

IDAHO ADMINISTRATIVE BULLETIN

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August 7, 1996

Volume 96-8

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IDAPA 17 - INDUSTRIAL COMMISSION
17.10.12 GENERAL SAFETY AND HEALTH STANDARDS
- SANITATION, VENTILATION, AND ILLUMINATION

DOCKET NO. 17-1012-9601

NOTICE OF PROPOSED RULES

AUTHORITY: In compliance with Section 67-5221(1), Idaho Code, notice is hereby given that this agency has proposed rule-making. The action is authorized pursuant to §72-508 and §§72-720, 721, 722, and 723, Idaho Code.

PUBLIC HEARING SCHEDULE: Public hearing(s) concerning this rule-making will be scheduled if requested in writing by twenty-five (25) persons, a political subdivision, or an agency, not later than August 28, 1996. The hearing site(s) will be accessible to persons with disabilities. Requests for accommodation must be made not later than five (5) days prior to the hearing, to Patricia S. Ramey, Secretary, Industrial Commission, P. O. Box 83720, Boise, ID 83720-0041. Telephone and fax numbers are listed below.

DESCRIPTIVE SUMMARY: The following is a statement in nontechnical language of the substance of the proposed rule:

The Industrial Commission, in cooperation with the Division of Building Safety, proposes the adoption of rules to replace IDAPA 17.04.01, General Safety and Health Standards Code 1, which is being repealed in its entirety. The proposed rules update the state's minimum safety and health standards dealing with sanitation, ventilation, and illumination for the public sector and bring them into line with generally accepted safety and health standards in the private sector.

ASSISTANCE ON TECHNICAL QUESTIONS, SUBMISSION OF WRITTEN COMMENTS: For assistance on technical questions concerning these proposed rules, contact Mike Poulin, Bureau of Logging and Industrial Safety, at (208) 334-2129.

Anyone may submit written comments regarding this rule. All written comments and data concerning the rule must be directed to the undersigned and must be postmarked or delivered on or before August 28, 1996.

DATED this 3rd day of June, 1996.

Patricia S. Ramey, Commission Secretary
Industrial Commission
P. O. Box 83720
Boise, Idaho 83720-0041
Telephone: (208) 334-6000
Fax: (208) 334-5145

TEXT OF DOCKET NO. 17-1012-9601

IDAPA 17
TITLE 10
Chapter 12

17.10.12 - GENERAL SAFETY AND HEALTH STANDARDS -
SANITATION, VENTILATION AND ILLUMINATION

000. LEGAL AUTHORITY.

These rules presented in IDAPA 17, Title 10, are promulgated pursuant to the authority granted the Industrial Commission by Sections 72-508, 72-720, 72-721, 72-722, and 72-723, Idaho Code ()

001. TITLE AND SCOPE.

These rules shall be cited as IDAPA 17, Title 10, Chapter 12, General Safety and Health Standards -- Sanitation, Ventilation and Illumination. For purposes of IDAPA 17, Title 10, these rules shall be applicable to places of public employment, as defined in Sections 72-205 and 72-207, Idaho Code, by the State of Idaho and its political subdivisions i.e. counties, cities, public school districts, and other taxing entities as follows: ()

01. State. Every person in the service of the state or of any political subdivision thereof, under any contract of hire, express or implied, and every official or officer thereof, whether elected or appointed, while performing his official duties. ()

02. County. Every person in the service of a county, city, or any political subdivision thereof, or of any municipal corporation. ()

03. National Guard. Members of the Idaho National Guard while on duty. ()

04. Youth Conservation. Participants in Idaho youth conservation project under the supervision of the Idaho State Forester. ()

05. City. Every person who is a member of volunteer fire, police department, or ambulance service shall be deemed to be in the employment of the political subdivision or municipality where the department is organized. ()

06. Civil Defense. Every person who is a regularly enrolled volunteer member or trainee of the Department of Disaster and Civil Defense, or of a civil defense corps, shall be deemed to be in the employment of the state. ()

07. Public School. Every person who is employed by a public school or school district shall be deemed to be in the employment of the state. ()

002. WRITTEN INTERPRETATIONS.

For purposes of IDAPA 17, Title 10, there are no written statements which pertain to the interpretation of these rules. ()

003. ADMINISTRATIVE APPEALS.

For purposes of IDAPA 17, Title 10, there are no provisions for administrative appeal of these rules. The procedure for appeals in safety matters is prescribed by Sections 72-722 and 72-714 through 72-718, Idaho Code. ()

004. -- 079. (RESERVED).

080. SANITATION, VENTILATION AND ILLUMINATION.

01. Scope: This section includes and applies to all places of employment. Measures for the control of toxic materials are considered to be outside the scope of this section. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section: ()

a. Lavatory is a basin or a similar vessel used exclusively for washing of the hands, arms, face and head. ()

b. Near-by means that the facility is within two (2) to three (3) minutes by available transportation and that prior arrangements have been made for the use of these facilities. ()

c. Nonwater carriage toilet facility is a toilet facility not connected to a sewer. ()

d. Number of employees, unless otherwise specified, is the maximum number of employees present at any one (1) time on a regular shift. ()

e. Personal service room is a room used for activities not directly connected with the production or service function performed by the establishment. Such activities include but are not limited to, first aid, medical services, dressing, showering, toilet use, washing, and eating. ()

f. Potable water is water which meets the quality standards prescribed in the U. S. Public Health Service Drinking Standards, published in 42 CFR Part 72 or water which is approved for drinking purposes by the State or local authority having jurisdiction. ()

g. Toilet facility is a fixture maintained within a toilet room for the purpose of defecation or urination, or both. ()

h. Toilet room is a room maintained within or on the premises of any place of employment containing toilet facilities for use by employees or the public. ()

i. Toxic material is a material in concentration or amount which exceeds the applicable limit established by a standard, or, in the absence of an applicable standard, which is of such toxicity so as to constitute a recognized hazard that is causing or is likely to cause death or serious physical harm. ()

j. Urinal is a toilet facility maintained within a toilet room for the sole purpose of urination. ()

k. Water closet is a toilet maintained within a toilet room or stall for the purpose of both defecation and urination and which is flushed with water. ()

l. Wet process is any process or operation in a workroom which normally results in surfaces upon which employees may walk or stand becoming wet. ()

03. General Requirements. ()

04. Sanitation. ()

a. Rules and regulations of the State Board of Health Governing Sanitation of Places of Work shall be complied with by every employer and shall be enforced as provided for by statute law. ()

05. Potable Water Supply. ()

a. An adequate and convenient water supply, approved by the appropriate health authority, shall be provided for drinking, cooking, bathing, and laundry purposes ()

b. A water supply shall be deemed adequate if it is capable of delivering thirty-five (35) gallons per day at a peak rate of two and one-half (2-1/2) times the average hourly demand. ()

c. The distribution lines shall be capable of supplying water at normal operating pressures to all fixtures for simultaneous operation. ()

d. Potable water systems shall be equipped or constructed to prevent backflow or back siphonage of nonpotable water into the potable water system. ()

e. Potable water shall be provided in all places of employment for drinking, washing of the person, cooking, washing of foods, washing of cooking or eating utensils, washing of food preparation, processing premises, and personal service rooms. ()

f. Drinking fountain surfaces which become wet during fountain operation shall be constructed of materials impervious to water and not subject to oxidation. The nozzle of the fountain shall be at an angle and so located to prevent the return of water in the jet or bowl to the nozzle orifice. A guard shall be provided over the nozzle to prevent contact with the nozzle by the mouth or nose of persons using the drinking fountain. The drain from the bowl of the fountain shall not have a direct physical connection with a waste pipe, unless it is trapped. ()

g. Potable drinking water dispensers shall be designed, constructed, and serviced so that sanitary conditions are maintained, shall be capable of being closed, and shall be equipped with a tap and disposable cups. ()

h. Ice in contact with drinking water shall be made of potable water and maintained in a sanitary condition. ()

i. Open containers such as barrels, pails, or tanks for drinking water from which the water must be dipped or poured, whether or not they are fitted with a cover, are prohibited. ()

j. A common drinking cup and other common utensils are prohibited. ()

k. Where single service cups (to be used but once) are supplied, both, a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided. ()

l. Drinking water shall be made available within two-hundred (200) feet of any location at which employees are engaged in work. ()

06. Nonpotable Water. ()

a. Outlets for nonpotable water, such as water for industrial or fire fighting purposes shall be posted with a standard Bio Hazard Sign stating "nonpotable water" in a manner that will indicate clearly that the water is unsafe and is not to be used for drinking, washing of the person, cooking, washing of food, washing of cooking or eating utensils, washing of food preparation, processing premises, personal service rooms, or for washing clothes. ()

b. Construction of nonpotable water systems carrying any other nonpotable substance shall be such as to prevent backflow or back siphonage into a potable water system. ()

c. Nonpotable water shall not be used for washing any portion of the person, cooking or eating utensils, or clothing. Nonpotable water may be used for cleaning work premises, other than food processing and preparation, and personal service rooms, provided, that this nonpotable water does not contain concentrations of chemicals, fecal coliform, or other substances which could create unsanitary conditions or be harmful to employees. ()

07. Toilet Facilities. ()

a. Except as otherwise indicated in this section, toilet facilities, in toilet rooms separate for each sex, shall be provided in all places of employment in accordance with Table 080.06-A. The number of facilities to be provided for each sex shall be based on the number of employees of that sex for whom the facilities are furnished. Where toilet rooms will be occupied by no more than one (1) person at a time and can be locked from the inside, separate toilet rooms for each sex need not be provided. Where such single-occupancy rooms have more than one (1) toilet facility only one (1) such facility in each toilet room shall be counted for the purpose to Table 080.07-A. ()

b. Where toilet facilities will not be used by women, urinals may be provided instead of water closets in such cases shall not be reduced to less than two-thirds (2/3) of the minimum specified. ()

TABLE 080.07-A	
NUMBER OF EMPLOYEES	MINIMUM NUMBER OF WATER CLOSETS
1 to 15	1
16 to 35	2
36 to 55	3

TABLE 080.07-A	
NUMBER OF EMPLOYEES	MINIMUM NUMBER OF WATER CLOSETS
56 to 80	4
81 to 110	5
111 to 150	6
Over 150	One additional fixture for each 40 additional employees

()

c. The requirements of Subsection 080.07.a. and Table 080.07-A of this standard do not apply to mobile crews or to normally unattended work locations so long as employees working at these locations have transportation immediately available to nearby toilet facilities which meet the other requirements of this section.

()

d. Mobile crews and normally unattended work locations shall utilize privies, chemical toilets, recirculating toilets, combustion toilets, or portable toilets when toilet facilities are not available and where not otherwise prohibited and meeting the requirements of this code.

()

e. The sewage disposal method shall not endanger the health of employees or the public.

()

f. When persons other than employees are permitted the use of toilet facilities on the premise, the number of such facilities shall be appropriately increased in accordance with Table 080.07-A of this section in determining the minimum number of toilet facilities required.

()

g. Toilet paper with holder shall be provided for every water closet, privy, chemical toilet, recirculating toilet, combustion toilet, or portable toilet.

()

h. Covered receptacles shall be kept in all toilet rooms used by women.

()

i. For each three (3) required toilet facilities at least one (1) lavatory shall be located either in the toilet room or adjacent thereto. Where only one (1) or two (2) toilet facilities are provided at least one (1) lavatory so located shall be provided.

()

08. Construction of Toilet Rooms.

()

a. Each water closet shall occupy a separate compartment with a door and walls or partitions between fixtures sufficiently high to assure privacy.

()

b. The floors, walls, ceilings, partitions, and doors of all toilet rooms shall be of a finish that can be easily cleaned. In installations made on or after August 31, 1980, cove bases shall be provided to facilitate cleaning.

()

c. Every water carriage toilet facility shall be set entirely free and open from all enclosing structures and shall be so installed that the space around the facility can be easily cleaned. This provision does not prohibit the use of wall-hung-type water closets or urinals.

()

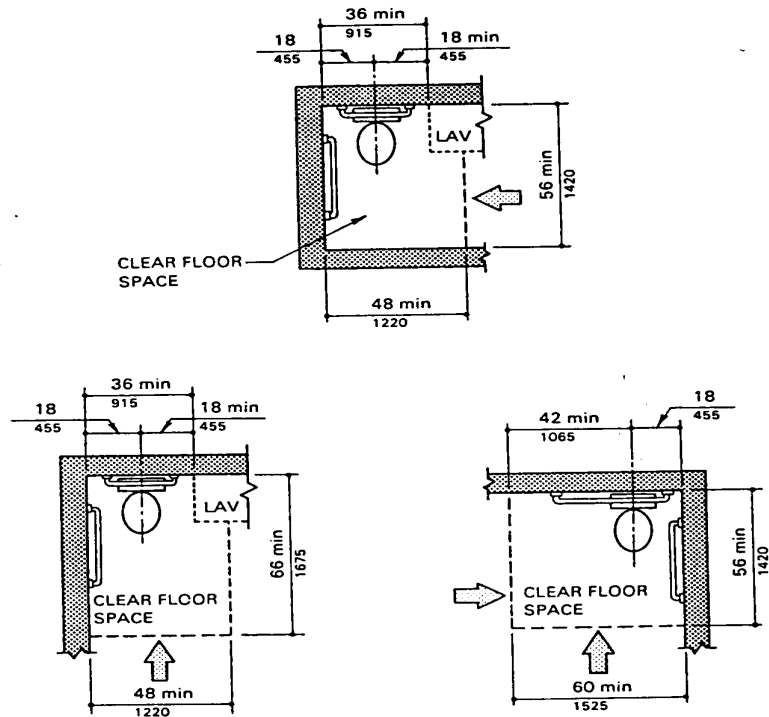
d. Every water closet shall have a hinged seat made of substantial material having a nonabsorbent finish.

()

e. When provided, water closets not in stalls for the physically challenged shall comply with Figure 080.08-A. The clear floor space may be arranged to allow either a left-handed or right-handed approach.

()

FIGURE 080.08-A



f. When provided, water closets in stalls for the physically challenged shall comply with Figure 080.08-B. Toilet stalls with a minimum depth of fifty-six (56)-inches shall have wall mounted water closets. If the depth of a standard toilet stall is increased at least three (3)-inches, then a floor mounted water closet may be used. Arrangements shown for standard stalls for the physically challenged may be reversed to allow either a left-handed or right-handed approach. See Figure 080.08-C EXCEPTION: In instances of existing facilities or alteration work where the arrangement of a standard stall for the physically challenged is technically infeasible or where code requirements prevent combining existing stalls to provide space, either alternate stall may be provided in lieu of the standard stall for the physically challenged. ()

FIGURE 080.08-B

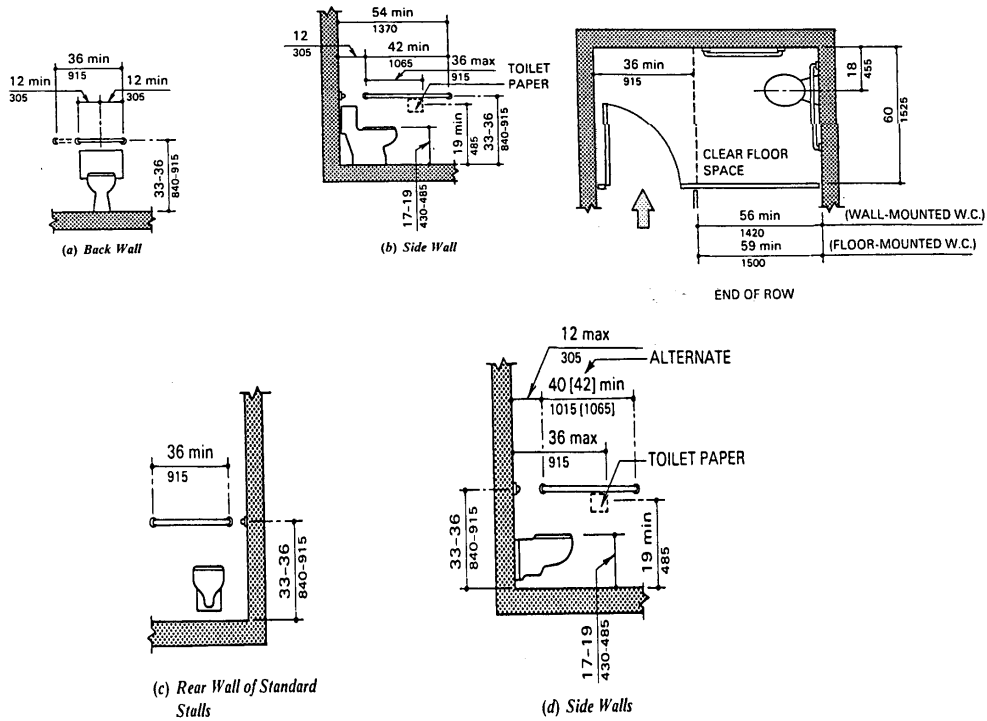


FIGURE 080.08-C

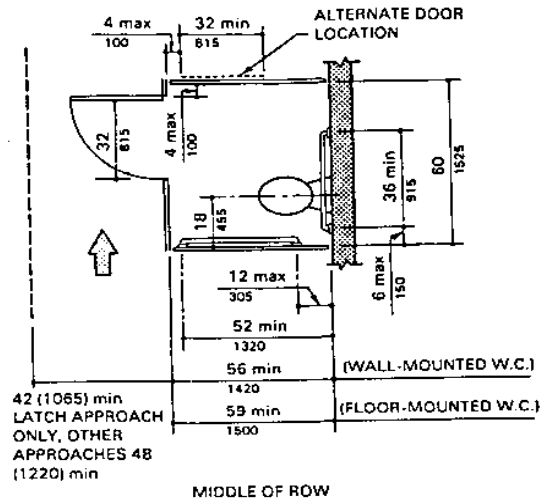
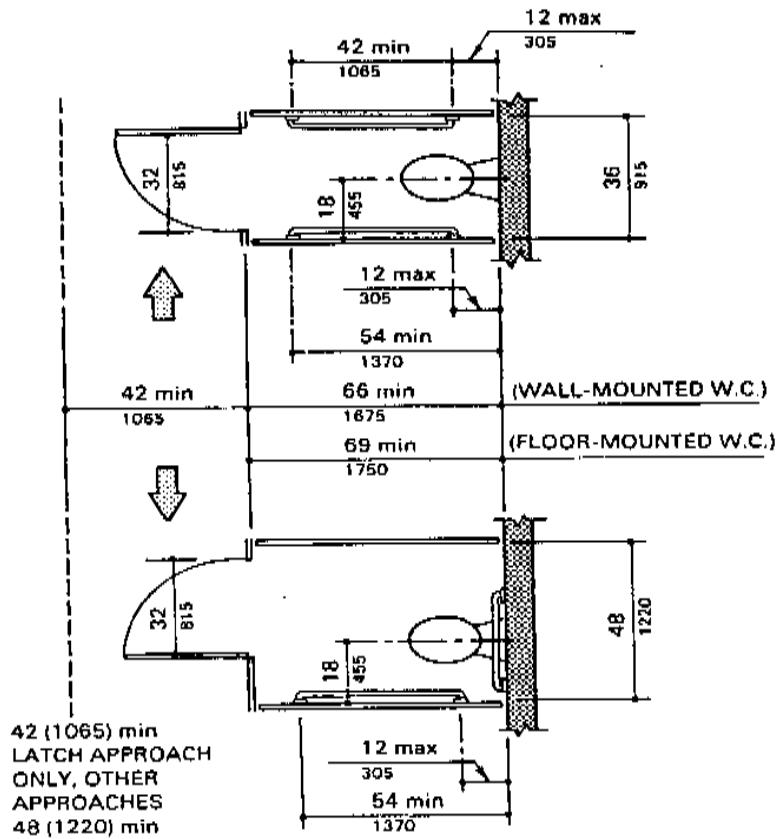
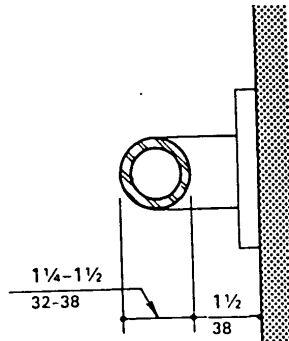


FIGURE 080.08-D



g. When provided, water closets in stalls for the physically challenged shall have grab bars that comply with Figure 080.08-F. Toilet stall grab bars shall have a gripping surface of one and one-quarter (1 1/4) to one and one-half (1 1/2)-inches in diameter. Grab bars shall be one and one-half (1 1/2)-inches from the wall. The structural strength of a grab bar and fastenings shall withstand a maximum bending moment of two-hundred fifty (250)-foot pounds, a shear stress two-hundred fifty (250)-foot pounds and with stand a shear force of two-hundred fifty (250)-foot pounds. Grab bars shall not rotate within their fittings. A grab bar and any wall or other surface adjacent to it shall be free of any sharp or abrasive elements. ()

FIGURE 080.08-F



09. Nonwater Carriage Toilet Facilities and Disposal Systems. ()

a. Waste disposal systems described in Subsections 10 through 15 below may be used only where not prohibited by codes and regulations of local authorities, and where water closets are not feasible due either to the lack of an adequate water supply or to the location or temporary nature of the operation requiring the nonwater carriage toilet facility. ()

b. The number of nonwater carriage toilet facilities required shall be as specified in Table 080.09-A. ()

TABLE 080.09-A	
Number of Employees	Minimum Number of Facilities
20 or less	1
20 or more	1 toilet seat & 1 urinal*
200 or more	1 toilet seat & 1 urinal**
* per every 40 employees	
** per every 50 employees	

c. When provided, nonwater carriage toilet facilities that are to be used by the physically challenged shall meet the minimum requirements of Subsections 080.08.e., f., and g. ()

10. Privy Specifications. ()

a. Privies constructed in conformity with this section may be used for the disposal of human excreta where their use will not contaminate ground or surface water because of privy location, type of soil, or ground water table. ()

b. A privy pit shall be separated by a minimum distance of one-hundred (100)-feet between the privy and a well, spring, or other source of water supply for drinking, bathing, laundry, or culinary purposes. ()

c. At no time shall the pit bottom of a privy extended into ground water nor shall it be constructed within one-hundred (100)-feet of the shoreline of any open body of water or stream. Phreatic water such, as may be

found in surface soil at depths of ten (10)-feet or less, shall not be interpreted as ground water unless there is evidence of a positive directional flow. ()

d. The privy shall be so located and constructed that no surface water may enter the pit either as runoff or as flood water. ()

e. The pit shall be constructed of such material and in such a manner as to prevent rapid deterioration, provided adequate capacity, and facilitate maintenance in a satisfactory manner under ordinary conditions of usage. ()

f. The pit and seat area shall be vented by a flue or vent pipe having not less than seven (7)-square inches cross sectional area extending twelve (12)-inches above the roof, so as to provide a continuous escape of odors. ()

g. The pit shall provide a capacity of fifty (50)-cubic feet for each seat installed in the privy building. The vault within sixteen (16) inches of the surface grade shall not be counted as part of the fifty (50)-cubic foot capacity. ()

h. Pit cribbing shall fit firmly and be in uniform contact with the earth walls on all sides, and shall rise at least six (6)-inches above the original ground line and descend to the full depth of the pit. However, pit cribbing below the soil line may be omitted in rock formations. ()

i. An earth plateau shall be constructed level with the top of the pit cribbing, and extending horizontally for a distance of at least eighteen (18)-inches before sloping to the original ground level. ()

j. The privy building shall be firmly anchored, rigidly constructed, and free from hostile surface features, such as exposed nails, sharp edges, rough or broken boards, etc., and shall provide privacy and protection from the elements. ()

k. The building shall be ventilated by leaving a four (4)-inch opening at the top of all walls just beneath the roof. ()

l. The building shall be of fly-tight construction, doors shall be self closing, and vent and building openings shall be screened with sixteen (16)-mesh screen of durable material. ()

m. The seat shall be so constructed as to provided a minimum clear space of twenty-four (24)-inches between each seat in multiple unit installations, and shall provide twelve (12)-inches clear space from the seat opening to the side wall in single and multiple unites. ()

n. The seat riser shall have an inside clearance of not less than twenty-one (21)-inches from the front wall and not less than twenty-four (24)-inches from the rear wall of the privy building. ()

o. The seat top shall be not less than twelve (12)-inches nor more than sixteen (16)-inches above the floor. ()

p. The seat opening shall be covered with an attached, hinged toilet seat and lid, so constructed and installed that when closed it will limit access of insects, and which can be raised to allow sanitary use as a urinal. ()

q. The floor and riser shall be built of impervious material or tongue and grove lumber, and in a manner to deny access to insects. ()

r. Where electricity is available, lighting shall be provided with an intensity of not less than ten (10)-foot candles thirty (30)-inches above the floor. ()

s. A conveniently located receptacle or dispenser containing an adequate supply of toilet paper shall be provided for each seat in each privy building. ()

11. Chemical Toilet Specifications. ()
- a. Chemical toilets constructed in conformity with this section may be used in place of privies or where a privy is not permitted due to possible contamination of ground and surface water. ()
- b. Rooms, buildings, or shelters housing chemical toilets shall be of sound construction and easy to clean, and shall provide shelter and privacy. The toilet rooms shall be ventilated to the outside and adequately lighted. All openings shall be covered with sixteen (16)-mesh screen of durable material. ()
- c. Caustic receptacles shall be durable and corrosion proof, and provide a minimum capacity of one-hundred (100)-gallons per seat. ()
- d. The caustic receptacle charge per seat shall be a minimum of twenty-five (25)-pounds of caustic dissolved in ten (10)-gallons of water. ()
- e. The chemical shall be drained and receptacle recharged every six (6)-months of continuous use, or at the beginning of each season of operation when in intermittent use, or when three-quarters (3/4) full whichever occurs first. ()
- f. Each location in the building shall be provided with a conveniently located agitator. ()
- g. The receptacle shall be vented by a flue or vent pipe having not less than seven (7)-square inches cross sectional area and extending a minimum of twelve (12)-inches above the roof, so as to provide a continuous escape of odors. ()
- h. The receptacle shall be equipped with an access hole external to the toilet building, room, or shelter for cleaning and caustic removal purposes. The access hole shall be covered so as to prevent the escape of gases and odors. ()
- i. A conveniently located receptacle or dispenser containing an adequate supply of toilet paper shall be provided for each seat in each chemical toilet building. ()
12. Recirculating Toilet Specifications. ()
- a. Recirculating toilets constructed in conformity with this section may be used in place of privies or chemical toilets. ()
- b. Rooms, buildings, or shelters housing recirculating toilets shall be of sound construction and easy to clean, and shall provide shelter and privacy. The toilet rooms shall be vented to the outside and be adequately lighted. All openings shall be covered with sixteen (16) mesh screen of durable material. ()
- c. All materials, bowl, and fittings shall be corrosion resistant. ()
- d. Waste passages shall have smooth surfaces and be free of obstructions, recesses, or chambers that would permit fouling. ()
- e. Flushing shall be accomplished by a single control so arranged as to be operated without special knowledge or effort. ()
- f. Recirculating toilets shall conform to "Self Contained, Electrically Operated Recirculating, Chemically Controlled Toilet," International Association of Plumbing and Mechanical Officials Trailer Standard TSC 12. ()
- g. The unit shall be maintained and cleaned, the water, filter, and chemicals shall be replaced in accordance with the instructions of the manufacturer. ()

h. A conveniently located receptacle or dispenser containing an adequate supply of toilet paper shall be provided for each seat in each recirculating toilet building. ()

13. Combustion Toilet Specifications. ()

a. Combustion toilets constructed in conformity with this section may be used in place of privies, chemical toilets, or recirculating toilets. ()

b. Rooms, buildings, or shelters housing combustion toilets shall be of sound construction and easy to clean, and shall provide shelter and privacy. The toilet rooms shall be ventilated to the outside and adequately lighted. All openings shall be covered with sixteen (16) mesh screen of durable material. ()

c. All external surfaces, including bowl and hopper, shall be easy to clean. ()

d. The residue must be sterile and inert. ()

e. The flue effluents shall be free of bacteria. ()

f. The combustion system and all fuel and electrical parts shall be safe and in compliance with the "National Electrical Code" and the "American National Standards Institute Standard C 1." ()

g. A conveniently located receptacle or dispenser containing an adequate supply of toilet paper shall be provided for each seat in each combustion toilet building. ()

14. Portable Toilet Specifications. ()

a. Portable toilets constructed in conformity with this section may be used for temporary or mobile installations. ()

b. Portable toilets may be chemical, recirculating, or combustion toilets designed for installation in or as an integral part of a skid or wheel mounted portable privy building, or in a separate toilet room, or as a portable privy designed for installation over a manhole of a sanitary or a combined wastewater sewer system. No portable toilet shall discharge into a storm sewer. ()

c. A portable toilet may comprise of the seat and its treatment unit to be installed in a structure, or it may comprise of an entire prefabricated, skid or wheel mounted, or otherwise portable structure containing a seat or treatment units with a seat. ()

d. No pit, tank, or other subsurface structure shall be constructed as part of a portable toilet. ()

e. Portable privies shall be installed over a pit conforming to the requirements for pits in paragraph 706e above or a manhole that is part of a sanitary or combined wastewater system. ()

f. A portable toilet building shall be rigidly constructed, ventilated by a sixteen (16) mesh screen of durable material-covered opening or a vent having an area of at least one (1) square foot per seat, and equipped with a floor, riser, and seat meeting the requirements of paragraph 706e -xiii through -xvi, or an equivalent individual stool and seat in prefabricated metal, fiber glass, plastic, or ceramic material. ()

g. The structure shall provide privacy and protection from the elements. ()

h. An air tight seal shall be provided between the structure base and any pit, receptacle, or manhole over which it is placed. ()

i. The pit, receptacle, manhole, and seat area shall be vented by a flue or vent pipe having not less than seven (7)-square inches cross sectional area extending twelve (12) inches above the roof, so as to provide a continuous escape of odors. ()

j. The portable toilet shall be provided with facilities, requisite to its construction, for the removal of chemicals, ash, or residue. All surfaces subject to soiling shall be readily accessible and easily cleaned. ()

k. A conveniently located receptacle or dispenser containing an adequate supply of toilet paper shall be provided for each seat in each combustion toilet building. ()

15. Seepage Pit Construction Specifications. ()

a. Seepage pits constructed in conformity with this section may be used for the disposal of wastewater from culinary activity, temporary bathing facilities, and clothes washing facilities where there are no available wastewater carriage systems and where their use will not contaminate ground or surface water because of seepage pit location, type of soil, or ground water table. ()

b. A seepage pit shall be separated by a minimum distance of one-hundred (100) feet between the pit and a well, spring, or other source of water supply for drinking, bathing, laundry, or culinary purposes. ()

c. At no time shall the bottom of a seepage pit extended into ground water nor shall it be constructed within one-hundred (100) feet of the shoreline of any open body of water or stream. Phreatic water such, as may be found in surface soil at depths of ten (10) feet or less, shall not be interpreted as ground water unless there is evidence of a positive directional flow. ()

d. The seepage pit shall be so located and constructed that no surface water may enter the pit either as runoff or as flood water. ()

e. The seepage pit shall be constructed of such material and in such a manner as to prevent rapid deterioration, provided adequate capacity, and facilitate maintenance in a satisfactory manner under ordinary conditions of usage. ()

f. Seepage pit cribbing shall fit firmly and be in uniform contact with the earth walls on all sides, and shall rise at least six (6) inches above the original ground line and descend to the full depth of the pit. However, pit cribbing below the soil line may be omitted in rock formations. ()

g. The seepage pit may be filled with stone or rubble of not less than a nominal one (1) inch diameter. ()

h. Seepage pits shall be of such dimensions as to provide at least ten (10) square feet per person served by the facility, or such greater area as may be required by the health agency having jurisdiction. ()

i. Temporary piping connections from sinks or shower platforms shall comply with the provisions of the Uniform Plumbing Code. ()

j. The platform covering the seepage pit shall be built of impervious materials and in such a manner to exclude insects. ()

k. The seepage pit platform shall be provided with an opening at least one (1) foot in each dimension and have a rim at least one (1) inch above the floor to prevent precipitation from accumulating on the platform floor. ()

l. The seepage pit platform opening shall be covered with a self closing lid, so constructed that it can be easily opened by foot or hand, and so installed that when closed it will exclude insects and fit closely over the raised rim of the opening. ()

16. Washing Facilities. ()

a. Facilities for maintaining personal cleanliness shall be provided in every place of employment pursuant to the provisions of this section. These shall be convenient for the employees for whom they are provided and shall be maintained in a sanitary condition. ()

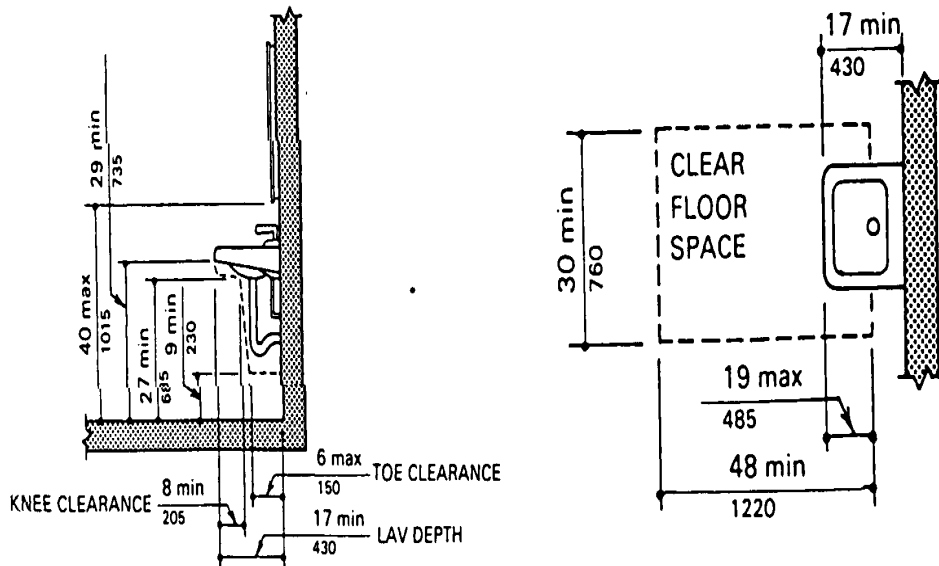
b. Lavatories shall be made available in all places of employment in accordance with the requirements for lavatories as set forth in Table 080.16-A. In a multiple-use lavatory, twenty-four (24) lineal inches of wash sink or twenty (20) inches of a circular basin, when provided with water outlets for each space, shall be considered equivalent to one (1) lavatory. The requirements of this subsection do not apply to mobile crews or to normally unattended work locations if employees working at these locations have transportation readily available to nearby washing facilities which meet the other requirements of this section. ()

TABLE 080.16-A		
Type of employment	Number of employees	Minimum number of lavatories
Nonindustrial: office buildings public buildings and similar establishments	1 to 15	1
	16 to 35	2
	36 to 60	3
	61 to 90	4
	91 to 125	5
	Over 125	1 additional fixture for each additional 45 employees.
Industrial: factories warehouses, loft buildings and similar establishments	1 to 100	1 fixture for each 10 employees.
	Over 125	1 fixture for each additional 15 employees.

