

40. Scaffold and Ladders

A scaffold, by definition, is any temporary elevated platform and its supporting structure used for supporting employees or materials or both. Because of the numerous types of scaffolds, the infinite possible combinations of uses, the various surface features on which the scaffold may rest, and the varying conditions in which scaffolds may be used, it would be impossible to detail what to do in every situation.

40.01. 12.304. Definitions

- 40.01.01. Body Harness: a design of straps which may be secured about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a personal fall arrest system.
- 40.01.02. Competent Person: one who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- 40.01.03. Exposed Power Lines: electrical power lines which are accessible to employees and which are not shielded from contact. Such lines do not include extension cords or power tool cords.
- 40.01.04. Failure: load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.
- 40.01.05. Guardrail System: a vertical barrier consisting of, but not limited to, top-rail, mid-rail, and posts erected to prevent employees from falling off a scaffold platform or walkway to lower levels.
- 40.01.06. Landing: a platform at the end of a flight of stairs.
- 40.01.07. Lifeline: a component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), or that connects to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.
- 40.01.08. Lower Levels: areas below the level where the employee is located and to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, materials, water, and equipment.
- 40.01.09. Maximum Intended Load: the total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.
- 40.01.10. Open Sides and Ends: the edges of a platform that are more than 14 inches away horizontally from a sturdy, continuous, vertical surface (such as a building wall) or a sturdy, continuous, horizontal surface (such as a floor), or a point of access. Exception: For plastering and lathing operations, the horizontal threshold distance is 18 inches.
- 40.01.11. Personal Fall Arrest System: A system used to arrest an employee's fall. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or combinations of these.

- 40.01.12. Platform: a work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.
 - 40.01.13. Qualified Person: one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.
 - 40.01.14. Rated Load: the manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold equipment.
 - 40.01.15. Scaffold: any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage) used for supporting employees or materials or both.
 - 40.01.16. Unstable Objects: items whose strength, configuration, or lack of stability may allow them to become dislocated and shift and therefore may not properly support the loads imposed on them. Unstable objects do not constitute a safe base support for scaffolds, platforms, or employees.
- 40.02. General Scaffold Guidelines:
- 40.02.01. Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.
 - 40.02.02. Scaffolds and scaffold components shall be inspected for visible defects by a qualified and or competent person before each work shift and after any occurrence which could affect a scaffold's structural integrity.
 - 40.02.03. Damaged or weakened parts will be immediately replaced.
 - 40.02.04. Scaffolds shall be erected, moved, dismantled or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.
 - 40.02.05. Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and these employees are protected by a personal fall arrest system or wind screens.
 - 40.02.06. Personnel may not work on scaffolds covered with snow, ice or other slippery material except to remove the material with extreme care.
 - 40.02.07. Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.
 - 40.02.08. Debris shall not be allowed to accumulate on platforms.
 - 40.02.09. Make-shift devices on top of scaffold platforms shall not be used to increase the working level height of employees.
 - 40.02.10. Guardrails should have smooth surfaces to prevent puncture, laceration, or snagging injuries.

40.02.11. Make-shift parts will not be used. A nail is not a substitute for a pin.

40.03. Supported Scaffolds

40.03.01. Employees who work on supported scaffolds shall follow the below listed rules and guidelines. These guidelines cover most, but not all situations. The competent person will address unusual situations.

40.03.02. Each platform unit on all working levels of a scaffold shall be fully planked or decked between the front uprights and the guardrail supports and each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide (where feasible.)

40.03.03. Supported scaffolds shall have a height to base (including outrigger supports, if used) width ratio of no more than 4:1 unless restrained from tipping by guying, tying, bracing, or equivalent means. The competent person will direct the procedures for prevention of tipping.

40.03.04. Supported scaffold poles, legs, posts, frames and uprights shall rest on base plates and mud sills or other adequate firm foundation.

Note: Base plates shall always be used on supported scaffolds

40.03.05. Footings shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.

40.03.06. Unstable objects cannot be used to support scaffolds or platform units.

40.03.07. Unstable objects shall not be used as working platforms.

40.03.08. Front-end loaders and similar pieces of equipment shall not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.

40.03.09. Fork-lifts shall not be used to support scaffold platforms unless the entire platform is attached to the fork and the fork-lift is not moved horizontally while the platform is occupied.

40.03.10. Supported scaffold poles, legs, posts, frames and uprights shall be plumb and braced to prevent swaying and displacement.

40.03.11. Scaffolds shall not be moved horizontally while employees are on them unless they have been designed by a registered professional engineer specifically for such movement or, in the case of mobile scaffolds:

40.03.11.01. The surface on which the scaffold is being moved is within 3 degrees of level and free of pits, holes, and obstructions.

