Lewis Energy Group®

STANDARD OPERATING PRACTICE

Walking and Working Surfaces

Lewis Energy Group
Version 1.2
June 2024

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Acronyms and Abbreviations

ANSI	American National Standards Institute
BU	Business Unit
CFR	Code of Federal Regulations
FOP	Falling Object Protection
LEG	Lewis Energy Group
OSHA	Occupational Safety and Health Administration
PFAS	Personal Fall Arrest System
PFPS	Personal Fall Protection System
PPE	Personal Protective Equipment
RDS	Rope Descent System
SOP	Standard Operating Practice
WWS	Walking Working Surfaces

1.0 Purpose & Policy Statement

The purpose of this Standard Operating Practice (SOP) is to provide a guide for Lewis Energy Group (LEG) Team Members and contractors who have potential for slips, trips and falls in their work duties.

LEG Policy Statement

Lewis Energy Group (LEG) will construct and maintain all walking and working surfaces free of obstruction. Team Members shall keep these areas free from obstacles and remove hazards to prevent accidents. All Team Members are required to maintain a safe working environment.

2.0 Applicability

This SOP applies to all areas where Team Members may be exposed to fall hazards from, horizontal/vertical/inclined walking-working surfaces including, but not limited to: 1) floors, 2) aisles, 3) ladders, 4) dock boards, 5) step bolts, 6) roofs, 7) ramps, 8) stairways, 9) scaffolds, 10) elevated work surfaces and 11) walkways.

3.0 OSHA General Requirements

This SOP serves as the LEG written program as described under 29 CFR 1910.21 – 30, 1910.140. The rule gives LEG Team Members flexibility to use personal fall protection systems (personal fall arrest, travel restraint, and work positioning systems) in lieu of guardrail systems. Under the rule, LEG managers must set up the work place to prevent Team Members from falling off overhead platforms, workstations that are elevated or into holes in the floor and walls. As a baseline, OSHA expects employers to:

- Inspect and provide working conditions that are free of known fall dangers.
- Keep floors in work areas in clean and as dry as possible.
- Select and provide needed personal protective equipment at no cost to workers.
- Utilize guardrail or other permissible systems to engineer out fall hazards where possible, but otherwise effectively use Personal Fall Arrest Systems (PFAS), train Team Members on the use of PPE, maintain and inspect equipment. Inspections on equipment occurs monthly. These inspections are documented.
- Provide appropriate ladders or other man-lifts to allow workers to safely access work areas and train them on the use of this equipment; and
- Train Team Members about fall hazards and PPE use in a language that they can understand. Training provided during new employee orientation includes “Big 8” training.

General Requirements: 29 CFR 1910.22

Workplace housekeeping should include keeping all work areas, passageways, storerooms, service areas, and walking-working surfaces in a clean, orderly, and sanitary conditions. Workplace housekeeping, with a continuous process involving both Team Members and contract personnel will be the responsibility of LEG managers. All processes, operations and tasks performed in the workplace will incorporate Housekeeping. Efforts should be concentrated in high traffic areas, such as around stairs, platforms and

ladders; around workstations and machines; and in storage areas. Each Team Member needs to understand that workplace housekeeping is an integral part of his/her job and not merely a supplement to work a Team Member already performs. Less time and effort is needed to maintain housekeeping at an appropriate level as it becomes a standard part of operations

Keep work areas free of hazards such as sharp or protruding objects, spills, snow and ice;

- WWS must support maximum intended load.
- Provide and ensure use of safe means of access and egress to/from each WWS.
- Correct or repair hazardous conditions on WWS before employee uses it again, or else guard to prevent use until fixed; and
- When correction/repair involves structural integrity of WWS, a qualified person performs or supervises the correction/repair. Qualified means a person who by profession 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 (29 CFR 1910.21).

Ladders 29 CFR 1910.23

In general, ladders must be capable of supporting their maximum intended load, while mobile ladder stands and platforms must be capable of supporting four times their maximum intended load. Inspect ladders before initial use in a work shift to identify defects that could cause injury.

Ladders safety should include but not be limited to:

- Ladder surfaces must be free of puncture and laceration hazards;
- Ladders must be used only for the purpose for which it was designed;
- Ladders must be inspected before initial use in each work shift, and more frequently as needed, to identify any visible defects that could cause injury;
- Ladders with structural or other defects must be immediately tagged “Dangerous; Do Not USE” or with similar language and removed from service until repaired or replaced;
- Team Members must face ladder when climbing up/down; and
- Team Members must use three points of contact while climbing, and cannot carry objects/loads that cause the Team Member to lose balance and fall while climbing.

