

Pt. 1910, Subpt. L, App. B

29 CFR Ch. XVII (7–1–10 Edition)

APPENDIX B TO SUBPART L OF PART 1910—NATIONAL CONSENSUS STANDARDS

The following table contains a cross-reference listing of those current national consensus standards which contains information and guidelines that would be considered acceptable in complying with requirements in the specific sections of subpart L.

Subpart L section	National consensus standard
1910.156	ANSI/NFPA No. 1972; Structural Fire Fighter's Helmets. ANSI Z88.5 American National Standard, Practice for Respirator Protection for the Fire Service. ANSI/NFPA No. 1971, Protective Clothing for Structural Fire Fighters. NFPA No. 1041, Fire Service Instructor Professional Qualifications.
1910.157	ANSI/NFPA No. 10, Portable Fire Extinguishers.
1910.158	ANSI/NFPA No. 18, Wetting Agents. ANSI/NFPA No. 20, Centrifugal Fire Pumps. NFPA No. 21, Steam Fire Pumps. ANSI/NFPA No. 22, Water Tanks. NFPA No. 24, Outside Protection. NFPA No. 26, Supervision of Valves. NFPA No. 13E, Fire Department Operations in Properties Protected by Sprinkler, Standpipe Systems. ANSI/NFPA No. 194, Fire Hose Connections. NFPA No. 197, Initial Fire Attack, Training for. NFPA No. 1231, Water Supplies for Suburban and Rural Fire Fighting.
1910.159	ANSI/NFPA No. 13, Sprinkler Systems. NFPA No. 13A, Sprinkler Systems, Maintenance. ANSI/NFPA No. 18, Wetting Agents. ANSI/NFPA No. 20, Centrifugal Fire Pumps. ANSI/NFPA No. 22, Water Tanks. NFPA No. 24, Outside Protection. NFPA No. 26, Supervision of Valves. ANSI/NFPA No. 72B, Auxiliary Signaling Systems.
1910.160	NFPA No. 1231, Water Supplies for Suburban and Rural Fire Fighting. ANSI/NFPA No. 11, Foam Systems. ANSI/NFPA 11A, High Expansion Foam Extinguishing Systems. ANSI/NFPA No. 11B, Synthetic Foam and Combined Agent Systems. ANSI/NFPA No. 12, Carbon Dioxide Systems. ANSI/NFPA No. 12A, Halon 1301 Systems. ANSI/NFPA No. 12B, Halon 1211 Systems. ANSI/NFPA No. 15, Water Spray Systems. ANSI/NFPA 16 Foam-Water Spray Systems.
1910.161	ANSI/NFPA No. 17, Dry Chemical Systems. ANSI/NFPA 69, Explosion Suppression Systems. ANSI/NFPA No. 11B, Synthetic Foam and Combined Agent Systems.

Subpart L section	National consensus standard
1910.162	ANSI/NFPA No. 17, Dry Chemical Systems. ANSI/NFPA No. 12, Carbon Dioxide Systems. ANSI/NFPA No. 12A, Halon 1211 Systems. ANSI/NFPA No. 12B, Halon 1301 Systems. ANSI/NFPA No. 69, Explosion Suppression Systems.
1910.163	ANSI/NFPA No. 11, Foam Extinguishing Systems. ANSI/NFPA No. 11A, High Expansion Foam Extinguishing Systems. ANSI/NFPA No. 11B, Synthetic Foam and Combined Agent Systems. ANSI/NFPA No. 15, Water Spray Fixed Systems. ANSI/NFPA No. 16, Foam-Water Spray Systems. ANSI/NFPA No. 18, Wetting Agents. NFPA No. 26, Supervision of Valves.
1910.164	ANSI/NFPA No. 71, Central Station Signaling Systems. ANSI/NFPA No. 72A, Local Protective Signaling Systems. ANSI/NFPA No. 72B, Auxiliary Signaling Systems. ANSI/NFPA No. 72D, Proprietary Protective Signaling Systems. ANSI/NFPA No. 72E, Automatic Fire Detectors. ANSI/NFPA No. 101, Life Safety Code.
1910.165	ANSI/NFPA No. 71, Central Station Signaling Systems. ANSI/NFPA No. 72A, Local Protective Signaling Systems. ANSI/NFPA No. 72B, Auxiliary Protective Signaling Systems. ANSI/NFPA No. 72C, Remote Station Protective Signaling Systems. ANSI/NFPA No. 72D, Proprietary Protective Signaling Systems. ANSI/NFPA No. 101, Life Safety Code.
Metric Conversion	ANSI/ASTM No. E380, American National Standard for Metric Practice.

