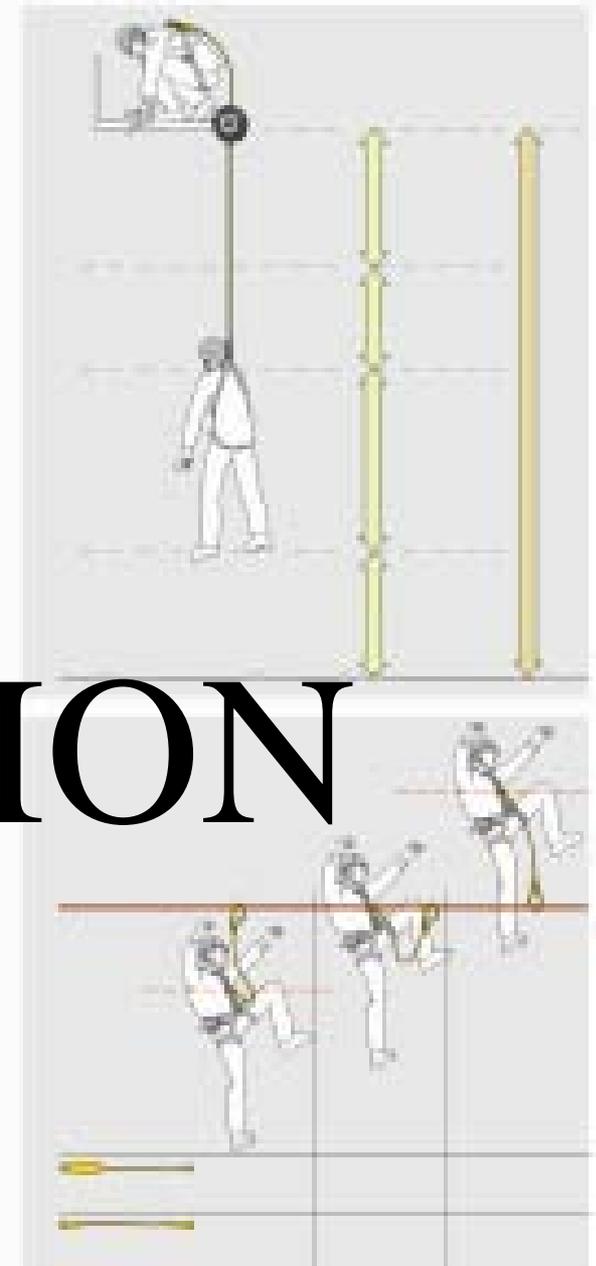


FALL PROTECTION



Overview

- Identify fall hazardous areas
- Describing potential fall hazards
- How appropriate portable and extension ladders are used

Fall Protection

- All situations that expose personnel to a fall of 6' or greater must be assessed by a **competent** person who is trained in fall protection to implement appropriate controls
- “Military unique” such as obstacle course training and rappelling are covered by SOP or other military standards, but requirements of CFR 1910 and 1926 apply if feasible

Unit /Employer Responsibilities

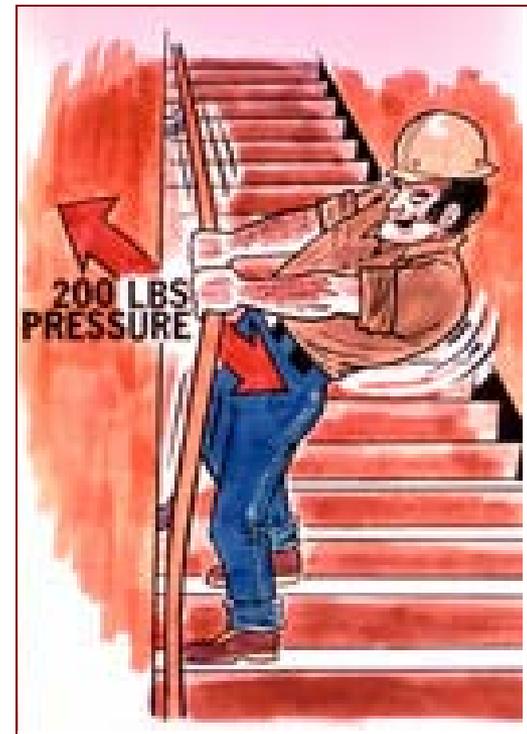
- Ensure personnel who may be exposed to fall hazards receive fall protection awareness training
- Provide fall protection equipment
- Ensure work site hazards are assessed and SOPs relating to fall protection are current