Portable Ladders:

The use of portable ladders will be as follows:

- Rungs and steps of portable metal ladders are corrugated, knurled, dimpled, coated with skid resistant material or treated to minimize possibility of slipping.
- Securely hold the ladder open by the use of a metal spreader or locking device on stepladders or on combination ladders.
- Use ladders on stable and level surfaces. Secure or stabilize to prevent displacement.
- Do not load ladders beyond maximum intended load.
- No portable single rail ladders may be used.

- Do not move, shift or extend a ladder while a worker is on it.
- Do not place ladders in passageways, doorways, or driveways unless secure, or guarded by a temporary barricade.
- Do not use the cap and top step of a stepladder as a step.
- Secure and stabilize portable ladders used on slippery surfaces.
- Place the top of a non-self-supporting ladder with support to both side rails unless it has a single support attachment.
- Portable ladders used to gain access to upper landing surface must have side rails extending at least 3 feet above landing surface; and
- Ladders/sections cannot be tied or fastened together to provide added length unless designed for this. Do not place ladders on boxes or other unstable bases to obtain additional height.

Step bolts and manholes: 29 CFR 1910.24

Step Bolts for foot placement during climbing or standing will meet the following:

- Coat step bolts with material to protect them in an environment where corrosion may occur.
- Designed, constructed and maintained to prevent employees foot from slipping off end of step bolt.
- Designed to meet the specifications and support maximum intended load (by factor of four is installed after 1/17/17; and
- Inspected at start of work shift and maintained.

Manhole Steps

Manhole steps will meet the following:

- Must support maximum intended load, has corrugated/knurled/dimpled or surface to minimize slipping.
- Be construction of material or coated to prevent corrosion; and
- Be inspected at start of work-shift and maintained.

Stairways: 29 CFR 1910.25

All types of stairways (standard, spiral, ship, alternating or tread-type stairs) except those serving floating roof tanks, scaffolds, and those designed into machines or on self-propelled motorized equipment will meet the following:

- Have handrails, stair rail systems, and guardrail systems meeting the specifications in the rule [1910.25(b)].
- Stairs must have uniform risers and tread depth between railings.
- Spiral, ship or alternating tread stairs used only when LEG demonstrates that it is not feasible to use standard stairs, must be installed, used and maintained in accordance with manufacturer's instructions; and
- Standard stairs must also meet specifications [1910.25(c) (4)] if installed after 1/17/17.

Dock-boards: 29 CFR 1910.26

- Must be capable of supporting intended load.
- If put into service after 1/17/17, must be designed, constructed, and maintained to prevent transfer vehicle from running off dock-board edge.
- Consider eliminating run-off protection when the LEG manager demonstrates there is no hazard of running off dock-board edge.
- Secure portable dock-boards by anchoring them in place or using devices/equipment to prevent from moving out of safe position unless employer demonstrates infeasibility, in which case LEG management must ensure there is sufficient contact between dock-board and surface to prevent movement out of safe position.
- Measures (chocks, sand shoes, etc.) must be used to prevent transport vehicle on which dock-board is placed from moving while employees are on dock-board; and
- Portable dock-boards must be equipped with handholds or other means to permit safe handling of dock-boards.

Scaffolds and rope descent systems: 29 CFR 1910.27

Rope Descent Systems (RDS)

- Before use, building owner must inform Team Member in writing that owner has identified, tested, certified and maintained each anchorage so it is capable of supporting at least 5,000 lbs. in any direction for each Team Member attached.
- A qualified person will inspect and certify each anchorage at least every 10-years.
- No Team Member shall use an anchor point before verifying that it has been installed, tested and compliant with 29 CFR 1910.27.
- Cannot use RDS for heights greater than 300 feet unless demonstrated infeasibility of other safer methods.
- RDS must be used in accordance to manufacturer limitations and specifications
- Team Members and contractors using RDS must be trained using requirements under OSHA 29 CFR 1910.30.
- Inspect RDS at start of work shift. LEG managers must remove defective equipment from service immediately and replaced.
- RDS must have proper rigging, including anchorages and tiebacks.
- Each Team Member or contractor must use separate independent personal fall arrest (PFA) system meeting requirements in Subpart I of rule.
- Prompt rescue must be provided for Team Member in event of fall [1910.27(b)92)(viii)];
- Protect ropes effectively so they cannot contact edges of building, anchorage, or obstructions (to prevent cutting or weakening).
- Team Members cannot use a RDS during hazardous weather.
- Equipment must be secured by tool lanyard to prevent it from falling; and
- Protect ropes of the RDS from open flame, hot work, corrosive chemicals and destructive conditions.

