

United States
Department of
Agriculture

Forest Service

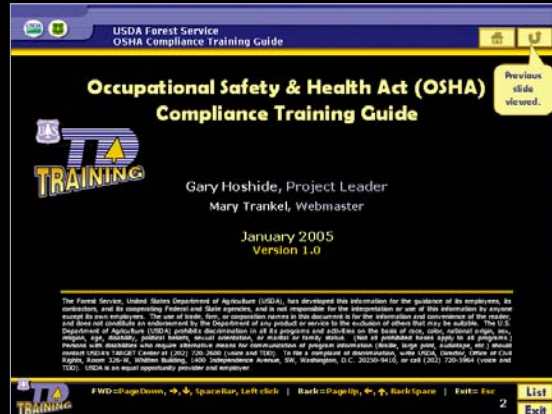
Technology &
Development
Program



6700—Safety &
Occupational Health

January 2005
0567-2C01-MTDC





OSHA Compliance Training Guide






USDA Forest Service
OSHA Compliance Training Guide




Occupational Safety & Health Act (OSHA) Compliance Training Guide



Gary Hoshide, Project Leader
Mary Trankel, Webmaster

January 2005
Version 1.0


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Acknowledgements

The Technology and Development Centers are grateful to the many Forest Service employees who shared their ideas.



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Technical Contact


For further technical information, please contact:

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For a complete text of OSHA standards go to:

http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1910

You can click on this link if you have internet access.



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USDA Forest Service OSHA Compliance Training Guide	
<h2>Overview</h2>	
<p>This guide illustrates occupational safety and health standards commonly* violated in the Forest Service work place.</p> <p>The pictorial examples in this guide help to illustrate OSHA standards prescribed in 29 CFR 1910.</p> <p>* The common violations were obtained from a review of citations issued by OSHA over five years.</p>	
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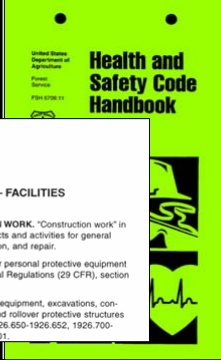



Overview

The guide is structured from direction provided in **Chapter 30, Facilities**, Forest Service Handbook, FSH 6709.11.

View and print information.






CHAPTER 30 – FACILITIES

31 – FACILITIES CONSTRUCTION WORK. "Construction work" in this Handbook refers to work projects and activities for general construction, maintenance, alteration, and repair.

31.01 – Authority. The authority for personal protective equipment (PPE) is in Title 29, Code of Federal Regulations (29 CFR), section 1910.132.

The authority for material handling equipment, excavations, concrete and masonry construction, and rollover protective structures (ROPS) is in 29 CFR: 1926.602, 1926.650-1926.652, 1926.700-1926.706, and 1926.1000-1926.1001.



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Overview

This guide does not include other standards that may apply, such as the National Fire Protection Association (**NFPA**) standards, International Building Code (**IBC**), Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines (**ADAABAAG**), and local or municipal building codes.

Consult your safety manager or facility engineer for more information on applicable standards that may apply to your location.



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Reporting Noncompliance (Hazards)



Employees who believe that an unsafe or unhealthful working condition exist in any workplace shall report the condition to their **supervisor**. [FSM 6714.2]



Use form **FS-6700-4**, Notice of Unsafe or Unhealthful Working Conditions to document noncompliance or violations. [FSH 6709.12, 11.24]



Microsoft Word Document



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Reporting Noncompliance (Hazards)

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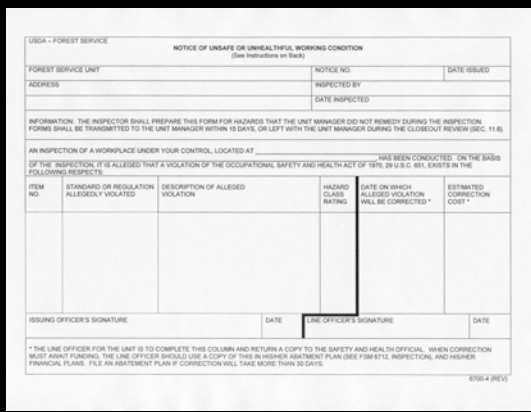
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Reporting Noncompliance (Hazards)

[Sample of form FS 6700-4]





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Reporting Noncompliance (Hazards)

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The suggested format for a facilities safety inspection checklist is 39.9-Exhibit 01, FSH 6709.11, or equivalent.



39.9 - Exhibit 01

DISBURSED PAYMENT FOR FACILITIES SAFETY INSURANCE POLICY 04/14/2017

Check to Cash/Debit ☐ Transfer ☐ Date _____

To: _____ From: _____

Official or Change of Entity: _____ Payment During Indemnity: _____

Contractor Representative: _____ Date: _____

1. **Disbursements** $\$1,000,000.00$ **Net**
 a. Amount of disbursements $\$1,000,000.00$
 b. Amount of disbursements $\$1,000,000.00$
 c. Amount of disbursements $\$1,000,000.00$
 d. Amount of disbursements $\$1,000,000.00$

2. **Balance and Working Balance**

a. Balance of disbursements $\$1,000,000.00$
 b. Balance of disbursements $\$1,000,000.00$
 c. Balance of disbursements $\$1,000,000.00$
 d. Balance of disbursements $\$1,000,000.00$

3. **Rate and Interest/Change**

a. Rate of interest of 1% $\$1,000,000.00$
 b. Rate of interest of 1% $\$1,000,000.00$
 c. Rate of interest of 1% $\$1,000,000.00$
 d. Rate of interest of 1% $\$1,000,000.00$

