

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: D
- Subpart Title: Walking-Working Surfaces
- Standard Number: 1910.28
- Title: Duty to have fall protection and falling object protection.

1910.28(a) General

1910.28(a)(1) This section requires employers to provide protection for each employee exposed to fall and falling object hazards. Unless stated otherwise, the employer must ensure that all fall protection and falling object protection required by this section meet the criteria in § 1910.29, except that personal fall protection systems required by this section meet the criteria of § 1910.140.

1910.28(a)(2) This section does **NOT** apply:

1910.28(a)(2)(i) To portable ladders;

1910.28(a)(2)(ii) When employers are inspecting, investigating, or assessing workplace conditions or work to be performed prior to the start of work or after all work has been completed. This exemption does not apply when fall protection systems or equipment meeting the requirements of § 1910.29 have been installed and are available for workers to use for pre-work and postwork inspections, investigations, or assessments;

1910.28(a)(2)(iii) To fall hazards presented by the exposed perimeters of entertainment stages and the exposed perimeters of rail-station platforms;

1910.28(a)(2)(iv) To powered platforms covered by § 1910.66(j);

1910.28(a)(2)(v) To aerial lifts covered by § 1910.67(c)(2)(v);

1910.28(a)(2)(vi) To telecommunications work covered by § 1910.268(n)(7) and (8); and

1910.28(a)(2)(vii) To electric power generation, transmission, and distribution work covered by § 1910.269(g)(2)(i).

1910.28(b) Protection from fall hazards

1910.28(b)(1) Unprotected sides and edges.

1910.28(b)(1)(i) Except as provided elsewhere in this section, the employer must ensure that each employee on a walking-working surface with an unprotected side or edge that is **4 feet (1.2 m) or more** above a lower level is protected from falling by **ONE OR MORE** of the following:

1910.28(b)(1)(i)(A) Guardrail systems;

1910.28(b)(1)(i)(B) Safety net systems; or

1910.28(b)(1)(i)(C) Personal fall protection systems, such as personal fall arrest, travel restraint, or positioning systems.

1910.28(b)(1)(ii) When the employer can demonstrate that it is not feasible or creates a greater hazard to use guardrail, safety net, or personal fall protection systems on residential roofs, the employer **must DEVELOP AND IMPLEMENT a fall protection plan** that meets the requirements of 29 CFR 1926.502(k) and training that meets the requirements of 29 CFR 1926.503(a) and (c).

Note to paragraph (b)(1)(ii) of this section: There is a presumption that it is feasible and will not create a greater hazard to use at least one of the above-listed fall protection systems specified in paragraph (b)(1)(i) of this section. Accordingly, the employer has the burden of establishing that it is not feasible or creates a greater hazard to provide the fall protection systems specified in paragraph (b)(1)(i) and that it is necessary to implement a fall protection plan that complies with § 1926.502(k) in the particular work operation, in lieu of implementing any of those systems.

1910.28(b)(1)(iii) When the employer can **demonstrate that the use of fall protection systems is NOT FEASIBLE** on the working side of a platform used at a loading rack, loading dock, or teeming platform, the work may be done without a fall protection system, provided:

1910.28(b)(1)(iii)(A) The work operation for which fall protection is infeasible is in process;

1910.28(b)(1)(iii)(B) Access to the platform is limited to authorized employees; **AND**,

1910.28(b)(1)(iii)(C) The authorized employees are trained in accordance with § 1910.30.

1910.28(b)(2) Hoist areas

The employer must ensure:

1910.28(b)(2)(i) Each employee in a hoist area is protected from falling **4 feet (1.2 m) or more** to a lower level by:

1910.28(b)(2)(i)(A) A guardrail system;

1910.28(b)(2)(i)(B) A personal fall arrest system; or

1910.28(b)(2)(i)(C) A travel restraint system.

1910.28(b)(2)(ii) When any portion of a guardrail system, gate, or chains is **REMOVED**, and an employee must lean through or over the edge of the access opening to facilitate hoisting, the employee is protected from falling by a **PERSONAL FALL ARREST SYSTEM**.

1910.28(b)(2)(iii) If grab handles are installed at hoist areas, they meet the requirements of § 1910.29(l).

1910.28(b)(3) Holes

The employer must ensure:

1910.28(b)(3)(i) Each employee is protected from falling through any hole (including skylights) that is **4 feet (1.2 m) or more** above a lower level by one or more of the following:

1910.28(b)(3)(i)(A) Covers;

1910.28(b)(3)(i)(B) Guardrail systems;

1910.28(b)(3)(i)(C) Travel restraint systems; or

1910.28(b)(3)(i)(D) Personal fall arrest systems.

