

WALKING & WORKING SURFACES

GENERAL REQUIREMENTS

This lesson focuses on the following topics:

- Regulations
- Housekeeping
- Aisles And Passageways
- Covers And Guardrails
- Floor Loading Protection
- Ladders and Scaffolds
- Fall Protection

REGULATIONS

- ◆ 1910.21 - Definitions.
- ◆ 1910.22 - General requirements.
- ◆ 1910.23 – Ladders
- ◆ Guarding floor and wall openings and holes.
- ◆ 1910.24 – Step Bolts and Manholes
- ◆ 1910.25 - Stairways
- ◆ 1910.26 – Dock boards

REGULATIONS

- 1910.27 - Scaffolds
- 1910.28 – Duty to have Fall Protection and Falling Object Protection
- 1910.29 – Fall Protection Systems and Falling Object Protection-Criteria and Practices
- 1910.30 – Training Requirements

HOUSEKEEPING

- All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.
- The floor of every workroom shall be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used, drainage shall be maintained and gratings, mats, or raised platforms shall be provided.
- Every floor, working place and passageway shall be kept free from protruding nails, splinters, holes, or loose boards.



AISLES AND PASSAGEWAYS

- Aisles and passageways shall be kept clear and in good repair with no obstruction across or in aisles that could create a hazard.
- Permanent aisles and passageways shall be appropriately marked.
- Where mechanical handling equipment is used, aisles shall be sufficiently wide. Improper aisle widths coupled with poor housekeeping and vehicle traffic can cause injury to employees, damage the equipment and material, and can limit egress in emergencies.

COVERS AND GUARDRAILS



- Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, skylights, and the like.
- Covers shall be capable of withstanding without failure 2x the maximum intended load and shall be fixed to prevent accidental displacement.
- Guard rails shall be 42" \pm 3" tall and capable of withstanding a 200# load applied in a downward and outward direction and not deflect greater than 2"

Floor Loading Protection



- Load rating limits shall be marked on plates and conspicuously posted. It shall be unlawful to remove or deface the plates. If this happens, the owner, or his agent, shall replace the missing plates
- It shall be unlawful to place, or cause, or permit to be placed, a load greater than that for which such floor or roof is approved on any floor or roof of a building or other structure.

WALKING & WORKING SURFACES

1. "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.



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2. "Floor opening" An opening measuring ___ 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.



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3. Name the 3 components of a guardrail system:

1) *TOP RAIL – 42”*

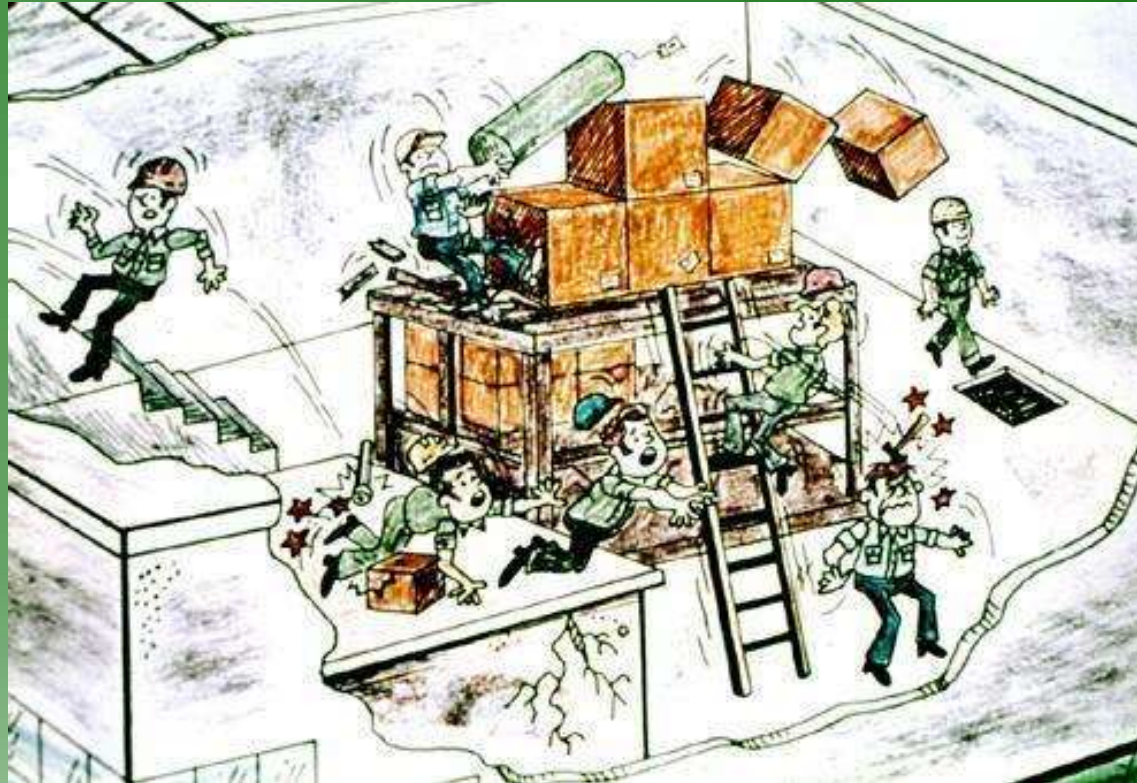
2) *MID RAIL – 21”*

3) *TOE BOARD – 3 ½” tall*



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4. A stairway or ladder must be provided at all worker points of access where there is a break in elevation of 19 inches or more and no ramp, runway, embankment, or personnel hoist is provided.



WALKING & WORKING SURFACES

Did you know:

- ☑ The area around the top and bottom of the ladder must be kept clear.
- ☑ A competent person must inspect ladders periodically & frequently.
- ☑ Any defect must result in the ladder being removed from service

There is a training requirement for all employees using ladders and stairways

1. Stairways with 4 or more risers or are more than 30" in height shall have...
 - a. A landing provided.
 - b. A horizontal lifeline system available.
 - c. An emergency access ramp.
 - d. At least one handrail and a stair-rail system along each unprotected side.



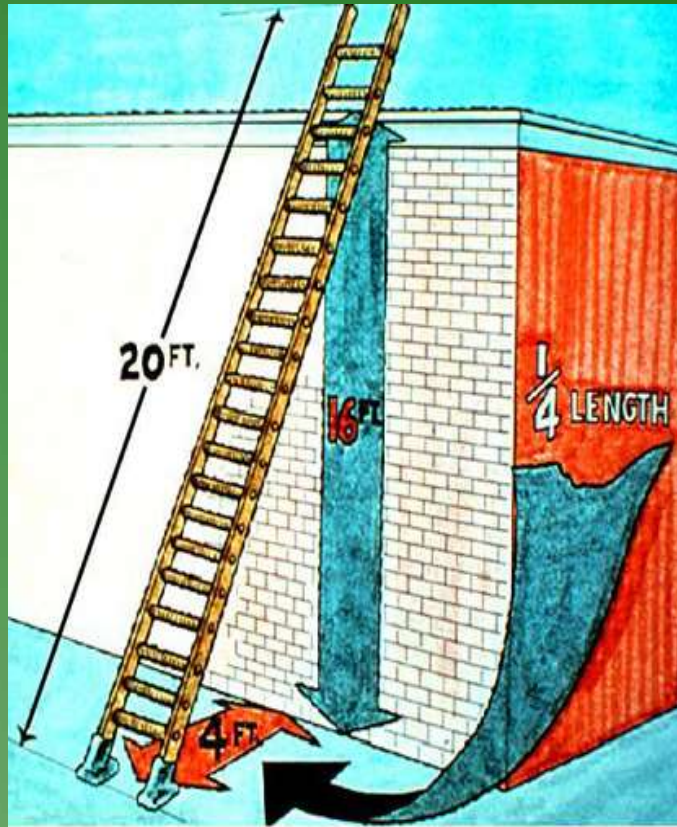
2. Rails on stairway systems shall...
 - a. Be properly surfaced to prevent injury.
 - b. Provide adequate handholds for employees.
 - c. Not have their ends pose a projection hazard.
 - d. All of the above

3. How high must portable ladders be above a landing surface at the minimum?

- a. 1'
- b. 3'**
- c. 6'
- d. 12'

4. True or False. A 4:1 vertical to horizontal support ratio is required when using non-self supporting ladders.

True



5. Which of the following is not a safe way to use a ladder.

- a. Using the three-points of contact rule.
- b. Always facing the ladder when climbing.
- c. Using the top step to increase working height.
- d. Keeping your belt buckle between the ladder rungs.