- ()
- c. Each lavatory shall be provided with hot and cold running water, or tepid running water. ()
- d. Hand soap or similar cleansing agents shall be provided in the lavatory area. ()
- e. Individual hand towels or sections thereof, of cloth or paper, warm air blowers, or clean individual sections of continuous cloth toweling, convenient to the lavatories, shall be provided in the lavatory area. ()
- f. Receptacles shall be provided for disposal of used towels in the lavatory area. ()
- g. Warm air blowers, in the lavatory area, shall provide air at not less than ninety (90) degrees Fahrenheit and shall have means to automatically prevent the discharge of air exceeding one-hundred forty (140) degrees Fahrenheit. ()
- h. Electrical components of lavatory warm air blowers shall meet the requirements of the National Electrical Code. ()
- i. Mobile crews and normally unattended work locations, where water or near-by washing facilities are not available, may utilize nonwater antibacterial cleaning materials or cleansing agents. ()
- j. When provided, lavatories for the physically challenged shall comply with Figure 080.16-A. lavatory fixtures, vanities, and built in lavatories shall be mounted with the rim or counter surface no higher than thirty-four (34) inches above the finish floor and shall provide a clearance of at least twenty-nine (29)-inches above the finish floor to the bottom of the apron. A clear floor space of thirty (30)-inches by forty-eight (48)-inches and complying with Figure 080.16-A shall be provided in front of a lavatory to allow forward approach. Such clear floor space shall adjoin or overlap an accessible route and shall extend a maximum of nineteen (19)-inches underneath the lavatory. Exposed hot water and drain pipes under lavatories shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories. Faucets and other controls shall be

operable with one (1) hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than five (5) foot pounds. ()

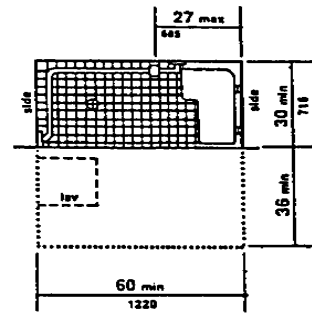
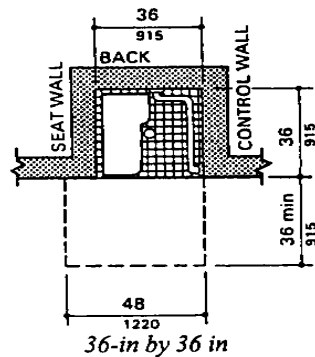
FIGURE 080.16-A



17. Showers. ()
- a. Whenever showers are required by a particular section of this standard, by another code, regulation, or standard, the showers provided shall be in accordance with this section. ()
- b. One (1) shower shall be provided for each ten (10) employees of each sex or numerical fraction thereof, who are required to shower during the same shift. ()
- c. Body soap or other appropriate cleansing agents convenient to the showers shall be provided. ()
- d. Showers shall be provided with hot and cold water feeding a common discharge line. ()
- e. Employees who use showers shall be provided with individual clean towels. ()
- f. When provided, showers for the physically challenged shall comply with Figures 080.17-A. and 080.17-B. The shower stall size and clear floor space shall be a minimum of thirty-six (36)-inches by thirty-six (36)-inches. Sleeping rooms and suits alternatively may be provided with a shower stall that will fit into the space required for a bathtub. A seat shall be provided in thirty-six (36)-inch by thirty-six (36)-inch shower stalls and shall be as shown in Figure 080.17-A. The seat shall be mounted seventeen (17)-inches to nineteen (19)-inches from the finish shower stall floor and shall be extended the full depth of the stall. In a thirty-six (36)-inch by thirty-six (36)-inch shower stall, the seat shall be on the wall opposite the controls. Where a fixed seat is provided in a thirty (30)-inch by sixty (60)-inch minimum shower stall, it shall be a folding type and shall be mounted on the wall adjacent to the controls as in Figure 080.17-A. The structural strength of seats and their attachments shall withstand a maximum bending moment of two-hundred fifty (250)-foot pounds, a shear stress two-hundred fifty (250)-foot pounds and withstand a shear force of two-hundred fifty (250)-foot pounds. Grab bars complying with Subsection 080.08. and

Figure 080.08-F shall be provided and located as in Figure 080.17-B. Faucets and other controls shall be as in Figure 080.17-B and shall be operable with one (1) hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than five (5)-foot pounds. A shower spray unit with a hose at least sixty (60)-inches long that can be used as a fixed shower head and as a hand held shower shall be provided. EXCEPTION: In unmonitored facilities where vandalism is a consideration, a fixed shower head mounted forty-eight (48)-inches above the finished shower floor may be used in lieu of a hand held shower head. If provided, curbs in shower stalls thirty-six (36)-inches by thirty-six (36)-inches shall be no higher than one-half (1/2)-inch. Shower stalls that are thirty (30)-inches by sixty (60)-inches shall not have curbs. If provided, enclosures for shower stalls shall not obstruct controls or obstruct transfer from wheelchairs onto shower seats. ()

FIGURE 080.17-A



Roll-in Shower with Folding Seat

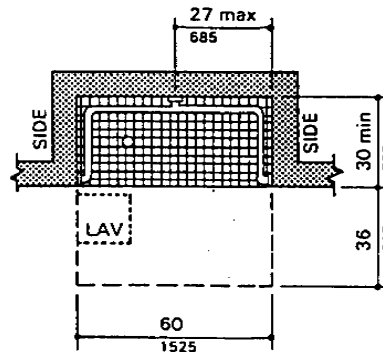
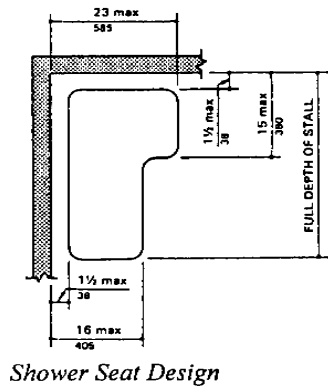
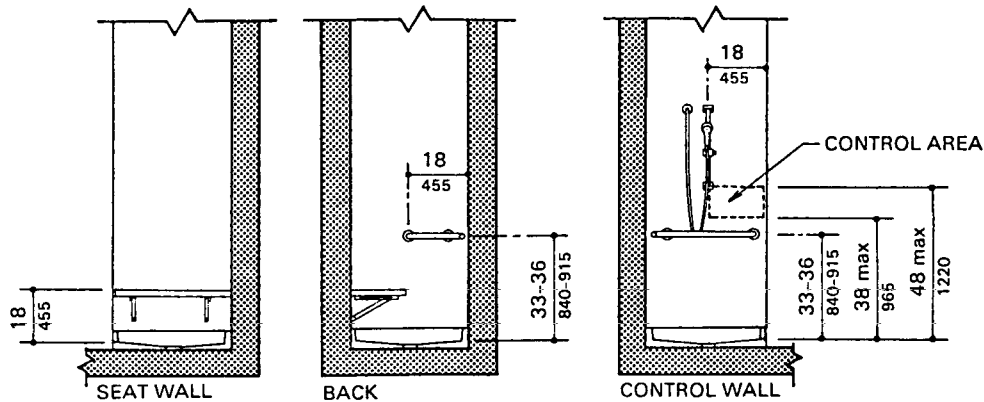
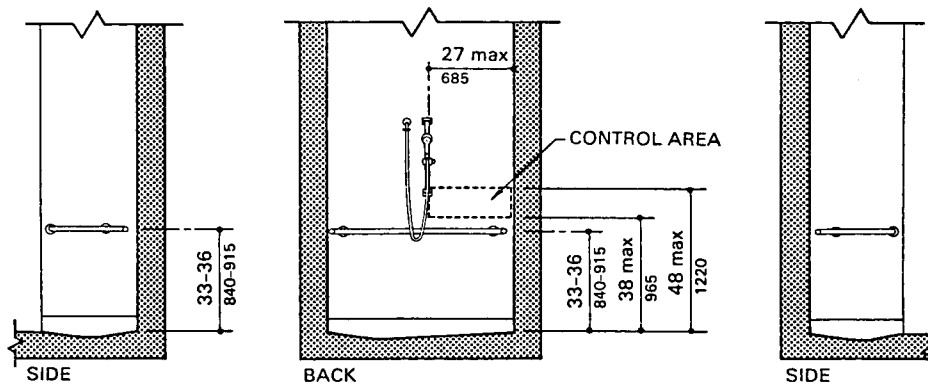


FIGURE 080.17-B



36-in by 36-in

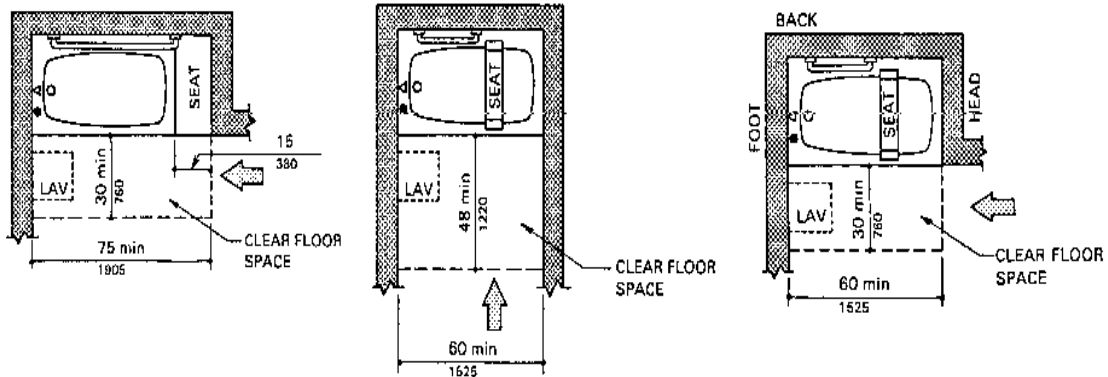


30-in by 60-in

18. Bathtubs. ()

a. When provided, bathtubs for the physically challenged shall comply with Figures 080.18-A and 080.18-B. Clear floor space in front of bathtubs shall be as shown in Figure 080.18-A. An in tub seat or a seat at the head end of the tub shall be provided as shown in Figures 080.18-A and 080.18-B. The structural strength of seats and their attachments shall withstand a maximum bending moment of two-hundred fifty (250)-foot pounds, a shear stress two hundred fifty (250)-foot pounds and withstand a shear force of two-hundred fifty (250)-foot pounds. Grab bars complying with Subsection 080.08. and Figure 080.08-F shall be provided and located as in Figure 080.18-B. Faucets and other controls shall be as in Figure 080.18-B and shall be operable with one (1) hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than five (5)-foot pounds. A shower spray unit with a hose at least sixty (60)-inches long that can be used as a fixed shower head and as a hand held shower shall be provided. If provided bathtub enclosures shall not obstruct controls or transfer from wheelchairs onto bathtub seats or into tubs. Enclosures on bathtubs shall not have tracks mounted on their rims. ()

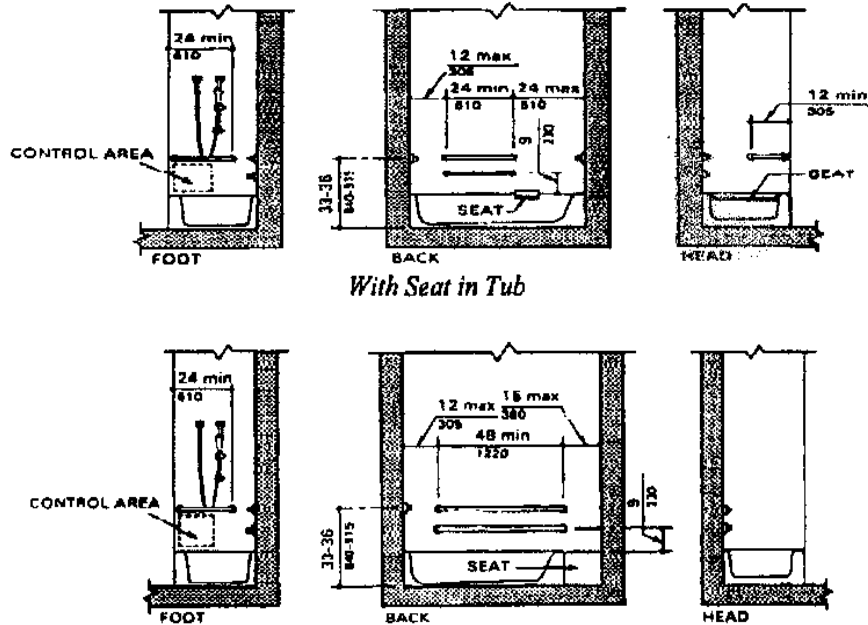
FIGURE 080.18-A



With Seat at Head of Tub

With Seat in Tub

FIGURE 080.18-B



With Seat in Tub

With Seat at Head of Tub

Grab Bars at Bathtubs

19. Change Rooms. ()

a. Whenever employees are required by this or other standards to wear protective clothing because of the possibility of contamination with toxic biological and nonbiological materials, change rooms equipped with

storage facilities for street clothes and separate storage facilities for the protective clothing shall be provided. ()

b. Where working clothes are provided by the employer and become wet or are washed between shifts, provisions shall be made to insure that such clothing is dry before reuse. ()

20. Consumption of Food and Beverages on the Premises. ()

a. No employee shall be allowed to prepare or consume food or beverages in a toilet room nor in any area exposed to a toxic material. ()

b. In every establishment where there is exposure to injurious dusts or other toxic materials, a separate lunch room shall be maintained unless it is convenient for the employees to lunch away from the premises. ()

c. Receptacles, constructed of smooth, corrosion resistant, easily cleanable, or disposable materials, shall be provided and used for the disposal of waste food. The number, size and location of such receptacles shall encourage their use and not result in overfilling. They shall be emptied not less frequently than once each working day, unless unused, and shall be maintained in a clean and sanitary condition. Receptacles shall be provided with a solid tight fitting cover unless sanitary conditions can be maintained without use of a cover. ()

d. No food or beverages shall be stored in toilet rooms or in an area exposed to a toxic material. Food and beverages and nonfood items shall not be stored in the same refrigerators or freezers. ()

e. All employee food service facilities and operations shall be carried out in accordance with regulations and Standards for Food Service Establishments. In all places of employment where all or part of the food service is provided, the food dispensed shall be wholesome, free from spoilage, and shall be processed, prepared, handled, and stored in such a manner as to be protected against contamination. ()

21. Waste Disposal. ()

a. Any receptacle used for putrescible solid or liquid waste or refuse shall be so constructed that it does not leak and shall be thoroughly cleaned and maintained in a sanitary condition. Such a receptacle shall be equipped with a solid tight-fitting cover, unless it can be maintained in a sanitary condition without a cover. This requirement does not prohibit the use of receptacles which are designed to permit the maintenance of a sanitary condition without regard to the aforementioned requirements. ()

b. All sweepings, solid or liquid wastes, refuse, and garbage shall be removed in such a manner as to avoid creating a menace to health and as often as necessary or appropriate to maintain the place of employment in a sanitary condition. ()

22. Vermin Control. ()

a. Every facility, building, or structure shall be so constructed, equipped and maintained so as to restrict the entrance or harborage of rodents, insects and other vermin. A continuing and effective extermination program shall be instituted where their presence is detected. ()

23. Ventilation. ()

a. Ventilation shall be adequately provided for in all building and structures customarily used by human beings. Either natural ventilation or mechanically operated ventilating systems shall be utilized. In areas where toxic and noxious and/or objectionable fumes are present, ventilation shall be to the outside of the building. ()

b. In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (such as, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic material). ()

c. Acceptable Indoor Air Quality is a function of many parameters including outdoor air quality, the design of the enclosed spaces, the design of the ventilation system, the way this system is operated and maintained, and the presence of sources of contaminants and the strength of such sources. For specific contaminants and requirements refer to Table 080.23-A. ()

TABLE 080.23-A		
ACCEPTABLE LEVELS FOR INDOOR AIR QUALITY		
Temperature	73 - 79 degrees Fahrenheit	*1
Humidity	20 - 60 percent	
Oxygen	19.6 - 21 percent	*2
Carbon Monoxide	35 ppm per hour	*3
		9 ppm per hour*4
Carbon Dioxide	1000 ppm	*5
Formaldehyde	.5 ppm per hour	*3
Particulates	10 ug/cu m per hour	*3
Ozone	.1 ppm per hour	*3
Sulfur Dioxide	2 ppm per hour	*3
<p>NOTES:</p> <p>*1 Operative temperatures for 80% thermal acceptability.</p> <p>*2 Levels of 19.5% or less require the use of air-line or self-contained respirators. Levels above 21% increase the chance of fire or explosion.</p> <p>*3 Based on an 8 hour time weighted exposure.</p> <p>*4 Based on a 24 hour continuous exposure.</p> <p>*5 Carbon dioxide concentration is used as an indicator of indoor air quality. Concentrations of over 1000 ppm indicate inadequate ventilation and poor indoor air quality.</p>		

()

d. Ventilation systems shall be designed and installed so that the ventilation air is supplied through the occupied areas. ()

e. When the supply of air is reduced during times the area is occupied provisions shall be made to maintain acceptable indoor air quality throughout the occupied area. ()

f. Ventilating systems shall be designed and maintained to prevent reentry of exhaust contaminants, condensation or freeze-ups, and growth of microorganisms. ()

g. Makeup air outlets shall be located to avoid contamination of the makeup air. Contaminants from sources such as cooling towers, sanitary vents, vehicular exhaust from parking garages, loading docks, and street traffic shall be avoided. ()

h. Where soils contain concentrations of Radon, ventilation of crawlspaces, basements, or underground ductwork shall be accomplished. ()

i. Indoor air shall not contain contaminants that exceed concentrations known to impair health or ()

cause discomfort to the occupants. Such contaminants include various gases, vapors, microorganisms, smoke, and other particulate matter. For specific levels refer to Table 080.23-A and 29 CFR 1910 Tables Z-1-A, Z-2, and Z-3. ()

j. For proper ventilation in specific occupancies, refer to Table 080.23-B. ()

TABLE 080.23-B		
OUTSIDE AIR REQUIREMENTS FOR VENTILATION		
Application	Estimated Maximum Occupancy per 1000 sf	Outside Air Requirements cfm/person
Laundry	10	25
Laundry Storage	30	35
Coin Operated Laundry	20	15
Dining Rooms	70	20
Cafeteria, Fast Food	100	20
Kitchens	20	15
Garages, Repair Shops, Service Stations, Parking Garages		
Bedrooms		
Living Rooms		
Baths		
Lobbies	30	15
Conference Rooms	50	20
Assembly Rooms	120	15
Dormitory Sleeping Areas	20	15
Office Areas	7	20
Reception Areas	60	15
Telecommunication Centers, Data Entry Areas	60	20
Corridors, Utilities Public Restrooms Locker/ Dressing Rooms	50	
Smoking Lounge	70	60
Elevators		
Retail Stores		
Street Level	30	
Basement	30	
Upper Floors	20	
Storage Rooms	15	

TABLE 080.23-B		
OUTSIDE AIR REQUIREMENTS FOR VENTILATION		
Shipping & Receiving	10	
Warehouses	5	
Sports/Amusement Spectator Area	150	15
Game Rooms	70	25
Swimming Pools		
Gymnasium Playing Area	30	20
Ballrooms/Discos	100	25
Bowling Alley Seating Area	70	25
Theater Auditorium	150	15
Theater Lobbies	150	20
Ticket Booths	60	20
Stages	70	15
Studios	70	15
Workrooms	10	15
Photo/TV Studios	10	15
Darkrooms	10	
Pharmacy	20	15
Vaults	5	15
Printing/Duplicating Areas		
Classrooms	50	15
Laboratories	30	20
Training Shops	30	20
Music Rooms	50	15
Libraries	20	15
Patient Rooms	10	25
Medical Procedure Rooms	20	15
Operating Rooms	20	30
Recovery/ICU	20	15
Autopsy Rooms		
Physical Therapy	20	15
Jail/Prison Cells	20	20
Correctional Dining Halls	100	15
Guard Stations	40	15

TABLE 080.23-B	
OUTSIDE AIR REQUIREMENTS FOR VENTILATION	
NOTES:	
*1 Supplementary smoke removal equipment is required.	
*2 Makeup air for hood exhaust may require more ventilating air.	
*3 Running engines must incorporate systems for positive engine exhaust withdrawal. Contaminant sensors may be used to control ventilation.	
*4 Independent of room size.	
*5 Installed capacity for intermittent use.	
*6 Equipment may require local exhaust.	
*7 Cubic feet per minute for each water closet or urinal.	
*8 Mechanical exhaust with no recirculation.	
*9 Normally supplied by transfer air. For additional requirements see ANSI A-17.1 Safety Code For Elevators And Escalators.	
*10 Higher values may be required for humidity control.	
*11 Special ventilation will be needed to eliminate special stage effects.	
*12 Installed equipment must incorporate positive exhaust and control of undesirable contaminants.	
*13 Special contaminant control systems are required for processes or functions including laboratory animal occupancy.	
*14 Air shall not be recirculated into other spaces.	

()

k. Ventilation shall be required to remove carbon-monoxide fumes from any area within a building in which motor vehicles are being operated under their own power. Carbon-monoxide levels within a building or area thereof shall not exceed the TLV in Table 200.05-A of this Code. ()

24. Lighting and Illumination: . ()

a. Windows, skylights and light reflectors shall be maintained in reasonably clean condition, and work places shall be illuminated in accordance with the nature of the operation. See Tables 080.24-A and 080.24-B. ()

TABLE 080.24-A		
ILLUMINANCE VALUES		
Application	Footcandles	
	General	Task
Laundry	20 - 50	50 - 100
Dining Rooms	15 - 20	
Cafeteria, Fast Food	15 - 20	
Kitchens	50 - 100	
Garages, Repair Shops	10 - 20	50 - 100
Service Stations	10 - 20	50 - 100
Parking Garages	10 - 20	20 - 50

TABLE 080.24-A		
ILLUMINANCE VALUES		
Bedrooms	20 - 50	
Living Rooms	10 - 20	
Baths	20 - 50	
Lobbies	20 - 50	
Conference Rooms	20 - 50	
Assembly Rooms	10 - 20	
Dormitory Sleeping Areas	20 - 50	
Office Areas	20 - 50	50 - 100
Reception Areas	10 - 20	
Telecommunication Centers, Data Entry Areas	20 - 50	
Corridors, Utilities	10 - 20	
Public Restrooms	10 - 20	
Locker/Dressing Rooms	10 - 20	
Lounge	10 - 20	
Elevators	10 - 20	
Retail Stores	20 - 50	100 - 200
Storage Rooms	10 - 20	20 - 50
Shipping & Receiving	10 - 20	20 - 50
Warehouses	10 - 20	20 - 50
Sports/Amusement Spectator Area	10 - 20	
Game Rooms	20 - 50	
Swimming Pools	10 - 20	
Gymnasium Playing Area	20 - 50	
Ballrooms/Discos	5 - 10	
Bowling Alley	10 - 20	20 - 50
Theater Auditorium	5 - 20	
Theater Lobbies	10 - 20	
Ticket Booths	50 - 100	
Workrooms	20 - 50	50 - 1000
Pharmacy	50 - 100	100 - 200
Vaults	20 - 50	
Printing/Duplicating Areas	20 - 50	100 - 200

TABLE 080.24-A		
ILLUMINANCE VALUES		
Classrooms	20 - 200	
Laboratories	50 - 100	
Training Shops	20 - 50	50 - 1000
Music Rooms	20 - 200	
Libraries	20 - 50	50 - 100
Patient Rooms	5 - 10	20 - 50
Medical Procedure Rooms	20 - 50	50 - 200
Operating Rooms	50 - 100	100 - 200
Recovery/ICU	50 - 100	
Autopsy Rooms	50 - 100	200 - 500
Physical Therapy	20 - 50	
Jail/Prison Cells	20 - 50	
Correctional Dining Halls	20 - 50	
Guard Stations	20 - 50	
Court Rooms	10 - 20	50 - 100
Fire Halls	20 - 50	

TABLE 080.24-B	
LEVELS OF ILLUMINATION RECOMMENDED FOR SAMPLE OCCUPATIONAL TASKS	
Area	Foot-Candles
Assembly - rough, easy seeing	30
Assembly - medium	100
Building Construction - general	10
Electrical equipment, testing	100
Elevators	20
Garages - repair areas	100
Garages - traffic areas	20
Inspection, ordinary	50
Inspection, highly difficult	200
Loading platforms	20
Machine shops - medium work	100

TABLE 080.24-B	
LEVELS OF ILLUMINATION RECOMMENDED FOR SAMPLE OCCUPATIONAL TASKS	
Materials - loading, trucking	20
Offices - general areas	100
Drafting rooms - details	200
Corridors	20
Paint dipping, spraying	50
Service spaces - wash rooms, etc.	30
Sheet metal - presses, shears	50
Storage Rooms - inactive	5
Storage rooms - active, medium	20
Welding - general	50
Woodworking - rough sawing	30

081. -- 999. (RESERVED).

IDAPA 17 - INDUSTRIAL COMMISSION
17.10.15 - GENERAL SAFETY AND HEALTH STANDARDS-OCCUPANCIES
DOCKET NO. 17-1015-9601
NOTICE OF PROPOSED RULES

AUTHORITY: In compliance with Section 67-5221(1), Idaho Code, notice is hereby given that this agency has proposed rule-making. The action is authorized pursuant to §72-508 and §§72-720, 721, 722, and 723, Idaho Code.

PUBLIC HEARING SCHEDULE: Public hearing(s) concerning this rule-making will be scheduled if requested in writing by twenty-five (25) persons, a political subdivision, or an agency, not later than August 28, 1996. The hearing site(s) will be accessible to persons with disabilities. Requests for accommodation must be made not later than five (5) days prior to the hearing, to Patricia S. Ramey, Secretary, Industrial Commission, P. O. Box 83720, Boise, ID 83720-0041. Telephone and fax numbers are listed below.

DESCRIPTIVE SUMMARY: The following is a statement in nontechnical language of the substance of the proposed rule:

The Industrial Commission, in cooperation with the Division of Building Safety, proposes the adoption of rules to replace IDAPA 17.04.01, General Safety and Health Standards Code 1, which is being repealed in its entirety. The proposed rules update the state's minimum safety and health standards dealing with safety for specific occupancies for the public sector and bring them into line with generally accepted safety and health standards in the private sector.

ASSISTANCE ON TECHNICAL QUESTIONS, SUBMISSION OF WRITTEN COMMENTS: For assistance on technical questions concerning these proposed rules, contact Mike Poulin, Bureau of Logging and Industrial Safety, at (208) 334-2129.

Anyone may submit written comments regarding this rule. All written comments and data concerning the rule must be directed to the undersigned and must be postmarked or delivered on or before August 28, 1996.

DATED this 3rd day of June, 1996.

Patricia S. Ramey, Commission Secretary
Industrial Commission
P. O. Box 83720
Boise, Idaho 83720-0041
Telephone: (208) 334-6000
Fax: (208) 334-5145

TEXT OF DOCKET NO. 17-1015-9601

IDAPA 17
TITLE 10
Chapter 15

17.10.15 - GENERAL SAFETY AND HEALTH STANDARDS -- OCCUPANCIES

000. LEGAL AUTHORITY.

These rules presented in IDAPA 17, Title 10, are promulgated pursuant to the authority granted the Industrial Commission by Sections 72-508, 72-720, 72-721, 72-722, and 72-723, Idaho Code ()

001. TITLE AND SCOPE.

These rules shall be cited as IDAPA 17, Title 10, Chapter 15, General Safety and Health Standards -- Occupancies. For purposes of IDAPA 17, Title 10, these rules shall be applicable to places of public employment, as defined in Sections 72-205 and 72-207, Idaho Code, by the State of Idaho and its political subdivisions i.e. counties, cities,

public school districts, and other taxing entities as follows: ()

01. State. Every person in the service of the state or of any political subdivision thereof, under any contract of hire, express or implied, and every official or officer thereof, whether elected or appointed, while performing their official duties. ()

02. County/City. Every person in the service of a county, city, or any political subdivision thereof, or of any municipal corporation. ()

03. National Guard. Members of the Idaho National Guard while on duty. ()

04. Youth Conservation. Participants in Idaho youth conservation project under the supervision of the Idaho State Forester. ()

05. Volunteers. Every person who is a member of volunteer fire, police department, or ambulance service shall be deemed to be in the employment of the political subdivision or municipality where the department is organized. ()

06. Civil Defense. Every person who is a regularly enrolled volunteer member or trainee of the Department of Disaster and Civil Defense, or of a civil defense corps, shall be deemed to be in the employment of the state. ()

07. Public School. Every person who is in the service of a public school or school district shall be deemed to be in the employment of the state. ()

002. WRITTEN INTERPRETATIONS.

For purposes of IDAPA 17, Title 10, there are no written statements which pertain to the interpretation of these rules. ()

003. ADMINISTRATIVE APPEALS.

For purposes of IDAPA 17, Title 10, there are no provisions for administrative appeal of these rules. The procedure for appeals in safety matters is prescribed by Sections 72-722 and 72-714 through 72-718, Idaho Code. ()

004. -- 089. (RESERVED).

090. ASSEMBLY OCCUPANCIES.

01. Scope. Assembly occupancies shall conform to all other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section. ()

a. Assembly occupancy includes, but is not limited to; all facilities, buildings, structures or portions thereof used for the gathering together of fifty (50) or more persons for such purposes as deliberation, worship, education, instruction, civic/social functions, dining or drinking, entertainment, recreation, amusement, or awaiting transportation. ()

b. Exit is a continuous and unobstructed means of egress to a public way and shall include intervening aisles, doors, doorways, gates, corridors, exterior exit balconies, ramps, stairways, pressurized enclosures, horizontal exits, exit passageways, exit courts and yards. ()

c. Festival Seating is that form of audience/spectator accommodation in which no seating, other than a floor or ground surface, is provided for the audience/spectators gathered to observe some performance. ()

d. Fly Gallery is a raised floor above a stage from which the movement of scenery and operation of other stage effects are controlled. ()

e. Gridiron is the structural framing over a stage supporting equipment for hanging or flying scenery and other stage effects. ()

f. Pinrail is a rail on or above a stage through which belaying pins are inserted and to which lines are fastened. ()

g. Platform is a raised area within a building used for the presentation of music, plays, or other entertainment; the head tables for special guests; the raised area for lectures and speakers; boxing and wrestling rings; theater-in-the-round; and for similar purposes wherein there are no overhead drops, pieces of scenery, or stage effects other than lighting and a screening valances. ()

h. Proscenium Wall is the wall that separates the stage from the auditorium or house. ()

i. Stage is an area within a facility, building, or structure used entertainment or presentations, with a stage height of fifty (50) feet or less. Curtains, drops, scenery, lighting devices and other stage effects are hung and not retractable except for a single lighting bank; single main curtain, border and legs; and single backdrop, or other stage effects, which shall be classified as one (1) of the following: Legitimate Stage is a stage wherein curtains, drops, leg drops, scenery, lighting devices, or other stage effects are retractable horizontally or suspended overhead and the stage height is greater than fifty (50) feet; Regular Stage is a stage wherein scenery is not retractable. A valance or light trough, the main curtain, and a single backdrop can be retractable without the stage being considered a legitimate stage; Thrust Stage is a platform extending beyond the proscenium arch and into the audience. ()

03. General Requirements. ()

a. The main exit shall be of sufficient width to accommodate one-half (1/2) of the total occupant load but shall be not less than the total required width of all aisles, exit passageways and stairways leading thereto and shall connect to a stairway or ramp leading to a public way. ()

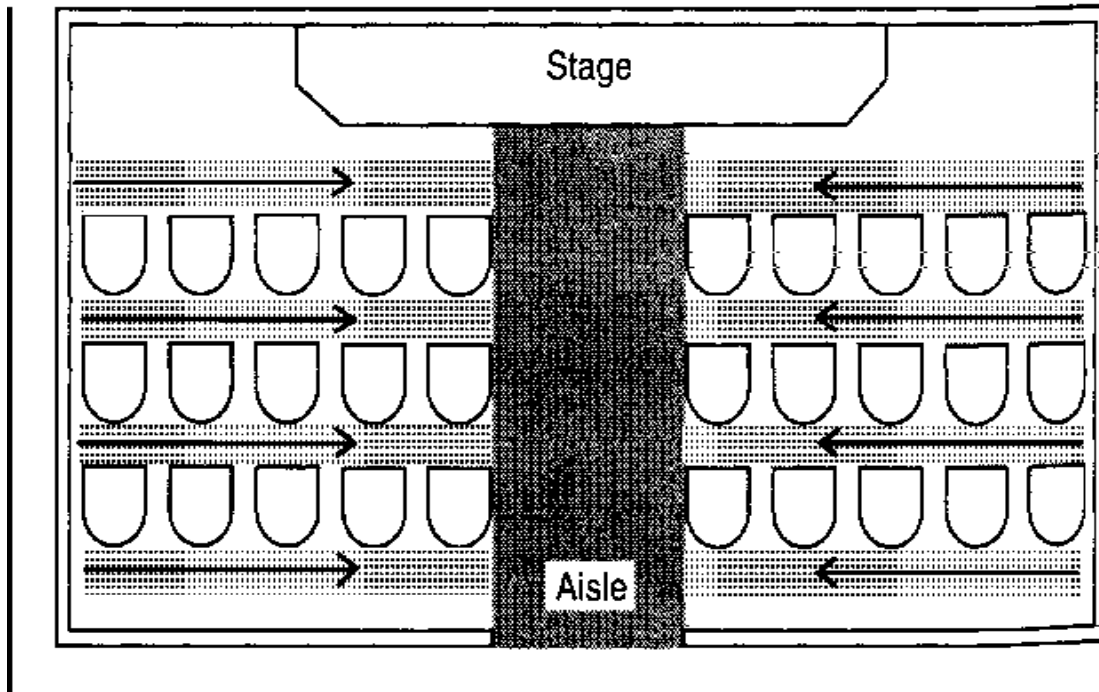
b. Balcony exits. Every balcony having an occupant load of ten (10) or more shall be provided with a minimum of two (2) exits. Balcony exits shall open directly to an exterior stairway or other approved stairway or ramp. When there is more than one (1) balcony, exits shall open into an exterior or enclosed stairway or ramp. Balcony exits shall be accessible from a cross aisle. ()

c. Access and egress routes shall be maintained so that any individual is able to move without obstruction, on personal initiative and at any time, from an occupied position to exits. ()

d. Access and egress routes shall be maintained so that crowded management, security, and emergency medical personnel shall be able to move without obstruction at any time to any individual. ()

e. Where aisle access ways or aisles converge to form a single path of egress travel, the required egress capacity of that path shall not be less than the combined capacity of the converging aisle access ways and aisles. See Figure 090.03-A. ()

FIGURE 090.03-A

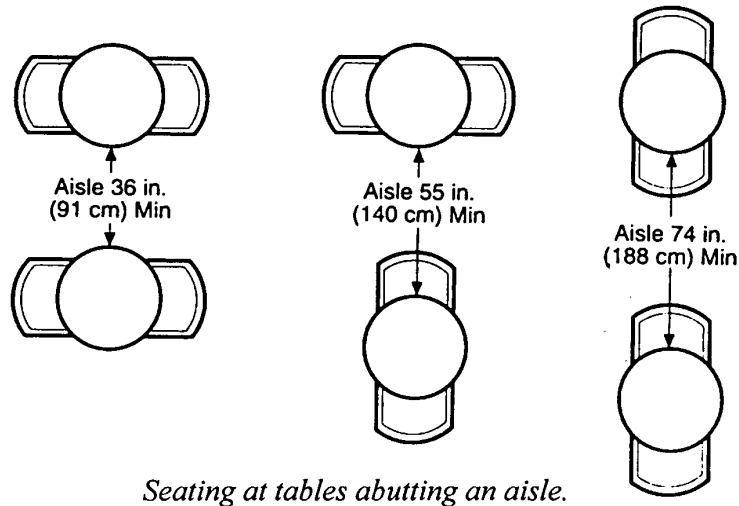


Aisle access way. The space between each row of chairs is an aisle access way. An aisle access way serves as the initial portion of the exit access and leads to an aisle as shown by the arrows.

f. Those portions of an aisle access way and aisles where egress is possible in either of two (2) directions shall be uniform in width but in no case shall be narrower than twelve (12) inches not including the seat space. ()

g. Where nonfixed seating is located between a table and an aisle access way or aisle, the measurement of required clear width of the aisle access way or aisle shall be made to a line nineteen (19) inches away from the edge of the table. The nineteen (19) inches shall be measured perpendicular to the edge of the table. Figure 090.03-B illustrates how aisles with movable chairs are to be measured. ()

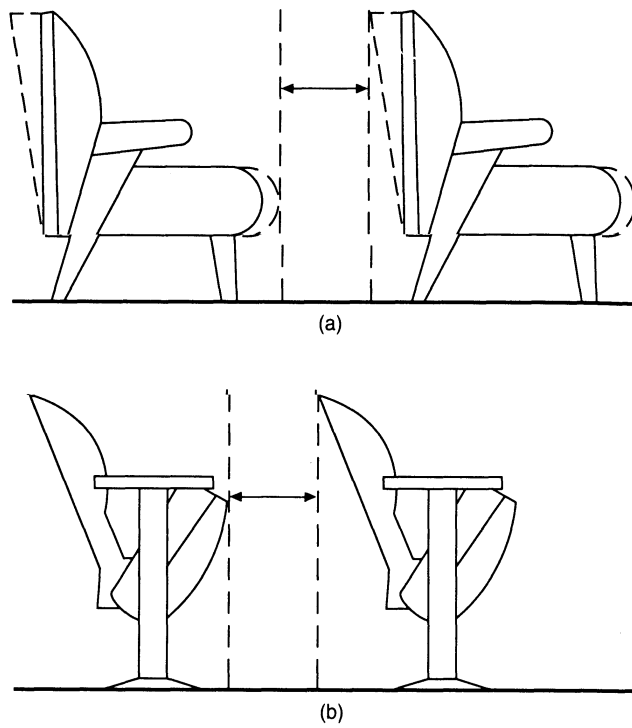
FIGURE 090.03-B



h. In the case of side boundaries other than non-fixed seating at tables, for aisle access ways or aisles, the clear width shall be measured to boundary elements such as walls, guardrails, handrails, edges of seating, tables, and side edges of treads, with the measurement made horizontally to the vertical projection of the elements resulting in the smallest width measured perpendicularly to the line of travel. ()

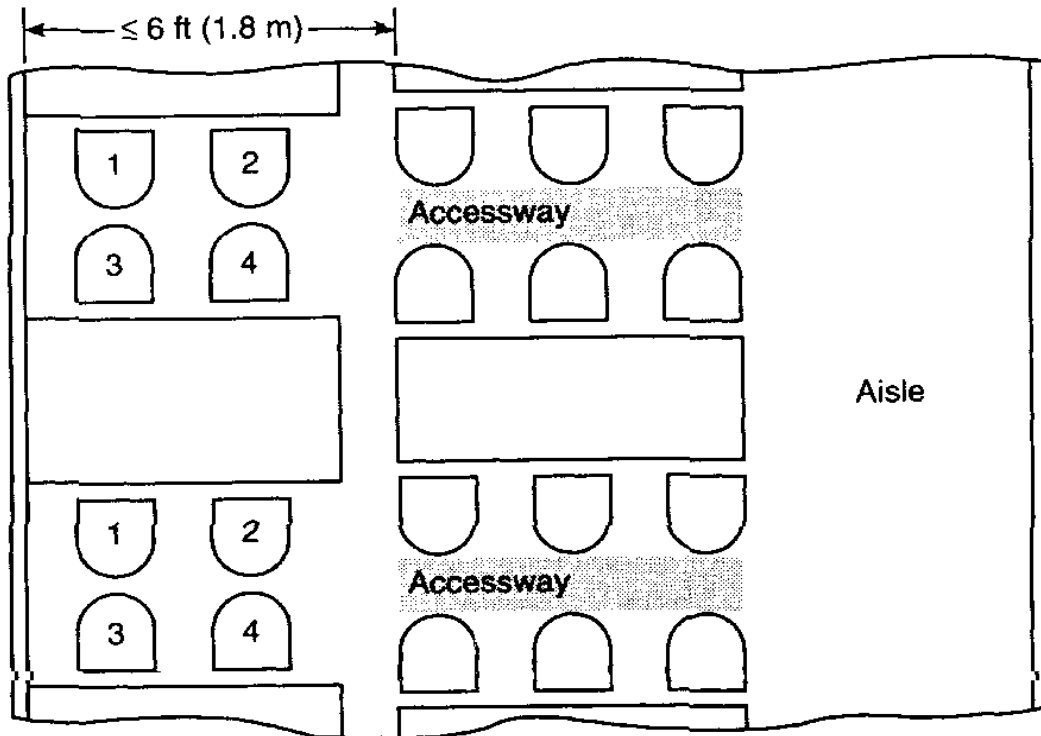
i. The aisle access way between rows of seating shall have a clear width of not less than twelve (12) inches, (see Figure 090.03-C) and this minimum width shall be increased as a function of row length. Rows of seating served by aisles or doorways at both ends shall have no more than one-hundred (100) seats per row. The twelve (12) inch minimum clear width of aisle access way between such rows shall be increased by zero point three (0.3) inch for every seat over a total fourteen (14) seats, but need not exceed twenty-two (22) inches of aisle width. EXCEPTION: If used by not more than four (4) persons, there is no minimum clear width requirement for the portion of the aisle access way having a length not exceeding six (6) feet measured from the center of the seat farthest from the aisle. See Figure 090.03-D. ()

FIGURE 090.03-C



Measuring the width of an aisle access way formed by rows of chairs. In Figure A, the seats are not self-rising. In Figure B, the seats are self-rising.

FIGURE 090.03-D



No minimum aisle access way width required for first six (6) ft. (1.8m) serving four (4) or fewer persons.

j. Rows of seating served by an aisle or doorway at only one (1) end shall have a distance to the point where the occupant has a choice of two (2) directions of travel to an exit not to exceed thirty (30) feet from the point where the occupant is seated. The minimum clear width of twelve (12) inches between rows shall be increased by point zero six (.06) inch for every seat beyond seven (7), but the minimum clear width need not exceed twenty-two (22) inches. ()

k. Where bleacher or grandstand seating without backs, rows of seats shall be spaced not less than twenty-two (22) inches back to back. ()

04. Panic Hardware. ()

a. Exit doors in an assembly occupancy shall not be provided with a latch or lock unless it is panic hardware. ()

b. Exception: Such occupancies as restaurants, bars, bowling alleys, auditoriums, and similar commercial uses, and in churches, panic hardware may be omitted from the main exit when the main exit consists of a single door or one (1) pair of doors. A locking device may be used in place of the panic hardware, provided there is a readily visible sign adjacent to the doorway stating, "THIS DOOR MUST REMAIN UNLOCKED DURING BUSINESS HOURS" and meets the requirements of Subsection 040.10.d. ()

05. Protection of Vertical Openings. ()

a. All interior stairways and other vertical openings shall be enclosed and protected as provided in

Section 040 and Section 072 of this standard. EXCEPTION: Stairs may be open between balconies and main assembly floors in theaters, churches, or auditoriums where the travel distance is within the allowable limits. ()

b. Grandstands, bleachers, folding and telescopic seating shall have standard guardrails meeting the requirements of Subsection 070.14.b where the seats are thirty (30) inches above the floor or grade. There shall not be any openings between the seat boards and foot boards that will allow the passage of a six (6) inch diameter sphere. The triangular opening formed by the seat face, floor board, and the standard guardrail shall be of a size that a sphere six (6) inches in diameter cannot pass through. See Figure 090.05-A and 090.05-B. ()

FIGURE 090-05-A

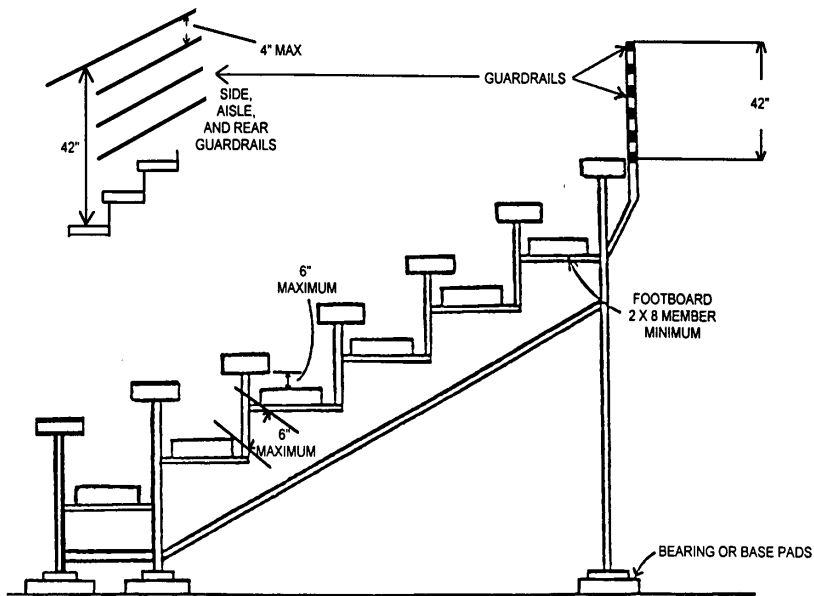
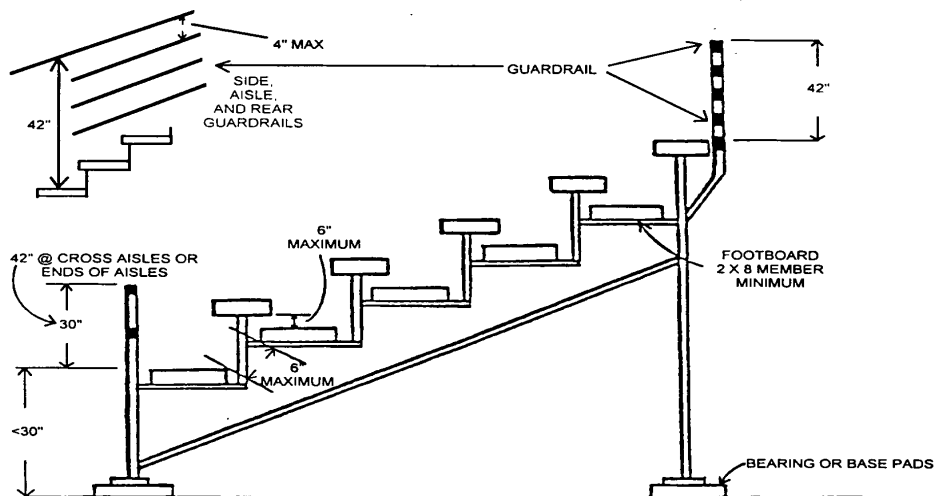


FIGURE 090.05-B



AISLES MAY BE OMITTED WHEN ALL OF THE FOLLOWING CONDITIONS EXIST:

1. SEATS ARE WITHOUT BACKRESTS.
2. THE RISE FROM ROW TO ROW DOES NOT EXCEED TWELVE (12) INCHES PER ROW.
3. THE NUMBER OF ROWS DOES NOT EXCEED 11 IN HEIGHT.
4. THE TOP SEAT BOARD IS NOT OVER ten (10) FEET ABOVE GRADE.
5. THE FIRST BOARD IS NOT MORE THAN TWENTY (20) INCHES ABOVE GRADE.