Types of Fall Protection

- Guardrails
- Personal Fall Arrest System with Harnesses
- Safety nets
- Covers
- Warning Line Systems
- Safety Monitoring Systems
- Positioning and Restraint Systems

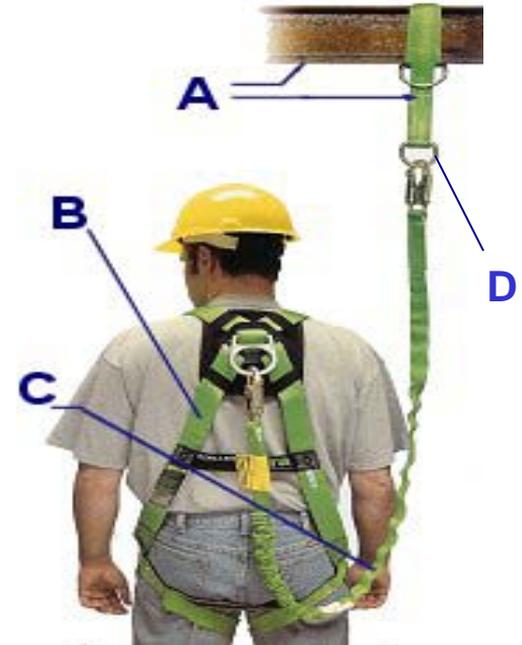
Guardrails

- Temporary or permanent: capable of withstanding 200 lbs force applied within 2” of top edge in any out or downward direction along it’s length
- Top rail
- Mid rail
- Toe board



Personal Fall Arrest System with Harnesses

- Free-fall is no more than 6'
- All components must be rated at 5000 lbs. breaking strength and be compatible for use together as a system
- May include horizontal, vertical, or self-retracting life lines
- System is composed of
 - Anchor system (A)
 - Full body harness (B)
 - Body belts not authorized
 - Lanyard with shock absorbing device (C)
 - Self locking connectors (D)



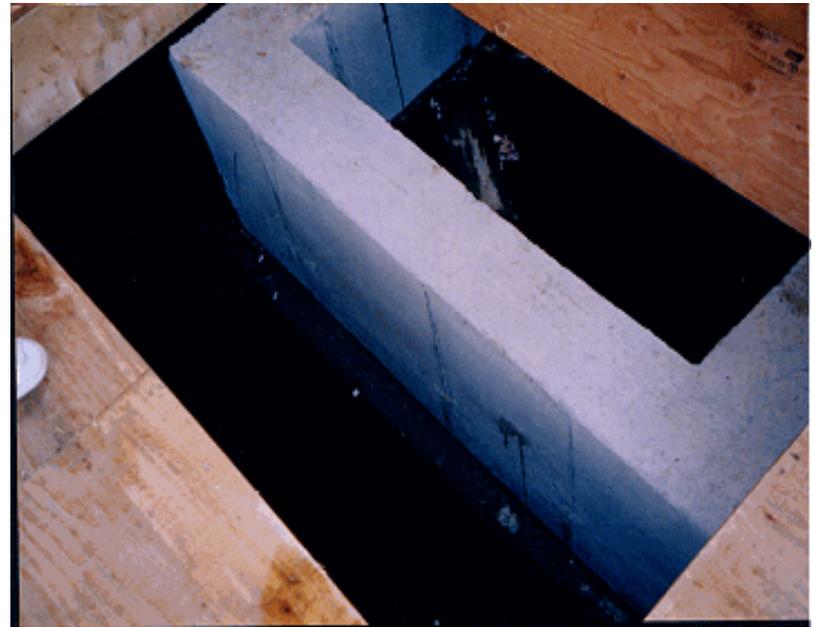
Safety Nets

- Extend a minimum of 8 ft. from the edge of the working surface
- Installed as close as possible to the working level
- Able to withstand a weight of 400 lbs. dropped from the highest point of the working surface



