

NFPA 1983 Fire Service Life Safety Rope, Harness, and Hardware 1990 Edition



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The Board of Directors reaffirms that the National Fire Protection Association recognizes that the toxicity of the products of combustion is an important factor in the loss of life from fire. NFPA has dealt with that subject in its technical committee documents for many years.

There is a concern that the growing use of synthetic materials may produce more or additional toxic products of combustion in a fire environment. The Board has, therefore, asked all NFPA technical committees to review the documents for which they are responsible to be sure that the documents respond to this current concern. To assist the committees in meeting this request, the Board has appointed an advisory committee to provide specific guidance to the technical committees on questions relating to assessing the hazards of the products of combustion.

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NFPA 1983
Standard on
Fire Service Life Safety Rope, Harness, and Hardware
1990 Edition

This edition of NFPA 1983, *Standard on Fire Service Life Safety Rope, Harness, and Hardware*, was prepared by the Technical Committee on Fire Service Protective Clothing and Equipment and acted on by the National Fire Protection Association, Inc. at its Annual Meeting held May 21-24, 1990 in San Antonio, TX. It was issued by the Standards Council on July 20, 1990, with an effective date of August 17, 1990, and supersedes all previous editions.

The 1990 edition of this document has been approved by the American National Standards Institute.

Origin and Development of NFPA 1983

The Technical Committee on Protective Equipment for Fire Fighters (now renamed the Technical Committee on Fire Service Protective Clothing and Equipment) began work on this standard in 1982 in answer to requests from the fire service to establish requirements for rope used by the fire service to perform rescues. During the development of this standard, it became necessary to include harnesses and hardware that are used with the rope in rescue operations. The work was completed in the Spring of 1984 and submitted to the NFPA for official adoption. The first edition was issued on June 6, 1985.

The Subcommittee on Life Safety Ropes began the revision to the 1985 edition in late 1987 and turned over its proposals to the Technical Committee in December, 1988. The Technical Committee completed its work on the document in April, 1989, and it was submitted for the Annual Meeting 1990 cycle. This second edition was issued on July 20, 1990.

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NFPA 1983**Standard on****Fire Service Life Safety Rope, Harness, and Hardware****1990 Edition**

NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates explanatory material on that paragraph in Appendix A.

Information on referenced publications can be found in Chapter 6.

Chapter 1 Administration**1-1 Scope.**

1-1.1 This standard specifies minimum performance criteria, design criteria, and test methods for life safety rope, harness, and hardware used by the fire service.

1-1.2 This standard does not cover equipment used for other purposes, such as water rescue or industrial applications.

1-2 Purpose.

1-2.1* The purpose of this standard is to provide minimum performance requirements and a reasonable degree of safety for life safety rope, harness, and hardware used to support fire service personnel and civilians during rescue, fire fighting, and other emergency operations, or during training evolutions.

1-2.2 Controlled laboratory tests used to determine compliance with the performance requirements of this standard shall not be deemed as establishing performance for all situations to which this equipment may be exposed.

1-2.3 This standard is not intended to serve as a detailed manufacturing or purchase specification, but shall be permitted to be referenced in purchase specifications as minimum requirements.

1-3 Definitions.

Approved.* Acceptable to the “authority having jurisdiction.”

Ascent Device. A friction or mechanical device utilized to allow ascending or clamping a fixed line.

Authority Having Jurisdiction.* The “authority having jurisdiction” is the organization, office or individual responsible for “approving” equipment, an installation or a procedure.

Block Creel Construction. Rope constructed without knots or splices in the yarns, ply yarns, strands or braids, or rope. Unavoidable knots may be present in individual fibers as received from fiber supplier.

Breaking Elongation. Increase in length, expressed in percent of original length, that occurs in a sample of new rope pulled to the breaking point when tested as specified herein.

Buckle. Load-bearing fastener utilized to connect two pieces of webbing.

Certification/Certified. A system whereby a certification organization determines that a manufacturer has demonstrated the ability to produce a product that complies with the requirements of this standard, authorizes the manufacturer to use a label on listed products that comply with the requirements of this standard, and establishes a follow-up program conducted by the certification organization as a check on the methods the manufacturer uses to determine compliance with the requirements of this standard.