06. Protection From Hazards. ()
 - a. All exterior openings in a boiler room or room containing central heating equipment if located below openings in another story or if less than 10-feet from other doors or windows of the same building shall be protected by a fire assembly having a three-quarters (3/4) hour fire-protection rating. Such fire assemblies shall be fixed, automatic, or self-closing. Every room containing a boiler or central heating plant shall be separated from the rest of the building by not less than a one (1) hour fire-resistive occupancy separation. EXCEPTION: boilers or central heating plants where the largest piece of fuel equipment does not exceed four-hundred thousand (400,000) BTU per hour input. ()
 - b. The proscenium opening of every legitimate stage shall be protected by either an approved curtain, an automatic fixed water spray deluge system, or other approved means. ()
07. Emergency Lighting. All places of assembly and their means of egress shall be provided with emergency lighting in accordance with Section 042 of this standard. ()
08. Ventilation. Ventilation shall be provided in accordance with the provisions of this standard. ()
09. Exit Illumination. ()
 - a. Exits shall be illuminated at any time the building is occupied with light having intensity of not less than one (1) footcandle at floor level. EXCEPTION: In auditoriums, theaters, concert or opera halls, and similar assembly uses, the illumination at floor level may be reduced during performances to not less than zero point two (0.2) footcandle. ()
 - b. The power supply for exit illumination shall normally be provided by the premises' wiring system. In the event of its failure, illumination shall be automatically provided from an emergency system in assembly occupancies where the exiting system serves an occupant load of one-hundred (100) or more. ()
10. Fire Alarms. An approved fire alarm system shall be installed. ()

091. THEATER STAGE RIGGING AND MACHINERY

01. Scope. This section contains fundamental requirements essential to providing a safe work area. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. Theater operations shall comply to all other applicable requirements of this standard, as well as the following provisions. ()
02. Definitions Applicable to this Section. ()
 - a. Batten is a steel pipe or wooden bar used to support scenery, curtains, and lights. Usually suspended from the gridiron or roof structure. ()
 - b. Bridge is a movable steel structure suspended over a stage or audience area usually used for suspended lighting instruments. ()
 - c. Captured Stage Equipment is machinery, such as electro-mechanically or hydraulically driven wagons or turntables, that are part of the structure of the building or are contained in a temporary stage floor. ()
 - d. Catwalk is a steel structure over the stage and/or the audience area used by stage personnel to cross

- from one (1) side to the other. ()
- e. Controlled Stop is a timed deceleration of a moving device. ()
- f. Counterweights are a system of variable weights used to counterbalance loads placed on battens that are moved vertically. ()
- g. Counterweight Carriage is a metal frame that holds the counterweights used to balance the weight of flown scenery. Also referred to as the arbor, cradle, or carriage. ()
- h. Dead Hung is when battens or similar equipment is permanently supported from the rig and cannot be easily lowered to the stage floor. ()
- i. Fly is to move scenery or similar devices vertically on the stage. ()
- j. Fly Gallery is a platform attached to the side wall of the stage house used to operate the rigging devices. ()
- k. Fly Loft is the space above the persinium of the stage and below the grid. ()
- l. Grid, Gridiron is a steel framework above the stage area used to support the rigging system. ()
- m. Hard Contact is a sudden or uncontrolled stop of the counterweight carriage caused by hitting the upper or lower limits of the system. ()
- n. Head Block is the first sheave or pulley that is directly above the counterweight carriage or winch with the principal function of changing the direction of the lifting lines from vertical to horizontal. ()
- o. Hemp System is a system of non-stretching ropes used to support or raise and lower scenery. ()
- p. Loading Gallery Platform is a platform attached to the side walls of the stage house used for the loading or unloading of the counterweight carriages. ()
- q. Loft Block is the pulleys or sheaves directly above the batten used to change the direction of the working lines from the horizontal to the vertical. ()
- r. Motorized Rigging is a system of electric or hydraulic motors used to raise and lower battens or counterweight carriages. ()
- s. Pin Rail is a part of the hemp system consisting of a wooden rail or metal. Pipe attached to the fly gallery and fitted with removable steel or wooden pins used in the tying off of the working lines. ()
- t. Pit is a recessed area in front of the stage used principally by musicians. It can also be covered and used as an extended forestage. ()
- u. Rigging is the general term describing systems used to raise and lower or move stage equipment. ()
- v. A Line Set is a unit of rigging consisting of the batten and all other support cables, sheaves, and mountings. ()
- w. Spreader Plates are movable steel plates on a counterweight carriage/arbor used to keep the arbor rods from spreading and preventing the counterweights from falling out in case of a sudden stop. ()
- x. Stage House is that portion of a theater building containing the stage area, fly loft, grid, and galleries. ()

- y. Stage Supervisor is a person charged with the responsibility of directing the work of others and the safe operation of stage equipment. ()
- z. Sheave is a grooved wheel in a block or pulley. ()
- aa. Technical Stage Equipment is a general term indicating the equipment used on a stage to support the movement of scenery, lighting equipment, or people. ()
- bb. Traps are sections of the stage floor that can be removed to access the under stage area. ()
- cc. Turntable is a rotating platform or portion of the stage floor. ()
- dd. Winch is a manual or power operated device used to wind a wire rope to raise and lower stage equipment. ()
- ee. Wagon is a movable platform on casters or wheels. ()
- ff. Well is the space between the beams on the grid over which loft blocks are placed and that allow the working lines to drop to the batten. ()
03. General Requirements. ()
- a. Operation, maintenance, and repair work on stage equipment shall be done only by those persons having proper training and qualifications. ()
- b. Persons charged with the operation of stage equipment shall be thoroughly instructed as a minimum in the following: the operation and functioning of the equipment, the safe recommended use of the equipment, the necessary routine maintenance necessary for safe operation of stage equipment, the operation of all safety devices, possible dangers during normal operations as well as the increased danger potential during improper operation, and procedures for accidents and malfunctions. ()
- c. Warnings for a given piece or similar group of stage equipment shall be visibly mounted at the operation and/or control station. Such warnings shall be brief and concise. ()
- d. Where suspended scenery components are moved by guided hand-pulled ropes or wire ropes, the maximum pull weight of the components shall not exceed forty (40) pounds. Should this not be the case, the scenery component shall be balanced with a counterweight to bring the imbalanced to less than forty (40) pounds. EXCEPTION: During load-in and strike of scenery when proper precautions are taken. When using types of riggings that make it impossible to accomplish a maximum pull weight of less than seventy-five (75) pounds. ()
04. Equipment:. ()
- a. Stage equipment shall be installed, operated, and maintained according to the manufacturers recommendations. ()
- b. Stage equipment shall be inspected before use, after any alterations, and at regular intervals. These inspections shall be conducted by a person with training and knowledge in the field of stage rigging and stage machinery. ()
- c. Stage equipment found to have defects which may result in personal injury or property damage shall be declared unsafe and rendered inoperative until such time as the defects have been corrected. ()
- d. Buffering or shock absorbing devices, which reduce the hard contact between the counterweight carriage and the upper and the lower stops, shall be installed. ()
- e. The installed counterweights shall be secured against falling from the counterweight carriage

- during operation. ()
- f. Counterweights stored on the deck of the gallery/platform shall not exceed seventy-five percent (75%) of the total deck area. ()
- g. The area of the deck immediately in front of the counterweight carriages shall be kept clear at all times. ()
- h. Motorized counterweight systems shall have safeguards to prevent persons from accidentally reaching or walking into the path of the moving counterweight carriages. ()
- i. Spreader plates, top spacers, hold down plates, and related equipment shall be manufactured in such a way as to be safely secured until needed. Spreader plates shall be employed at all times. Each counterweight carriage shall have enough spreader plates to allow one (1) plate for every three (3) lineal feet of applied counterweight. Counterweight carriages shall be marked in such a way as to indicate the appropriate locations of spacer plates during loading process. ()
- j. The floor of the loading gallery or catwalk, and the bottom of the counterweight carriage at maximum high trim, shall allow for safe access at all times to the entire counterweight carriage. ()
- k. The flying system design and installation shall provide an alternate mechanism, other than the rope lock, to prevent counterweight carriage travel during loading and unloading operations. ()
- l. Manual rigging systems without a loading floor shall be provided with a capstan winch capable of raising or lowering a fully loaded out of balance counterweight carriage. ()
- m. Trim chains shall have a safety factor of eight (8) to one (1) and shall be attached to the lifting line or wire rope with use of appropriately sized thimbles and wire rope clamps or thimbles and Nicopress sleeves. For temporary attachment to a batten, one and one-half (1 1/2) wraps around are around the batten with the chain attached to itself with load rated hardware. ()
- n. A manufacture's label shall be conspicuously and permanently (original not to be removed) attached to each piece of technical stage equipment, rigging, and wire ropes. ()
- o. Visible and permanent system capacity information shall be posted at a location which is easily seen by the operator. ()
- p. Master switches, emergency switches, emergency keys, or other devices with a similar purpose shall be identified and conspicuously marked. ()
- q. Those parts of technical stage equipment which requires lubrication and maintenance shall be safely and easily accessible and serviceable. ()
- r. Rotating and moving machinery parts shall be covered and/or protected so that persons cannot be injured. ()
- s. The speed of moving equipment shall be adapted to operating conditions. ()
- t. When moving stage equipment is used, the operator shall have constant visual contact with the moving piece. If this is not possible, a spotter or visual monitoring device shall be used. ()
- u. A control switch shall be located within reach of the operator. ()
05. Suspended Work Areas. ()
- a. Gridiron, catwalks, and loading galleries shall be accessed only by personnel directly engaged in work in these areas. ()

b. Prior to engaging in overhead work all line sets shall be secured and all areas below shall be secured to prevent unauthorized entry. ()

c. No overhead work shall be accomplished above the audience without proper safety precautions to protect the audience. ()

d. Personnel, engaged in operations where overhead work is being accomplished above, during load-in, and during strike, shall wear hard hats. ()

e. No objects may be stored or temporarily placed on the gridiron. Proper containers shall be provided for those items used during maintenance, set up, and strike. ()

f. All tools shall be tethered to either the structure or the user. ()

g. All temporary equipment such as lights shall be provided with a safety tether. ()

h. Galleries, gridiron, and catwalks shall be equipped with standard guardrails and toe boards that meet the requirements of Subsections 070.14.b and 070.16.c. Where needed for the proper placement or operation of equipment railings may be temporarily removed provided other suitable fall protection is provided and used. ()

i. An Idaho licensed Structural Engineer shall determine the capacity of the galleries, gridiron, and catwalks and these capacities shall be clearly posted. ()

j. Lighting bridges and work gangways, which are not permanently connected to the structure of the building, shall be equipped to assure safe access. ()

06. Hoisting. ()

a. Hoisting equipment shall be secured against unauthorized and inadvertent use. ()

b. Wire ropes for the suspension of flying equipment shall have a minimum safety factor of not less than eight (8). ()

c. Permanent powered pulling, lowering, and lifting devices shall have two (2) limit switches for the lowest and two (2) limit switches for the highest positions. Temporary powered pulling, lowering, and lifting devices shall have one (1) limit switch for the lowest and one (1) limit switch for the highest positions. ()

d. Individual counterweights used in working sets shall not exceed forty (40) pounds. Weights used to offset heavy permanent loads on electrics, light bridges, house curtains, and the like shall be sized as required. ()

e. All components utilized in stage rigging equipment shall be specifically recommended by their manufacturer or trade organization for hoisting applications. They shall be installed and used in accordance with the manufacturer's specifications. ()

07. Drives. ()

a. Positive locking connecting devices between the drive and the driving pulley, the wire rope drum, the shaft, the sprocket wheel, etc., are permitted without restriction. Only positive connecting devices which connect the drive with the driven shall be allowed. The drive and the driven may be disconnected for servicing only after the load has been secured against any movement. Before and during any servicing which requires the drive to be disconnected from the driven, all attached loads shall be safely restrained from movement. ()

b. Technical stage equipment with hydraulic drives shall safely prevent impermissible pressure increases. ()

c. Hydraulic and electro-mechanical power systems shall have adjustable limit stops for the final operating positions. ()

d. When the direction of travel is to be changed in hydraulically driven equipment, the movement of the device shall come to a controlled stop before the change of direction is executed. ()

e. Hoses for hydraulic devices shall be certified by the manufacture for the maximum design pressure for the given application. ()

f. High pressure tubing and piping shall be correctly and rigidly secured to the structure in order that whipping is prevented should a rupture occur. In temporary and permanent installations care shall be taken to secure the devices to the floor, the building structure, and equipment frame. ()

g. Technical stage equipment with optional manual or power drive, selection shall be mutually exclusive, so that one (1) drive is completely switched off while the other drive is in use. ()

h. Manually operated technical stage equipment shall be designed in such a way that the force used by the operator does not exceed fifty (50) pounds. ()

i. Press fits alone shall not be permitted in drive elements which transmit torque for vertical load movements. ()

j. Lowering of loads shall be done under power. EXCEPTION: Protective curtains. ()

08. Brakes and Locking Devices. ()

a. Manually operated winches shall be equipped with an effective locking device against return motion and with a self locking brake. This equipment is not necessary if self locking gears are used. ()

b. The brakes of manually operated winches shall be designed as load-pressure brakes. If the winch is equipped with a ratchet handle, the movement of the handle shall not exceed sixty (60) degrees total travel, or plus/minus thirty (30) degrees from center with the brakes set. ()

c. Winches with hand cranks designed to hold suspended loads shall have a brake that is normally in the set position. The locking element used for this purpose shall create a positive lock with the drum. ()

d. Power driven hoisting units shall be equipped with spring loaded electrically or hydraulically released brake capable of stopping the rated load within a reasonable distance. ()

e. Horizontal pulling devices not driven via worm gears shall have one (1) brake. Horizontal pulling devices driven via worm gears with a 40:1 or greater ratio do not require a brake. ()

09. Wire Ropes: ()

a. The safe working loads of a wire rope shall be determined by dividing the manufacturer's stated breaking strength by the applicable wire rope safety factor. ()

b. For horizontally moved stage equipment the pulling lines shall have a minimum safety factor of six (6). ()

c. For vertically moved stage equipment the wire rope shall have a minimum safety factor of eight (8). ()

d. Braided wire ropes and plastic fiber wire ropes shall not be used as load bearing wire ropes. ()

e. Natural and synthetic fiber lines are permitted for use as the principal suspension components only in "hemp" flying systems or in horizontally moved devices. Natural and synthetic fiber lines shall not be used as load

- bearing lines in winch and counterweight flying systems. ()
- f. Wire ropes shall be attached safely and durably. Installation of attachment devices shall meet manufacturer's specifications. ()
- g. Wire rope ends attached to drums shall be positively secured within the drum. ()
- h. Motorized vertically moving stage equipment using wire rope wound on drums shall be equipped with a device which will immediately stop the drive when the wire rope becomes slack. ()
- i. Motor driven drums shall be manufactured so that the wire rope is wound in a single layer only. All metal drums shall have machined grooves. EXCEPTION: Drums which allow the wire rope to stack only on its own width on the drum. ()
- j. Motor driven winches shall be manufactured so as to prevent the wire rope from leaving the ends of the drum. ()
- k. Winches using grooved drums shall include a device or procedure which will prevent the wire rope from jumping the assigned groove. ()
- l. Winch drums shall be dimensioned so that a minimum of three (3) windings or dead wraps of wire rope remain on the drum at all times. ()
- m. The diameter of drums and pulleys shall be no less than thirty (30) times the diameter of the wire rope used. ()
- n. The fleet angle of the wire rope leaving the drum shall be no more than plus or minus two (2) degrees. ()
- o. Shivs and pulleys shall be grooved to match the diameter of the rope or cable being used. ()
10. Machinery Captured in the Stage Floor. ()
- a. Safety measures for removable and disassembly type turntables shall be explained in an operations and procedures manual. Appropriate warning labels shall be permanently attached to the equipment. ()
- b. The horizontal distance between fixed and movable stage floor surfaces shall not exceed three-eighth (3/8) inch. The vertical distance between the fixed and movable floor surfaces shall not exceed one-eighth (1/8) inch. ()
- c. The movement of captured stage equipment shall be indicated by both audible and visual warning signals. The audible signal may be disabled during performances if the signal interferes with the performance. The visual signal shall remain in operation during all periods of movement. The visual signals shall be placed in locations so as to be visible to persons endangered by the movement of equipment. Visual and audible signals shall be placed at all operating locations. ()
- d. All personnel, including new employees and persons who are temporarily present on the stage, shall be instructed on the purpose and the use of the signals. Instructions shall be posted at the stage entrance(s). ()
- e. Trap door covers shall be opened or closed only under the direction of the stage supervisor. The openings in the stage floor shall be promptly secured when not in use. ()
- f. Permanent trap covers which are built into the stage floor shall incorporate flush mounted lifting devices accessible from the stage surface. ()
- g. Temporary guardrails and warning signs shall be promptly erected around the floor opening. The

guardrails and warning signs may be removed during performances and rehearsals but shall be replaced promptly upon completion of the performance or rehearsal. ()

h. Captured stage machinery shall be accessed only after instruction of the stage supervisor. All safety requirements shall be observed with the utmost care. When entry or egress from moving captured stage wagons is required, measures shall be taken to ensure safe footing and adequate training is provided. ()

i. Combustible decorations, scenery, properties, etc. shall not be stored in the trap room or machinery areas. ()

11. Electrical. ()

a. All electrical installations shall be in compliance with the National Electrical Code and this standard. ()

b. All switches shall be of the externally operable type. ()

c. Dimmers, including rheostats, shall be placed in cases or cabinets that enclose all live parts. ()

d. Stage switchboards shall be of the dead-front type. ()

e. Stage switchboards having exposed live parts on the back of such boards shall be enclosed by the building walls, wire mesh grills, or by other approved methods. ()

f. All electrical supply conductors and connectors shall be protected against physical damage. ()

g. Electrical devices used for simulating lightening, waterfalls, and the like shall be so constructed and located that flames, sparks, or hot particles cannot come into contact with combustible material. ()

092. ARENA AND MULTI-PURPOSE FACILITY RIGGING AND MACHINERY

01. Scope. This section contains fundamental requirements essential to providing a safe work area. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. Arena and Multi-Purpose Facility operations shall comply to all other applicable requirements of this standard, as well as the following provisions. ()

02. Definitions Applicable to this Section. ()

a. Batten is a steel pipe or wooden bar used to support scenery, curtains, and lights. Usually suspended from the gridiron or roof structure. ()

b. Catwalk is a steel structure over the stage and/or the audience area used by stage personnel to cross from one (1) side to the other. ()

c. Drive Damage is any event that would impair, alter, or diminish the safe operation of the drive. ()

d. Fly is to move equipment, scenery, light trusses, or similar devices vertically. ()

e. Grid, Gridiron is a steel framework used to support the rigging system. ()

f. Loft Block is the pulleys or sheaves directly above the batten used to change the direction of the working lines from the horizontal to the vertical. ()

g. Motorized Rigging is a system of permanently installed electric or hydraulic motors used to raise and lower battens. ()

- h. Rigging is the general term describing systems and equipment used to raise and lower or move stage equipment. ()
- i. Sheave is a grooved wheel in a block or pulley. ()
- j. Stage Supervisor is a person charged with the responsibility of directing the work of setting up the production and the safe operation of stage equipment. ()
- k. Technical Stage Equipment is a general term indicating the equipment used on a stage. ()
- l. Well is the space between the beams on the grid over which loft blocks are placed and that allow the working lines to drop to the batten. ()
- m. Winch is a manual or power operated device used to wind a wire rope to raise and lower stage equipment. ()
03. General Requirements. ()
- a. Operation, maintenance, and repair work on stage equipment shall be done only by those persons having proper training and qualifications. ()
- b. Persons charged with the operation of stage equipment shall be thoroughly instructed as a minimum in the following: the operation and functioning of the equipment, the safe recommended use of the equipment, the routine maintenance necessary for safe operation of stage equipment, the operation of all safety devices, possible dangers during normal operations as well as the increased danger potential during improper operation, and procedures for accidents and malfunctions. ()
- c. Brief and concise instructions for a given piece or similar group of stage equipment shall be visibly mounted at the operation and/or control station. ()
04. Equipment. ()
- a. All rigging equipment shall be manufactured, installed, operated, and maintained in accordance with the manufacturers recommended specifications. ()
- b. All rigging equipment shall be inspected before use, after any alterations, and at regular intervals. These inspections shall be conducted by a person having extensive training and knowledge in the field of rigging and stage machinery. ()
- c. Rigging equipment found to have defects which may result in personal injury or property damage shall be declared unsafe and rendered inoperative until such time as the defects have been corrected. ()
- d. For overhead lifting, the minimum safety factor of five (5) to one (1). All lifting lines consisting of wire rope must contain appropriately sized thimbles and wire rope clamps or thimbles and Nicopress sleeves. For the lifting of humans, the minimum safety factor must be ten (10) to one (1). ()
- e. Manufacture's labels shall not be removed from technical stage equipment and rigging equipment. ()
- f. System capacity information shall be posted at a location which is easily seen by the operator. ()
- g. Master switches, emergency switches, emergency keys, or other devices with a similar purpose shall be identified and conspicuously marked. ()
- h. Those parts of technical stage equipment which require lubrication and maintenance shall be safely and easily accessible and serviceable. ()

- i. A stop switch shall be located within reach of the operator. ()
- 05. Suspended Work Areas. ()
 - a. Gridiron and catwalks shall be accessed only by competent personnel directly engaged in work in these areas. ()
 - b. Prior to engaging in overhead work, all areas below shall be secured to prevent unauthorized entry. ()
 - c. No overhead work shall be accomplished above the audience. ()
 - d. Personnel, engaged in operations where overhead work is being accomplished above, during load-in, and during strike shall wear hard hats and other protective equipment as appropriate. ()
 - e. No unsecured objects may be stored or temporarily placed on the gridiron. Proper containers shall be provided for those items used during maintenance, set up, and strike. ()
 - f. All tools shall be tethered to either the structure or the user. ()
 - g. All movable equipment such as lights, etc. shall be provided with a safety tether. ()
 - h. Gridiron and catwalks shall be equipped with standard guardrails and toeboards that meet the requirements of Subsections 070.14.b. and 070.16.c. Where needed for the proper placement or operation of equipment, railings may be temporarily removed provided other suitable fall protection is provided and used. ()
 - i. A competent structural engineer shall determine the capacity of the gridiron and catwalks and these capacities shall be clearly posted. ()
- 06. Hoisting:. ()
 - a. Hoisting equipment shall be secured against unauthorized and inadvertent use. ()
 - b. Wire ropes for the suspension of flying equipment shall have a minimum safety factor of not less than five (5). ()
 - c. Powered pulling, lowering, and lifting devices shall have limit switches for the lowest and highest positions. EXCEPTION: Chain hoists used in temporary installations. ()
 - d. All components utilized in rigging equipment shall be specifically recommended by their manufacturer or trade organization for hoisting applications. They shall be installed and used in accordance with the manufacturer's specifications. ()
- 07. Drives. ()
 - a. Technical stage equipment with hydraulic drives shall safely prevent impermissible pressure increases. ()
 - b. Hydraulic and electro-mechanical power systems shall have adjustable limit stops for the final operating positions. ()
 - c. Hydraulically and electro-mechanically driven equipment shall have acceleration/deceleration ramps which prevents sudden inertial changes to any attached items. These ramps shall function at all times and in all positions. EXCEPTION: In an emergency situation when the emergency stop switch is activated. ()
 - d. When the direction of travel is to be changed in hydraulically driven equipment, the movement of

the device shall come to a controlled stop before the change of direction is executed. ()

e. Hoses for hydraulic devices shall be certified by the manufacture for the maximum design pressure for the given application. ()

f. High pressure tubing and piping shall be correctly and rigidly secured to the structure in order that whipping is prevented should a rupture occur. In temporary and permanent installations care shall be taken to secure the devices to the floor, the building structure, and equipment frame. ()

g. Technical stage equipment with optional manual or power drive selection shall be mutually exclusive so that one (1) drive is completely switched off while the other drive is in use. ()

h. Press fits alone shall not be permitted in drive elements which transmit torque for vertical load movements. ()

i. Lowering of loads shall be done under power. EXCEPTION: Protective curtains. ()

08. Brakes and Locking Devices. ()

a. Manually operated winches shall be equipped with an effective locking device against return motion and with a self locking brake. This equipment is not necessary if self locking gears are used. ()

b. The brakes of manually operated winches shall be designed as load-pressure brakes. If the winch is equipped with a ratchet handle, the movement of the handle shall not exceed sixty (60) degrees total travel, or plus/minus thirty (30) degrees from center with the brakes set. ()

c. Winches with hand cranks designed to hold suspended loads shall have a brake that is normally in the set position. The locking element used for this purpose shall create a positive lock with the drum. ()

d. Power driven hoisting units shall be equipped with spring loaded electrically or hydraulically released brake capable of stopping the rated load within a reasonable distance. ()

e. Horizontal pulling devices not driven via worm gears shall have one (1) brake. Horizontal pulling devices driven via worm gears with a 40:1 or greater ratio do not require a brake. ()

09. Wire Ropes. ()

a. The safe working loads of a wire rope shall be determined by dividing the manufacturer's stated breaking strength by the applicable wire rope safety factor. ()

b. In temporary applications, for overhead lifting, the minimum safety factor is five (5) to one (1). ()

c. The fleet angle of the wire rope leaving the drum shall be no more than plus or minus two (2) degrees. ()

d. Installation of wire ropes and attachment devices shall meet manufacturer's specifications. ()

e. Wire rope ends attached to drums shall be positively secured within the drum. ()

f. Motorized vertically moving stage equipment using wire rope wound on drums shall be equipped with a device which will immediately stop the drive when the wire rope becomes slack. ()

g. Motor driven winches shall be manufactured so as to prevent the wire rope from leaving the ends of the drum. ()

h. Winches using grooved drums shall include devices which will prevent the wire rope from jumping

- the assigned groove. ()
- i. Winch drums shall be dimensioned so that a minimum of three (3) windings or dead wraps of wire rope remain on the drum at all times. ()
 - j. The diameter of drums and pulleys shall be no less than thirty (30) times the diameter of the wire rope used. ()
 - k. Sheaves and pulleys shall be grooved to match the diameter of the rope or cable. ()
10. Electrical. ()
- a. All electrical installations shall be in compliance with the National Electrical Code and this standard. ()
 - b. All switches shall be of the externally operable type. ()
 - c. Dimmers shall be placed in cases or cabinets that enclose all live parts. ()
 - d. All electrical supply conductors and connectors shall be protected against physical damage. ()
 - e. Electrical devices used for simulating lightening, waterfalls, and the like shall be so constructed and located that flame, sparks, or hot particles cannot come into contact with combustible material. ()

093 -- 099. (RESERVED).

100. CONGREGATE RESIDENCES (DORMITORIES) AND GUEST ROOMS.

01. Scope. Congregate residences (dormitories) and guest rooms shall conform to all other applicable requirements of this standard as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()
02. Definitions Applicable to this Section. ()
- a. Congregate Residences (Dormitories) is any building or portion thereof which contains facilities for living, sleeping, and sanitation, and may include facilities for eating and cooking, for occupancy by other than a family. ()
 - b. Guest Room is any room or rooms used or intended to be used by a guest for sleeping purposes. Every one-hundred (100) square feet of superficial floor area in a dormitory shall be considered to be a guest room. ()
03. General Requirements. ()
- a. Each guest room shall be provided with a door and frame each having a fire protection rating of twenty (20) minutes, and shall be equipped with a self-closing device. Exception: In existing buildings, previously approved one and three-quarters (1 3/4) inch solid bonded wood core doors and frames may remain in use. ()
 - b. No transom shall be installed in partitions of sleeping rooms in new buildings. In existing buildings, transoms shall be fixed in the closed position and shall be covered or otherwise protected to provide a fire resistance rating at least equivalent to that of the wall in which they are installed. ()
04. Rescue and Ventilation. ()
- a. Every sleeping room below the fourth story or in a basement shall have at least one (1) operable window or exterior door approved for emergency egress or rescue. The window or door shall be operable from the inside to provide a full clear opening without the use of separate tools. ()

b. All egress windows from sleeping rooms shall have a minimum net clearance opening of five point seven (5.7) square feet. The minimum net clear opening width dimension shall be twenty (20) inches. Where windows are provided as a means of egress or rescue, they shall have a finished sill height not more than forty-four (44) inches above the floor. ()

c. Window wells at escape or rescue windows shall comply with the following: the clear horizontal dimensions shall allow the window to be fully opened and provide a minimum accessible net clear opening of nine (9) square feet, with a minimum dimension of thirty-six (36) inches; window wells with a vertical depth of more than forty-four (44) inches shall be equipped with an approved permanently affixed ladder or stairs that are accessible with the window in the fully open position; and the ladder or stairs shall not encroach into the required dimensions of the window well by more than six (6) inches. ()

d. Bars, grills, gates, or similar devices may be installed on emergency escape or rescue windows, doors, or window wells, provided the devices are equipped with approved release mechanisms which are openable from the inside without the use of a key, special knowledge or effort, or tools and the building is equipped with properly installed smoke detectors. ()

05. Protection of Vertical Openings. Every exit stair and other vertical openings shall be enclosed or protected in accordance with Section 040 of this standard. ()

06. Protection From Hazards. Every hazardous area shall be separated from other parts of the building by construction having a fire resistance rating of at least one (1) hour and communicating openings shall be protected by approved automatic or self-closing fire doors. Hazardous areas include, but are not limited to: boiler and furnace rooms, laundries, repair shops, room or space used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction. ()

07. Emergency Lighting. Any congregate residences (dormitory) with over twenty-five (25) rooms shall be equipped with exit lighting and emergency lighting in accordance with Section 042. EXCEPTION: Where each guest room has a direct exit to the outside of the building at ground level. ()

08. Fire Detection and Alarms. ()

a. Every dormitory or congregate residences three (3) stories or more in height or containing more than twenty (20) sleeping rooms shall have an approved fire alarm system installed in accordance with Section 064 of this standard. ()

b. Every congregate residence (dormitory) and every guest room used for sleeping purposes shall be provided with smoke detectors. Smoke detectors shall be located in each sleeping room/area and at a point centrally located in the corridor or area giving access to each separate sleeping area. When actuated, the detector shall provide an alarm in the sleeping room. ()

101. CAMPS.

01. Scope. Camps shall conform to all other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be constructed to prohibit better or otherwise safer conditions than specified here in. ()

02. Definitions Applicable to this Section. Camp is a living quarter/dormitory for families and/or single persons that are either moved from area to area periodically or as housing not utilized on a year-round basis. ()

03. General Requirements. Written evidence by State and Local Health Departments, and Department of Employment, annually or prior to each occupancy, must be obtained. This information shall be readily accessible, for the authority having jurisdiction, reflecting approval in terms of food preparation, solid wastes, water supply, and vermin control. ()

04. Construction. ()

- a. All construction must conform to local building codes and evidence of conformance must be maintained readily accessible for the authority having jurisdiction (i.e. -building permits and approval for occupancy). ()
- b. In areas having no building codes, conformance will be to the Uniform Building Code currently adopted by the Idaho Building Code Advisory Act. ()
- c. Building permits may be issued by any local government having adopted a building code recognized by the authority having jurisdiction or by the Idaho Department of Labor and Industrial Services Building Division. ()
- d. Building inspections may be made by any current State of Idaho certified building inspector. ()
05. Existing Facilities. ()
- a. Existing facilities (Construction completed prior to the effective date of this code) will obtain an inspection and approval from the local building official that the facility meets minimum codes in effect at the time of construction and that there exist no known imminent safety hazards. ()
- b. Where no codes exist, the provisions of Subsection 101.04.b. shall apply. ()
06. Camp Sites. ()
- a. All sites used for camps shall be adequately drained. ()
- b. They shall not be subject to periodic flooding, nor located within two-hundred (200) feet of swamps, pools, sink holes, or other surface collections of water unless such quiescent water surfaces can be subjected to mosquito control measures. ()
- c. The camp shall be located so the drainage from and through the camp will not endanger any domestic or public water supply. ()
- d. All sites shall be graded, ditched, and rendered free from depressions in which water may become a nuisance. ()
- e. All sites shall be adequate in size to prevent overcrowding of necessary structures. ()
- f. The principal camp area in which food is prepared and served and where sleeping quarters are located shall be at least five-hundred (500) feet from any area in which livestock is kept. ()
- g. The grounds and open areas surrounding the shelters shall be maintained in a clean and sanitary condition free from rubbish, debris, waste paper, garbage, or other refuse. ()
- h. Whenever the camp is closed for the season or permanently, all garbage, manure, and other refuse shall be collected and so disposed of as to prevent nuisance. ()
- i. All abandoned privy pits shall be filled with dirt and the grounds and buildings left in a clean and sanitary condition. ()
- j. If privy buildings remain, they shall be locked or otherwise secured to prevent entrance. ()
07. Camp Shelters. ()
- a. Every shelter in the camp shall be constructed in a manner which will provide protection against the elements. ()

b. Each room used for sleeping purposes shall contain at least seventy (70) square feet of floor space for each occupant. At least a ninety (90) inch high ceiling shall be provided. ()

c. Beds, cots, or bunks, and suitable storage facilities such as wall lockers for clothing and personal articles shall be provided in every room used for sleeping purposes. Such beds or similar facilities shall be spaced not closer than thirty-six (36) inches both laterally and end to end, and shall be elevated at least twelve (12) inches from the floor. If double-deck bunks are used, they shall be spaced not less than forty-eight (48) inches both laterally and end to end. The minimum clear space between the lower and upper bunk shall be not less than twenty-seven (27) inches. Triple-deck bunks are prohibited. ()

d. The floors of each shelter shall be constructed of wood, asphalt, or concrete. Wooden floors shall be of smooth and tight construction. The floors shall be kept in good repair. ()

e. All untreated wooden floors shall be elevated not less than 18-inches above the ground level at all points to prevent dampness and to permit free circulation of air beneath. Untreated wood girders must be maintained at least twelve (12) inches above ground level. ()

f. Nothing in this section shall be construed to prohibit "banking" with earth or other suitable material around the outside walls in areas subject to extreme low temperatures. "Banking" is not permitted against wood. Wood siding is required to have six (6) inches of clearance above adjacent grade. ()

g. All living quarters shall be provided with windows the total of which shall be not less than one-tenth (1/10) of the floor area. At least one-half (1/2) of each window shall be so constructed that it can be opened for purposes of ventilation. ()

h. Each sleeping room shall have an emergency egress window having a minimum net clear opening of five point seven (5.7) square feet. The minimum net clear opening height dimension shall be twenty-four (24) inches. The minimum net clear opening width dimension shall be twenty (20) inches. Such egress windows shall have a finished sill height not more than forty-four (44) inches above the floor. An approved door discharging immediately to the outside of a sleeping room can be used in lieu of the above egress window. ()

i. All exterior openings shall be effectively screened with sixteen (16) mesh material. All screen doors shall be equipped with self-closing devices. ()

j. Each dwelling unit shall have at least seventy (70) square feet of floor space for the first occupant and at least fifty (50) square feet of floor space for each additional occupant. A separate sleeping area shall be provided for the husband and wife in all family units in which one (1) or more children over six (6) years of age are housed. ()

k. In camps where cooking facilities are used in common, stoves (in ratio of one (1) stove to ten (10) persons or one (1) stove to two (2) families) shall be provided in an enclosed and screened shelter. Sanitary facilities shall be provided for storing and preparing food. ()

l. If a camp is used during cold weather, adequate heating equipment shall be provided. NOTE: All heating, cooking, and water heating equipment shall be installed in accordance with State and Local ordinances, codes, and regulations governing such installation. ()

08. Water Supply: ()

a. An adequate and convenient water supply, approved by the appropriate health authority, shall be provided in each camp for drinking, cooking, bathing, and laundry purposes. ()

b. A water supply shall be deemed adequate if it is capable of delivering thirty-five (35) gallons per person per day to the campsite at a peak rate of one and one-half (1½) times the average hourly demand. ()

c. The distribution lines shall be capable of supplying water at normal operating pressures to all ()

fixtures for simultaneous operation. Water outlets shall be distributed throughout the camp in such a manner that no shelter is more than 100-feet from a yard hydrant if water is not piped to the shelters. ()

d. Where water under pressure is available, one (1) or more drinking fountains shall be provided for each 100-occupants or fraction thereof. The construction of drinking fountains shall comply with ANSI Standard Specifications for Drinking Fountains. Z4.2. Common drinking cups are prohibited. ()

09. Toilet Facilities. ()

a. Toilet facilities adequate for the capacity of the camp shall be provide. ()

b. Each toilet room shall be located so as to be accessible without any individual passing through any sleeping room. Toilet rooms shall have a window not less than six (6) square feet in area opening directly to the outside area or otherwise be satisfactorily ventilated. All outside openings shall be screened with sixteen (16) mesh material. No fixture, water closet, chemical toilet, or urinal shall be located in a room used for other than toilet purposes. ()

c. A toilet room shall be located within two-hundred (200) feet of the door of each sleeping room. No privy shall be closer than 100-feet to any sleeping room, dining room, lunch area, or kitchen. ()

d. Where the toilet rooms are shared, such as in multi-family shelters, and in barracks type facilities, separate toilet rooms shall be provided for each sex. These rooms shall be distinctly marked for "men" and "women" by signs printed in English and in the native language of the persons occupying the camp, or marked with easily understood pictures or symbols. If the facilities for each sex are in the same building, they shall be separated by solid walls or partitions extending from the floor to the roof or ceiling. ()

e. Where toilet facilities are shared, the number of water closets or privy seats provided for each sex shall be based on the maximum number of persons of that sex which the camp is designed to house at any one (1) time, in the ratio of one such unit to each fifteen (15) persons, with a minimum of two (2) units for each shared facility. ()

f. Urinals shall be provided on the basis of one (1) unit or two (2) linear feet of urinal trough for each twenty-five (25) men. The floor from the wall and for a distance of not less than fifteen (15) inches measured from the outward edge of the urinals shall be constructed of materials impervious to moisture. Where water under pressure is available, urinals shall be provided with an adequate water flush. Urinal troughs in privies shall drain freely into the pit or vault and the construction of this drain shall be such as to exclude flies and rodents from the pit. ()

g. Every water closet installed after the effective date of these standards shall be located in a toilet room. ()

h. Each toilet room shall be lighted naturally, or artificially at all hours of the day and night as specified in Subsection 080.24 of this standard. ()

i. An adequate supply of toilet paper shall be provided in each privy, water closet, or chemical toilet compartment. ()

j. Privies and toilet rooms shall be kept in a sanitary condition. They shall be cleaned at least daily. ()

10. Sewage Disposal Facilities. ()

a. In camps where public sewers are available, all sewer lines and floor drains from buildings shall be connected thereto. ()

b. In camps where public sewers are not available, sewers shall be installed in accordance with Subsection 080.15of this standard. ()

11. Laundry, Hand Washing, and Bathing Facilities. ()
- a. Laundry, hand washing, and bathing facilities shall be provided in the following ratio: one (1) hand wash basin per family shelter or six (6) persons in shared facilities; shower head for every ten (10) persons; laundry tray or tub for every thirty (30) persons; slop sink in each building used for laundry, hand washing, and bathing. ()
- b. Floors shall be of smooth finish but not slippery materials; they shall be impervious to moisture. Floor drains shall be provided in all shower baths, shower rooms, or laundry rooms to remove waste water and facilitate cleaning. All junctions of the curbing and the floor shall be coved. The walls and partitions of shower rooms shall be smooth and impervious to the height of splash. ()
- c. An adequate supply of hot and cold running water shall be provided for bathing and laundry purposes. Facilities for heating water shall be provided. ()
- d. Every service building shall be provided with equipment capable of maintaining a temperature of at least seventy (70) degrees Fahrenheit during cold weather. ()
- e. Facilities for drying clothes shall be provided. ()
- f. All service buildings shall be kept clean. ()
12. Lighting. ()
- a. Where electric service is available, each habitable room in a camp shall be provided with at least one (1) ceiling-type light fixture and at least one (1) separate floor or wall type convenience outlet. ()
- b. Laundry and toilet rooms and rooms where people congregate shall contain at least one (1) ceiling or wall type fixture. ()
- c. Light levels in toilet and storage rooms shall be at least twenty (20) foot-candles thirty (30) inches from the floor. ()
- d. Other rooms, including kitchens and living quarters, shall be at least thirty (30) foot-candles thirty (30) inches from the floor. ()
13. Refuse Disposal. ()
- a. Fly-tight, rodent-tight, impervious, cleanable, or single service containers, approved by the State Board of Health shall be provided for the storage of garbage. ()
- b. At least one (1) such container shall be provided for each family shelter and shall be located within one-hundred (100) feet of each shelter on a wooden, metal, or concrete stand. ()
- c. Garbage containers shall be kept clean. ()
- d. Garbage containers shall be emptied when full, but not less than twice a week. ()
14. Construction and Operation of Kitchens, Dining Halls and Feeding Facilities: ()
- a. In all camps where central dining or multiple family feeding operations are permitted or provided, the food handling facilities shall comply with the requirements of the "Food Service Sanitation Ordinance and Code", Part V of the "Food Service Sanitation Manual", U.S. Public Health Service Publication 934 (1965). ()
- b. A properly constructed kitchen and dining hall adequate in size, separate from the sleeping quarters of any of the residents, inmates, workers or their families, shall be provided in connection with all food handling facilities. There shall be no direct opening from living or sleeping quarters into a kitchen or dining hall. ()

c. No person with any communicable disease shall be employed or permitted to work in the preparation, cooking, serving, or other handling of food, food-stuffs, or materials used therein, in any kitchen or dining room operated in connection with a camp or regularly used by persons living in a camp. ()

15. Insect and Rodent Control. Effective measures shall be taken to prevent infestation by and harborage of animal or insect vectors or pests. ()

16. First Aid. ()

a. Adequate first aid facilities approved by a health authority shall be maintained and made available in every labor camp for the emergency treatment of injured persons. ()

b. A person trained to administer first aid shall be in charge of such facilities and such facilities shall be readily accessible for use at all times. ()

17. Reporting Communicable Disease. ()

a. It shall be the duty of the camp superintendent/supervisor to report immediately to the local health officer the name and address of any individual in the camp known to have or suspected of having a communicable disease. ()

b. Whenever there shall occur in any camp a case of suspected food poisoning, or an unusual prevalence of any illness in which fever, diarrhea, sore throat, vomiting, or jaundice is a prominent symptom, it shall be the duty of the camp superintendent to report immediately the existence of the outbreak to the local Health Officer or State Board of Health by telephone or telegram. ()

102. -- 109. (RESERVED).