SCAFFOLDS





SCAFFOLDS

1. Name at least 2 ways to protect a worker from falling off a scaffold:

1) GUARD RAILS

2) PERSONAL FALL ARREST SYSTEMS (PFAS)

Top rails - 39 to 45 inches tall

Mid-rails - halfway between top-rail and platform

Toe-boards - at least 3-1/2 inches high



SCAFFOLDS

2. Front edge of platforms not more than 14 inches from the work, unless using guardrails and/or PFAS.



1. Prior to scaffold construction,
_____ will be
designated by the employer to
oversee construction.
 - a. A qualified worker
 - b. An OSHA competent person
 - c. A civil engineer
 - d. None of the above

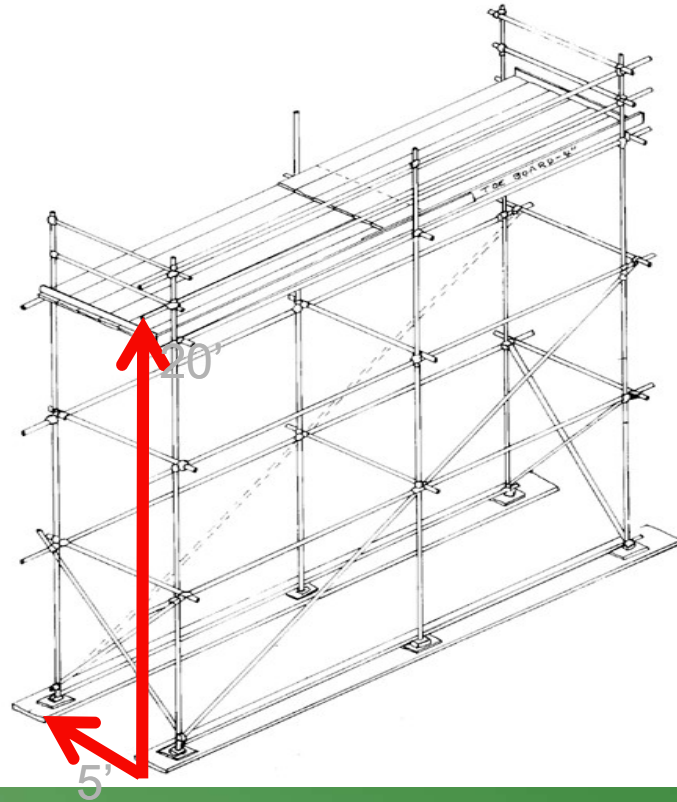


2. True or False. It is acceptable to coat wooden scaffold planks with opaque finishes.

False

3. Supported scaffolds with a height to width ratio of more than 4:1 shall be...
 - a. Secured with cement blocking at the base
 - b. Leaned slightly toward the structure
 - c. Restrained from tipping by guying or bracing.
 - d. All of the above

Tube and Coupler Scaffolds



4. Wire ropes for suspended scaffolds must be replaced if...
 - a. Kinks exist that may impair functioning
 - b. There are broken wire strands
 - c. Heat damage exists
 - d. All of the above

5. True or False. Cross-bracing can be used as points of access.

False



6. Which of the following statements is false about stair-towers?
- a. Stair-rails shall be provided on each stairway side
 - b. Toprails must serve as a adequate handhold
 - c. Treads and landings must have a slick surface
 - d. Guardrails must not be a projection hazard

7. Scaffolds shall not be moved horizontally while employees are on them unless...
 - a. Specifically designed to do so, such as a mobile scaffold
 - b. The movement distance is less than 50 feet
 - c. The scaffold is of wooden construction
 - d. It is near power lines

8. Prior to using an aerial device, you should...
- a. test all of the controls.
 - b. repair problems and malfunctions.
 - c. be trained by a qualified person.
 - d. All of the above.

