



Burlington Fire Department



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Section: 04 - Special Operations	
SOG Number: 04.19	Effective Date: March, 25, 2021
Subject: Selection, Care and Maintenance of Rope Rescue Equipment	
By Order of Fire Chief Steven A. Locke	

I. Purpose:

NFPA 1858 “Selection, Care, and Maintenance of Life Safety Rope and Equipment for Emergency Services” requires our organization develop and implement a program for the selection, care, and maintenance of life safety rope and equipment used by our employees in the performance of their assigned functions. The purpose of this program, detailed within this operating guideline, is to provide life safety rope and equipment suitable and appropriate for the intended use; maintaining life safety rope and equipment in a safe, usable condition to provide the intended protection to the user; removing from use such life safety rope and equipment that, because of their condition, could cause or contribute to user injury, illness, or death; and reconditioning, repairing, or retiring such life safety equipment.

II. Scope:

This guideline, intended as a reference document, provides operational guidance applicable to life safety ropes (excludes escape rope); life safety harnesses, ladder belts, carabiners, descent control devices, belay devices, webbing, victim extrication devices, and litters owned and used by the Burlington Fire Department.

III. Definitions:

Pre-deployment Inspection: An inspection performed prior to making the item available for service.

Rope Program Manager: The individual assigned as being responsible specifically for a rope rescue program at the Burlington Fire Department (the Organization). Responsibilities include maintaining this guidance document, identifying potential risks within the response area, communicating equipment needs to the Battalion Chief of Special Operations, and assisting with the delivery of rope rescue training at the

direction of the Battalion Chief of Special Operations. The Rope Program Manager(s) is/are assigned by the Deputy Chief of Operations.

Routine Inspection: An inspection performed at least prior to using an item.

Thorough Inspection: An in-depth inspection performed at intervals (every 6 months for BFD).

IV. Guidelines:

A). GENERAL REQUIREMENTS

1. When issuing new life safety rope and equipment, the Organization shall provide manufacturer's instructions on the care, use, and maintenance of the life safety rope and equipment, including any warnings provided by the manufacturer.
2. Where the manufacturer's instructions regarding the care or maintenance of the life safety rope and equipment differ from a specific requirement of this SOG, the manufacturer's instructions shall be followed for that requirement instead.

B). RECORDS

1. The Organization shall compile and maintain records on its life safety rope and equipment. These records will be maintained at the company level and be produced at the request of the Rope Program Manager.
2. At a minimum the following records shall be kept for each life safety rope and equipment item:
 - a. Equipment identification
 - b. Date of purchase
 - c. Date placed in service
 - d. Manufacturer and model number
 - e. Month and year of manufacture
 - f. Dates of use, including how used, weather conditions, potential damage, and other circumstances relating to use.
 - g. Dates of cleaning and inspection
 - h. Removal from service and date of return (if applicable).

C). SELECTION

1. The selection of life safety rope and equipment is based on the level at which the Organization trains and responds, giving consideration to the type of incidents likely to occur with the response area. The Burlington Fire Department has determined all employees will be trained to and operate at the operations level for rope rescue (NFPA 1006), with a number of members being trained to operate at the technician level. The Organization has determined it will operate up to the

- technician level for both confined space and swift-water, but has not established required training levels beyond the awareness level for employees.
2. Types of incidents the Organization is expected to respond to include, but are not limited to, the following:
 - a. High angle rescues
 - b. Low-angle or over-the-bank rescues
 - c. Wilderness or remote access rescues
 - d. Confined space rescues
 - e. Water, flood, and swift-water rescues
 3. Relative to the selection of life safety rope and equipment, consideration shall be given to interoperability with other local response agencies, as well as an acceptable safety factor. The Burlington Fire Department has established a 10:1 safety factor as being acceptable for life safety rope and equipment.
 4. Prior to placing life safety rope and equipment in service, the rope program manager will inspect purchased life safety rope and equipment to determine the products meet the organization's specification, are compatible with other rope rescue products being used by the Organization, and the items were not damaged during shipment.
 5. General selection requirements:
 - a. Life Safety Rope will be ½"/12.5mm static, low-stretch rope.
 - b. Life safety harnesses: Class II harnesses are permissible for rope work, while Class III harnesses are required for confined space work.
 - c. Carabiners: Technical-use carabiners are permissible; auto-locking carabiners are required for travel-limiting or fall-protection application.
 - d. Webbing: 1" tubular webbing will be the standard for rope rescue work, while 2" tubular webbing is permitted for the construction of an improvised harness.