4. **Other**

a. Other $\$1,000,000.00$
 b. Other $\$1,000,000.00$
 c. Other $\$1,000,000.00$
 d. Other $\$1,000,000.00$

5. **Nettle Disburse**

a. Nettle Disburse $\$1,000,000.00$
 b. Nettle Disburse $\$1,000,000.00$
 c. Nettle Disburse $\$1,000,000.00$
 d. Nettle Disburse $\$1,000,000.00$

6. **Other**

a. Other $\$1,000,000.00$
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 c. Other $\$1,000,000.00$
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 e. Other $\$1,000,000.00$
 f. Other $\$1,000,000.00$
 g. Other $\$1,000,000.00$
 h. Other $\$1,000,000.00$
 i. Other $\$1,000,000.00$
 j. Other $\$1,000,000.00$

7. **Other**

a. Other $\$1,000,000.00$
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8. **Other**

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9. **Other**

a. Other $\$1,000,000.00$
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 e. Other $\$1,000,000.00$
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 g. Other $\$1,000,000.00$
 h. Other $\$1,000,000.00$
 i. Other $\$1,000,000.00$
 j. Other $\$1,000,000.00$

10. **Contracted Costs**

a. Contracted Costs $\$1,000,000.00$
 b. Contracted Costs $\$1,000,000.00$
 c. Contracted Costs $\$1,000,000.00$
 d. Contracted Costs $\$1,000,000.00$

11. **Contracted and Contractible Limits**

a. Contracted and Contractible Limits $\$1,000,000.00$
 b. Contracted and Contractible Limits $\$1,000,000.00$
 c. Contracted and Contractible Limits $\$1,000,000.00$
 d. Contracted and Contractible Limits $\$1,000,000.00$

12. **Health, Benefits, and Disability**

a. Health, Benefits, and Disability $\$1,000,000.00$
 b. Health, Benefits, and Disability $\$1,000,000.00$
 c. Health, Benefits, and Disability $\$1,000,000.00$
 d. Health, Benefits, and Disability $\$1,000,000.00$

13. **Contracted and Basic Benefits**

a. Contracted and Basic Benefits $\$1,000,000.00$
 b. Contracted and Basic Benefits $\$1,000,000.00$
 c. Contracted and Basic Benefits $\$1,000,000.00$
 d. Contracted and Basic Benefits $\$1,000,000.00$

14. **Other**

a. Other $\$1,000,000.00$
 b. Other $\$1,000,000.00$
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15. **Other**

a. Other $\$1,000,000.00$
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16. **Other**

a. Other $\$1,000,000.00$
 b. Other $\$1,000,000.00$
 c. Other $\$1,000,000.00$
 d. Other $\$1,000,000.00$




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List of Topics

(Common OSHA standards that are violated)

1. [Walking – Working Surfaces](#)

Housekeeping [1910.22(a)]

Floor Loading Protection [1910.22(d)]

Protection of Open-sided Floors, Platforms, and Runways [1910.23(c)]

Stairway Railings and Guards [1910.23(d)]

2. [Exit Routes, Emergency Action Plans, and Fire Prevention Plans](#)

Compliance with NFPA 101-2000, Life Safety Code [1910.35]

Maintenance, Safeguards, and Operational Features for Exit Routes [1910.37]

3. [Fire Protection](#)

Portable Fire Extinguishers [1910.157]

4. [Machinery and Machine Guarding](#)

Woodworking Machinery Requirements [1910.213]

Abrasive Wheel Machinery [1910.215]

Mechanical Power-transmission Apparatus [1910.219]

5. [Personal Protective Equipment](#)

General Requirements [1910.132]

6. [Medical and First Aid](#)

Medical and First Aid [1910.131]

7. [Electrical](#)

General Requirements [1910.303]

Wiring Methods, Components, and Equipment for General Use [1910.305]

8. [Toxic and Hazardous Substances](#)

Hazard Communications [1910.1200]

9. [General Duty Clause](#)

(Miscellaneous)



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Topic 1:

Walking – Working Surfaces

[29 CFR 1910, Subpart D]



- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** D
- **Subpart Title:** Walking-Working Surfaces



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TOPIC 1: Walking – Working Surfaces


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Housekeeping


[1910.22(a)]



work stations





public areas



restroom and wash areas

1910.22(a)(1)
All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.


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Housekeeping

[1910.22(a)]



organized



aisles clear of obstructions

1910.22(a)(1)
All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.


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Floor Loading Protection

[1910.22(d)]

Required conspicuously affixed marking

Notice
Site-specific storage condition may require additional safeguards than depicted here. Refer to 1910.23(c)(1), Protection of open-sided floors, platforms, and runways.

1910.22(d)(1) In every building or other structure, or part thereof, used for mercantile, business, industrial, or storage purposes, the loads approved by the building official shall be marked on plates of approved design which shall be supplied and securely affixed by the owner of the building, or his duly authorized agent, in a conspicuous place in each space to which they relate. Such plates shall not be removed or defaced but, if lost, removed, or defaced, shall be replaced by the owner or his agent.

