



Ladders and Stairs Policy

Company Name:

Policy/Procedure ID Number:

Date:

This (**Company Name**) policy will establish the requirements for the construction, care, and use of portable ladders and to establish criteria for safe design and construction of fixed stairs and fixed ladders.

Requirements

General

- Stepladders shall only be used in the fully opened and locked position.
- When selecting ladders, the job application shall always be considered, (i.e., use fiberglass ladders for electrical work, Type I ladders for heavy duty work, etc.)
- Ladders shall not be loaded beyond the maximum intended load for which they were built, or beyond their manufacturer's rated capacity.
- Ladder shall be used only for the purpose for which they were designed.
- Non-self-supporting ladders shall be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder.
- Ladders shall be used only on stable and level surfaces.
- Ladders placed in any location where they can be displaced by workplace activities or traffic, such as passageways, doorways, or driveways, shall be secured to prevent accidental displacement, or a barricade shall be used to keep activities or traffic away from the ladder.
- The area around the top and bottom of ladders shall be kept clear.
- Ladders shall not be moved, shifted, or extended while occupied.
- The top or top step of a stepladder shall not be used as a step.
- Cross-bracing on the rear section of step ladders shall not be used for climbing unless the ladders are designed and provided with steps for climbing on both front and rear sections.
- Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.
- Ladders with structural defects or other faulty or defective components shall be immediately marked or tagged in a manner that readily identifies them as defective until they can be repaired or removed from service.
- When ascending or descending a ladder, the user shall face the ladder.
- Each employee shall use at least one hand to grasp the ladder when progressing up and/or down the ladder.
- An employee shall not carry any object or load that could cause the employee to lose balance and fall.
- All ladders shall be maintained in a safe working condition.
- Ladders shall "NOT" be used in a horizontal position as horizontal platforms, runways, or scaffolds.
- Portable ladders shall be so placed that the side rails have a secure footing. The top rest for portable rung and cleat ladders shall be reasonably rigid and shall have ample strength to support the applied load.
- Ladders shall "NOT" be placed on boxes, barrels, or other unstable bases to obtain additional height.



- Short ladders shall "NOT" be spliced together to provide long sections.
- Ladders made by fastening cleats across a single rail shall "NOT" be used.
- Ladders shall "NOT" be used as guys, braces, or skids, or for other than their intended purposes.
- Portable rung ladders with reinforced rails shall be used only with the metal reinforcement on the underside.
- No ladder should be used to gain access to a roof unless the top of the ladder shall extend at least 3 feet above the point of support, at eave, gutter, or roofline.
- Middle and top section of sectional or window cleaner's ladders should not be used for bottom section unless the user equips them with safety shoes.
- The user should equip all portable rung ladders with non-slip bases when there is a hazard of slipping. Non-slip bases are not intended as a substitute for care in safely placing, lashing, or holding a ladder that is being used upon oily, metal, concrete, or slippery surfaces.
- If ladders are exposed to oil and grease, equipment should be cleaned of oil, grease, or slippery materials.
- Metal bearings of locks, wheels, pulleys, etc., shall be frequently lubricated.
- Safety feet and other auxiliary equipment shall be kept in good condition to insure proper performance.
- The top of the ladder shall be placed with the two rails supported unless equipped with a single support attachment.
- Ladders should not be used as a brace, skid, guy or gin pole, gangway, or for other uses than that for which they were intended, unless specifically recommended for use by the manufacturer.
- Step ladders longer than 20 feet shall "NOT" be supplied.
- Stepladders shall be of one of the following types:
 - Type I-Industrial stepladder, 3 to 20 feet for heavy duty, such as utilities, contractors, and industrial use.
 - Type II-Commercial stepladder, 3 to 12 feet for medium duty, such as painters, offices, and light industrial use.

NOTE: If the above rules cannot be met, then the ladder shall not be used for the job. An alternate method of completing the work must be employed, (i.e., Simon lifts, bucket trucks, etc.)

Fixed Industrial Stairs

- 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 that requires attention routinely during operations.
- Fixed stairs shall be provided where access to elevations is daily or at each shift for such purposes as gauging, inspection, regular maintenance, etc., where such work may expose employees to acids, caustics, gases, or other harmful substances, or for which purposes the carrying of tools or equipment by hand is normally required.
- Spiral stairways shall not be permitted except for special limited usage and secondary access situations where it is not practical to provide a conventional stairway.
- Winding stairways may be installed on tanks and similar round structures where the diameter of the structure is not less than five feet.
- Fixed stairs shall be designed and constructed to carry a load of five times the normal live load anticipated but never of less strength than to carry safely a moving concentrated load of 1,000 pounds.
- Fixed stairways shall have a minimum width of 22 inches.
- Fixed stairs shall be installed at angles to the horizontal of between 30 and 50 degrees.



