Disclaimer

• This information has been developed by an OSHA Compliance Assistance Specialist and is intended to assist employers, workers, and others as they strive to improve workplace health and safety. While we attempt to thoroughly address specific topics, it is not possible to include discussion of everything necessary to ensure a healthy and safe working environment in a presentation of this nature. Thus, this information must be understood as a tool for addressing workplace hazards, rather than an exhaustive statement of an employer’s legal obligations, which are defined by statute, regulations, and standards. Likewise, to the extent that this information references practices or procedures that may enhance health or safety, but which are not required by a statute, regulation, or standard, it cannot, and does not, create additional legal obligations. Finally, over time, OSHA may modify rules and interpretations in light of new technology, information, or circumstances; to keep apprised of such developments, or to review information on a wide range of occupational safety and health topics, you can visit OSHA’s website at www.osha.gov.
Major Changes

- Fall Protection Flexibility
- Updated Scaffold Requirements
- Phase-in of ladder safety systems or personal fall arrest systems on fixed ladders
- Phase-out of “qualified climbers” on outdoor advertising structures
- Rope descent systems
- Adds requirements for personal fall protection equipment (§1910.140)
- Adds training requirements
Purpose of the New Rule

• To update the outdated subpart D standard, incorporating new technology and industry practices
• To increase consistency with OSHA’s construction standards (CFR 1926 subparts L, M, and X)
• To add new provisions to subpart I (1910.140) that set forth criteria requirements for personal fall protection equipment
The real purpose of the revised Walking-Working Standard is to prevent slips, trips and falls in general industry workplaces.
Who is Affected?

• OSHA estimates 6.9 million general industry establishments employing 112.3 million workers will be affected. These include:

  Manufacturing  Warehousing
  Utilities      Oil & Gas Extraction
  Retailers     Offices
Benefits

• According to BLS data, slips, trips, and falls are a leading cause of workplace fatalities and injuries in general industry

• OSHA estimates the new rule will prevent 29 fatalities and 5,842 injuries annually

• Net benefits - $309.5 million/year (Monetized benefits – annual costs)
Scope

• Covers all WWS in general industry workplaces:
  – Floors
  – Roofs
  – Stairways
  – Aisles and walkways
  – Ladders
  – Dock boards
  – Platforms
  – Equipment
  – Other surfaces
§1910.21 – Scope

• This subpart applies to all general industry workplaces. It covers all walking-working surfaces unless specifically excluded by an individual section of this subpart.

Some excluded examples include ladders used in emergency operations, or ladders designed into or is an integral part of machine or equipment, stairs installed before Jan. 17, 2017 (if they meet Table D-1), and dock board plates that do not have run-off protection (when employer can demonstrate there is no hazard of transfer vehicle running off the dock board edge.

Review standard for specific exemptions.
• **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.

• **Personal fall arrest system** - means a system used to arrest an employee in a fall from a walking-working surface. It consists of a body harness, anchorage, and connector. The means of connection may include a lanyard, deceleration device, lifeline, or a suitable combination of these.
§1910.21

- **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.

- **Standard stairs** - means a fixed or permanently installed stairway. Ship, spiral, and alternating tread-type stairs are not considered standard stairs.
§1910.21

• **Walking-working surface** - means any horizontal or vertical surface on or through which an employee walks, works, or gains access to a work area or workplace location.

• **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.
§1910.22 – General Requirements

• Inspection, maintenance, and repair. The employer must ensure:
  
  – Walking-working surfaces are inspected, regularly and as necessary, and maintained in a safe condition;
  
  – Hazardous conditions on walking-working surfaces are corrected or repaired before an employee uses the walking-working surface again. If the correction or repair cannot be made immediately, the hazard must be guarded to prevent employees from using the walking-working surface until the hazard is corrected or repaired;
§1910.23 – Ladders.

