**General Industry Walking-Working Surfaces and Fall-Protection**

29 CFR 1910 Subpart D and Subpart I

**INTRODUCTIONS**

- Health, Safety and Environmental Health
  - Consultation and Industrial Hygiene
  - Training and Education
  - OSHA-Based Medical Surveillance

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Industries

- Agriculture
- Alternative Energy
- Analytical Labs (stable and radiochemistry)
- Bioremediation
- Chemical Blending & Delivery
- Construction Trades (Industrial/Commercial and Residential)
- Data/Networking
- Electrical Controls
- Food and Beverages
- Government Agencies
- High Tech
- Hydroelectric Power Plants
- Manufacturing/Production
- Microelectronics Manufacturing
- Pipeline and Structure Coating
- Transportation & Storage
- Unexploded Ordnance Disposal (UXO) / Explosive Ordnance Disposal (EOD)
- Upstream Oil & Gas

Tell Us About You!

- Your Name
- Your Job Title (& Company)
- Experience w/ this Topic
- Rate Your Knowledge on this Topic (1-3)
  - 1 = EXPERT
  - 2 = WORKING KNOWLEDGE / NOT AN EXPERT
  - 3 = BASIC or NONE

OSHA’s Intent...

- Update the outdated subpart D standard,
  - Incorporate new technology and industry practices
- Increase consistency with construction standards
  - 1926 subparts L, M, and X
- Add new provisions to subpart I that set forth criteria requirements for personal fall protection equipment
1910 Subpart D – Major Rewrite

- 1910.21 – Scope, Application and Definitions
- 1910.22 – General Requirements
  - 1910.23 – Ladders
  - 1910.24 – Step bolts and Manhole Steps
  - 1910.25 – Stairways
  - 1910.26 – Dockboards
  - 1910.27 – Scaffolds and Rope Descent Systems
  - 1910.28 – Duty to Have Fall Protection
  - 1910.29 – Fall Protection Systems Criteria and Practices
  - 1910.30 – Training Requirements

1910.21 – Scope, Application and Definitions

- Consolidates definitions into one section
- Adds new definitions to provide clarity
1910.22 – General Requirements

- Maintains housekeeping provisions
- Walking-working surfaces must be designed to meet their maximum intended load, free of recognized hazards and routinely inspected
- Repairs to be done, or overseen, by qualified person

1910.23 – Ladders

- Consolidates and simplifies rules into
  - General requirements
  - Portable ladders
  - Fixed ladders
  - Mobile ladder stands
- Requires inspection before use

- Updates and makes rule consistent with current national consensus standards
1910.24 – Step Bolts and Manhole Steps

- Moves step bolt criteria from OSHA’s Telecommunication Standard
- to Walking-Working Surfaces
- Makes design, inspection, and maintenance requirements consistent with national consensus standards

1910.25 – Stairways

- Adds design and use criteria for spiral stairs, ship stairs, and alternating tread-type stairs
- Updates design criteria for stairs and landings, consistent with national consensus standards

1910.26 – Dockboards

- Updates requirements for dockboards
- Adds design and construction requirements to prevent equipment from going over the dockboard edge
1910.27 – Scaffold and Rope-Descent Systems

- 1910 Employers using scaffolds must follow the construction standard
- Adds provisions
  - Allows use of RDS (codifies a 1991 OSHA memo allowing RDS)
  - Certification of anchorages starting 1 year after final rule published
  - RDS must have separate fall arrest system

29 CFR 1910.28: DUTY TO HAVE FALL PROTECTION

1910.28 – Duty to Have Fall Protection & Falling Object Protection

1. Consolidates fall protection requirements
2. Makes requirements and format consistent with construction standard
3. Flexible approach similar to 1926 Subpart M
4. Incorporates new technology that is consistent with national consensus standards
1910.28 – Duty to Have Fall Protection & Falling Object Protection

- Falling-object protection and fall-protection must comply with 29 CFR 1910.29
  - Reminder: General Industry height is four-feet unless otherwise stated
- Personal fall-arrest systems must comply with 29 CFR 1910.140

General Requirement [1910.28(b)(15)]

1. Guardrail system
2. Safety net system
3. Personal fall-arrest system including...
   i. Fall-arrest system
   ii. Travel restraint/work-restriction system
   iii. Work-positioning system

