

Part 1910 Subpart D - Walking-Working Surfaces

- **1910.21 - Definitions.**
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- **1910.23 - Guarding floor and wall openings and holes.**
- **1910.24 - Fixed industrial stairs.**
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- **1910.29 - Manually propelled mobile ladder stands and scaffolds (towers).**
- **1910.30 - Other working surfaces.**

Subpart D - Walking/Working Surfaces (1910.21 - 32)

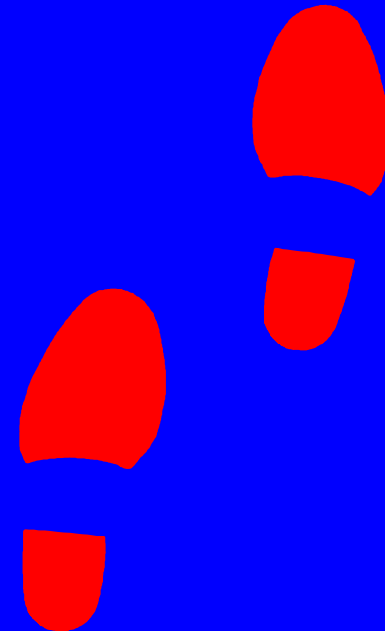
23(c)(1) **Open sided Floors - 640**

22(a)(1) **Housekeeping - 198**

22(a)(1) **Wet Floors - 139**

24(h) **Stair rails - 93**

23(a)(8) **Floor holes - 86**



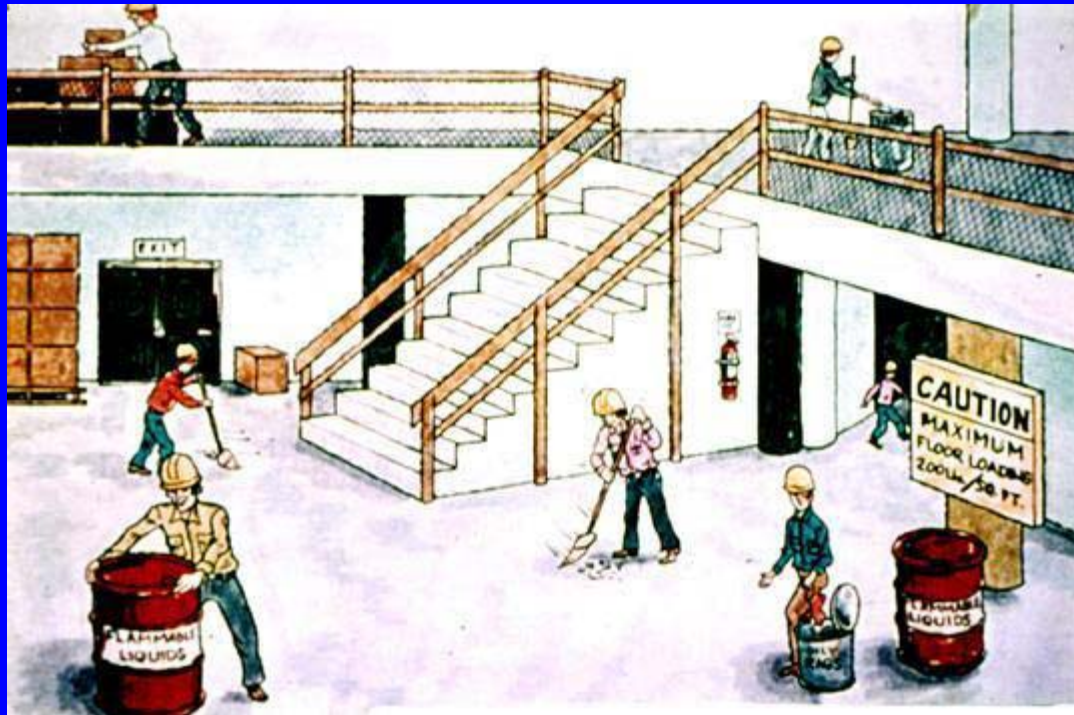
Number of Serious Violations - FY 98

1910.22

General requirements.

- **(a) "Housekeeping."**
- **(b) "Aisles and passageways."**
- **(c) "Covers and guardrails." Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc.**
- **(d) "Floor loading protection."**

1910.22(a)(1) Housekeeping

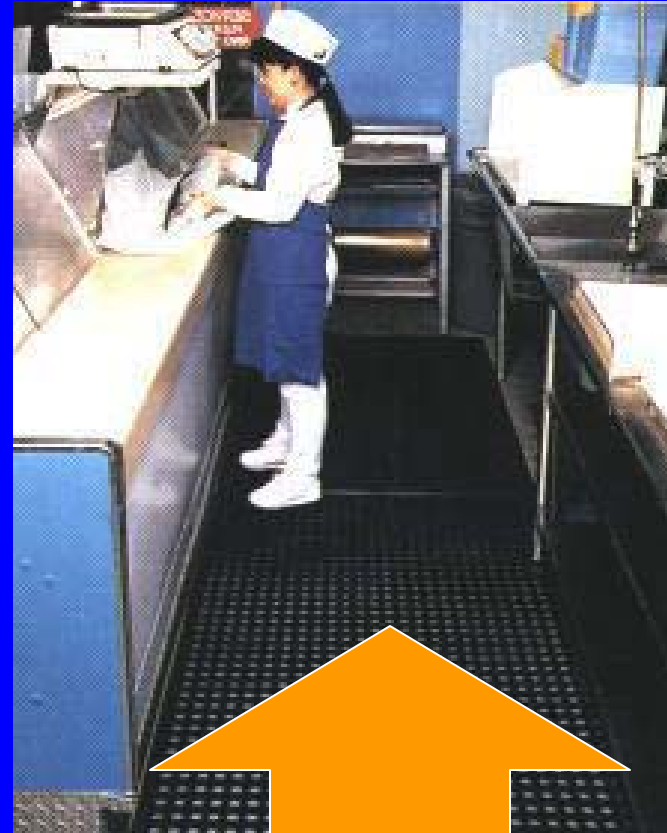


1910.22(a)(1) Housekeeping

All places of employment, passageways, storerooms, service rooms shall be kept clean and orderly and in a sanitary condition.



1910.22(a)(2) - Floors
Where **wet processes**
are used, keep floors
clean and dry as possible



**Floor
grates**

1910.22(a)(3) To facilitate cleaning, every floor, working place, and passageway shall be kept **free from protruding nails**, splinters, holes, or loose boards.



1910.22(b) - Aisles and passageways

(1) Safe clearances; clean and good repair; no obstacles in aisles where mechanical handling equipment is used.



1910.22(b)(2) Permanent aisles and passageways shall be appropriately marked.





**No Obstruction
That Could
Create Hazards**

1910.22(c) Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc.



