

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL
AND FORT SAM HOUSTON
Fort Sam Houston, Texas 78234-5014

Memorandum
Number 385-9

1 July 2000

Safety
LADDERS

1. Purpose.

a. To provide Fort Sam Houston (FSH) and contractor personnel with guidance for the use, maintenance, and inspection of ladders, and an overview of the Occupational Safety and Health Administration (OSHA) Ladder Safety requirements.

b. To establish the Ladder Safety Program.

2. Applicability.

a. This memorandum applies to all military, civilian, and contractor personnel assigned, or attached to Fort Sam Houston (FSH) to include Camp Bullis and Canyon Lake (collectively referred to in this memorandum as FSH).

b. This memorandum does not apply to fire department ladders. They will be procured, maintained, and inspected in accordance with National Fire Protection Association (NFPA) Standards 1931 and 1932.

c. This memorandum does not apply to portable stairs.

d. This memorandum does not apply to private ladders used in residences.

e. Ladders will be transported on vehicles with ladder racks and/or secured to the vehicle.

3. References.

a. FSH Regulation 385-10, Occupational Safety and Health Program.

b. OSHA Standard 29 CFR §1910.25, Portable Wood Ladders.

c. OSHA Standard 29 CFR §1910.26, Portable Metal Ladders.

d. OSHA Standard 29 CFR §1910.27, Fixed Metal Ladders.

Appendix A Terminology

Cage - An enclosure that encircles the climbing space and is fastened to the side rails of the ladder or structure.

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

Ladder - Two side rails joined at regular intervals by cross-pieces called steps, rungs, or cleats.

Ladder Cages - Ladder cages are a containment mechanism but do not protect the climber from falling. Therefore, new procurement of a fixed ladder (where fall protection is required) shall include a safety device. Cages shall extend a minimum of 42 inches above the top of the landing unless other acceptable protection is provided. Also, cages shall extend down the ladder to a point not less than 7 feet nor more than 8 feet above the base of the ladder with the bottom flared not less than 4 inches. Additional, guidelines are contained in 29 CFR §1910.27(d)(1).

Ladder Safety Devices - Ladder safety devices incorporate life belts, friction brakes, and sliding attachments. Ladder safety devices may be used on towers, tanks, and chimney ladders over 20 feet in unbroken length in lieu of cage protection. No landing platform is required in these cases.

Landing Platform - A landing platform is provided for a person to rest or gain access to another section of the ladder. Platforms will be provided every 30 feet or fraction thereof when a cage or other device is provided. If a cage or other device is not provided, then a platform will be every 20 feet. The platform will not be less than 24 inches wide by 30 inches long and will be equipped with standard railings. Toe boards are required where the hazard of objects falling is present.

Means of Egress - A continuous and unobstructed way of exit travel from any point in a building or structure to a public way.

Pitch - The angle at which a fixed ladder is inclined against a structure or piece of equipment.

Rise - The vertical distance from the top of a tread to the top of the next higher tread, rung, or step.

Safety Climbing Device - A device, other than a cage, designed to limit falling distance. It may incorporate such features as life belts, friction brakes, or sliding attachments.

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

Step - The crosspiece of a ladder on which a person may step. Also called a rung, cleat, or tread.

Step Ladder - A self-supporting portable ladder, non adjustable.

e. OSHA Standard 29 CFR §1926, Safety and Health Regulations for Construction.

(Note: Specific requirements concerning ladders at construction sites are scattered throughout the OSHA Standard 29 CFR §1926, Safety and Health Regulations for Construction; however, the requirements are identical to those referenced above. Therefore, the requirements apply to both general and construction operations.)

4. Terminology. Definitions and specific terminology associated with ladders are contained in Appendix A.

5. Background. Ladder safety is critical to the success of any safety program. Most falls are caused by using ladders that are in poor condition and/or unsafe acts such as running up and down, jumping, reaching too far out to sides when working on ladders, carrying tools up and down when climbing a ladder, or not securing the base of the ladder. These hazardous acts and conditions can be prevented by the proper selection and maintenance of portable ladders; supervisory enforcement of safe use of ladders; and proper design, installation, and maintenance of fixed ladders and climbing devices.