Covers

- Able to withstand twice the weight of personnel, equipment, and materials that may be imposed at any time
- Must be fastened to prevent slipping
- Must be marked “cover” or “hole”



Warning Line Systems

- System can only be used on low-slope roofs with a pitch equal or less than 4" in 12"
- Rope, wire, or chain placed 34" to 39" high
- Placed at least 6 ft. from the edge of roof
- Flagged with high visibility material every 6 ft.
- Support able to withstand 16 lbs. of force without tipping



Safety Monitoring System

- A **competent** person
- Must be on the same working surface
- Can have no other duties but observe
- System be used on low slope roofs only



Positioning and Restraint Systems

- Will not allow a person to fall more than 2 feet
- Anchor strength must be a minimum of 3000 lbs.



Rescue Operations

- The ISM and supervisors shall insure personnel can be rescued promptly
- A rescue and evacuation plan must be in place



Scaffolds

- Scaffolds are elevated platforms that can be moved to reach a desired work level or position
- 2 main types of scaffolds
 - Suspension
 - Mobile



Scaffolds

Tube and Suspended





YOU CAN NEVER BE TOO SAFE.

Use proper safety equipment. Demand proper training. Refuse unsafe work.

WSIB
ONTARIO
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Ladders

- Two basic types of ladders
 - Portable ladders
 - Step ladder
 - Extension ladder
 - Fixed ladders





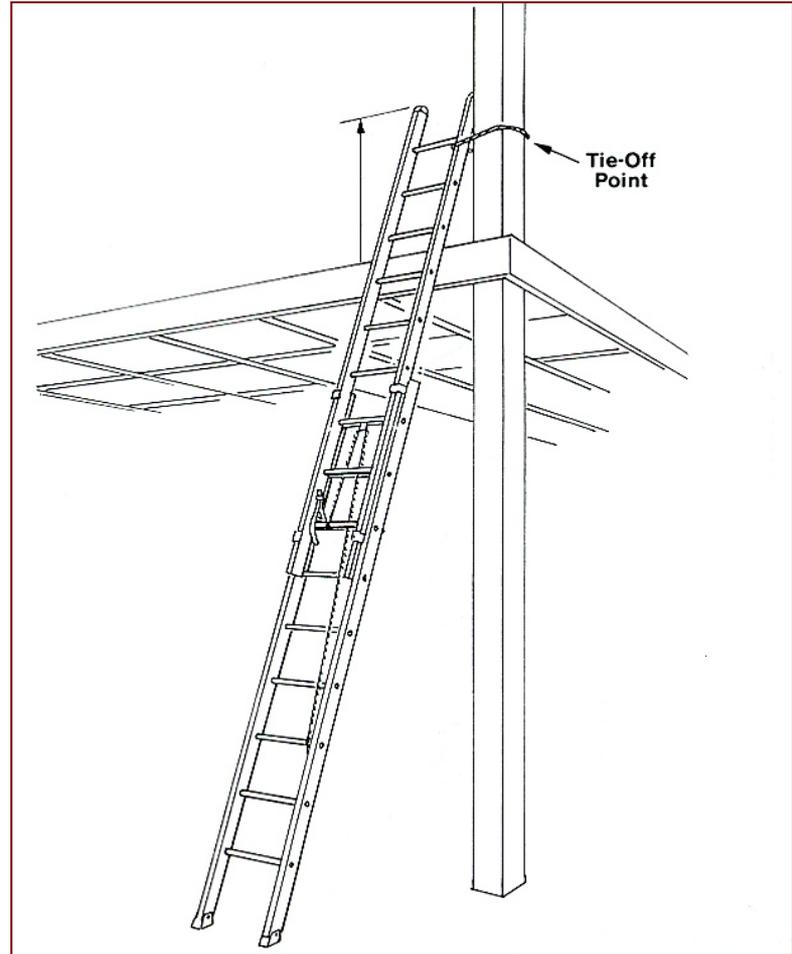
Portable Ladders

- Stepladder
 - Make sure the ladder is fully open and the spreaders are locked
 - Don't climb, stand or sit on the top two rungs