Certification Organization. An independent, third party organization that determines product compliance with the requirements of this standard with a labeling/listing/follow-up program.

Compliant. Meeting or exceeding all applicable requirements of this standard.

Continuous Filament Fiber. Fiber of indefinite or unmeasurable length.

Corrosion. A condition exhibiting any signs of deterioration including pitting or loss of metal.

Descent Device. A friction or mechanical device utilized to control descent down fixed line.

Fall Factor. A measure of fall severity calculated by dividing the distance fallen by the length of rope used to arrest the fall.

Follow-Up Program. The sampling, inspections, tests, or other measures conducted by the certification organization on a periodic basis to determine the continued compliance of labeled and listed products that are being produced by the manufacturer to the requirements of this standard.

Hardware. Load-bearing accessories designed to be utilized with life safety rope and harness; includes but is not limited to rings, snap-links, pulleys, ascending devices, and descending devices.

Harness. See Life Safety Harness.

Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an

organization acceptable to the “authority having jurisdiction” and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Life Safety Harness. Harness used to support people during fire service rescue.

Life Safety Rope. Rope dedicated solely for the purpose of constructing lines for supporting people during rescue, fire fighting, or other emergency operations, or during training evolutions.

Line. Rope when in use.

Listed.* Equipment or materials included in a list published by an organization acceptable to the “authority having jurisdiction” and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or materials and whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

Maximum Working Load. Weight supported by the rope that shall not be exceeded in use.

Minimum Breaking Strength. Certified minimum strength of each rope sold when tested as specified herein.

One-Person Load. 300 lb.

One-Person Rope. Life safety rope designed to support a one-person load when in use; may also be used to support a two-person load when used in systems where two ropes are used as separate and equal members.

Product Label. A label affixed to the product by the manufacturer containing general information, warnings, care, maintenance, or similar data. This product label is not a certification organization’s label or identifying mark.

Ring. Ungated load-bearing fastener.

Self-Destructive Action. Interaction of dissimilar materials in a manner leading to deterioration.

Shall. Indicates a mandatory requirement.

Should. This term, as used in the appendix, indicates a recommendation or that which is advised but not required.

Snap-Link. Self-closing, gated, load-bearing fastener.

Two-Person Load. 600 lb.

Two-Person Rope. Life safety rope designed to support a two-person load when in use.

Virgin Fiber. Fiber that is new and previously unused.

Webbing. Woven material in the form of a long strip; can be of flat or tubular weave.

Chapter 2 Certification

2-1 General.

2-1.1 Life safety rope, harness, and hardware that are labeled and listed as being compliant with this standard shall meet or exceed all applicable requirements specified in this standard and shall be certified.

2-1.2 All certifications shall be performed by an approved certification organization.

2-1.3 Compliant life safety rope, harness, and hardware shall be labeled and listed. Each compliant life safety rope, harness, and hardware shall also have a product label that meets the applicable requirements specified in Section 3-2, 4-2, or 5-2 of this standard.

2-2 Certification Program.

2-2.1* The certification organization shall not be owned or controlled by manufacturers or vendors of the product being certified. The certification organization shall be primarily engaged in certification work and shall not have a monetary interest in the product’s ultimate profitability.

2-2.2 The certification organization shall refuse to certify products to this standard that do not comply with all applicable requirements of this standard.

2-2.3* The contractual provisions between the certification organization and the manufacturer shall specify that certification is contingent on compliance with all applicable requirements of this standard. There shall be no conditional, temporary, or partial certifications. Manufacturers shall not be authorized to use any label or reference to the certification organization on products that are not manufactured in compliance with all applicable requirements of this standard.

2-2.4* For certification, laboratory facilities and equipment for conducting proper tests shall be available, a program for calibration of all instruments shall be in place and operating, and procedures shall be in use to ensure proper control of all testing. Good practice shall be followed regarding the use of laboratory manuals, form data sheets, documented calibration and calibration routines, performance verification, proficiency testing, and staff qualification and training programs.

2-2.5 Manufacturers shall be required to establish and maintain a program of production inspection and testing.

2-2.6 The manufacturer and the certification organization shall evaluate any changes affecting the form, fit, or function of the certified product to determine its continued certification to this standard.

