

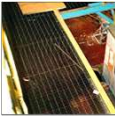


FPST 2023 Industrial and Occupational Safety

Walking and Working Surfaces – Part 2

Source: HoneywellMiller, used with permission.

Source: OSHA

Source: OSHA

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1910.25

Stairways




Source: OSHA

Source: OSHA

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Stairways

- (a) Application - All stairways including standard, spiral stairs, ship stairs, and alternating tread-type stairs
- Exceptions for stairs serving:
 - Floating roof tanks
 - Stairs on scaffolds
 - Designed into machines or equipment
 - Stairs on self-propelled motorized equipment.

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1910.25 Stairways

- (b)(2) Vertical clearance above any stair tread at least (6' 8")

6' 8" feet minimum

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1910.25 - Stairways

- (b)(3) Must have uniform riser height and tread depth, with less than a 1/4-inch variation.

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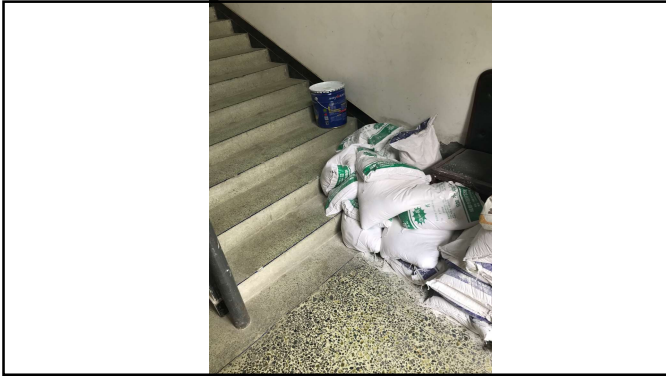
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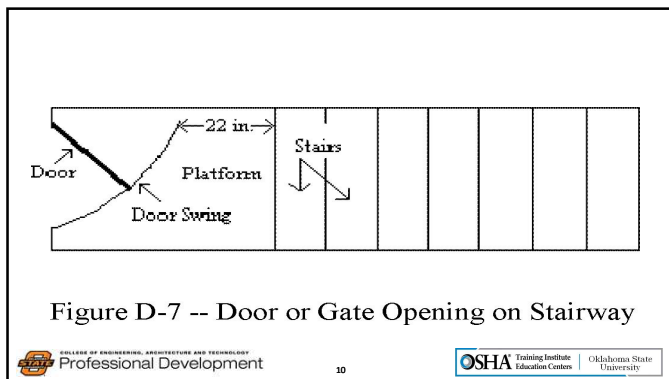
1910.25 Stairways

- (b)(5) Where a door or gate open directly on a stairway, a platform is provided, and the swing of the door or gate shall not reduce the platform's effective usable depth to:
 - (b)(5)(i) Less than 20 inches installed before 01/17/2017
 - (b)(5)(ii) Less than 22 inches installed after 01/17/2017.
- (b)(6) Support at least five times the normal anticipated load

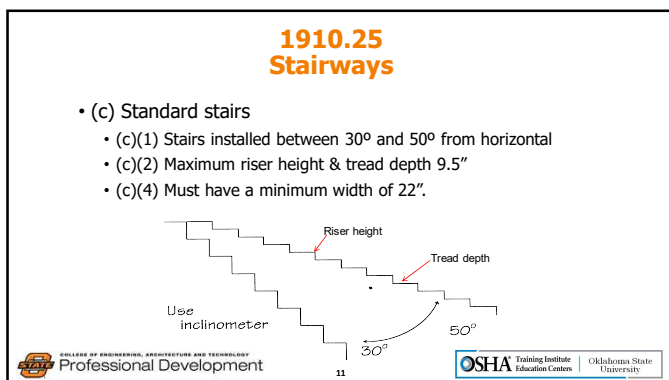
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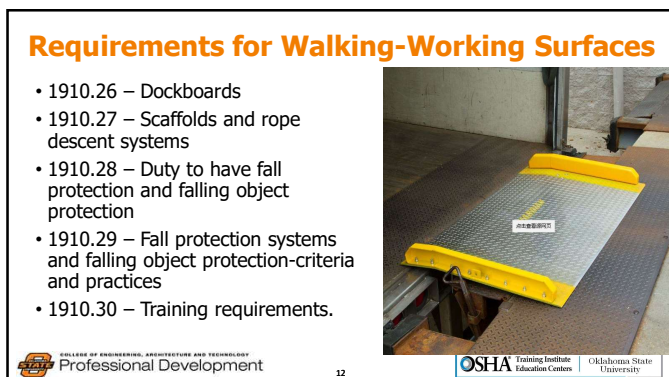
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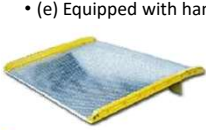
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Dockboards 1910.26

- (a) Maximum intended loads
- (b)(1) Curb stops
- (c) Portable ones secured or adequate overlap
- (d) Use wheel chocks, etc. to prevent vehicle movement
- (e) Equipped with hand holds.