40.03.11.02. The height to base width ratio of the scaffold during movement is two to one or less.

40.03.11.03. Outrigger frames, when used, are installed on both sides of the scaffold.

40.03.11.04. When power systems are used, the propelling force is applied directly to the wheels and does not produce a speed in excess of 1 foot per second.

- 40.03.11.05. No employee is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.
- 40.03.11.06. Before the scaffold is moved, each employee on the scaffold shall be made aware of the move.

40.04. Suspended Scaffold

- 40.04.01. Employees who work on suspended scaffolds shall follow the below listed procedures. These procedures address most situations. The qualified and or competent person will address unusual situations other than has been indicated in this procedure.
- 40.04.02. All suspension scaffold devices shall rest on surfaces capable of supporting at least 4 times the load imposed on them by the scaffold operating at the rated load of the hoist (or at least 1.5 times the load imposed on them by the scaffold at the stall capacity of the hoist, whichever is greater). Direct connections on suspension scaffolds shall be evaluated before use by a competent person who shall confirm that the supporting surfaces are capable of supporting the loads to be imposed.
- 40.04.03. Counterweights shall be made of non-flowable material. Sand, gravel and similar materials that can be easily dislocated may not be used as counterweights.
- 40.04.04. Only items specifically designed as counterweights shall be used as counterweights. Construction material shall not be used as counterweights.
- 40.04.05. Counterweights shall not be removed from an outrigger beam until the scaffold is disassembled.
- 40.04.06. The use of repaired wire rope as suspension rope is prohibited.
- 40.04.07. Wire ropes shall not be joined together except through the use of eye splice thimbles and secured by eye splicing or equivalent means.
- 40.04.08. Wire ropes shall be inspected for defects by a competent person prior to each work shift and after every occurrence which could affect a wire rope's integrity. Wire ropes will be replaced if any of the following conditions exist:
 - 40.04.08.01. Any physical damage which impairs the function and strength of the rope.
 - 40.04.08.02. Kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s).
 - 40.04.08.03. Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay.
 - 40.04.08.04. Abrasion, corrosion, scrubbing, flattening or peeling causing loss of more than one third of the original diameter of the outside wires.
 - 40.04.08.05. Heat damage caused by a torch or any damage caused by contact with electrical wire.
 - 40.04.08.06. Evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.

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40.04.09. Gasoline-powered equipment and hoists shall not be used on suspension scaffolds.

40.04.10. Gears and brakes of power-operated hoists used on suspension scaffolds shall be enclosed.

40.04.11. Manually operated hoists shall require a positive crank force to descend.

40.05. Guidelines for the Control of Electrical Hazards

40.05.01. To prevent the possibility of electrical shock, neither the scaffold nor any conductive material handled on the scaffold shall come closer to exposed and energized power lines as noted below:

Voltage	Minimum Distance
1000V and above	25 Feet

40.05.02. Scaffolds may be closer to power lines if it is necessary to accomplish the work, but only after the utility company or electrical system operator has been notified of the need to work closer, and the utility company or electrical system operator has de-energized or relocated the lines or installed protective coverings to prevent incidental contact with the lines.

40.05.03. When using 120 volt electrical power tools, extension cords and or lights; a ground fault circuit interrupter shall be used. Electrical extension cords shall be inspected for cuts or cracks in the insulation before use.

40.06. Guidelines for the Control of Fall Hazards

40.06.01. Each employee working on a scaffold more than 10 feet above a lower level shall be protected from falling to that lower level as noted below:

SCAFFOLD TYPE	FALL PROTECTION REQUIREMENT
Boatswains' Chair	All require a Personal Fall Arrest System
Catenary Scaffold	
Float Scaffold	
Needle Beam Scaffold	
Ladder Jack Scaffold	
Single-Point Adjustable	
Suspension Scaffold	
Two-Point Adjustable	
Suspension Scaffold	
All Other Scaffolds not specified above.	

40.07. Planking Requirements:

40.07.01. Below are requirements for platforms and/or planks used on scaffolds and walkways:

40.07.01.01. Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than one inch wide.

40.07.01.01.01. Exceptions to the above: When a wider space is necessary to fit around uprights when side brackets are

used to extend the width of the platform the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed nine and one half inches, or when planking or decking is used solely for walkways or solely for use by personnel erecting or dismantling the scaffold. In these instances, only the planking the competent person establishes as necessary to provide safe working conditions is required.

