



Ladder and Stairway Safety

PURPOSE

The purpose of this document is to outline the Ladder Safety Program for **Fisher Systems Inc.** hereafter referred to as "The Company." This program will establish guidelines for the safe use of ladders throughout worksites by employees, personnel and contractors.

This safety policy and procedure is established in accordance with Occupational Safety and Health Standards for General Industry ([29 CFR 1910.25-27](#)) and Occupational Safety and Health Standards for the Construction Industry ([29 CFR 1926.1053](#)).

RESPONSIBILITIES

Managers/Unit Heads

- Ensuring that adequate funds are available and budgeted for the purchase of ladders in their areas
- Shall obtain and coordinate the required training for the affected employees
- Ensure compliance with this safety policy and procedure through their auditing process

Supervisors

- Ensuring that all ladders (fixed and portable) are regularly inspected and properly maintained
- Tagging ladders in need of repair and removing defected ladders from service for repair or destruction
- Supervisors will audit for compliance with this safety policy and procedure during their facility and jobsite audits

Employees

- Employees shall comply with all applicable guidelines contained in this safety policy and procedure
- Employees are also responsible for reporting immediately suspected unsafe conditions or ladders to their supervisor
- Shall inspect ladders before using and are to keep ladders clean and in good condition

Safety Officer

- Provide prompt assistance to managers/unit heads, supervisors or others as applicable on any matter concerning this safety policy and procedure
- Assist in developing or securing of required training



- Provide consultative and audit assistance to ensure effective implementation of this safety policy and procedure
- Work with Purchasing Department to ensure that all newly purchased ladders comply with this safety policy and procedure and current safety regulations

TRAINING

The Company shall train all employees to recognize hazards related to ladders and stairways and instruct them to minimize these hazards.

For example, The Company shall ensure that each employee is trained by a competent person in the following areas, as applicable:

- The proper use of the ladders
- What kind of ladder to use
- How to set up ladders
- Ladder inspection
- Proper maintenance
- Nature of fall hazards in the work area
- Correct procedures for erecting, maintaining and disassembling the fall protection systems to be used
- Proper construction, use, placement and care in handling of all stairways and ladders; and
- Maximum intended load-carrying capacities of ladders used.

This training shall be done upon initial employment and/or job assignment. Refresher training shall be provided to employees at the discretion of their supervisor.

Employees shall be trained to maintain the three points of contact: two hands and one foot or two feet and one hand at all times. Only time allowed to break 3-point contact is when the employee has reached the ground or stable platform.

LADDER HAZARDS AND SAFE USE

Ladder Hazards

There are inherent hazards associated with ladder use. Typical ladder hazards include:

- Insufficient surface resistance on ladder rungs and steps
- Ladder structural failure
- Ladders tipping sideways, backwards, or slipping out at the bottom
- Ladder spreaders not fully opened and locked, causing the ladder to "walk", twist or close up when a load is applied to the ladder
- Using metal ladders around electricity
- Using deteriorated ladders
- Using fixed ladders without cages or fall protection



Safe Ladder Use

Employees should follow certain rules when placing, ascending, and descending ladders which include:

- Hold on with both hands when going up or down. If material must be handled, raise or lower it with a rope either before going down or after climbing to the desired level.
- Ladders are used only on stable and level surfaces unless they are secured or stabilized to prevent accidental displacement.
- Always face the ladder when ascending or descending.
- Never slide down a ladder.
- Be sure shoes are not greasy, muddy, or slippery before climbing.
- Do not climb higher than the third rung from the top on straight or extension ladder, or the second tread from the top on stepladders. (Never stand on the top two rungs of a step ladder.)
- Carry tools on a tool belt not in the hand and never carry objects that could cause injury in the event of a fall.
- Never lean too far to the sides. Keep your belt buckle within the side rails.
- Use a 4 to 1 ratio when leaning a single or extension ladder. (Place a 12-foot ladder so that the bottom is 3 feet away from the object the ladder is leaning against.)
- Inspect ladder for defects before using.
- Non-self-supporting ladders, which must lean against a wall or other support, are to be positioned at such an angle that the horizontal distance from the top support to the foot of the ladder is about 1/4 the working length of the ladder.
- In the case of job-made wooden ladders, that angle should equal about 1/8 the working length. This minimizes the strain of the load on ladder joints that may not be as strong as on commercially manufactured ladders.
- Never use a defective ladder. Tag or mark it so that it will be repaired or destroyed.
- Never splice or lash a short ladder together.
- Never use makeshift ladders, such as cleats fastened across a single rail.
- Be sure that a stepladder is fully open, and the metal spreader locked before starting to climb.
- Keep ladders clean and free from dirt and grease.
- Never use ladders during a strong wind except in an emergency and then only when they are securely fastened.
- Never leave placed ladders unattended.
- Never use ladders as guys, braces, or skids, or for any other purpose other than their intended purposes.
- Never attempt to adjust a ladder while a user is standing on the ladder.
- Never jump from a ladder. Always dismount from the bottom rung.
- Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond the manufacturer's rated capacity.