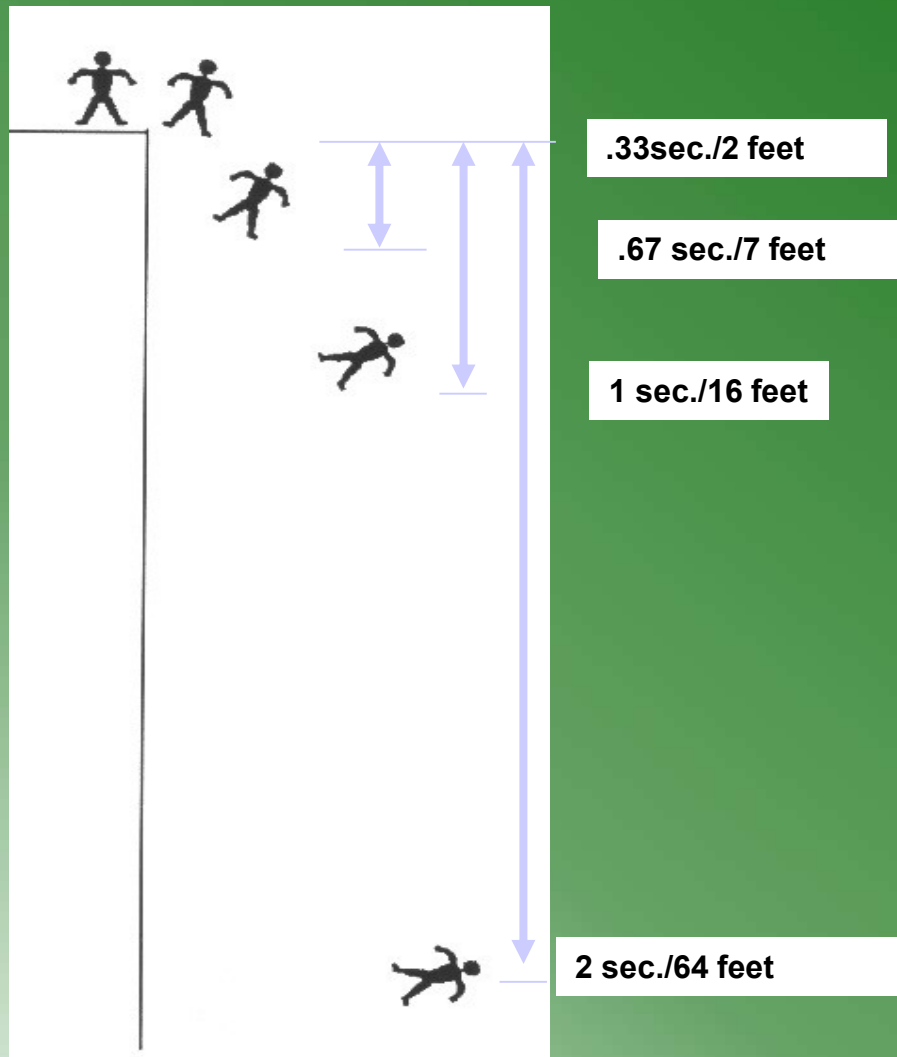
9. True or False. When working in an aerial device, always maintain firm footing and never stand on boxes to increase your elevation.

True



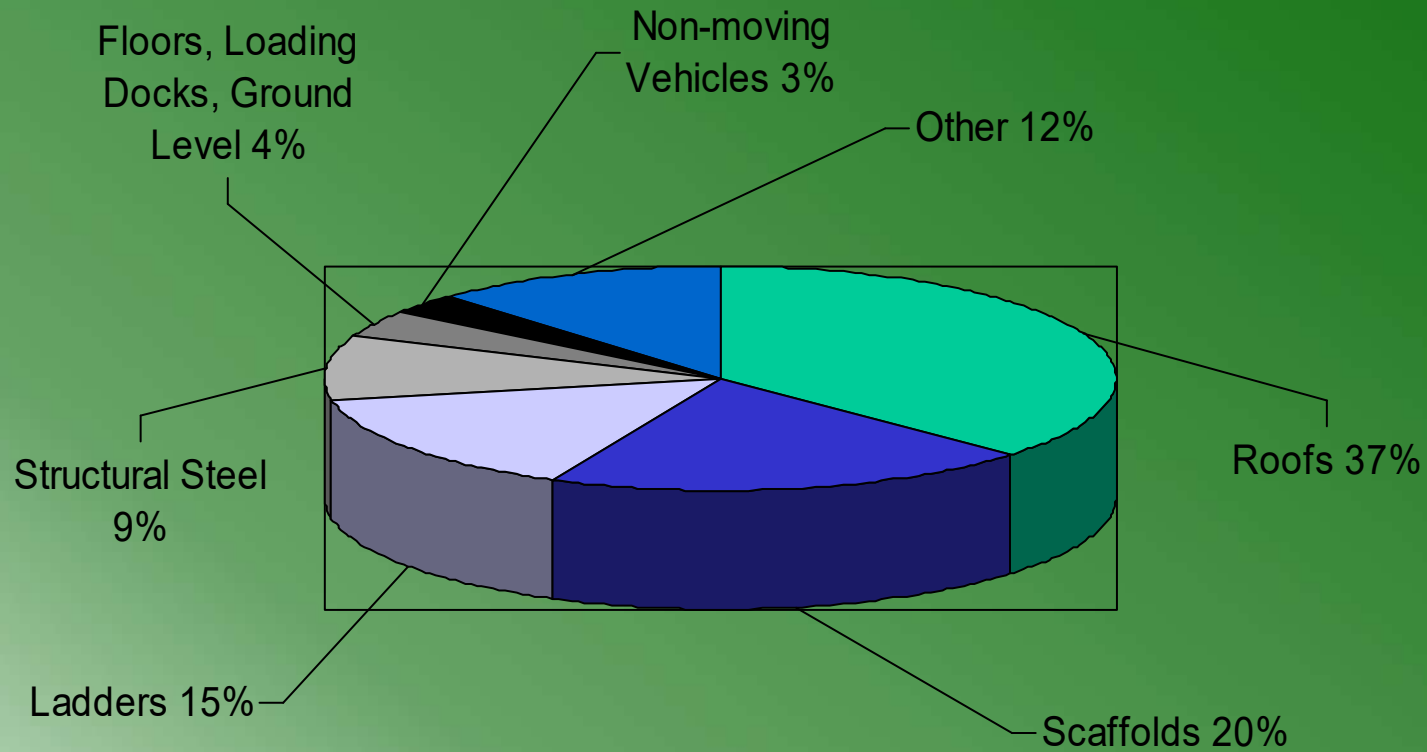
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Anatomy of a Fall