- 40.07.01.02. Each scaffold platform and walkway shall be at least eighteen inches wide.
 - 40.07.01.02.01. Exceptions to the above: Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold shall be at least twelve inches wide.
- 40.07.01.03. There is no minimum width for boatswain's chairs.
- 40.07.01.04. Where working areas are so narrow that platforms and walkways cannot be at least eighteen inches wide, the platforms and walkways shall be as wide as feasible. In these instances, personnel shall be protected from fall hazards by the use of guardrails and/or personal fall arrest systems regardless of the height.
- 40.07.01.05. The front edge of all platforms shall not be more than fourteen inches from the face of the work unless guardrail systems are erected along the front edge and or fall arrest systems are used.
 - 40.07.01.05.01. Exceptions to the above: For outrigger scaffolds, the maximum distance from the face of the work shall be three inches.
- 40.07.01.06. For plastering and latching operations, the maximum distance from the face of the work shall be eighteen inches.
- 40.07.01.07. Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support by at least six inches and not more than:
- 40.07.01.08. Twelve inches for a platform ten feet or less in length unless the platform is designed and installed so that the cantilevered portion of the platform is able to support personnel and/or material without tipping, or has guardrails which block access to the cantilevered end.
- 40.07.01.09. Eighteen inches for a platform greater than ten feet in length unless it is designed and installed so that the cantilevered portion of the platform is able to support personnel without tipping or has guardrails which block access to the cantilevered end.

NOTE: Cantilevered portion of the platform is the portion of the platform which extends beyond the support by twelve or eighteen inches.

- 40.07.01.10. On scaffolds where scaffold planks are abutted to create a long platform, each abutted end shall rest on a separate support surface. The use of common support members such as "T" sections to support abutting planks or hook on platforms designed to rest on common support is acceptable.
 - 40.07.01.11. Where platforms are overlapped to create a long platform, the overlap shall occur only over supports and shall not be less than twelve inches unless the platforms are nailed together or otherwise restrained to prevent movement.
 - 40.07.01.12. At points of a scaffold where the platform changes direction, such as turning a corner, any platform that rests on a bearer at an angle other than a right angle shall be laid first; platforms which rest at right angles over the same bearer shall be laid second on top of the first platform.
 - 40.07.01.13. With the exception that the edges may be marked for identification, wood platforms shall not be covered with opaque finishes. Platforms may be coated with wood preservatives, fire-retardant finishes, and slip-resistant finishes as long as the coatings allow the actual wood to be seen. This is so the wood platforms may be inspected for damage and/or deterioration.
 - 40.07.01.14. Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffold's structural integrity, as determined by a competent person, is maintained.
 - 40.07.01.15. Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component below acceptable levels.
- 40.08. Fall Protection Requirements During Erection and Dismantling of Supported Scaffolds
- 40.08.01. Supported Scaffolds: The competent person shall determine the feasibility and safety of providing fall protection for employees erecting and dismantling supported scaffolds.
 - 40.08.02. Suspended Scaffolds: Fall protection for those erecting and dismantling suspended scaffolds is possible because the anchorage points used for supporting the scaffold would certainly support a fall protection system. Therefore, fall protection shall be utilized for personnel erecting or dismantling supported scaffolds.
- 40.09. Guidelines for the Control of Falling Objects
- 40.09.01. All personnel working on a scaffold shall wear hard hats. Further protection from falling objects will be provided, if needed, by toe boards, screens, or guardrail systems; or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects.
 - 40.09.02. Objects that are too heavy or massive to be prevented from falling by the above measures will be kept away from the edge of the scaffold and secured as necessary to prevent their falling.
 - 40.09.03. Where there is a possibility of falling objects the below safeguards shall be implemented:

- 40.09.03.01. The area below the scaffold to which objects can fall shall be barricaded and employees shall not be permitted to enter the hazard area, or
- 40.09.03.02. A toe board will be erected along the edge of platforms more than ten feet above lower levels for a distance sufficient to protect employees below.
- 40.09.03.03. When tools, material, or equipment are piled to a height higher than the top edge of the toe board, the below listed safeguards shall be implemented:
- 40.09.03.04. Paneling or screening extending from the toe board or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below, or
- 40.09.03.05. A guardrail system shall be installed with openings small enough to prevent passage of potential falling objects, or
- 40.09.03.06. A canopy structure, debris net or catch platform strong enough to prevent passage of potential falling objects shall be erected over the employees below.
- 40.09.03.07. Toe boards shall be capable of withstanding, without failure; a force of at least fifty pounds applied in any downward or horizontal direction and at least three and one half inches high from the top edge of the walking or working surface. Further, toe boards shall be secured to the outermost edge of the platform and not have more than one quarter of an inch clearance above the walking or working surfaces. Toe boards shall either be solid or have openings not over one inch in the greatest dimension.