- All treads shall be reasonably slip-resistant and the nosing shall be of non-slip finish.
- Rise height and tread width shall be uniform throughout any flight of stairs including any foundation structure used as one or more treads of the stairs.
- Stairway platforms shall be no less than the width of a stairway and a minimum of 30 inches in length measured in the direction of travel.
- Standard railings shall be provided on the open sides of all exposed stairways and stair platforms.
- Handrails shall be provided on at least one side of closed stairways preferably on the right side descending.
- Vertical clearance above any stair tread to an overhead obstruction shall be at least 7 feet measured from the leading edge of the tread.

Portable Wood Ladders

- All wood ladders shall be free from sharp edges and splinters; sound and free from accepted visual inspection from shake, wane, compression failures, decay, or other irregularities.
- Low-density wood should "NOT" be used for wood ladders.
- If temporary ladders are built during construction they should be capable of supporting at least four times the maximum intended load, except that metal or plastic ladders should be able to sustain at least 3.3 times the maximum intended load.
- Temporary ladders shall only be used for construction and shall "NOT" be used for any other applications.
- Uniform step spacing shall be employed which shall be "NOT" more than 12 inches.
- Steps shall be parallel and level when the ladder is in position for use.
- The minimum width between side rails at the top, inside to inside, shall be "NOT" less than 11 1/2 inches.
- From top to bottom, the side rails shall spread at least 1 inch for each foot of length of stepladder.
- A metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in open positions shall be a component of each stepladder.
- The spreader shall have all sharp points covered or removed to protect the user.
- Single ladders longer than 30 feet shall "NOT" be supplied.
- Two-section extension ladders longer than 60 feet shall "NOT" be supplied. All ladders of this type shall consist of two sections; one to fit within the side rails of the other, and arranged in such a manner that the upper section can be raised or lowered.
- Assembled combinations of sectional ladders longer than lengths specified in this procedure shall "NOT" be used.
- Trestle ladders, or extension sections or base sections of extension trestle ladders longer than 20 feet shall "NOT" be supplied.
- Painter's stepladders longer than 12 feet shall "NOT" be supplied.
- Mason's ladders longer than 40 feet shall "NOT" be supplied.
- Trolley ladders and side-rolling ladders longer than 20 feet should "NOT" be supplied.

Portable Metal Ladders

- Design of ladders shall be such as to produce a ladder without structural defects or accident hazards such as sharp edges, burrs, etc.
- The metal selected shall be of sufficient strength to meet the test requirements, and shall be protected against corrosion unless inherently corrosion resistant.
- The spacing of rungs or steps shall be on 12 inch centers.
- Rungs and steps shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize the possibility of slipping.



- The minimum width between side rails of a straight ladder or any section of an extension ladder shall be 12 inches.
- Two-section ladders shall not exceed 48 feet in length and over two-section ladders shall not exceed 60 feet in length.
- Based on the nominal length of the ladder, each section of a multi-sectional ladder shall overlap the adjacent section by at least the number of feet stated in the following:

Normal length of the ladder (feet)	Overlap (feet)
Up to and including 36	3
Over 36, up to and including 48	4
Over 48, up to 60	5

- Extension ladders shall be equipped with positive stops, which should ensure the overlap specified in the table above.
- The bottoms of the four rails are to be supplied with insulating non-slip material for the safety of the user.
- A metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in the open position shall be a component of each stepladder.
- The spreader shall have all sharp points or edges covered or removed to protect the user.
- Trestle ladders or extensions sections or base sections of trestle ladders shall be not more than 20 feet of length.
- The length of a platform ladder shall not exceed 20 feet.

Fixed Ladders

- All ladders, appurtenances, and fastenings shall be designed to meet the following requirements:
 - The minimum design live load shall be a single concentrated load of 200 pounds.
 - The number and position of additional concentrated live-load units of 200 pounds each as determined from anticipated usage of the ladder shall be considered in the design.
 - The live loads imposed by persons occupying the ladder shall be considered to be concentrated at such points as will cause the maximum stress in the structural member being considered.
- The weight of the ladder and attached appurtenances together with the live load shall be considered in the design of rails and fastenings.
- Design stresses for wood ladders should not be exceeded.
- All rungs shall have a minimum diameter of three-fourths inch for metal ladders, except for those used in a corrosive atmosphere where the rungs will be 1 inch in diameter and for wood ladders which shall be a minimum of 1 1/8 inches in diameter.
- The distance between rungs, cleats, and steps shall not exceed 12 inches and shall be uniform throughout the length of the ladder.
- The minimum clear length of rungs or cleats shall be 16 inches.
- Rungs, cleats, and steps shall be free of splinters, sharp edges, burrs, or projections, which may be a hazard.
- The rungs of an individual-rung ladder shall be so designed that the foot cannot slide off the end.
- Side rails which might be used as a climbing aid shall be of such cross sections as to afford adequate gripping surface without sharp edges, splinters, or burrs.
- Fastenings shall be an integral part of fixed ladder design.