6. Policies.

a. Only approved (meeting the requirements of the appropriate American National Standard Institute (ANSI) standard) portable ladders will be procured and used on Fort Sam Houston.

b. Only fiberglass (or plastic) or wooden portable ladders will be procured. The metal ladders that are currently in service will be used judiciously and replaced with fiberglass or wooden ones as they become unserviceable.

c. All ladders will be inspected by the user prior to using as described in paragraph 10.

d. Metal ladders will not be used where a worker or the ladder could come in contact with exposed energized electrical circuits.

e. "Home made" ladders will not be used on FSH without a certification by a registered professional engineer that the ladder meets the appropriate ANSI standard.

7. Fixed Ladders.

a. Fixed ladders are provided as a means of access to roofs, pits, silos, towers, tanks, and other limited-access areas. Fixed industrial stairs should be provided, in lieu of ladders,

when the following conditions exist: access is frequent (daily or during each shift), when tools and equipment are normally required to be transported, and if sufficient space is available.

b. Fixed ladders -- to include their parts, accessories, and safety devices, will be procured to meet the requirements of 29 CFR §1910.27. Procurement specifications will include permanent treatment for corrosion control to preclude the requirement for future treatment.

c. Ladders 20 feet or less shall be continuous length. When they are more than 20 feet of continuous length, landing platforms, safety devices, cages, or wells will be provided.

d. The preferred pitch of fixed ladders will be in the range of 75 to 90 degrees from the horizontal. Under no circumstances will a ladder with a pitch in excess of 90 degrees be installed or used.

e. A minimum of 5 foot candles of illumination will be provided when ladders are used under conditions of inadequate visibility. The Industrial Hygiene Branch of the Preventive Medicine Service will conduct light measurements upon request.

f. Where unauthorized use of a fixed ladder is a problem, such as in a public area, the bottom 7 feet shall be guarded. Examples of guarding include the use of a fence with locked gate, removal of the bottom portion, spring loaded lower section, or a locked lid or gate device.

g. Electrical conductors shall not be installed on or adjacent (within 5 feet) to a fixed ladder.

8. Portable Ladders.

a. Extension, straight, and step/trestle (folding) ladders are the portable ladders in use at Fort Sam Houston. The primary construction materials include metal, fiberglass (or plastic), and wood. The selection of the type and construction of the ladder will be based on how the ladder will be used. (For example, if the ladder is to be used as a leaning ladder, a stepladder is not appropriate. If the ladder must be transported by hand over a long distance, a fiberglass versus a wooden ladder is appropriate.)

b. Ladders come in four workload ratings as reflected in Table 1 below. Type IA or I will only be procured whenever possible. Type II ladders should only be considered when local purchase is required and local manufacturers cannot provide Type IA or I. Due to the significant workload limitations of Type III ladders, they should not be used. The rating of the ladder

should be on the affixed label.

Table 1
Portable Ladder Types

Duty Rating	Ladder Type	Working Load (Pounds)
Extra Heavy Duty	IA	300
Heavy Duty	I	250
Medium Duty	II	225
Light Duty	III	200

c. All metal and metal reinforced ladders will be marked for electrical hazards with: "DANGER -- DO NOT USE AROUND ELECTRICAL EQUIPMENT".

d. Ladders shall not be painted with an opaque coating because possible defects could be covered.

e. The top of a step ladder nor the upper two most steps will be used for support.

f. Step ladders greater than 20 feet in length will not be used.

g. Step ladders shall be fully opened to permit the spreaders to lock.

h. A straight ladder or section of an extension ladder shall not exceed 20 feet and the total length of an extension ladder will not exceed 60 feet.

i. The top four rungs of an extension ladder will not be used as the working/standing platform.

9. General.

a. All ladders will be inspected prior to use. (See paragraph 10.)

b. Step ladders will not be used as a straight ladder.

c. The minimum overlap of the sections of an extension ladder are depicted in Table 2.

**Table 2
Overlap**

Ladder Length	Overlap
36 feet	3 feet
36 to 48 feet	4 feet
48 to 60 feet	5 feet

d. Straight and extension ladders will be placed a distance from the vertical wall that is 1/4 the working length of the ladder (4 to 1 ratio -- for every 4 feet up, 1 foot out).

e. Straight and extension ladders used for roof access or other surface will extend a minimum of 3 feet beyond the point of support (eave, gutter, or roofline) and will be secured (tied off) at the top.

