

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 385-32

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Safety
Walking and Working Surfaces

1. Purpose.

a. To provide Fort Sam Houston (FSH) and contractor personnel with guidance and an overview of the Occupational Safety and Health Administration (OSHA) Walking and Working Surfaces requirements.

b. To establish the Walking and Working Surfaces Safety Program.

2. Applicability.

a. This memorandum applies to all military, civilian, and contractor personnel assigned, attached, or working at 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 Ladders. The Ladder Safety Program is covered under FSH Memorandum 385-9.

3. References.

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

b. OSHA Standard 29 CFR §1910.23, General Requirements (Subpart D).

c. OSHA Standard 29 CFR §1910.24, Guarding Floor and Wall Openings (Subpart D).

d. OSHA Standard 29 CFR §1910.176, Materials Handling - General.

e. OSHA Standard Subpart S (Electrical), 29 CFR §1910.303, General.

f. National Fire Protection Association (NFPA) 101, The Life Safety Code.

4. Terminology. Definitions and specific terminology associated with walking and working surfaces are contained in Appendix A. Additionally, many of the referenced standards are available on the INTERNET which can be accessed through the Installation Safety Office's WEB PAGE - www.cs.amedd.army.mil/iso/

5. Background. Walking and working surfaces are the sources of many injuries and property damage mishaps. Relatively safe areas become hazardous because people fail to correct known deficiencies. The most common mishap is people falling as the result of slipping or tripping. Good design, proper maintenance, and adequate lighting all contribute to safe walking and working surfaces. However, poor housekeeping such as failure to clean up spills, leaving trash scattered around, and allowing the work place to be in a state of general disarray negates all of the positive physical attributes. In general, it is the responsibility of the employee to maintain a safe workplace and keep aisles and passageways clean and unobstructed.

6. Policies.

a. Work areas will be laid out, spaced, and equipment arranged not only for efficiency of operation but to avoid congestion as well.

b. Machines will be positioned so it will not be necessary for an operator to stand in a passageway, aisle, or exit access.

c. Passageways, aisles, and exit accesses shall be provided to permit the free movement of employees carrying material in and out of work areas.

d. Floors shall be kept in good condition and free of defects that can endanger employees or interfere with the handling of materials. They will not have obstructions, which would create a tripping hazard or hinder people leaving the area during emergencies.

e. Every floor opening, such as a hatchway, chute, pit, trap door, manhole, and ladder way shall be guarded. The type of guard used is dependent on the location, reason for the opening, and frequency of use.

f. All above grade working surfaces, where employees may be working below, will contain toe boards and railings on all exposed sides.

g. Fixed industrial stairs and ramps shall meet the requirements of 29 CFR §1910.24.

h. All requirements of the Uniform Federal Accessibility Standards (Federal Standard 795) will be appropriately met.

7. Interior Walking and Working Surfaces.

a. All interior walking and working surfaces, which are part of the means of egress, shall comply with the requirements of the NFPA 101, *The Life Safety Code*.

b. Clear zones in shops will be established to accommodate typical work. The marking of clear zones is optional; however, if they are marked, yellow or yellow-and-black hash-marked lines, 2 to 3 inches wide will be used.

c. At least 18 inches will be provided for passageways through or between obstructions.

d. Sufficient access and workspace shall be provided and maintained around electrical equipment and electrical panels. Table 1 depicts minimum clear distance from electrical panels to include breaker boxes.

**Table 1
Working Clearances**

Nominal Voltage to Ground	Minimum Clear Distance for Conditions* (feet)		
	a	b	c
0 to 150 volts	3**	3**	3
151 volts to 600 volts	3**	3.5	4

* Conditions:

a. Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating material. Insulated wire or insulated bus bars operating at not over 300 volts are not considered live parts.

b. Exposed live parts on one side and grounded parts on the other side.

c. Exposed live parts on both sides of the workspace.