- Ladders shall be used only for the purpose for which they were designed. Never use ladder in a horizontal position or as scaffolding, do not place ladders on top of boxes, barrels, crates, etc.

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. (The distance along the ladder between the foot and the top support.)

Ladder Load Limits

There are five categories of ladder Duty Ratings:

1.	Type IAA (Extra Heavy Duty)	375 pounds
2.	Type IA (Extra Heavy Duty)	300 pounds
3.	Type I (Heavy Duty)	250 pounds
4.	Type II (Medium Duty)	225 pounds
5.	Type III (Light Duty)	200 pounds

LADDER SAFETY DEVICES

Safety devices are available for both portable and fixed ladders to prevent a climber from falling. Safety devices for portable ladders include slip-resistant bases, safety tops, and any other device to increase the ladder stability. A portable ladder positioned at a location where it may be tipped over by work activities shall be securely fastened at the bottom and top. Safety devices for fixed ladders include cages (which enclose the stairwell) or a restraint belt attached to a sliding fixture anchored to the ladder.

The Company must ensure:

- Each ladder safety system allows the employee to climb up and down using both hands and does not require that the employee continuously hold, push, or pull any part of the system while climbing. [1910.29\(i\)\(2\)](#)
- The connection between the carrier or lifeline and the point of attachment to the body harness or belt does not exceed 9 inches (23 cm). [29 CFR 1910.25-27,29](#)
- Mountings for rigid carriers are attached at each end of the carrier, with intermediate mountings spaced, as necessary, along the entire length of the carrier so the system has the strength to stop employee falls. [1910.29\(i\)\(4\)](#)
- Mountings for flexible carriers are attached at each end of the carrier and cable guides for flexible carriers are installed at least 25 feet (7.6 m) apart but not more than 40 feet apart along the entire length of the carrier. [1910.29\(i\)\(5\)](#)

- The design and installation of mountings and cable guides does not reduce the design strength of the ladder. [1910.29\(i\)\(6\)](#)
- Ladder safety systems and their support systems are capable of withstanding, without failure, a drop test consisting of an 18-inch (41-cm) drop of a 500-pound (227-kg) weight.
- Personal fall protection systems. Body belts, harnesses, and other components used in personal fall arrest systems, work positioning systems must meet the requirements of [1910.140](#).
- All ladder stand platforms with a platform height above 10 feet (3 m) have guardrails and toeboards on the exposed sides and ends of the platform.

LADDER INSPECTION

All ladders shall be maintained in a safe condition. OSHA General Industry Standard [1910.23\(b\)\(9\)](#) Ladders are inspected before initial use in each work shift, and more frequently as necessary, to identify any visible defects that could cause employee injury. 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.

An inspection program should be set up by which all ladders are inspected once every three months. Appendix B presents a general inspection form. Ladders that are weak, improperly repaired, damaged, have missing rungs, or appear unsafe shall be removed from the job or site for repair or disposal. Before discarding a wood ladder, cut it up so no one can use it again. Additionally, portable ladders must be maintained in good condition at all times and inspected frequently. Tag any ladders that have developed defects with DANGEROUS--DO NOT USE and remove from service for repair or disposal.

For portable wood ladders, all wood parts shall be free from sharp edges and splinters; sound and free from accepted visual inspection from shake, wane, compression failures, decay, or other irregularities. For portable metal ladders, the design shall be without structural defects or accident hazards such as sharp edges, burrs, etc. The selected metal shall be of sufficient strength to meet the test requirements and shall be protected against corrosion. For fixed ladders, all wood parts shall meet the criteria of wood ladders. All metal parts shall meet the criteria of metal ladders.

STAIRWAYS

The rules covering stairways and their components generally depend on how and when stairs are used. Specifically, there are rules for stairs used during construction and stairs used temporarily during construction, as well as rules governing stair rails and handrails.

Stairways Used During Construction

The following requirements are applicable to all stairways used during construction:

- Stairways that will not be a permanent part of the building under construction must have landings at least 30 inches deep and 22 inches wide (76 x 56 cm) at every 12 feet (3.7 m) or less of vertical rise. Stairways must be installed at least 30 degrees—and no more than 50 degrees—from the horizontal.
- Variations in riser height or stair tread depth must not exceed 1/4 inch in any stairway system, including any foundation structure used as one or more treads of the stairs.
- Doors and gates opening directly onto a stairway must have a platform that extends at least 20 inches (51 cm) beyond the swing of the door or gate.
- Metal pan landings and metal pan treads must be secured in place before filling.
- Stairway parts must be free of dangerous projections such as protruding nails.
- Slippery conditions on stairways must be corrected.
- Workers must not use temporary spiral stairways that will not be a permanent part of the structure.