2-2.7* Product certifications shall include a follow-up inspection program, with at least 2 random and unannounced visits per 12-month period.

2-2.8 The certification organization shall have a program for investigating field reports alleging malperformance or failure of listed products.

2-2.9 The operating procedures of the certification organization shall provide a mechanism for the manufacturer to appeal decisions. The procedures shall include the presentation of information from both sides of a controversy to a designated appeals panel.

2-2.10 The certification organization shall be in a position to use legal means to protect the integrity of its name and label. The name and label shall be registered and legally defended.

2-3 Inspection and Testing.

2-3.1 Sampling levels for testing and inspection shall be established by the certification organization and the manufacturer to assure a reasonable and acceptable reliability at a reasonable and acceptable confidence level that products certified to this standard are compliant. This information shall be provided to the purchaser upon request.

2-3.2 Testing for determining product compliance with the appropriate requirements specified in Chapter 3, 4, or 5 of this standard shall be performed on samples representative of materials and components used in the actual construction of products certified to this standard. The certification organization shall be permitted to also use sample materials cut from a representative product.

2-4 User Information.

2-4.1* The manufacturer of life safety rope, harness, or hardware certified as being compliant with this standard shall furnish inspection and maintenance procedures and retirement criteria for the product to the purchaser.

Chapter 3 Life Safety Rope

3-1 Design and Construction.

3-1.1 Life safety rope class shall be designated as specified in 3-3.2.1 of this chapter.

3-1.2 Rope designed to have a maximum working load of not less than 300 lb shall be classified as a one-person life safety rope.

3-1.3 Rope designed to have a maximum working load not less than 600 lb shall be classified as a two-person life safety rope.

3-1.4* Life safety rope shall be constructed of virgin fiber.

3-1.5 Life safety rope shall be of block creel construction; load-bearing elements shall be constructed of continuous filament fiber.

3-2 Product Labeling and Marking.

3-2.1* Each life safety rope shall be marked for its full length by insertion of a continuous, water-resistant identification tape. At least the following information shall be legibly printed on the tape in water-insoluble ink not less than once every 3 ft:

“Meets requirements of NFPA Standard 1983-1990 Edition for Life Safety Rope”

Name of manufacturer,

Manufacturer’s identification and lot numbers,

Certification organization’s label.

3-2.2* Each life safety rope when sold shall have a product label that is durably affixed and water-resistant. At least the following information shall be legibly printed on the product label in water-insoluble ink:

“THIS LIFE SAFETY ROPE MEETS THE REQUIREMENTS OF NFPA 1983, STANDARD ON FIRE SERVICE LIFE SAFETY ROPE, HARNESS, AND HARDWARE, 1990 EDITION.

WARNING

USE ONLY FOR EMERGENCY LIFE SAFETY USE OR TRAINING. DESTROY IF USED IN ANY OTHER MANNER.

ROPE USED FOR EMERGENCY OPERATIONS MUST BE PREVIOUSLY UNUSED. DESTROY AFTER SUCH USE.

ROPE USED FOR TRAINING MUST BE INSPECTED IN ACCORDANCE WITH MANUFACTURER’S REQUIREMENTS AND DESTROYED IF INDICATED.

FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH.”

3-2.3 In addition to the statements specified in 3-2.2 of this section, at least the following information shall also be provided on the product label:

- (a) Maximum working load as determined in 3-3.2,
- (b) Minimum breaking strength as determined in 3-3.2,
- (c) Circumference as determined in 3-3.3,
- (d) Nominal diameter,
- (e) Type of fibers as specified by manufacturer,
- (f) Name of manufacturer,
- (g) Country of manufacture,
- (h) Manufacturer’s stock number,
- (i) Month and year of manufacture,
- (j) Manufacturer’s lot number,
- (k) Rope class, number of persons.

3-2.4 The required information specified in 3-2.3 of this section shall be presented on the product label in the following manner:

CLASS: _____ PERSON ROPE,
MAXIMUM WORKING LOAD _____ lb,
MINIMUM BREAKING STRENGTH _____ lb,
CIRCUMFERENCE _____ in.,
NOMINAL DIAMETER _____ in.,

Type of fiber(s),

Name of manufacturer,

Manufacturer's product identification,

Manufacturer's lot number.