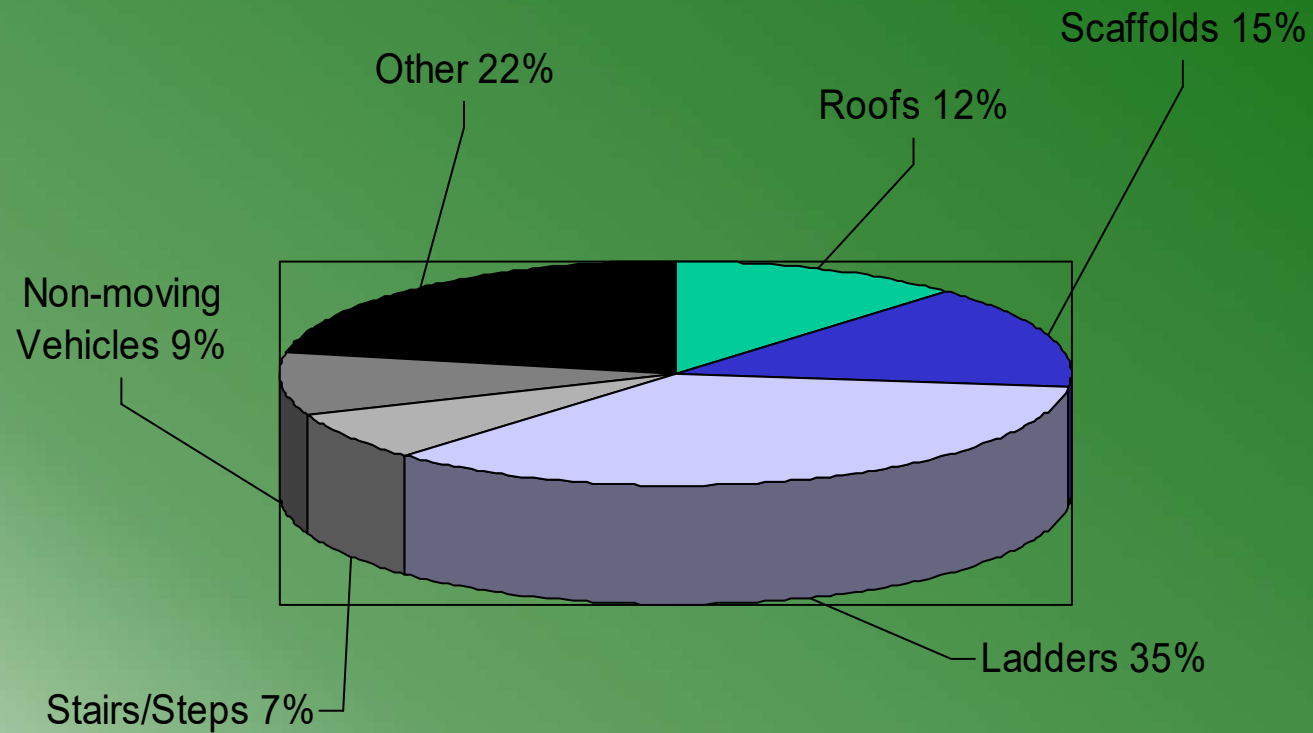


- It takes most people about 1/3 of a second to become aware.
- It takes another 1/3 of a second for the body to react.
- A body can fall up to 7 feet in 2/3 of a second.

Fatal Falls Most Often From



Non-Fatal Falls Most Often From



Falls in Industry

Falls are one of the leading cause of deaths in industry.

Most fatalities occur when employees fall from open-sided floors and through floor openings.

Falls from as little as 4 to 6 feet can cause serious lost-time accidents and sometimes death.

Open-sided floors and platforms 4 feet or more in height must be guarded.

Fall Protection

This presentation will discuss:

- The working conditions that prompt use of fall protection
- Options that are available to protect workers from falls

Fall Protection

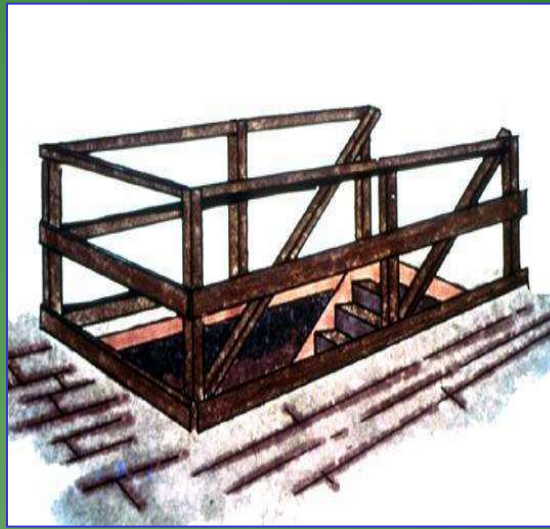
At the end of this topic, you will be able to:

- List at least four methods of fall protection available for protecting workers
- State the main criteria that prompts use of fall protection for general industry workers

Fall Protection Options



Personal Fall
Arrest System
(PFAS)



Guardrails



Safety Net

Fall Protection Planning



Lanyards and PFAS in use

Fall protection systems and work practices must be in place before you start work.

Personal Fall Arrest Systems



- You must be trained how to properly use PFAS.
- PFAS = anchorage, lifeline and body harness.

Safety Line Anchorages



Must be independent of any platform anchorage and capable of supporting at least 5,000 lbs. per worker

Guardrails



Top Rail 42"
Mid- Rail 21"
Toeboard 3½"