Stairways Used Temporarily During Construction

The following requirements apply to stairways used temporarily during construction:

- Do not use stairways with metal pan landings and treads if the treads and/or landings have not been filled in with concrete or other materials unless the pans of the stairs and/or landings are temporarily filled in with wood or other materials. All treads and landings must be replaced when worn below the top edge of the pan.
- Do not use skeleton metal frame structures and steps (where treads and/or landings will be installed later) unless the stairs are fitted with secured temporary treads and landings.

Note: Temporary treads must be made of wood or other solid material and installed the full width and depth of the stair.

Stair Rails

The following general requirements apply to all stair rails:

- Stairways with four or more risers or rising more than 30 inches (76 cm) in height—whichever is less—must be installed along each unprotected side or edge. When the top edge of a stair rail system also serves as a handrail, the height of the top edge must be no more than 37 inches (94 cm) nor less than 36 inches (91.5 cm) from the upper surface of the stair rail to the surface of the tread.
- Stair rails installed after March 15, 1991, must be not less than 36 inches (91.5 cm) in height.



- Top edges of stair rail systems used as handrails must not be more than 37 inches (94 cm) high nor less than 36 inches (91.5 cm) from the upper surface of the stair rail system to the surface of the tread. (If installed before March 15, 1991, not less than 30 inches [76 cm]).
- Stair rail systems and handrails must be surfaced to prevent injuries such as punctures or lacerations and to keep clothing from snagging.
- Ends of stair rail systems and handrails must be built to prevent dangerous projections, such as rails protruding beyond the end posts of the system.
- Unprotected sides and edges of stairway landings must have standard 42-inch (1.1 m) guardrail systems.
- Intermediate vertical members, such as balusters used as guardrails, must not be more than 19 inches (48 cm) apart.
- Other intermediate structural members, when used, must be installed so that no openings are more than 19 inches (48 cm) wide. Screens or mesh, when used, must extend from the top rail to the stairway step and along the opening between top rail supports.
- Handrails Requirements for handrails are as follows:
 - Handrails and top rails of the stair rail systems must be able to withstand, without failure, at least 200 pounds (890 n) of weight applied within 2 inches (5 cm) of the top edge in any downward or outward direction, at any point along the top edge.
 - Handrails must not be more than 37 inches (94 cm) high nor less than 30 inches (76 cm) from the upper surface of the handrail to the surface of the tread. ■ Handrails must provide an adequate handhold for employees to grasp to prevent falls.
 - Temporary handrails must have a minimum clearance of 3 inches (8 cm) between the handrail and walls, stair rail systems and other objects.
 - Stairways with four or more risers, or that rise more than 30 inches (76 cm) in height— whichever is less—must have at least one handrail.
 - Winding or spiral stairways must have a handrail to prevent use of areas where the tread width is less than 6 inches (15 cm).

Midrails

Midrails, screens, mesh, intermediate vertical members or equivalent intermediate structural members must be provided between the top rail and stairway steps to the stair rail system. When midrails are used, they must be located midway between the top of the stair rail system and the stairway steps.

MAINTENANCE

Portable wood ladders may be coated with a water-repellent preservative to provide a suitable protective material. Metal ladders and metal parts on wood ladders should be corrosion-resistant



and kept free from nicks. If nicks occur, they should be promptly treated to prevent possible metal fatigue due to rust.

Portable and fixed ladders with structural defects, such as, but not limited to, broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components, shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with "Do Not Use" or similar language, and shall be withdrawn from service until repaired.

The ladder side rails shall extend at least 3 feet (.9m) above the upper landing surface. When ladders are not able to be extended then the ladder shall be secured at its top to a rigid support that will not deflect.

LADDER INSPECTION CHECKLISTS

Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position. Ladders used by the company's employees must meet OSHA/ANSI specifications. [29 CFR 1926.1053 \(a\)\(1-27\)](#)

Ladders used by company employees meet the requirements of the Occupational Safety and Health Administration (OSHA) and the American National Standards Institute (ANSI). Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use. Rungs, cleats, and steps of portable ladders and fixed ladders (including individual rung/step ladders) shall be spaced not less than 10 inches apart, nor more than 14 inches apart, as measured between center lines of the rungs, cleats, and steps. Rungs, cleats, and steps of step stools shall be not less than eight inches apart, nor more than 12 inches apart, as measured between center lines of the rungs, cleats, and steps. Rungs, cleats, and steps of the base section of extension trestle ladders shall not be less than eight inches nor more than 18 inches apart, as measured between center lines of the rungs, cleats, and steps. The rung spacing on the extension section of the extension trestle ladder shall be not less than 6 inches nor more than 12 inches, as measured between center lines of the rungs, cleats, and steps. The minimum clear distance between the sides of individual-rung/step ladders and the minimum clear distance between the side rails of other fixed ladders shall be 16 inches. The minimum clear distance between side rails for all portable ladders shall be 11 1/2 inches. The rungs of individual-rung/step ladders shall be shaped such that employees' feet cannot slide off the end of the rungs. The rungs and steps of portable metal ladders shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping.