Duty to have fall protection and falling object protection: 1910.28

LEG management shall provide protection for each Team Member exposed to fall and falling object hazards (FOPs ref. 1910.29 – Personal Fall Protection systems ref. 1910.30). This applies to scaffolds and RDS, Stairways, Work on Low-Slope Roofs, and Facility Platforms. It does not apply to the following:

- Portable ladders.
- When inspecting, investigating, or assessing workplace prior to start or work or after work is complete, (unless FPS or equipment is installed and available for workers to use pre/post-work).
- Fall hazards from entertainment stages and exposed perimeters of rail-station platforms;
- To powered platforms covered by 29 CFR 1910.66.
- Aerial lifts covered by 29 CFR 1910.67.
- Telecommunications work covered by 29 CFR 1910.268.
- Electric power generation, transmission and distribution work covered by 29 CFR 1910.269.
- If not excluded, must provide protection if side or edge is 4 feet or more above lower level using: guardrail systems, safety net systems, or personal fall protection systems (PFA, travel restraint, or positioning system); or
- If not feasible to comply on residential roofs, ER must develop and implement fall protection plan meeting 1926.502(k) and training pursuant to 1926.503(a) and (c).

Fall Protection Systems and FOPs Criteria and Practices: 1910.29

LEG managers shall ensure each FPS and FOPs other than a personal fall protection system, meets the criteria in this section in terms of design specifications:

- Guardrail systems – guardrail systems and the top edge height of the top rail are 42 inches, plus or minus 3 inches, above the walking working surface. Guardrail systems are capable of withstanding, without failure, a force of at least 200 pounds, in a downward or outward direction.
- Safety Net Systems – installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to a drop test. The drop test shall consist of a bag of sand weighing 400 lbs. from the highest walking, working surface.
- Designated Areas - an area where Team Members remain while work operations are underway. The perimeter is marked with a warning line consisting of rope, wire, tape or chain. The warning line will meet the following specifications:

    - Have a minimum breaking strength of 200 pounds.
    - Be clearly visible from a distance of 25 feet.
    - Is installed so its lowest point including sag, and not less than 34 inches and not more than 39 inches above the walking-working surface; and
    - Be supported in such a manner that pulling on one section of the line will not result in taking up slack in adjacent sections causing the line to fall below specified limits.

- Design, construction and maintenance of cages, wells, and platforms used with fixed ladders will provide easy access to and egress from the ladder that they enclose.

- Cages and wells are continuous throughout the length of the fixed ladder, except for access, egress, and other transfer points.

- Design, construct and maintain cages and wells to contain Team Members in the event of a fall, and to direct them to a lower landing. Platforms used with fixed ladders provide a horizontal surface of at least 24 inches by 30 inches.

- Outdoor advertising has unique provisions 1910.29(h) requiring Team Members who climb fixed ladders without PFA systems to be demonstrate physical capacity for climbing fixed ladders without fall protection complete training or apprenticeship program including hands-on training on safe climbing (retrain as needed), performs climbing duties as part of routine work activity.

- Ladder safety systems – allows Team Members to climb up and down using both hands and does not require that the Team Member continuously hold, push, or pull any part of the system while climbing. The connecter between the carrier or lifeline and the point of attachment to the body harness does not exceed 9 inches. Attach mountings for rigid carriers at each end of the carrier, with intermediate mountings spaced along the entire length of the carrier so the system has the strength to stop Team Member falls. Attach mountings for flexible carriers are attached at each end of the carrier, and cable guides for flexible carriers are installed at least 25 feet apart but not more than 40 feet apart along the entire length of the carrier. The design and installation of mountings and cable guides does not reduce the design strength of the ladder.

- Rig personal fall protection systems (full body harnesses, other components) in such a manner that an employee cannot free fall more than 6 feet (1.8 meters) or contact a lower level. Maintain the maximum arresting force of 1800 pounds by testing the system.