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Protection of Open-sided Floors, Platforms, and Runways

[1910.23(c)]

Required top rail capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail

Top rail height 42 inches (nominal)

Required protection between top rail and floor, platform, runway, ramp, or stair treads, equivalent at least to that afforded by a standard intermediate rail

Railing span not to exceed 8 feet

Required toeboard prevent objects from rolling over the edge



1910.23(c)(1) Every open-sided floor or platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing (or the equivalent as specified in paragraph (e)(3) of this section) on all open sides except where there is entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toeboard wherever, beneath the open sides,

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Protection of Open-sided Floors, Platforms, and Runways

[1910.23(c)]

1910.23(e)(3)(i)

For wood railings, the posts shall be of at least 2-inch by 4-inch stock spaced not to exceed 6 feet; the top and intermediate rails shall be of at least 2-inch by 4-inch stock. If top rail is made of two right-angle pieces of 1-inch by 4-inch stock, posts may be spaced on 8-foot centers, with 2-inch by 4-inch intermediate rail.

1910.23(e)(3)(ii)

For pipe railings, posts and top and intermediate railings shall be at least 1 1/2 inches nominal diameter with posts spaced not more than 8 feet on centers.

1910.23(e)(3)(iii)

For structural steel railings, posts and top and intermediate rails shall be of 2-inch by 2-inch by 3/8-inch angles or other metal shapes of equivalent bending strength with posts spaced not more than 8 feet on centers.

1910.23(e)(3)(iv)

The anchoring of posts and framing of members for railings of all types shall be of such construction that the completed structure shall be capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail.

1910.23(e)(3)(v)

Other types, sizes, and arrangements of railing construction are acceptable provided they meet the following conditions:

1910.23(e)(3)(v)(a)

A smooth-surfaced top rail at a height above floor, platform, runway, or ramp level of 42 inches nominal;

1910.23(e)(3)(v)(b)


A strength to withstand at least the minimum requirement of 200 pounds top rail pressure;

1910.23(e)(3)(v)(c)

Protection between top rail and floor, platform, runway, ramp, or stair treads, equivalent at least to that afforded by a standard intermediate rail;

1910.23(c)(1)

Every open-sided floor or platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing (or the equivalent as specified in paragraph (e)(3) of this section) on all open sides except where there is entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toeboard wherever, beneath the open sides,



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Protection of Open-sided Floors, Platforms, and Runways

[1910.23(c)]

1910.23(c)(1)(i)

Persons can pass.

1910.23(c)(1)(ii)

There is moving machinery, or


1910.23(c)(1)(iii)

There is equipment with which falling materials could create a hazard.

Required toe guard and railing

1910.23(c)(1)

Every open-sided floor or platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing (or the equivalent as specified in paragraph (e)(3) of this section) on all open sides except where there is entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toeboard wherever, beneath the open sides, [(see 1910.23(c)(1)(i)-(iii))]



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TOPIC 1: Walking – Working Surfaces

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Greater than 44" wide but under 88" wide



Required handrail on both sides

Stairway Railings and Guards

[1910.23(d)]

1910.23(d)(1)(i) On stairways less than 44 inches wide having both sides enclosed, at least one handrail, preferably on the right side descending.


1910.23(d)(1)(ii) On stairways less than 44 inches wide having one side open, at least one stair railing on open side.

1910.23(d)(1)(iii) On stairways less than 44 inches wide having both sides open, one stair railing on each side.

1910.23(d)(1)(iv) On stairways more than 44 inches wide but less than 88 inches wide, one handrail on each enclosed side and one stair railing on each open side.

1910.23(d)(1)(v) On stairways 88 or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.

1910.23(d)(1) Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails as specified in paragraphs (d)(1)(i) through (v) of this section, the width of the stair to be measured clear of all obstructions except handrails:
[see 1910.23(d)(1)(i-v)]



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TOPIC 1: Walking – Working Surfaces

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Topic 2:

Exit Routes,


Emergency Action


Plans, and Fire

Prevention Plans

[29 CFR 1910, Subpart E]

- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** E
- **Subpart Title:** Exit Routes, Emergency Action Plans, and Fire Prevention Plans





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TOPIC 2: Exit Routes, Emergency Action Plans, and Fire Prevention Plans

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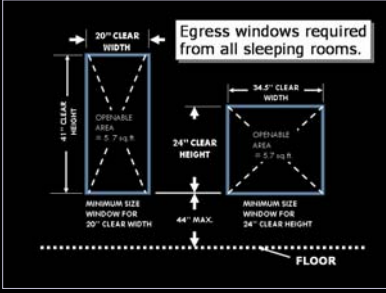
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Maintenance, Safeguards, and Operational Features for Exit Routes

Compliance with NFPA 101-2000, Life Safety Code [1910.35]



Unobstructed exit



Egress windows required from all sleeping rooms.

1910.35 An employer who demonstrates compliance with the exit route provisions of NFPA 101-2000, the Life Safety Code, will be deemed to be in compliance with the corresponding requirements in §§ 1910.34, 1910.36, and 1910.37.

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Maintenance, Safeguards, and Operational Features for Exit Routes

The danger to employees must be minimized [1910.37(a)]




Overhead sprinkler system


The minimum vertical clearance between sprinklers and material below shall be 18 inches (45.7 cm) [1910.159(c)(10)]




Smoke detectors



Must be unobstructed and clearly visible to occupants



Perform battery test



If lighted, must have battery backup



1910.37(a)(4) Safeguards designed to protect employees during an emergency (e.g., sprinkler systems, alarm systems, fire doors, exit lighting) must be in proper working order at all times.