• Consolidates and simplifies rules into general requirements, portable ladders, fixed ladders, and mobile ladder stands

• Requires inspection before use
Employer must ensure that:

- Wooden ladders are not coated with any material that may obscure structural defects;
- Metal ladders are made with corrosion-resistant material or protected against corrosion;
- Ladder surfaces are free of puncture and laceration hazards;
- Ladders are used only for the purposes for which they were designed;
- Ladders are inspected before initial use in each work shift, and more frequently as necessary, to identify any visible defects that could cause employee injury;
Some more general requirements

- Any ladder with structural or other defects is immediately tagged “Dangerous Do Not Use” or with similar language….and is removed from service until repaired, or replaced.
- Each employee faces the ladder when climbing up or down it;
- Each employee uses at least one hand to grasp the ladder when climbing up and down it; and
- No employee carries any object or load that could cause the employee to lose balance and fall while climbing up or down the ladder.
§1910.23 (cont’d)

• Portable ladders
  – Rungs and steps of portable metal ladders are corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize the possibility of slipping;
  – Each stepladder or combination ladder used in a stepladder mode is equipped with a metal spreader or locking device that securely holds the front and back sections in an open position while the ladder is in use;
  – Ladders are not loaded beyond the maximum intended load;
  – Ladders are used only on stable and level surfaces unless they are secured or stabilized to prevent accidental displacement;
§1910.24

• Manhole steps
  – The employer must ensure that each manhole step is capable of supporting its maximum intended load.
  – The employer must ensure that each manhole step installed on or after January 17, 2017:
    • Has a corrugated, knurled, dimpled, or other surface that minimizes the possibility of an employee slipping;
    • Is constructed of, or coated with, material that protects against corrosion if the manhole step is located in an environment where corrosion may occur;
    • Has a minimum clear step width of 10”
    • Is uniformly spaced at a vertical distance not more than 16” apart
    • Is designed, constructed and maintained to prevent foot from slipping off the end
  – Inspected at the start of the work shift and maintained per § 1910.22
Some general requirements for stairways

• Handrails, stair rail systems, and guardrail systems are provided in accordance with §1910.28
• Vertical clearance above any stair tread to any overhead obstruction is at least 6 ft, 8 inches, as measured from the leading edge of the tread
• Stairs have uniform riser heights and tread depths between landings;
• Stairway landings and platforms are at least the width of the stair and at least 30” in depth, as measured in the direction of travel;
Some more general requirements

- Spiral, ship, or alternating tread-type stairs are used only when the employer can demonstrate that it is not feasible to provide standard stairs.

- When the standard allows the use of spiral, ship, or alternating tread-type stairs, they are installed, used, and maintained in accordance with manufacturer’s instructions.
Figure D-9 – Ship Stairs

Figure D-10 – Angles for Stairs, Ramps, and Ladders

<table>
<thead>
<tr>
<th>Angle</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 30°</td>
<td>Ramps</td>
</tr>
<tr>
<td>30° – 50°</td>
<td>Standard Stairs</td>
</tr>
<tr>
<td>50° – 70°</td>
<td>Ship Stairs</td>
</tr>
<tr>
<td>50° – 70°</td>
<td>Alternating Tread-Type Stairs</td>
</tr>
<tr>
<td>60° – 90°</td>
<td>Ladders</td>
</tr>
</tbody>
</table>
Spiral stairs

Alternating Tread

Ship Stairs/Ladder
§1910.26 – Dockboards

• Updates requirements for dockboards
• Adds design and construction requirements to prevent equipment from going over the dockboard edge (put into initial use after Jan. 17, 2017)
§1910.26 (cont’d)

- Dockboards are capable of supporting “maximum intended load”
- Measures, such as wheel chocks or sand shoes, are used to prevent the transport vehicle (e.g. a truck, semi-trailer, or rail car) on which a dockboard is placed, from moving while employees are on the dockboard
- Portable dockboards are equipped with handholds or other means to permit safe handling
§1910.27 – Scaffolds and Rope Descent Systems (RDS)

- Requires that employers using scaffolds follow the construction standard
- Adds provision allowing use of RDS, which codifies a 1991 OSHA memo allowing RDS
- Requires certification of anchorages starting 1 year after final rule published
- Requires RDS have separate fall arrest system
Rope Descent Systems

ROPE DESCENT SYSTEM (RDS)

CONTROLLED DESCENT
Rope descent systems— (1) Anchorages.