3-2.5 All portions of the required marking tape and product label shall be printed at least in English.

3-3 Performance Requirements.

3-3.1* Samples from each manufacturing lot shall be tested for breaking elongation and minimum breaking strength in accordance with either Method 6015, Strength and Elongation, Breaking of Cordage; Spliced Specimen Method; or 6016, Strength and Elongation, Breaking of Cordage; Non-Spliced Specimen Method; as applicable, of Federal Test Method Standard 191A, *Textile Test Methods*.

3-3.1.1* New rope breaking elongation shall not be less than 15 percent nor more than 55 percent.

3-3.1.2 New rope minimum breaking strength for one-person rope shall not be less than 4500 lb and for two-person rope shall be not less than 9000 lb.

3-3.2 Maximum working load shall be expressed in pounds and calculated by dividing the new rope minimum breaking strength as specified in 3-3.1.2 of this section by a factor of not less than 15.

3-3.2.1 The person classification shall be calculated by dividing the maximum working load by a factor of not less than 300. Fractions occurring in the product of this calculation shall be rounded downward to the nearest whole number.

3-3.3 Life safety rope shall have a circumference of not less than $1\frac{1}{8}$ in. and not more than $1\frac{1}{2}$ in. for one-person rope, and not less than $1\frac{1}{2}$ in. and not more than $2\frac{1}{4}$ in. for two-person rope when tested in accordance with Method 6003, Circumference of Cordage, of Federal Test Method Standard 191A, *Textile Test Methods*.

3-3.4 Life safety rope shall have a maximum weight of 0.09 lb/ft for one-person rope and 0.18 lb/ft for two-person rope when tested in accordance with Method 6004, Length per Unit Weight; Cordage, of Federal Test Method Standard 191A, *Textile Test Methods*.

3-3.5 Fiber utilized for life safety rope shall have a melting point of not less than 400°F when tested in accordance with Method 1534, Melting Point of Synthetic Fibers, of Federal Test Method Standard 191A, *Textile Test Methods*.

3-3.6 Dyed life safety rope shall show the following colorfastness:

(a) *Crocking*. Class 4, when tested in accordance with AATCC Method 8, *Colorfastness to Crocking*.

(b) *Washing*. Class 4, color change and staining, when tested in accordance with AATCC Method 61, IIA, *Colorfastness to Washing, Domestic; and Laundering, Commercial*: accelerated.

Chapter 4 Life Safety Harness

4-1 Design and Construction.

4-1.1* Webbing utilized to construct life safety harness shall be constructed of virgin, continuous filament fiber.

4-1.2 Life safety harness shall be designed and designated in accordance with the following classes:

(a) *Class I*. Harness that fastens around waist; designed to be used for securing to ladder or emergency escape with one-person loads.

(b) *Class II*. Harness that fastens around waist and around thighs or under buttocks; designed for rescue where two-person loads may be encountered.

(c) *Class III*. Harness that fastens around waist, around thighs or under buttocks, and over shoulders; designed for rescue where two-person loads may be encountered and inverting may occur.

4-1.3* All life safety harnesses shall be sized for a minimum range of 30- to 50-in. waist size. In addition, Class III harnesses shall be sized for a minimum range of 5 ft, 6 in. to 6 ft, 6 in. height. Harnesses shall be permitted to be fully adjustable within these ranges, provided in a range of sizes, or custom fitted for individuals.

4-1.4* All webbing ends shall be secured by heat-sealing or by another method that prevents unraveling.

4-1.5 All thread shall be compatible with webbing used, shall meet the strength and heat resistance requirements specified in Section 4-3 of this chapter, and shall allow for ease of inspection. All stitching breaks or ends shall be backtacked not less than 1.0 in.

4-2 Product Labeling.

4-2.1 Each life safety harness shall have permanently affixed a synthetic fabric product label sewn with synthetic thread, or a riveted metal product label plate. At least the following information shall be legibly printed on the product label in water-insoluble ink or inscribed on the plate. The life safety harness class shall be determined in accordance with 4-1.2 of this chapter.

“THIS LIFE SAFETY HARNESS MEETS THE REQUIREMENTS OF NFPA 1983, STANDARD ON FIRE SERVICE LIFE SAFETY ROPE, HARNESS, AND HARDWARE, 1990 EDITION; CLASS ____.