110. EDUCATIONAL OCCUPANCIES.

01. Scope. Educational occupancies shall conform to all other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section. Educational Occupancy is any building or portion thereof used for educational purposes kindergarten through twelfth (12th) grade for twelve (12) hours or more per week or four (4) hours or more in any one (1) day; or used for daycare purposes for more than six (6) persons. ()

03. General Requirements: The requirements for the physically challenged found else where in this standard are based on adult dimensions and anthropometrics. Building and facility appurtenances serving physically challenged children may have the required dimensions appropriately reduced. ()

04. Special Provisions. Rooms used for kindergarten, first grade pupils, second grade pupils or day-care shall not be located above or below the first story. EXCEPTIONS: Basements or stories having floor levels located within four (4) feet, measured from adjacent ground level at the point of exit, provided the basement or story has exits directly to the exterior at that level. In buildings with an automatic sprinkler system throughout, rooms used for kindergarten, first and second grade or for day-care purposes may be located on the second story provided there are at least two (2) exits directly to the exterior for the exclusive use of such occupants. ()

05. Corridors. ()

a. Width. The width of a corridor in an Educational Occupancy shall be no less than six (6) feet wide. Exception: When the number of occupants served is less than 100, the corridor may be forty-four (44) inches wide. ()

b. Drinking fountains or other equipment, fixed or movable, shall not be so placed as to obstruct the

required minimum six (6) foot corridor width. ()

c. Doors which swing into an exit access corridor shall be recessed to prevent interference with corridor traffic; any doors not so recessed shall open one-hundred eighty (180) degrees to stop against the wall. Fully open doors may not reduce corridor width by more than seven (7) inches. ()

d. Construction. Corridor walls and ceilings shall be of not less than one (1) hour fire-resistive construction with openings protected as required in section 040 of this standard. EXCEPTION: When each room used for instruction has at least one (1) exit door directly to the exterior at ground level and when rooms used for assembly purposes have at least one-half (1/2) of the required exits directly to the exterior at ground level, one (1) hour fire-resistive construction of corridor walls and ceilings is not required. ()

06. Protection From Hazards. ()

a. Labs, vocational shops, or similar areas containing flammable liquids, combustible dust, or similar hazardous materials shall be separated from each other and from other portions of the building by not less than a one (1) hour fire-resistive occupancy separation. ()

b. All exterior openings in a boiler room or rooms containing central heating equipment, if located below openings in another story or if less than 10-feet from other doors or windows of the same building, shall be protected by a fire assembly having a three-quarters (3/4) hour fire-protection rating. Such fire assemblies shall be fixed, automatic, or self-closing. Every room containing a boiler or central heating plant shall be separated from the rest of the building by not less than a one (1) hour fire-resistive occupancy separation. EXCEPTION: Boilers and central heating plants where the largest piece of fuel equipment does not exceed four-hundred thousand (400,000) BTU per hour input. ()

c. One (1) of the two (2) required exits from the boiler room shall be directly to the exterior of the building and the other exit shall not open directly into any instructional space normally occupied by pupils. ()

d. Classes of instruction are not permitted to be conducted in areas deemed to be hazardous and not designed for classes of instruction such as, but not limited to boiler or furnace rooms, mechanical rooms, electrical rooms, kitchens, janitor closets, etc. ()

07. Exits. ()

a. Exits shall meet the requirements of Section 040. ()

b. Open plan schools shall have furniture, fixtures, or low height partitions so arranged that exits will be clearly visible and unobstructed, and exit paths are direct, not circuitous. If paths or corridors are established, they shall be not less than six (6) feet wide. EXCEPTION: When the number of occupants served is less than 100, the path or corridor may be forty-four (44) inches wide. ()

c. Exits through adjoining rooms. Interior rooms may exit through adjoining or intervening rooms, provided the total distance of travel does not exceed seventy-five (75) feet (ninety (90) feet with smoke detector) in an unsprinklered building or one-hundred and ten (110) feet in a fully sprinklered building, and is a direct, obvious, and unobstructed means of travel. Such paths of exit travel shall not pass through kitchens, storerooms, rest rooms, closets, laboratories using hazardous materials, industrial shops, or other similar spaces. ()

d. The maximum travel distance shall not exceed one-hundred fifty (150) feet. EXCEPTION: In a building equipped with an automatic sprinkler system throughout, the maximum travel distance may be two-hundred (200) feet; The maximum travel distance of the above mentioned one-hundred fifty (150) feet and two-hundred (200) feet may be increased up to and additional one-hundred (100) feet when this increase in travel distance occurs in the last portion of the travel distance and is entirely within a one (1) hour fire-resistive corridor. The distance from any point in a room shall not be more than seventy-five (75) feet from an exit corridor, an enclosed stairway, or the exterior of the building. EXCEPTION: In buildings not more than two (2) stories in height and protected throughout with smoke detectors, the distance may be increased to ninety (90) feet; In buildings protected throughout by an automatic sprinkler system, the distance may be increased to one-hundred and ten (110) feet. All portions of

unsprinklered buildings shall not be more than one-hundred fifty (150) feet from either an exterior exit door, a horizontal exit, an exit passageway, or an enclosed stairway measured along the line of travel. In a building protected throughout with an automatic sprinkler system such distance may be increased to two-hundred and twenty-five (225) feet. In buildings not more than two (2) stories in height protected throughout with smoke detectors, the distance may be increased to one-hundred and seventy-five (175) feet. ()

e. Foyers and lobbies constructed as required for exit corridors shall not be construed as adjoining or intervening rooms. ()

f. Where the only means of exit from a room is through an adjoining or intervening room, smoke detectors shall be installed in the area of the common atmosphere through which the exit must pass. The detectors shall actuate alarms audible in the interior room and shall be connected to the school fire alarm system. EXCEPTIONS: Where the aggregate occupant load of the interior room or rooms is less than 10. Where the enclosures forming interior rooms are less than two-thirds (2/3) of the floor-to-ceiling height and do not exceed eight (8) feet. Rooms used exclusively for mechanical and public utility service to the buildings. ()

08. Exit Stairs. There shall be no enclosed usable space under stairs in an exit enclosure nor shall the open space within the enclosure either under or adjacent to the stairs be used for any purpose. EXCEPTION: Stairs not in a stairway enclosure who's underside is of one (1) hour fire resistive construction may be used for storage. ()

09. Panic Hardware. Exit doors from rooms having an occupant load of fifty (50) or more and from corridors shall not be provided with a latch or lock unless it is panic hardware. ()

10. Fences and Gates. School grounds may be fenced in and gates equipped with locks, provided safe dispersal areas located not less than fifty (50) feet from the buildings are available for persons between buildings and fence. Dispersal areas shall be based upon an area of not less than three (3) square feet per occupant. Gates shall not be permitted across corridors or passageways leading to such dispersal areas unless they comply with exit requirements. ()

11. Emergency Lighting. In every facility, building, or structure used for night occupancy and all portions of the building that are windowless; such as rooms, stairs, areas, or corridors, shall be provided with emergency lighting in accordance with section 042 of this code. ()

12. Fire Alarms. ()

a. Approved manual fire alarms shall be provided for all Educational Occupancies with an occupant load of more than fifty (50) persons. In every Educational Occupancy provided with an automatic sprinkler or detection system, the operation of such system shall be manual and automatic, shall automatically activate the school fire alarm system, which shall include an alarm mounted on the exterior of the building. ()

b. There shall be at least one (1) fire exit drill each month in schools through grade twelve (12). ()

c. Drills shall be executed at different hours of the day or evening; during the changing of classes, when the schools are at assembly, during the recess or gymnastic periods, etc., so as to avoid distinction between drills and actual fires. ()

13. Signals. ()

a. All fire exit drill alarms shall be sounded on the fire alarm system and not on the signal system used to dismiss classes. ()

b. In order that pupils will not be returned to a building which is burning, the recall signal shall be one (1) that is separate and distinct from and cannot be mistaken for any other signal. ()

111. LABORATORIES AND CHEMICAL STORAGE SAFETY RULES.

01. Scope. This section contains fundamental requirements essential to providing a safe work area. Nothing in this section shall be construed to prohibit better or otherwise safer conditions than specified herein. Laboratory and chemical storage shall comply with all other applicable requirements of this standard, as well as the following provisions. ()

02. Definitions Applicable to this Section. ()

a. Chemical Hygiene Plan is a written program developed and implemented by the employer which sets forth procedures, equipment, personal protective equipment, and work practices that are capable of protecting personnel from the health hazards presented by hazardous chemicals and processes. ()

b. Laboratory is a place equipped for experimental study in a science or for testing and analysis. ()

03. General Requirements. ()

a. Laboratory safety is everyone's responsibility. The laboratory supervisor shall monitor the safe operation of the physical facilities, laboratory apparatus, chemicals, and laboratory procedures. ()

b. Laboratories and chemical storage rooms shall not be used as eating or food preparation places. ()

c. Laboratory refrigerators shall not be used for food storage. ()

d. The following emergency telephone numbers shall be posted: Fire Department, Physician or Hospital Emergency Room, Poison Control Center, Police, and Rescue. ()

e. Laboratories and chemical storage rooms shall be maintained in a clean and orderly condition at all times. ()

f. No one shall work with hazardous or toxic materials alone in a laboratory. ()

g. Laboratories and chemical storage rooms shall be constructed and ventilated so that fire, toxic and noxious fumes and vapors cannot be dispersed to other parts of the building through either the ventilation system or through ceiling spaces. ()

h. Fume hood exhaust ducting shall be kept under negative pressure until the exhaust ducting passes to the outside of the building. ()

i. Fume hood exhaust shall discharge a minimum of seven (7) feet above the roof and away from ventilation intakes. ()

04. Chemical Hygiene Plan. ()

a. The employer shall develop a chemical hygiene plan to protect personnel from hazardous chemicals and processes. ()

b. The chemical hygiene plan shall be readily available to all affected personnel. ()

c. The chemical hygiene plan shall include each of the following elements and shall indicate specific measures that shall be taken to ensure laboratory personnel protection: standard operating procedures relevant to safety and health considerations to be followed during laboratory operations; criteria that will be used to determine and implement control measures to reduce exposure to hazardous chemicals or processes including engineering controls, the use of personal protective equipment, and hygiene practices; a requirement that fume hoods and other protective equipment are functioning properly and specific measures that shall be taken to ensure proper and adequate

performance of such equipment; provisions for employee information and training; the circumstances under which a particular laboratory operation, procedure, or activity shall require prior approval before implementation; the circumstances and provisions for medical consultation and medical examinations; designation of personnel responsible for implementation of the chemical hygiene plan; and provisions for additional personnel protection for work with particularly hazardous substances and procedures. ()

d. The employer shall apprise personnel of the hazards present in their work area. Such information shall be provided at the time of initial assignment, prior to assignments involving new exposure situations, and annually. ()

e. The employer shall inform personnel of the location and availability of the chemical hygiene plan, the permissible exposure limits for chemicals and other substances, signs and symptoms associated with exposures to chemicals and other substances used in the laboratory, and the location and availability of known reference material on the hazards, safe handling, storage, and disposal of chemicals and other hazardous substances found in the laboratory including, but not limited to, material safety data sheets. ()

f. Personnel training shall include: methods and observations that are used to detect the presence or release of a hazardous chemical or substance; the physical and health hazards of chemicals and other substances in the laboratory or storage area; and the measures personnel can take to protect themselves from these hazards, including specific procedures that have been implemented to protect personnel from exposure to hazardous chemicals, substances, and operations, such as appropriate work practices, emergency procedures, and personal protective equipment to be used. ()

g. The employer shall provide to all personnel who work with hazardous chemicals and substances an opportunity to receive medical attention, including any follow-up examinations which the examining physician determines necessary, under the following circumstances: Whenever personnel develop signs or symptoms associated with hazardous chemicals or substances to which personnel may have been exposed in the laboratory, personnel shall be provided with the opportunity to receive appropriate medical examination. When exposure monitoring reveals an exposure level routinely above the action level or in the absence of an action level, the permissible exposure level, medical surveillance shall be established for the effected personnel as prescribed by the particular standard for the chemical or substance. Whenever an event takes place in the work area such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure, the affected personnel shall be provided an opportunity for a medical consultation. Such consultation shall be for the purpose of determining the need for a medical examination. ()

05. Chemicals. ()

a. Unlabeled, contaminated or undesirable chemicals shall be disposed of in accordance with approved practices. Chemicals shall be disposed of upon expiration of their shelf life. ()

b. Poisons shall be marked with a skull and crossbones and the word "Poison". ()

c. All chemical containers shall be labeled and have an expiration date on the label. ()

d. Non-durable containers of dangerous materials shall be placed in a durable and non-reactive secondary container before being moved from one (1) location to another. ()

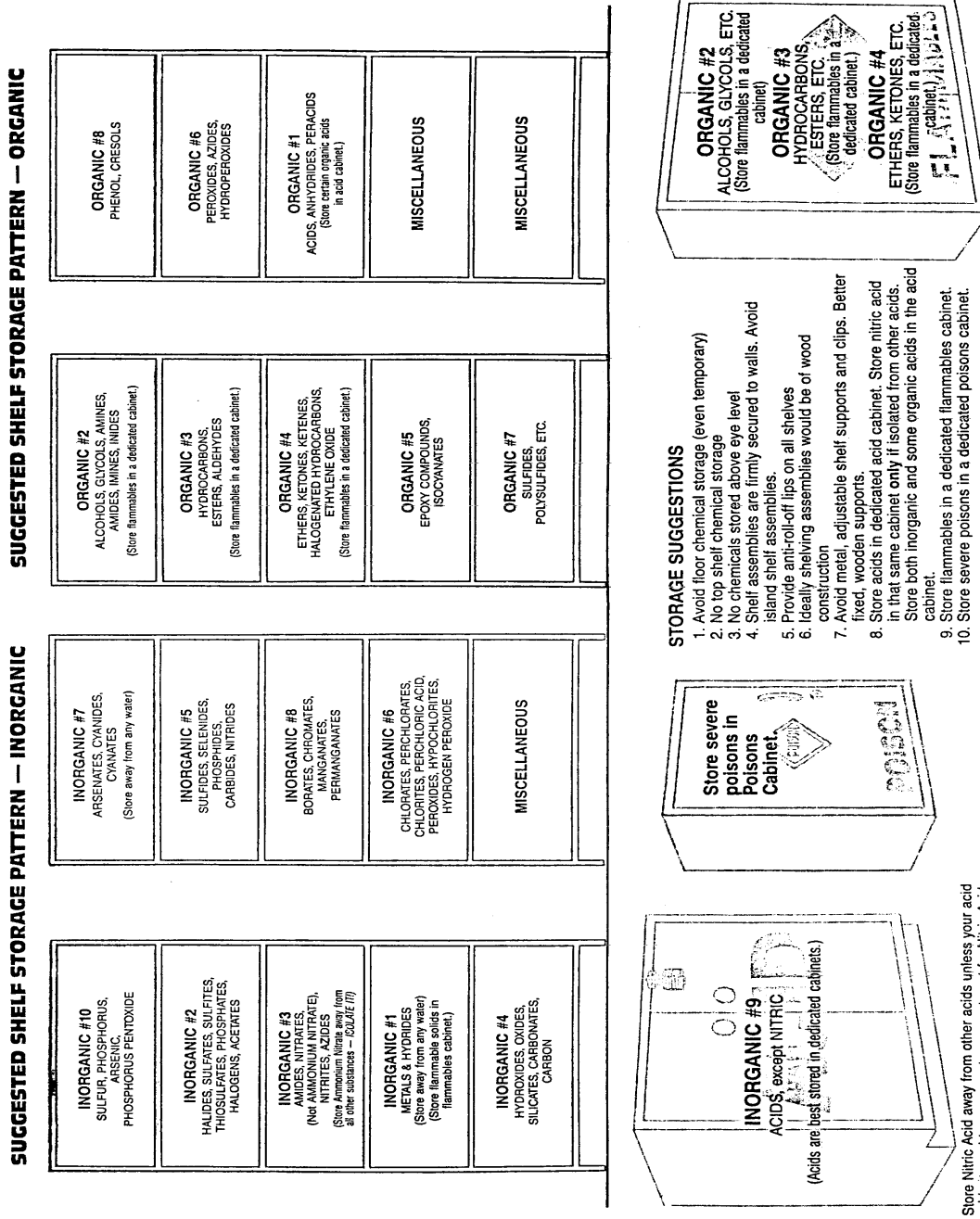
e. Strong acids shall be isolated from toxic substances, all metals, flammable substances, organic materials, and substances that may react and release other corrosive, toxic, or flammable fumes as a result of reaction. ()

f. Hands shall be washed before leaving the laboratory and especially before eating or drinking. ()

g. Material Safety Data Sheets (MSDS) shall be readily available for all chemicals, substances, and materials in the laboratory and chemical storage room. ()

06. Storage. ()
- a. The storeroom floor shall be unobstructed and shall not be used as a storage area. ()
- b. The storeroom floor shall be equipped with a drainage system of sufficient capacity to provide fast and thorough flushing of spilled reagents. The drainage system shall direct the flow of hazardous materials to an approved location, or the room, building, or area shall be designed to provide secondary containment for the hazardous materials. Secondary containment shall be designed to contain a spill from the largest single container or tank plus the flow rate of the automatic fire-extinguishing system, for a flow period of twenty (20) minutes, for the area of the room or area in which the storage is located or the system design area, whichever is smaller. ()
- c. The chemical storage cabinets or storage room shall be kept under lock and key and controlled by the person in charge. ()
- d. Only those areas of the storage room specifically designed for chemical storage and meeting other requirements of this section shall be used for chemical storage. Heavy bottles and large bottles of acids shall be stored near the floor and protected from breakage. ()
- e. Chemicals shall not be stored above the eye level of the person handling the chemicals. ()
- f. Chemicals which react with each other shall not be stored in close proximity to each other. ()
- g. Adequate shelving shall be provided to prevent the chemicals from becoming overcrowded and inaccessible. ()
- h. An inventory, which is updated periodically, of all chemicals shall be maintained and be readily available. ()
- i. Only small amounts of hazardous, explosive, or dangerous chemicals shall be kept on hand. ()
- j. Laboratory storage rooms shall have manual or mechanical ventilation. ()
- k. Chemical storage shall be on shelving with protective safety lips. ()
- l. Chemicals shall be stored in chemically compatible families. See Figure 111.06-A. ()

FIGURE 111.06-A



- STORAGE SUGGESTIONS**
1. Avoid floor chemical storage (even temporary)
 2. No top shelf chemical storage
 3. No chemicals stored above eye level
 4. Shelf assemblies are firmly secured to walls. Avoid island shelf assemblies.
 5. Provide anti-roll-off lips on all shelves
 6. Ideally shelving assemblies would be of wood construction
 7. Avoid metal, adjustable shelf supports and clips. Better fixed, wooden supports.
 8. Store acids in dedicated acid cabinet. Store nitric acid in that same cabinet **only** if isolated from other acids. Store both inorganic and some organic acids in the acid cabinet.
 9. Store flammables in a dedicated flammables cabinet.
 10. Store severe poisons in a dedicated poisons cabinet.

- m. Store only the minimum quantity of flammable chemicals needed. ()
- n. Store flammables in approved flammable storage cabinets. ()

- o. The floors of chemical storage rooms shall not be carpeted. The floor covering of a chemical room shall be of a material that will not react with stored chemicals. ()
- p. Laboratory fume hoods shall not be used for the storage of chemicals. ()
- q. Flammable liquids shall not be stored in refrigerators unless the refrigerator is designed and approved for flammable storage. ()
- r. Chemicals shall not be stored near, over, or under a sink. ()
- s. Flammables and oxidizers shall not be stored near each other. ()
07. Laboratory Equipment. ()
- a. Laboratories shall have a fire blanket and an approved fire extinguisher(s). ()
- b. Laboratories and chemical storerooms shall have a spill control center equipped with commercial spill control products, fine clay, kitty litter, or vermiculite. Additionally laboratories and chemical storerooms shall have materials for neutralization of chemicals in their spill control center. ()
- c. Every chemical laboratory shall be equipped with fume hoods of sufficient quantities for the processes involved. ()
- d. Every chemical laboratory shall be equipped with emergency eye wash stations capable of meeting the flushing requirements of the most hazardous chemical that could be encountered in the laboratory. ()
- e. Every chemical laboratory shall be equipped with an emergency overhead shower. ()
08. Personnel Protection. ()
- a. Open toed shoes, canvas shoes, or sandals without protective covering shall not be permitted in laboratories. ()
- b. Hanging jewelry, unrestrained long hair, long or loose neck ties shall not be permitted in laboratories. ()
- c. Loose or balloon sleeves, shorts or cut-offs, and short dresses or skirts shall not be permitted in laboratories unless a long laboratory coat with long sleeves is worn. ()
- d. Absorbent watch straps shall not be worn in laboratories. ()
- e. When working with chemicals appropriate safety goggles shall be worn. ()
- f. Safety goggles shall be kept clean and sterile and shall be stored in a sanitary container. ()
- g. Squeeze bottle eye washes shall not be used as an eye wash in laboratories or chemical storage rooms. ()
09. Educational Laboratories. ()
- a. Educational laboratories shall comply with the requirements of this section in addition to the requirements of this subsection. ()
- b. Students shall not work in the laboratory without an instructor or laboratory assistant present. ()

c. The instructor or laboratory assistant shall be able to see all laboratory students from their normal vantage points in the laboratory. ()

d. Laboratories shall not be used for other than laboratory purposes i.e. study halls or general classroom use. When not in use laboratories shall be kept locked. ()

10. Electrical. ()

a. All electrical installations shall be in compliance with the National Electrical Code and this standard. ()

b. Electrical receptacles used in laboratories shall be GFCI protected. ()

c. Electrical receptacles used in laboratories and chemical storage rooms subject to wetting, caustic, or acid atmospheres shall be in moisture proof enclosures. ()

112. -- 119. (RESERVED).

120. HEALTH CARE OCCUPANCIES.

01. Scope. Health care occupancies shall conform to other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section. ()

a. Health care occupancies are those used for purposes such as medical or other treatment or care of persons suffering from physical or mental illness, disease or infirmity; for the care of infants, convalescents, or aged persons. Health care occupancies provide sleeping facilities for the occupants and are occupied by persons who are mostly incapable of self-preservation because of age, physical or mental disability, or because of security measures not under the occupants control. ()

b. Hospital is a building or part thereof used for the medical, psychiatric, obstetrical, or surgical care, on a twenty-four (24) hour basis of four (4) or more inpatients. Hospital, wherever used in this standard shall include general hospitals, mental hospitals, tuberculosis hospitals, children's hospitals, and any such facilities providing inpatient care. ()

c. Nursing Home is a building or part thereof used for the lodging, boarding, and nursing care, on a twenty-four (24) hour basis, of four (4) or more persons who, because of mental or physical incapacity, may require the assistance of another person. Nursing home, wherever used in this standard, shall include nursing facilities, intermediate care facilities, and infirmaries or homes for the aged. ()

d. Residential-Custodial Care Facility is a building or part thereof, used for the lodging or boarding of four (4) or more persons who are incapable of self-preservation because of age, or physical or mental limitation. This includes facilities such as homes for the aged, nurseries (custodial care for children under six (6) years of age), and mentally retarded care institutions. Day care facilities that do not provide lodging or boarding for institutional occupants are not covered in this section of the standard. ()

03. General Requirements. ()

a. Proof or documentation that health care facilities have been inspected by the authorities having jurisdiction and meeting the requirement of NFPA-99 and NFPA-101 or other rules or regulations shall be made available. ()

b. Health care occupancies are treated in this standard in the following groups: Health care facilities (Hospitals and Nursing Homes) and Residential-custodial care facilities (Nurseries, Homes for the aged, developmentally disabled care institutions). ()

c. All health care facilities shall be so designed, constructed, maintained, and operated as to minimize the possibility of a fire emergency requiring the evacuation of occupants. Because the safety of occupants of health care facilities cannot be assured adequately by dependence on evacuation of the building, their protection from fire shall be provided by appropriate arrangement of facilities, adequate staffing, and careful development of operating and maintenance procedures composed of the following: Proper design, construction, and compartmentation; Provision for detection, alarm, and extinguishment; Fire prevention and the planning, training, and drilling in programs for the isolation of fire, transfer of occupants to areas of refuge, or evacuation of the building. ()

04. Doors. ()

a. All required exterior exit doors shall open in the direction of exit travel, regardless of occupant load. ()

b. Exit doors serving an occupant load of more than fifty (50) or more shall not be provided with a latch or lock unless it is panic hardware. EXCEPTION: In hospitals and nursing homes, locking devices, when approved, may be installed on patient sleeping rooms, provided such devices are readily openable from the patient room side and are readily operable by the facility staff on the other side. When key locks are used on patient room doors, keys shall be located on the floor involved at a prominent location accessible to the staff. ()

c. Locks installed on patient sleeping room doors shall be so arranged that they can be locked only from the corridor side. All such locks shall be arranged to permit exit from the rooms by a simple operation without the use of a key. EXCEPTION: Doors in homes for the aged may be lockable by the occupant, if they can be unlocked from the opposite side and keys are carried by attendants at all times. ()

d. Every exit opening through which patients are transported in wheelchairs, stretchers, or beds shall be of sufficient width to permit the ready passage of such equipment but shall have a clear width of not less than forty-four (44) inches. ()

05. Corridors. ()

a. The minimum clear width of a corridor shall be forty-four (44) inches, except that corridors serving any area housing one (1) or more non-ambulatory persons shall be not less than eight (8) feet in width. There shall be no change of elevation in a corridor serving persons who are not ambulatory, unless ramps are used. EXCEPTION: Health care centers for ambulatory patients receiving outpatient medical care shall not have corridors less than six (6) feet in width until reaching an exterior door, enclosed exit stairway, or horizontal exit and shall not pass through an adjoining room. ()

b. Walls of corridors serving an occupancy area having an occupant load of 10 or more shall be not less than one (1) hour fire-resistive construction and the ceilings shall not be less than that required for a one (1) hour fire-resistive floor or roof system. EXCEPTION: Corridor walls and ceilings need not be of fire-resistive construction within office spaces having an occupant load of one-hundred (100) or less when the entire story in which the space is located is equipped with an automatic sprinkler system throughout and an automatic smoke-detection system installed within the corridor; Corridors more than thirty (30) feet in width where occupancies served by such corridors have at least one (1) exit independent from the corridor. Refer to Section 040 of this standard. ()

06. Protection from Hazards. ()

a. Exit enclosures from any hazardous area shall be safeguarded in accordance with Subsection 040.07 of this standard. Hazardous areas include, but are not limited to: Boiler and furnace rooms, laundries, kitchens, repair shops, handicraft shops, employees locker rooms, soiled linen rooms, print shops, rooms or spaces used for the storage of combustible supplies and equipment in quantities deemed hazardous, trash collection rooms, and gift rooms. ()

b. All exterior openings in a boiler room containing central heating equipment if located below openings in another story, or if less than ten (10) feet from other doors or windows of the same building, shall be protected by a fire assembly having a three-quarters (3/4) hour fire protection rating. Such fire assemblies shall be

fixed, automatic, or self-closing. ()

07. Rescue and Ventilation. Every patient sleeping room shall have an outside window or door arranged and located to permit the venting of products of combustion and to permit any occupant to have access to fresh air in case of emergency. EXCEPTIONS: Rooms intended for occupancy of less than twenty-four (24) hours, such as those housing obstetrical labor beds, recovery beds, observation beds in the emergency department and newborn nurseries. Buildings designed with an engineered smoke control system. ()

08. Emergency Lighting. Each health care facility shall be provided with emergency lighting that meets the provisions of Section 042. ()

09. Fire Alarms. An approved manual and automatic fire alarm system shall be provided for all Health Care Occupancies. Audible/visible alarm devices shall be used in all non-patient areas. Visible alarm devices may be used in lieu of audible devices in patient occupied areas. ()

10. Fire Sprinklers. An automatic sprinkler system shall be installed. ()

11. Smoke Detectors. Smoke detectors which receive their primary power from the building wiring shall be installed in patient sleeping rooms of hospitals and nursing homes. Actuation of such detectors shall cause a visual display on the corridor side of the room in which the detector is located and shall cause an audible and visual alarm at the respective nurses' station. When single-station detectors and related devices are combined with a nursing call system, the nursing call system shall be listed for the intended combined use. EXCEPTION: In rooms equipped with automatic door closers having integral smoke detectors on the room side, the integral detector may substitute for the room smoke detector, provided it performs the required alerting functions. ()

121. -- 129. (RESERVED).

130. PENAL OCCUPANCIES.

01. Scope. Penal occupancies shall conform to other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section. Penal Occupancies are those used to house occupants under some degree of restraint or security. Penal occupancies are occupied by persons who are mostly incapable of self preservation because of security measures not under the occupants' control. ()

03. General Requirements. ()

a. Penal occupancies are treated in this standard in the following groups: penal institutions, reformatories, jails, prisons, and houses of correction. ()

b. All penal institutions shall be so designed, constructed, maintained, and operated as to minimize the possibility of a fire emergency requiring the evacuation of occupants. Because the safety of occupants of penal facilities cannot be assured adequately by dependence on evacuation of the building, their protection from fire shall be provided by appropriate arrangement of facilities, adequate staffing, and careful development of operating and maintenance procedures composed of the following: proper design, construction, and compartmentalization; provisions for detection, alarm, and extinguishment of fires; fire prevention and the planning, training, and drilling in programs for the isolation of fire, transfer of occupants to areas of refuge, or evacuation of the building. ()

c. It is recognized that in buildings housing various types of psychiatric patients, or used as penal facilities, it may be necessary to lock doors and bar windows to confine and protect building inhabitants. In facilities and buildings in which doors are locked or windows are barred, provisions shall be made, on a twenty-four (24) hour basis, for the rapid removal of occupants by such reliable means as the remote control of locks or by keying all locks to keys readily available to guards or attendants on duty. ()

04. Doors. All required exterior exit doors shall open in the direction of exit travel, regardless of the

occupant load. ()

05. Corridors. In penal occupancies where open barred cells form corridor walls, the corridors and cell doors need not be fire resistive. ()

06. Protection from Hazards. All exterior openings in a boiler room or room containing central heating equipment if located below openings in another story, or if less than 10 feet from other doors or windows of the same buildings, shall be protected by a fire assembly having a three-quarters (3/4) hour fire protection rating. Such fire assemblies shall be fixed, automatic, or self-closing. Every room containing a boiler or central heating plant shall be separated from the rest of the building by not less than a one (1) hour fire-resistive occupancy separation. EXCEPTION: Boilers or central heating plants where the largest piece of fuel equipment does not exceed four-hundred thousand (400,000) BTU per hour input. ()

07. Emergency Lighting: Emergency lighting shall be provided in all penal occupancies where inmates are housed overnight. ()

08. Fire Alarms. An approved manual and automatic fire alarm system shall be provided for all penal occupancies. ()

09. Fire Sprinklers. An automatic sprinkler system shall be installed. ()

131. -- 139. (RESERVED).