- Top rails between 39 and 45 inches tall
- Toeboards at least 3 1/2 inches high

Safety Nets



Place as close as possible, but no more than 30 feet below where employees work

FALL PROTECTION

1. 4' (GI), 6' (CI), 10' (SCAFFOLDS) is the minimum height at which fall protection generally required.
2. BODY BELTS is not allowed as of January 1st, 1998 for use as personal fall protection.
3. Top rails must be able to with-stand 200 lbs. of force.

When Fall Protection is Needed

- **Walkways & Ramps**
- **Open Sides & Edges**
- **Holes**
- **Roofs**
- **Wall openings**

Training

Employers must provide fall protection training

The training is to teach you:

- How to recognize hazards
- How to minimize hazards

The training must cover:

- Fall hazards
- Fall protection systems
- Use of fall protection devices
- Provide for falling object protection



Summary

- **If you can fall more than 4 feet, you must be protected**
- **Use fall protection on:**
 - **walkways & ramps, open sides & edges, holes, roofs, and wall/floor openings.**
- **Protective measures include guardrails, covers, safety nets, and personal fall arrest systems**

LESSON 5

SUMMARY

Hopefully now you have learned all about walking and working surfaces, and have taken the first steps to making your work area safer. Perhaps now you can pay closer attention to any lingering hazards around floor openings, stairways, and other high-risk areas, that may have otherwise gone ignored. Keep in mind that these small precautions can go a long way, because without them you and your employees run the risk of lost man hours, injury, and even death.