NOTE: Canopies used for falling object protection shall be installed between the falling object hazard and the employees below.

40.10. Access

- 40.10.01. Twenty-four inches is the height at which some sort of access is required to reach a scaffold platform. When a scaffold platform is two feet above or below the point of access, portable ladders, hook-on ladders, ramps, walkways, ladder stands, etc. shall be used. Never use a cross brace as a means of getting on or off a scaffold.
- 40.10.02. Hook-on and attachable ladders shall:
 - 40.10.02.01. Be positioned so they do not tip the scaffold.
 - 40.10.02.02. Have the bottom rung within twenty-four inches of the supporting level.
 - 40.10.02.03. Have rest platforms at least at thirty-five foot vertical intervals when used on supported scaffolds.
 - 40.10.02.04. Be designed for use with the scaffold being used.
 - 40.10.02.05. Have a minimum spacing between rungs of sixteen and three quarters inches and a minimum rung length of eleven and one half inches.
- 40.10.03. Stairway type ladders have essentially the same requirements except that:

- 40.10.03.01. The rest platforms shall be at the twelve foot maximum vertical level.
- 40.10.03.02. The minimum step width is sixteen inches and for mobile scaffold stairway-type ladders eleven and one-half inches is required.
- 40.10.03.03. Slip-resistant treads are required on all steps and landings.
- 40.10.04. Stair towers, if used, shall have the bottom step within twenty-four inches of the supporting level and have
 - 40.10.04.01. A top rail and mid-rail (stair rail) on each side.
 - 40.10.04.02. A landing platform at least eighteen inches by eighteen inches at each level.
 - 40.10.04.03. A width of eighteen inches between stair rails.
 - 40.10.04.04. Resistant surfaces on treads and landings.
 - 40.10.04.05. Employees shall be able to safely get on and off a scaffold platform and, at twenty-four inches; you will need a specific method of access.
- 40.11. Training
 - 40.11.01. Training will be given to all employees who will be performing work on scaffolds by a competent person; it will focus on the hazards associated with the type(s) of scaffolding used on our job site, as well as the methods to minimize or eliminate those hazards. For those employees who will be erecting, disassembling, moving, operating, repairing, inspecting, or maintaining our scaffolds, the competent person will provide additional training applicable to their job requirements.
 - 40.11.02. Retraining will be provided should new types of scaffolding be introduced, standards change, or on-the-job performance indicate that a particular employee has not retained the required proficiency in scaffold safety.
- 40.12. Training modules shall include:
 - 40.12.01. The nature of fall hazards in the work area.
 - 40.12.02. The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used.
 - 40.12.03. The proper assembly, construction, placement, care and handling.
 - 40.12.04. The maximum intended load-carrying capacities used.
 - 40.12.05. The availability of the assembly standards of equipment.
 - 40.12.06. Retraining will be provided, as necessary.
 - 40.12.07. Observation of failure to follow established ladder safety procedures would be a cause for retraining.
- 40.13. Inspection

- 40.13.01. The first inspection will be conducted by the scaffold erector immediately after scaffold has been completed.
 - 40.13.02. Scaffolds and scaffold components shall be inspected for visible defects by the scaffold user prior to initial use, before each work shift, and after any occurrence which could affect a scaffold's structural integrity.
 - 40.13.03. If scaffold is used over an extended period of time (1 week), the scaffold should be inspected at least once by a scaffold erector.
 - 40.13.04. Scaffold users shall read scaffold tags prior to using any scaffold. The instructions or warnings outlined on the tag shall be followed.
 - 40.13.05. Before erecting and during dismantling, trained scaffold craftsmen shall inspect all scaffold components. Those found with defects shall be repaired or replaced immediately.
 - 40.13.06. Handrail, mid-rail, cross bracing, and steel tubing shall be inspected for nicks, especially near center span, and indications where a welding arc has struck.
 - 40.13.07. Scaffold components shall be straight and free from bends, kinks dents, and severe rusting.
 - 40.13.08. Scaffold frame weld zones shall be inspected for cracks and ends of tubing for splitting or cracking.
 - 40.13.09. Manufactured decking shall be inspected for loose bolt or rivet connections and bent, kinked, or dented frames. Plywood surfaces should be checked for softening due to rot or wear, and peeling or de-lamination of layers at the edge. Scaffold boards should be inspected for rot, cracks, notches, and other damage. Also, inspect cleats if used.
 - 40.13.10. Each quick-connecting device, whether spring, threaded connection, or toggle pin arrangement, should be inspected to see that it operates properly.
 - 40.13.11. Casters, if used, should be inspected for smooth rolling surfaces, free turning, free acting swivel, and to be sure that the locking mechanism is in good working order.
- 40.14. Scaffolding Tags
- 40.14.01. The most effective means of communication between the scaffold builder and the scaffold user is a scaffold tag.
 - 40.14.02. The crew that erects the scaffold will complete and attach the scaffold tag. (See Appendix)
 - 40.14.03. The tag should be placed at eye level on or near the access ladder so it is easy to locate and plainly visible.
 - 40.14.04. A scaffold erector shall ensure that the scaffold is erected properly and the tag attached is properly and completely filled out.
 - 40.14.05. If the scaffold needs to be altered in any way, a scaffold erector shall be contacted to authorize the change and a new inspection conducted.