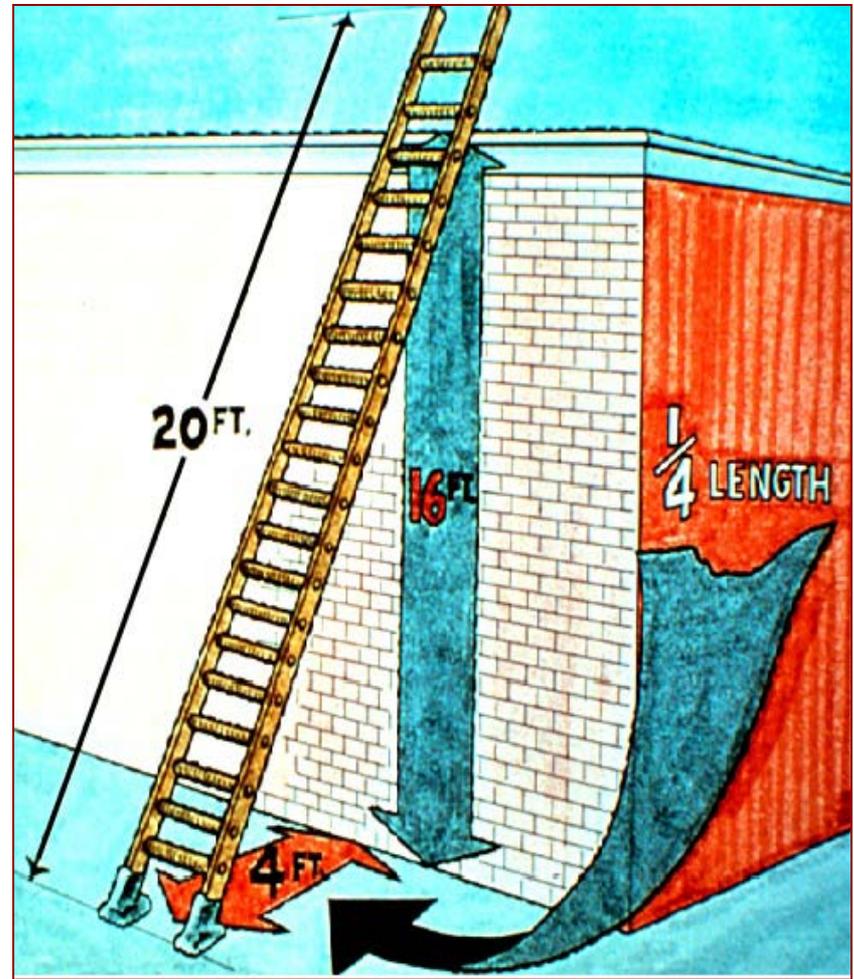
Portable Ladders cont.

- Extension ladder
 - Set up with about 3 feet extension above the working surface
 - Be sure to secure or foot the ladder firmly before extending
 - Never raise or lower the ladder with the fly section extended
 - Tie off at top



Portable Ladders cont.

- Figure out the right set-up angle or pitch - should be about $\frac{1}{4}$ of the distance from the ladder's top to bottom supports



General Ladder Safety

- If you must use a ladder in a passageway, set out cones or barricades
- Use both hands for climbing
- Tie off the ladder to a secure object
- Make sure the footing is secure
- Use wooden or fiberglass ladders for electrical work
- Don't reach when on a ladder