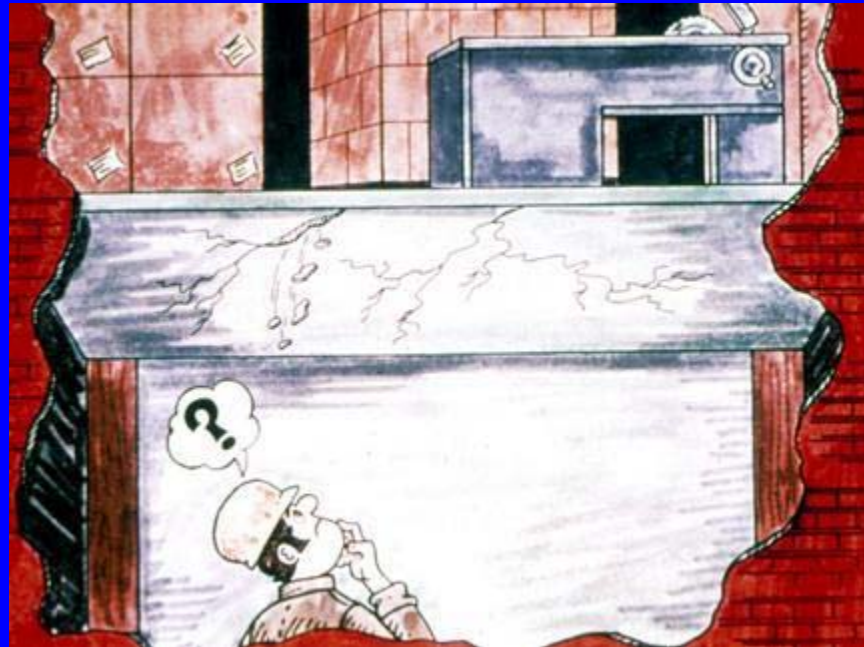
Requires cover or guardrail



Requires cover or guardrail



1910.22(d) - Floor loading protection
(1) Loads approved by building official shall be marked.



1910.22(d) (continued)

(1) Signs shall be marked & affixed in conspicuous place

(2) Unlawful to overload



1910.23 - Guarding floor and wall openings and holes.

- (a) "Protection for floor openings."
- (b) "Protection for wall openings and holes."
- (c) "Protection of open-sided floors, platforms, and runways."
- (d) "Stairway railings and guards."
- (e) "Railing, toe boards, and cover specifications."

1910.23(a) "Protection for floor openings."

Definitions



"Floor hole." An opening measuring less than 12 inches but more than 1 inch in its least dimension, in any floor, platform, pavement, or yard, through which materials but not persons may fall; such as a belt hole, pipe opening, or slot opening.

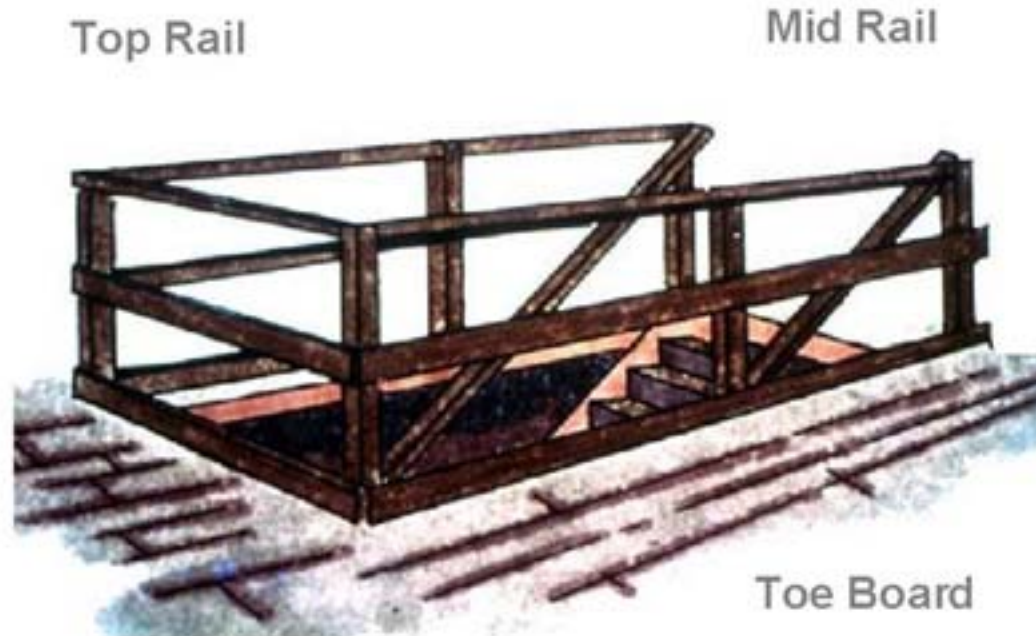
"Floor opening." An opening measuring 12 inches or more in its least dimension, in any floor, platform, pavement, or yard through which persons may fall; such as a hatchway, stair or ladder opening, pit, or large manhole.

1910.23(a)(1) Every stairway floor opening shall be guarded

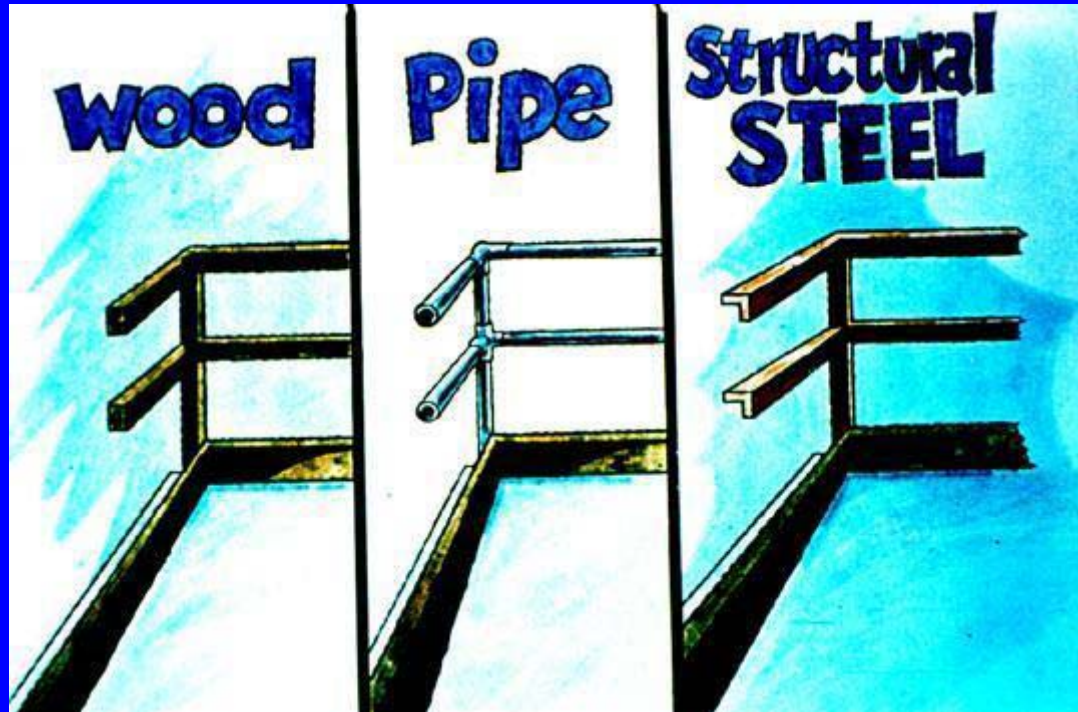
- Railing shall be provided on all exposed sides (except at entrance to stairway).