140. PLAYGROUNDS, SPORTS FIELDS, AND PARKS.

01. Scope. ()

a. Playgrounds, sports fields, and parks, shall conform to other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section. ()

a. Composite Structure is two (2) or more play structures, attached or directly adjacent, to create one (1) integral unit that provides more than one (1) play activity. ()

b. Entrapment is any condition that impedes withdrawal of a body or body part that has penetrated an opening. ()

c. Fall Zone is the surface under and around a piece of play equipment onto which the user falling from or exiting from the play equipment would be expected to land. ()

d. Footing is a means for anchoring playground equipment to the ground. ()

e. In-fill is material used in a protective barrier to prevent a user from passing through the barrier. ()

f. Non-Rigid Component is a component of playground equipment that significantly deforms or deflates during the normal use of the equipment. ()

g. Preschool Age Children are children from ages two (2) to five (5) years. ()

h. Protective Barrier is an enclosing device around an elevated platform that is intended to prevent both inadvertent and deliberate attempts to pass through the barrier. ()

i. Protective Surfacing is surfacing material in the fall zone that conforms to the requirements of this ()

- section. ()
- j. Roller Slide is a slide that has a bed consisting of a series of individual rollers over which the user travels. ()
- k. School Age Children are children from ages over five (5) years but not over twelve (12) years of age. ()
- l. Tube Slide is a slide in which the sliding section consists of a totally enclosed tube or tunnel. ()
- m. Upper Body Equipment is a device designed to support the user by the hands only. ()
- n. Critical Height is the approximation of the maximum fall height from which a life-threatening head injury from playground equipment to the protective surfacing below it would not be expected to cause a life threatening head injury. ()
03. General Requirements. ()
- a. All playground equipment, facilities, and grounds; sports field equipment, facilities, and grounds; and park equipment, facilities, and grounds shall be maintained in a safe and sanitary condition. ()
- b. The U.S. Consumer Product Safety Commission (CPSC) "Handbook for Public Playground Safety" and the American Society for Testing and Materials (ASTM) F1487 "Standard consumer Safety Performance Specification for Playground Equipment for Public Use" are to be used as guides to provide additional information that may not be covered in this standard. ()
- c. Every person, firm, corporation, agency, subdivision, or unit of government who is the operator, owner, lessee, permittee, or licensee of any playground, sport field, or park shall use safety devices and safeguards and shall adopt and use practices, means, methods, operations, and processes which are adequate to render such places safe. ()
- d. Playgrounds shall be organized into different areas to prevent injuries caused by conflicting activities. Active, physical activities shall be separated from more passive or quiet activities. Playgrounds installed after the printing of this standard will have separated, age appropriate equipment for children two (2) five (5) and five (5) twelve (12) years old. This equipment shall be separated by adequate spacing and marked to identify the intended user group with clear sight lines between the playgrounds to facilitate supervision. ()
- e. Fall zones containing protective surfacing will be provided with coverage areas as specified in this section for each type of equipment. However, fall zones will extend a minimum of six (6) feet from all edges of all types of equipment. The depth of fall zone materials will meet the requirements for Critical Height as described in part 140.14 of this section. With the exception of composite structures with multiple play events, fall zones will not overlap. For example; the fall zone for a swing will not overlap with the fall zone of a slide exit region. ()
- f. Sport fields shall be organized into different areas to prevent injuries caused by conflicting activities. Active, physical activities shall be separated from more passive or quiet activities. ()
- g. Popular or heavy use pieces of playground equipment or activities shall be dispersed to avoid overcrowding in any one (1) area. ()
- h. The layout of activity areas and equipment shall be without visual barriers so that there are clear sight lines to facilitate supervision. ()
- i. Moving playground equipment, such as swings and merry-go-rounds shall be located toward a corner or edge of the play area. ()
- j. Care shall be taken to ensure that the play and traffic patterns of children using adjacent

components of composite equipment are complementary. ()

k. The following equipment will not be used in public playgrounds: Trampolines, roller slides, multiple occupancy swings (with the exception of rotating, multiple axis swings), free swinging trapeze bars and exercise rings. Note: Exercise rings do not apply to overhead hanging rings, such as those used in ring trek or ring ladders. ()

l. Animal figure swings shall not be used on playgrounds or in parks due to the impact hazard posed by their high mass. ()

m. Free swinging ropes, which may fray or otherwise form a loop, shall not be used on playgrounds or in parks because of the potential strangulation hazard. ()

04. Installation and Maintenance of Equipment. ()

a. Playground equipment shall be properly assembled by following the manufacturer's instructions or in the event that manufacturer's instructions are not available then accepted good practices shall be used. ()

b. Playground equipment shall be stabilized and anchored to withstand the maximum anticipated forces generated by active use, which might cause it to overturn, tip, slide, or move in any way. ()

c. Playground equipment shall be inspected monthly, during periods of use, for any potential hazards, for corrosion or deterioration from rot, insects, normal wear, or weathering. ()

d. All hazards or defects to playground, sport field, and park equipment, identified during inspections, shall be repaired promptly. Equipment found to be hazardous or have defects shall be removed from service until such time as the hazard or defect is eliminated. ()

e. Playground, sport field, and park areas shall be checked monthly, during periods of use, for broken glass or other dangerous debris. ()

f. Equipment fasteners, connecting, and covering devices shall not loosen or be removable without the use of tools. ()

g. Lock washers, self locking nuts, or other locking means shall be provided for all nuts and bolts to protect them from detaching. ()

h. Hardware in moving joints shall be secured against unintentional or unauthorized loosening. ()

i. All fasteners shall be corrosion resistant and be selected to minimize the likely hood of corrosion to the materials they connect. ()

j. Bearings in moving joints shall be easy to lubricate or be self-lubricating. ()

k. Fastening devices, such as but not limited to S-hooks, pelican hooks, and C-hooks, shall be closed. A devise is considered closed when there is no gap or space greater than zero point zero four (0.04) inches (1mm) when measured with a feeler gage. ()

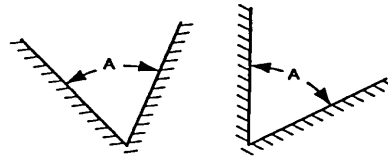
l. Wooden equipment shall be assembled using bolts, lag bolts and/or screws and glue. Nails shall not be used to assemble wooden equipment. ()

m. To avoid risk of contact burn injury due to intense sun light bare metal or painted metal surfaces on platforms shall be avoided unless they can be located out of the direct rays of the sun. ()

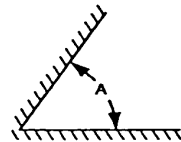
n. Wood intended for playground equipment that is not naturally rot and insect resistant shall be treated to resist rot and insect attack. Creosote, pentachlorophenol, tributyl tin oxide and surface coatings that contain pesticide will not be used on playground equipment. Owner/operators shall insure that equipment meets with this

- standard. ()
- o. When twenty-five percent (25%) or more of the metal of chain links, clevises, S-hooks, and the like has worn away, they shall be replaced. ()
- p. Tires used on playgrounds, sports fields, and in parks shall be replaced or removed whenever metal parts are exposed. Steel belted tires shall not be used. ()
05. General Hazard: ()
- a. There shall be no sharp points, corners, or edges on any component of playground, sports field, or park equipment. ()
- b. The exposed open ends of all tubing or pipe not resting on the ground or otherwise covered shall be provided with caps or plugs that cannot be removed without the use of tools. ()
- c. Wood parts shall be smooth and free from splinters. ()
- d. All corners, metal and wood, shall be rounded. ()
- e. All metal edges shall be rolled or have rounded capping. ()
- f. There shall be no accessible pinch, crush, or shearing points on equipment. ()
- g. A component or group of components shall not form openings that could become a head entrapment hazard. An opening may present a head entrapment hazard if the distance between any interior opposing surfaces is greater than three and one-half (3 1/2) inches and less than nine (9) inches. When one (1) opening is within this potentially hazardous range, all dimensions of the opening must be considered together to fully evaluate the entrapment potential. **EXCEPTION:** Openings between the protective surfacing and the bottom edge of the equipment (that is, rails, platforms, steps, and so forth) are exempt from the requirement. ()
- h. The angle of any vertex formed by adjacent components shall not be less than fifty-five (55) degrees, unless the lower leg is horizontal or projects downwards (see Figure 140.05-A). **EXCEPTION:** For vertex angles less than fifty-five (55) degrees a rigid shield maybe attached to the vertex between adjacent components as long as the shield is of sufficient size to permit the passage of a nine (9) inch sphere without touching either adjacent component. ()
- i. There shall be no single non-rigid component (cable, wire rope, or other similar component) suspended between play units or from the ground to the play unit within forty-five (45) degrees of horizontal, unless it is above seven (seven (7)) feet from the playground surface and is a minimum of one (1) inch at its widest cross-section. ()

FIGURE 140.05-A

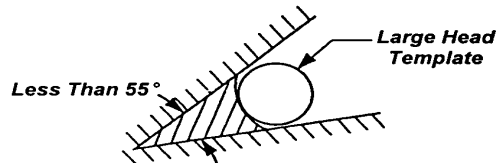


Angle A should exceed 55°



Angle A is exempt if one leg of the vee is horizontal or slopes downward from the apex

Recommendations for Angles



Shield for Angle Less than 55°

- j. All anchoring devices, such as concrete footings or horizontal bars at the bottom of equipment, shall be installed below the playing surface to eliminate tripping and impact hazards. ()
- k. Environmental obstacles in the play area, including rocks, roots, other protrusions, and holes shall be removed or filled in. ()
- l. Drop-offs of thirty (30) inches or more along walkways, pathways, foot bridges and play areas shall be protected by standard guardrails as required in Subsection 070.13 or similar barriers. For foot bridges over water the drop-off measurement shall be made from the bridge deck to the ground below the water. ()
- m. Handrail height shall be twenty-two (22) inches to thirty-eight (38) inches dependent on the size and age of the users. ()
- n. On any transition from an access mode to a platform, handrails or hand holds shall be provided and shall be adequate to provide support until the user has fully achieved the desired posture on the platform. ()
- o. Guardrails/barriers used on playground equipment and facilities shall be designed to prevent inadvertent or unintentional falls off the equipment or facilities, to discourage climbing on the guardrail or barrier, to preclude the possibility of entrapment, and to facilitate supervision. Guardrail height shall be twenty-nine (29) inches to forty-two (42) inches dependent on the size of the users. ()
- 06. Access and Platforms. ()
 - a. Play platforms over six (6) feet in height (with the exception of free standing slides) shall be provided with an intermediate landing. ()

b. The steps or rungs of stairways, stepladders, and rung ladders shall be evenly spaced, including the spacing between the top step or rung and the surface of the platform. See Table 140.06-A. ()

TABLE 140.06-A			
TYPE OF ACCESS		AGE OF INTENDED USER	
		2 - 5 Years	5 - 12 Years
Rung Ladders	Slope	75° - 90°	75° - 90°
	Rung Width	≥ 12"	≥ 16"
	Vertical Rise (tread to tread)	≤ 12"***	≤ 12"***
	Rung Diameter	.95" - 1.55"	.95" - 1.55"
Stepladders	Slope	50° - 75°	50° - 75°
	Tread Width - Single File	12" - 21"	≥ 16"
	- Two-Abreast	*	≥ 36"
	Tread Depth - Open Riser	≥ 7"	≥ 3"
	- Closed Riser	≥ 7"	≥ 6"
	Vertical Rise (tread to tread)	≤ 9"***	≤ 12"***
Stairways	Slope	≤ 50°	≤ 50°
	Tread Width - Single File	≥ 12"	≥ 16"
	- Two-Abreast	≥ 30"	≥ 36"
	Tread Depth - Open Riser	≥ 7"	≥ 8"
	- Closed Riser	≥ 7"	≥ 8"
	Vertical Rise (tread to tread)	≤ 9"***	≤ 12"***
Ramps (not intended for access by the disabled)	Slope (vertical/horizontal)	≤ 1:8	≤ 1:8
	Width - Single file	≥ 2"	≥ 16"
	- Two-Abreast	≥ 30"	≥ 36"
*Not recommended for preschoolers.			
**Entrapment provisions apply.			
Recommended Dimensions for Access Slope, Tread or Rung Width, Tread Depth, Rung Diameter, and Vertical Rise for Rung Ladders, Stepladders, Stairways, and Ramps.			

c. Openings between adjacent steps or rungs and between the top step or rung and the underside of a platform shall preclude the possibility of entrapment. ()

d. When risers are closed, the treads of stairways and ladders shall prevent the accumulation of sand, water, snow, or other materials on or between steps. ()

e. Rungs and other hand gripping components that are intended to be grasped in a manner such that users will support their entire body weight by their hands shall be generally round in cross section with a diameter

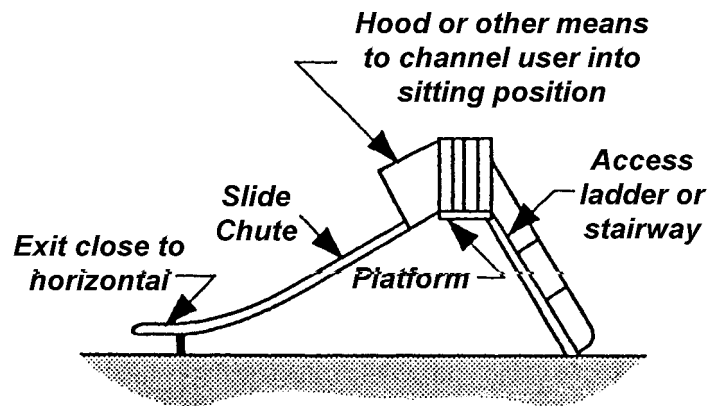
between zero point ninety-five (0.95) inch and one point fifty-five (1.55) inches with a diameter of one point twenty-five (1.25) inches preferred. ()

f. Platforms shall be within +/- two (2) degrees of a horizontal plane and openings shall be provided to allow for drainage. ()

07. Slides. ()

a. Slide exits shall be located in an uncongested area. ()

FIGURE 014.07-A



Typical Free-Standing Straight Slide

b. All slides shall be provided with a platform with sufficient length to facilitate the transition from standing to, sitting at the top of the inclined sliding surface. The slide transition platform shall have a minimum length of twenty-two (22) inches. ()

c. The slide platform shall be horizontal and have a width at least equal to the width of the slide. ()

d. Guard rails or protective barriers shall surround the slide platform and shall conform to the requirements of Subsection 140.06 of this standard. ()

e. Slides shall not have any spaces or gaps between the platform and the start of the sliding surface. Slides shall be an integral part of the chute. ()

f. Handholds shall be provided at the entrance to all slides to facilitate the transition from standing to sitting thus decreasing the risk of falls. These shall extend high enough to provide hand support for the largest user in a standing position, and low enough to provide hand support to the smallest user in a sitting position. EXCEPTION: Tube slides. ()

g. At the entrance to the slide chute there shall be a means to channel a user into a sitting position. This may be a guardrail, a hood, or other device. Whatever means is provided, it shall be of a design that does not encourage climbing. ()

h. The average incline of the slide shall not exceed thirty (30) degrees and any change in the slope of

the slide chute (wave slide) shall not allow a user to lose contact with the sliding surface. ()

i. Straight slides with flat open chutes shall have sides with a four (4) inch minimum height extending along both sides of the slide chute for the entire length of the inclined sliding surface. Slides may have an open chute with a circular cross section providing that the height of the side, measured from the lowest point on the chute is no less than half the width of the slide. ()

j. Metal slides shall be in either shaded areas or face north to prevent burns and glare problems caused by direct sun on the slide platform and chute. ()

k. The exit region of the slide chute shall be essentially horizontal and parallel to the ground and have a minimum length of eleven (11) inches. ()

l. For slides that are no more than four (4) feet in height, the height of the exit region shall be no more than eleven (11) inches from the shock absorbing surface covering. ()

m. For slides that are more than four (4) feet in height, the exit region shall be at least seven (7) inches, but not more than fifteen (15) inches, above the shock absorbing surface covering. ()

n. Slide exit edges shall be rounded or curved, to prevent lacerations or other injuries which could result from impact with a sharp or straight edge. ()

o. Embankment slides shall as far as possible meet the requirements for straight slides. ()

p. Spiral slides shall as far as possible meet the requirements for straight slides. ()

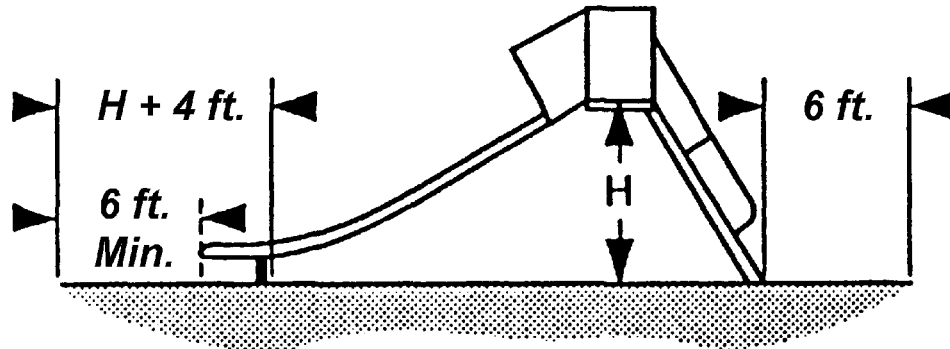
q. Tube slides shall as far as possible meet the requirements for straight slides. ()

r. Barriers shall be provided or surfaces treated to prevent sliding on the top of the slide tube. ()

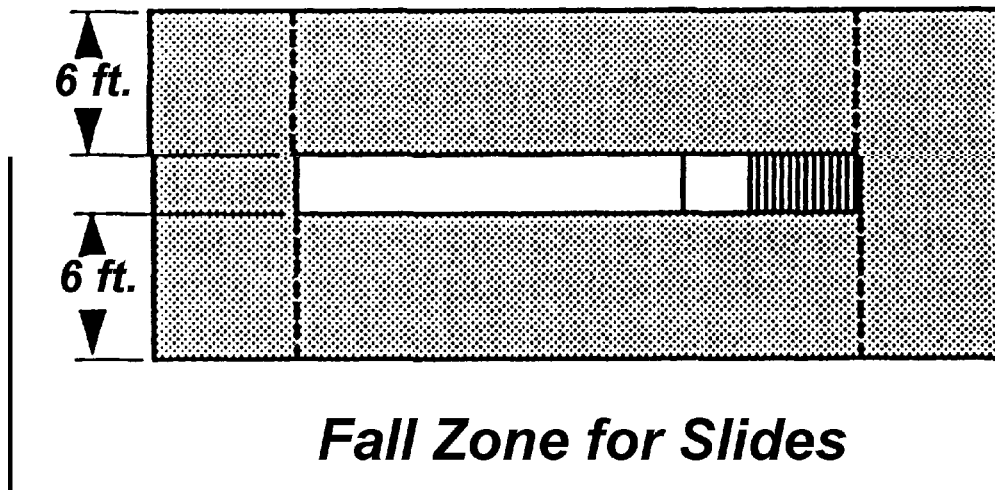
s. The minimum internal diameter of the slide tube shall be no less than twenty-three (23) inches. ()

t. The fall zone for slides shall be as illustrated in Figure 140.07-B. ()

FIGURE 070.07-B



 Denotes Fall Zone with Protective Surfacing

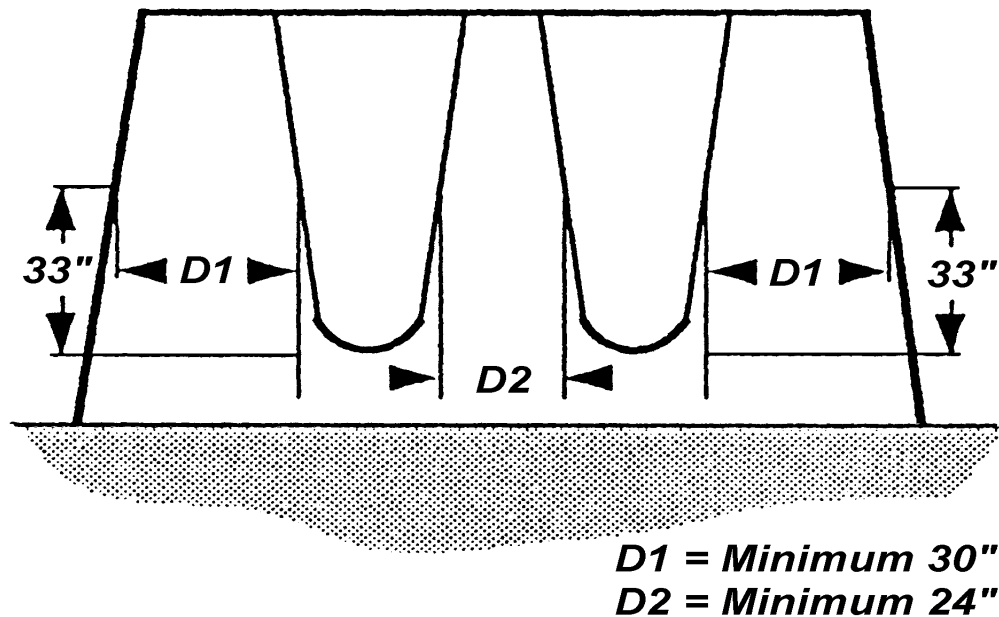


Fall Zone for Slides

08. Swings. ()
- a. Hardware used to secure the suspending elements to the swing seat and to the structure shall not be removable without the use of tools. ()
 - b. Swings shall be suspended from support structures that discourage climbing. A-frame structures shall not have horizontal crossbars. ()
 - c. To prevent inadvertently running into the path of moving swings, swing structures shall be located away from other equipment and activities. ()
 - d. No more than two (2) single axis swings shall be hung in each bay of the supporting structure.

- ()
- e. Swings shall not be attached to a composite structure. ()
- f. Swing seats shall be designed to accommodate no more than one (1) user at any time. ()
- g. To reduce the severity of impact injuries, wood or metal swing seats shall not be used. ()
- h. To minimize collisions between swings or between a swing and the supporting structure, the clearances in Figure 140.08-A shall be used. ()

FIGURE 140.08-A

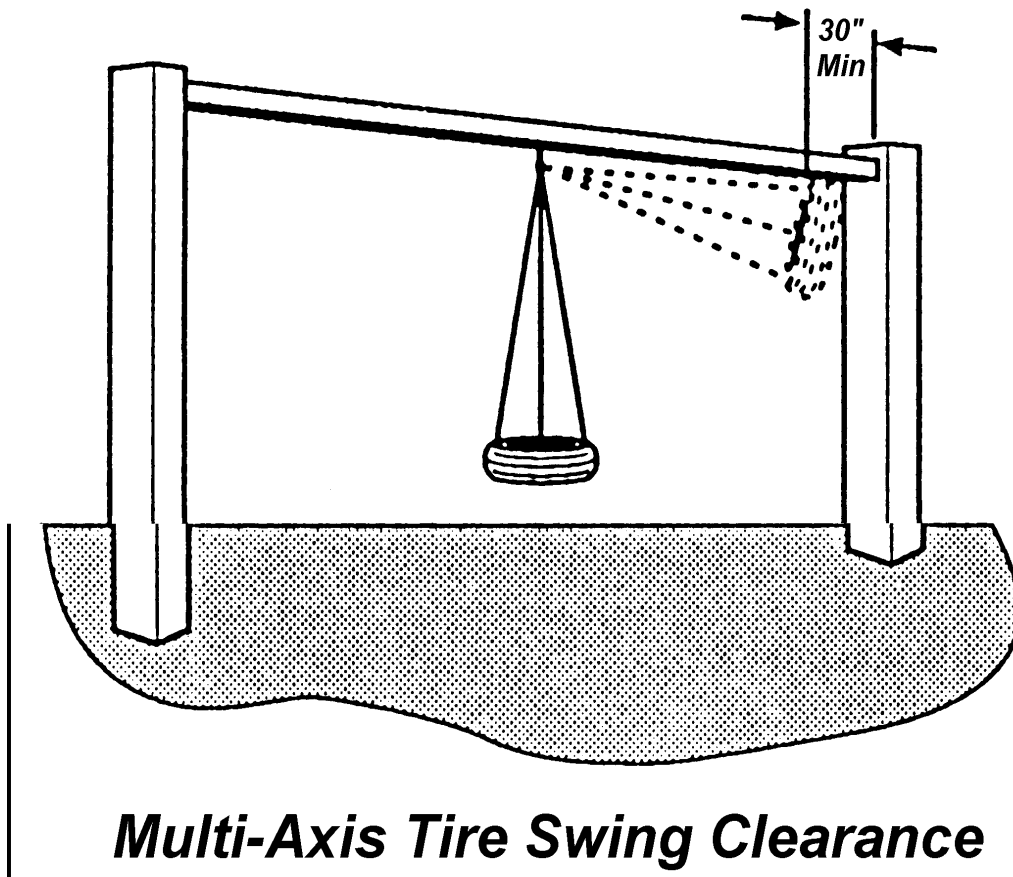


Minimum Clearances for Swings

- i. The horizontal distance between the hangers supporting a to-fro swing seat shall be greater than the width of the seat when occupied, but shall not be less than twenty (20) inches. ()
- j. Multi-axis tire swings shall not be suspended from a structure having other swings in the same bay. ()
- k. Multi-axis swings shall not be attached to composite structures. ()
- l. To minimize the hazard of impact, heavy truck tires shall not be used on multi-axis swings. To minimize the impact hazard, multi-axis swing seats unoccupied weight will not exceed thirty-five (35) lbs. ()
- m. To minimize cuts and punctures, steel belted tires shall not be used on multi-axis swings. ()

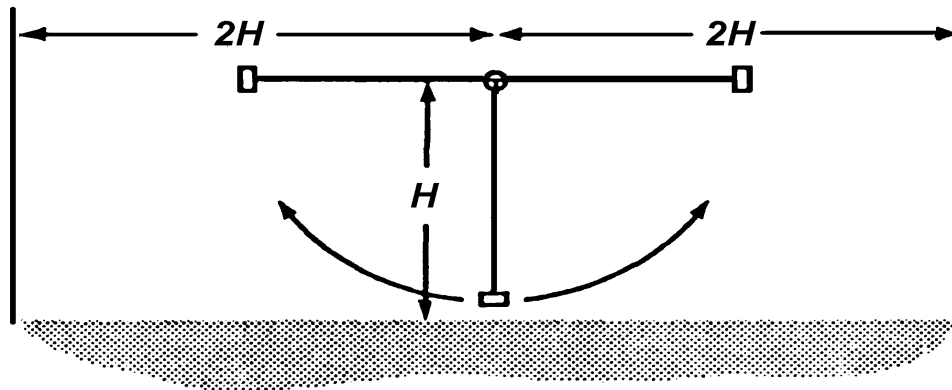
- n. Drainage holes shall be provided in the under side of tires used for multi-axis swings. ()
- o. Due to the added stress of rotation and potential for multiple occupancy of the multi-axis swing, the hanger assembly shall be routinely inspected and serviced. ()
- p. The hanger mechanisms for multi-axis swings shall not have any accessible pinch points. ()
- q. The minimum clearance between the seating surface of a multi-axis swing and the uprights of the supporting structure shall be a minimum of thirty (30) inches when the tire is in a position closest to the support structure, see Figure 140.08-B. ()

FIGURE 140.08-B

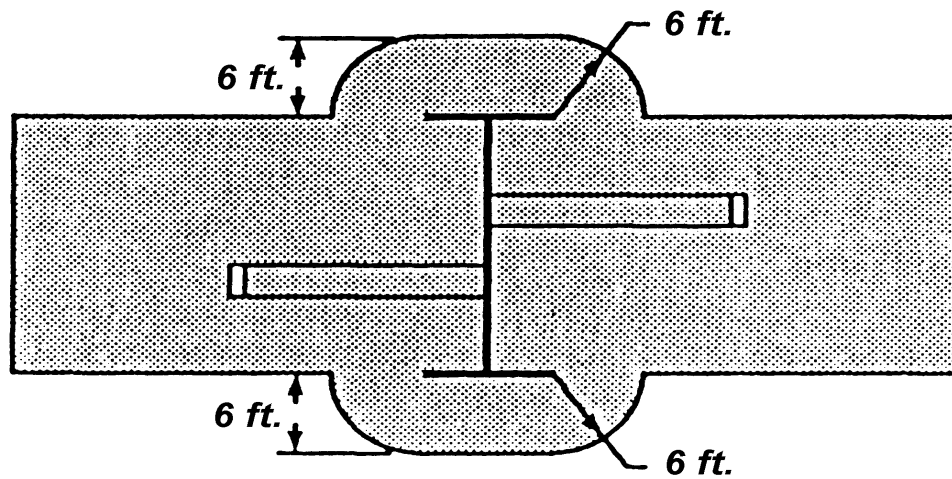


- r. The fall zone for single axis swings shall be as illustrated in Figure 140.08-C. ()

FIGURE 140.08-C



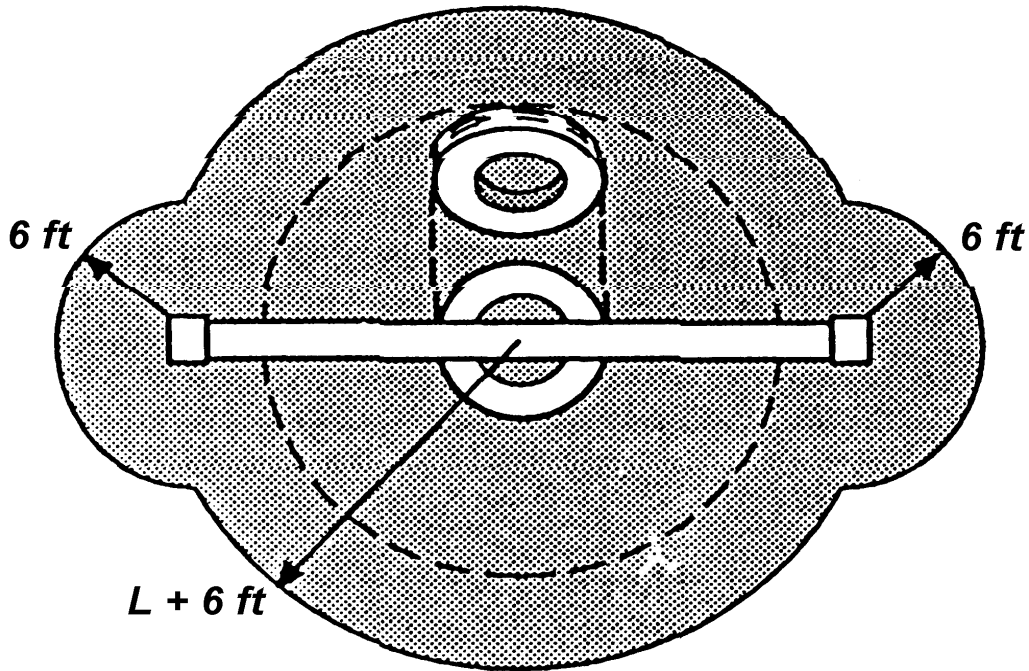
 Denotes Fall Zone With Protective Surfacing



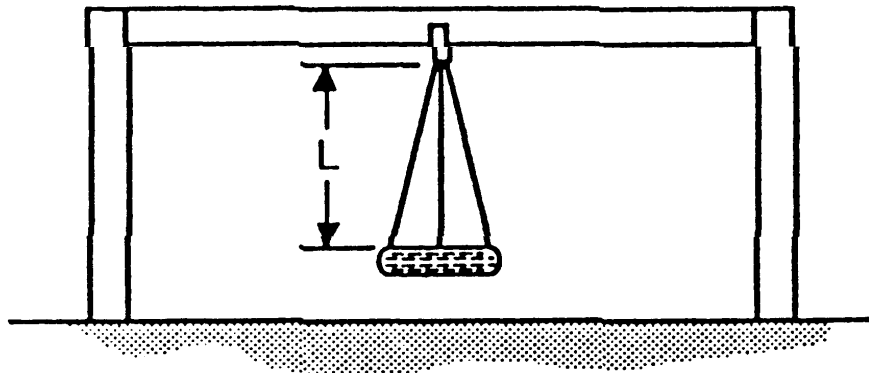
Fall Zone for Single Axis Swings

- s. The fall zone for multi-axis tire swings shall be as illustrated in Figure 140.08-D. ()

FIGURE 140.08-D



 Denotes Fall Zone with Protective Surfacing



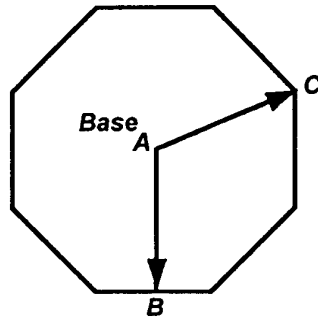
Fall Zone for Multi Axis Tire Swings

09. Climbing Equipment. ()

a. Rungs and other hand gripping components that are intended to be grasped in a manner such that users will support their entire body weight by their hands shall be generally round in cross section with a diameter between zero point ninety-five (0.95) inch and one point fifty-five (1.55) inches with a diameter of one point twenty-five (1.25) inches preferred. ()

- b. Climbing equipment shall not have climbing bars or other structural components in the interior of the structure onto which the user may fall from a height of greater than eighteen (18) inches. ()
- c. Climbing equipment shall allow users to descend as easily as they ascend. ()
- d. Flexible grid climbing devices which provide access to platforms shall be securely anchored at both ends. When one (1) end is connected to the ground, the anchoring devices shall be below the level of the playing surface. ()
- e. Connections between ropes, cables, or chains within the climbing grid or between tires shall be securely fixed. ()
- f. Spacing between the horizontal and vertical components of a climbing grid shall satisfy all entrapment criteria of Subsection 140.05. ()
- g. The space between adjacent rungs of overhead climbers shall be greater than nine (9) inches but not more than fifteen (15) inches center to center. EXCEPTION: Overhead rings. ()
- h. The maximum height of upper body devices shall be no greater than sixty (60) inches for two (2) five (5) year olds and no greater than eighty (80) inches for five (5) to twelve (12) year olds above the protective surfacing. The maximum height of the take-off/landing structure will be no greater than eighteen (18) inches for two (2) five (5) year olds and no greater than thirty-six (36) inches for five (5) twelve (12) year olds. The horizontal distance to and from the take-off/landing structure to the first hand hold will be no less than eight (8) inches and no greater than ten (10) inches. ()
- i. Sliding poles shall be continuous with no protruding welds or seams along the sliding surface and the pole shall not change direction along the sliding portion. ()
- j. The horizontal distance between a sliding pole and the edge of the platform or other structure used for access to the sliding pole shall be at least eighteen (18) inches. This minimum distance applies to all points down the sliding pole. ()
- k. All points on the sliding pole at or above the level of the access structure, where the user is likely to reach for the pole, shall not be more than twenty (20) inches from the edge of the access structure. ()
- l. The sliding pole shall extend at least thirty-eight (38) inches above the level of the platform or other structure used for access to the sliding pole. ()
- m. The diameter of the sliding pole shall be no greater than one point nine (1.9) inches. ()
- n. The design of the access structure shall minimize the possibility of interference from surrounding traffic that may be out of the liner of sight of a user during decent. ()
- o. Individual vertically suspended climbing ropes shall be securely anchored to a footing at the lower end to prevent the rope from being looped back on itself and forming a noose. The anchoring device shall be below the level of the playing surface. ()
- p. To avoid groin injuries during falls, balance beams shall be no higher than twelve (12) inches. ()
- q. Climbing equipment such as arch limbers, chain or net climbers, climbing poles, and similar equipment will not be the sole access to equipment intended for the two (2) five (5) year old age group users. ()
10. Merry-Go-Rounds: ()
- a. The rotating platform shall be continuous and approximately circular. The difference between the minimum and maximum radii of a noncircular platform shall not exceed two (2) inches see Figure 140.10-A. ()

FIGURE 140.10-A

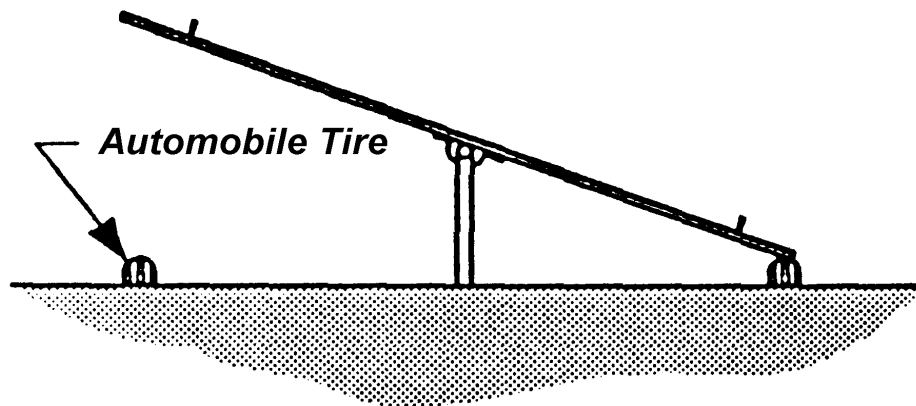


The difference between dimensions AC and AB should not exceed 2.0 inches.

Minimum and Maximum Radii of Non-Circular Merry-Go-Round Platform

- b. No components of the apparatus, including handgrips, shall extend beyond the perimeter of the platform. ()
- c. Users shall be provided with a secure means of holding on. Where handgrips are provided, they shall conform to the general requirements for hand gripping components of Subsection 140.06.e. ()
- d. There shall not be any accessible shearing or crushing mechanisms in the undercarriage or other part of the equipment. ()
- e. The rotating platform of a merry-go-round shall not have any sharp edges. ()
- f. The surface of the platform shall be continuous with no openings between the axis and the periphery that will permit a rod having a diameter of five-eighths (5/8) inch to penetrate completely through the surface. ()
- g. A means shall be provided to limit the peripheral speed of rotation to a maximum of thirteen (13) feet per second. ()
- h. Merry-go-round platforms shall not be provided with an oscillatory (up and down) motion. ()
- i. Fall zone to be six (6) feet from edge of platform. ()
- 11. Seesaws. ()
 - a. The fulcrum of fulcrum seesaws shall not present a pinch or crush hazard. ()
 - b. Tires, or some other shock-absorbing material, shall be embedded in the ground underneath the seats of fulcrum seesaws, or secured on the under side of the seats see Figure 140.11-A. ()

FIGURE 140.11-A



Typical Fulcrum Seesaw

- c. Handholds shall be provided at each seating position for gripping with both hands and shall not turn when grasped. Handholds shall not protrude beyond the sides of the seat. Handgrips shall conform to the general requirements for hand gripping components of Subsection 140.06.e. ()
- d. Footrests shall not be provided on fulcrum seesaws unless they are equipped with a spring centering mechanism. ()
- e. Fall zones to extend six (6) feet beyond the fulcrum seesaw. ()
12. Spring Rocking Equipment. ()
- a. The seat design shall minimize the likelihood of the rocker being used by more than the intended number of users. ()
- b. Each seating position shall be equipped with handgrips conforming to the general requirements of Subsection 140.06.e. and shall have footrests. ()
- c. The springs of rocking equipment shall minimize the possibility of pinching either the hands or the feet between the coils or between the spring and a part of the rocker. ()
- d. The fall zone shall extend six (6) feet beyond spring rocking equipment. The fall zone shall extend seven (7) feet beyond spring boards. ()
13. Surfacing Under and Around Playground Equipment. ()
- a. Loose shock absorbing material shall not be installed over existing hard surfaces (e.g., asphalt, concrete). ()
- b. Loose shock absorbing material shall have a method of containment (e.g., retaining barriers, excavated pits). ()
- c. Loose shock absorbing material shall have good drainage underneath the material. ()

d. Loose shock absorbing material shall be continuously maintained and renewed or replaced as required to maintain its fall absorbing characteristics. ()

14. Protective Surfacing. ()

a. Surfaces under playground equipment more that twenty-four (24) inches or higher will have shock-absorbing properties sufficient to reduce the likelihood of serious head injury if a user falls from the highest obtainable point on the equipment. ()

b. Surface materials used under playground equipment will meet a Head Impact Criteria (HIC) of less than one thousand (1,000) and yield a peak deceleration of less than two hundred (200) Gs. Loose fill materials (wood mulch, sand, gravel etc.) will be installed to ensure proper drainage and will have a means of containment such as curbs, timbers or similar materials. Loose fill materials will be maintained and replaced as needed to maintain the required depth and to keep the materials from compacting. Loose fill materials will not be installed over hard surfaces such as asphalt or concrete. Unitary materials (poured in place urethane, rubber matting, etc.) will be installed in accordance with manufacturer instructions and will provide adequate drainage. ()

c. Table 140.14-A below contains the results of tests on seven (7) loose fill materials commonly used on playgrounds. These tests were done by the Consumer Product Safety Commission and may be used as a guide for selecting the type and depth of surfacing material. The table provides the Critical Height (expressed in feet) for each of the surface materials. There are many other materials that may be used, however, any agency installing protective surfacing will ensure that the material has been tested and meets the requirements of 140.14.b. above. ()

TABLE 140.14-A				
CRITICAL HEIGHTS (IN FEET) OF TESTED MATERIALS				
Material	6 inch Uncompressed Depth	9 inch Uncompressed Depth	12 inch Uncompressed Depth	9 inches Compressed Depth
Wood Mulch ¹	7	10	11	10
Double Shredded Bark Mulch ¹	6	10	11	7
Uniform Wood Chips ¹	6	7	>12	6
Fine Sand ¹	5	5	9	5
Course Sand ¹	5	5	6	4
Fine Gravel ¹	6	7	10	6
Medium Gravel ¹	5	5	6	5

¹The depth of any loose fill material could be reduced during use resulting in different shock absorbing properties. For this reason a margin of safety should be considered in selecting a type and depth of material for a specific use.

141. -- 999. (RESERVED).

IDAPA 17 - INDUSTRIAL COMMISSION
17.10.17 - GENERAL SAFETY AND HEALTH STANDARDS-ELECTRICAL SAFETY
DOCKET NO. 17-1017-9601
NOTICE OF PROPOSED RULES

AUTHORITY: In compliance with Section 67-5221(1), Idaho Code, notice is hereby given that this agency has proposed rule-making. The action is authorized pursuant to §72-508 and §§72-720, 721, 722, and 723, Idaho Code.

PUBLIC HEARING SCHEDULE: Public hearing(s) concerning this rule-making will be scheduled if requested in writing by twenty-five (25) persons, a political subdivision, or an agency, not later than August 21, 1996. The hearing site(s) will be accessible to persons with disabilities. Requests for accommodation must be made not later than five (5) days prior to the hearing, to Patricia S. Ramey, Secretary, Industrial Commission, P. O. Box 83720, Boise, ID 83720-0041. Telephone and fax numbers are listed below.

DESCRIPTIVE SUMMARY: The following is a statement in nontechnical language of the substance of the proposed rule:

The Industrial Commission, in cooperation with the Division of Building Safety, proposes the adoption of rules to replace IDAPA 17.04.01, General Safety and Health Standards Code 1, which is being repealed in its entirety. The proposed rules update the state's minimum safety and health standards in electrical safety, electrical power generation, and power line safety for the public sector and bring them into line with generally accepted safety and health standards in the private sector.

ASSISTANCE ON TECHNICAL QUESTIONS, SUBMISSION OF WRITTEN COMMENTS: For assistance on technical questions concerning these proposed rules, contact Mike Poulin, Bureau of Logging and Industrial Safety, at (208) 334-2129.

Anyone may submit written comments regarding this rule. All written comments and data concerning the rule must be directed to the undersigned and must be postmarked or delivered on or before August 28, 1996.

DATED this 3rd day of June, 1996.

Patricia S. Ramey, Commission Secretary
Industrial Commission
P. O. Box 83720
Boise, Idaho 83720-0041
Telephone: (208) 334-6000
Fax: (208) 334-5145

TEXT OF DOCKET NO. 17-1017-9601

IDAPA 17
TITLE 10
Chapter 17

17.10.17 - GENERAL SAFETY AND HEALTH STANDARDS -- ELECTRICAL SAFETY

000. LEGAL AUTHORITY.

These rules presented in IDAPA 17, Title 10, are promulgated pursuant to the authority granted the Industrial Commission by Sections 72-508, 72-720, 72-721, 72-722, and 72-723, Idaho Code ()

001. TITLE AND SCOPE.

These rules shall be cited as IDAPA 17, Title 10, Chapter 17, General Safety and Health Standards -- Electrical

Safety. For purposes of IDAPA 17, Title 10, these rules shall be applicable to places of public employment, as defined in Sections 72-205 and 72-207, Idaho Code, by the State of Idaho and its political subdivisions i.e. counties, cities, public school districts, and other taxing entities as follows: ()

01. State. Every person in the service of the state or of any political subdivision thereof, under any contract of hire, express or implied, and every official or officer thereof, whether elected or appointed, while performing their official duties. ()

02. County/City. Every person in the service of a county, city, or any political subdivision thereof, or of any municipal corporation. ()

03. National Guard. Members of the Idaho National Guard while on duty. ()

04. Youth Conservation. Participants in Idaho youth conservation project under the supervision of the Idaho State Forester. ()

05. Volunteers. Every person who is a member of volunteer fire, police department, or ambulance service shall be deemed to be in the employment of the political subdivision or municipality where the department is organized. ()

06. Civil Defense. Every person who is a regularly enrolled volunteer member or trainee of the Department of Disaster and Civil Defense, or of a civil defense corps, shall be deemed to be in the employment of the state. ()

07. Public School. Every person who is in the service of a public school or school district shall be deemed to be in the employment of the state. ()

002. WRITTEN INTERPRETATIONS.

For purposes of IDAPA 17, Title 10, there are no written statements which pertain to the interpretation of these rules. ()

003. ADMINISTRATIVE APPEALS.

For purposes of IDAPA 17, Title 10, there are no provisions for administrative appeal of these rules. The procedure for appeals in safety matters is prescribed by Sections 72-722 and 72-714 through 72-718, Idaho Code. ()

004. -- 149. (RESERVED).