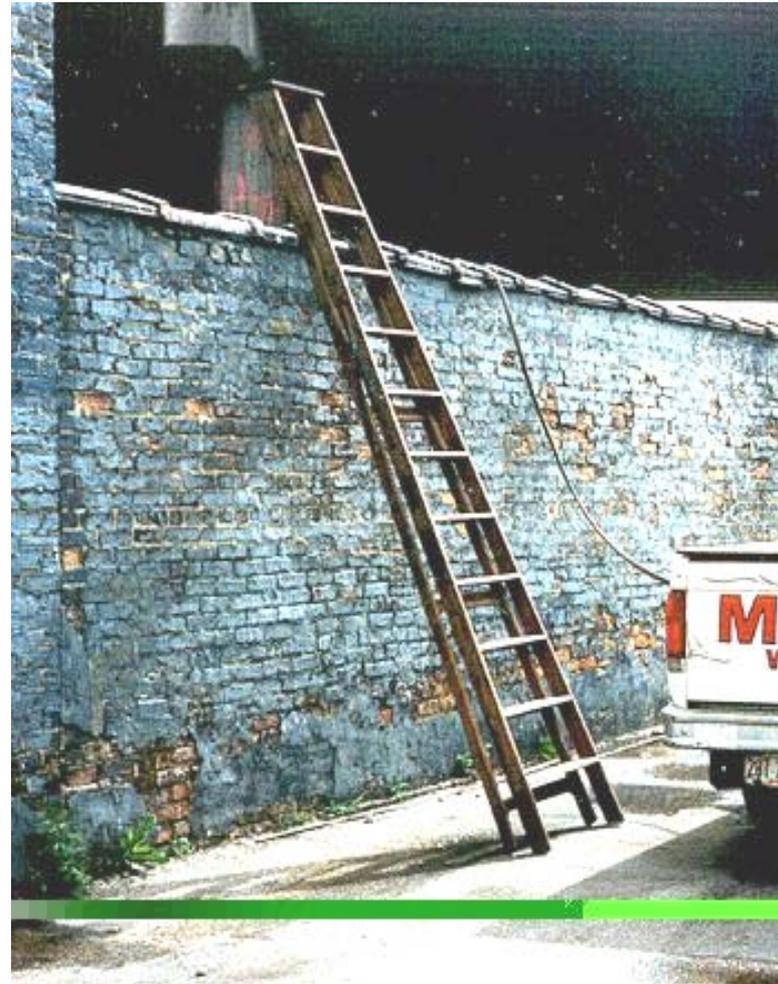
Inspecting Ladders

- Look for broken or missing steps or rungs
- Look for broken or split side rails and other defects
- Check footing devices when installed
- Tag defective ladders “out of service” or “do not use”
- Don’t paint ladders, it covers defects



Use of Ladders

- Portable ladders are designed as a one-man working ladder based on a 200-pound load.
- The ladder base section must be placed with a secure footing.
- The top of the ladder must be placed with the two rails supported, unless equipped with a single support attachment.



Use of Ladders

- When ascending or descending the climber must face the ladder and have two points of contact



