Ohio Administrative Code

Rule 4123:1-3-04 Floors, stairways, railing, overhead protection and guarding of open-sided floors, platforms and runways.

Effective: June 30, 2025

(A) Scope.

This rule shall apply to temporary conditions where there is danger of employees or material falling through floor, roof, or wall openings or from stairways or runways.

(B) Definitions.

(1) "Handrail" means a rail used to provide employees with a handhold for support.

(2) "Hole" means a gap or void two inches (5.1 centimeters) or more in its least dimension, in a floor, roof, or other walking or working surface.

(3) "Nose" or "nosing" means that portion of a tread projecting beyond the face of the riser immediately below.

(4) "Platform" means a working space for employees elevated above the surrounding floor or ground.

(5) "Rise" or "riser" means the vertical distance from the top of a tread to the top of the next higher tread, platform, or landing, or the distance from the top of a platform or landing to the top of the next higher tread, platform or landing.

(6) "Runway" means a passageway for employees, elevated above surrounding floor or ground level.

(7) "Stair platform" means an extended step or landing breaking a continuous run of stairs.

(8) "Stairrail system" means a vertical barrier erected along the unprotected sides and edges of a stairway to prevent employees from falling to lower levels. The top surface of a stairrail system may

also be a "handrail."

(9) "Stairs" or "stairway" means a series of steps and landings having four or more risers leading from one level or floor to another or leading to platforms.

(10) "Standard guard railing" means a substantial barrier, constructed in accordance with paragraph (E) of this rule.

(a) "Intermediate rail" means the intermediate lateral member or members of a standard guard railing, installed at intervals of no more than twenty-one inches (53.3 centimeters).

(b) "Top rail" means the top lateral member of a standard guard railing.

(11) "Toeboard" means a low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.

(12) "Tread width" means the horizontal distance from the front to back of tread,excluding nosing.

(C) Temporary floors.

(1) Strength and construction.

(a) Strength.

Temporary floors shall be provided in all structures for employees working on various floor levels and shall be substantially constructed to support employees and equipment safely.

(b) Construction.

The planks shall be placed as close together as possible and shall not extend more than one foot (30.5 centimeters) beyond supports unless securely fastened to prevent slipping or tipping.

(2) Guarding of partial area.

(a) When employees are not required to work over the entire area of a floor, only such partial area on which employees are required to work shall be provided with the temporary working floors as required in paragraph (C)(1) of this rule.

(b) Standard guard railing and toeboards shall be provided around the unused portion of exposed sides of all openings in floors, roofs, platforms or shafts.

(3) Joists.

(a) Joists shall be securely fastened to prevent tipping before placing temporary floors.

(b) Over joists upon which concrete floors are to be placed, expanded metal lath or wire mesh no greater than one-half inch (thirteen millimeters) mesh may be used where the joist spacing does not exceed twenty-four inches (sixty-one centimeters), provided that all laps and joints are securely fastened and that plank runways are provided for safe passage or working thereon by employees.

(4) Temporary floors below finished floor.

In buildings or structures where the upper floors are constructed before the lower floors, temporary floors of the strength required in paragraph (C)(1) of this rule shall be maintained no more than two floors below the floor being constructed.

(5) In structural steel frame buildings.

(a) Structural steel frame buildings shall have temporary floors as provided in paragraph (C)(1) of this rule placed within two typical floors of the erectors and the riveters. Such floors shall cover the entire floor area beneath riveters or erectors except that no floors are required over hoistway or stairway openings.

(b) Exception.

The provisions of paragraph (C)(5)(a) of this rule shall not apply to what is generally known as mill

buildings where no floors are contemplated, and where the operation of overhead cranes will not permit compliance.

(6) In reinforced concrete frame constructed buildings.

Reinforced concrete frame constructed buildings shall have floor or concrete forms constructed before the forms of the story above are started.

(7) Sectionally constructed buildings.

In sectionally constructed buildings, each section constitutes a separate building operation in the application of the temporary floor requirements of this rule.

(D) Holes and openings.

(1) Openings.

Floor openings shall be guarded by a standard guard railing and toeboard or a cover with a factor of safety of no less than two and so constructed that the cover cannot be accidentally displaced. A safety belt or safety harness, with a lanyard, may be provided in lieu of a standard guard railing and toeboard or cover.

(a) Ladderway floor openings or platforms.

Ladder or openings shall be guarded by a standard guard railing and toeboard on all exposed sides except at the entrance to the opening, with the passage through the standard guard railing either provided with a swinging gate or so offset that an employee cannot walk directly into the opening.

(b) Floor holes.

