

4123:1-5-02 Guarding floor and wall openings and holes.

(A) Scope.

This rule covers the guarding of floor and wall openings and holes. It shall not apply to industrial grating holes nor to the working face of floor openings which are occupied by elevators, dumbwaiters, conveyors, machinery, piping or containers; the loading and unloading areas of automotive truck and railroad docks, or platforms, scaffolds, pits and trenches which are occupied for the purpose of providing access to a product, facility or process equipment while being worked upon.

(B) Reserved.

(C) Permanent openings - floor, wall and yard.

(1) Floor openings.

(a) Guarding.

- (i) Floor openings, not including hoistway openings, shall be guarded with standard railing or with fixed safety covers with flush hinges.
- (ii) When an overhead obstruction prevents the use of standard railing, the top of the railing shall be constructed not more than ten inches below the overhead obstruction.
- (iii) Removable or hinged railings or a substantial chain or wire rope section shall be installed when operations prevent installation of standard railing or fixed safety covers with flush hinges.

(b) Work below floor openings.

Where employees are required to work below a floor opening, toeboards shall be installed.

(c) Safety covers.

When a safety cover is used to protect an opening, the unused sides of the opening shall be guarded when the cover is raised.

(d) Guarding manholes, handholes, gratings and excavations.

Barriers, barricades or standard guard railings shall be provided for guarding open manholes, handholes, gratings or excavations and shall be visible at all times.

(2) Floor holes - guarding.

(a) Every floor hole into which employees can accidentally walk shall be guarded by either:

- (i) A standard railing and toeboard on all exposed sides, or
- (ii) A fixed, hinged floor hole cover of substantial strength and construction. While the cover is not in place, the floor hole shall be attended by an employee designated by the employer or shall be guarded by a removable standard railing.

(b) Every floor hole into which employees cannot accidentally walk (on account of fixed machinery, equipment, or walls) shall be protected by a cover that leaves no openings more than one inch wide. The cover shall be securely held in place to prevent tools or materials from falling through.

(3) Wall openings and holes, including chute openings.

(a) Wall opening - guarding.

- (i) Wall openings shall be guarded by standard railings and toeboards, or with doors or gates or substantial screens which shall extend to a minimum height of forty-two inches measured from the floor or platform level.
- (ii) When the top of the wall openings, protected by a railing, prevents installation of standard guard railing, the top rail shall be not be more than ten inches below the top of the wall opening.

(b) Wall hole - guarding.

Where there is a hazard of materials falling through a wall hole, and the lower edge of the near side of the hole is less than four inches above the floor, and the far side of the hole more than five feet above the next lower level, the hole shall be guarded by a toeboard, or an enclosing screen either of solid construction, or as specified in rule 4123:1-5-99 of the Administrative Code.

(c) Openings used for unloading materials - guarding.

- (i) Openings used for unloading material into chutes, hoppers or bins when not in use, shall be guarded.
- (ii) Area at discharge end of chutes:

The area at the discharge end of chutes shall be guarded if employees are required to work in, or pass through the area. If the chute discharges into a bin, conveyor, truck, railroad car, or other container, guarding shall not be required, but warning signs of conspicuous and easily read style shall be posted to warn employees when there is a hazard from falling, flying, moving or sliding objects.

(4) Working pits.

Working pits shall be guarded when not in use.

(5) Open vats, open soaking pits and open tanks.

- (a) Sides of such vats, soaking pits, and tanks, containing injurious chemicals or other materials, shall extend to a height of not less than thirty-six inches above the working floor level or shall be guarded by standard guard railing. Employees shall not be required to work over such vats, soaking pits and tanks except on elevated runways, platforms and walkways (see paragraph (D)(1) of this rule).
- (b) This shall not apply to open vats, soaking pits and open tanks designated as restricted areas where product is handled by conveyor or cab-controlled overhead crane.

(6) Galvanizing tanks.

Galvanizing tanks shall have a minimum height of thirty inches. At such height the wall thickness or bench shall be no less than thirty-two inches in width. For each increase in height of one inch the wall thickness or bench may be reduced by four inches (see appendix to this rule).

(D) Elevated platforms, runways and walkways.

This rule does not apply to scaffolding.

(1) Guarding.