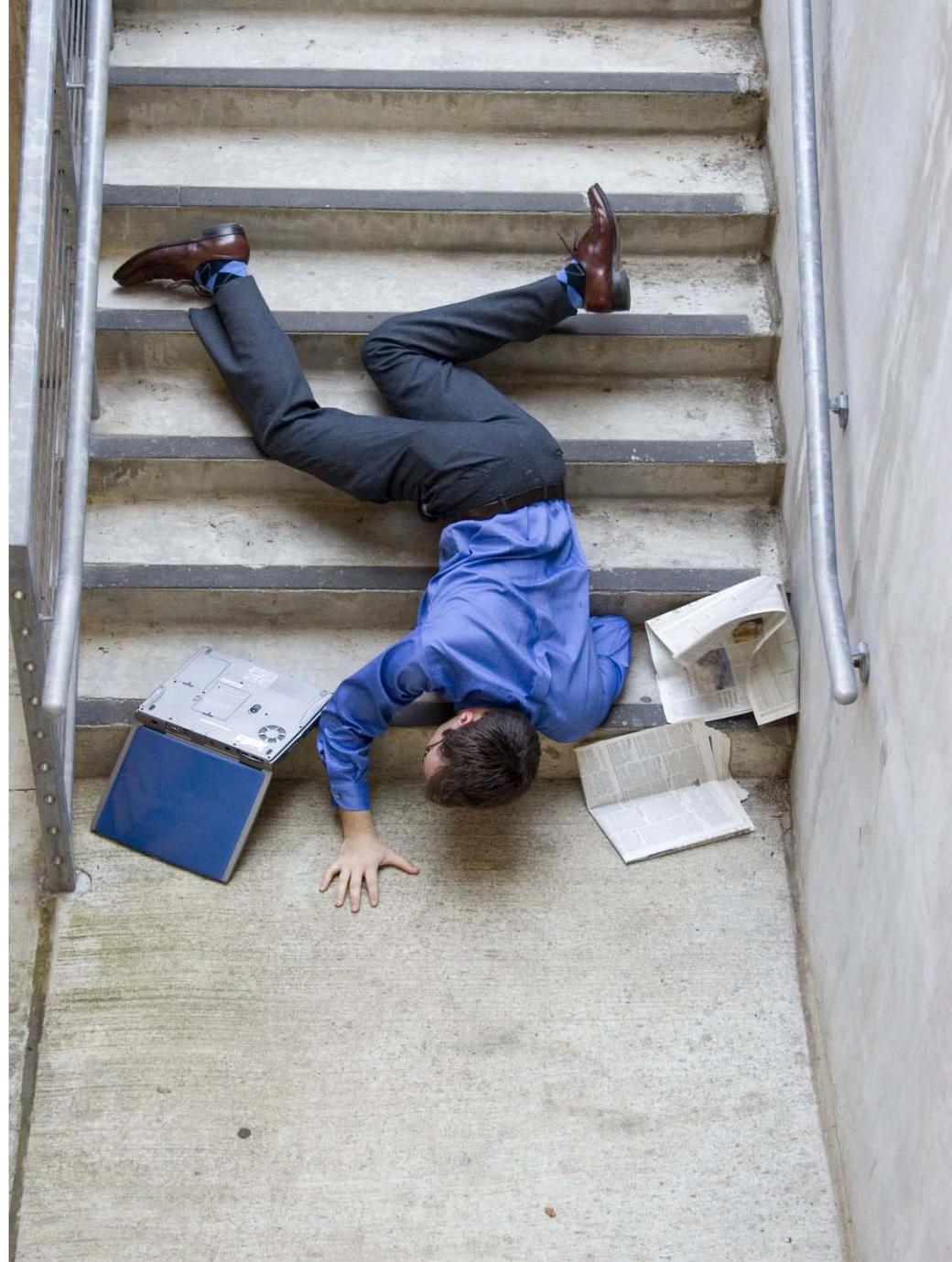
Fixed Ladders

- Must be able to support two loads of 250lbs
- Must be able to withstand rigging, impact loads and weather conditions
- If fixed ladder is longer than 24 ft, must have cages or wells to protect worker from falling
- May have a ladder climbing device installed