- Protection from falling objects includes providing toe-boards on exposed edge of overhead surfaces for sufficient length to protect workers. Erect toe-boards along the exposed edge of the overhead walking-working surface for a length that is sufficient to protect Team Members below. The toe-board will have a minimum height of 3.5 inches and solid or do not have any opening that exceeds one inch at its greatest dimension. The toe-board must be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or outward direction at any point.

4.0 Responsibilities

Management Responsibilities:

Business Unit (BU) management is responsible for providing employee safety training, safety inspections, correcting all safety hazards, and ensuring that all new walking working surfaces and fall protection components comply with OSHA standards.

Team Member Responsibilities:

Team Members and contractors are responsible for the immediate reporting of walking working surface(WWS) and fall protection hazards, for inspecting WWS and fall protection equipment, attend WWS and fall protection training and for taking WWS and fall protection equipment out of service if hazardous conditions exist.

5.0 Training (CFR 1910.30)

LEG BU managers will train Team Members who use personal fall protection and work in high hazard situations about fall and equipment hazards, and the use of fall protection systems –before exposure to hazards. This training is included in OSHA 29 CFR 5810 and provided in the training library for the Navarro Midstream Services (NMS) measurement Team Members. Trainer must be a qualified person and train workers to:

- Identify and minimize fall hazards.
- Use personal fall protection systems and rope descent systems.
- Use, maintain, inspect and store equipment and systems used for fall protection; and
- Receive retraining whenever there is a change in workplace operations or equipment, or LEG believes the Team Member would benefit from additional training based on lack of knowledge or skill.

Note: Training will be in a language and vocabulary that Team Members will understand.

6.0 Definitions

Active Fall Protection System - is a means of providing fall protection that requires workers to take specific actions, including wearing and otherwise using personal fall protection equipment and following prescribed procedures. Examples include travel restraint and fall arrest systems."

Aerial Device – Any vehicle-mounted device, telescoping or articulating, or both, which is used to position personnel.

Aerial Ladder – An aerial device consisting of a single, or multiple section extensible ladder.

Anchorage – means a secure point of attachment for equipment such as lifelines, lanyards, or deceleration devices.

Body Harness – means straps that secure about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders, with a means for attaching the harness to other components of a personal fall protection system.

Building owner – person who owns a building and employs personnel to perform work that requires anchor systems for scaffolds or rope descent systems.

Carabiner - means a connector generally comprised of a trapezoidal or oval shaped body with a closed gate or similar arrangement that opens to attach another object and, when released, automatically closes to retain the object.

Competent Person - means a person who is capable of identifying existing and predictable hazards in any personal fall protection system or any component of it, as well as in their application and uses with related equipment, and who has authorization to take prompt, corrective action to eliminate the identified hazards.

D-Ring - means a connector used: in a harness as an integral attachment element or fall arrest attachment; in a lanyard, energy absorber, lifeline, or anchorage connector as an integral connector; or in a positioning or travel restraint system as an attachment element.

Deceleration Distance - means the vertical distance a falling employee travels from the point at which the deceleration device begins to operate, excluding lifeline elongation and free fall distance, until stopping. Measured as the distance between the location of an employee's attachment point of the body harness when the device activates (at the onset of fall arrest forces) during a fall, and the location of that attachment point after the employee comes to a full stop.

Fall Protection - any equipment, device, or system that prevents a worker from falling from an elevation or mitigates the effect of such a fall. Examples of fall protection systems are: 1) guardrail, 2) safety net, 3) personal fall arrest, 4) positioning system, 5) travel restraint system, and ladder safety system.

Fixed Ladders - Permanently attached to a structure, building, or equipment, fixed ladders include individual-rung ladders, but not ship stairs, step bolts, or manhole steps.

Floor Hole – An opening measuring less than 12 inches but more than one inch in its least dimension, in any floor, platform, pavement, or yard, through which materials, but not persons may fall.

Floor Opening – an opening measuring 12 inches or more in its least dimension in any floor, roof or platform through which persons may fall.

Free Fall Distance – fall arrest attachment point vertical displacement point on the employee's body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, lifeline and lanyard elongation but includes the distance for deceleration device slide, or self-retracting lifeline/lanyard extension before the devices operate and fall arrest forces occur.