Guard Rail System



1910.23(e) "Railing, toe boards, and cover specifications."



**1910.23(a)(2) -
Ladderway floor
openings and
platforms shall be
guarded by standard
railing, toeboard**



1910.23(a)(3)
Hatchway/chute
floor opening
Guarded by
hinged cover
or removable
railing/toeboard



Hatchway/chute

1910.23(a)(5)

Every pit and trapdoor floor opening, infrequently used, shall be guarded by a floor opening cover of standard strength and construction. While the cover is not in place, the pit or trap opening shall be constantly attended by someone or shall be protected on all exposed sides by removable standard railings.



Open Pit



Letter of Interpretation

This is in response to your letter of July 27, 1982, requesting a clarification of 29 CFR 1910.23(a)(5) as it would apply to repair pits.

Employees engaged in maintenance work at bus and rail car inspection and repair pits when the bus or rail car covers the pit are not in violation of 29 CFR 1910.23(a)(5). When the pit or pits are not covered, employees walking at least 6 feet from the pit would not be in violation of 29 CFR 1910.23(a)(5), provided the following actions are implemented by the employer:

- 1. The employee's safety training program will instruct employees to maintain a 6 feet clear distance from uncovered pits.**
- 2. Highly visible contrasting lines will be installed 6 feet from the edge of pits.**
- 3. Employer will install caution signs and ensure compliance by employees.**

**The following language regarding vehicle
repair pits has been taken from:**

29 CFR Part 1910

**Walking and Working Surfaces and
Personal Protective Equipment (Fall
Protection Systems); Notice of**

Proposed Rulemaking

Pages 13387 to 13388

1910.32 Special Surfaces - These pits present a unique problem because the use of guardrails for perimeter protection would interfere with normal work operations.

Vehicle repair pits are intended to provide employees access to the underside of vehicles, without the need to elevate the vehicle. Typically a vehicle is driven over the pit and employee enters the pit via a flight of stairs. The employee then performs whatever repairs or adjustments are necessary to the underside of the vehicle.

Guardrails or similar fall protection systems installed at the perimeter of the pit may cause problems to employees when vehicles are moved over or away from the pit. Further, once a vehicle is moved over the pit, the hazard of falling into the pit has been eliminated. The primary falling hazard to employees exists only when vehicles are not over the pit. OSHA notes, based on its understanding of vehicle repair operations, that employees are unlikely to be in the vicinity of a repair pit unless there is a vehicle over the pit.

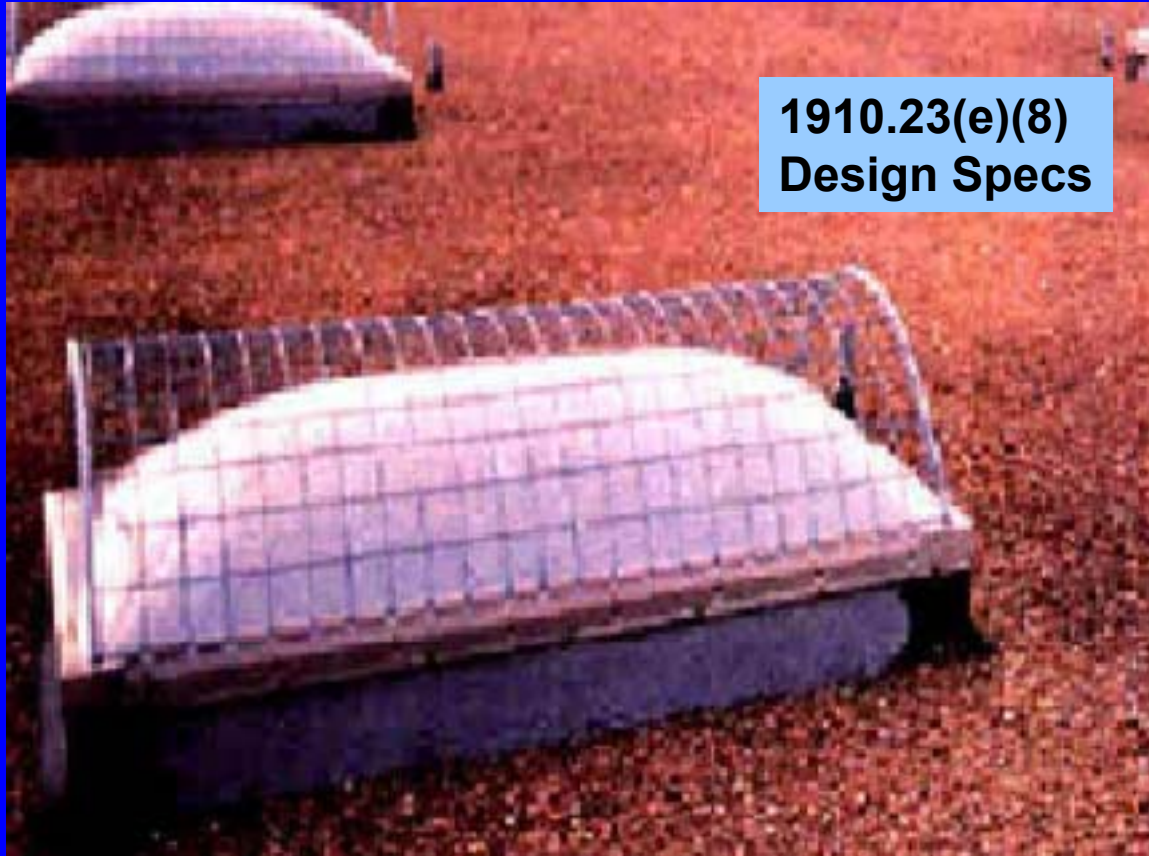
OSHA believes that adequate fall protection for employees can be provided by the various alternative methods allowed by proposed paragraph (b)(1). Floor marking applied to the area surrounding the pit; movable stanchions meeting the requirements of proposed 1910.28; or a combination of both can be used to warn employees of the fall hazards resulting from the presence of the pit. A designated safe area, from the rim of the pit extending back six feet from the rim, provides sufficient early warning to employees that effectively notify employees of the presence of the fall hazard would restrict the area to authorized employees and would further limit employee exposure to the open perimeter.

Therefore OSHA is proposing in paragraph (b)(1) to exempt repair and assembly pits less than 10 feet deep from the fall protection requirements contained in proposed 1910.28. Instead, the employer would implement alternative methods of protection that would provide employees with **timely warning of the hazards** associated with working near vehicle repair and assembly pits.