• Before any rope descent system is used, the building owner must inform the employer, in writing that the building owner has identified, tested, certified, and maintained each anchorage so it is capable of supporting at least 5,000 pounds (268 kg), in any direction, for each employee attached.

• The information must be based on an annual inspection by a qualified person and certification of each anchorage by a qualified person, as necessary, and at least every 10 years.
Anchorages (continued)

• The employer must ensure that no employee uses any anchorage before the employer has obtained written information from the building owner that each anchorage meets the requirements of paragraph (b)(1)(i) of this section. The employer must keep the information for the duration of the job.

• The requirements in paragraphs (b)(1)(i) and (ii) of this section must be implemented no later than November 20, 2017.
§1910.28 – Duty to have fall protection

• General

• Protection from fall hazards
  Unprotected sides and edges  Hoist areas
  Holes  Dockboards
  Runways and similar walkways  Dangerous Equipment
  Openings  Repair Pits, Service Pits…< than 10’
  Outdoor advertising (billboards)  Stairways
  Scaffold and rope descent systems  Work on low-slope roofs
  Slaughtering facility platforms  Walking-working surfaces NOA

• Protection for falling objects
§1910.28 – Duty to have fall protection

• Does not apply to:
  – Portable ladders
  – 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 post-work inspections, investigations, or assessments;
§1910.28 – Duty to have fall protection

• Unprotected sides and edges
  – The employer must ensure that each employee on a walking-working surface with an unprotected side or edge that is 4’ or more above a lower level is protected from falling by one or more of the following:
    • Guardrail systems;
    • Safety net systems; or
    • Personal fall protection systems,
  – such as personal fall arrest, travel restraint, or positioning systems.
§1910.28 – Duty to have fall protection

• Holes…the employer must ensure that:
  – Each employee is protected from falling through any hole (including skylights) that is 4’ or more above a lower level by one or more of the following:
    • Covers;
    • Guardrail systems;
    • Travel restraint systems; or
    • Personal fall arrest systems.
  – Each employee is protected from tripping into or stepping into or through any hole that is less than 4’ above a lower level by covers or guardrail systems.
§1910.28 – Duty to have fall protection

• Dockboards
  – The employer must ensure that each employee on a dockboard is protected from falling 4’ or more to a lower level by a guardrail system or handrails.
  • A guardrail system or handrails are not required when:
    – Dockboards are being used solely for materials-handling operations using motorized equipment;
    – Employees engaged in these operations are not exposed to fall hazards greater than 10’; and
    – Those employees have been trained in accordance with §1910.30.
§1910.28 – Duty to have fall protection

• **Runways and similar walkways**
  – The employer must ensure that each employee on a runway or similar walkway is protected from falling 4’ or more to a lower level by a guardrail system.
  
  • 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:
    – The runway is at least 18” wide; and
    – Each employee is provided with and uses a personal fall arrest system or travel restraint system.
§1910.28 – Duty to have fall protection

• **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” above that walking-working surface and the outside bottom edge of the opening is 4’ or more above a lower level is protected from falling by the use of:
  – Guardrail systems;
  – Safety net systems;
  – Travel restraint systems; or,
  – Personal fall arrest systems.
§1910.28 – Duty to have fall protection

• Fixed ladders (that extend more than 24’ above a lower level).
  – *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.
  – *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 – Duty to have fall protection

- Fixed ladders (cont’d)

  - 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

  - 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 – Duty to have fall protection

• Fixed ladders (cont’d)
  – The employer must ensure ladder sections having a cage or well:
    • Are offset from adjacent sections; and
    • Have landing platforms provided at maximum intervals of 50’.
  – 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 – Duty to have fall protection