150. ELECTRICAL SAFETY.

01. Scope: Electrical installations and utilization shall conform to all other applicable requirements of this standard, the National Electric Code, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to This Section. ()

a. Energized means connected to an energy source or containing residual or stored energy. ()

b. Energy Isolating Device is a mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker, a disconnect switch, manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches, and other control circuit type devices are not energy isolating devices. ()

c. Energy Source is any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy. ()

d. Extension Cord or Cord Set is a portable flexible electric cord of any length which has one (1) male connector on one (1) end and one (1) or more female connectors on the other end and has no built in over-current protection. ()

e. Flexible Cord is multiconductor flexible sheathed cable which is used for extension cords, as the connection means for appliances, and for permanent use by connecting pieces of equipment or devices to each other or to the premises wiring system where flexibility or portability is required. ()

f. Ground is an electrical conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or some conducting body that serves in place of the earth. ()

g. Ground Fault Circuit Interrupter (GFCI) is a device intended for the protection of personnel whose function is to deenergize within an established period of time the electric circuit to the load when a fault current to ground exceeds a predetermined value that is less than that required to operate the over-current protective device of the supply circuit. ()

h. Lockout is the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed. ()

i. Lockout Device is a device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds. ()

j. Power Tap is a device with a flexible cord that has a male connector on one (1) end of the cord and a housing containing built-in over-current protection and one (1) or more receptacles on the other end of the cord. ()

k. Protective Materials and Hardware are locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware provided by the employer for isolating, securing, or blocking of machines or equipment from energy sources. ()

l. Qualified Person is a person familiar with the construction, operation, and safety requirements of the equipment and the hazards involved. ()

m. Receptacle is an electrical contact device installed at an outlet for the attachment of a single attachment plug. A multiple outlet is a device containing two (2) or more receptacles. ()

n. Servicing and/or Maintenance is workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy. ()

o. Setting Up is any work performed to prepare a machine or equipment to perform its normal production operation. ()

p. Tagout is the placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed. ()

q. Tagout Device is a prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed. ()

r. Watertight is an electrical enclosure that is so constructed that moisture will not enter the enclosure.

()

s. Weatherproof is an electrical enclosure that is so constructed or protected that exposure to the weather will not interfere with successful operation. Rainproof, rain-tight, or watertight equipment can fulfill the requirements for weatherproof where varying weather factors other than wetness, such as snow, ice, dust, or temperature extremes are not a factor. ()

03. General Requirements. ()

a. Insulated floors, mats, or platforms shall be provided for personnel handling exposed energized switches or fuses for voltages over one-hundred fifty (150) volts. ()

b. The employer shall establish a program consisting of energy control procedures, employee training, and periodic inspections to ensure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, startup, or release of electricity could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperative. ()

c. Doors to high voltage vaults shall be kept locked. ()

d. Doors into electrical control panel rooms shall be marked with a plainly visible and legible sign stating "ELECTRICAL ROOM" or similar approved wording. ()

e. External feeder service conductors that are uncovered or uninsulated shall be a minimum of: ten (10) feet above finished grade, sidewalks, or from any platform or projection from which they might be reached; twelve (12) feet over areas subject to vehicular traffic other than trucks; fifteen (15) feet over areas subject to truck traffic; eighteen (18) feet over public streets, alleys, roads, and driveways. ()

f. Danger signs shall be posted to warn of high voltage electrical danger. ()

g. Personnel shall not enter spaces containing exposed energized parts unless adequate illumination is provided that enables the person to perform the work safely. Where lack of illumination or an obstruction precludes observation of the work to be performed, personnel shall not perform tasks near exposed energized parts. Personnel shall not reach blindly into areas which may contain energized parts. ()

h. Conductive materials and equipment that are in contact with any part of a persons body shall be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. If a person must handle long dimensional conductive objects (such as ducts and pipes) in areas with exposed live parts, the employer shall institute work practices (such as the use of insulation, guarding, and material handling techniques) which will minimize the hazard. ()

i. Portable ladders shall have nonconductive side rails if they are used where personnel or the ladder could contact energized parts. ()

j. Conductive articles of jewelry and clothing shall not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means. ()

k. Where live parts present an electrical contact hazard, personnel may not perform housekeeping duties at such close distances to the energized parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided. Electrically conductive cleaning materials (including conductive solids such as steel wool, metallized cloth, and silicon carbide, as well as conductive liquid solutions) shall not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact. ()

l. Only a qualified person following the provisions of Subsections 150.11.c. and 150.11.d. of this standard may defeat an electrical safety interlock, and then only temporarily while they are working on the equipment. The interlock system shall be returned to its operable condition when this work is completed. ()

- m. Personnel working in areas where there are potential electrical hazards shall be provided with and shall use electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed. Note: Personal protective equipment requirements are contained in Subsection 050.13 of this standard. ()
- n. Hands shall not be wet when plugging and unplugging flexible electric cords to an energized circuit. ()
04. Power Cords. ()
- a. Flexible cords for equipment or appliances requiring grounding shall have a grounding lug installed on the plug. ()
- b. Flexible cords shall be protected against damage. ()
- c. Flexible cords shall not be permitted to run through holes in walls, ceilings, floors, or to be attached to the facility, building, or structure surfaces. ()
- d. Flexible cords shall not be permitted to run through doorways, windows, etc. ()
- e. Flexible cords shall not be permitted to have worn, frayed, or damaged areas. ()
- f. Flexible cords shall be inspected for serviceability prior to each use. ()
- g. Flexible cord plug terminals shall be integral to the plug. ()
- h. Flexible cords shall not be spliced. ()
- i. Flexible cords shall have proper polarity. ()
- j. When an attachment plug is to be attached to a receptacle or flexible cord, the plug and receptacle shall first be checked to ensure that they are of the proper mating configurations. ()
- k. Adapters which interrupt the continuity of the equipment grounding connection shall not be used. ()
- l. Hands shall not be wet when plugging and unplugging flexible electric power cords to an energized circuit. ()
05. Extension Cords. ()
- a. Only approved listed flexible electric extension cords shall be permitted for use. ()
- b. Flexible cords used to power equipment or appliances requiring grounding shall have a grounding lug installed on the plug. ()
- c. Flexible cords shall be protected against environmental or physical damage. ()
- d. Flexible cords shall not be permitted as a substitute for fixed permanent electric wiring. ()
- e. Flexible cords shall not be permitted to run through walls, ceilings, floors, or to be attached to the facility, building, or structure surfaces. ()
- f. Flexible cords shall not be permitted to run through doorways, windows, etc. ()
- g. Flexible cords shall not be permitted to be concealed behind walls, ceilings, floors, or floor

- coverings. ()
- h. Flexible cords shall not be permitted to have worn, frayed, or damaged areas. ()
 - i. Flexible cords shall have strain relief at the attachment ends. ()
 - j. Flexible cords shall be inspected for serviceability prior to each use. ()
 - k. Flexible cords shall be plugged directly to an approved electric receptacle. ()
 - l. Defective flexible cords shall not be used. ()
 - m. Flexible cord plug terminals shall be integral to the plug. ()
 - n. When an attachment plug is to be attached to a receptacle, the plug and receptacle shall first be checked to ensure that they are of the proper mating configurations. ()
 - o. Flexible cords shall not be spliced. ()
 - p. Flexible cords shall have proper polarity. ()
 - q. Flexible cords shall not be stapled or otherwise attached to walls, ceiling, or other facility, building, or structure surfaces. ()
 - r. Hands shall not be wet when plugging and unplugging flexible cords to an energized circuit. ()
06. Power Taps. ()
- a. Electric power taps shall be plugged directly to an approved electric receptacle. They shall not be “daisy chained,” “piggy backed” or otherwise connected to one another. ()
 - b. Electric power taps shall be listed. ()
 - c. Electric power tap cords shall not extend through walls, ceilings, floors, under doors or floor coverings, or be subject to environmental or physical damage. ()
 - d. Electric power taps shall be of the polarized or grounded type. ()
 - e. Electric power tap power cords shall not be permitted to have worn, frayed, or damaged areas. ()
 - f. Electric power tap power cords shall have strain relief at the attachment ends. ()
 - g. Defective electric power taps shall not be used. ()
 - h. Electric power tap power cord plug terminals shall be integral to the plug. ()
 - i. Electric power tap power cords shall not be spliced. ()
 - j. Electric power tap power cords shall not be stapled or otherwise attached to walls, ceiling, or other facility, building, or structure surfaces. ()
07. Fixtures, Enclosures, Boxes, and Panels. ()
- a. A thirty-six (36) inch clear work area shall be maintained in front of electric control panels, service equipment, switchboards, or motor control centers. The clear work space shall have a minimum headroom of seventy-eight (78) inches. ()

- b. Illumination shall be provided for all working spaces about electric control panels, service equipment, switchboards, or motor control centers. ()
- c. Electric fixtures and receptacles shall not have any exposed electric conductors. ()
- d. Cover plates shall be used to cover all exposed conductors in junction boxes, panels, electric enclosures, etc. ()
- e. Electric enclosures in wet/damp locations shall be approved for such locations and shall be protected from damage. ()
- f. Electric receptacles shall be protected from dampness. ()
- g. Electric junction boxes shall be large enough to accommodate the number of wires enclosed. ()
- h. Electric panels, boxes, enclosures, and conduits shall be securely fastened. ()
- i. Conduit connections, joints, and fittings shall be tight and conduit shall not be allowed to become kinked. ()
- j. Nothing shall be hung from or stored on electric conduits or wiring trays. ()
- k. Electric panels and panel boxes shall have up-to-date directories/labels to identify individual circuits. ()
- l. Electric fixtures and receptacles shall have proper polarity. ()
- m. Electric installations and enclosures shall be protected against damage. ()
- n. Electric installations, enclosures, and conductors shall be protected against corrosion. ()
- 08. Equipment. ()
 - a. Parts of electrical equipment which in ordinary operation produce arcs, sparks, flames, or molten metal shall be enclosed or separated and isolated from all combustible material. ()
 - b. Electrical equipment shall be legibly marked with the manufacturer's name/trademark, voltage, current, wattage, or other ratings as necessary. The markings shall be of sufficient durability to withstand the environment involved. ()
 - c. Live parts of electric equipment operating at fifty (50) volts or more shall be guarded against accidental contact by approved cabinets, other forms of approved enclosures, or location in a room, vault, or similar enclosure accessible only to qualified persons. ()
 - d. Permanent ladders or stairways shall be provided to give safe access to the working space around electric equipment installed on platforms, balconies, mezzanine floors, or in attic or roof rooms or spaces. ()
 - e. Receptacles, cord connectors, and attachment plugs shall be constructed so that no receptacle or cord connector will accept an attachment plug with a different voltage or current rating than that for which the device is intended. However, a twenty (20) ampere T-slot receptacle or cord connector may accept a fifteen (15) ampere attachment plug of the same voltage rating. ()
 - f. Portable electric equipment shall be handled in a manner which will not cause damage. ()
 - g. Flexible electric power or extension cords shall not be used to raise or lower equipment. ()

09. Ground Fault Circuit Interrupters (GFCI) ()
- a. Electrical equipment operating around pools, spas, therapeutic pools, and fountains shall be GFCI protected. ()
- b. Electric receptacles in automotive repair facilities shall be GFCI protected. ()
- c. Deicing/snow melting impedance heating installations shall be GFCI protected. ()
- d. Electrical service on construction/remodeling sites shall be GFCI protected. ()
- e. Electric receptacles in bathrooms shall be GFCI protected. ()
- f. Electric receptacles in kitchens where the receptacles are installed to serve the counter top surfaces shall be GFCI protected. ()
- g. Electric receptacles installed to serve the counter top surfaces within six (6) feet of a sink shall be GFCI protected. ()
- h. Electric receptacles located on rooftops shall be GFCI protected. ()
10. Fixed Electric Wiring. ()
- a. Fixed electric wiring shall have strain relief at the points where it enters and leaves fixtures, enclosures, boxes, and panels. ()
11. Work Practices. ()
- a. Safety related work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits which are or may be energized. The specific safety related work practices shall be consistent with the nature and extent of the associated electrical hazards. ()
- b. Live parts to which personnel may be exposed shall be deenergized before personnel works on or near them, unless it can be demonstrated that deenergizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. ()
- c. If the exposed live parts are not deenergized (i.e., for reasons of increased or additional hazards or infeasibility), other safety related work practices shall be used to protect personnel who may be exposed to the electrical hazards involved. Such work practices shall protect personnel against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object. The work practices that are used shall be suitable for the conditions under which the work is to be performed and for the voltage level of the exposed electric conductors or circuit parts. ()
- d. Only qualified persons may work on electric parts or equipment that have not been deenergized under the procedures of Subsection 150.12 of this standard. Such persons shall be capable of working safely on energized circuits and shall be familiar with the proper use of special precautionary techniques, personnel protective equipment, insulating and shielding materials, and insulated tools. ()
- e. When work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protective measures shall be provided before work is started. If the lines are to be deenergized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to deenergize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions shall prevent personnel from contacting such lines directly with any part of their body or indirectly through conducting materials, tools, or equipment. Only properly qualified personnel shall install insulating devices on overhead power transmission or distribution lines. When an unqualified person is working on the ground or in an elevated position

near overhead lines, the location shall be such that the person and the longest conductive object they may have cannot come closer to any unguarded, energized line than the following distances: for voltages to ground fifty (50)kV or below ten (10) feet; for voltages to ground over fifty (50)kV - ten (10) feet plus four (4) inches for every ten (10)kV over fifty (50)kV. When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in Table 150.11-A unless: The person is insulated from the energized part (gloves, with insulating sleeves if necessary, rated for the voltage involved are considered to be insulation of the person from the energized part on which work is performed), or the energized part is insulated both from all other conductive objects at a different potential and from the person, or the person is insulated from all conductive objects at a potential different from that of the energized part. ()

TABLE 150.11-A	
APPROACH DISTANCES FOR QUALIFIED EMPLOYEES - ALTERNATING CURRENT	
Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid Contact
Over 300V, not over 750V	1 ft. 0 in. (30.5 cm)
Over 750V, not over 2kV	1 ft. 6 in. (46 cm)
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm)
Over 15kV, not 37kV	3 ft. 0 in. (91 cm)
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm)
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm)
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm)

f. When personnel work in a confined or enclosed space (such as a vault) that contains exposed energized parts, the employer shall provide, and personnel shall use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like shall be secured to prevent their swinging into personnel and causing them to contact exposed energized parts. ()

12. Lockout/Tagout Procedures. ()

a. The employer shall establish a written program consisting of energy control procedures, personnel training, and periodic inspections to ensure that, before any personnel perform any servicing or maintenance on a machine, equipment, or circuits where the unexpected energizing, start up, or release of stored energy could occur and cause injury, the machine, equipment, or circuit is isolated from the energy source and rendered inoperative. ()

b. While any person is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked-out or tagged or both in accordance with the following requirements in the order presented: A safe procedure for deenergizing circuits and equipment shall be determined before circuits or equipment are deenergized; the circuits and equipment to be worked on shall be disconnected from all electric energy sources (Control circuit devices, such as push buttons, selector switches, and interlock, shall not be used as the sole means of deenergizing circuits or equipment.); stored electric energy which might endanger personnel shall be released. (Capacitors shall be discharged and high capacitance elements shall be shorted-circuited and grounded, if the stored electric energy might endanger personnel.); stored non-electrical energy in devices that could reenergize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device. ()

c. A lock and a tag or a multiple lockout or multiple tagout device shall be placed on each disconnecting means used to deenergize circuits and equipment on which work is to be performed. The lock shall be attached so as to prevent persons from operating the disconnect means unless they resort to undue force or the use of tools. Each tag shall contain a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag. If a lock cannot be applied, or if the employer can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock. A tag used without a lock shall be supplemented by at least one (1) additional safety measure that provides a level of safety equivalent to that provided by use of a lock such as removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device. A lock may be placed without a tag only when all of the following conditions have been met: Only one (1) circuit or piece of equipment is deenergized, the lockout period does not extend beyond the work shift, and personnel exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure. ()

d. Verification of the deenergization of circuits or equipment shall be by a qualified person who shall do one (1) of the following; operate the equipment controls or otherwise verify that the equipment cannot be restarted or; use test equipment to test the circuit elements to which personnel will be exposed and shall verify that the circuit elements and equipment parts are deenergized. The test shall also determine if any energized condition or reaccumulation of energy exists as a result of inadvertently induced voltage or unrelated voltage back feed even though specific parts of the circuit have been deenergized and presumed to be safe. ()

e. Reenergizing of circuits or equipment, even temporarily, shall be in accordance with the following requirements in the order presented: A qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely energized; personnel exposed to the hazards associated with reenergizing the circuit or equipment shall be warned to stay clear of the circuits and equipment; each lock and tag shall be removed by the person who applied it or under their direct supervision. However if the person who applied the lock and/or tag is absent from the workplace then the lock and/or tag may be removed by a qualified person designated to perform this task provided that the employer ensures that the person who applied the lock and/or tag is not available at the workplace and the employer ensures that the person is made aware that the lock and/or tag has been removed before they resume work at the workplace. ()

151. ELECTRICAL POWER GENERATION AND POWER LINE SAFETY

01. Scope. ()

a. Electrical power generating, transmission, distribution, and related operations and equipment shall conform to all other requirements of this standard as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

b. This section covers the operation and maintenance of electric power generation, control, transformation, transmission, and distribution lines and equipment. ()

02. Definitions Applicable to this Section. ()

a. Automatic Circuit Reclosure is a self controlled device for interrupting and reclosing an alternating current circuit with a predetermined sequence of opening and reclosing followed by resetting, hold-closed, or lockout operation. ()

b. Bond is the electrical interconnection of conductive parts designed to maintain a common electrical potential. ()

c. Cable is a conductor with insulation, or a stranded conductor with or without insulation and other coverings (single conductor cable), or a combination of conductors insulated from one another (multiple conductor cable). ()

d. Cable Sheath is a conductive protective covering applied to cables. ()

e. Conductor is a material, usually in the form of a wire, cable, or bus bar, used for carrying an electrical current. ()

f. Deenergized means to be free from any electrical connection to a source of potential difference and from electric charge; not having a potential different from that of the earth. ()

g. Energized means to be electrically connected to a source of potential difference, or electrically charged so as to have a potential significantly different from that of earth in the vicinity. ()

h. Energy Isolating Device is a physical device that prevents the transmission or release of energy, including, but not limited to, the following: a manually operated electric circuit breaker, a disconnect switch, a manually operated switch, a slide gate, a line valve, blocks, and any similar device with a visible indication of the position of the device. (Push buttons, selector switches, and other control circuit type devices are not energy isolating devices. ()

i. Exposed means not isolated or guarded. ()

j. Ground is a conducting connecting, whether internal or accidental, between an electric current circuit or equipment and the earth, or to some conducting body that serves in place of the earth. ()

k. Guarded means covered, fenced, enclosed, or otherwise protected, by means of suitable covers or casings, barrier rails or screens, mats, or platforms, designed to minimize the possibility, under normal conditions, of dangerous approach or accidental contact by persons or objects. ()

l. Insulated means to be separated from other conducting surfaces by a dielectric (including air space) offering a high resistance to the passage of current. ()

m. Insulation is that which is relied upon to insulate the conductor from other conducting parts or from ground. ()

n. Line Clearance Tree Trimmer is an employee who, through related training or on-the-job experience or both is familiar with the special techniques and hazards involved in line clearance tree trimming. ()

o. Lines are conductors used to transmit electric energy and their necessary supporting structures. ()

p. Qualified Employee is a person knowledgeable in the construction and operation of the electric power generation, transmission, and distribution equipment involved, along with the associated hazards and has the training required by Subsection 151.04 of this section. ()

03. General Requirements ()

a. Existing conditions related to the safety of the work to be performed shall be determined before work on or near electric lines or equipment is started. Such conditions include, but are not limited to, the normal voltages of lines and equipment, the maximum switching transient voltages, the presence of hazardous induced voltages, the presence and condition of protective grounds and equipment grounding conductors, the condition of poles, environmental conditions relative to safety, and the location of circuits and equipment, including power and communication lines and fire protective signaling circuits. ()

b. The employer shall provide medical services and first aid as required in Section 031 of this standard. ()

c. First aid kits shall be available and maintained as required in Section 031 of this standard. ()

d. Hazardous energy control (lockout/tagout) procedures shall meet the requirements of Subsection 150.12 of this standard. ()

e. Confined space entry procedures shall meet the requirements of Section 043 of this standard. ()

f. Excavation procedures shall meet the requirements of Section 044 of this standard. ()

g. Personal protective equipment shall meet the requirements of Section 050 of this standard. ()

h. If, during operation of mechanical equipment, the equipment could become energized, the operation shall also comply with at least one (1) of these requirements: The energized lines exposed to contact shall be covered with insulating protective material that will withstand the type of contact that might be made during the operation. The equipment shall be insulated for the voltage involved and shall be positioned so that its uninsulated portions cannot approach the energized lines or equipment any closer than the minimum approach distances specified in Tables 151.04-A through 151.04-E. Each employee shall be protected from hazards that might arise from equipment contact with energized lines. ()

04. Training Requirements. ()

a. Employees shall be trained in and familiar with the safety related work practices and other safety related requirements that pertain to their respective job assignments. Employees shall also be trained in and familiar with any other safety practices, including applicable emergency procedures (such as pole top and utility hole rescue), that may not be specifically addressed by this standard but that is related to their work and are necessary for their safety. ()

b. Qualified employees shall also be trained and competent in the skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment. They shall have the skills and techniques necessary to determine the nominal voltage of exposed live parts. They shall have the knowledge to determine the minimum approach distances corresponding to the voltages to which the employee will be exposed, see Table 151.04-A through 151.04-E. They shall also be trained in the proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment. Note: For the purposes of this section, a person must have as a minimum this training to be considered a qualified person. ()

TABLE 151.04-B							
AC LIVE-LINE WORK MINIMUM APPROACH DISTANCE WITH OVERVOLTAGE FACTOR PHASE-TO-GROUND EXPOSURE							
Maximum anticipated per-unit transient over-voltage	Distance in feet-inches						
	Maximum phase-to-phase voltage in kilovolts						
	121	145	169	242	362	552	800
1.5	.....	.....	.....	.....	.....	6-0	9-8
1.6	.....	.....	.....	.....	.....	6-6	10-8
1.7	.....	.....	.....	.....	.....	7-0	11-8
1.8	.....	.....	.....	.....	.....	7-7	12-8
1.9	.....	.....	.....	.....	.....	8-1	13-9
2.0	2-5	2-9	3-0	3-10	5-3	8-9	14-11
2.1	2-6	2-10	3-2	4-0	5-5	9-4	.....
2.2	2-7	2-11	3-3	4-1	5-9	9-11	.....

TABLE 151.04-B							
AC LIVE-LINE WORK MINIMUM APPROACH DISTANCE WITH OVERVOLTAGE FACTOR PHASE-TO-GROUND EXPOSURE							
2.3	2-8	3-0	3-4	4-3	6-1	10-6	.....
2.4	2-9	3-1	3-5	4-5	6-4	11-3	.....
2.5	2-9	3-2	3-6	4-6	6-8	.....	.....
2.6	2-10	3-3	3-8	4-8	7-1	.....	.....
2.7	2-11	3-4	3-9	4-10	7-5	.....	.....
2.8	3-0	3-5	3-10	4-11	7-9	.....	.....
2.9	3-1	3-6	3-11	5-1	8-2	.....	.....
3.0	3-2	3-7	4-0	5-3	8-6	.....	.....

Note 1: The distance specified in this table may be applied only where the maximum anticipated per-unit transient overvoltage has been determined by engineering analysis and has been supplied by the employer. Table R-6 applies otherwise.

Note 2: The distances specified in this table are the air, bare-hand, and live-line tool distances.

TABLE 151.04-C							
AC LIVE-LINE WORK MINIMUM APPROACH DISTANCE WITH OVERVOLTAGE FACTOR PHASE-TO-PHASE EXPOSURE							
Maximum anticipated per-unit transient over-voltage	Distance in feet-inches						
	Maximum phase-to-phase voltage in kilovolts						
	121	145	169	242	362	552	800
1.5	.....	.....	.....	.....	.....	7-4	12-1
1.6	.....	.....	.....	.....	.....	8-9	14-6
1.7	.....	.....	.....	.....	.....	10-2	17-2
1.8	.....	.....	.....	.....	.....	11-7	19-11
1.9	.....	.....	.....	.....	.....	13-2	22-11
2.0	3-7	4-1	4-8	6-1	8-7	14-10	26-0
2.1	3-7	4-2	4-9	6-3	8-10	15-7	.....
2.2	3-8	4-3	4-10	6-4	9-2	16-4	.....
2.3	3-9	4-4	4-11	6-6	9-6	17-2	.....
2.4	3-10	4-5	5-0	6-7	9-11	18-1	.....
2.5	3-11	4-6	5-2	6-9	10-4	.....	.....
2.6	4-0	4-7	5-3	6-11	10-9	.....	.....
2.7	4-1	4-8	5-4	7-0	11-2	.....	.....

TABLE 151.04-C							
AC LIVE-LINE WORK MINIMUM APPROACH DISTANCE WITH OVERVOLTAGE FACTOR PHASE-TO-PHASE EXPOSURE							
2.8	4-1	4-9	5-5	7-2	11-7	.....	.....
2.9	4-2	4-10	5-6	7-4	12-1	.....	.....
3.0	4-3	4-11	5-8	7-6	12-6	.....	.....
<p>Note 1: The distance specified in this table may be applied only where the maximum anticipated per-unit transient overvoltage has been supplied by the employer. Table R-6 applies otherwise.</p> <p>Note 2: The distances specified in this table are the air, bare-hand, and live-line tool distances.</p>							

TABLE 151.04-D						
DC LIVE-LINE WORK MINIMUM APPROACH DISTANCE WITH OVERVOLTAGE FACTOR						
Maximum anticipated per-unit transient overvoltage	Distance in feet-inches					
	Maximum lin-to-ground voltage in kilovolts					
	250	400	500	600	750	
1.5 or lower	3-8	5-3	6-9	8-7	11-10	
1.6	3-10	5-7	7-4	9-5	13-1	
1.7	4-1	6-0	7-11	10-3	14-4	
1.8	4-3	6-5	8-7	11-2	15-9	
<p>Note 1: The distances specified in this table may be applied only where the maximum anticipated per-unit transient overvoltage has been determined by engineering analysis and has been supplied by the employer. However, if the transient overvoltage factor is not known, a factor of 1.8 shall be assumed.</p> <p>Note 2: The distances specified in this table are the air, bare-hand, and live-line tool distances.</p>						

TABLE 151.04-E					
ALTITUDE CORRECTION FACTOR					
ft	ft	m	m	Correction Factor	
3000	10000	900	3000	1.00	1.20
4000	12000	1200	3600	1.02	1.25
5000	14000	1500	4200	1.05	1.30
6000	16000	1800	4800	1.08	1.35
7000	18000	2100	5400	1.11	1.39
8000	20000	2400	6000	1.14	1.44

TABLE 151.04-E					
ALTITUDE CORRECTION FACTOR					
ft	ft	m	m	Correction Factor	
9000		2700		1.17	
Note 1: If the work is performed at elevations greater than 3000 ft (900 m) above sea level, the minimum approach distance shall be determined by multiplying the distance in Table 151.04-A through Table 151.04-E by the correction factor corresponding to the altitude at which work is performed.					

c. The employer shall determine, through regular supervision and through inspections conducted on at least an annual basis, that each employee is complying with safety related work practices. ()

d. An employee shall receive additional training or retraining under any of the following conditions: it the supervisory or annual inspections indicate that the employee is not complying with safety related work practices; or if new technology, new types of equipment , or changes in procedures necessitate the use of safety related work practices that are different from those which the employee would normally use; or if the employee safety related work practices that are not normally used during the employee’s regular job duties. Note: Tasks that are performed less often than once per year shall necessitate retraining before the performance of the work practices involved. ()

e. Training required by this section shall be of the classroom or on-the-job type. ()

f. The training shall establish employee proficiency in the work practices required by this section and shall introduce the procedures necessary for compliance with this section. ()

05. Job Briefing:. ()

a. The employer shall ensure that the employee in charge of a job conducts a job briefing with the employees involved before they start each job. The briefing shall cover at least the following subjects: hazards associated with the job, work procedures involved, special precautions, energy source controls, and personal protective equipment requirements. ()

b. If the work or operations to be performed during the work day or shift are repetitive and similar, at least one (1) job briefing shall be conducted before the start of the first job of each day or shift. Additional job briefings shall be held if significant changes, which might affect the safety of the employees, occur during the course of the work. A brief discussion is satisfactory if the work involved is routine and if the employee, by virtue of training and experience, can reasonably be expected to recognize and avoid the hazards involved in the job. A more extensive discussion shall be conducted: if the work is complicated or particularly hazardous, or if the employee cannot be expected to recognize and avoid the hazards involved in the job. Note: The briefing is always required to touch on all the subjects listed in Subsection 151.05.a. above. ()

c. An employee working alone need not conduct a job briefing. However, the employer shall ensure that the tasks to be performed are planned as if a briefing were required. ()

06. Live-Line Tools ()

a. Live-line tool rods, tubes, and poles shall be designed and constructed to withstand the following minimum tests: one-hundred thousand (100,000) volts per foot of length for five (5) minutes if the tool is made of fiberglass reinforced plastic (FRP); seventy-five thousand (75,000) volts per foot of length for three (3) minutes if the tool is made of wood; or other tests that the employer can demonstrate are equivalent. ()

b. Each live-line tool shall be wiped clean and visually inspected for defects before use each day. If any defect or contamination that could adversely affect the insulating qualities or mechanical integrity of the live-line tool is present after wiping, the tool shall be removed from service and examined and tested to the requirements of

Subsection 151.06.a. above before being returned to service. ()

c. The examination, cleaning, repairing, and in-service testing of live-line tools shall be in accordance with the guidelines contained in the Institute of Electrical and Electronics Engineers Guide for In service Maintenance and Electrical Testing of Live-Line Tools, IEEE Std. 978. ()

07. Overhead Lines. ()

a. Before elevated structures, such as poles or towers, are subjected to such stresses as climbing or the installation or removal of equipment may impose, the employer shall ascertain that the structures are capable of sustaining the additional or unbalanced stresses. If the pole or other structure cannot withstand the loads which will be imposed it shall be braced or otherwise supported so as to prevent failure. ()

b. When poles are set, moved, or removed near exposed energized overhead conductors, the pole shall not contact the conductors. ()

c. When a pole is set, moved, or removed near an exposed energized overhead conductor, the employer shall ensure that each employee wears electrical protective equipment and uses insulated devices when handling the pole and that no employee contacts the pole with uninsulated parts of their body. ()

d. To protect employees from falling into holes into which poles are to be placed, the holes shall be attended by employees or physically guarded whenever anyone is working nearby. ()

e. When installing or removing overhead lines the employer shall use the tension stringing method, barriers, or other equivalent measures to minimize the possibility that conductors and cables being installed or removed will contact energized power lines or equipment. ()

f. The protective measures required by Subsection 151.04.h. of this section shall also be provided for conductors, cables, and pulling and tensioning equipment when the conductor or cable is being installed or removed close enough to energized conductors that any of the following failures could energize the pulling or tensioning equipment or the wire or cable being installed or removed: failure of the pulling or tensioning equipment, failure of the wire or cable being pulled, or failure of the previously installed lines or equipment. ()

g. If the conductors being installed or removed cross over energized conductors in access of six-hundred (600) volts and if the design of the circuit-interrupting device protecting the lines so permits, the automatic reclosing feature of these devices shall be made inoperative. ()

h. Before lines are installed parallel to existing energized lines, the employer shall make a determination of the approximate voltage to be induced in the new lines, or work shall proceed on the assumption that the induced voltage is hazardous. Unless the employer can demonstrate that the lines being installed or removed are not subject to the induction of hazardous voltage or unless the lines are treated as energized, the following requirements also apply: Each bare conductor shall be grounded in increments so that no point along the conductor is more than two (2) miles from a ground. The grounds shall be left in place until the conductor installation is completed between dead ends. The grounds shall be removed as the last phase of aerial cleanup. If employees are working on bare conductors, grounds shall also be installed at each location where these employees are working, and grounds shall be installed at all open dead-end or catch-off points to the next adjacent structure. If two (2) bare conductors are to be spliced, the conductors shall be bonded and grounded before being spliced. ()

i. Reel handling equipment, including pulling and tensioning devices, shall be in safe operating condition and shall be leveled and aligned. ()

j. Load rating of stringing, pulling lines, conductor grips, load bearing hardware and accessories, rigging, and hoists shall not be exceeded. ()

k. Pulling lines and accessories shall be repaired or replaced when defective. ()

l. Conductor grips shall not be used on wire rope, unless the grip is specifically designed for this ()

application. ()

m. Reliable communications, through two-way radios or other equivalent means, shall be maintained between the reel tender and the pulling rig operator. ()

n. The pulling rig shall only be operated when it is safe to do so. Examples of unsafe conditions include employees in locations prohibited by Subsection 151.07.o. of this section, conductor and pulling line hang-ups, and slipping of the conductor grip. ()

o. While the conductor or pulling line is being pulled (in motion) with a power driven device, employees shall not be permitted directly under overhead operations or on the cross arm, except as necessary to guide the stringing sock or board over or through the stringing sheave. ()

08. Live-Line Bare-Hand Work. ()

a. Live-line bare-hand work shall be conducted under all other applicable provisions of Section 151 of this standard in addition to the specific requirements of this Subsection. ()

b. Before any employee uses the live-line bare-hand technique on energized high-voltage conductors or parts, the following information shall be ascertained: the nominal voltage rating of the circuit on which the work is to be performed; the minimum approach distances to ground from lines and other energized parts on which work is to be performed; and the voltage limitations of equipment to be used. ()

c. The insulated equipment, insulated tools, and aerial devices and platforms used shall be designed, tested, and intended for live-line bare-hand work. Tools and equipment shall be kept clean and dry while they are in use. ()

d. The automatic reclosing feature of circuit interrupting devices protecting the lines shall be made inoperative, if the design of the devices permits. ()

e. Work shall not be performed when adverse weather conditions such as thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms, would make the work hazardous even after the work practices required by this section are employed. Additionally, work shall not be performed when the winds reduce the phase-to-phase or phase-to-ground minimum approach distances at the work location below that specified in Subsection 151.08.m. of this section, unless the grounded objects and other lines and equipment are covered by insulating guards. ()

f. A conductive bucket liner or other conductive device shall be provided for bonding the insulated aerial device to the energized line or equipment. The employee shall be connected to the bucket liner or other conductive device by the use of conductive shoes, leg clips, or other means. Where differences in potentials at the worksite pose a hazard to employees, electrostatic shielding designed for the voltages being worked shall be provided. ()

g. Before the employee contacts the energized part, the conductive bucket liner or other conductive device shall be bonded to the energized conductor by means of a positive connection. This connection shall remain attached to the energized conductor until the work on the energized circuit is completed. ()

h. Aerial lifts to be used for live-line bare-hand work shall have dual controls (lower and upper) as follows: The upper controls shall be within easy reach of the employee in the bucket. On a two (2) bucket-type lift, access to the controls shall be within easy reach from either bucket. The lower set of controls shall be located near the base of the boom, and shall be so designed that they can override the operation of the equipment at any time. ()

i. Lower (ground-level) lift controls shall not be operated with an employee in the lift, except in an emergency. ()

j. Before employees are elevated into the work position, all controls (ground level and bucket) shall be checked to determine that they are in proper working condition. ()

k. Before the boom of an aerial lift is elevated, the body of the truck shall be grounded, or the body of the truck shall be barricaded and treated as energized. ()

l. A boom current test shall be made before work is started each day, each time during the day when higher voltage is encountered, and when changed conditions indicate a need for an additional test. This test shall consist of placing the bucket in contact with an energized source equal to the voltage to be encountered for a minimum of three (3) minutes. The leakage current shall not exceed one (1) microampere per kilovolt of nominal phase-to-ground voltage. Work from the aerial lift shall be immediately suspended upon indication of a malfunction in the equipment. ()

m. The minimum approach distances specified in Tables 151.04-A through 151.04-E shall be maintained from all grounded objects and from lines and equipment at a potential different from that to which the live-line bare-hand equipment is bonded, unless such grounded objects and other lines and equipment are covered by insulating guards. ()

n. While an employee is approaching, leaving, or bonding to an energized circuit, the minimum approach distances in Tables 151.04-A through 151.04-E shall be maintained between employees and any grounded parts, including the lower boom and portions of the truck. ()

o. While the bucket is positioned alongside an energized bushing or insulator string, the phase-to-ground minimum approach distances of Tables 151.04-A through 151.04-E shall be maintained between all parts of the bucket and the grounded end of the bushing or insulator string or any other grounded surface. ()

p. Hand lines shall not be used between the bucket and the boom or between the bucket and the ground. However, non-conductive type hand lines may be used from conductor to ground if not supported from the bucket. Ropes used for live-line bare-hand work shall not be used for other purposes. ()

q. Uninsulated equipment or material shall not be passed between a pole or structure and an aerial lift while an employee working from the bucket is bonded to an energized part. ()

r. A minimum approach distance table reflecting the minimum approach distances listed in Tables 151.06-A through 151.04-E shall be printed on a plate of durable non-conductive material. This table shall be mounted so as to be visible to the operator of the boom. ()

s. A non-conductive measuring device shall be readily accessible to assist employees in maintaining the required minimum approach distance. ()

09. Line Clearance Tree Trimming Operations. ()

a. Before an employee climbs, enters, or works around any tree, a determination shall be made of the nominal voltage of electrical power lines posing a hazard to employees. However, a determination of the maximum nominal voltage to which an employee may be made instead, if all lines are considered as energized at this maximum voltage. ()

b. There shall be a second line clearance tree trimmer within normal (that is unassisted) voice communication under any of the following conditions: if a line clearance tree trimmer is to approach more closely than ten (10) feet to any conductor energized to more than seven-hundred fifty (750) volts; if branches or limbs being removed are closer to lines energized at more than seven-hundred fifty (750) volts than the distances listed in Tables 151.04-A, 151.04-D, and 151.04-E; or if roping is necessary to remove branches or limbs from such energized conductors or apparatus. ()

c. Line clearance tree trimmers shall maintain the minimum approach distances from energized conductors given in Tables 151.04-A, 151.04-D, and 151.04-E. ()

d. Branches that are contacting exposed energized conductors or equipment or that are within the distances specified in Tables 151.04-A, 151.04-D, and 151.04-E shall be removed only through the use of insulating

equipment listed in Subsection 151.06 of this section. ()

e. Ladders, platforms, and aerial devices shall not be brought closer to an energized part than the distances listed in Tables 151.04-A, 151.04-D, and 151.04-E. ()

f. Line clearance tree trimming work shall not be performed when adverse weather conditions such as thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms, make the work hazardous in spite of the work practices required by this subsection. Each employee performing line clearance tree trimming work in the aftermath of a storm or other similar emergency conditions shall be trained in the special hazards related to this type of work. ()

152. -- 999. (RESERVED).

IDAPA 17 - INDUSTRIAL COMMISSION
17.10.20 - GENERAL SAFETY AND HEALTH STANDARDS-OCCUPATIONAL NOISE EXPOSURE
DOCKET NO. 17-1020-9601
NOTICE OF PROPOSED RULES

AUTHORITY: In compliance with Section 67-5221(1), Idaho Code, notice is hereby given that this agency has proposed rule-making. The action is authorized pursuant to §72-508 and §§72-720, 721, 722, and 723, Idaho Code.