1910.28(b)(3)(ii) Each employee is protected **from TRIPPING INTO OR STEPPING INTO OR THROUGH** any hole that is less than **4 feet (1.2 m) above** a lower level by covers or guardrail systems.

1910.28(b)(3)(iii) Each employee is protected from **falling into a stairway floor hole** by a fixed guardrail system on all exposed sides, except at the stairway entrance.

However, for any stairway used **less than once per day** where traffic across the stairway floor hole prevents the use of a fixed guardrail system (e.g., holes located in aisle spaces), the employer may protect employees from falling into the hole by using a **hinged floor hole cover** that meets the criteria in § 1910.29 and a removable guardrail system on all exposed sides, except at the entrance to the stairway.

1910.28(b)(3)(iv) Each employee is protected from falling into a **ladderway floor hole OR ladderway platform hole** by a guardrail system **AND** toeboards erected on all exposed sides, except at the entrance to the hole, where a self-closing gate or an offset must be used.

1910.28(b)(3)(v) Each employee is protected from falling through a **hatchway and chutefloor hole** by:

1910.28(b)(3)(v)(A) A **hinged floor-hole cover** that meets the criteria in § 1910.29 **AND** a fixed guardrail system that leaves **ONLY ONE** exposed side. When the hole is not in use, the employer **must ensure** the cover is closed or a removable guardrail system is provided on the exposed sides;

1910.28(b)(3)(v)(B) A **removable guardrail system AND toeboards** on **not more than two sides** of the hole and a fixed guardrail system on all other exposed sides. The employer **must ensure** the removable guardrail system is kept in place when the hole is not in use; or

1910.28(b)(3)(v)(C) A **guardrail system OR a travel restraint system** when a work operation necessitates passing material through a hatchway or chute floor hole.

1910.28(b)(4) Dockboards

1910.28(b)(4)(i) The employer must ensure that each employee on a dockboard is protected from falling **4 feet (1.2 m) or more** to a lower level by a guardrail system or handrails.

1910.28(b)(4)(ii) A **guardrail system or handrails are NOT required** when:

1910.28(b)(4)(ii)(A) Dockboards are being used solely for materials-handling operations using motorized equipment;

1910.28(b)(4)(ii)(B) Employees engaged in these operations are not exposed to fall hazards **greater than 10 feet** (3 m); **AND**

1910.28(b)(4)(ii)(C) Those employees have been trained in accordance with § 1910.30.

1910.28(b)(5) Runways and similar walkways

1910.28(b)(5)(i) The employer must ensure each employee on a runway or similar walkway is protected from falling **4 feet (1.2 m) or more** to a lower level by a guardrail system.

1910.28(b)(5)(ii) When the employer can demonstrate that it is **not feasible to have guardrails on both sides** of a runway used exclusively for a special purpose, the employer may **omit the guardrail on one side of the runway**, provided the employer ensures:

1910.28(b)(5)(ii)(A) The runway is at least **18 inches (46 cm) wide**; **AND**

1910.28(b)(5)(ii)(B) Each employee is **provided with AND uses** a personal fall arrest system or travel restraint system.

1910.28(b)(6) Dangerous equipment

The employer must ensure:

1910.28(b)(6)(i) Each employee less than **4 feet (1.2 m) above dangerous equipment** is protected from falling into or onto the dangerous equipment by a **guardrail system OR a travel restraint system, UNLESS** the equipment is covered or guarded to eliminate the hazard.

1910.28(b)(6)(ii) Each employee **4 feet (1.2 m) or more above dangerous equipment** must be protected from falling by:

1910.28(b)(6)(ii)(A) Guardrail systems;

1910.28(b)(6)(ii)(B) Safety net systems;

1910.28(b)(6)(ii)(C) Travel restraint systems; or

1910.28(b)(6)(ii)(D) Personal fall arrest systems.

1910.28(b)(7) Openings

The employer must ensure that each employee on a walking-working surface near an opening, including one with a chute attached, where the **inside bottom edge of the opening is less than 39 inches (99 cm) above that walking-working surface AND** the outside bottom edge of the opening is **4 feet (1.2 m) or more above a lower level** is protected from falling by the use of:

- 1910.28(b)(7)(i) Guardrail systems;
- 1910.28(b)(7)(ii) Safety net systems;
- 1910.28(b)(7)(iii) Travel restraint systems; or,
- 1910.28(b)(7)(iv) Personal fall arrest systems.