- All splices made by whatever means shall meet design requirements as noted in this procedure and shall have a smooth transition with original members, with no sharp or extensive protrusions.
- Adequate means shall be employed to protect dissimilar metals from electrolytic action when such metals are joined.
- Metal ladders and appurtenances shall be painted or otherwise treated to resist corrosion and rusting when location demands. Ladders formed by individual metal rungs imbedded in concrete, which serve as access to pits and to other areas under floors, are frequently located in an atmosphere that causes corrosion and rusting. To increase rung life in such atmosphere, individual metal rungs shall have a minimum diameter of 1 inch or shall be painted or otherwise treated to resist corrosion or rusting.
- Wood ladders when used under conditions where decay may occur shall be treated with a nonirritating preservative, and the details shall be such as to prevent or minimize the accumulation of water on wood parts.
- When different types of materials are used in the construction of a ladder, the materials used shall be so treated as to have no deleterious effect upon the other.
- On fixed ladders, the perpendicular distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder shall be 36 inches for a pitch of 76 degrees, and 30 inches for a pitch of 90 degrees with minimum clearances for intermediate pitches varying between these two limits in proportion to the slope.
- A clear width of at least 15 inches shall be provided each way from the centerline of the ladder in the climbing space, except when cages or wells are necessary.
- Ladders equipped with cage or baskets are exempt from the above provisions but cages shall not extend less than 27 or more than 28 inches from the centerline of the rungs of the ladder. Cage shall not be less than 27 inches in width. The inside shall be clear of projections. Vertical bars shall be located at a maximum spacing of 40 degrees around the circumference of the cage; this will give a maximum spacing of approximately 9 1/2 inches, center to center.
- The distance from the centerline of rungs, cleats, or steps to the nearest permanent object in back shall be not less than 7 inches.
- The distance from the centerline of the grab bar to the nearest permanent object in back of the grab bars shall be not less than 4 inches.
- Grab bars shall not protrude on the climbing side beyond the rungs of the ladder which they serve.
- The step-across distance from the nearest edge of ladder to the nearest edge of equipment or structure shall not be more than 12 inches, or less than 2 1/2 inches.
- Counterweighted hatch covers shall open a minimum of 60 degrees from the horizontal. The distance from the centerline of rungs or cleats to the edge of the hatch opening on the climbing side shall not be less than 24 inches for offset wells or 30 inches for straight wells.
- There shall not be protruding potential hazards within 24 inches of the centerline of rungs or cleats; any such hazards within 30 inches of the centerline of the rungs or cleats shall be fitted with deflector plates at an angle of 60 degrees from the horizontal.
- Cages or wells shall be provided on ladders of more than 20 feet to a maximum unbroken length of 30 feet.
- Cages shall extend a minimum of 42 inches above the top of landing, unless other acceptable protection is provided.
- Cages shall extend down the ladder to a point not less than 7 feet or more than 8 feet above the base of the ladder, with bottom flared not less than 4 inches, or portion of cage opposite ladder shall be carried to the base.
- The inside shall be clear of projections.