PUBLIC HEARING SCHEDULE: Public hearing(s) concerning this rule-making will be scheduled if requested in writing by twenty-five (25) persons, a political subdivision, or an agency, not later than August 28, 1996. The hearing site(s) will be accessible to persons with disabilities. Requests for accommodation must be made not later than five (5) days prior to the hearing, to Patricia S. Ramey, Secretary, Industrial Commission, P. O. Box 83720, Boise, ID 83720-0041. Telephone and fax numbers are listed below.

DESCRIPTIVE SUMMARY: The following is a statement in nontechnical language of the substance of the proposed rule:

The Industrial Commission, in cooperation with the Division of Building Safety, proposes the adoption of rules to replace IDAPA 17.04.01, General Safety and Health Standards Code 1, which is being repealed in its entirety. The proposed rules update the state's minimum safety and health standards in occupational noise exposure for the public sector and bring them into line with generally accepted safety and health standards in the private sector.

ASSISTANCE ON TECHNICAL QUESTIONS, SUBMISSION OF WRITTEN COMMENTS: For assistance on technical questions concerning these proposed rules, contact Mike Poulin, Bureau of Logging and Industrial Safety, at (208) 334-2129.

Anyone may submit written comments regarding this rule. All written comments and data concerning the rule must be directed to the undersigned and must be postmarked or delivered on or before August 28, 1996.

DATED this 3rd day of June, 1996.

Patricia S. Ramey, Commission Secretary
Industrial Commission
P. O. Box 83720
Boise, Idaho 83720-0041
Telephone: (208) 334-6000
Fax: (208) 334-5145

TEXT OF DOCKET NO. 17-1020-9601

IDAPA 17
TITLE 10
Chapter 20

17.10.20 - GENERAL SAFETY AND HEALTH STANDARDS --
OCCUPATIONAL NOISE EXPOSURE

000. LEGAL AUTHORITY.

These rules presented in IDAPA 17, Title 10, are promulgated pursuant to the authority granted the Industrial Commission by Sections 72-508, 72-720, 72-721, 72-722, and 72-723, Idaho Code. ()

001. TITLE AND SCOPE.

These rules shall be cited as IDAPA 17, Title 10, Chapter 20, General Safety and Health Standards -- Occupational Noise Exposure. For purposes of IDAPA 17, Title 10, these rules shall be applicable to places of public employment, as defined in Sections 72-205 and 72-207, Idaho Code, by the State of Idaho and its political subdivisions i.e. counties, cities, public school districts, and other taxing entities as follows: ()

01. State. Every person in the service of the state or of any political subdivision thereof, under any contract of hire, express or implied, and every official or officer thereof, whether elected or appointed, while performing their official duties. ()

02. County/City. Every person in the service of a county, city, or any political subdivision thereof, or of any municipal corporation. ()

03. National Guard. Members of the Idaho National Guard while on duty. ()

04. Youth Conservation. Participants in Idaho youth conservation project under the supervision of the Idaho State Forester. ()

05. Volunteer. Every person who is a member of volunteer fire, police department, or ambulance service shall be deemed to be in the employment of the political subdivision or municipality where the department is organized. ()

06. Civil Defense. Every person who is a regularly enrolled volunteer member or trainee of the Department of Disaster and Civil Defense, or of a civil defense corps, shall be deemed to be in the employment of the state. ()

07. Public School. Every person who is in the service of a public school or school district shall be deemed to be in the employment of the state. ()

002. WRITTEN INTERPRETATIONS.

For purposes of IDAPA 17, Title 10, there are no written statements which pertain to the interpretation of these rules. ()

003. ADMINISTRATIVE APPEALS.

For purposes of IDAPA 17, Title 10, there are no provisions for administrative appeal of these rules. The procedure for appeals in safety matters is prescribed by Sections 72-722 and 72-714 through 72-718, Idaho Code. ()

004. -- 159. (RESERVED).

160. OCCUPATIONAL NOISE EXPOSURE.

01. Scope. Occupational noise exposure shall conform to all other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section. ()

a. Action level is an eight (8) hour time weighted average of eighty-five (85) decibels measured on the A-scale, slow response; or equivalently, a noise dose of fifty (50) percent. ()

b. Audiogram is a chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency. ()

c. Audiologist is a professional specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners. ()

d. Baseline Audiogram is the audiogram against which future audiograms are compared. ()

- e. Criterion Sound Level is a sound level of ninety (90) decibels. ()
 - f. Decibel is a unit of measurement of sound level. ()
 - g. Hertz (Hz) is a unit of measurement of frequency, numerically equal to cycles per second. ()
 - h. Medical Pathology is a disorder or disease. For purposes of this section, a condition or disease affecting the ear, which would be treated by a physician specialist. ()
 - i. Noise Dose is a percentage of the maximum allowable daily noise dose. For example, an eight (8) hour TWA exposure of ninety (90)dB = 100% noise dose. ()
 - j. Noise Dosimeter is an instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose. ()
 - k. Otolaryngologist is a physician specializing in the diagnosis and treatment of disorders of the ear, nose, and throat. ()
 - l. Representative Exposure are measurements of an employee's noise dose or eight (8) hour time weighted average sound level that employers deem to be representative of the exposures of other employees in the workplace. ()
 - m. Sound Level Pressure (dB) = ten (10) times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of twenty (20) micropascals (10 log (P1/Pref)²). ()
 - n. Sound Level Meter is an instrument for the measurement of sound level. ()
 - o. Time Weighted Average Sound Level is that sound level, which if constant over an eight (8) hour exposure, would result in the same noise dose as is measured. ()
03. General Requirements. Protection against the effect of noise exposure shall be provided when the sound levels exceed those shown in Table 160.03-A, when measured on the A scale of a standard sound level meter at slow response. ()

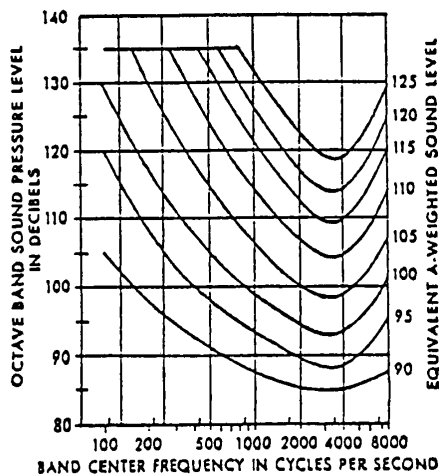
TABLE 160.03-A	
PERMISSIBLE NOISE EXPOSURES¹	
Duration Per Day, Hour	Sound Level dba Slow Response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110

TABLE 160.03-A	
PERMISSIBLE NOISE EXPOSURES ¹	
Duration Per Day, Hour	Sound Level dba Slow Response
1/4 or less	115

¹ When the daily noise exposure is composed of two or more periods of noise exposure of difference levels, their combined effect should be considered, rather than the individual effect of each. When employees are exposed to different sound levels during the day, the mixed exposure must be calculated by using the following formula: $C_1/T_1 + C_2/T_2 + C_3/T_3 + \dots + C_n/T_n = D$ where each "C" is the total exposure time at a given noise level and each "T" is the total exposure time permitted at that level. If the sum of the fractions equals or exceeds 1, then the mixed exposure is considered to exceed the limit value. For example, an employee is exposed to the following noise levels during his work day: 85 dBA - 3.75 hours; 90 dBA - 2 hours; 95 dBA - 2 hours; 110 dBA - .25 hours. Thus, the sum of the fractions is as follows: $3.75/\text{no limit, (or 0)} + 2/8 + 2/4 + 0.25/0.5 = 1.25$. The mixed exposure exceeds the limit value. If the sum of the following fractions: $C_1/T_1 + C_2/T_2 + C_n/T_n$ exceeds unity, then the mixed exposure should be considered to exceed the limit value. C_n indicates the total time of exposure at a specified noise level, and T_n indicates the total time of exposure permitted at that level.

- ()
04. Equivalent Sound Level Contours: ()
- a. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined by using the graph in Figure 160.04-A. ()

FIGURE 160.04-A BAND CENTER FREQUENCY IN CYCLES PER SECOND



- b. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on the graph in figure 160.04-A and noting the A-weighted sound level corresponding to the point of

highest penetration into the sound level contours. This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from Table 160.03-A. ()

05. Engineering Controls. When employees are subjected to sound exceeding those listed in Table 160.03-A, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table 160.03-A, proper protective equipment shall be provided and used to reduce sound levels within the levels of the Table. ()

06. Variations in Level: If the variations in noise level involve maxima at intervals of one (1) second or less, it is to be considered continuous. ()

07. Hearing Conservation Program: ()

a. In all cases where the sound levels equal or exceed an eight (8) hour time weighted average sound level (TWA) of eighty-five (85) decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent (50%), a continuing effective hearing conservation program shall be administered. ()

b. For the purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with IDAPA 17.10.20.160.12 and Table 160.12-A, and without regard to any attenuation provided by the use of personal protective equipment. ()

c. For the purposes of this section, an eight (8) hour time weighted average of eighty-five (85) decibels or a dose of fifty percent (50%) shall also be referred to as the action level. ()

d. When information indicates that any employee's exposure may equal or exceed an eight (8) hour time weighted average of eighty-five (85) decibels, the employer shall develop and implement a monitoring program. The sampling strategy shall be designed to identify employees for inclusion in the hearing conservation program and to enable proper selection of hearing protectors. Where circumstances such as high mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring generally inappropriate, the employer shall use representative personal sampling to comply with the monitoring requirements of this section unless the employer can show that area sampling produces equivalent results. All continuous, intermittent, and impulsive sound levels from eighty (80) decibels to one-hundred thirty (130) decibels shall be integrated into the noise measurements. Monitoring shall be repeated whenever a change in production, process, equipment, or controls increase noise exposures to the extent that: additional employees may be exposed at or above the action level; or the attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of IDAPA 17.10.20.160.10.g. ()

e. The employer shall notify each employee exposed at or above an eight (8) hour time weighted average of eighty-five (85) decibels of the result of the monitoring. ()

f. The employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted pursuant to this section. ()

g. Exposure to impulsive or impact noise shall not exceed one-hundred forty (140) db peak sound pressure level. ()

08. Audiometric Testing Program: ()

a. The employer shall establish and maintain an audiometric testing program as provided in this paragraph by making audiometric testing available to all employees whose exposure equal or exceed an eight (8) hour time weighted average of eighty-five (85) decibels. ()

b. The program shall be provided at no cost to employees. ()

c. Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or physician. ()

d. All audiograms obtained pursuant to this section shall meet the requirements of IDAPA 17.10.20.160.09. ()

e. Within six (6) months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared. Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within one (1) year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than six (6) months after the employee's first exposure at or above the action level, employees shall wear hearing protectors for any period exceeding six (6) months after the first exposure until the baseline audiogram is obtained. ()

f. Testing to establish a baseline audiogram shall be preceded by at least fourteen (14) hours without exposure to work place noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by fourteen (14) hours without exposure to workplace noise. The employer shall notify employees of the need to avoid high levels of non-occupational noise exposure during the fourteen (14) hour period immediately preceding the audiometric examination. ()

g. At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an eight (8) hour time weighted average of eighty-five (85) decibels. ()

h. Each employees annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. This comparison may be done by a trained technician. If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer may obtain a retest within thirty (30) days and consider the results of the retest as the annual audiogram. The audiologist, otolaryngologist, or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. The employer shall provide to the person performing this evaluation the following information: a copy of the requirements for hearing conservation as set forth in this section; the baseline audiogram of the employee to be evaluated; measurements of background sound pressure levels in the audiometric test room as required by this section for audiometric test rooms; and records of audiometer calibrations as required by this section. ()

i. If a comparison of the annual audiogram to the baseline audiogram indicated a standard threshold shift as defined herein has occurred, the employee shall be informed of this fact in writing, within twenty-one (21) days of the determination. Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift occurs: employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them; employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary; and the employee shall be informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected. ()

j. If subsequent audiometric testing of an employee whose exposure to noise is less than an eight (8) hour time weighted average of ninety (90) decibels indicates that a standard threshold shift is not present, the employer: shall inform the employee of the new audiometric interpretation; and may discontinue the required use of hearing protectors for that employee. ()

k. An annual audiogram may be substituted for the baseline audiogram when, in the judgement of the audiologist, otolaryngologist, or physician who is evaluating the audiogram: the standard threshold shift revealed by the audiogram is persistent; the hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram. ()

l. As used in this section, a standard threshold shift is a change in the hearing threshold relative to the baseline audiogram of an average of ten (10)dB or more at two-thousand (2000), three-thousand (3000), and four-thousand (4000) Hz in either ear. ()

m. In determining whether a standard threshold shift has occurred, allowance may be made for the

contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram. ()

09. Audiometric Test Requirements ()

a. Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum five-hundred (500), one-thousand (1000), two-thousand (2000), three-thousand (3000), four-thousand (4000), and six-thousand (6000) Hz. Tests at each frequency shall be taken separately for each year. ()

b. Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained in accordance with, the American National Standard Specification for Audiometers, S3.9. ()

c. Pulsed tone and self recording audiometers, if used, shall meet the requirements of IDAPA 17.10.20.160.13. ()

d. Audiometric examinations shall be administered in a room meeting the following requirements: Rooms used for audiometric testing shall not have background sound pressure levels exceeding those in Table 160.09-A when measured with equipment conforming to at least to the Type-2 requirements of American National Standard Specification for Sound Level Meters, S1.4 and to Class II requirements of American National Standard Specification for Octave, Half-Octave, and Third-octave Band Filter Sets, S1.11. ()

TABLE 160.09-A					
MAXIMUM ALLOWABLE OCTAVE-BAND SOUND PRESSURE LEVELS FOR AUDIOMATIC TEST ROOMS					
Octave-band center					
frequency (Hz)	500	1000	2000	4000	8000
Sound pressure level (dB)	40	40	47	57	62

MAXIMUM ALLOWABLE OCTAVE-BAND SOUND PRESSURE LEVELS FOR AUDIOMATIC TEST ROOMS

10. Hearing Protectors: ()

a. Employers shall make hearing protectors available to all employees exposed to an eight (8) hour time weighted average of eighty-five (85) decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary. ()

b. Employers shall ensure that hearing protectors are worn by an employee who is exposed to an eight (8) hour time weighted average of eighty-five (85) decibels or greater, has not yet had a baseline audiogram established pursuant to IDAPA 17.10.20.160.08, or has experienced a standard threshold shift. ()

c. Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the employer. ()

d. The employer shall provide training in the use and care of all hearing protectors provided to employees. ()

e. The employer shall ensure proper fitting and supervise the correct use of all hearing protectors. ()

f. The employer shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. The employer shall use one (1) of the following methods for evaluating hearing protectors: the Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA); or the methods developed by the National Institute for Occupational Safety and Health (NIOSH). ()

g. Hearing protectors must attenuate employee exposure at least to an eight (8) hour time weighted average of ninety (90) decibels. ()

h. For employees who have experienced a standard threshold shift, hearing protectors must attenuate exposure to an eight (8) hour time weighted average of eighty-five (85) decibels or below. ()

i. The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors may no longer provide adequate attenuation. The employer shall provide more effective hearing protectors where necessary. ()

11. Training: ()

a. The employer shall institute a training program for all employees who are exposed to noise at or above an eight (8) hour time weighted average of eighty-five (85) decibels, and shall ensure employee participation in such program. ()

b. The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated consistent with changes in protective equipment and work processes. ()

c. The employer shall ensure that each employee is informed of the following: the effects of noise on hearing; the purpose of hearing protectors, disadvantages, and attenuating of various types, and instructions on selecting, fitting, use, and care: and the purpose of audiometric testing, and an explanation of the test procedures. ()

d. The employer shall make available to affected employees or their representatives copies of this section and shall also have a copy available in the workplace. ()

e. The employer shall provide to affected employees any informational materials pertaining to occupational noise exposure that are supplied by the Department. ()

f. The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to occupational noise exposure to the Director or his representative. ()

12. Noise Exposure Computation: ()

a. Noise dose is computed using table 160.12-A as follows: When the sound level, "L", is constant over the entire shift, the noise dose, "D", in percent, is given by; $D=100C/T$ where "C" is the total length of the work day, in hours, and "T" is the reference duration corresponding to the measured sound level, "L", as given in table 160.12-A or by the formula shown at the end of the table. ()

TABLE 160.12-A					
REFERENCE A-WEIGHTED SOUND LEVEL, L (DECIBEL) DURATION					
L (DECIBEL)	T (HOUR)	L (DECIBEL)	T (HOUR)	L (DECIBEL)	T (HOUR)
80	32	96	3.5	114	0.29
81	27.9	97	3.0	115	0.25

TABLE 160.12-A					
REFERENCE A-WEIGHTED SOUND LEVEL, L (DECIBEL) DURATION					
L (DECIBEL)	T (HOUR)	L (DECIBEL)	T (HOUR)	L (DECIBEL)	T (HOUR)
82	24.3	98	2.6	116	0.22
83	21.1	99	2.3	117	0.19
84	18.4	100	2	118	0.16
85	16	101	1.7	119	0.14
86	13.9	102	1.5	120	0.125
87	12.1	103	1.3	121	0.11
88	10.6	104	1.1	122	0.095
89	9.2	105	1	123	0.082
90	8	106	0.87	124	0.072
91	7.0	107	0.76	125	0.063
92	6.1	108	0.66	127	0.047
93	5.3	109	0.57	128	0.041
94	4.6	110	0.5	129	0.036
95	4	111	0.44	130	0.031

In the above table the reference duration, T, is computed by 8

$$T = \frac{100}{2((L-90) / 5)}$$
where L is the measured A-weighted sound level.

b. When the work-shift noise exposure is composed of two (2) or more periods of noise at different levels, the total noise dose over the work day is given by; $= 100 (C(1)/T(1) + C(2)/T(2) + \dots + C(n)/T(n))$, where C(n) indicates the total time of exposure at a specific noise level, and T(n) indicates the reference duration for that level as given by Table 160.12-A. ()

c. The eight (8) hour time weighted average sound level (TWA), in decibels, may be computed from the dose, in percent, by means of the formula: $TWA = 16.61 \log_{10} (D/100) + \text{ninety (90)}$, for an eight (8) hour work-shift with the noise level constant over the entire shift, the TWA is equal to the measured sound level. ()

d. Compliance with IDAPA 17.10.20.160 is determined by the amount of exposure to noise in the workplace. The amount of such noise exposure is usually measured with an audiometer which gives a readout in terms of "dose". In order to convert the reading of a dosimeter into TWA, see Table 160.12-B. This table applies to dosimeters that are set by the manufacturer to calculate dose or percent of exposure according to relationships in Table 160.12-A. ()

TABLE 160.12-B							
CONVERSION FROM "PERCENT NOISE EXPOSURE" OR "DOSE" TO "8-HOUR TIME-WEIGHTED AVERAGE SOUND LEVEL "(TWA)							
Dose or percent noise exposure TWA							
10	73.4	104	90.3	260	96.9	640	103.4
15	76.3	105	90.4	270	97.2	650	103.5
20	78.4	106	90.4	280	97.4	660	103.6
25	80.0	107	90.5	290	97.7	670	103.7
30	81.3	108	90.6	300	97.9	680	103.8
35	82.4	109	90.6	310	98.2	690	103.9
40	83.4	110	90.7	320	98.4	700	104.0
45	84.2	111	90.8	330	98.6	710	104.1
50	85.0	112	90.8	340	98.8	720	104.2
55	85.7	113	90.9	350	99.0	730	104.3
60	86.3	114	90.9	360	99.2	740	104.4
65	86.9	115	91.1	370	99.4	750	104.5
70	87.4	116	91.1	380	99.6	760	104.6
75	87.9	117	91.1	390	99.8	770	104.7
80	88.4	118	91.2	400	100.0	780	104.8
81	88.5	119	91.3	410	100.2	790	104.9
82	88.6	120	91.3	420	100.4	800	105.0
83	88.7	125	91.6	430	100.5	810	105.1
84	88.7	130	91.9	440	100.7	820	105.2
85	88.8	135	92.2	450	100.8	830	105.3
86	88.9	140	92.4	460	101.0	840	105.4
87	89.0	145	92.7	470	101.2	850	105.4
88	89.1	150	92.9	480	101.3	860	105.5
89	89.2	155	93.2	490	101.5	870	105.6
90	89.2	160	93.4	500	101.6	880	105.7
91	89.3	165	93.6	510	101.8	890	105.8
92	89.4	170	93.8	520	101.9	900	105.8
93	89.5	175	94.0	530	102.0	910	105.9
94	89.6	180	94.2	540	102.2	920	06.0
95	89.6	185	94.4	550	102.3	930	106.1

TABLE 160.12-B							
CONVERSION FROM "PERCENT NOISE EXPOSURE" OR "DOSE" TO "8-HOUR TIME-WEIGHTED AVERAGE SOUND LEVEL"(TWA)							
Dose or percent noise exposure TWA							
96	89.7	190	94.6	560	102.4	940	106.2
97	89.8	195	94.8	570	102.6	950	106.2
98	89.9	200	95.0	580	102.7	960	106.3
99	89.9	210	95.4	590	102.8	970	106.4
100	90.0	220	95.7	600	102.9	980	106.5
101	90.1	230	96.0	610	103.0	990	106.5
102	90.1	240	96.3	620	103.2	999	106.6
103	90.2	250	96.6	630	103.3		

13. Audiometric Measuring Instruments ()

a. The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of ten (10) decibels or greater require an acoustic calibration. ()

b. Audiometer calibration shall be checked acoustically in accordance with the American National Standard Specification for Audiometers utilizing a sound level meter, octave-band filter set, and a National Bureau of standards nine (9)A coupler. Test frequencies below five-hundred (500) Hz and above six-thousand (6000) Hz may be omitted from this check. Deviations of fifteen (15) decibels or greater require an exhaustive calibration. ()

c. An exhaustive calibration shall be performed at least every two (2) years in accordance with sections 4.1.2, 4.1.3, 4.1.4.3, 4.2, 4.4.1, 4.4.2, 4.4.3, and 4.5 of the American National Standard Specification for Audiometers, S3.6. Test frequencies below five-hundred (500) Hz and above six-thousand (6000) Hz may be omitted from this calibration. ()

161. -- 999. (RESERVED).

IDAPA 17 - INDUSTRIAL COMMISSION

17.10.22 - GENERAL SAFETY AND HEALTH STANDARDS-SAFETY MARKING STANDARDS

DOCKET NO. 17-1022-9601

NOTICE OF PROPOSED RULES

AUTHORITY: In compliance with Section 67-5221(1), Idaho Code, notice is hereby given that this agency has proposed rule-making. The action is authorized pursuant to §72-508 and §§72-720, 721, 722, and 723, Idaho Code.

PUBLIC HEARING SCHEDULE: Public hearing(s) concerning this rule-making will be scheduled if requested in writing by twenty-five (25) persons, a political subdivision, or an agency, not later than August 28, 1996. The hearing site(s) will be accessible to persons with disabilities. Requests for accommodation must be made not later than five (5) days prior to the hearing, to Patricia S. Ramey, Secretary, Industrial Commission, P. O. Box 83720, Boise, ID 83720-0041. Telephone and fax numbers are listed below.

DESCRIPTIVE SUMMARY: The following is a statement in nontechnical language of the substance of the proposed rule:

The Industrial Commission, in cooperation with the Division of Building Safety, proposes the adoption of rules to replace IDAPA 17.04.01, General Safety and Health Standards Code 1, which is being repealed in its entirety. The proposed rules update the state's minimum safety and health standards in marking physical hazards and traffic control for the public sector and bring them into line with generally accepted safety and health standards in the private sector.

ASSISTANCE ON TECHNICAL QUESTIONS, SUBMISSION OF WRITTEN COMMENTS: For assistance on technical questions concerning these proposed rules, contact Mike Poulin, Bureau of Logging and Industrial Safety, at (208) 334-2129.

Anyone may submit written comments regarding this rule. All written comments and data concerning the rule must be directed to the undersigned and must be postmarked or delivered on or before August 28, 1996.

DATED this 3rd day of June, 1996.

Patricia S. Ramey, Commission Secretary
Industrial Commission
P. O. Box 83720
Boise, Idaho 83720-0041
Telephone: (208) 334-6000
Fax: (208) 334-5145

TEXT OF DOCKET NO. 17-1022-9601

**IDAPA 17
TITLE 10
Chapter 22**

17.10.22 - GENERAL SAFETY AND HEALTH STANDARDS -- SAFETY MARKING STANDARDS

000. LEGAL AUTHORITY.

These rules presented in IDAPA 17, Title 10, are promulgated pursuant to the authority granted the Industrial Commission by Sections 72-508, 72-720, 72-721, 72-722, and 72-723, Idaho Code ()

001. TITLE AND SCOPE.

These rules shall be cited as IDAPA 17, Title 10, Chapter 20, General Safety and Health Standards -- Traffic Safety Standards. For purposes of IDAPA 17, Title 10, these rules shall be applicable to places of public employment, as

defined in Sections 72-205 and 72-207, Idaho Code, by the State of Idaho and its political subdivisions i.e. counties, cities, public school districts, and other taxing entities as follows: ()

01. State. Every person in the service of the state or of any political subdivision thereof, under any contract of hire, express or implied, and every official or officer thereof, whether elected or appointed, while performing their official duties. ()

02. County/City. Every person in the service of a county, city, or any political subdivision thereof, or of any municipal corporation. ()

03. National Guard. Members of the Idaho National Guard while on duty. ()

04. Youth Conservation. Participants in Idaho youth conservation project under the supervision of the Idaho State Forester. ()

05. Volunteers. Every person who is a member of volunteer fire, police department, or ambulance service shall be deemed to be in the employment of the political subdivision or municipality where the department is organized. ()

06. Civil Defense. Every person who is a regularly enrolled volunteer member or trainee of the Department of Disaster and Civil Defense, or of a civil defense corps, shall be deemed to be in the employment of the state. ()

07. Public School. Every person who is in the service of a public school or school district shall be deemed to be in the employment of the state. ()

002. WRITTEN INTERPRETATIONS.

For purposes of IDAPA 17, Title 10, there are no written statements which pertain to the interpretation of these rules. ()

003. ADMINISTRATIVE APPEALS.

For purposes of IDAPA 17, Title 10, there are no provisions for administrative appeal of these rules. The procedure for appeals in safety matters is prescribed by Sections 72-722 and 72-714 through 72-718, Idaho Code. ()

004. -- 169. (RESERVED).

170. ACCIDENT PREVENTION SIGNS AND TAGS.

01. Scope. ()

a. Safety color coding for marking physical hazards shall conform to all other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

b. These specifications apply to the design, application, use of signs or symbols, tags, and colors intended to indicate and, insofar as possible, to define specific hazards of a nature such that failure to designate them may lead to accidental injury to workers or the public, or both, or to property damage. ()

c. These specifications are intended to cover all safety signs except those designated for streets, highways, railroads, and marine regulations. These specifications do not apply to bulletin boards or to safety posters. ()

02. Definitions Applicable to this Section. ()

a. Sign is a surface on which letters or other markings appear, prepared for the warning of, or safety instructions of, workers who may be exposed to hazards. Excluded from this definition, however, are news releases, displays commonly known as safety posters, and bulletins used for employee education. ()

- b. Tag is a surface (usually card, paper, pasteboard, or some temporary or nonpermanent material) on which letters or markings, or both, appear. These letters or markings, or both, are for warning (cautioning) or safety instruction of employees who may be exposed to hazards. Tags are to be affixed to device in question by string, wire, or adhesive. ()
03. General Requirements. All hazards shall be appropriately signed or tagged. ()
04. Color Identification. ()
- a. The following colors shall be used for marking physical hazards. ()
- b. Colors shall meet the tests specified in Section 3, Color Definitions, of ANSI Z53.1, Safety Color Code for Marking Physical Hazards. ()
05. Red. ()
- a. Red shall be the basic color for the identification of fire protection equipment and apparatus: Fire alarm boxes (pull boxes); fire blanket boxes; fire buckets or pails; fire extinguishers (if painting the extinguisher is impractical or undesirable, color should be used on the housing, wall, or support to identify the location); fire hydrants (industrial); fire pumps; fire sirens; post indicator valves for sprinkler system (it is suggested that if a traffic hazard is involved, the top should be colored red, and the barrel or post yellow and black stripes); and sprinkler piping (recommendation). (See ANSI Standard Scheme for the identification of Pipe Systems, A13.1) ()
- b. Red shall be the basic color for the identification of danger. Safety cans or other portable containers of flammable liquids having a flashpoint at or below eighty (80) degrees Fahrenheit. Table containers of flammable liquids (open cup tester), excluding shipping containers, shall be painted red with some additional clearly visible identification either in the form of a yellow band around the can or the name of the contents conspicuously stenciled or painted on the can in yellow. Red lights shall be provided at barricades and at temporary obstruction, as specified in ANSI Safety Code for Building Construction, A10.2. ()
- c. Red shall be the basic color for the identification for stop. Emergency stop bars on hazardous machines such as rubber mills, wire blocks, flat work ironers, etc., shall be red. Stop buttons or electrical switches used for emergency stopping of machinery shall be red. ()
06. Orange. Orange shall be used as the basic color for designating dangerous parts of machines or energized equipment which may cut, crush, shock, or otherwise injure and to emphasize such hazards when enclosure doors are open, or when gear belt, or other guards around moving equipment are open or removed, exposing unguarded hazards. ()
07. Yellow. Yellow shall be the basic color for designating caution and for marking physical hazards such as: striking against, stumbling, falling, tripping, and "Caught in between". Solid yellow, yellow and black stripes, or yellow and black checkers (or yellow with suitable contrasting background) should be used interchangeably, using the combination which will attract the most attention in the particular environment. Yellow shall be the basic color for designating caution, limited to warning against the starting, the use of, or the movement of equipment under repair or being worked upon. ()
08. Green. Green shall be used as the basic color for designating "safety" and the location of first aid equipment (other than firefighting equipment). ()
09. Purple. Purple shall be the basic color for designating radiation hazards. "Radiation" as used in this subdivision refers to radiation types such as x-rays, alpha, beta, gama, neutron, proton, deuteron, and meson. Yellow should be used in combination with purple for markers such as tags, labels, signs, and floor markers. ()
10. Black, White, or Combinations of Black and White. Black, White, or combination of these two (2), shall be the basic colors for the designation of traffic and housekeeping markings. Solid white, solid black, single color striping, alternate stripes of black and white, or black and white checkers should be used in accordance with

- local conditions. ()
11. Signs. ()
- a. The colors, proportions, and location of the identification panels on each sign shall be in accordance with this section. ()
- b. All new signs and replacements of old signs after August 7, 1971, shall be in accordance with these specifications. ()
- c. All signs shall be furnished with rounded or blunt corners and shall be free from sharp edges, burrs, splinters, or other sharp projections. The ends or heads of bolts or other fastening devices shall be located in such a way that they do not constitute a hazard. ()
- d. The wording of any sign shall be easily read and concise. The wording shall make a positive, rather than a negative suggestion and should be accurate in fact. ()
- e. Signs shall be used as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment, or operations which are out of the ordinary, unexpected, or not readily apparent. ()
- f. There shall be no variation in the design of signs posted to warn, caution, or inform. ()
- g. When conditions warrant the use of a sign size not covered in the following tables, the ratio of the depth of the identifying panel (Danger, Caution, Etc.) to the width of the sign shall be as established in Tables 170.12-A, 170.13-A, 170.14-A, and 170.15-A. ()
12. Danger Signs. ()
- a. Danger signs shall be posted where an immediate hazard exists. ()
- b. All employees shall be instructed that danger signs indicate immediate danger and that special precautions are necessary. ()
- c. The colors red, black, and white shall be those of opaque glossy samples as specified in Table one (1) of Fundamental Specification of Safety Colors for CIE Standard Source "C", American National Standard Z53.1. ()
- d. Standard proportions shall be as indicated in Table 170.12-A and format shall be as in Figure 170.12-A. ()

TABLE 170.12-A				
STANDARD PROPORTIONS FOR DANGER SIGNS				
Sign size, inches Height/ Width	Black rectangular panel, inches Height/ Width	Red oval, inches Height/ Width	Word danger, Height inches	Maximum space available for sign wording, inches
HORIZONTAL PATTERN				
7 x 10	3 1/4 x 9 3/8	2 7/8 x 8 1/2	1 7/16	2 3/4 x 9 3/8

TABLE 170.12-A				
STANDARD PROPORTIONS FOR DANGER SIGNS				
10 x 14	4 5/8 x 13 3/8	4 1/8 x 11 7/8	2 1/16	4 1/4 x 13 3/8
14 x 20	6 1/2 x 19 3/8	5 3/4 x 17	2 7/8	6 1/4 x 19 3/8
20 x 28	9 1/4 x 27 3/8	8 1/4 x 23 7/8	4 1/8	9 1/2 x 27 3/8
UPRIGHT PATTERN				
10 x 7	2 3/8 x 6 3/8	2 1/8 x 5 7/8	1 1/16	6 3/8 x 6 3/8
14 x 10	3 1/4 x 9 3/8	2 7/8 x 8 1/2	1 7/16	9 1/2 x 9 3/8
20 x 14	4 5/8 x 13 3/8	4 1/8 x 11 7/8	2 1/16	14 x 13 3/8
28 x 20	6 1/2 x 19 3/8	5 3/4 x 17	2 7/8	20 1/4 x 19 3/8

FIGURE 170.12-A



←Black background encasing a red oval encircled in white with white letters.

←Black letters stating immediate hazard on white background.

13. Caution Signs. ()
- a. Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices. ()
- b. All employees shall be instructed that caution signs indicate a possible hazard against which proper precautions shall be taken. ()
- c. Standard color of the background shall be yellow; and the panel black with yellow letters. Any letters used against the yellow background shall be black. The colors shall be those of opaque glossy samples as specified in Table one (1) of American National Standard Z53.1. ()
- d. Standard proportions shall be as indicated in Table 170.13-A and format shall be as in Figure 170.13-A. ()

TABLE 170.13-A			
STANDARD PROPORTIONS FOR CAUTION SIGNS			
Sign size, inches Height/ Width	Black rectangular panel, inches Height/Width	Word "Caution" height of letter, inches	Maximum space available for sign wording below panel inches Height/ Width
HORIZONTAL PATTERN			
7 x 10	2 1/4 x 9 3/8	1 5/8	3 1/4 x 9 3/8
10 x 14	3 1/4 x 13 3/8	2 1/4	5 1/2 x 13 3/8
14 x 20	3 3/4 x 19 3/8	2 3/4	9 x 19 3/8
20 x 28	4 1/4 x 27 3/8	3 1/4	14 1/2 x 27 3/8
UPRIGHT PATTERN			
10 x 7	1 5/8 x 6 3/8	1 1/8	7 x 6 3/8
14 x 10	2 1/4 x 9 3/8	1 5/8	10 1/2 x 9 3/8
20 x 14	3 1/4 x 13 3/8	2 1/4	15 1/2 x 13 3/8
28 x 20	3 3/4 x 19 3/8	2 3/4	24 x 19 3/8

FIGURE 170.13-A

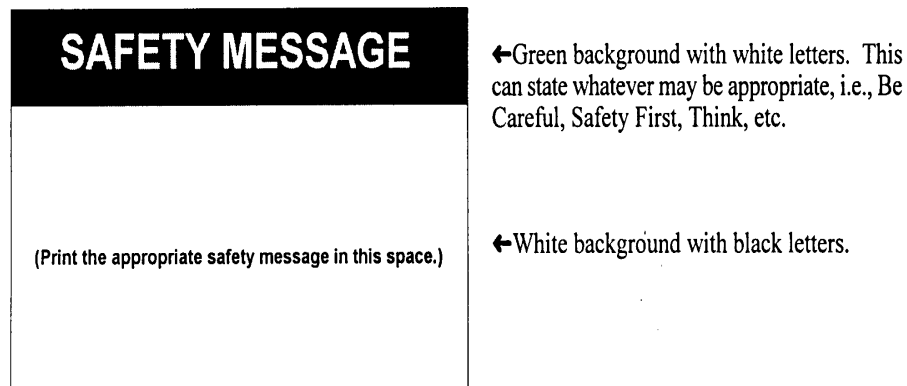


Yellow background with black letters.

14. Safety Instruction Signs. ()
- a. Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures. ()
- b. Standard color of the background shall be white; and the panel, green with white letters. Any letters used against the white background shall be black. The colors shall be those of opaque glossy samples as specified in Table one (1) of American National Standard Z53.1. ()
- c. Standard proportions shall be as indicated in Table 170.14-A and format shall be as in Figure 170.14-A. ()

TABLE 170.14-A				
STANDARD PROPORTIONS FOR SAFETY INSTRUCTION SIGNS				
Sign size, inches, height, width	Green panel, inches, height, width	Minimum word height of letters, inches	Maximum word height of letters, inches	Space available for sign wording below panel inches, height, width
7 x 10	3 3/8 x 9 3/8	1 1/4	1 3/16	2 1/2 x 9 3/8
10 x 14	4 1/4 x 13 3/8	1 3/4	2 3/16	4 x 13 3/8
14 x 20	6 1/4 x 19 3/8	2 1/2	3 1/8	6 x 19 3/8
20 x 28	9 1/2 x 27 3/8	3 1/2	4 3/8	9 1/4 x 27 3/8

FIGURE 170.14-A



15. Radiation Warning Signs. ()
- a. Standard color for the background shall be yellow; the panel, reddish purple with yellow letters; the symbol, reddish purple, any letters used against the yellow background shall be black. The colors shall be those of opaque glossy samples as specified in Table one (1) of American National Standard Z53.1. ()
- b. The standard symbol shall be as in Figure 170.15-A. Method of dimensioning, design, and orientation of the standard symbol (one (1) blade pointed downward and centered on the vertical axis) shall be executed as illustrated. The symbol shall be prominently displayed, and of a size consistent with the size of the equipment, material or area to which it is attached. ()
- c. Format shall be as in Figure 170.15-A. Sign proportions shall be the same as those for danger signs in Table 170.12-A. ()

FIGURE 170.15-A



Reddish purple background with yellow letters.

Yellow background with reddish purple symbol.

Yellow background with black letters.

16. Biological Hazard Signs. ()

a. The biological hazard warning shall be used to signify the actual or potential presence of a biohazard and to identify equipment containers, rooms, materials, experimental animals, or combinations thereof, which contain, or are contaminated with viable hazardous agents. ()

b. For the purpose of this section the term "Biological Hazard or, Biohazard" shall include only those infectious agents presenting a risk or potential risk to the well being of man. ()

c. The biohazard symbol shall be designed and proportioned as illustrated in Figure 170.16-A. The symbol design shall be a fluorescent orange or orange-red color. Background color is optional as long as there is sufficient contrast for the symbol to be clearly defined. Appropriate wording may be used in association with the symbol to indicate the nature or identity of the hazard, name of individual responsible for its control, precautionary information, etc., but never should this information be superimposed on the symbol. ()

d. Format shall be as in Figure 170.16-A. Sign proportions shall be the same as those for danger signs in Table 170.12-A. ()

FIGURE 170.16-A

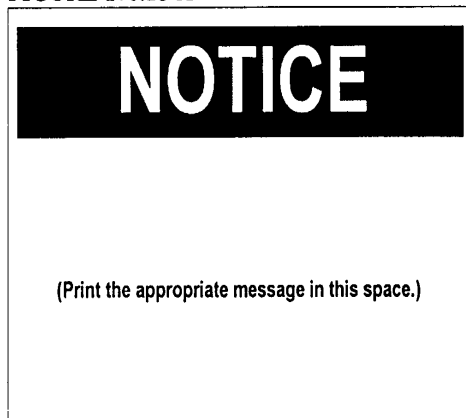


Biohazard sign background color is to be fluorescent orange or orange-red. The biohazard symbol and lettering is to be any color contrasting with the biohazard sign background color. May use appropriate wording to indicate the nature or identity of the hazard.