WARNING

USE ONLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

INSPECT AFTER EACH USE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

REPAIR ONLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH.”

Name of manufacturer,

Manufacturer's product identification,

Manufacturer's lot or serial number,

Certification Organization's Label.

4-2.1.1 In addition, for harnesses that are not adjustable, at least the following information shall be provided on the product label:

- (a) For Class I and II harnesses:
"Fits waist size _____";
- (b) For Class III harnesses:
"Fits waist size _____ Fits height _____".

4-2.2 All portions of the required product label shall be printed at least in English.

4-3 Performance Requirements.

4-3.1* Webbing used for load-bearing members in contact with body shall be not less than a nominal 1 $\frac{3}{4}$ in. in width with a nominal thickness of not less than 0.060 in. when tested in accordance with Method 5030, Thickness of Textile Materials; Determination of; of Federal Test Method Standard 191A, *Textile Test Methods*; and shall have a minimum breaking strength of not less than 6000 lb when tested in accordance with Method 4108, Strength and Elongation, Breaking; Textile Webbing, Tape and Braided Items; of Federal Test Method Standard 191A, *Textile Test Methods*.

4-3.2 Structural stitching shall withstand a tensile test of not less than 1200 lb without permanent distortion and not less than 6000 lb without failure.

4-3.3 Riveting shall withstand a tensile test of not less than 1200 lb without permanent distortion and not less than 6000 lb without failure.

4-3.4 Samples of each design and model of finished harnesses shall be tested in accordance with ANSI A10.14, *Requirements for Safety Belts, Harnesses, Lanyards, Lifelines, and Drop Lines for Construction and Industrial Use*, utilizing a 300-lb dummy and a $\frac{3}{4}$ -in. polyester double-braided lanyard of a nominal 6 ft in length meeting the requirements of MIL-R-24536 without failure.

4-3.5 Fiber used in the construction of life safety harness including webbing, thread, and labels shall have a melting point of not less than 400°F when tested in accordance with Test Method 1534 of Federal Test Method Standard 191A, *Textile Test Methods*.

4-3.6 Dyed life safety harness shall show the following colorfastness:

- (a) *Crocking*. Class 4, when tested in accordance with AATCC Method 8.
- (b) *Washing*. Class 4, color change and staining, when tested in accordance with AATCC Method 61, IIA.

Chapter 5 Hardware

5-1 Design and Construction.

5-1.1 Hardware shall not be constructed or utilized in a manner that allows self-destructive action.

5-1.2 Load-bearing hardware shall be constructed of forged, machined, stamped, extruded, or cast metal. Castings shall meet quality assurance requirements of MIL-C-6021, Class I, Radiographic Grade A.

5-1.3 Buckles shall have a corner radius of not less than 0.25 in.

5-1.4* Snap-link gates shall be of a positive locking design.

5-2 Product Labeling.

5-2.1 Load-bearing hardware shall be permanently stamped or engraved with a product label that shall have at least the manufacturer's name, the certification organization's label, and manufacturer's lot number.

5-2.2 All portions of the required stamped or engraved product label shall be at least in English.

5-3 Performance Requirements.

5-3.1 Hardware shall not corrode when exposed to a 50-hour salt spray test in accordance with ASTM B 117, *Salt Spray (Fog) Testing*.

5-3.2 Load-bearing hardware shall withstand not less than a 1200-lb tensile test without permanent distortion.

5-3.3 Buckles shall withstand a tensile test of not less than 5000 lb without failure.

5-3.4* Rings shall withstand a tensile test of not less than 5000 lb without failure when tested in manner of function.

5-3.5* Snap-links shall withstand a tensile test of not less than 5000 lb without failure when tested in manner of function.

5-3.6* Ascent devices shall withstand a tensile test of not less than 1200 lb without failure when tested in manner of function.

5-3.7* Descent devices shall withstand a tensile test of not less than 1200 lb without permanent distortion and not less than 5000 lb without failure; both tests shall be performed in manner of function.

Chapter 6 Referenced Publications

6-1 The following documents or portions thereof are referenced within this standard and shall be considered part of the requirements of this document. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

6-1.1* AATCC Publications.