**1910.23(a)(4) Skylight floor opening
Guarded by standard skylight screen/or fixed
standard railing**

Protected sky light



1910.23(a)(6) Manhole floor opening - Guarded by standard manhole cover



**Manhole Design Specs
1910.23(e)(7)(ii)**

**1910.23(a)(8) Floor hole opening
Guarded by standard railing/cover**

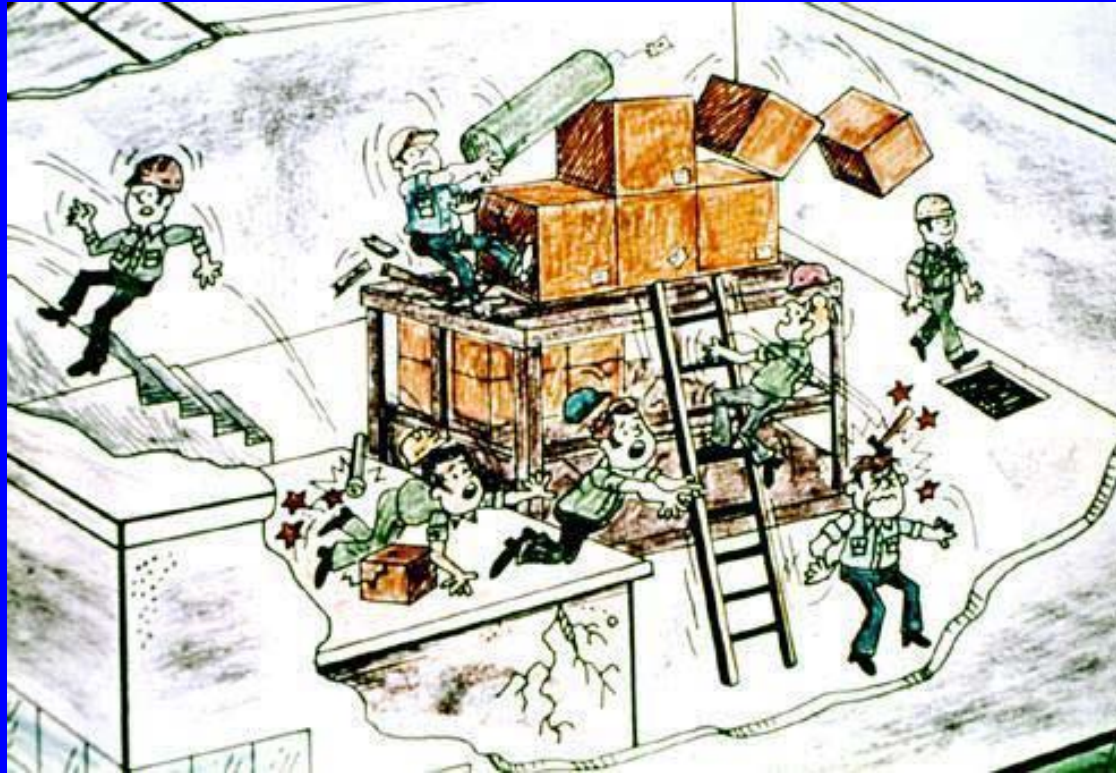


Inadequate cover
Design Specs 1910.23(e)(7)(iii)

1910.23(b) - Wall openings/holes



1910.23(c) "Protection of open-sided floors, platforms, and runways."





1910.23(c)(1)
Every open-sided
floor or platform 4
feet or more
above adjacent floor
or ground level shall
be guarded



Unguarded Platform



**Inadequately guarded
platform**

Work platform





Adequate guardrail







What's up with this???