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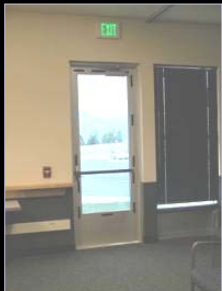
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Maintenance, Safeguards, and Operational Features for Exit Routes

Lighting and marking must be adequate and appropriate. [1910.37(b)]


Required exit routes must be free and unobstructed [1910.37(a)(3)]





Required exit sign must have plainly legible letters not less than six inches (15.2 cm) high, with the principal strokes of the letters in the word less than three-fourths of an inch (1.9 cm) wide [1910.37(b)(7)]

1910.37(b)(2) Each exit must be clearly visible and marked by a sign reading "Exit."





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Maintenance, Safeguards, and Operational Features for Exit Routes


Lighting and marking must be adequate and appropriate. [1910.37(b)]

Each exit sign must be illuminated to a surface value of at least five foot-candles (54 lux) by a reliable light source and be distinctive in color. Self-luminous or electroluminescent signs that have a minimum luminance surface value of at least .06 footlamberts (0.21 cd/m2) are permitted. [1910.37(b)(6)]






Direction of travel



1910.37(b)(4) If the direction of travel to the exit or exit discharge is not immediately apparent, signs must be posted along the exit access indicating the direction of travel to the nearest exit and exit discharge. Additionally, the line-of-sight to an exit sign must clearly be visible at all times.



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Topic 3:

Fire Protection

[29 CFR 1910, Subpart L]

- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** L
- **Subpart Title:** Fire Protection





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TOPIC 3: Fire Protection

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Portable Fire Extinguishers

General Requirements [1910.157(c)]


Extinguishers must be **mounted and identified**

Employees must be trained at least **annually**

1910.157(g)(2) The employer shall provide the education required in paragraph (g)(1) of this section upon initial employment and at least annually thereafter.



Unobstructed access



Unobstructed access


Mounting height [Ref: NFPA 10]

Height from top of extinguisher to floor determined by weight of extinguisher

Extinguishers of 40 lbs. or less shall be mounted no higher than 5 ft. (maximum)

Clearance between the bottom of extinguisher and floor shall be no less than 4 in. (minimum)

1910.157(c)(1) The employer shall provide portable fire extinguishers and shall mount, locate and identify them so that they are readily accessible to employees without subjecting the employees to possible injury.



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TOPIC 3: Fire Protection

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 OSHA Compliance Training Guide

Portable Fire Extinguishers


Inspections, maintenance and testing [1910.157(e)]





Visually inspect portable extinguishers and hose stations monthly



1910.157(d)(3) The employer may use uniformly spaced standpipe systems or hose stations connected to a sprinkler system installed for emergency use by employees instead of Class A portable fire extinguishers, provided that such systems meet the respective requirements of 1910.158 or 1910.159, that they provide total coverage of the area to be protected, and that employees are trained at least annually in their use.

1910.157(e)(2) Portable extinguishers or hose used in lieu thereof under paragraph (d)(3) of this section shall be visually inspected monthly.





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TOPIC 3: Fire Protection



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Portable Fire Extinguishers

Inspections, maintenance and testing [1910.157(e)]








Required date of annual inspection noted on tag

Distribute portable fire extinguishers for use by employees on Class A fires so that the travel distance for employees to any extinguisher is 75 feet (22.9 m) or less. [1910.157(d)(2)]

Distribute portable fire extinguishers for use by employees on Class B fires so that the travel distance from the Class B hazard area to any extinguisher is 50 feet (15.2 m) or less. [1910.157(d)(4)]

1910.157(e)(3) The employer shall assure that portable fire extinguishers are subjected to an annual maintenance check. Stored pressure extinguishers do not require an internal examination. The employer shall record the annual maintenance date and retain this record for one year after the last entry or the life of the shell, whichever is less. The record shall be available to the Assistant Secretary upon request.





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TOPIC 3: Fire Protection



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Topic 4:

Machinery and Machine Guarding

[29 CFR 1910, Subpart O]

- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** O
- **Subpart Title:** Machinery and Machine Guarding







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TOPIC 4: Machinery and Machine Guarding



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Woodworking Machinery Requirements

Machine controls and equipment [1910.213(b)]

1910.213(b)(3) On applications where injury to the operator might result if motors were to restart after power failures, provision shall be made to prevent machines from automatically restarting upon restoration of power.



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Woodworking Machinery Requirements

Radial Saws [1910.213(h)]

1910.213(h)(1) The upper hood shall completely enclose the upper portion of the blade down to a point that will include the end of the saw arbor. The upper hood shall be constructed in such a manner and of such material that it will protect the operator from flying splinters, broken saw teeth, etc., and will deflect sawdust away from the operator. The sides of the lower exposed portion of the blade shall be guarded to the full diameter of the blade by a device that will automatically adjust itself to the thickness of the stock and remain in contact with stock being cut to give maximum protection possible for the operation being performed.

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Woodworking Machinery Requirements

Radial Saws [1910.213(h)]



1910.213(h)(3) An adjustable stop shall be provided to prevent the forward travel of the blade beyond the position necessary to complete the cut in repetitive operations.

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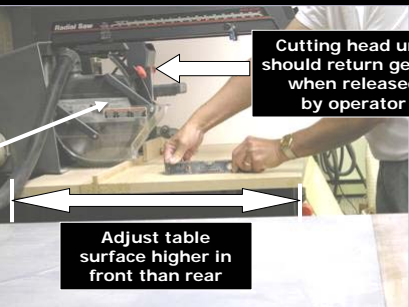



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Woodworking Machinery Requirements

Radial Saws [1910.213(h)]




Cutting head unit

Cutting head unit should return gently when released by operator

Adjust table surface higher in front than rear

1910.213(h)(4) Installation shall be in such a manner that the front end of the unit will be slightly higher than the rear, so as to cause the cutting head to return gently to the starting position when released by the operator.