AATCC Method 8, *Colorfastness to Crocking*, 1981

AATCC Method 61, IIA, *Colorfastness to Washing, Domestic; and Laundering, Commercial: Accelerated*, 1980.

6-1.2* ANSI Publication.

ANSI A10.14, *Requirements for Safety Belts, Harnesses, Lanyards, Lifelines, and Drop Lines for Construction and Industrial Use*, 1975.

6-1.3* ASTM Publication.

ASTM B 117, *Salt Spray (Fog) Testing*, 1985

6-1.4* GSA Publication.

Federal Test Method Standard 191A, *Textile Test Methods*, 1978

Appendix A

This Appendix is not a part of the requirements of this NFPA document, but is included for information purposes only.

A-1-2.1 Fire fighting and rescue are hazardous activities. It is the responsibility of the fire department to obtain expert instruction and to take adequate safety precautions based upon manufacturer's recommendations. Fire department training should include use techniques, maintenance procedures including properties of synthetic fiber rope, and deployment techniques including abrasion protection and selection of anchor points.

A-1-3 Approved. The National Fire Protection Association does not approve, inspect or certify any installations, procedures, equipment, or materials nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization concerned with product evaluations which is in a position to determine compliance with appropriate standards for the current production of listed items.

A-1-3 Authority Having Jurisdiction. The phrase "authority having jurisdiction" is used in NFPA documents in a broad manner since jurisdictions and "approval" agencies vary as do their responsibilities. Where public safety is primary, the "authority having jurisdiction" may be a federal, state, local or other regional department or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department, health department, building official, electrical inspector, or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the "authority having jurisdiction." In many circumstances the property owner or his designated agent assumes the role of the "authority having jurisdiction"; at government installations, the commanding officer or departmental official may be the "authority having jurisdiction."

A-1-3 Listed. The means for identifying listed equipment may vary for each organization concerned with product evaluation, some of which do not recognize equipment

as listed unless it is also labeled. The "authority having jurisdiction" should utilize the system employed by the listing organization to identify a listed product.

A-2-2.1 The certification organization should have sufficient breadth of interest and activity so that the loss or award of a specific business contract would not be a determining factor in the financial well-being of the agency.

A-2-2.3 The contractual provisions covering certification programs should contain clauses advising the manufacturer that if requirements change, the product should be brought into compliance with the new requirements by a stated effective date through a compliance review program involving all currently listed products. Without the clauses, certifiers would not be able to move quickly to protect their name, marks, or reputation. A product safety certification program would be deficient without these contractual provisions and the administrative means to back them up.

A-2-2.4 Investigative procedures are important elements of an effective and meaningful product safety certification program. A preliminary review should be carried out on products submitted to the agency before any major testing is undertaken.

A-2-2.7 Such inspections should include, in most instances, witnessing of production tests. With certain products the certification organization inspectors should select samples from the production line and submit them to the main laboratory for countercheck testing. With other products, it may be desirable to purchase samples in the open market for test purposes.

A-2-4.1 To avoid possible damage, and possible reduction and loss of strength of the life safety rope or harness, contact the manufacturers prior to disinfecting or cleaning by a method not prescribed in the maintenance procedures and retirement criteria.

A-3-1.4 If finish is applied to rope fiber during production, it should not interfere with safe usage of the rope due to undue slipperiness; this characteristic should be evaluated by the fire department before rope is purchased.

A-3-2.1 Information could be added to the tape that applies to a particular rope such as date of manufacture or any pertinent information useful to the purchaser.

A-3-2.2 When each life safety rope is placed in service, the fire department should assure that a product label with the information as specified in 3-2.2 is attached.

Since there is no approved manner to service test a rope without compromising its strength, the use of new rope for rescue work is required.

Rope is damaged in use by high stresses, particularly those that occur in impact loading situations. Abrasion, kinking, and exposure to chemical and other products can also damage a rope. Actual use of the rope is considered

uncontrolled use, and, since there is no means to assure its safety for future use, it must be destroyed after such uncontrolled use.

Training ropes are used under controlled conditions in which impact loading and other damaging situations would be observed. Ropes used in this manner should be inspected before and after every use and carefully stored between training sessions. Records should provide a history of each rope, and training ropes should be scheduled for replacement at regular intervals. Any rope that shows signs of damage or wear, or that has been impact loaded, should be destroyed immediately.