Guardrail System- A barrier erected along an unprotected or exposed side, edge, or other area of a walking-working surface to prevent workers from falling to a lower level.

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

Ladder Safety System - A system attached to a fixed ladder designed to eliminate or reduce the possibility of a worker falling off the ladder. A ladder safety system usually consists of a carrier, safety sleeve, lanyard, connectors, and body harness. Cages and wells are not ladder safety systems.

Lanyard - means a flexible line of rope, wire rope, or strap that generally has a connector at each end for connecting the full body harness to a deceleration device, lifeline, or anchorage

Mid-rail – A rail approximately midway between the guardrail and platform, used when required, and secured to the uprights erected along the exposed sides and ends of platforms.

Personal Fall Arrest System - A system that arrests/stops a fall before the worker contacts a lower level. Consists of a body harness, anchorage, and connector, and may include a lanyard, deceleration device, lifeline, or a suitable combination. OSHA prohibits the use of body belts as part of a personal fall arrest system.

Personal Fall Protection System - means a system (including all components) an employer uses to provide protection from falling, or safely stop an employee's fall if one occurs. Examples of personal fall protection systems include personal fall arrest systems, positioning systems, and travel restraint systems.

Platform – an onshore working space for persons elevated above the surrounding floor or ground level, such as a balcony or platform for the operation of machinery and equipment.

Portable Ladders - Portable ladders usually consist of side rails joined at intervals by steps, rungs, or cleats. They can be self-supporting or lean against a supporting structure.

Positioning System - A system of equipment and connectors when used with a body harness that provides a worker support on an elevated vertical surface and work with both hands free.

Rise – the vertical distance from the top of a tread to the top of the next higher tread.

Rope Grab - means a deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/lever locking, or both.

Runway – a passageway for Team Members elevated above the surrounding floor or ground level, such as a foot-walk along shafting or a walkway between buildings.

Safety Net System – A horizontal or semi-horizontal, cantilever-style barrier that uses a netting system to stop falling workers before they make contact with a lower level or obstruction.

Scaffold - means any temporary elevated or suspended platform and its supporting structure, including anchorage points, used to support employees, equipment, materials, and other items. For purposes of this subpart, a scaffold does not include a crane-suspended or derrick-suspended personnel platform or a rope descent system.

Self-retracting Lifeline/Lanyard - At the onset of a fall, this deceleration device contains a drum-wound line to extract or retract under slight tension. During normal movement by a Team Member, this line automatically locks the drum and arrests the fall.

Standard Railing – a vertical barrier erected along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent falls of persons.

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

Step Bolt - A bolt or rung attached at intervals along a structural member and used for foot placement during climbing or standing.

Toe-board – a vertical barrier at floor level erected along exposed edges of a floor opening, wall opening, platform, runway, or ramp to prevent falls of materials.

Travel Restraint System - A combination of an anchorage, anchorage connector, lanyard (or other means of connection), and body support to eliminate the possibility of a worker going over the unprotected edge or side of a walking-working surface.

Walking Working Surface – any horizontal or vertical surface on or through which an employee walks, works, or gains access to a work area or workplace location.

Working Load – Load imposed by Team Members, materials, and equipment.

7.0 Document Control

Version	Change Date	Change Description	Changed by	Approved by	Approval Date
1.1	8/20/19	• Revise Purpose Statement • Input new Policy Statement • Capitalize Team Member	Colin Clark	Ken Phillips	8/20/19
1.2	10/17/19	• Update Cover Page • Update TOC • Correct Formatting Issues	Colin Clark	Ken Phillips	10/17/19
1.2		Review Only	Colin Clark	Ken Phillips	6/26/24

NOTE: The Sub-Committee will review changes to this document. The Executive Safety Committee (ESC) will be approved the changes. The Document Review Change Log will show revisions. This form shall be kept current to maintain audit compliance.