- Ladder wells shall have a clear width of at least 15 inches measured each way from the centerline of the ladder. Smooth-walled wells shall be a minimum of 27 inches from the centerline of rungs to the well wall on the climbing side of the ladder.
- Where other obstructions on the climbing side of the ladder exist, there shall be a minimum of 30 inches from the centerline of the rungs.
- When ladders are used to ascend to heights exceeding 20 feet (except on chimneys), landing platforms shall be provided for each 30 feet of height or fraction thereof, except that, where no cage, well, or ladder safety device is provided, landing platforms shall be provided for each 20 feet of height or fraction thereof and:
 - Each ladder section shall be offset from adjacent sections.
 - Where installation conditions (even for a short, unbroken length) require that adjacent sections be offset, landing platforms shall be provided to each offset.
 - Where a man has to step a distance greater than 12 inches from the centerline of the rung of a ladder to the nearest edge of structure or equipment, a landing platform shall be provided. The minimum step-across distance shall be 2 1/2 inches.
 - All landing platforms shall be equipped with standard railings and toe-boards, so arranged as to give safe access to the ladder.
 - Platforms shall be not less than 24 inches in width and 30 inches in length.
 - One rung of any section of ladder shall be located at the level of the landing laterally served by the ladder.
 - Where access to the landing is through the ladder, the same rung spacing as used on the ladder shall be used from the landing platform to the first rung below the landing.
 - The side rails of through or side-step ladder extensions shall extend 3 1/2 feet above parapets and landings. For through ladder extensions, the rungs shall be omitted from the extension and shall have not less than 18 or more than 24 inches clearance between rails.
 - For side step or offset fixed ladder sections, at landings, the side rails and rungs shall be carried to the next regular rung beyond or above the 3 1/2 feet minimum.
 - Grab bars shall be spaced by a continuation of the rung spacing when they are located in the horizontal position.
 - Vertical grab bars shall have the same spacing as the ladder side rails.
 - Grab-bar diameters shall be the equivalent of the round-rung diameters.
 - Ladder safety devices may be used on tower, water tank, and chimney ladders over 20 feet in unbroken length in lieu of cage protection. No landing platform is required in these cases.
 - All ladder safety devices such as those that incorporate life belts, friction brakes, and sliding attachments shall meet the design requirements of the ladders which they serve.
 - The preferred pitch of fixed ladders shall be considered to come in the range of 75 to 90 degrees with the horizontal.
 - Fixed ladders shall be considered as substandard if they are installed within the substandard pitch range of 60 and 75 degrees with the horizontal.
 - Substandard fixed ladders are permitted only where it is found necessary to meet conditions of installation.
 - This substandard pitch range shall be considered as a critical range to be avoided, if possible.
 - Ladders having a pitch in excess of 90 degrees with the horizontal are prohibited.

Training



Training shall be provided to each employee using ladders and stairways as necessary. The program shall include the following:

- The nature of fall hazards in the work area.
- The proper use, placement, and care in handling of stairways and ladders.
- The maximum intended load-carrying capabilities of ladders.
- The requirements contained in this document.

Roles and Responsibilities

Management

Ensure timely and appropriate actions are taken to abate discrepancies noted during housekeeping assessments.

Ensure employees are knowledgeable in the portions of this procedure applicable to their jobs.
Performs quarterly inspections utilizing the attached checklist to verify compliance with this document.

Employees

Comply with the policies and training requirements directed by this procedure.

Make sure they do not perform any task requiring formal training until such time that the required training is completed and documented.

Refuse to operate any piece of equipment for which they are not familiar and/or properly training.

Safety Department

Ensures implementation of this procedure and revisions to this procedure based on changes to referenced documents or a determination of deficiencies in work processes of procedures. Develop programs and procedures that promote safety. Provide technical training in compliance with this procedure.

Definitions

- **Cleat** - A ladder crosspiece of rectangular cross section placed on edge upon which a person may step while ascending or descending a ladder.
- **Fixed Industrial Stairs** - These are permanent stairs. They may be indoors or outdoors. These include standard stairway entrances to buildings, exterior stairways, and stairway systems.
- **Fixed Ladder** - A fixed ladder is a ladder that is attached in such a way that it is not easily movable. These are normally ladders attached to the side of a building or structure. They may include cages or ladder climb devices or may simply be very short ladders such as embedded stair rungs in a manhole or vault.
- **Handrail** - A rail used to provide employees with a handhold for support.
- **Mason's Ladder** - A special type of single ladder intended for use in heavy construction work.
- **Maximum Intended Load** - The total load of all employees, equipment, tools, materials, transmitted loads, and other loads anticipated to be applied to a ladder component at any one time.
- **Nosing** - The portion of a tread projecting beyond the face of the riser immediately below.
- **Portable Ladder** - A portable ladder is a ladder that is not permanently affixed to a structure. Designs vary. Examples include the standard step ladder, extension ladders, and a multitude of specialty ladders that may be shaped into various shapes to accommodate special circumstances.



- **Riser Height** - The vertical distance from the top of a tread to the top of the next higher tread or platform/landing or the distance from the top of a platform/landing to the top of the next higher tread or platform/landing.
- **Tread Depth** - The horizontal distance from front to back of a tread (excluding nosing, if any).
- **Trestle Ladder** - Means a self-supporting portable ladder, adjustable in length consisting of a trestle ladder base and a vertically adjustable extension section, with a suitable means for locking the ladders together.

Revised: (Revision Date)