The destruction of the rope means that it must be removed from service and altered in such a manner that it could not be mistakenly used as a life safety rope. This could include disposal or removal of labels and cutting into short lengths to be used for utility purposes.

A-3-3.1 Any rope can be severely damaged and can fail when cut by a sharp edge or when subject to abrasion over rough surfaces. Rope should be protected from such hazards with appropriate abrasion protection. Many constructions of rope that meet the requirements of this standard could pose difficulties with knotting or splicing easily or interfacing effectively with all systems of use and all type of life safety harnesses and associated equipment. Evaluation should be done by the fire department before purchase to assure compatibility. Rope end terminations such as knots and splices should be made in accordance with manufacturer's instructions.

A-3-3.1.1 Rope elongation is related to the amount of energy a rope can safely absorb when used to arrest a fall. For all ropes, and especially when fall factors can exceed one, manufacturers should be consulted to assure that rope with appropriate elongation and energy absorption is selected for each application.

A-4-1.1 Many life safety harness and hardware that meet the requirements of this standard might not interface effectively with all systems of use and all types of life safety rope. Evaluation should be done by the fire department before purchase to assure compatibility.

A-4-1.3 Fire departments should assure proper sizes to accommodate on-duty personnel.

A-4-1.4 Alternative methods for finishing and securing webbing ends can be hardware capping, tucking and sewing, and coating the webbing ends with an air-drying, solvent base sealant.

A-4-3.1 A harness can be subjected to two-person loads during rescue operations. A 6000-lb rating establishes a 10:1 safety factor for this component. While harnesses are not subject to the same dangers as ropes, they are more fragile than hardware to physical effects.

A-5-1.4 Positive locking devices can include screw and spring collars and are designed to prevent gates from opening accidentally during use.

A-5-3.4 Testing in "manner of function" will differ depending on type of device tested. For example, a figure-of-eight descent device could be tested by looping a steel cable through the device as unit would be utilized.

A-5-3.5 See A-5-3.4.

A-5-3.6 See A-5-3.4.

A-5-3.7 See A-5-3.4.

A-6-1.1 These publications are available from the American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

A-6-1.2 This publication is available from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

A-6-1.3 This publication is available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

A-6-1.4 This publication is available from General Services Administration, Specifications Activity, Printed Materials Supply Division, Building 197, Naval Weapons Plant, Washington, DC 20407.

Index

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SUBMITTING PROPOSALS ON NFPA TECHNICAL COMMITTEE DOCUMENTS

**Contact NFPA Standards Administration for final date for receipt of proposals
on a specific document.**

INSTRUCTIONS

**Please use the forms which follow for submitting proposed amendments.
Use a separate form for each proposal.**

1. For each document on which you are proposing amendment indicate:
 - (a) The number and title of the document
 - (b) The specific section or paragraph.
2. Check the box indicating whether or not this proposal recommends new text, revised text, or to delete text.
3. In the space identified as "Proposal" include the wording you propose as new or revised text, or indicate if you wish to delete text.
4. In the space titled "Statement of Problem and Substantiation for Proposal" state the problem which will be resolved by your recommendation and give the specific reason for your proposal including copies of tests, research papers, fire experience, etc. If a statement is more than 200 words in length, the technical committee is authorized to abstract it for the Technical Committee Report.
5. Check the box indicating whether or not this proposal is original material, and if it is not, indicate source.
6. If supplementary material (photographs, diagrams, reports, etc.) is included, you may be required to submit sufficient copies for all members and alternates of the technical committee.
7. Type or print legibly in black ink.

NOTE: The NFPA Regulations Governing Committee Projects in Paragraph 10-10 state: Each proposal shall be submitted to the Council Secretary and shall include:

- (a) identification of the submitter and his affiliation (Committee, organization, company) where appropriate, and
- (b) identification of the document, paragraph of the document to which the proposal is directed, and
- (c) a statement of the problem and substantiation for the proposal, and
- (d) proposed text of proposal, including the wording to be added, revised (and how revised), or deleted.