Appendix:

Ladders, Stairs, Ramps, Guardrails

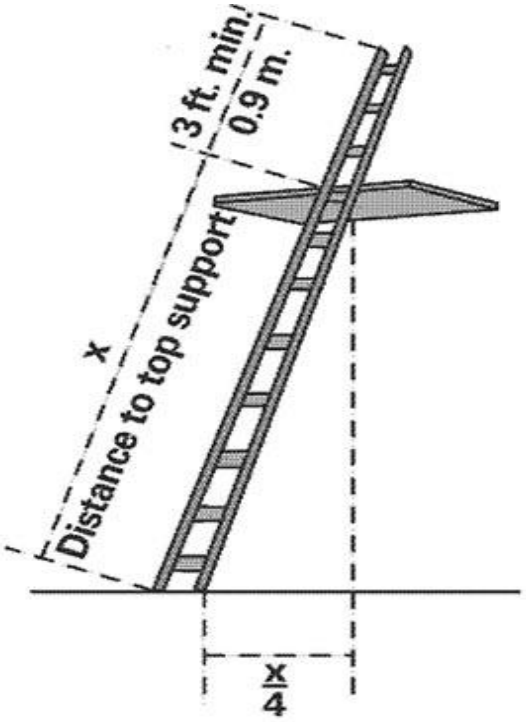
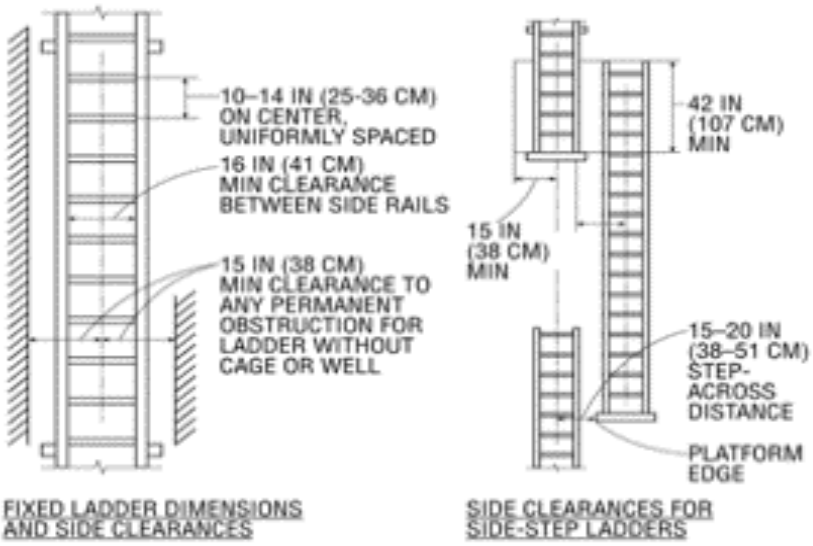
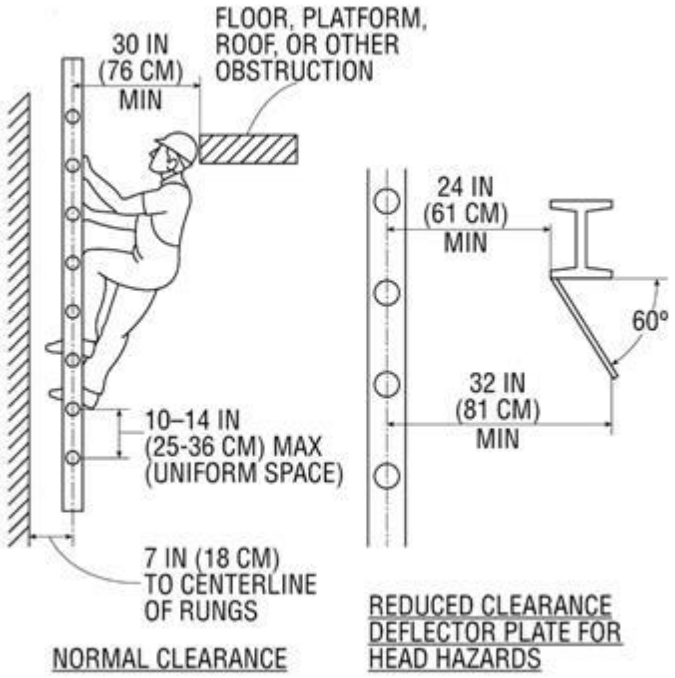