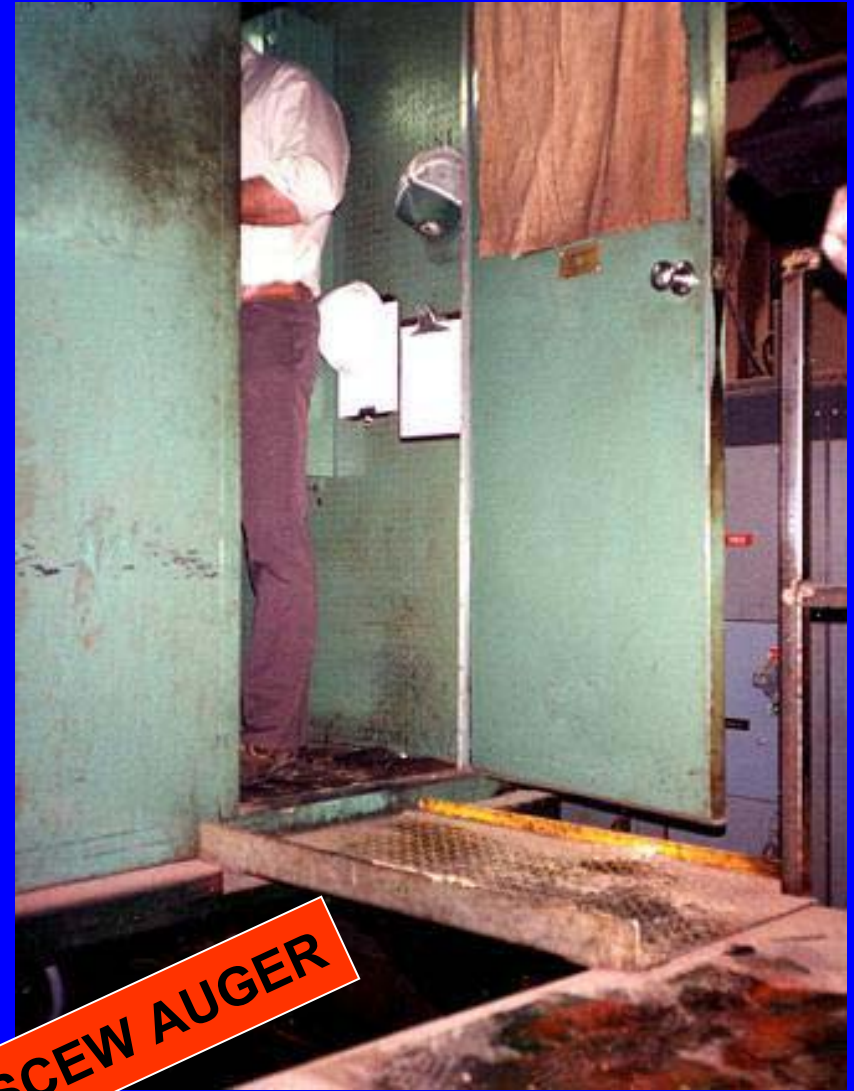


Mid Rail

toe board

94 4 22

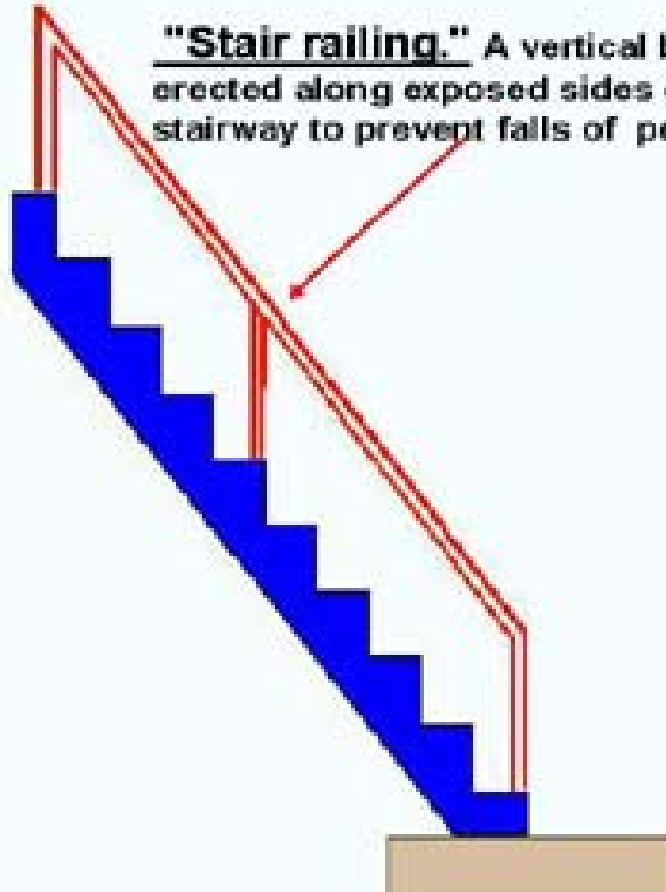
1910.23(c)(3) Adjacent to dangerous equipment (regardless of height) and similar hazards shall be Guarded by standard railing with toeboard



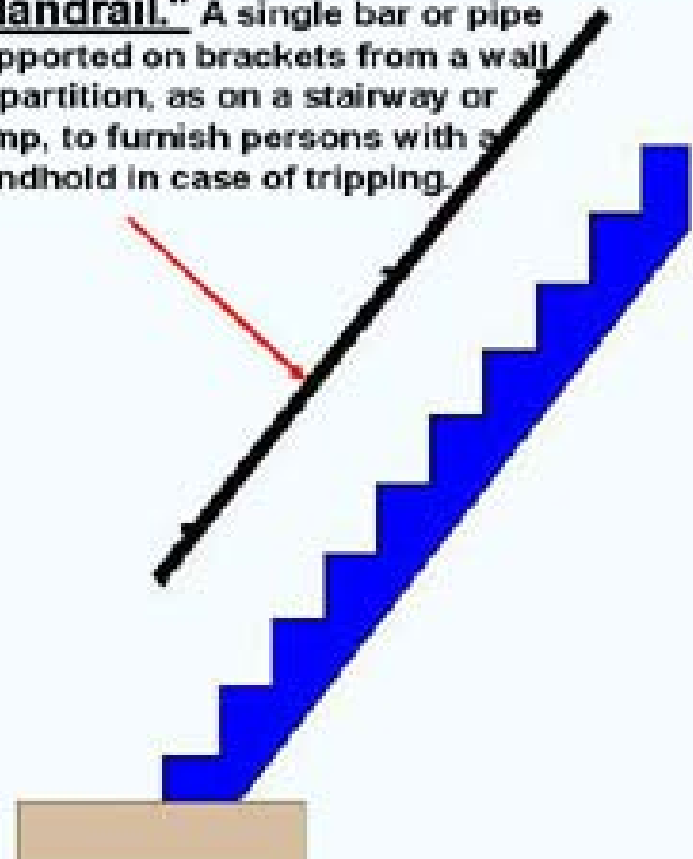
SCEW AUGER

1910.23(d) Stairway railings and guards

"Stair railing." A vertical barrier erected along exposed sides of a stairway to prevent falls of persons.



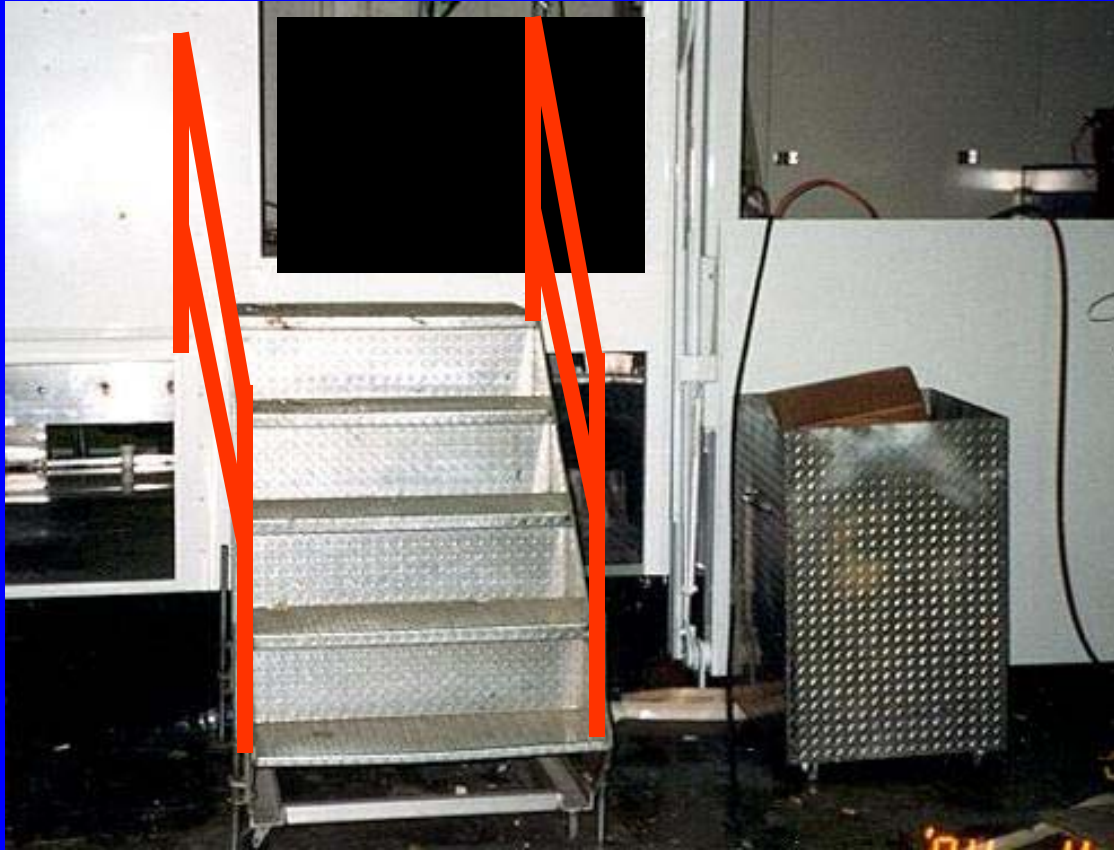
"Handrail." A single bar or pipe supported on brackets from a wall or partition, as on a stairway or ramp, to furnish persons with a handhold in case of tripping.