10. Inspection.

a. Ladder inspections will be conducted using CSFS Form 4299-E-R, Ladder Inspection Guide, see Appendix B.

b. Users will inspect ladders prior to use. If they are found unserviceable, they will not be used and will be tagged "Do Not Use" and turned in for proper repair, salvage or disposal.

c. Building managers will inspect fixed ladders attached to their facilities at least annually and maintain records for at least 5 years.

d. Portable ladders will be inspected using the guidance in Appendix B. Maintenance of portable ladder inspection records is not required; however, inspection requirements should be included in local standing operating procedures (SOPs) and training.

11. Ladder Use.

a. Only one person will be allowed on a portable ladder at one time.

b. Ensure both the feet and the rungs or steps are free of slippery substances.

c. Never carry tools or material by hand while climbing.

d. Always maintain a three point connection with the ladder (two hands and a foot or two feet and a hand).

- e. Face the ladder when ascending and descending and use both hands to grip the rungs or side rails firmly.
- f. Wear slip-resistant shoes with heels.
- g. Climb carefully, without haste. Never run up or down nor slide down the ladder.
- h. Never move a ladder with someone on it and don't "walk" or "jump" a ladder while mounted.
- i. Never jump from the ladder.
- j. Handle ladders with care. Do not drop, jar, or misuse them.
- k. Ladders will not be placed on gratings unless the base can be lashed or secured to prevent slippage.
- l. Place portable ladders so the side rails have a secure footing.
- m. Do not place ladders on boxes, barrels, or other unstable bases to obtain additional heights.
- n. Use ladder adjusters for stability on uneven or sloped surfaces.
- o. Do not use ladders as braces, horizontal platforms, scaffolds, or for other than their intended purposes.
- p. Do not consider non-slip bases (safety feet) as a substitute for care in safely placing, lashing or holding a ladder that is being used upon oily, metal, concrete, or slippery surfaces.
- q. Do not place ladders in front of doors, which open toward the ladder unless the door is blocked open, locked, or guarded.
- r. Secure the ladder base when it can be knocked over by others who are working in the area. As an alternative, assign someone to steady the bottom or protect the area around the ladder against personnel or vehicular traffic.
- s. Do not splice short ladders together to provide long sections.
- t. Do not leave ladders in place unattended.

u. At a window opening, attach a board to the back of the ladder extending across the window to provide firm support against the building walls or window frames.

12. Responsibilities.

a. Installation Safety Office (ISO) will:

- (1) Administer the Ladder Safety Program.
- (2) Conduct an annual review of the program.
- (3) Conduct spot checks and inspections.
- (4) Assist in training ladder users and supervisors.

b. Contracting Office will:

(1) Ensure that ladder safety is included in the contracts as appropriate.

- (2) Conduct spot checks and inspections.

c. Commanders/Chiefs of organizations and activities will:

- (1) Only allow approved ladders to be procured and used.
- (2) Enforce ladder safety to include user inspections.
- (3) Establish a procedure for removing unserviceable ladders from use.
- (4) Establish a ladder safety training program that will include, at a minimum, the following: inspecting, transporting, setting up, securing, climbing, and storing.

d. Director, Public Works Business Center (PWBC) will:

(1) Designate an organization(s) to be responsible for the inspection of fixed ladders that are not associated with a facility and have a designated facility manager.

(2) Direct an annual inspection of the aforementioned fixed ladders and maintain the records for 5 years.

(3) Repair or remove the ladders which are not serviceable.

e. Facility Managers will:

(1) Annually inspect all fixed ladders associated with their respective facility.

(2) Tag the ladders that are unserviceable and notify the PWBC for repair or removal.

(3) Maintain the inspection records for 5 years.

f. Supervisors who have employees who use ladders will:

(1) Enforce ladder safety to include user inspection.

(2) Train the users of ladders in ladder safety. (The ISO is available to assist in this training.)

(3) Replace the portable ladders that are unserviceable.

(4) Ensure ladders are properly labeled.

g. Users will:

(1) Inspect ladders before each use (See Appendix B).

(2) Maintain ladders that are used.

(3) Practice ladder safety.

(4) Attend ladder safety training.

(MCCS-BPM-S)

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