40.14.06. An untagged scaffold shall not be used.

40.14.07. If a scaffold is to be used for an extended period of time it shall be inspected before each shift by the scaffold user. The scaffold shall be inspected at least once a week by a scaffold erector, qualified and or competent person.

40.15. Tagging Systems

40.15.01. A three tag system can be used which includes a red or "Danger" tag in conjunction with the yellow and green tags.

40.15.02. A red tag means the scaffold is being dismantled, not yet completely erected, or for some reason not safe and shall not be used.

40.15.03. A yellow tag is completed and attached to scaffolds which cannot be erected with all components complete. A yellow tag also informs the user that a fall protection device is required while on a scaffold with incomplete guardrails or deck openings.

Note: Contract erectors will affix yellow tags only. This is to insure the end user is aware of the responsibility to inspect the scaffold assembly before each use and to alert the users of any hazards present that are in need of control.

40.15.04. A green tag is completed and attached by the erecting crew to scaffolds which have complete handrails, mid-rail, toe boards, and decking. A green tag informs all users that the scaffold is safe to use.

40.16. Ladders. All employees using ladders are required to receive training and understand proper procedures for ladder use before using a ladder in a work situation.

40.16.01. American National Standards Institute (ANSI) and NIOSH approval labels should never be covered with paint or tape. Having ladders that are constructed to standard will prevent collapse and resultant falls.

40.16.02. Specific operational procedures for ladders directly relating to the elimination of fall hazards are listed below:

40.16.03. A stairway or a ladder will be provided at all personnel points of access where there is a break in elevation of nineteen inches or more.

40.16.04. Ladders will never be overloaded.

40.16.05. Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced when a ladder is in position for use.

40.16.06. Ladders will not be tied or fastened together unless they are so designed.

40.16.07. Portable ladders used for gaining access to an upper level will extend at least three feet above the upper landing surface or the ladder will be secured at its top.

40.16.08. Ladders shall be free of oil, grease, or other slipping hazards.

40.16.09. Ladders shall be used for the purpose for which they were designed.

- 40.16.10. Non-self-supporting ladders will be used at an angle that the horizontal distance from the top support to the foot of the ladder is approximately $\frac{1}{4}$ of the working length of the ladder.
- 40.16.11. Ladders will only be used on stable and level surfaces unless secured to prevent displacement.
- 40.16.12. Ladders shall not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent unintended displacement.
- 40.16.13. Ladders placed in any location where they can be displaced by workplace activities or traffic will be secured to prevent incidental displacement, or a barricade will be used to keep the activities or traffic away from the ladder.
- 40.16.14. The area around the top and bottom of the ladder shall be kept clear.
- 40.16.15. Ladders shall not be moved, shifted, or extended while occupied.
- 40.16.16. The top step of a stepladder shall not be used as a step.
- 40.16.17. Portable ladders with structural defects will be immediately marked in a manner that readily identifies them as defective and removed from service until repaired.
- 40.16.18. When ascending or descending a ladder, one shall face the ladder.
- 40.16.19. Employees shall use at least one hand to grasp the ladder when progressing up and or down the ladder.
- 40.16.20. Employees are not to carry any object or load that could cause loss of balance and a resultant fall.
- 40.16.21. Fixed ladders where the length of climb is less than twenty-four feet but the top of the ladder is greater than twenty-four feet above the lower level shall have cages, wells, ladder safety devices, or self-retracting lifelines.
- 40.16.22. Fixed ladders where the length of climb equals or exceeds twenty-four feet shall have at least one of the following:
 - 40.16.23. Ladder safety devices;
 - 40.16.24. Self-retracting lifelines and rest platforms not exceeding one hundred-fifty feet;
 - 40.16.25. A cage or well, and multiple ladder sections not exceeding fifty feet in length. At the maximum interval of fifty feet, ladder sections will be offset on landing platforms.