Floor holes into which employees can accidentally walk shall be provided with either a standard guard railing and toeboard on all exposed sides, or a floor hole cover which provides a factor of safety of no less than two and so constructed that the cover cannot be accidentally displaced. While

the cover is not in place, the floor hole shall be guarded by a standard guard railing.

(c) Hatchways.

A removable standard guard railing and toeboard shall be provided on no more than two sides of the hatchway opening and fixed standard guard railing and toeboard shall be provided on all other exposed sides. The removable portion of the standard guard railings shall be kept in place when the opening is not in use and where practicable should be hinged or otherwise mounted so as to be conveniently replaceable.

(2) Wall openings.

(a) Guarding.

Each employee working on, at, above, or near wall openings,including those with chutes attached, shall be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.

(b) Spreaders.

If spreaders are used in window or door frames, such spreaders shall be substantially secured in place.

(c) Where doors or gates open directly onto a stairway, a platform shall be provided and the swing of the door shall not reduce the effective width of the platform to less than twenty inches (50.8 centimeters).

(3) Roof openings.

Wherever there is a danger of an employee falling six feet (1.8 meters) or more to a lower level through a roof opening, including skylights, a standard guard railing and toeboard shall be provided on all exposed sides, or a cover which provides a factor of safety of no less than two shall be provided. A safety belt, safety harness, or a safety net system may be provided in lieu of the

standard guard railing and toeboard or cover.

(E) Standard guard railing.

(1) Standard guard railings 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, and to prevent accidental contact with some object. Top edge height of top rails, or equivalent guardrail system members, shall be forty-two inches (106.7 centimeters) plus or minus three inches (7.6 centimeters) above the walking or working level. When conditions warrant, the height of the top edge may exceed the forty-five inch (114.3 centimeters) in height, provided the guardrail system meets all other criteria of this paragraph. When employees are using stilts, the top edge height of the top rail, or equivalent member, shall be increased an amount equal to the height of the stilts. Minimum material requirements shall be:

(a) Metal.

(i) For pipe railings, the top rail, intermediate rail, and uprights shall be no less than one and one half inches (3.8 centimeters) nominal diameter of schedule forty pipe with uprights spaced no more than eight feet (2.4 meters) on centers.

(ii) For structural steel railings, the top rail, intermediate rail, and uprights shall be two inches (5.1 centimeters) by two inches (5.1 centimeters) by three-eights inch (one centimeter) angles with uprights spaced no more than eight feet (2.4 meters) on centers.

(iii) For wire rope railings, the top and intermediate rail shall be at least one-quarter inch (six millimeters) diameter of thickness. If wire rope is used for top rails, the wire rope shall be flagged at not more than six foot (1.8 meter) intervals with high-visibility material.

(b) Wood.

For wood railings, the uprights shall be of no less than two inches (5.1 centimeters) by four inches (10.2 centimeters) with nominal stock space not to exceed eight feet (2.4 meters); the top rail shall be of no less than two inches (5.1 centimeters) by four inches (10.2 centimeters) nominal stock; the

intermediate rail shall be of no less than one-inch (2.5 centimeters) by six-inch (15.2 centimeters) nominal stock.

(2) A standard toeboard shall be constructed of substantial material. It shall be three and one-half inches (8.9 centimeters)minimum in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It shall be securely fastened in place, with a clearance of no more than one-fourth inch (6 millimeters) above the floor, platform, runway, or ramp. Standard toeboards shall be solid or have openings not over one inch (2.5 centimeters) in greatest dimension. Toeboards shall be capable of withstanding, without failure, a force of at least fifty pounds (two hundred twenty-two newtons) applied in any downward or outward direction at any point along the toeboard.

(F) Stairways.

(1) Uniform dimensions.

(a) The rise height and tread width shall be uniform throughout any flight of stairs, including any foundation structure used as one or more treads of the stairs. Variations in riser height or tread depth shall not be over one-fourth inch (six millimeters) in any stairway system.

(b) Temporary stairs shall have a landing no less than thirty inches (76.2 centimeters) in the direction of travel and extend at least twenty-two inches (55.9 centimeters) in width at every twelve feet (3.7 meters) of vertical rise.

(c) Winding and spiral stairways shall be equipped with a handrail offset sufficient to prevent walking on those portions of the stairways where the tread width is less than six inches (15.2 centimeters).

(2) Angle of stairways.

(a) Stairways that will not be a permanent part of the structure on which construction work is being performed shall have landings of not less than thirty inches (76.2 centimeters) in the direction of travel and extend at least twenty-two inches (55.9 centimeters) in width at every twelve feet (3.7 meters) or less of vertical rise. Stairs shall be installed between thirty degrees and fifty degrees from

horizontal.