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TOPIC 4: Machinery and Machine Guarding

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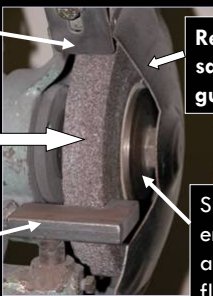



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Abrasive Wheel Machinery

General requirements [1910.215(a)]



Tongue

Required

1910.215(d)(3)
 Surface condition. All contact surfaces of wheels, blotters and flanges shall be flat and free of foreign matter.

Work rest


Required safety guard

Spindle end, nut, and flange

1910.215(a)(2)(i) Safety guards on all operations where the work provides a suitable measure of protection to the operator, may be so constructed that the spindle end, nut, and outer flange are exposed; and where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted; and

1910.215(a)(2)(ii) The spindle end, nut, and outer flange may be exposed on machines designed as portable saws.

1910.215(a)(2) Guard design. The safety guard shall cover the spindle end, nut, and flange projections. The safety guard shall be mounted so as to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard, except: [see 1910.215(a)(2)(i-ii)]



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TOPIC 4: Machinery and Machine Guarding

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Abrasive Wheel Machinery

General requirements [1910.215(a)]

Required 1/4 inch (maximum) spacing (or gap) between tongue and wheel 1910.215(b)(9)

NOTE
Required adjustable front safety visor removed to accommodate this picture.

Abrasive wheel

Work rest

Required flange 1910.215(a)(3)

Required 1/8 inch (maximum) spacing (or gap) between work rest and abrasive wheel

1910.215(a)(4) Work rests. On offhand grinding machines, work rests shall be used to support the work. They shall be of rigid construction and designed to be adjustable to compensate for wheel wear. Work rests shall be kept adjusted closely to the wheel with a maximum opening of one-eighth inch to prevent the work from being jammed between the wheel and the rest, which may cause wheel breakage. The work rest shall be securely clamped after each adjustment. The adjustment shall not be made with the wheel in motion.

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Abrasive Wheel Machinery

Guarding of abrasive wheel machinery [1910.215(b)]

Figure Nos. O-18 and O-19 CORRECT - Showing adjustable tongue giving required angular protection for all sizes of wheel used.

Figure Nos. O-20 and O-21 Showing movable guard with opening small enough to give required protection for smallest size wheel used.


Figure Nos. O-22 and O-23 INCORRECT - Showing movable guard with size of opening correct for full size wheel but too large for smaller wheels.

1910.215(b)(9) Exposure adjustment. Safety guards of the types described in Subparagraphs (3) and (4) of this paragraph, where the operator stands in front of the opening, shall be constructed so that the peripheral protecting member can be adjusted to the constantly decreasing diameter of the wheel. The maximum angular exposure above the horizontal plane of the wheel spindle as specified in paragraphs (b)(3) and (4) of this section shall never be exceeded, and the distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed one-fourth inch. (See Figures O-18, O-19, O-20, O-21, O-22, and O-23)

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OSHA Compliance Training Guide

Mechanical Power-transmission Apparatus


Horizontal belts and ropes [1910.219(e)(1)]







Required pulley guard

Guard made of expanded metal

1910.219(e)(1)(i) Where both runs of horizontal belts are seven (7) feet or less from the floor level, the guard shall extend to at least fifteen (15) inches above the belt or to a standard height, except that where both runs of a horizontal belt are 42 inches or less from the floor, the belt shall be fully enclosed in accordance with paragraphs (m) and (o) of this section.



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TOPIC 4: Machinery and Machine Guarding

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USDA Forest Service

OSHA Compliance Training Guide

Mechanical Power-transmission Apparatus

Horizontal belts and ropes [1910.219(e)(1)]

1910.219(m) Standard guards-general requirements

1910.219(m)(1) Materials.


1910.219(m)(1)(i) Standard conditions shall be secured by the use of the following materials. Expanded metal, perforated or solid sheet metal, wire mesh on a frame of angle iron, or iron pipe securely fastened to floor or to frame of machine.



1910.219(m)(1)(ii) All metal should be free from burrs and sharp edges.



1910.219(m)(2) Methods of manufacture.

1910.219(m)(2)(i) Expanded metal, sheet or perforated metal, and wire mesh shall be securely fastened to frame.

1910.219(e)(1)(i) Where both runs of horizontal belts are seven (7) feet or less from the floor level, the guard shall extend to at least fifteen (15) inches above the belt or to a standard height, except that where both runs of a horizontal belt are 42 inches or less from the floor, the belt shall be fully enclosed in accordance with paragraphs (m) and (o) of this section.



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OSHA Compliance Training Guide

Mechanical Power-transmission Apparatus

Horizontal belts and ropes [1910.219(e)(1)]

Continued

1910.219(o) Approved materials –

1910.219(o)(1) Minimum requirements. The materials and dimensions specified in this paragraph shall apply to all guards, except horizontal overhead belts, rope, cable, or chain guards more than seven (7) feet above floor, or platform.


1910.219(o)(1)(i) [Reserved]

1910.219(o)(1)(i)(a) All guards shall be rigidly braced every three (3) feet or fractional part of their height to some fixed part of machinery or building structure. Where guard is exposed to contact with moving equipment additional strength may be necessary.

1910.219(o)(2) Wood guards.