- **Stairways**
  - The employer must ensure:
    - Each employee exposed to an unprotected side or edge of a stairway landing that is 4’ or more 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 systems and handrails as follows:
<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 each open side.</td>
<td></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></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></td>
</tr>
<tr>
<td>Exterior stairs less than 44 inches (1.1 m)</td>
<td></td>
<td></td>
<td>One handrail on at least one side.</td>
<td></td>
</tr>
</tbody>
</table>

Note to table: The width of the stair must be clear of all obstructions except handrails.
§1910.28 – Duty to have fall protection

• Scaffolds and rope descent systems
  – The employer must ensure that:
    • Each employee on a scaffold is protected from falling in accordance 29 CFR part 1926, subpart L; and
    • Each employee using a rope descent system 4’ or more above a lower level is protected from falling by a personal fall arrest system.
§1910.28 – Duty to have fall protection

• Work on low slope roofs (cont’d)
  – When work is performed 15’ or more from the roof edge, the employer must:
    • 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
    • Implement and enforce a work rule prohibiting employees from going within 15’ of the roof edge without using fall protection in accordance with paragraphs (b)(13)(i) and (ii) of this section.
No fall protection provided
work is infrequent and temporary

AND

a work rule prohibiting employees from going w/in 15' of edge

Less than 6’ = system
6’ – 15’ = system or designated area (if infrequent and temporary)
More than 15’ = system or designated area and work rule
§1910.28 – Duty to have fall protection

• Walking-working surfaces not elsewhere addressed
  – the employer must ensure that each employee on a walking-working surface 4’ or more above a lower level is protected by:
    • Guardrail systems;
    • Safety net systems; or
    • Personal fall protection systems, such as personal fall arrest, travel restraint, or positioning systems.
§1910.29 – Fall protection systems criteria criteria

• Specifies design and installation requirements of each fall protection system available to employers including:
  – **Guardrails**
  – Stair rails
  – **Designated areas**
  – Safety nets
  – Covers
  – Cages and wells
  – Ladder safety systems
  – Toeboards
§1910.29 – Fall Protection Systems

- General Requirements
- Guardrail systems
- Safety net systems
- Designated areas
- Covers
- Handrails and stair rail systems
- Cages, wells, and platforms used with fixed ladders
- Outdoor advertising
- Ladder safety systems
- Personal fall protection systems
- Protection from falling objects
- Grab handles
Fall protection systems criteria – highlights

• Guardrail systems – 15 sub-elements
  – The top edge height of top rails, or equivalent guardrail system members, are 42”, plus or minus 3”, above the walking-working surface.
  – Mid-rails, screens, mesh, intermediate vertical members, solid panels, or equivalent intermediate members are installed between the walking-working surface and the top edge of the guardrail system as follows when there is not a wall or parapet that is at least 21” high:
Guardrail systems (cont’d)

- Midrails are installed at a height midway between the top edge of the guardrail system and the walking-working surface;
- Screens and mesh extend from the walking-working surface to the top rail and along the entire opening between top rail supports;
- Intermediate vertical members (such as balusters) are installed no more than 19” apart; and
- Other equivalent intermediate members (such as additional midrails and architectural panels) are installed so that the openings are not more than 19” wide.
Guardrail systems (cont’d)

- Guardrail systems are capable of withstanding, without failure, a force of at least 200 pounds (890 N) applied in a downward or outward direction within 2” of the top edge, at any point along the top rail.

- When the 200-pound (890–N) test load is applied in a downward direction, the top rail of the guardrail system must not deflect to a height of less than 39” above the walking-working surface.