1910.28(b)(1) – (b)(14) – Specific Circumstances

1. Unprotected Sides and Edges
2. Loading Racks, Docks, Teeming Platforms
3. Hoist Areas
4. Holes
5. Dockboards
6. Runways
7. Dangerous Equipment
8. Openings
9. Fixed Ladders
10. Outdoor Advertising
11. Stairways
12. Scaffolds and Rope Descent Systems
13. Low-Slope Roofs
14. Slaughtering Facility Platforms
### Unprotected Sides and Edges [1910.28(b)(1)]

1. Guardrail system
2. Safety net system
3. Personal fall-arrest system including...
   - i. Fall-arrest system
   - ii. Travel restraint/work-restriction system
   - iii. Work-positioning system
4. Alternate Fall Protection Plan
   - Allowed only when above methods unfeasible (read impossible), or creates greater hazard
   - Must meet requirements in
     - 1910.502(a) – ALTERNATE PLANS
     - 1926.503(a) and (c) – TRAINING

### Loading Racks, Docks, Teeming Platforms [1910.28(b)(1)(iii)]

- Work may be done without fall-protection only when:
  1. The work operation for which fall protection is infeasible is in process,
  2. Access to the platform is limited to authorized employees and
  3. The authorized employees are trained in accordance with § 1910

### Hoist Areas [1910.28(b)(2)]

1. Guardrail system
2. Personal fall-arrest system
3. Travel restraint/work-restriction system

- If 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:
  - Personal fall arrest system required
### Holes - General [1910.28(B)(3)]

1. Cover
2. Guardrail system
3. Travel restraint/work-restriction system
4. Personal fall-arrest system

- If there is a possibility of an employee tripping into or stepping into or through any hole that is less than 4 feet (1.2 m) above a lower level:
  - Protect employee with a cover, guardrail system or travel restraint system

### Stairway Floor Hole [1910.28(B)(3)(iii)]

- Guardrails on all exposed sides except entrance
- For stairways 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)
- Use hinged floor-hole cover per § 1910.29 and removable guardrail system on all exposed sides, except at entrance

### Other Hole Types [1910.28(B)(3)]

- **Ladderway Floor-Hole or Ladderway-Platform Hole**
  - Guardrail system and toe-boards on all exposed sides
  - Entrance requires self-closing gate or an offset guardrail

- **Hatchway and Chute-Floor Hole**
  - Hinged floor-hole cover per § 1910.29 and fixed guardrail with only one exposed side
  - When hole not in use, close cover or use a removable guardrail on exposed sides

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Hole Definition [29 CFR 1910.21(b)]

“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.”

Dockboards [1910.28(b)(4)]

1. Guardrail system
2. Handrail
   - Employees are required to use a guardrail system or handrail unless:
     - Dockboards used solely for materials-handling with motorized equipment
     - Employees not exposed to fall hazards >10-feet
     - Employees trained in accordance with § 1910.30

Runways [1910.28(b)(5)]

- Guardrails
  - If employer can demonstrate it is not feasible to have guardrails on both sides of the runway used exclusively for a special purpose, may omit the guardrail on one side if:
    - The runways is at least 18 inches (46 cm) wide
    - Each employee is provided with and uses a personal fall arrest system or travel restraint system
Dangerous Equipment [1910.28(b)(6)]

- > 4-feet?
  1. Guardrail system
  2. Safety net system
  3. Travel restraint/work-restriction system
  4. Personal fall-arrest system

- < 4-feet?
  1. Guardrail system
  2. Travel restraint system
  3. Cover or guard

Openings (Wall) [1910.28(b)(7)]

1. Guardrails system
2. Safety net system
3. Travel restraint/work-restriction system
4. Personal fall-arrest system

Openings [1910.28(b)(7)]

- If an employee is working near an opening 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,

  - The employee must be protected from falling by a guardrail system, safety net system, travel restraint system or personal fall-arrest system.
Opening Definition [29 CFR 1910.21(b)]

“Opening means a gap or open space in a wall, partition, vertical walking-working surface, or similar surface that is at least 30 inches (76 cm) high and at least 18 inches (46 cm) wide, through which an employee can fall to a lower level.” [29 CFR 1910.21(b)]

Pits <10-feet Depth [1910.28(b)(8)]