All Ladders

- ✓ Loose steps or rungs are considered loose if they can be moved at all with the hand
- ✓ Loose nails, screws, bolts, or other metal parts
- ✓ Cracked, split, or broken uprights, braces, steps, or rungs

- ✓ Slivers on uprights, rungs, or steps
- ✓ Damaged or worn non-slip bases
- ✓ Rusted or corroded spots

Stepladders

- ✓ Wobbly from side strain
- ✓ Loose or bent hinge spreaders
- ✓ Stop on hinge spreaders broken
- ✓ Broken, split, or worn steps
- ✓ Loose hinges

Extension Ladders

- ✓ Loose, broken, or missing extension locks
- ✓ Defective locks that do not seat properly when the ladder is extended
- ✓ Deterioration of rope, from exposure to weather, acid or other destructive agents

Fixed Ladders

- ✓ Loose, worn, or damaged rungs or side rails
- ✓ Damaged or corroded parts of cage
- ✓ Corroded bolts and rivet heads on inside of metal stacks
- ✓ Damaged or corroded handrails or brackets on platforms
- ✓ Weakened or damaged rungs on brick or concrete slabs
- ✓ Base of ladder obstructed

DEFINITIONS

Cage - A guard that may be referred to as a cage or basket guard which is an enclosure that is fastened to the side rails of the fixed ladder or to the structure to encircle the climbing space of the ladder for the safety of the person who must climb the ladder.

Extension Ladder - Non-self-supporting portable ladder adjustable in length. It consists of two or more sections traveling in guides or brackets so arranged as to permit length adjustment. Its size is designated by the sum of the lengths of the sections measured along the side rails.

Fixed Ladder - Ladder permanently attached to a structure, building, or equipment.

Individual-Rung Ladder - Fixed ladder each rung of which is individually attached to a structure, building, or equipment.

Ladder - An appliance usually consisting of two side rails joined at regular intervals by cross-pieces called steps, rungs, or cleats, on which a person may step in ascending or descending.



Ladder Safety Device - Device, other than a cage or well, designed to eliminate or reduce the possibility of accidental falls and which may incorporate such features as life belts, friction brakes, and sliding attachments.

Pitch - The included angle between the horizontal and the ladder, measured on the opposite side of the ladder from the climbing side.

Platform Ladder - A self-supporting ladder of fixed size with a platform provided at the working level. The size is determined by the distance along the front rail from the platform to the base of the ladder.

Rail Ladder - Fixed ladder consisting of side rails joined at regular intervals by rungs or cleats and fastened in full length or in sections to a building, structure, or equipment.

Railings - A railing is any one or a combination of those railings constructed in accordance with OSHA Standard 29 CFR [1910.23](#). A standard railing is a vertical barrier erected along exposed edges of floor openings, wall openings, ramps, platforms, and runways to prevent falls of persons.

Rungs - Ladder cross-pieces of circular or oval cross-section on which a person may step in ascending or descending.

Section Ladder - Non-self-supporting portable ladder, nonadjustable in length, consisting of two or more sections of ladder so constructed that the sections may be combined to function as a single ladder. Its size is designated by the overall length of the assembled sections.

Side-Step Ladder - A ladder in which an individual getting off at the top must step sideways in order to reach the landing.

Single Ladder - Non-self-supporting portable ladder, nonadjustable in length, consisting of but one section. Its size is designated by the overall length of the side rail.

Special-Purpose Ladder - Portable ladder which represents either a modification or a combination of design or construction features in one of the general-purpose types of ladders previously defined, in order to adapt the ladder to special or specific uses.

Stepladder - Self-supporting portable ladder, nonadjustable in length, having flat steps and a hinged back. Its size is designated by the overall length of the ladder measured along the front edge of the side rails.

Steps - Flat cross-pieces of a ladder on which a person may step in ascending or descending.



Through Ladder - A ladder in which an individual getting off at the top must step through in order to reach the landing.

Well - A permanent complete enclosure around a fixed ladder, which is attached to the walls of the well. Proper clearances for a well will give the person who must climb the ladder the same protection as a cage.