**Minimum clear distances may be 2 feet 6 inches for installations built prior to April 16, 1981.

e. Where powered materials handling equipment (MHE) is used, facility layout shall provide enough clearance in aisles, loading docks, and through doorways to permit safe turns. Aisles should be at least 2 feet wider than the widest vehicle used or most common material being transported (29 CFR §1910.176).

f. Floors of all shop areas, service rooms, halls, and storerooms shall be kept clean, free of oil, grease, gasoline, water, and other slippery substances. When a slippery substance is spilled, it will be immediately cleaned or covered with a noncombustible absorbent. (*Note: Water is considered a slippery substance when on a hard surface such as tile, concrete, metal, or vinyl floor covering.*)

(1) Floors shall not be cleaned with flammable or combustible liquids.

(2) When floors are being cleaned or finishing compounds are being applied, signs will be posted to warn workers of a slippery when wet hazard and will remain in place until floors have dried. The caution signs will be yellow with black lettering.

(3) When electrical equipment, such as vacuum cleaners or buffers are used, the cords will be adjusted to preclude posing a tripping hazard.

g. Mats used at entrance ways will lay flat and be appropriate for the entrance. (For example, if there is a consistent wind blowing by the entrance, a heavy mat is required.)

h. Passageways, aisles, and exit accesses shall be kept clear for easy access to emergency equipment and to enable fire fighters to reach a fire. Additionally, areas adjacent to sprinkler control valves, fuse boxes, and electrical switch panels shall not be obstructed. NFPA Standard 70, *The National Electrical Code (NEC)*, and other NFPA standards contain information on clearance distances and are in concert with the Table 1, above.

i. Weight distribution and floor loading capacities will be monitored for all above grade storage areas. (*Note: Public Works Business Center (PWBC) engineers are available to provide assistance in determining the status of the load capacities and weight distribution.*)

j. Floor sloping and drains will be provided when floors are subject to water, moisture, flooding, or when wet processes are used.

(1) Floors will be sloped to allow liquids to naturally flow to the drains.

(2) Drains shall be kept clear to prevent clogging.

(3) Separators or other waste disposal controlling devices shall be used to preclude improper discharge. *(Note: Contact PWBC, Environmental and Natural Resources Division for assistance.)*

k. All aisles, passageways, and work areas will be adequately lighted with a minimum of 5-foot candles at the surface of all work areas. The exact level of lighting required is based on the task being performed. *(Note: The Industrial Hygiene Section, Preventive Medicine Service, is available to conduct lighting surveys upon request.)*

l. Floor openings shall be adequately guarded in accordance with 29 CFR §1910.23.

(1) Standard railings and toe boards will be permanently installed for frequently used openings.

(2) Covers will be installed for openings less frequently used and where traffic across the opening prevents the use of fixed railings. The cover specifications shall have the same rated capacity as the floor or for the intended use. The opening will be protected by removable railings leaving only one exposed side when the cover is open or removed. There shall be someone in constant attendance at the exposed side whenever the worker using the opening is not visible.

m. Every stairway and ladder way opening will be guarded by standard railings (top rail 36 to 44 inches from the floor with midrails if the opening between the top rail is 19 inches or greater). Toe boards (4 inch high rigid material either solid or mesh with openings not greater than 1 inch) are required if employees work below the area or if the beneath area is a passageway.

n. All open-sided floors, platforms, and runways 4 feet or more above the ground shall be guarded on all open sides with standard railings and toe boards as appropriate.

o. All permanent or temporary wall openings (to include windows) located less than 3 feet above the floor (where there is a 4 foot or more drop) will be guarded. Guards include railings, doors, slats, grillwork, half-doors, or equivalent protection.

8. Exterior Walking and Working Surfaces.

a. Exterior walkways will be kept clear of obstacles that block the right-of-way or present slipping and tripping hazards.

b. Facility managers are responsible for the removal of accumulated snow or ice.

c. Stairs and walkways will be kept in good condition. The facility managers are responsible for submitting the work requests for repairs.

d. Loading dock surfaces will be smooth and even.