- Includes repair pits, service pits and assembly pits
- No fall protection system is required provided the employer:
  - Limits the access within 6 feet (1.8 m) of the edge of the pit to authorized employees trained in accordance to § 1910.30
  - Applies floor markings at least 6 feet (1.8 m) from the edge of the pit as a warning line
  - Posts caution signs that state “Caution-Open Pit” and meet requirements of § 1910.145 (Specifications for accident prevention signs and tags)

Fixed Ladders >24-feet [1910.28(b)(9)]

- Existing ladders installed before 19 Nov 2018 require:
  1. Personal fall arrest system
  2. Ladder safety system or
  3. Cage or well
- New ladders installed after 19 Nov 2018 require:
  1. Personal fall arrest system or
  2. Ladder safety system
- Replacement ladders, at any time, require:
  1. Fall arrest or
  2. Ladder safety system
- Final Deadline for All Ladders (On and after 18 Nov 2038):
  1. Fall arrest or
  2. Ladder safety system
Fixed Ladder Requirements

- When equipped with PFAS or ladder-safety system:
  - Protection required the entire length of the ladder
  - Rest platforms every 150-feet

- When equipped with cage or well:
  - Offset sections
  - Landing platforms with max intervals of 50-feet
  - OK to use cages and wells in conjunction with PFAS or ladder-safety systems if no interference

Outdoor Advertising [1910.28(b)(10)]

- i.e. Billboards

- Before 19 Nov 2018 and no cage, personal fall arrest system or a ladder safety system:
  1. Training in accordance with § 1910.29(h)
  2. Body harness equipped with an 18-inch rest lanyard
  3. Keep both hands free of tools or materials when climbing
  4. Use a fall-protection system upon reaching the work position

Outdoor Advertising [1910.29(h)]

1. Is physically capable, as demonstrated through observations of actual climbing activities or by a physical examination, to perform the duties that may be assigned, including climbing fixed ladders without fall protection;

2. Has successfully completed a training or apprenticeship program that includes hands-on training on the safe climbing of ladders and is retrained as necessary to maintain the necessary skills;

3. Has the skill to climb ladders safely, as demonstrated through formal classroom training or on-the-job training, and performance observation; and

4. Performs climbing duties as a part of routine work activity
Stairways [1910.28(b)(11)]

1. Guardrail
2. Stair Rail

3. Other Requirements
   - Ship stairs and alternating tread type stairs must have handrails on both sides
   - 3-treads and at least 4-risers must have stair rail and hand rail per table D-2

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Stairways [1910.28(b)(11)(ii) Table D-2]

<table>
<thead>
<tr>
<th>Stair width</th>
<th>Enclosed</th>
<th>One open side</th>
<th>Two open sides</th>
<th>With earth built up on both sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 44 inches (1.1 m).</td>
<td>At least one handrail</td>
<td>One stair rail system with handrail on open side.</td>
<td>One stair rail system with handrail on open side.</td>
<td>One stair rail system with handrail on each open side.</td>
</tr>
<tr>
<td>44 inches (1.1 m) to 88 inches (2.2 m).</td>
<td>One handrail on each enclosed side</td>
<td>One stair rail system with handrail on open side and one handrail on enclosed side.</td>
<td>One stair rail system with handrail on each open side.</td>
<td>One stair rail system with handrail on each open side.</td>
</tr>
<tr>
<td>Greater than 88 inches (2.2 m).</td>
<td>One handrail on each enclosed side and one intermediate handrail located in the middle of the stair</td>
<td>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.</td>
<td>One stair rail system with handrail on each open side and one intermediate handrail located in the middle of the stair.</td>
<td>One stair rail system with handrail on each open side and one intermediate handrail located in the middle of the stair.</td>
</tr>
</tbody>
</table>

Exterior stairs less than 4.4 inches (1.1 m).

One handrail on least one side.

The width of the stair must be clear of all obstructions except handrails.

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Scaffold and Rope-Descent [1910.28(b)(12)]

- Fall-protection is required when...
  - Using scaffolds
    - Must be protected in accordance with 29 CFR 1926 Subpart L
  - Using rope-descent systems
    - Must use PFAS (back-up or secondary system)
Low-Slope Roof Work [1910.28(b)(13)]

- Three scenarios
  1. Work < 6-feet from roof edge?
  2. Work ≥ 6-feet and < 15-feet
  3. Work ≥ 15-feet from the roof edge:

Work < 6-feet from Roof Edge?

1. Guardrail system
2. Safety net system
3. Travel restraint/work-resistant system
4. Personal fall-arrest system

Work ≥ 6-feet and < 15-feet from Roof Edge?