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1910.27 – Scaffolds and Rope Descent Systems (RDS)

- (a) Scaffolds must meet requirements of 1926 Subpart L
- (b)(1) Anchorages
 - (b)(1)(i) Before descent devices can be used on building owner must:
 - In writing certify anchorage tested & maintained to support at least 5000# in each direction per employee attached.



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1910.27 – Scaffolds and Rope Descent Systems (RDS)

- (b)(2) Use of rope descent system
 - (b)(2)(i) **Limited to 300'** unless....
 - (b)(2)(ii) Used according to Manufacturer's direction or under qualified person
 - (b)(2)(iii) Each person trained
 - (b)(2)(iv) Inspected prior to use
 - (b)(2)(vi) Independent fall arrest
 - (b)(2)(viii) Provide for prompt rescue
 - (b)(2)(ix) Ropes padded
 - (b)(2)(xii) Tools restrained.

ROPE DESCENT SYSTEM (RDS)



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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (a) General. Incorporates new technology consistent with national consensus standards
- (a)(2) Does not apply to:
 - **Portable ladders**
 - **Employers inspecting, investigating, assessing prior to start of work**
 - **Entertainment stages**
 - **Powered Platforms, Aerial lifts, Telecommunications, & Power Generation covered elsewhere.**

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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b) Protection from fall hazards
 - (b)(1)(i) Unprotected sides & edges 4' or more above lower level, by:
 - **Guardrails system**
 - **Safety nets system**
 - **Personal fall protection systems such PFAS**
 - (b)(1)(ii) Infeasible, alternate protection, Fall Protection Plan.



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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b)(2) Hoist areas
 - Guardrail
 - PFAS
 - Travel restraint system



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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b)(3) Holes/Skylights
 - Covers
 - Guardrail
 - Travel restraint
 - PFAS



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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b)(3)(iii) Stairway floor hole
- (b)(3)(iv) Ladder way floor hole.
- What is OSHA's definition of a hole?



Hole means a gap or open space in a floor, roof, horizontal walking-working surface, or similar surface that is at least 2 inches (5 cm) in its least dimension.

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Duty to Have Fall Protection and Falling Object Protection 1910.28

(b)(3)(v) Hatchways

- Every hatchway and chute opening shall be guarded by one of the following:
 - Hinged floor opening cover
 - A removable guardrail with toeboard.
- Ensure cover stays closed or guardrail remains in place



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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b)(6) Dangerous Equipment
 - Guarded less than 4'



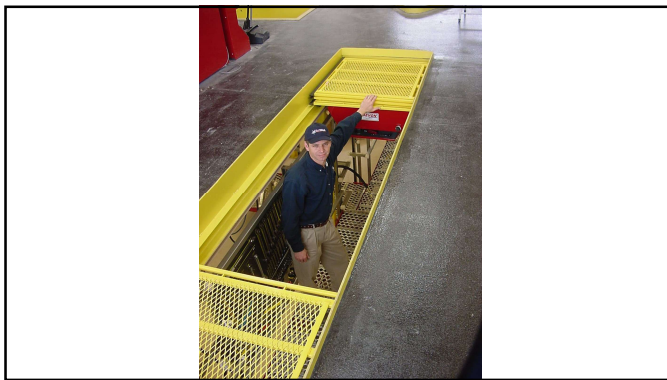
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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b)(7) Openings
 - Guarded at 4'
- (b)(8) Repair Pits, Assembly Pits, Service Pits
 - Not required less than 10' if
 - Limit access within 6' by authorized trained employees
 - Line floor
 - Warning Line.



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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b)(9) Fixed Ladders >24'
 - Changes in cages and ladder safety systems
 - Fazing out cages, new installs PFAS or ladder safety system by 11-19-18
 - Replacement PFAS or ladder safety system
 - **11-18-2036** all PFAS or ladder safety system
 - Partial retrofits – must be done whenever any portion of a ladder, cage or well is replaced
- (b)(9)(ii)(B) Rest platforms
 - **Max. interval of 150'** with PFAS or ladder safety system.