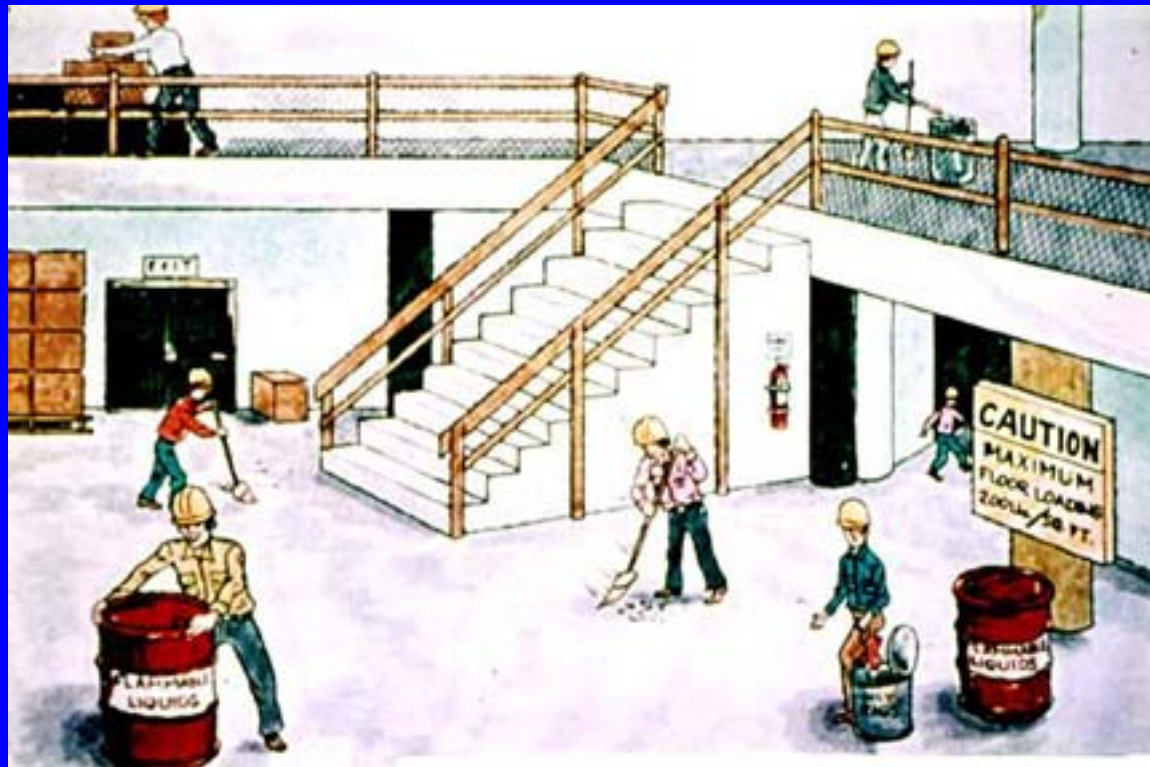
1910.23(d)(1) Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails as specified in paragraphs (d)(1)(i) through (v) of this section



1910.23(d)(1) Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails as specified in paragraphs (d)(1)(i) through (v) of this section



Fixed industrial stairs - 1910.24



1910.24 Fixed industrial stairs

- (a) "Application of requirements."
- (b) "Where fixed stairs are required."
- (c) "Stair strength."
- (d) "Stair width."
- (e) "Angle of stairway rise."
- (f) "Stair treads."
- (g) "Stairway platforms."
- (h) "Railings and handrails."
- (i) "Vertical clearance."

Workshop

Is a ladder appropriate??

If operations necessitate regular travel between levels, and for access to operating platforms at any equipment which requires attention routinely during operations.

1910.24(b) "Where fixed stairs are required."

Fixed stairs shall be provided for access from one structure level to another where operations necessitate regular travel between levels, and for access to operating platforms at any equipment which requires attention routinely during operations.

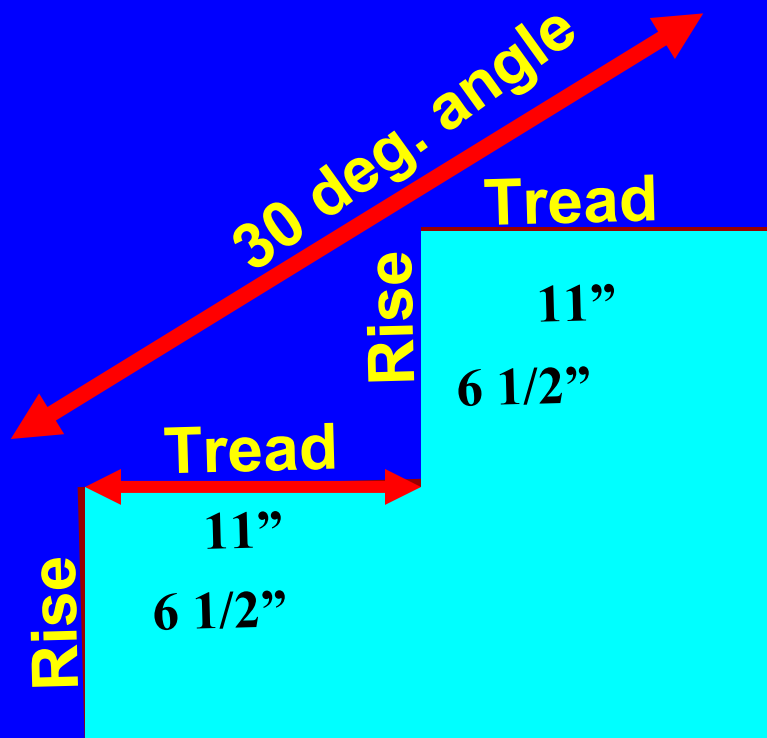


1910.24(d)
"Stair width."
Fixed stairways
shall have a
minimum
width of 22
inches.



1910.24(e) "**Angle of stairway rise.**" Fixed stairs shall be installed at angles to the horizontal of between 30 deg. and 50 deg. Any uniform combination of rise/tread dimensions may be used that will result in a stairway at an angle to the horizontal within the permissible range.