NFPA standards are available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.
ANSI Standards are available from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

[45 FR 60715, Sept. 12, 1980, as amended at 58 FR 35309, June 30, 1993]

APPENDIX C TO SUBPART L OF PART 1910—FIRE PROTECTION REFERENCES FOR FURTHER INFORMATION

- I. *Appendix general references.* The following references provide information which can be helpful in understanding the requirements contained in all of the sections of subpart L:
- A. *Fire Protection Handbook*, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.
 - B. *Accident Prevention Manual for Industrial Operations*, National Safety Council; 425 North Michigan Avenue, Chicago, IL 60611.

C. Various associations also publish information which may be useful in understanding these standards. Examples of these associations are: Fire Equipment Manufacturers Association (FEMA) of Arlington, VA 22204 and the National Association of Fire Equipment Distributors (NAFED) of Chicago, IL 60601.

II. *Appendix references applicable to individual sections.* The following references are grouped according to individual sections contained in subpart L. These references provide information which may be helpful in understanding and implementing the standards of each section of subpart L.

A. § 1910.156. *Fire brigades:*

1. *Private Fire Brigades*, NFPA 27; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

2. *Initial Fire Attack, Training Standard On*, NFPA 197; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

3. *Fire Fighter Professional Qualifications*, NFPA 1001; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

4. *Organization for Fire Services*, NFPA 1201; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

5. *Organization of a Fire Department*, NFPA 1202; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

6. *Protective Clothing for Structural Fire Fighting*, ANSI/NFPA 1971; .

7. *American National Standard for Men's Safety-Toe Footwear*, ANSI Z41.1; American National Standards Institute, New York, NY 10018.

8. *American National Standard for Occupational and Educational Eye and Face Protection*, ANSI Z87.1; American National Standards Institute, New York, NY 10018.

9. *American National Standard, Safety Requirements for Industrial Head Protection*, ANSI Z89.1; American National Standards Institute, New York, NY 10018.

10. *Specifications for Protective Headgear for Vehicular Users*, ANSI Z90.1; American National Standards Institute, New York, NY 10018.

11. *Testing Physical Fitness*; Davis and Santa Maria. *Fire Command*. April 1975.

12. *Development of a Job-Related Physical Performance Examination for Fire Fighters*; Dotson and Others. A summary report for the National Fire Prevention and Control Administration. Washington, DC. March 1977.

13. *Proposed Sample Standards for Fire Fighters' Protective Clothing and Equipment*; International Association of Fire Fighters, Washington, DC.

14. *A Study of Facepiece Leakage of Self-Contained Breathing Apparatus by DOP Man Tests*; Los Alamos Scientific Laboratory, Los Alamos, NM.

15. *The Development of Criteria for Fire Fighters' Gloves; Vol. II: Glove Criteria and Test Methods*; National Institute for Occupational Safety and Health, Cincinnati, OH. 1976.

16. *Model Performance Criteria for Structural Fire Fighters' Helmets*; National Fire Prevention and Control Administration, Washington, DC. 1977.

17. *Firefighters*; Job Safety and Health Magazine, Occupational Safety and Health Administration, Washington, DC. June 1978.

18. *Eating Smoke—The Dispensable Diet*; Utech, H.P. The Fire Independent, 1975.

19. *Project Monoxide—A Medical Study of an Occupational Hazard of Fire Fighters*; International Association of Fire Fighters, Washington, DC.

20. *Occupational Exposures to Carbon Monoxide in Baltimore Firefighters*; Radford and Levine. Johns Hopkins University, Baltimore, MD. Journal of Occupational Medicine, September, 1976.

21. *Fire Brigades*; National Safety Council, Chicago, IL. 1966.