D). INSPECTION

1. Manufacturer's instructions shall be followed for all inspection, care, and maintenance.
2. Employees shall read the applicable manufacturer's instruction prior to being considered a competent equipment inspector.
3. Any life safety rope and equipment found to be soiled or contaminated shall be cleaned or decontaminated before any additional inspection is initiated. If decontamination is not possible or warranted, contaminated life safety rope and equipment shall be retired following approval from the rope program manager.
4. The age of the equipment shall be taken into consideration as part of the inspection process. In accordance with *NFPA 1858: Selection, Care, and Maintenance of Life Safety Rope and Equipment for Emergency Services*, the maximum lifetime of software shall be no more than (10) years from the date of manufacture.

5. Pre-deployment Inspection: Prior to making an item available for service, the user shall perform a pre-deployment inspection as follows:
 - a. A visual check shall be performed in a manner sufficient to ensure all components are present and none are compromised.
 - b. Where the equipment is assigned to an individual, the pre-deployment inspection shall be performed at the start of the duty shift.
 - c. Where the equipment is not assigned to an individual, a visual check shall occur on a weekly basis.
 - d. Any deficient components shall be removed from service and subjected to a thorough inspection.
6. Routine Inspection: The user shall perform a routine inspection before and after each use as follows:
 - a. Routine inspection shall be performed in a manner sufficient to ensure the product is safe for use.
 - b. Routine inspection shall include, at a minimum, visual and tactile inspection for mildew, wear, damage, and other deterioration.
 - c. Any deficient components shall be removed from service and subjected to a thorough inspection.
7. Thorough Inspection:
 - a. A thorough inspection shall be conducted every (6) months.
 - b. Thorough inspections shall include a more in-depth evaluation of equipment condition, including visual and tactile, and information including, but limited to age, date of purchase, and usage log review.
 - c. The tactile inspection, as a component of a thorough inspection, should be conducted with the rope under tension.
 - d. The date and results of this inspection shall be recorded in the appropriate log or on a tag attached to life safety rope and equipment for that purpose.
8. Life safety rope shall be retired from service if inspection reveals damage resulting in a performance deficiency due to the following:
 - a. Soiling;
 - b. Contamination;
 - c. Physical damage, including, but not limited to the following:
 - 1) Cuts, chaffing, broken fibers, or soft or hard spots on the sheath.
 - 2) Thermal or chemical damage that can be detected by sight, feel, or smell, such as melted fibers, glazed surfaces, or discoloration.
 - 3) Any variation in rope diameter.
 - d. A history in the rope log of shock load or excessive loading.
 - e. Excessive age.
9. Life safety harnesses shall be repaired or retired from service if inspection reveals damage resulting in a performance deficiency due to the following:

- a. Soiling;
 - b. Contamination;
 - c. Physical damage to the webbing components, including, but not limited to the following:
 - 1) Cuts, worn or frayed areas, broken fibers, or soft or hard spots;
 - 2) Thermal or chemical damage that can be detected by sight, feel, or smell, such as melted fibers, glazed surfaces, or discoloration.
 - 3) Pulled threads, abrasions, or breaks in the stitching.
 - d. Physical damage to the hardware components, including, but not limited to the following:
 - 1) Damage, sharp edges, or missing components
 - 2) Failure to properly operate.
 - e. Excessive age.
10. Software, such as webbing and attachment straps, shall be repaired or retired from service if inspection reveals damage resulting in a performance deficiency due to the following:
- a. Soiling;
 - b. Contamination;
 - c. Excessive wear;
 - d. Physical damage to software components, including, but not limited to the following:
 - 1) Cuts, worn or frayed areas, broken fibers, or soft or hard spots;
 - 2) Thermal or chemical damage that can be detected by sight, feel, or smell, such as melted fibers, glazed surfaces, or discoloration
 - Misalignment;
 - 3) Pulled threads, abrasions, or breaks in the stitching.
 - f. Physical damage to the hardware components of attachment straps, including, but not limited to the following:
 - 1) Damage, sharp edges, or missing components
 - 2) Failure to properly operate.
 - e. History of shock load or excessive static load.
 - f. Excessive age.
11. Carabiners, snap links, descent control devices, belay devices, pulleys, litters and victim extrication devices shall be repaired or retired from service if inspection reveals damage resulting in a performance deficiency due to the following:
- a. Soiling;
 - b. Contamination;
 - c. Excessive wear;
 - d. Physical damage, including, but not limited to the following:
 - 1) Sharp edges;

- 2) Missing components.
 - 3) Misalignment;
 - 4) Cracks;
 - 5) Deformation;
 - 6) Corrosion or pitting.
- e. Improper operation of the gate or locking mechanism.