- Midrails, screens, mesh, intermediate vertical members, solid panels, and other equivalent intermediate members are capable of withstanding, without failure, a force of at least 150 pounds (667 N) applied in any downward or outward direction at any point along the intermediate member.
Guardrail systems (cont’d)

- Guardrail systems are smooth surfaced to protect employees from injury, such as punctures or lacerations, and to prevent catching or snagging of clothing.
- The ends of top rails and midrails do not overhang the terminal posts, except where the overhang does not pose a projection hazard for employees.
- Steel banding and plastic banding are not used for top rails or midrails.
- Top rails and midrails are at least 0.25-inches (0.6 cm) in diameter or in thickness.
Designated areas – (cont’d)

• When mobile mechanical equipment is used to perform work that is both temporary and infrequent in a designated area, the employer must ensure the warning line is erected not less than 6’ from the unprotected side or edge that is parallel to the direction in which the mechanical equipment is operated, and not less than 10’ from the unprotected side or edge that is perpendicular to the direction in which the mechanical equipment is operated.
§1910.30 – Training

- Adds training and retraining requirements addressing fall hazards and equipment hazards
- Requires employers make training understandable to workers
§1910.30

• Training on Fall hazards
  – Before any employee is exposed to a fall hazard, the employer must provide training for each employee who uses personal fall protection systems or who is required to be trained as specified elsewhere in this subpart. Employers must ensure employees are trained in the requirements of this paragraph on or before May 17, 2017.
  – The employer must ensure that each employee is trained by a qualified person.
§1910.30

• The employer must train each employee in at least the following topics:
  • The nature of the fall hazards in the work area and how to recognize them;
  • The procedures to be followed to minimize those hazards;
  • The correct procedures for installing, inspecting, operating, maintaining, and disassembling the personal fall protection systems that the employee uses; and
  • The correct use of personal fall protection systems and equipment, 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.
• Training on “Equipment hazards”
  – The employer must train each employee in the proper care, inspection, storage, and use of equipment before an employee uses the equipment.
  – The employer must train each employee who uses a dockboard to properly place and secure it to prevent unintentional movement.
  – The employer must train each employee who uses a rope descent system in proper rigging and use of the equipment per §1910.27.
  – The employer must train each employee who uses a designated area in the proper set-up and use of the area.
• Retraining
  – The employer must retrain an employee when the employer has reason to believe the employee does not have the understanding and skill required by paragraphs (a) and (b) of this section.

Examples:
  • When changes in the workplace render previous training obsolete or inadequate;
  • When changes in the types of fall protection systems or equipment to be used render previous training obsolete or inadequate; or
  • 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.
Subpart I

Personal Protective Equipment
§1910.140 – Personal Protective Equipment (Personal Fall Protection Systems)

• 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
Personal Fall Protection

Travel Restraint

Personal Fall Arrest

Work Positioning
Main Effective Dates

- Rule overall: January 17, 2017
- Training: 6 months after publication
- Building anchorages for RDS: 1 year after publication
- Fixed ladder fall protection: 2 years after publication
- Installation of ladder safety system or personal fall arrest system on fixed ladders: 20 years after publication
Other Effective Dates

- The following table specifies the amount of additional time employers have to certify anchorages, equip fixed ladders with fall protection, and train workers:

<table>
<thead>
<tr>
<th>Final Subpart D Section and Requirement</th>
<th>Compliance Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>§1910.27(b)(1) – Certification of anchorages</td>
<td>November 20, 2017</td>
</tr>
<tr>
<td>§1910.28(b)(9)(i)(A) – Deadline by which employers must equip existing fixed ladders with a cage, well, ladder safety system, or personal fall arrest system</td>
<td>November 19, 2018</td>
</tr>
<tr>
<td>§1910.28(b)(9)(i)(B) – Deadline by which employers must begin equipping new fixed ladders with a ladder safety system or personal fall arrest system</td>
<td>November 19, 2018</td>
</tr>
<tr>
<td>§1910.28(b)(9)(i)(D) – Deadline by which all fixed ladders must be equipped with a ladder safety system or personal fall arrest system</td>
<td>November 18, 2036</td>
</tr>
<tr>
<td>§1910.30(a) and (b) – Deadline by which employers must train employees on fall and equipment hazards</td>
<td>May 17, 2017</td>
</tr>
</tbody>
</table>
Compliance Assistance Resources

• OSHA’s new webpage on subparts D&I: www.osha.gov/walking-working-surfaces/index.html
• Fact sheets
• FAQs