See Table D-1

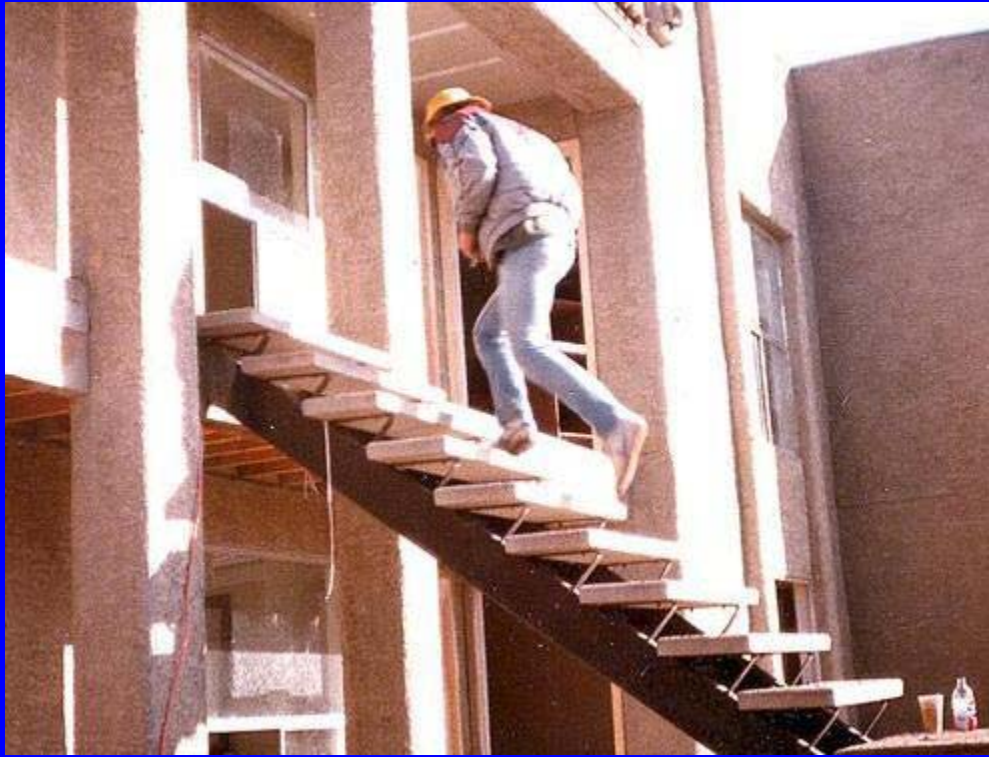


Handrails shall be provided on at least one side of closed stairways preferably on the right side descending.



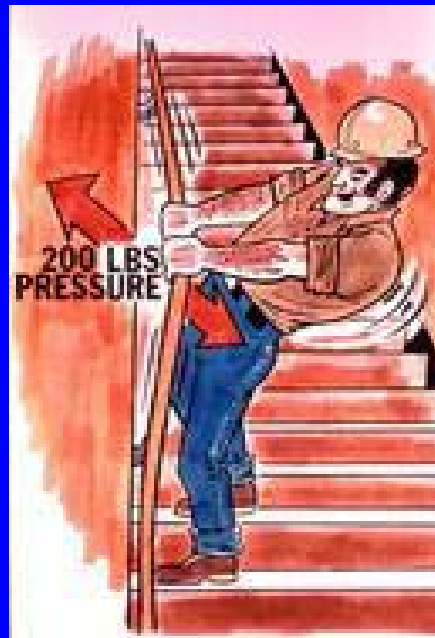
**1910.21(h) "Railings and handrails."
Standard railings shall be provided on the open sides of all exposed stairways and stair platforms.**





1910.23 (e)(3)(iv)

The anchoring of posts and framing of members for railings of all types - Capable of **withstanding a load of at least 200 pounds applied in any direction at any point on the top rail.**



- (1910.24f) Stair treads Slip resistant
 - Nosings of nonslip finish



**1910.24(g) Stairway
platforms**

**Minimum of
30" wide**

**1910.24(h) Standard
railing on open sides
of all exposed
stairways and stair
platforms**



1910.25 Portable wood ladders.



1910.25

Portable wood ladders.

- (a) "Application of requirements."
- (b) "Materials"
- (c) "Construction requirements."
- (d) "Care and use of ladders" -

1910.25(a) "Application of requirements."

- This section is intended to prescribe rules and establish minimum requirements for the construction, care, and use of the common types of portable wood ladders, in order to insure safety under normal conditions of usage.



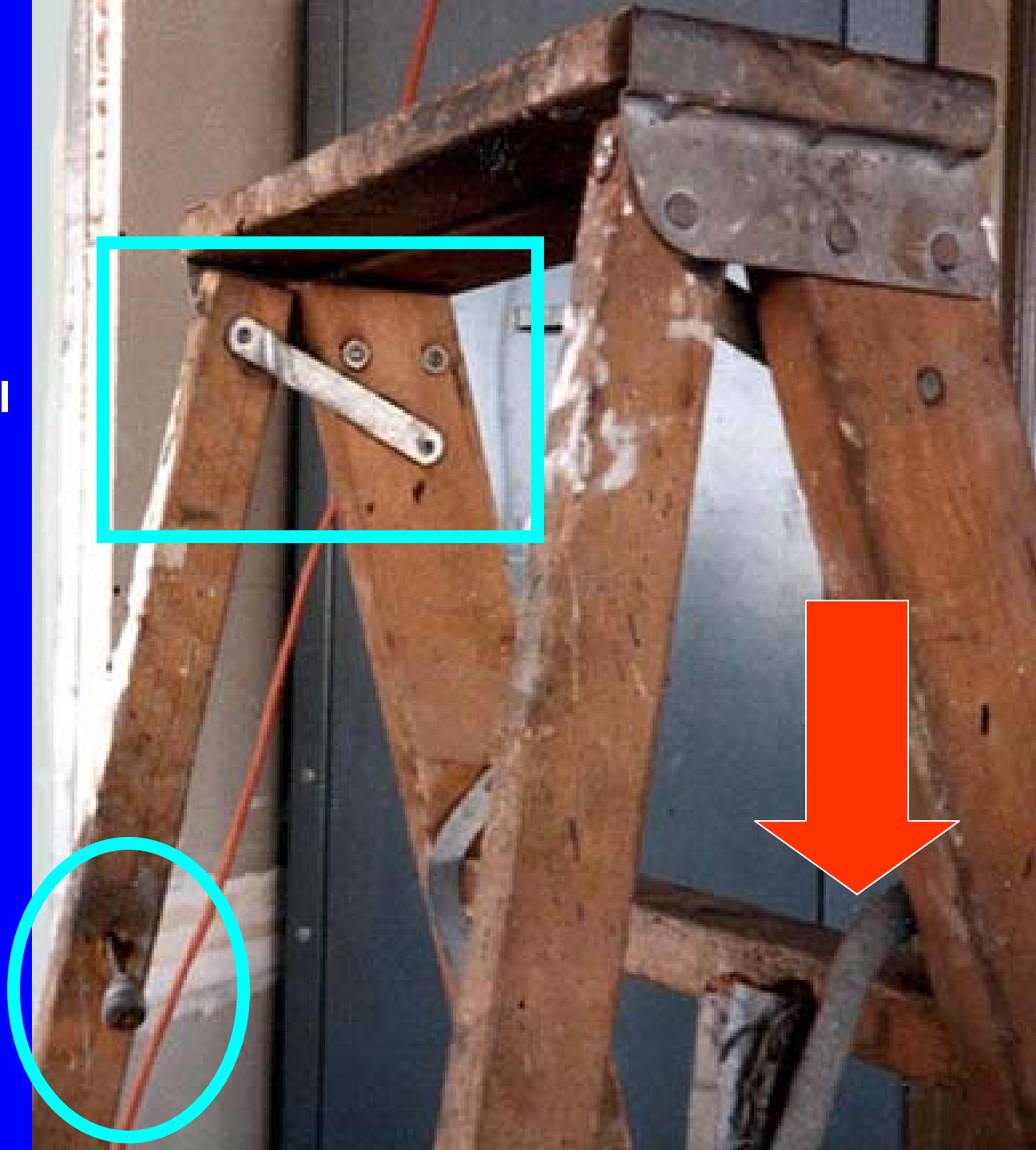
1910.24(d) "Care and use of ladders"