- (a) Elevated platforms, runways and walkways four feet or more above floor or ground level shall be guarded with standard railings and toeboards. All elevated runways, platforms and walkways, regardless of height, located over or adjacent to water, machinery, open vats, open soaking pits or open tanks shall be provided with standard railing and toeboards.
- (b) When the requirement prescribed above would result in an impairment of the work being performed, alternative protection may be provided for employees. Such alternative protection shall provide safety equivalent to or greater than that required in paragraph (D)(1)(a) of this rule.

(2) Support.

Elevated runways, platforms and walkways, made of planks shall be supported at least every five feet and the planks shall be securely fastened together with cleats underneath.

(3) Openings (drainage, ventilation, etc.).

Openings for drainage, ventilation, etc. in floors, elevated runways, platforms and walkways four feet or more above floor or ground level where employees are required to work below, shall not be greater than one inch in width.

(4) Special purpose runways.

Runways used exclusively for special purposes, such as oiling, shafting, or filling tank cars, may have the railing on one side omitted where operating conditions necessitate such omission, provided the falling hazard is minimized by using a runway of not less than eighteen inches wide.

(E) Standard guard railings, intermediate rail and toeboards.

A standard guard railing shall be constructed as a substantial barrier, securely fastened in place, and free from protruding objects, such as nails, screws and bolts, to protect openings or prevent accidental contact with some object, which barrier shall consist of a top rail not less than forty-two inches above the working level, and unless the space between the top rail and the working level is covered with substantial material, an intermediate rail. Minimum material requirements shall be:

(1) Metal.

Top rail and intermediate railings, one and one half inch nominal diameter pipe, or two by two by three eighths inch angle structural steel, or other metal shapes of equivalent bending strength with posts spaced not more than eight feet on centers.

(2) Wood.

For wood railings, the posts shall be of at least two inches by four inches (nominal) stock spaced not to exceed six feet; the top and intermediate rails shall be of at least two inches by four inches stock. If top rail is made of two right-angle pieces of one inch by four inches stock, posts may be spaced on eight foot centers, with two inches by four inches intermediate rail.

(3) Toeboards.

A standard toeboard shall be four inches nominal in vertical height from its top edge to the level of the

floor, platform, runway, or ramp. It shall be securely fastened in place and with not more than one fourth inch clearance above floor level. It may be made of any substantial material either solid or with openings not over one inch in greatest dimension.

Where material is piled to such height that a standard toeboard does not provide protection, paneling from floor to intermediate rail, or to top rail shall be provided.

(F) Stairway railings, guards and treads.

(1) Standard stair railings and standard handrails.

Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails as specified in the following, the width of the stair to be measured clear of all obstructions except handrails:

- (a) On stairways less than forty-four inches wide having both sides enclosed, at least one handrail, preferably on the right side descending;
- (b) On stairways less than forty-four inches wide having one side open, at least one stair railing on the open side;
- (c) On stairways less than forty-four inches wide having both sides open, one stair railing on each side;
- (d) On stairways more than forty-four inches but less than eighty-eight inches wide, one handrail on each enclosed side and one stair railing on each open side;
- (e) On stairways eighty-eight or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.

(2) Winding stairs.

Winding stairs shall be equipped with a handrail offset to prevent walking on all portions of the treads having width less than six inches.

(3) Uniform treads.

All stairways shall have risers and treads of uniform dimensions in each run, except winding stairs as covered in paragraph (F)(2) of this rule.

(G) Dockboards (bridge plates).

- (1) Portable and powered dockboards shall be substantial enough to carry the load imposed on them.
- (2) Portable dockboards shall be secured in position, either being securely fastened or equipped with devices which will prevent slipping.
- (3) Handholds, or other effective means shall be provided on portable dockboards.
- (4) Positive protection shall be provided to prevent railroad cars or motor vehicles from moving or being moved while dockboards or bridge plates are in position.

(H) Stairways.

- (1) "Stairway" means one or more flights of stairs and the necessary landings and platforms connecting them to form a continuous and uninterrupted passage from one floor or level to another.

(2) Flight of stairs.

(a) Four or more risers between landings shall be considered a flight of stairs.

(b) This does not apply to steps over a conveyor or to a working platform in connection with production lines or process units where access is for the performance of work, and the steps are not considered a passageway for general travel.

(I) Handrails.

Handrails shall be free of protruding nails or screws and not less than thirty inches, nor more than thirty-four inches in height measured vertically above the line in the top surface of the tread over the face of the riser.

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