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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b)(11) Stairways
 - Exposed to an unprotected side or edge of a stairway landing that is 4 feet or more in height above a lower level is protected by a guardrail or stair rail system
 - Each flight of stairs having at **least 3 treads and at least 4 risers** is equipped with stair rail system and handrails



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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (b)(15) Walking-working surfaces not otherwise addressed.
...an employer must ensure each employee on a walking-working surface 4 feet or more above a lower level is protected from falling by:
 - Guardrail system
 - Safety net system
 - Personal fall protection system.

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Duty to Have Fall Protection and Falling Object Protection 1910.28

- (c) Protection from Falling Objects
 - (c)(1) **Toeboards**, screens, guardrail system
 - (c)(2) Erecting canopy structures
 - Keep objects back from edge
 - (c)(3) Barricading the area into which objects could fall...



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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (b) Guardrail Systems
 - (1) Top edge: **42"** above: + or - 3"



- (b)(2) Midrails required if no wall or parapet at least **21"** high
 - Installed midway between top rail and working level.

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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (b) Guardrail Systems
 - (3)-(5) Outward/downward force
 - Guardrail systems must be able to withstand **200** lbs. of out/down force
 - Top edge, when tested, must not deflect to a height less than 39"
 - Midrails, etc. must be able to withstand 150 lbs. of out/down force.



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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (b) Guardrail Systems
 - (6)(8)(9)(15) Top rails & mid rails
 - Guardrail systems are **smooth-surfaced** to protect from injury
 - Not of steel/plastic banding
 - Min. 1/4" nominal diameter/thickness



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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (b) Guardrail Systems
 - (10) Hoisting areas
 - Access opening must be protected by **chain, gate or removable guardrail section** when operations are not taking place.



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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (b) Guardrail Systems
 - (11) Guardrail systems must be erected on all unprotected edges/sides
 - (12)(i) Use for passage of materials allows **up to 2 removable sides** guardrail sections
 - (12)(ii) Hole must be protected when not in use by cover or guardrail system
 - (13) If used as point of access (such as ladderways), a gate or offset is required
 - (13)(i) Has a self-closing gate that slides or swings away from the hole.



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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (b) Guardrail Systems
 - (14) Ramps & runways



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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (c) Safety net systems (per 1926, Subpart M)
 - (1) Height
 - Installed no more than 30' below walking/working surface.

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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (d) Designated areas
 - (1)(ii) The perimeter is delineated with a warning line consisting of a rope, wire, tape, or chain
 - (2)(ii) Warning line is installed so its lowest point, including sag, is not less than 34 inches and not more than 39 inches above the walking-working surface
 - (2)(iii) Pulling on one section of the line will no result in slack being taken up in adjacent sections
 - (2)(iv) **Clearly visible from a distance of 25 feet**
 - (2)(v) erected as close to the work area as the task permits
 - (2)(vi) Erected not less than **6 feet from the roof edge**

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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (e) Covers
 - (1) Supporting without failure, at least twice the maximum intended load
 - (2) Secured to prevent accidental displacement

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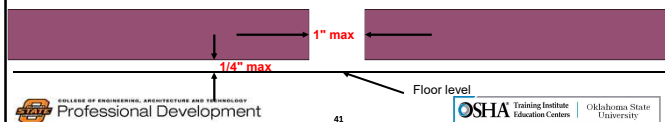
1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (g) Cages, wells, and platforms used with fixed ladders
- (h) Outdoor Advertising
- (i) Ladder safety system
- (j) Personal fall protection system

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1910.29 Fall Protection Systems and Falling Object Protection – Criteria and Practices

- (k) Protection from falling objects
 - (1)(i) Minimum vertical clearance of **3 1/2"** high from the top edge of the toeboard to the level of the walking/working surface
 - (1)(ii) No more than 1/4 inch clearance above the surface
 - (1)(iv) Shall be solid or with openings not over inch in the greatest dimension
 - (1)(vi) Capable of withstanding a force of at least **50 pounds** applied in a downward or horizontal direction



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1910.30 Training Requirements

- Trained by competent person
- Fall hazards
- Equipment hazards
 - dockboard
 - rope descent system
 - designated area
- Proper care, inspection, storage, and use of equipment
- Retraining

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Description - Employees working above 4-feet on machine platform without fall protection.

Corrective Action:
Employer provided a mobile scaffold / ladder system for safe access.





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Employees climb 130+' metal fixed ladder. Ladder not provided with ladder climbing device, offset landings every 20', or cage with a maximum length of 30'.

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Source: OSHA

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