FORM FOR PROPOSALS ON NFPA TECHNICAL COMMITTEE DOCUMENTS

Mail to: Secretary, Standards Council

National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101

Note: All proposals must be received by 5:00 p.m. E.S.T./E.S.D.T. on the published proposal closing date.

Date 5/18/85 Name John B. Smith Tel. No. 617-555-1212

Address 9 Seattle St., Seattle, WA 02255

Representing (Please indicate organization, company or self) Fire Marshals Assn. of North America

1. a) Document Title: Protective Signaling Systems NFPA No. & Year NFPA 72D

b) Section/Paragraph: 2-7.1 (Exception)

2. Proposal recommends: (Check one) ☐ new text
☐ revised text
☒ deleted text.

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted):

Delete exception.

FOR OFFICE USE ONLY

Log #: _____

Date Rec'd: _____

Proposal #: _____

4. Statement of Problem and Substantiation for Proposal:

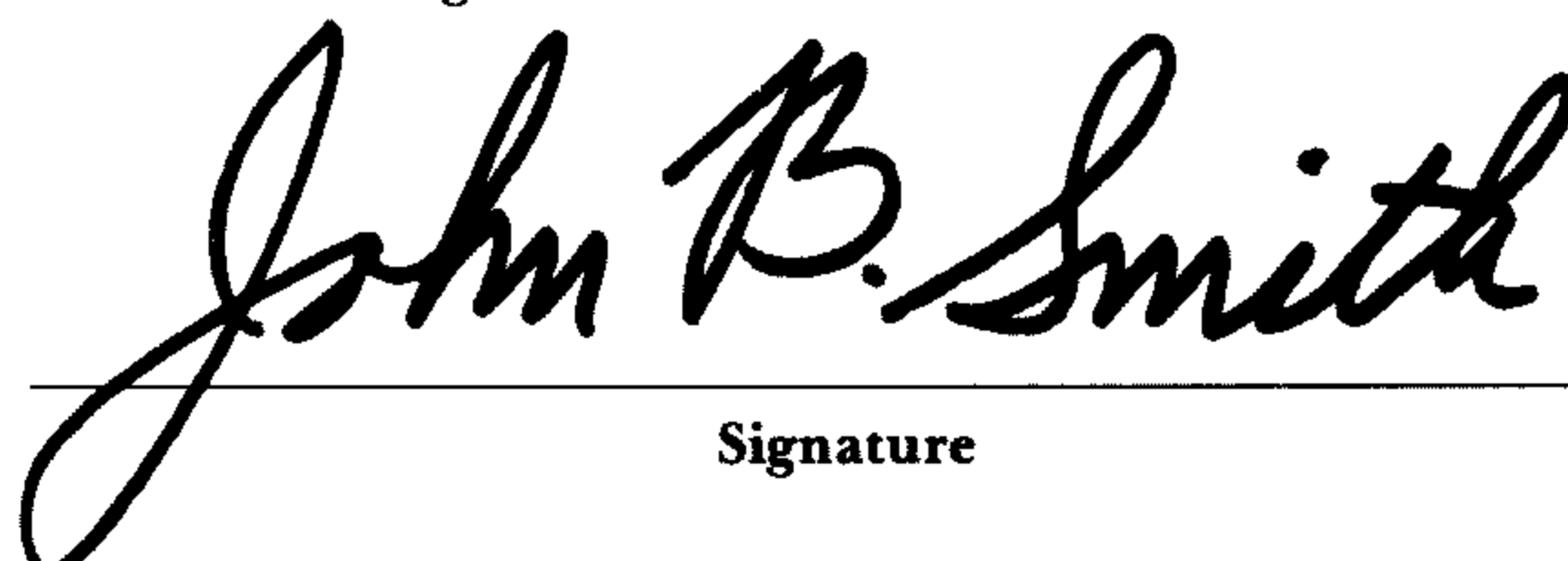
A properly installed and maintained system should be free of ground faults. The occurrence of one or more ground faults should be required to cause a "trouble" signal because it indicates a condition that could contribute to future malfunction of the system. Ground fault protection has been widely available on these systems for years and its cost is negligible. Requiring it on all systems will promote better installations, maintenance and reliability.

5. ☒ This Proposal is original material.

☐ This Proposal is not original material; its source (if known) is as follows: _____

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