1. Same as above
2. May use a designated area when performing work that is both infrequent and temporary
Work ≥ 15-feet from the Roof Edge?

1. Guardrail system
2. Safety net system
3. Travel restraint/work-resistant system
4. Personal fall-arrest system
5. Designated area

...and implement and enforce a work-rule prohibiting employees from going within 15-feet (4.6 m) of the roof edge without using fall protection.

Designated Area Definition [29 CFR 1910.21(b)]

“Designated area means a distinct portion of a walking-working surface delineated by a warning line in which employees may perform work without additional fall protection.”

“Warning line means a barrier erected to warn employees that they are approaching an unprotected side or edge, and which designates an area in which work may take place without the use of other means of fall protection.”

Slaughtering Platforms [1910.28(b)(14)]

1. Guardrail systems
2. Travel restraint/work-resistant system

Protect employees on the unprotected working side of a slaughtering facility platform that is 4 feet or more above a lower level
Slaughtering Platforms Alternative

- Work may be done without a system if can demonstrate the use of a guardrail or travel restraint system is not feasible and:
  - The work operation for which fall protection is infeasible is in process
  - Access to the platform is limited to authorized employees
  - The authorized employees are trained in accordance with § 1910.30

Falling Object Protection [1910.28(c)]

1. Erecting toeboards
2. Screens
3. Guardrail systems

- If an employee is exposed to falling objects,
  - The employee must wear head protection that meets the requirements of subpart I.
  - Keep potential falling objects far from openings to lower levels.
1910.29 – Fall Protection Systems Criteria

- Specifies design and installation requirements of each fall protection system available to employers including:
  1. Guardrails
  2. Stair rails
  3. Designated areas
  4. Safety nets
  5. Covers
  6. Cages and wells
  7. Ladder safety systems
  8. Toeboards

29 CFR 1910.30: TRAINING

- Adds training and retraining requirements addressing fall hazards and equipment hazards
  - Employers must make training understandable to workers
Fall Hazard Training [1910.30(a)]

- A qualified person must conduct training
- Must include
  - Nature of fall hazards in the work area and how to recognize
  - Procedures to minimize those hazards
  - Correct procedures for installing, inspecting, operating, maintaining and disassembling PFAS used
  - Correct use of PFAS in-use, including, but not limited to, proper hook-up, anchoring and tie-off techniques and methods of equipment inspection and storage, as specified by the manufacturer

Equipment Hazards [1910.30(b)]

- Proper care, inspection, storage and use of equipment before use
- Train each employee who uses a dockboard to properly place and secure it to prevent unintentional movement
- Train each employee who uses a rope descent system in proper rigging and use of the equipment in accordance with § 1910.30(b)(4)
- Train each employee who uses a designated area in the proper set-up and use of the area (per 1910.28)

Retraining [1910.30(c)]

- When the employer has reason to believe the employee does not have the understanding and skill
- Situations include
  - Changes in the workplace
  - Changes in the types of fall protection systems or equipment used
  - When inadequacies in an affected employee’s knowledge or use of fall protection systems or equipment indicate that the employee no longer has the requisite understanding or skill necessary to use equipment or perform the job safely
**Qualified Person [1910.21(b)]**

- Qualified describes a person who, by
  - possession of a recognized degree, certificate, or professional standing or
  - who by extensive knowledge, training, and experience
- ...has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.

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**General Industry Walking-Working Surfaces and Fall Protection**

**29 CFR 1910 SUBPART I: PERSONAL PROTECTIVE EQUIPMENT**

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**Addition to 1910 Subpart I (PPE)**

- **29 CFR 1910.140 – Personal Fall Protection Systems**
  - Appendix A
    - References for further information (Non-mandatory)
  - Appendix B
    - Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection
  - Appendix C
    - Personal Fall Protection Systems Non-Mandatory Guidelines
  - Appendix D
    - Test Methods and Procedures for Personal Fall Protection Systems Non-Mandatory Guidelines
Personal Fall Protection Systems [1910.140]

- Adds definitions for personal fall protection systems
- Adds new section on system and use criteria for:
  - Personal fall protection equipment (e.g., lanyards, ropes, D-rings, harnesses)
  - Personal fall arrest systems
  - Travel restraint systems
  - Work positioning systems
- Corresponds to 1926 Subpart M with a few additional clarifications