- (1) "Care." To insure safety and serviceability the following precautions on the care of ladders shall be
 - (i) Maintained in good condition at all times, the joint between the steps and side rails shall be tight, all hardware and fittings securely attached, and the movable parts shall operate freely without binding or undue play.
 - (ii) Metal bearings of locks, wheels, pulleys, etc., shall be frequently lubricated.
 - (iii) Frayed or badly worn rope shall be replaced.
 - (iv) Safety feet and other auxiliary equipment shall be kept in good condition to insure proper performance.



1910.25 (d)(1)(x)
INSPECTION OF
LADDERS

Ladders shall be inspected frequently and those which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as **"Dangerous, Do Not Use."**





**1910.25 (d)(1)(xi)
Rungs should be
kept free of grease
and oil.**

1910.25(d)(2)(iv)
Ladders shall not be placed in front of doors opening toward the ladder unless the door is blocked upon, locked, or guarded;

1910.26(c)(3)(viii)
See 1910.333(c) for work practices to be used when work is performed on or near electric circuits.



1910.333(c)(3) "Overhead lines."

if work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protective measures shall be provided before work is started. If the lines are to be deenergized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to deenergize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

1910.25(d)(2)(viii) Ladders with broken or missing steps, rungs, or cleats, broken side rails, or other faulty equipment shall not be used; improvised repairs shall not be made;

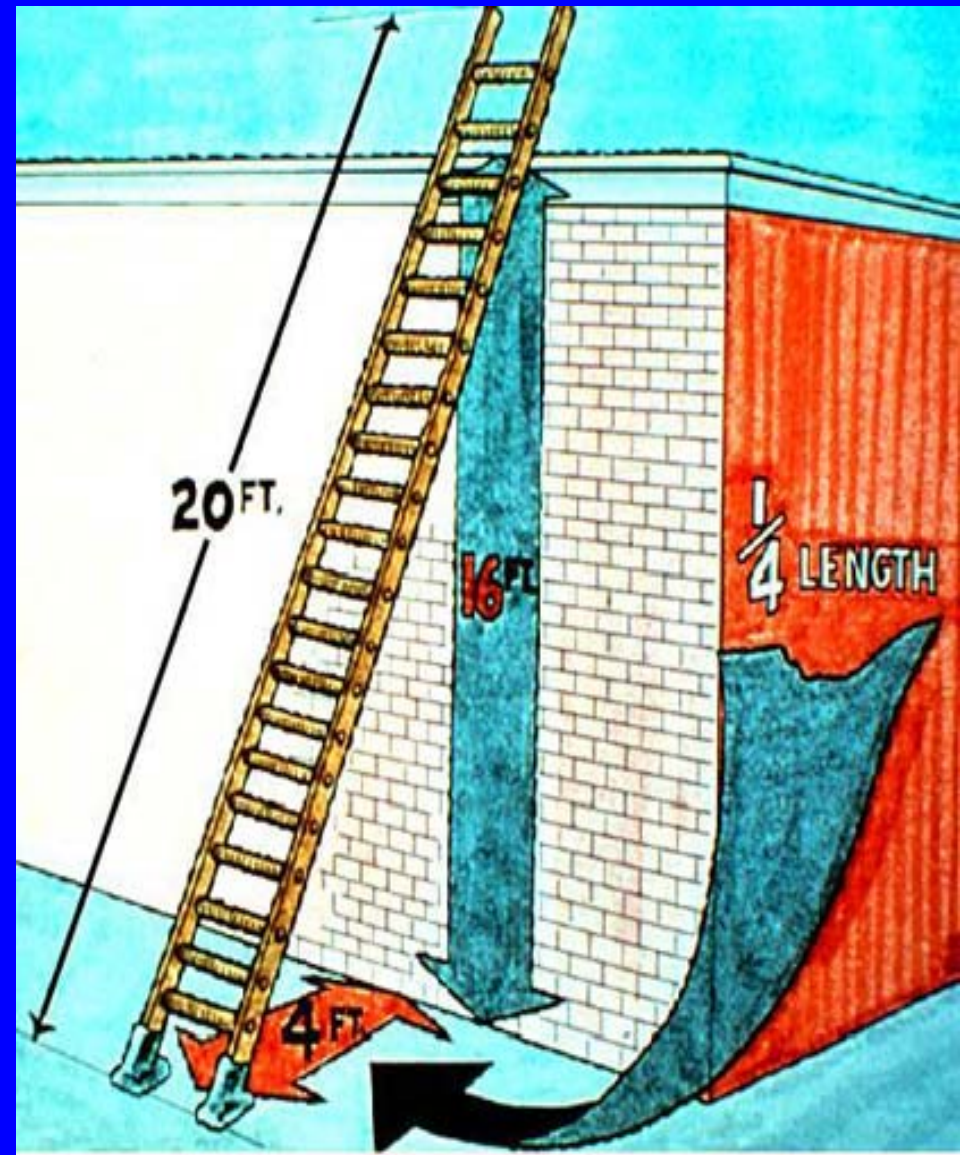


1910.25(d)(2)(xii)
Tops of the
ordinary types of
stepladders shall
not be used as
steps



191025(d)(2) "Use" Pitch of the ladder

At such a pitch that the horizontal distance from the top support to the foot of the ladder is one-quarter of the working length of the ladder (the length along the ladder between the foot and the top support).





ladder angle



Wood step ladders







1910.26- Portable Metal Ladders



Portable Metal Ladders

- Rung spacing shall be 12 inches on center
- Rungs shall be corrugated, knurled, dimpled, etc, to be slip-resistant
- Minimum width of 12 inches
- Extension ladders - one length \leq 30 ft, 2 lengths \leq 48 ft, more lengths \leq 60 ft

Portable Metal Ladders

- **Non slip feet**
- **Metal spreader or locking device**
- **Ladders must be maintained in usable condition at all times**
- **Used at correct angle, 4:1**
- **Ladders shall not be used as a brace, gin pole or gangway**