22. *American National Standard, Practice for Respiratory Protection for the Fire Service*; ANSI Z88.5; American National Standards Institute, New York, NY 10018.

23. *Respirator Studies for the Nuclear Regulatory Commission; October 1, 1977—September 30, 1978. Evaluation and Performance of Open Circuit Breathing Apparatus*. NU REG/CR-1235. Los Alamos Scientific Laboratory; Los Alamos, NM. 87545, January, 1980.

B. § 1910.157. *Portable fire extinguishers:*

1. *Standard for Portable Fire Extinguishers*, ANSI/NFPA 10; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

2. *Methods for Hydrostatic Testing of Compressed Gas Cylinders, C-1*; Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.

3. *Recommendations for the Disposition of Unserviceable Compressed Gas Cylinders, C-2*; Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.

4. *Standard for Visual Inspection of Compressed Gas Cylinders, C-6*; Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.

5. *Portable Fire Extinguisher Selection Guide*, National Association of Fire Equipment Distributors; 111 East Wacker Drive, Chicago, IL 60601.

C. § 1910.158. *Standpipe and hose systems:*

1. *Standard for the Installation of Sprinkler Systems*, ANSI/NFPA 13; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

2. *Standard of the Installation of Standpipe and Hose Systems*, ANSI/NFPA 14; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

3. *Standard for the Installation of Centrifugal Fire Pumps*, ANSI/NFPA 20; National Fire

Protection Association, Batterymarch Park, Quincy, MA 02269.

4. *Standard for Water Tanks for Private Fire Protection*, ANSI/NFPA 22; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

5. *Standard for Screw Threads and Gaskets for Fire Hose Connections*, ANSI/NFPA 194; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

6. *Standard for Fire Hose*, NFPA 196; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

7. *Standard for the Care of Fire Hose*, NFPA 198; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

D. §1910.159. *Automatic sprinkler systems:*

1. *Standard of the Installation of Sprinkler Systems*, ANSI-NFPA 13; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

2. *Standard for the Care and Maintenance of Sprinkler Systems*, ANSI/NFPA 13A; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

3. *Standard for the Installation of Standpipe and Hose Systems*, ANSI/NFPA 14; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

4. *Standard for the Installation of Centrifugal Fire Pumps*, ANSI/NFPA 20; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

5. *Standard for Water Tanks for Private Fire Protection*, ANSI-NFPA 22; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

6. *Standard for Indoor General Storage*, ANSI/NFPA 231; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

7. *Standard for Rack Storage of Materials*, ANSI/NFPA 231C; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

E. §1910.160. *Fixed extinguishing systems—general information:*

1. *Standard for Foam Extinguishing Systems*, ANSI-NFPA 11; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

2. *Standard for Hi-Expansion Foam Systems*, ANSI/NFPA 11A; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

3. *Standard on Synthetic Foam and Combined Agent Systems*, ANSI/NFPA 11B; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

4. *Standard on Carbon Dioxide Extinguishing Systems*, ANSI/NFPA 12; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

5. *Standard on Halon 1301*, ANSI/NFPA 12A; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

6. *Standard on Halon 1211*, ANSI/NFPA 12B; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

7. *Standard for Water Spray Systems*, ANSI/NFPA 15; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

8. *Standard for Foam-Water Sprinkler Systems and Foam-Water Spray Systems*, ANSI/NFPA 16; National Fire Protection Association, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

9. *Standard for Dry Chemical Extinguishing Systems*, ANSI/NFPA 17; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

F. §1910.161. *Fixed extinguishing systems—dry chemical:*

1. *Standard for Dry Chemical Extinguishing Systems*, ANSI/NFPA 17; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

2. *National Electrical Code*, ANSI/NFPA 70; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

3. *Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapor from Commercial Cooking Equipment*, NFPA 96; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

G. §1910.162. *Fixed extinguishing systems—gaseous agents:*

1. *Standard on Carbon Dioxide Extinguishing Systems*, ANSI/NFPA 12; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

2. *Standard on Halon 1301*, ANSI/NFPA 12B; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

3. *Standard on Halon 1211*, ANSI/NFPA 12B; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

4. *Standard on Explosion Prevention Systems*, ANSI/NFPA 69; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

5. *National Electrical Code*, ANSI/NFPA 70; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

6. *Standard on Automatic Fire Detectors*, ANSI/NFPA 72E; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

7. *Determination of Halon 1301/1211 Threshold Extinguishing Concentrations Using the Cup Burner Method*; Riley and Olson, Ansil Report AL-530-A.