17. Traffic Signs. Regulatory and control signs required for the safe movement of vehicles and pedestrians on thoroughfares on plant /facility property shall conform to the standards established in American

- National Standard Manual on Uniform Traffic Control Devices for Streets and Highways, D6.1. ()
18. Informational Signs. ()
- a. Blue shall be the standard color for informational signs. ()
- b. Blue may be used as the background color for the complete sign or as a panel at the top of such types of "Notice" signs, which have a white background, see Figure 170.18-A. ()

FIGURE 170.18-A



← White background with blue panel and white letters or full blue background with white letters.

← White or blue background with black letters.

- c. The colors shall be those of opaque glossy samples as specified in Table one (1) of American National Standard Z53.1-1971. ()
19. Slow-Moving Vehicle Emblem. ()
- a. This emblem (see Figure 170.19-A) consists of a fluorescent yellow-orange triangle with a dark red reflective border. The yellow-orange fluorescent triangle is a highly visible color for daylight exposure. The reflective border defines the shape of the fluorescent color in daylight and creates a hollow red triangle in the path of motor vehicle headlights at night. ()
- b. The emblem is intended as a unique identification for, and it shall be used only, on vehicles which by design move slowly (twenty-five (25) mph or less) on the public roads. ()
- c. The emblem is not a clearance marker for wide machinery nor is it intended to replace required lighting or marking of slow moving vehicles. ()
- d. Neither the color film pattern and its dimensions nor the backing shall be altered to permit use of advertising or other markings. ()
- e. The material, location, mounting, etc., of the emblem shall be in accordance with the American Society of Agricultural Engineers Emblem for Identifying slow-moving vehicles, ASAE R276, or ASAE S276.2 (ANSI B115.1). ()

FIGURE 170.19-A



Fluorescent yellow-orange triangle with dark red reflective border.

20. Accident Prevention Tags. ()

a. The tags are a temporary means of warning all concerned of a hazardous condition, defective equipment, radiation hazards, etc. The tags are not to be considered as a complete warning method, but should be used until a positive means can be employed to eliminate the hazard; for example, a "Do not start" tag on power equipment shall be used for a few moments or a very short time until the switch in the system can be locked out; a "Defective equipment" tag shall be placed on a damaged ladder and immediate arrangements made for the ladder to be taken out of service and sent to the repair shop. ()

b. The tags are to be used to help prevent accidental injury to personnel, or damage to property, or both. ()

c. Tags shall contain a signal word and a major message. The signal word shall be either "Danger", "Caution", or "Biological Hazard", "BIOHAZARD", or the biological hazard symbol. The major message shall indicate the specific hazardous condition or the instruction to be communicated to the employee. The tag's major message shall be presented in either pictographs, written text or both. The signal word and the major message shall be understandable to all employees who may be exposed to the identified hazard. ()

d. All employees shall be informed as to the meaning of the various tags used throughout the workplace and what special precautions are necessary. ()

e. Tags shall be affixed as close as safely possible to their respective hazards by a positive means such as string, wire, or adhesive that prevents their loss or unintentional removal. ()

21. Danger Tags. ()

a. Danger tags should be used only where an immediate hazard exists where an immediate hazard presents a threat of death or serious injury to employees. Danger tags shall be used only in these situations. (See Figure 170.21-A) ()

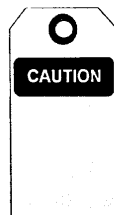
FIGURE 170.21-A



←Predominantly red tag with lettering or symbols in a contrasting color.

- b. There shall be no variation in the type of design of tags posted or hung to warn of specific dangers. ()
 - c. All employees should be instructed that Danger tags indicate immediate danger and that special precautions are necessary. ()
 - d. Danger tags shall be red, or predominantly red, with lettering or symbols in a contrasting color. ()
22. Caution Tags. ()
- a. Caution tags shall be used in minor hazard situations where a non-immediate or potential hazard or unsafe practice presents a lesser threat of employee injury. Caution tags shall be use only in these situations. (See Figure 170.22-A). ()

FIGURE 170.22-A



←Predominantly yellow with lettering or symbols in a contrasting color.

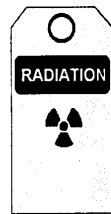
- b. All employees should be instructed that Caution tags indicate a possible hazard against which proper precautions should be taken. ()
 - c. There shall be no variation in the type of design of tags posted or hung to warn of specific dangers. ()
 - d. Caution tags shall be yellow, or predominantly yellow, with lettering or symbols in a contrasting color. ()
23. Warning Tags. ()
- a. Warning tags may be used to represent a hazard level between “Caution” and “Danger”, instead of the required “Caution” tag, provided that they have a signal word of “Warning”, an appropriate major message, and otherwise meet the general tag criteria of this section. (See Figure 170.23-A). ()

FIGURE 170.23-A



- b. All employees should be instructed that Caution tags indicate a possible hazard against which proper precautions should be taken. ()
 - c. There shall be no variation in the type of design of tags posted or hung to warn of specific dangers. ()
 - d. Warning tags shall be orange, or predominantly orange, with lettering or symbols in a contrasting color. ()
24. Radiation Tags. ()
- a. Radiation tags shall be used to identify the presence of a radiation hazards and to identify equipment, containers, rooms, or combinations thereof, that contain or are contaminated with hazardous radiation hazards. ()
 - b. All employees should be instructed that radiation tags indicate a possible hazard against which proper precautions should be taken. ()
 - c. There shall be no variation in the type of design of tags posted or hung to warn of specific dangers. ()
 - d. The standard background for Radiation tags shall be yellow; the panel shall be reddish-purple. Any letters used against the yellow background shall be black. ()
 - e. The standard radiation symbol shall be prominently displayed and of a size consistent with the size of the equipment or area in which it is to be used. (See Figure 170.24-A). ()

FIGURE 170.24-A



←Yellow background with reddish-purple symbol and letters contrasting background.

25. Biological Hazard Tags. ()
- a. Biological hazard tags shall be used to identify the actual or potential presence of a biological hazards and to identify equipment, containers, rooms, experimental animals, or combinations thereof, that contain or are contaminated with hazardous biological agents. ()
 - b. Biological hazard tags shall be fluorescent orange or orange/red, or predominantly so, with lettering or symbol in a contrasting color. ()
 - c. The standard biological hazard symbol shall be prominently displayed and of a size consistent with the size of the equipment or area in which it is to be used. (See Figure 170.26-A). ()

FIGURE 170.25-A



←Fluorescent orange or orange/red background with symbol and letters in a contrasting color.

171. TRAFFIC CONTROLS.

01. Scope. Traffic control shall conform to all other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section. ()

a. Barricade is an obstruction to deter the passage of persons or vehicles. ()

b. Signs are the warnings of a hazard, temporarily or permanently affixed or placed, at locations where hazards exist. ()

c. Signals are moving signs, provided by workers, such as Flaggers, or by devices, such as flashing lights, to warn of possible or existing hazards. ()

d. Tags are temporary signs, usually attached to a piece of equipment or part of a structure, to warn of existing or immediate hazards. ()

03. General Requirements. ()

a. All traffic control devices and procedures used to manually control traffic shall conform to ANSI D6.1 Manual on Uniform Traffic Control Devices for Streets and Highways. ()

b. Traffic control devices shall be installed or instituted at the inception and shall be properly maintained and/or operated during the time such special conditions exist. ()

c. Traffic control devices shall remain in place only as long as they are needed and shall be immediately removed thereafter. ()

d. Weeds, shrubbery, vehicles, construction materials or equipment, spoil, etc., shall not be allowed to obscure any traffic control device. ()

04. Flaggers. ()

a. When operations are such that signs, signals and barricades do not provide the necessary protection on or adjacent to a highway or street, Flaggers or other appropriate traffic controls shall be provided. ()

b. Signaling directions by Flaggers shall conform to ANSI D.6.1, Manual on Uniform Traffic Control Devices for Streets and Highways. ()

c. Hand signaling by Flaggers shall be by use of red flags at least eighteen (18) inches square or sign paddles, and in periods of darkness, red lights. ()

d. Flaggers shall be provided with and shall wear red or orange warning garment while flagging. Warning garments worn at night shall be of light reflecting material. ()

05. Barricades. Barricades for protection of employees shall conform to the portions of the ANSI D6.1, Manual on Uniform Traffic Control Devices for Streets and Highways relating to barricades. ()

172. -- 999. (RESERVED).

IDAPA 17 - INDUSTRIAL COMMISSION
17.10.24 - GENERAL SAFETY AND HEALTH STANDARDS-RADIATION SAFETY
DOCKET NO. 17-1024-9601
NOTICE OF PROPOSED RULES

AUTHORITY: In compliance with Section 67-5221(1), Idaho Code, notice is hereby given that this agency has proposed rule-making. The action is authorized pursuant to §72-508 and §§72-720, 721, 722, and 723, Idaho Code.

PUBLIC HEARING SCHEDULE: Public hearing(s) concerning this rule-making will be scheduled if requested in writing by twenty-five (25) persons, a political subdivision, or an agency, not later than August 28, 1996. The hearing site(s) will be accessible to persons with disabilities. Requests for accommodation must be made not later than five (5) days prior to the hearing, to Patricia S. Ramey, Secretary, Industrial Commission, P. O. Box 83720, Boise, ID 83720-0041. Telephone and fax numbers are listed below.

DESCRIPTIVE SUMMARY: The following is a statement in nontechnical language of the substance of the proposed rule:

The Industrial Commission, in cooperation with the Division of Building Safety, proposes the adoption of rules to replace IDAPA 17.04.01, General Safety and Health Standards Code 1, which is being repealed in its entirety. The proposed rules update the state's minimum safety and health standards of exposure to ionizing and nonionizing radiation for the public sector and bring them into line with generally accepted safety and health standards in the private sector.

ASSISTANCE ON TECHNICAL QUESTIONS, SUBMISSION OF WRITTEN COMMENTS: For assistance on technical questions concerning these proposed rules, contact Mike Poulin, Bureau of Logging and Industrial Safety, at (208) 334-2129.

Anyone may submit written comments regarding this rule. All written comments and data concerning the rule must be directed to the undersigned and must be postmarked or delivered on or before August 28, 1996.

DATED this 3rd day of June, 1996.

Patricia S. Ramey, Commission Secretary
Industrial Commission
P. O. Box 83720
Boise, Idaho 83720-0041
Telephone: (208) 334-6000
Fax: (208) 334-5145

TEXT OF DOCKET NO. 17-1024-9601

IDAPA 17
TITLE 10
Chapter 24

17.10.24 - GENERAL SAFETY AND HEALTH STANDARDS -- RADIATION SAFETY

000. LEGAL AUTHORITY.

These rules presented in IDAPA 17, Title 10, are promulgated pursuant to the authority granted the Industrial Commission by Sections 72-508, 72-720, 72-721, 72-722, and 72-723, Idaho Code ()

001. TITLE AND SCOPE.

These rules shall be cited as IDAPA 17, Title 10, Chapter 24, General Safety and Health Standards -- Radiation

Safety. For purposes of IDAPA 17, Title 10, these rules shall be applicable to places of public employment, as defined in Sections 72-205 and 72-207, Idaho Code, by the State of Idaho and its political subdivisions i.e. counties, cities, public school districts, and other taxing entities as follows: ()

01. State. Every person in the service of the state or of any political subdivision thereof, under any contract of hire, express or implied, and every official or officer thereof, whether elected or appointed, while performing his official duties. ()

02. County. Every person in the service of a county, city, or any political subdivision thereof, or of any municipal corporation. ()

03. National Guard. Members of the Idaho National Guard while on duty. ()

04. Youth Conservation. Participants in Idaho youth conservation project under the supervision of the Idaho State Forester. ()

05. City. Every person who is a member of volunteer fire, police department, or ambulance service shall be deemed to be in the employment of the political subdivision or municipality where the department is organized. ()

06. Civil Defense. Every person who is a regularly enrolled volunteer member or trainee of the Department of Disaster and Civil Defense, or of a civil defense corps, shall be deemed to be in the employment of the state. ()

07. Public School. Every person who is employed by a public school or school district shall be deemed to be in the employment of the state. ()

002. WRITTEN INTERPRETATIONS.

For purposes of IDAPA 17, Title 10, there are no written statements which pertain to the interpretation of these rules. ()

003. ADMINISTRATIVE APPEALS.

For purposes of IDAPA 17, Title 10, there are no provisions for administrative appeal of these rules. The procedure for appeals in safety matters is prescribed by Sections 72-722 and 72-714 through 72-718, Idaho Code. ()

004. -- 179. (RESERVED).

180. IONIZING RADIATION.

01. Scope. Ionizing radiation exposure shall conform to all other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

02. Definitions Applicable to this Section. ()

a. Airborne Radioactivity Area is any room, enclosure, or operating area in which airborne radioactive materials, composed wholly or partly of radioactive material, exist in concentrations in excess of the amounts specified in column one (1) or Table one (1) of Appendix B to ten (10) CFR Part twenty (20); or any room, enclosure or operating area in which airborne radioactive material exists in concentrations which averaged over the number of hours in any week during which individuals are in the area, exceed twenty-five percent (25%) of the amounts specified in Column one (1) of Table one (1) of Appendix B to ten (10) CFR Part twenty (20). ()

b. Calendar Quarter is any three (3)-month period. ()

c. Dose is the quantity of ionizing radiation absorbed, per unit of mass, by the body or by any portion of the body. When the provisions of this section specify a dose during a period of time, the dose is the total quantity of radiation absorbed per unit of mass, by the body or by any portion of the body during such period of time. Several

different units of dose are in current use. Definitions of units used in this section are set forth in IDAPA 17.10.24.080.02.f and g. ()

d. Exposed means that the individual is present in an airborne concentration. No allowance shall be made for the use of protective clothing or equipment, or particle size. ()

e. High Radiation Area is any area, accessible to personnel, in which there exists radiation at such levels that a major portion of the body could receive in any one (1) hour a dose in excess of one-hundred (100) millirem. ()

f. Personnel Monitoring Equipment are devices designed to be worn or carried by an individual for the purpose of measuring the dose received (e.g., film badges, pocket chambers, pocket dosimeters, film rings, etc.). ()

g. Radiation includes alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles, but such term does not include sound or radio waves, or visible light, or infrared or ultraviolet light. ()

h. Radiation Area is any area accessible to personnel, in which there exists radiation in such levels that a major portion of the body could receive in any one (1) hour a dose in excess of five (5) millirem, or in any five (5) consecutive days a dose in excess of one-hundred (100) millirem. ()

i. Radioactive Material is any material which emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations. ()

j. Restricted Area is any area to which access is controlled by the employer for purposes of protection of individuals from exposure to radiation or radioactive materials. ()

k. Rad is a measure of the dose of any ionizing radiation to body tissues in terms of the energy absorbed per unit of mass of the tissue. one (1) rad is the dose corresponding to the absorption of one-hundred (100) ergs per gram of tissue (one (1) millirad [mrad] = 0.001 rad). ()

l. REM is a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of one (1) roentgen (r) of x-rays (one (1) millirem [mrem] = 0.001 rem). ()

m. Survey is an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions. ()

n. Unrestricted Area is any area to which access is not controlled by the employer for purposes of protection of individuals from exposure to radiation or radioactive materials. ()

03. General Requirements. ()

a. The rules and regulations of the State Board of Health governing Idaho Radiation Control Regulations shall be complied with by every employer and shall be enforced as provided for by statute law. ()

04. Dose Units: ()

a. The relation of the REM to other dose units depends upon the biological effect under consideration and upon the conditions for irradiation. Each of the following is considered to be equivalent to a dose of one (1) REM: a dose of one (1) roentgen due to x- or gamma radiation; a dose of one (1) rad due to x-, gamma, or beta particle; a dose of zero point one (0.1) rad due to neutrons or high energy protons; a dose of zero point zero five (0.05) rad due to particles heavier than protons and with sufficient energy to reach the lens of the eye. ()

b. If it is more convenient to measure the neutron flux, or equivalent, than to determine the neutron dose in rads, as provided in IDAPA 17.10.24.180.04.a., one (1) rem of neutron radiation may, for purpose of the provisions in this section, be assumed to be equivalent to fourteen (14) million neutrons per square centimeter

incident upon the body; or, if there is sufficient information to estimate with reasonable accuracy the approximate distribution in energy of the neutrons, the incident number of neutrons per square centimeter equivalent to one (1) REM may be estimated from Table 180.04-A. ()

TABLE 180.04-A		
Neutron Flux Dose Equivalents		
Neutron energy (million electron volts (Mev))	Number of neutrons of neutrons per square centimeter equivalent to a dose of 1 rem (neutrons/cm ²)	Average flux to deliver 100 millirems in 40 hours (neutrons/cm ² per sec.)
Thermal	970 X 10 ⁶	670
0.0001	720 X 10 ⁴	500
0.005	820 X 10 ⁴	570
0.02	400 X 10 ⁴	280
0.1	120 X 10 ⁴	80
0.5	43 X 10 ⁴	30
1.0	26 X 10 ⁴	18
2.5	29 X 10 ⁴	20
5.0	26 X 10 ⁴	18
7.5	24 X 10 ⁴	17
10	24 X 10 ⁴	17
10 to 30	14 X 10 ⁴	10

c. For determining exposures to x- or gamma rays up to three (3) Mev., the dose limits specified in this section may be assumed to be equivalent to the "air dose" means that the dose is measured by a properly calibrated appropriate instrument in the air at or near the body surface in the region of the highest dosage rate. ()

05. Exposure of Individuals to Radiation in Restricted Areas. ()

a. Except as provided in IDAPA 17.10.24.180.05.b., no employer shall possess, use, or transfer sources of ionizing radiation in such a manner as to cause any individual in a restricted area to receive in any period of one (1) calendar quarter from sources in the employer's possession or control a dose in excess of the limits specified in Table 180.05-A. ()

TABLE 180.05-A	
REMs per calendar quarter	
Whole body: Head and Trunk; active blood-forming organs; lens of eyes; or gonads	1 1/4
Hands and forearms; feet and ankles	18 3/4
Skin of whole body	7 1/2

b. An employer may permit an individual in a restricted area to receive doses to the whole body greater than those permitted under IDAPA 17.10.24.080.05.a. so long as: during any calendar quarter the dose to the whole body shall not exceed three (3) REMs, and the dose to the whole body, when added to the accumulated occupational dose to the whole body, shall not exceed five (5) (N-18) REMs, where "N" equals the individual's age in years at his last birthday; and the employer maintains adequate past and current exposure records which show the addition of such a dose will not cause the individual to exceed the amount authorized in this subsection. As used in this subsection "dose to the whole body" shall be deemed to include any dose to the whole body, gonad, active blood-forming organs, head and trunk, or lens of the eye. ()

c. No employer shall permit any employee who is less than eighteen (18) years of age to receive in any period of one (1) calendar quarter a dose in excess of ten (10) percent of the limits specified in Table 180.05-A. ()

06. Calender Quarter Determination ()

a. The first period of any year may begin on any date in January; provided, that the second, third and fourth periods accordingly begin on the same date in April, July and October, respectively, and that the fourth period extends into January of the succeeding year, if necessary to complete a three (3)-month quarter. ()

b. During the first year of use of this method of determination, the first period for that year shall also include any additional days in January preceding the starting date for the first period; or The first period in a calendar year of thirteen (13) complete, consecutive calendar weeks; the second period in a calendar year of thirteen (13) complete consecutive weeks; the third period in a calendar year of thirteen (13) complete consecutive calendar weeks; the fourth period in a calendar year of thirteen (13) complete consecutive calendar weeks. If at the end of a calendar year there are any days not falling within a complete calendar week of that year, such days shall be included within the last complete calendar week of that year. If at the beginning of any calendar year there are days not falling within a complete calendar week of that year, such days shall be included within the last complete calendar week of the previous year. ()

c. The four (4) periods in a calendar year may consist of the first fourteen (14) complete, consecutive calendar weeks; the next twelve (12) complete consecutive calendar weeks; the next fourteen (14) complete, consecutive calendar weeks, and the last twelve (12) complete, consecutive calendar weeks. If at the end of a calendar year there are any days not falling within a complete calendar week of that year, such days shall be included (for purposes of this section) within the last complete calendar week of the year. If at the beginning of any calendar year there are days not falling within the complete calendar week of that year, such days shall be included (for purposes of this section) within the last complete week of the previous year. ()

07. Exposure to Airborne Radioactive Material. ()

a. No employer shall possess, use or transport radioactive material in such a manner as to cause any employee, within a restricted area, to be exposed to airborne radioactive material in an average concentration in excess of the limits specified in Table one (1) of Appendix B to ten (10) CFR Part twenty (20). The limits given in Table one (1) are for exposure to the concentrations specified for forty (40) hours in any work-week of seven (7) consecutive days. In any such period where the number of hours of exposure is less than forty (40), the limits specified in the table may be increased proportionately. In any such period where the number of hours of exposure is greater than forty (40), the limits specified in the table shall be decreased proportionately. ()

b. No employer shall possess, use or transfer radioactive material in such a manner as to cause any individual within a restricted area, who is less than eighteen (18) years of age to be exposed to airborne radioactive material in an average concentration in excess of the limits specified in Table II of Appendix B to ten (10) CFR Part twenty (20). For the purpose of this subsection, concentrations may be averaged over periods not greater than one (1) week. ()

08. Precautionary Procedures and Personnel Monitoring. ()

a. Every employer shall make such surveys as may be necessary for him to comply with the provisions in this section. ()

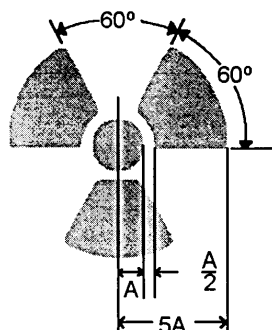
b. When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present. ()

c. Every employer shall supply appropriate personnel monitoring equipment, such as film badges, pocket chambers, pocket dosimeters, or film rings to, and shall require the use of such equipment, by: each employee who enters a restricted area under such circumstances that he receives, or is likely to receive a dose in any calendar quarter in excess of twenty-five percent (25%) of the applicable value specified in IDAPA 17.10.24.180.02.a.; and each employee less than eighteen (18) years of age who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in any calendar quarter in excess of five percent (5%) of the applicable value specified in IDAPA 17.10.24.180.02.a.; and each employee who enters a high radiation area. ()

09. Caution Signs, Labels and Signals. ()

a. Symbols prescribed by this section shall use the conventional radiation caution colors (magenta or purple on yellow background). The symbol prescribed by this section is the conventional three-bladed design (see Figure 180.09-A). ()

FIGURE 180.09-A RADIATION SYMBOL



*Cross-hatched area is to be magenta or purple
Background is to be yellow*

Cross-hatched area is to be magenta or purple
Background is to be yellow

b. Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol described in IDAPA 17.10.24.180.09.a. and the words: CAUTION - RADIATION AREA. ()

c. Each high radiation area shall be conspicuously posted with a sign bearing the radiation caution symbol and the words: CAUTION - HIGH RADIATION AREA. ()

d. Each high radiation area shall be equipped with a control device which shall either cause the level of radiation to be received below that at which an individual might receive a dose of one-hundred (100) millirems in one (1) hour upon entry into the area or shall energize a conspicuous visible or audible alarm signal in such a manner that the individual entering and the employer or a supervisor of the activity are made aware of the entry. In the case of a high radiation area established for a period of thirty (30) days or less, such control device is not required. ()

e. Each airborne radioactivity area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: CAUTION- AIRBORNE RADIOACTIVITY AREA. ()

f. Each area or room in which radioactive material is used or stored and which contains any radioactive material (other than natural uranium or thorium) in any amount exceeding ten (10) times the quantity of such material specified in Appendix C of ten (10) CFR Part twenty (20) shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: CAUTION - RADIOACTIVE MATERIALS. EXCEPTIONS FROM POSTING REQUIREMENTS: (Notwithstanding the provisions of this section) A room or area is not required to be posted with a caution sign because of the presence of a sealed source, provided the radiation level twelve (12)-inches from the surface of the source contain or housing does not exceed five (5)-millirem per hour; Rooms or other areas in on site medical facilities are not required to be posted with caution signs because of the presence of patients containing radioactive material, provided that there are personnel in attendance who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive material in excess of the limits established in the provisions of this section; Caution signs are not required to be posted at areas or rooms containing radioactive materials for periods of less than eight (8)-hours: provided that, the materials are constantly attended during such periods by an individual who shall take the precautions necessary to prevent the exposure of any individual to radiation or radioactive materials in excess of the limits established in the provisions of this section; and such area or room is subject to the employer's control. ()

g. Each container in which natural uranium or thorium is transported, stored, or used in a quantity greater than ten (10) times the quantity specified in Appendix C to ten (10) CFR Part twenty (20) shall bear a durable, clearly visible label bearing the radiation caution symbol and the words: CAUTION - RADIOACTIVE MATERIALS. ()

h. Notwithstanding the provisions of IDAPA 17.10.24.180.08.f. and 180.08.g., a label shall not be required if the concentration of the material in the container does not exceed that specified in column two (2) of Table one (1) of Appendix B to ten (10) CFR Part twenty (20); or for laboratory containers, such as beakers, flasks, and test tubes, used transiently in laboratory procedures, when the user is present. ()

i. Where containers are used for storage, the labels required in this section shall state also the quantities and kinds of radioactive materials in the containers and the date of measurement of the quantities. ()

j. Radioactive materials packaged and labeled in accordance with regulations of the Department of Transportation published in 49 CFR Chapter I, are exempt from the labeling and posting requirements of this section during shipment, provided that the inside containers are labeled in accordance with the provisions of this section. ()

10. Immediate Evacuation Warning Signal. ()

a. The evacuation signal shall be mid-frequency complex sound wave amplitude modulated at a subsonic frequency. The complex sound wave in free space shall have a fundamental frequency (f1) between four-hundred fifty (450) and five-hundred (500) hertz (Hz) modulated at a subsonic rate between four (4) and five (5) hertz. ()

b. The evacuation signal generator shall not be less than seventy-five (75) decibels at every location where an individual may be present whose immediate, rapid and complete evacuation is essential. ()

c. A sufficient number of signal units shall be installed such that the requirements of this section are met at every location where an individual may be present whose immediate, rapid, and complete evacuation is essential. ()

d. The evacuation signal shall be unique in the facility in which it is installed. ()

e. The minimum duration of the evacuation signal shall be sufficient to insure that all affected persons hear the signal. ()

f. The evacuation signal-generating system shall respond automatically to an initiating event without requiring any human action to sound the signal. ()

g. The evacuation signal-generating systems shall be designed to incorporate components which

enable the system to produce the desired signal each time it is activated within one-half (1/2) second of activation.

()

h. The evacuation signal-generating system shall be provided with an automatically activated secondary power supply which is adequate to simultaneously power all emergency equipment to which it is connected, if operation during power failure is necessary, except in those systems using batteries as the primary source of power.

()

i. All components of the evacuation signal-generating system shall be located to provide maximum practicable protection against damage in case of fire, explosion, corrosive atmosphere, or other environmental extremes consistent with adequate system performance.

()

j. The evacuation signal-generating system shall be designed with the minimum number of components necessary to make it function as intended, and should utilize components which do not require frequent servicing such as lubrication or cleaning.

()

k. Where several activating devices feed activating information to a central signal generator, failure of any activating device shall not render the signal-generator system inoperable to activating information from the remaining devices.

()

l. The evacuation signal-generating system shall be designed to enhance the probability that alarm occurs only when immediate evacuation is warranted. The number of false alarms shall not be so great that the signal will come to be disregarded and shall be low enough to minimize personal injuries or excessive property damage that might result from such evacuation.

()

m. Initial tests, inspections and checks of the evacuation signal generating systems shall be made to verify that the fabrication and installation were made in accordance with design plans and specifications and to develop a thorough knowledge of the performance of the system and all components under normal and hostile conditions.

()

n. Once the system has been placed in service, periodic tests, inspections and checks shall be made to minimize the possibility of malfunction.

()

o. Following significant alterations or revisions to the evacuation system, tests and checks similar to the initial installation tests shall be made.

()

p. Tests shall be designed to minimize hazards while conducting the tests.

()

q. Prior to normal operation the signal-generating system shall be checked physically and functionally to assure reliability and to demonstrate accuracy and performance. Specific tests shall include: All power sources; Calibration and calibration stability; Trip levels and stability; Continuity of function with loss and return of required services such as AC or DC power, air pressure, etc.; All indicators; Trouble indicator circuits and signals, where used; Air pressure (if used); Determine that sound level of the signal is within the limit of IDAPA 17.10.24.180.09.a. and 180.09.b. at all points that require immediate evacuation.

()

r. In addition to the initial startup and operating tests, periodic scheduled performance tests and status checks shall be made to insure that the system is at all times operating within design limits and capable of the required response. Specific periodic tests or check or both shall include: Adequacy of signal activation device; All power sources; Function of all alarm circuits and trouble indicator circuits including trip levels; Air pressure (if used); Function of entire system including operation without power where required; Complete operational tests including sounding of the signal and determination that sound levels are adequate.

()

s. Periodic tests shall be scheduled on the basis of need, experience difficulty and disruption of operations. The entire system should be operationally tested at least quarterly.

()

t. All employees whose work may necessitate their presence in an area covered by the signal shall be made familiar with the actual sound of the signal - preferably as it sounds at their work location. Before placing the

system into operation, all employees normally working in the area shall be made acquainted with the signal by actual demonstration at their work location. ()

11. Posting of this Standard and Operating Procedures. ()

a. Employers regulated by the Nuclear Regulatory Commission shall be governed by ten (10) CFR Part twenty (20) Standards. Employer's in the State of Idaho shall be governed by the requirements of the laws and regulations of the State. ()

b. All individuals working in or frequenting any portion of a radiation area shall be informed of the occurrence of radioactive materials or of radiation in such portions of the radiation area; shall be instructed in the safety problems associated with exposure to such materials or radiation, and in precautions or devices to minimize exposure; shall be instructed in the applicable provisions of this section for the protection of employees from exposure to radiation or radioactive materials; and shall be advised of reports of radiation exposure which employees may request pursuant to the regulations of this section. ()

c. Each employer to whom this section applies shall post a current copy of its provisions and a copy of the operating procedures applicable to the work conspicuously in such locations as to insure that employees working in or frequenting radiation areas will observe these documents on the way to and from their place of employment, or shall keep such documents available for examination of employees upon request. ()

12. Storage of Radioactive Materials. Radioactive materials stored in a non-radiation area shall be secured against unauthorized removal from the place of storage. ()

13. Waste Disposal. No employer shall dispose of radioactive material except by transfer to an authorized recipient, or in a manner approved by the Nuclear Regulatory Commission and the State of Idaho. ()

14. Notification of Incidents. ()

a. Each employer shall immediately notify the Idaho Industrial Commission or their duly authorized representative, for employees not protected by the Atomic Energy Commission by means of ten (10) CFR Part twenty (20), IDAPA 17.10.24.180.16.a., or the requirements of the laws and regulations of States named in IDAPA 17.10.24.180.16.c., by telephone or telegraph of any incident involving radiation which may have caused or threatens to cause: exposure of the whole body of any individual to twenty-five (25) REMs or more of radiation; exposure of the skin of the whole body of any individual to one-hundred fifty (150) REMs or more of radiation; or exposure of the feet, ankles, hands, or forearms of any individual to three-hundred seventy five (375) REMs or more of radiation; or the release of radioactive material in concentrations which, if averaged over a period of twenty-four (24) hours, would exceed five-thousand (5,000) times the limit specified for such materials in Table II of appendix B to ten (10) CFR Part twenty (20). ()

b. Twenty-Four (24) Hour Notification. Each employer shall, within twenty-four (24) hours following its occurrence, notify the Idaho Industrial Commission or his duly authorized representative for employees not protected by the Atomic Energy Commission by means of 10 CFR Part two (2), IDAPA 17.10.24.180.16, or the requirements of the laws and applicable regulations of States named in IDAPA 17.10.24.180.16, by telephone or telegraph of any incident involving radiation which may have caused or threatens to cause: Exposure of the whole body of any individual to five (5) REMs or more of radiation; exposure of the skin of the whole body of any individual to thirty (30) REMs or more of radiation; or exposure of the feet, ankles, hands, or forearms to seventy-five (75) REMs or more of radiation. ()

15. Reports of Overexposure, Excessive Levels, and Concentrations. ()

a. In addition to any notification required by IDAPA 17.10.24.180.14.a. each employer shall make a report in writing within thirty (30) days to the Assistant Secretary of Labor or his duly authorized representative, for employees not protected by the Nuclear Regulatory Commission by means of ten (10) CFR Part twenty (20); or under IDAPA 17.10.24.180.16.b., or the requirements of the laws and regulations of the State of Idaho, of each exposure of an individual to radiation or concentrations of radioactive material in excess of any applicable limit in this section. Each report required under this section shall describe the extent of exposure of persons to radiation or to

radioactive material; levels of radiation and concentration of radioactive material involved, the cause of the exposure, levels of concentrations; and corrective steps taken or planned to assure against a recurrence. ()

b. In any case where an employer is required pursuant to the provisions of this section to report to the U. S. Department of Labor any exposure of an individual to radiation or to concentrations of radioactive material, the employer shall also notify such individual of the nature and extent of exposure. Such notice shall be in writing and shall contain the following statement: "You should preserve this report for future reference." ()

16. Records. ()

a. Every employer shall maintain records of the radiation exposure of all employees for whom personnel monitoring is required under IDAPA 17.10.24.180.04. and advise each of his employees of his individual exposure on at least an annual basis. ()

b. Every employer shall maintain records in the same units used in tables in IDAPA 17.10.24.180.02. and Appendix B to ten (10) CFR Part twenty (20). ()

17. Disclosure to Former Employee of Individual Employee's Record. ()

a. At the request of a former employee an employer shall furnish to the employee a report of the employee's exposure to radiation as shown in records maintained by the employer pursuant to IDAPA 17.10.24.180.14. Such report shall be furnished within thirty (30) days from the time the request is made, and shall cover each calendar quarter of the individual's employment involving exposure to radiation or such lesser period as may be requested by the employee. The report shall also include the results of any calculations and analysis of radioactive material deposited in the body of the employee. The report shall be in writing and contain the following statement: " You should preserve this report for future reference." ()

18. Nuclear Regulatory Commission DOE Contractors Operating DOE Plants and Facilities -- DOE Agreement, State Licenses, or Registrants. ()

a. Any employer who possesses or uses source material, byproduct material, or special nuclear material, as defined in the Atomic Energy Act of 1954, as amended, under a license issued by the Nuclear Regulatory Commission and in accordance with the requirements of ten (10) CFR Part twenty (20) shall be deemed to be in compliance with the requirements of this section with respect to such possession and use. ()

b. Any employer who possesses or uses source material, byproduct material, special nuclear material, or other radiation sources under a contract with the Department of Energy for the operation of DOE plants and facilities and in accordance with the standards, procedures and other requirements for radiation protection established by the Commission for such contract pursuant to the Atomic Energy Act of 1954 as amended (42 U.S.C. 2011 et seq.) shall be deemed to be in compliance with the requirements of this section with respect to such possession and use. ()

c. Any employer who possesses or uses source material, byproduct material, or special nuclear material, as defined in the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.), and has either registered such sources with or is operating under a license issued by a State, and in accordance with the requirements of the State's laws and regulations, shall be deemed to be in compliance with the radiation requirements of this section, insofar as his possession and use of such material is concerned. ()

d. Other sources. Any employer who possesses or uses radiation sources other than source material, byproduct material, or special nuclear material, as defined in the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.), and has either registered such sources with or is operating under a license issued by a State, and in accordance with the requirements of that State's laws and regulations shall be deemed to be in compliance with the radiation requirements of this section, insofar as his possession and use of such material is concerned. ()

181. NONIONIZING RADIATION.

01. Scope. ()

a. Nonionizing (electromagnetic) radiation exposure shall conform to all other applicable requirements of this standard, as well as the following provisions. Nothing in this standard shall be construed to prohibit better or otherwise safer conditions than specified herein. ()

b. This section applies to all radiations originating from radio stations, radar equipment and other possible sources of electromagnetic radiation such as used for communication, radio navigation and industrial and scientific purposes. ()

c. This section does not apply to the deliberate exposure of patients by, or under the direction of, practitioners of the healing arts. ()

02. Definitions Applicable to this Section. ()

a. Electromagnetic radiation for the purpose of this standard is restricted to that portion of the spectrum commonly defined as the radio frequency region, and which for the purpose of this standard shall include the microwave frequency region. ()

b. Partial Body Irradiation pertains to the case in which part of the body is exposed to the incident electromagnetic energy. ()

c. Radiation Protection Guide is the radiation level which should not be exceeded without careful consideration of the reasons for doing so. ()

d. The word "symbol", as used in this section, refers to the overall design, shape and coloring of the RF radiation sign shown in Figure 181.05-A. ()

e. Whole Body Irradiation pertains to the case in which the entire body is exposed to the incident electromagnetic energy or in which the cross section of the body is smaller than the cross section of the incident radiation beam. ()

03. General Requirements. ()

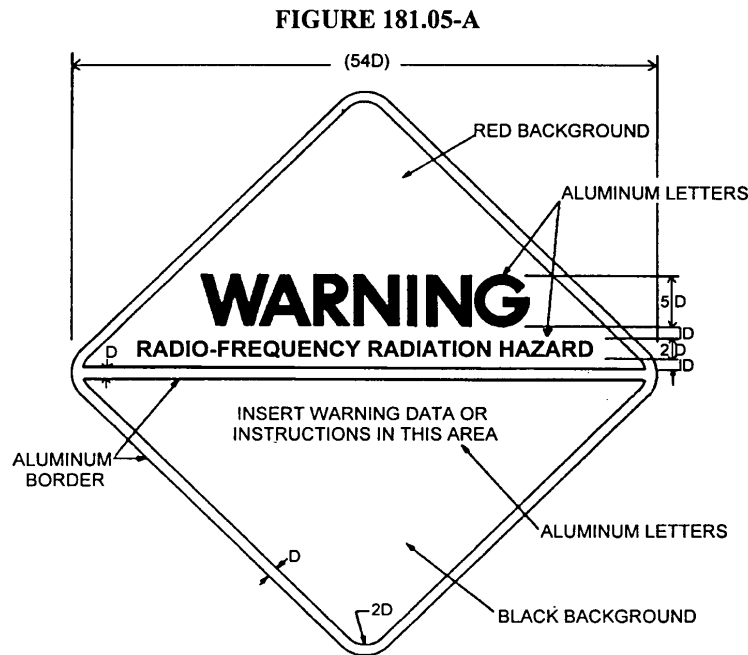
04. Radiation Protection Guide. ()

a. For normal environmental conditions and for incident electromagnetic energy of frequencies from ten (10) MHz to one-hundred (100) GHz, the radiation protection guide is ten (10) mW/cm.² (milliwatt per square centimeter) as averaged over any possible zero point one (0.1)-hour period. This means the following: Power Density: ten (10) mW/cm.² for period of zero point one (0.1)-hour or more; Energy Density: one (1) mW-hr/cm.² (milliwatt hour per square centimeter) during any zero point one (0.1)-hour period. This guide applies whether the radiation is continuous or intermittent. ()

b. These formulated recommendations pertain to both whole body irradiation and partial body irradiation. Partial body irradiation must be included since it has been shown that some parts of the human body (e.g. eyes, testicles) may be harmed if exposed to incident radiation levels significantly in excess of the recommended levels. ()

05. Warning Symbol. ()

a. The warning symbol for radio frequency radiation hazards shall consist of a red isosceles triangle above an inverted black isosceles triangle, separated and outlined by an aluminum color border. The words: "Warning -- Radio-Frequency Radiation Hazard" shall appear in the upper triangle. See Figure 181.05-A. ()



Place handling and mounting instructions on reverse side.

D = Scaling unit

Lettering: Ratio of letter height to thickness of letter lines.

*Upper triangle: 5 to 1 large
6 to 1 medium*

*Lower triangle: 4 to 1 small
6 to 1 medium*

Symbol is square, triangles are right-angle isosceles.

b. American National Standard Safety Color Code for Marking Physical Hazards and the Identification for Certain Equipment, Z53.1, shall be used for color specification. All lettering and the border shall be in aluminum color. ()

c. The inclusion and choice of warning information or precautionary instructions is at the discretion of the user. If such information is included it shall appear in the lower triangle of the warning symbol. ()

182. -- 999. (RESERVED).

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