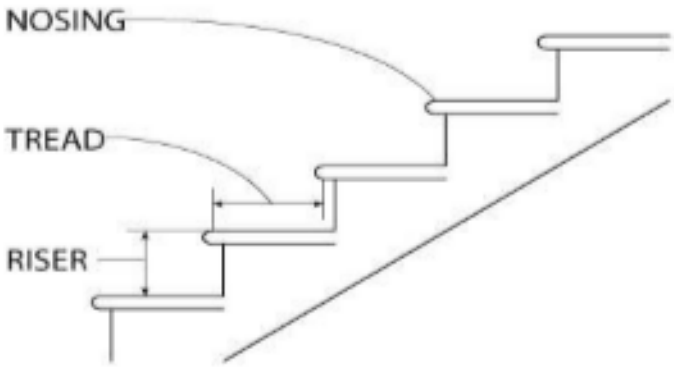
Figure D-1 -- Portable Ladder Set-up



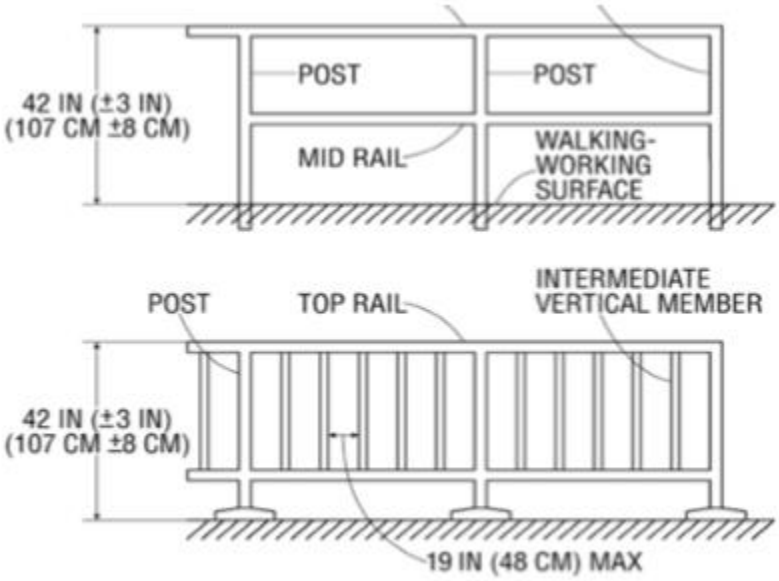
Side-step Fixed Ladder Sections



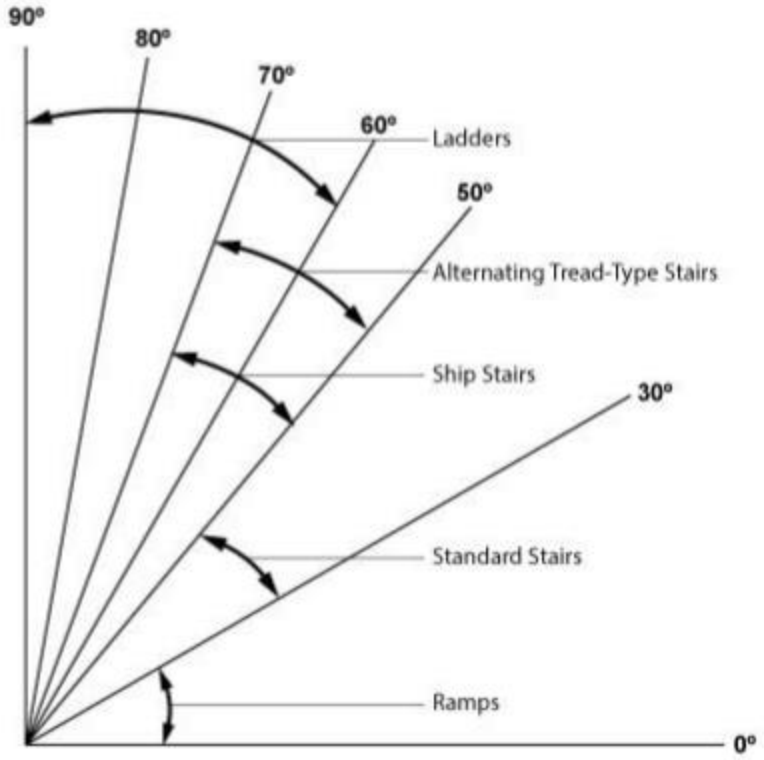
Fixed Ladder Clearances



Dimensions of Standard Stairs



Guard Rail Systems



Angle	Type
≤ 30°	Ramps
30° – 50°	Standard Stairs
50° – 70°	Ship Stairs
50° – 70°	Alternating Tread-Type Stairs
60° – 90°	Ladders

Angle of Stairs, Ramps and Ladder