1910.28(b)(8) Repair pits, service pits, and assembly pits less than 10 feet in depth

The use of a fall protection system is **NOT** required for a repair pit, service pit, or assembly pit that is **less than 10 feet (3 m) deep**, PROVIDED the employer:

1910.28(b)(8)(i) **Limits access within 6 feet (1.8 m) of the edge** of the pit to authorized employees trained in accordance with § 1910.30;

1910.28(b)(8)(ii) **Applies floor markings at least 6 feet (1.8 m) from the edge of the pit in colors that contrast with the surrounding area; OR**

places a **warning line at least 6 feet (1.8 m) from the edge of the pit** as well as stanchions that are capable of resisting, without tipping over, a force of at least **16 pounds (71 N) applied horizontally against the stanchion at a height of 30 inches (76 cm); OR**

places a **combination of floor markings and warning lines at least 6 feet (1.8 m) from the edge of the pit.**

When **two or more pits in a common area are not more than 15 feet (4.5m) apart**, the employer may comply by placing **contrasting floor markings at least 6 feet (1.8 m) from the pit edge around the entire area of the pits; and**

1910.28(b)(8)(iii) **Posts readily visible caution signs** that meet the requirements of § 1910.145 and state "Caution-Open Pit."

1910.28(b)(9) Fixed ladders (that extend more than 24 feet (7.3 m) above a lower level)

1910.28(b)(9)(i) For fixed ladders that **extend more than 24 feet (7.3 m) above a lower level**, the employer must ensure:

1910.28(b)(9)(i)(A) Existing fixed ladders.

Each fixed ladder installed **BEFORE November 19, 2018** is equipped with a personal fall arrest system, ladder safety system, cage, or well;

1910.28(b)(9)(i)(B) New fixed ladders.

Each fixed ladder installed **ON AND AFTER** November 19, 2018, is equipped with a personal fall arrest system or a ladder safety system;

1910.28(b)(9)(i)(C) Replacement.

When a fixed ladder, cage, or well, or any portion of a section thereof, is replaced, a **personal fall arrest system or ladder safety system is installed in at least that section of the fixed ladder**, cage, or well where the replacement is located; and

1910.28(b)(9)(i)(D) Final deadline.

On and after November 18, 2036, **ALL** fixed ladders are equipped with a personal fall arrest system or a ladder safety system.

1910.28(b)(9)(ii) When a one-section fixed ladder is equipped with a personal fall protection or a ladder safety system or a fixed ladder is equipped with a personal fall arrest or ladder safety system on more than one section, the employer must ensure:

1910.28(b)(9)(ii)(A) The personal fall arrest system or ladder safety system provides protection throughout the **entire vertical distance of the ladder**, including all ladder sections; and

1910.28(b)(9)(ii)(B) The ladder has **REST PLATFORMS provided at maximum intervals of 150 feet** (45.7 m).

1910.28(b)(9)(iii) The employer must ensure ladder sections having a cage or well:

1910.28(b)(9)(iii)(A) Are offset from adjacent sections; and

1910.28(b)(9)(iii)(B) Have **LANDING PLATFORMS provided at maximum intervals of 50 feet** (15.2 m).

1910.28(b)(9)(iv) The employer **may use a cage or well in combination with a personal fall arrest system or ladder safety system** provided that the cage or well does not interfere with the operation of the system.

1910.28(b)(10) Outdoor advertising (billboards)

1910.28(b)(10)(i) The requirements in paragraph (b)(9) of this section, and other requirements in subparts D and I of this part, apply to fixed ladders used in outdoor advertising activities.

1910.28(b)(10)(ii) When an employee engaged in outdoor advertising climbs a fixed ladder **BEFORE** November 19, 2018 that is **NOT equipped with a cage, well, personal fall arrest system, or a ladder safety system** the employer must ensure the employee:

1910.28(b)(10)(ii)(A) Receives **training AND demonstrates** the physical capability to perform the necessary climbs in accordance with § 1910.29(h);

1910.28(b)(10)(ii)(B) **Wears a body harness equipped with an 18-inch (46 cm) rest lanyard;**

1910.28(b)(10)(ii)(C) **Keeps both hands free of tools or material** when climbing on the ladder; and

1910.28(b)(10)(ii)(D) Is **protected by a fall protection system upon reaching the work position.**

1910.28(b)(11) Stairways

The employer must ensure:

1910.28(b)(11)(i) Each employee exposed to an **unprotected side or edge of a stairway LANDING** that is **4 feet (1.2 m) or more** above a lower level is protected by a guardrail or stair rail system;

1910.28(b)(11)(ii) Each flight of stairs having at least **3 treads** **AND** **at least 4 risers** is **equipped with stair rail systems and handrails** as follows:

Table D-2 -- Stairway Handrail Requirements

Stair width	Enclosed	One open side	Two open sides	With earth built up on both sides
Less than 44 inches (1.1 m).	At least one handrail	One stair rail system with handrail on open side.	One stair rail system each open side.	
44 inches (1.1 m) to 88 inches (2.2 m).	One handrail on each enclosed side	One Stair rail system with handrail on open side and one handrail on enclosed side.	One stair rail system with handrail on each open side.	
Greater than 88 inches (2.2 m).	One handrail on each enclosed side and one intermediate handrail located in the middle of the stair	One stair rail system with handrail on open side, one handrail on enclosed side, and one intermediate handrail located in the middle of the stair.	One stair rail system with handrail on each open side and one intermediate handrail located in the middle of the stair.	
Exterior stairs less than 4.4 inches (1.1 m).				One handrail on least one side.
Note to table: The width of the stair must be clear of all obstructions except handrails.				

1910.28(b)(11)(iii) Each ship stairs and alternating tread type stairs is equipped with handrails on both sides.

1910.28(b)(12) Scaffolds and rope descent systems

The employer must ensure:

1910.28(b)(12)(i) Each employee on a scaffold is protected from falling in accordance 29 CFR part 1926, subpart L; and

1910.28(b)(12)(ii) Each employee using a rope descent system 4 feet (1.2 m) or more above a lower level is protected from falling by a personal fall arrest system.

1910.28(b)(13) Work on low-slope roofs

1910.28(b)(13)(i) When work is performed **LESS THAN 6 feet (1.6 m) from the roof edge**, the employer must ensure each employee is protected from falling by a **guardrail system, safety net system, travel restraint system, or personal fall arrest system**.

1910.28(b)(13)(ii) When work is performed **AT LEAST 6 FEET (1.6 m) BUT LESS THAN 15 feet (4.6 m) from the roof edge**, the employer must ensure each employee is protected from falling by using a **guardrail system, safety net system, travel restraint system, or personal fall arrest system**. The employer may use a designated area when performing work that is **BOTH INFREQUENT AND TEMPORARY**.

1910.28(b)(13)(iii) When work is performed **15 feet (4.6 m) or more from the roof edge**, the employer must:

1910.28(b)(13)(iii)(A) Protect each employee from falling by a **guardrail system, safety net system, travel restraint system, or personal fall arrest system or a designated area**. The employer is not required to provide any fall protection, provided the work is **BOTH INFREQUENT AND TEMPORARY**; and

1910.28(b)(13)(iii)(B) **IMPLEMENT AND ENFORCE** a work rule **PROHIBITING employees from going within 15 feet (4.6 m) of the roof edge without using fall protection** in accordance with paragraphs (b)(13)(i) and (ii) of this section.

1910.28(b)(14) Slaughtering facility platforms

1910.28(b)(14)(i) The employer must protect each employee on the unprotected working side of a slaughtering facility platform that is 4 feet (1.2 m) or more above a lower level from falling by using:

1910.28(b)(14)(i)(A) Guardrail systems; or

1910.28(b)(14)(i)(B) Travel restraint systems.

1910.28(b)(14)(ii) When the employer can demonstrate the use of a guardrail or travel restraint system is not feasible, the work may be done without those systems provided:

1910.28(b)(14)(ii)(A) The work operation for which fall protection is infeasible is in process;

1910.28(b)(14)(ii)(B) Access to the platform is limited to authorized employees; and

1910.28(b)(14)(ii)(C) The authorized employees are trained in accordance with § 1910.30.

1910.28(b)(15) Walking-working surfaces not otherwise addressed

Except as provided elsewhere in this section or by other subparts of this part, the employer must ensure each employee on a **walking working surface 4 feet (1.2 m) or more** above a lower level is protected from falling by:

1910.28(b)(15)(i) Guardrail systems;

1910.28(b)(15)(ii) Safety net systems; or

1910.28(b)(15)(iii) Personal fall protection systems, such as personal fall arrest, travel restraint, or positioning systems.

1910.28(c) Protection from falling objects

When an employee is exposed to falling objects, the employer must ensure that **each employee wears head protection that meets the requirements of subpart I** of this part. In addition, the employer must protect employees from falling objects by implementing **ONE OR MORE** of the following:

1910.28(c)(1) Erecting toeboards, screens, or guardrail systems to prevent objects from falling to a lower level;

1910.28(c)(2) Erecting canopy structures and keeping potential falling objects far enough from an edge, hole, or opening to prevent them from falling to a lower level; or

1910.28(c)(3) Barricading the area into which objects could fall, prohibiting employees from entering the barricaded area, and keeping objects far enough from an edge or opening to prevent them from falling to a lower level.

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