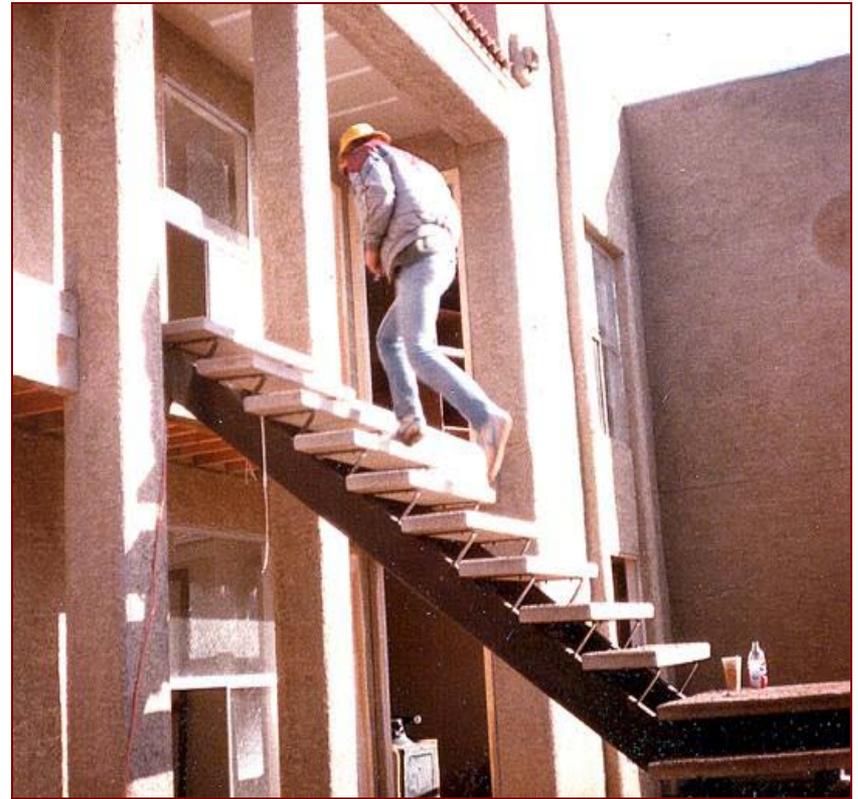
Stairways

use handrails !



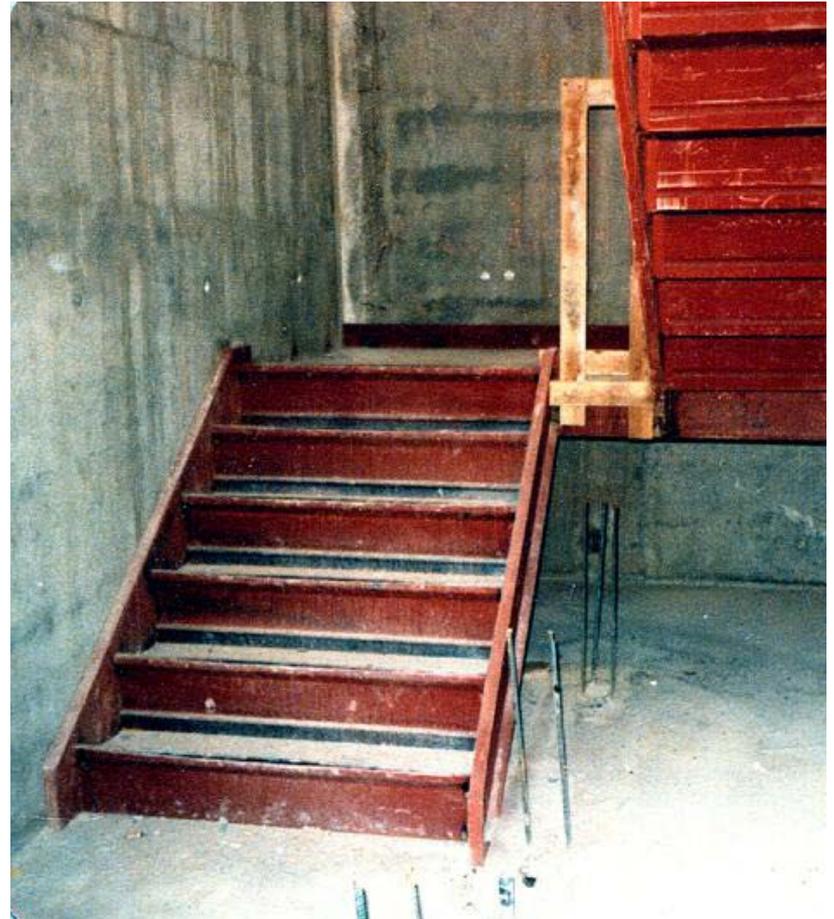
Stairways

- Must be strong enough to carry 5 times it's maximum intended load
- Treads must be slip resistant and equally spaced