(b) Where it is not possible to provide temporary stairways due to the absence of floors in the structure, a ladder shall be provided.

(3) Stairways with pan-type treads.

Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads or landings are to be filled in with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan. Such temporary treads and landings shall be replaced when worn below the level of the top edge of the pan.

(4) Treads, landings, and gratings.

Treads for temporary service shall be made of wood or other solid material and shall be installed the full width and depth of the stair.

(5) Illumination.

Stairways, ramps, runways, and platforms shall be lighted to no less than the minimum illumination intensity of five foot-candles (53.8 lux).

(6) Stair railings and handrails.

(a) Every flight of stairs having four or more risers or rising thirty inches (76.2 centimeters), whichever is less, shall be equipped with stair railings or handrails as specified in paragraphs (F)(6)(a)(i) to (F)(6)(a)(v) of this rule, the width of the stair to be measured clear of all obstructions except handrails. Handrails and the top rails of stairrail systems shall be capable of withstanding, without failure, a force of at least two hundred pounds (eight hundred ninety newtons) applied within two inches (5.1 centimeters) of the top edge, in any downward or outward direction, at any point along the top edge.

(i) The height of handrails shall be not more than thirty-seven inches (ninety-four centimeters) nor less than thirty inches (76.2 centimeters) from the upper surface of the handrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(ii) When the top edge of a stairrail system also serves as a handrail, the height of the top edge shall be not more than thirty-seven inches (ninety-four centimeters) nor less than thirty-six inches (91.4 centimeters) from the upper surface of the stairrail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(iii) Stairrail systems and handrails shall be so surfaced as to prevent injury to employees from punctures or lacerations and to prevent snagging of clothing.

(iv) Handrails shall provide an adequate handhold for employees grasping them to avoid falling.

(v) The ends of stairrail systems and handrails shall be constructed so as not to constitute a projection hazard.

(vi) Unprotected sides and edges of stairway landings shall be provided with guardrail systems.

(b) Construction.

(i) Stair railing.

A stair railing shall be of construction similar to a standard guard railing, except that the vertical height shall be no less than thirty-six inches (91.4 centimeters) from the upper surface of the top rail to the surface of the tread in line with the face of the riser at the forward edge of the tread.

(ii) Handrail.

(A) A handrail shall be of construction similar to a standard guard railing except that it is mounted to a wall or partition and does not include an intermediate rail. A handrail shall have a smooth surface along the top and both sides. Ends of a handrail shall be constructed so as not to constitute a projection hazard.

(B) The height of handrails shall be no more than thirty-seven inches (ninety-four centimeters) and no less than thirty inches (76.2 centimeters) from the upper surface of the handrail to the surface of the tread, in line with the face of the riser or to the surface of the ramp.

(C) Handrails and railings shall be provided with a clearance of approximately three inches (7.6 centimeters)between the handrail or railing and any other object.

(G) Overhead protection.

Overhead protection shall be provided where employees are working below other employees on floor levels with open floor above.

(H) Guarding of open-sided floors, platforms, and runways.

(1) Open-sided floors or platforms.

(a) Standard guard railing and toeboards shall be provided on every open-sided floor or platform six feet (1.8 meters) or more above adjacent floor or ground level, except where there is entrance to a ramp, stairway, or fixed ladder.

(b) One-quarter inch (six millimeter) wire rope and toeboard, substantially secured in place, may be used in lieu of standard guard railing.

(2) Runways.

(a) Standard guard railings and toeboards shall be provided on all open sides of runways six feet (1.8 meters) or more above floor or ground level.

(b) Runways used exclusively for special purposes may have the railing on one side omitted where operating conditions necessitate such omission, providing the falling hazard is minimized by using a runway no less then eighteen inches (45.7 centimeters) wide.

(3) Working above dangerous equipment.

(a) Each employee working less than six feet (1.8 meters) above dangerous equipment shall be protected from falling into or onto the dangerous equipment by a standard guard railing and toeboard, or the equipment shall be guarded. Dangerous equipment includes machinery in operation; open vats, hoppers, or tanks; railroad tracks with moving equipment below the work; live electrical conductors unless deenergized and effectively grounded; or similar sources of danger.

(b) Each employee working six feet (1.8 meters) or more above dangerous equipment shall be protected from falling into or onto the dangerous equipment by a standard guard railing and toeboard, or safety belt or harness, or a safety net system. Dangerous equipment includes machinery in operation; open vats, hoppers, or tanks; railroad tracks with moving equipment below the work; live electrical conductors unless deenergized and effectively grounded; or similar sources of danger.

(4) Bridge decks.

The height of the standard guard railing on bridge decks may be adjusted to provide clearance for the operation of paving machinery.