1910.219(o)(2)(i) Wood guards may be used in the woodworking and chemical industries, in industries where the presence of fumes or where manufacturing conditions would cause the rapid deterioration of metal guards; also in construction work and in locations outdoors where extreme cold or extreme heat make metal guards and railings undesirable. In all other industries, wood guards shall not be used.

1910.219(e)(1)(i) Where both runs of horizontal belts are seven (7) feet or less from the floor level, the guard shall extend to at least fifteen (15) inches above the belt or to a standard height, except that where both runs of a horizontal belt are 42 inches or less from the floor, the belt shall be fully enclosed in accordance with paragraphs (m) and (o) of this section.





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OSHA Compliance Training Guide

Mechanical Power-transmission Apparatus

Horizontal belts and ropes [1910.219(e)(1)]

Continued


1910.219(o)(3) Guards for horizontal overhead belts.

1910.219(o)(3)(i) Guards for horizontal overhead belts shall run the entire length of the belt and follow the line of the pulley to the ceiling or be carried to the nearest wall, thus enclosing the belt effectively. Where belts are so located as to make it impracticable to carry the guard to wall or ceiling, construction of guard shall be such as to enclose completely the top and bottom runs of belt and the face of pulleys.

1910.219(o)(3)(ii) [Reserved]

1910.219(o)(3)(iii) Suitable reinforcement shall be provided for the ceiling rafters or overhead floor beams, where such is necessary, to sustain safely the weight and stress likely to be imposed by the guard. The interior surface of all guards, by which is meant the surface of the guard with which a belt will come in contact, shall be smooth and free from all projections of any character, except where construction demands it; protruding shallow roundhead rivets may be used. Overhead belt guards shall be at least one-quarter wider than belt which they protect, except that this clearance need not in any case exceed six (6) inches on each side. Overhead rope drive and block and roller-chain-drive guards shall be not less than six (6) inches wider than the drive on each side. In overhead silent chain-drive guards where the chain is held from lateral displacement on the sprockets, the side clearances required on drives of twenty (20) inch centers or under shall be not less than one-fourth inch from the nearest moving chain part, and on drives of over twenty (20) inch centers a minimum of one-half inch from the nearest moving chain part.

1910.219(e)(1)(i) Where both runs of horizontal belts are seven (7) feet or less from the floor level, the guard shall extend to at least fifteen (15) inches above the belt or to a standard height, except that where both runs of a horizontal belt are 42 inches or less from the floor, the belt shall be fully enclosed in accordance with paragraphs (m) and (o) of this section.



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OSHA Compliance Training Guide

Mechanical Power-transmission Apparatus

Horizontal belts and ropes [1910.219(e)(1)]

Continued

1910.219(o)(4) Guards for horizontal overhead rope and chain drives. Overhead-rope and chain-drive guard construction shall conform to the rules for overhead-belt guard.


1910.219(o)(5) Guardrails and toeboards.

1910.219(o)(5)(i) Guardrail shall be forty-two (42) inches in height, with midrail between top rail and floor.

1910.219(o)(5)(ii) Posts shall be not more than eight (8) feet apart; they are to be permanent and substantial, smooth, and free from protruding nails, bolts, and splinters. If made of pipe, the post shall be one and one-fourth (1 1/4) inches inside diameter, or larger. If made of metal shapes or bars, their section shall be equal in strength to that of one and one-half (1 1/2) by one and one-half (1 1/2) by three-sixteenths (3/16) inch angle iron. If made of wood, the posts shall be two by four (2 X 4) inches or larger. The upper rail shall be two by four (2 X 4) inches, or two one by four (1 X 4) strips, one at the top and one at the side of posts. The midrail may be one by four (1 X 4) inches or more. Where panels are fitted with expanded metal or wire mesh the middle rails may be omitted. Where guard is exposed to contact with moving equipment, additional strength may be necessary.

1910.219(o)(5)(iii) Toeboards shall be four (4) inches or more in height, of wood, metal, or of metal grill not exceeding one (1) inch mesh.

1910.219(e)(1)(i) Where both runs of horizontal belts are seven (7) feet or less from the floor level, the guard shall extend to at least fifteen (15) inches above the belt or to a standard height, except that where both runs of a horizontal belt are 42 inches or less from the floor, the belt shall be fully enclosed in accordance with paragraphs (m) and (o) of this section.





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TOPIC 4: Machinery and Machine Guarding

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Topic 5:


Personal Protective Equipment and Clothing

[29 CFR 1910, Subpart I]


- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** I
- **Subpart Title:** Personal Protective Equipment




Hearing Protection




Eye Protection



Head Protection



Respiratory Protection



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TOPIC 5: Personal Protective Equipment

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USDA Forest Service
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Personal Protective Equipment

General requirements [1910.132]

Re-sealable plastic storage bag for cleaned items

1910.132(a) Application. Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

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TOPIC 5: Personal Protective Equipment

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Topic 6:

Medical and First Aid

[29 CFR 1910, Subpart K]



- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** K
- **Subpart Title:** Medical and First Aid

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TOPIC 6: Medical and First Aid

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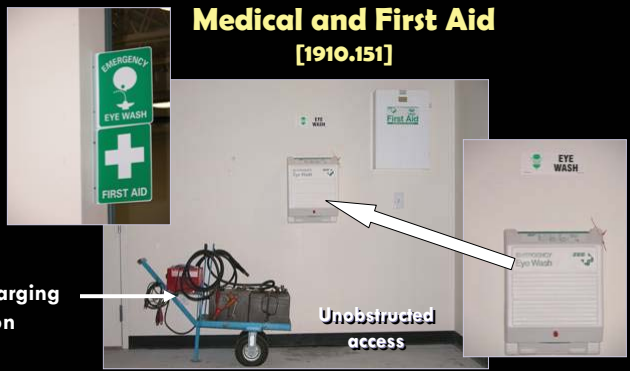



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Medical and First Aid

[1910.151]




Battery charging station

Unobstructed access



Portable eyewash unit

1910.151(c) Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.