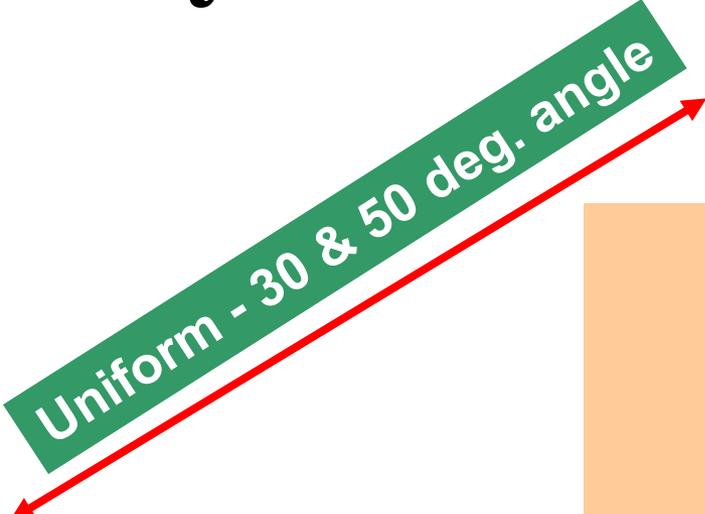
Stairways cont.

- Stairways landings must be at least 30 inches deep and 22 inches wide at every 12 feet or less of vertical rise
- Unprotected sides of landings must have standard 42 inch guardrail systems

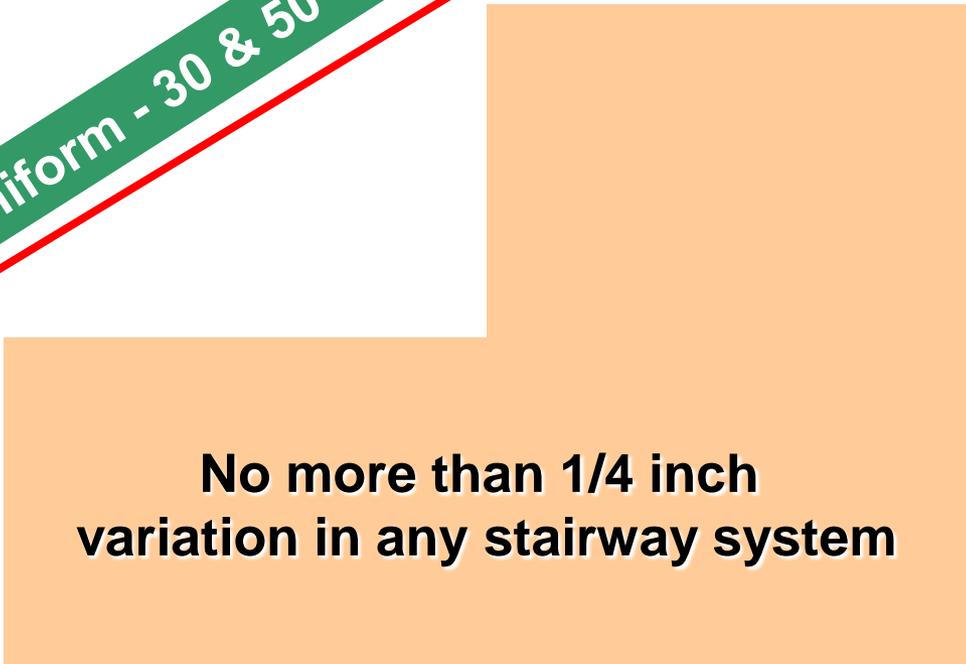


Stairways cont.

- Install between 30 and 50 degrees
- Must have uniform riser height and tread depth, with less than a 1/4-inch variation



Uniform - 30 & 50 deg. angle



**No more than 1/4 inch
variation in any stairway system**

Stairways cont.

Stairways with four or more risers, or higher than 30” must be equipped with at least one handrail



Stairways cont.

- Fix slippery conditions before using
- Stairway parts must be free of projections which may cause injuries or snag clothing



Training

- Conducted by a competent person designated by the ISM
- Training shall be provided to all personnel that may be exposed to fall hazards











References

- NAVMC DIR 5100.8, Chapter 18
- 29 CFR 1910
- 29 CFR 1926
- COE EM-385 2011
- Local SOP