(1) The width of a dock will be 2 feet wider than the widest vehicle or most common material being transported.

(2) Docks that are used as personnel passageways and not used for loading and unloading will have railings installed if the dock is greater than 4 feet in height.

(3) Edges of docks that are active or below 4 feet in height will be marked with 4-inch wide yellow lines.

e. Parking lots should be smooth, have good drainage, and be free of pedestrian tripping hazards. Stony or rough ground should be avoided. Entrances and exits will not have obstructions that block a driver's or pedestrian's view of traffic.

f. All construction work near or beside walkways will be clearly identified by signs and barricades to clearly mark the safe routes. In addition to barriers, illumination or warning flashers will also be used for easy sighting after dark.

9. Fixed Industrial Stairs and Ramps. Many injuries that occur each year are the result of falls when people move from one level to another on stairs or ramps.

a. Fixed stairs and ramps will be designed and built to carry a load five times the normal live load (moving) but never less strength than to safely carry a moving concentrated load of 1000 pounds.

b. Fixed stairs, if part of the exit or exit access, shall have a minimum width of 36 inches if the occupant load is less than 50 persons. If the occupant load is greater than 50 persons, the minimum stair width shall be 44 inches.

c. Ramps, if part of the exit or exit access, shall have a minimum width of 44 inches.

d. For stairs and ramps not part of the exit or exit access, a minimum of 22 inches shall be provided.

e. The angle of rise, tread depth, and riser height shall be consistent for stairs and be in accordance with 29 CFR §1910.24.

f. Ramps not part of the exit or exit access shall be installed in accordance with NFPA 101. If the ramp is part of the exit or exit access, the maximum slope of "1:8" shall be allowed.

g. Every flight of fixed industrial stairs that has four or more risers will be equipped with standard guardrails or standard handrails as depicted in Table 2.

**Table 2
Handrails and Guardrails on Stairs**

Width	Description	Requirement
<44 inches	Both sides enclosed	At least one handrail preferably on right side
<44 inches	One side open	At least one guard rail on open side
<44 inches	Both sides open	One guard rail on each side
>44 <88 inches		Handrail on each enclosed side Guardrail on each open side
>88 inches		Handrail on each enclosed side Guardrail on each open side Inter-mediate Guardrail midway of the width

10. Responsibilities.

a. Installation Safety Office will:

- (1) Administer the Walking and Working Surfaces Safety Program.
- (2) Conduct an annual review of the program.
- (3) Conduct spot checks and inspections.

b. Commanders/Chiefs of Organizations and Activities will:

- (1) Only allow approved fixed industrial stairs and ramps to be installed in their facilities.
- (2) Enforce the clean up of spills and maintenance of walking and working surfaces.

c. Director, PWBC will:

(1) Only install (or contract for) fixed industrial stairs and ramps that meet the specifications of this memo and the references.

(2) Maintain the walking and working surfaces in good order.

d. Facility Managers will:

(1) Routinely inspect walking and working surfaces within their respective facilities.

(2) Request assistance to repair walking and working surfaces to include the following:

(a) Loose boards, insecure treads, protruding nails, and torn or worn stair treads,

(b) Slippery or worn treads and surfaces (either replaced or made safe by coating them with nonslip surface materials),

(c) Treads and risers not uniform size,

(d) Stair nosings not securely fastened, or beveled to prevent personnel from catching their heels on the treads,

(e) Guardrails and handrails not smooth, free of splinters or burrs, and securely mounted, and

(f) Outside stairways, and ramps not cleared of snow, ice, and abrasive materials such as sand and gravel.

e. Supervisors will:

(1) Enforce the clean up of spills and trip hazards.

(2) Provide materials, as appropriate to the location, for cleaning up spills.

f. Employees will:

(1) Notify the supervisor of spills and trip hazards.

(2) Clean-up spills and remove trip hazards.

(3) Maintain workplace free of spills and trip hazards.

(4) Wear appropriate shoes to prevent trips and falls.