H. §1910.163. *Fixed extinguishing systems—water spray and foam agents:*

1. *Standard for Foam Extinguisher Systems*, ANSI/NFPA 11; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

2. *Standard for High Expansion Foam Systems*, ANSI/NFPA 11A; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

3. *Standard for Water Spray Fixed Systems for Fire Protection*, ANSI/NFPA 15; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

4. *Standard for the Installation of Foam-Water Sprinkler Systems and Foam-Water Spray Systems*, ANSI/NFPA 16; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

I. §1910.164. *Fire Detection systems:*

1. *National Electrical Code*, ANSI/NFPA 70; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

2. *Standard for Central Station Signaling Systems*, ANSI/NFPA 71; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

3. *Standard on Automatic Fire Detectors*, ANSI/NFPA 72E; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

J. §1910.165. *Employee alarm systems:*

1. *National Electrical Code*, ANSI/NFPA 70; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

2. *Standard for Central Station Signaling Systems*, ANSI/NFPA 71; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

3. *Standard for Local Protective Signaling Systems*, ANSI/NFPA 72A; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

4. *Standard for Auxiliary Protective Signaling Systems*, ANSI/NFPA 72B; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

5. *Standard for Remote Station Protective Signaling Systems*, ANSI/NFPA 72C; National Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

6. *Standard for Proprietary Protective Signaling Systems*, ANSI/NFPA 72D; National

Fire Protection Association, Batterymarch Park, Quincy, MA 02269 .

7. *Vocal Emergency Alarms in Hospitals and Nursing Facilities: Practice and Potential*. National Bureau of Standards. Washington, D.C., July 1977.

8. *Fire Alarm and Communication Systems*. National Bureau of Standards. Washington, D.C., April 1978.

[45 FR 60715, Sept. 12, 1980, as amended at 58 FR 35309, June 30, 1993]

APPENDIX D TO SUBPART L OF PART 1910—AVAILABILITY OF PUBLICATIONS INCORPORATED BY REFERENCE IN SECTION 1910.156 FIRE BRIGADES

The final standard for fire brigades, Section 1910.156, contains provisions which incorporate certain publications by reference. The publications provide criteria and test methods for protective clothing worn by those fire brigade members who are expected to perform interior structural fire fighting. The standard references the publications as the chief sources of information for determining if the protective clothing affords the required level of protection.

It is appropriate to note that the final standard does not require employers to purchase a copy of the referenced publications. Instead, employers can specify (in purchase orders to the manufacturers) that the protective clothing meet the criteria and test methods contained in the referenced publications and can rely on the manufacturers' assurances of compliance. Employers, however, may desire to obtain a copy of the referenced publications for their own information.

The paragraph designation of the standard where the referenced publications appear, the title of the publications, and the availability of the publications are as follows:

Paragraph designation	Referenced publication	Available from
1910.156(e)(3)(ii)	"Protective Clothing for Structural Fire Fighting," NFPA No. 1971 (1975).	National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.
1910.156(e)(4)(i)	"Development of Criteria for Fire Fighter's Gloves; Vol. II, part II: Test Methods" (1976).	U.S. Government Printing Office, Washington, D.C. 20402. Stock No. for Vol. II is: 071-033-0201-1.
1910.156(e)(5)(i)	"Model Performance Criteria for Structural Firefighter's Helmets" (1977).	U.S. Fire Administration, National Fire Safety and Research Office, Washington, D.C. 20230.

The referenced publications (or a microfiche of the publications) are available for review at many universities and public libraries throughout the country. These publications may also be examined at the OSHA Technical Data Center, Room N2439-Rear, United States Department of Labor, 200 Constitution Ave., N.W., Washington, D.C. 20210 (202-219-7500), or at any OSHA Regional Of-

fice (see telephone directories under United States Government-Labor Department).

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