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Topic 7:

Electrical

[29 CFR 1910, Subpart S]



- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** S
- **Subpart Title:** Electrical







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OSHA Compliance Training Guide





General Requirements


Examination, installation, and use of equipment [1910.303(b)]

1910.303(b)(1)(i) Suitability for installation and use in conformity with the provisions of this subpart. Suitability of equipment for an identified purpose may be evidenced by listing or labeling for that identified purpose.

1910.303(b)(1)(ii) Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection thus provided.



1910.303(b)(1) Examination. Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees. Safety of equipment shall be determined using the following considerations: [see 1910.303(b)(1)(i)-(ii)]



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OSHA Compliance Training Guide

General Requirements


Examination, installation, and use of equipment [1910.303(b)]

Equipment is "labeled" if there is a label, symbol, or other identifying mark of a nationally recognized testing laboratory, such as Underwriters Laboratories (UL) attached to it



Electrical equipment used in wet environments shall be labeled

1910.303(b)(2) Installation and use. Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling.



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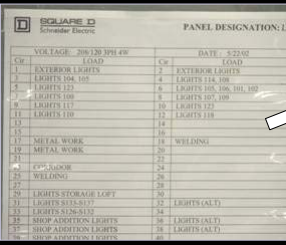

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
General Requirements



General requirements [1910.303]

1910.303(f) Identification of disconnecting means and circuits. Each disconnecting means required by this subpart for motors and appliances shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident. Each service, feeder, and branch circuit, at its disconnecting means or over current device, shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident. These markings shall be of sufficient durability to withstand the environment involved.



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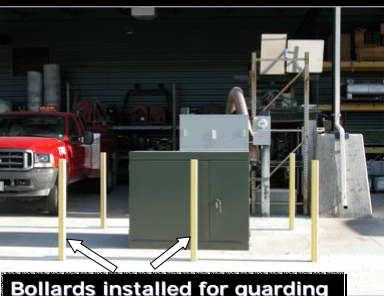
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
General Requirements



600 Volts, nominal, or less [1910.303(g)]

1910.303(g) (1) (ii) Clear spaces. Working space required by this subpart may not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, shall be suitably guarded.



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General Requirements

600 Volts, nominal, or less [1910.303(g)]




1910.303(g)(2)(i)(A) By location in a room, vault, or similar enclosure that is accessible only to qualified persons.

1910.303(g)(2)(i)(B) By suitable permanent, substantial partitions or screens so arranged that only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens shall be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.

1910.303(g)(2)(i)(C) By location on a suitable balcony, gallery, or platform so elevated and arranged as to exclude unqualified persons.

1910.303(g)(2)(i)(D) By elevation of 8 feet or more above the floor or other working surface.

1910.303(g)(2)(i) Except as required or permitted elsewhere in this subpart, live parts of electric equipment operating at 50 volts or more shall be guarded against accidental contact by approved cabinets or other forms of approved enclosures, or by any of the following means: [see 1910.303(g)(2)(i)(A-D)]



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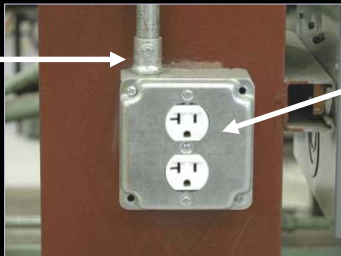
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OSHA Compliance Training Guide





Wiring Methods, Components, and Equipment for General Use

Cabinets, boxes, and fittings [1910.305(b)]



1910.305(b)(2) Covers and canopies. All pull boxes, junction boxes, and fittings shall be provided with covers approved for the purpose. If metal covers are used they shall be grounded. In completed installations each outlet box shall have a cover, faceplate, or fixture canopy. Covers of outlet boxes having holes through which flexible cord pendants pass shall be provided with bushings designed for the purpose or shall have smooth, well-rounded surfaces on which the cords may bear.



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Wiring Methods, Components, and Equipment for General Use

Flexible cords and cables [1910.305(g)]


1910.305(g)(1)(i) Flexible cords and cables shall be approved and suitable for conditions of use and location. Flexible cords and cables shall be used only for:

- 1910.305(g)(1)(i)(A) Pendants;
- 1910.305(g)(1)(i)(B) Wiring of fixtures;
- 1910.305(g)(1)(i)(C) Connection of portable lamps or appliances;
- 1910.305(g)(1)(i)(D) Elevator cables;
- 1910.305(g)(1)(i)(E) Wiring of cranes and hoists;
- 1910.305(g)(1)(i)(F) Connection of stationary equipment to facilitate their frequent interchange;
- 1910.305(g)(1)(i)(G) Prevention of the transmission of noise or vibration;
- 1910.305(g)(1)(i)(H) Appliances where the fastening means and mechanical connections are designed to permit removal for maintenance and repair; or
- 1910.305(g)(1)(i)(I) Data processing cables approved as a part of the data processing system.



