured, serrated, or punched surfaces and steel grating may offer additional slip-resistance. These types of floor surfaces should be installed in work areas that are generally slippery because of wet, oily, or dirty operations. Slip-resistant type footwear may also be useful in reducing slipping hazards.

3. *Mobile equipment.* Mobile equipment operated in walkways or passageways creates a hazard to employees similar to any vehicular traffic. Appropriate warnings should be utilized to alert employees that mobile equipment is being used. Warning signs or mirrors can be used at intersections