1910.305(g)(1)(iii) Unless specifically permitted in paragraph (g)(1)(i) of this section, flexible cords and cables may not be used:

- 1910.305(g)(1)(iii)(A) As a substitute for the fixed wiring of a structure;
- 1910.305(g)(1)(iii)(B) Where run through holes in walls, ceilings, or floors;



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Wiring Methods, Components, and Equipment for General use


Flexible cords and cables [1910.305(g)]



1910.305(g)(1)(iii)(C) Where run through doorways, windows, or similar openings;

1910.305(g)(1)(iii)(D) Where attached to building surfaces; or

1910.305(g)(1)(iii)(E) Where concealed behind building walls, ceilings, or floors.



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Wiring Methods, Components, and Equipment for General Use





Flexible cords and cables [1910.305(g)]

Required strain relief



1910.305(g) (2) (iii) Flexible cords shall be connected to devices and fittings so that strain relief is provided which will prevent pull from being directly transmitted to joints or terminal screws.





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


Wiring Methods, Components, and Equipment for General Use

Cabinets, boxes, and fittings [1910.305(a)]



1910.305(a) (2) (iii) (F) Lamps for general illumination shall be protected from accidental contact or breakage. Protection shall be provided by elevation of at least 7 feet from normal working surface or by a suitable fixture or lampholder with a guard.





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TOPIC 7: Electrical

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Wiring Methods, Components, and Equipment for General Use

Lighting fixtures, lampholders, lamps, and receptacles [1910.305(j)(1)]




Required protective cover plates



Completely intact insulation on power cords and connectors

1910.305(j)(1)(i) Fixtures, lampholders, lamps, rosettes, and receptacles may have no live parts normally exposed to employee contact. However, rosettes and cleat-type lampholders and receptacles located at least 8 feet above the floor may have exposed parts.





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 TOPIC 7: Electrical



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Topic 8:




HAZARD COMMUNICATIONS

Toxic and Hazardous Substances

[29 CFR 1910, Subpart Z]

- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** Z
- **Subpart Title:** Toxic and Hazardous Substances




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 TOPIC 8: Toxic and Hazardous Substances

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Hazard Communications

Written hazard communication program [1910.1200(e)]

Regional Office

Hazard Communication


Program



Required contents:

- ✓ **1910.1200(f)** Labels and other forms of warning
- ✓ **1910.1200(g)** Material safety data sheets
- ✓ **1910.1200(h)** Employee information and training

1910.1200(e)(1) Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met, and which also includes the following:



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TOPIC 8: Toxic and Hazardous Substances

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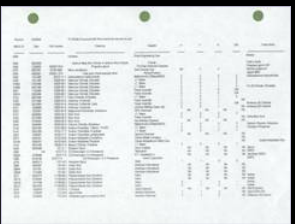
OSHA Compliance Training Guide


Hazard Communications

Written hazard communication program [1910.1200(e)]





1910.1200(e)(1)(i) A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas);



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TOPIC 8: Toxic and Hazardous Substances

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Hazard Communications

Labels and other forms of warning [1910.1200(f)]

Required identity of the hazardous chemical

Required appropriate hazard warning

1910.1200(f)(5)(i) Identity of the hazardous chemical(s) contained therein;
 1910.1200(f)(5)(ii) Appropriate hazard warnings, or alternatively, words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

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TOPIC 8: Toxic and Hazardous Substances

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Hazard Communications

Material safety data sheets [1910.1200(g)]

— or —

1910.1200(g)(1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet in the workplace for each hazardous chemical which they use.


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TOPIC 8: Toxic and Hazardous Substances



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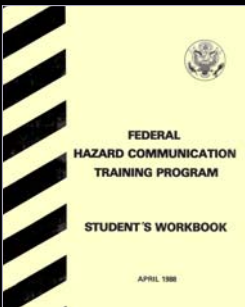


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

Hazard Communications

Employee information and training [1910.1200(h)]



1910.1200(h)
 "Employee information and training."




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TOPIC 8: Toxic and Hazardous Substances



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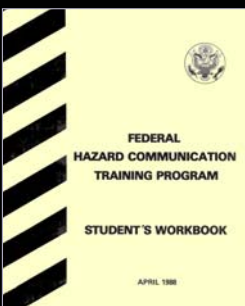


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

Hazard Communications

Employee information and training [1910.1200(h)]



1910.1200(h) (1) Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and material safety data sheets.



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TOPIC 8: Toxic and Hazardous Substances

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Hazard Communications

Employee information and training [1910.1200(h)]

1910.1200(h)(2)(i) The requirements of this section;

1910.1200(h)(2)(ii) Any operations in their work area where hazardous chemicals are present; and,

1910.1200(h)(2)(iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.

1910.1200(h)(2) "Information." Employees shall be informed of: [\[see 1910.1200\(h\)\(2\)\(i-iii\)\]](#)

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TOPIC 8: Toxic and Hazardous Substances

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Hazard Communications

Employee information and training [1910.1200(h)]

1910.1200(h)(3)(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

1910.1200(h)(3)(ii) The physical and health hazards of the chemicals in the work area;

1910.1200(h)(3)(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

1910.1200(h)(3)(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.


1910.1200(h)(3) "Training." Employee training shall include at least: [\[see 1910.1200\(h\)\(3\)\(i-iv\)\]](#)



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TOPIC 8: Toxic and Hazardous Substances


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





Topic 9:






OSHA

General Duty Clause
(Miscellaneous)






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Identify (Tag) and Remove All Hazards











(front) (back)



OSHA Act of 1970 [or 29 CFR1960.8(a)]

Section 5. (a) Each employer —



(1) shall furnish to each of his employees employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;


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Help us improve this presentation





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