E). CLEANING & DECONTAMINATION

1. Cleaning is intended to remove dirt, grime, and minor oxidation transfer, while decontaminating is intended to neutralize viruses, bacteria, and other pathogens. Cleaning of life safety rope is not required after every use. Excessive cleaning may actually be harmful to the rope by removing the lubricant applied to the fibers during the manufacturing process.
2. Decontamination: The Burlington Fire Department does not have an identified means to safely decontaminate life safety rope, webbing, or other absorbent equipment and therefore, contaminated life safety rope and equipment shall be removed from service. The rope program manager will assess the type and extent of contamination and determine, in accordance with manufacturer's recommendations, if an acceptable method of decontamination is possible. The rope program manager will make a determination on the necessity for disposal of contaminated equipment.
3. Cleaning Process for Life Safety Rope and Webbing: The cleaning procedure shall be as follows:
 - a. Remove as much debris, dirt, and mud as possible at the scene;
 - b. Rinse off any excess dirt with a hose;
 - c. In most situations, passing soiled rope or webbing through a rope washing device twice will sufficiently clean soiled rope;
 - d. If severely soiled, soak the rope or webbing for about 30 minutes in a plastic tub of water with non-detergent soap added (such as Castille Soap);
 - e. After cleaning in soap, rinse the rope or webbing by pulling it through a rope washing device (stored at Station 1) twice;
 - f. For life safety rope: After cleaning with a non-detergent soap and rinsing, rope should be soaked for 15-20 minutes in a tub with clean water and Downy Fabric Softener. (1 ounce of fabric softener per 3 gallons of water)
 - g. Hang the rope or webbing in a cool, shady place to dry.
4. Cleaning Process for Equipment: Life safety equipment shall be cleaned using warm water and a mild soap (such as Castille Soap). Rinse thoroughly with clean water to remove soap and then dry thoroughly. After washing and drying, apply a dry or non-stick lubricant (WD40 is acceptable) to preserve life and performance

of hardware components. Avoid lubricating friction points along the rope path of devices like the MPD or Petzl I'D L.

F). REPAIR

- a. Equipment shall not be modified, repaired, or otherwise altered without explicit authorization from the manufacturer.
- b. Rope and webbing: When damage to rope or webbing is detected, the rope or webbing shall be removed from service and destroyed or relegated to non-life safety purposes.

G). STORAGE

- a. Rope and webbing shall be stored in a clean, dry, well-ventilated place away from heat. Storage within a rope bag on the apparatus is permissible.
- b. Rope shall not be placed in areas where fuels, oils, acids or alkalis are stored.
- c. Equipment shall be stored in such a manner as to prevent damage contact with other equipment and to prevent exposure to chemicals and atmospheres that can contribute to rust, corrosion, or oxidation.

H). RETIREMENT & DISPOSITION

- a. Software products (i.e. webbing, rope, harnesses, etc.) shall be retired no more than (10) years from the date of manufacture.
- b. Retired software products may be used in training so long as they pass all elements of a thorough inspection other than length of service and so long as there has been maintained an accurate log of the item's use throughout service life.
- c. Software products deemed to be contaminated beyond effectively being cleaned using the previously described methods for cleaning, shall be retired. The determination to retire software for such an issue is the responsibility of the rope program manager.
- d. Hardware (i.e. carabiners, snap links, pulleys, descent control devices, belay devices, etc.) that is worn or damaged beyond cost-effective repair shall be retired and disposed of to ensure the hardware component will not be used in any life safety or emergency activities, including training.

V. Responsibility:

1. General Membership – it is the responsibility of the members of the Burlington Fire Department to be aware of this guideline and utilize it as a reference document relative to the care and maintenance of life safety rope and equipment.
2. Rope Program Manager – it is the responsibility of Rope Program Manager to maintain this guidance document, identify and communicate potential risks within the response area, communicate equipment needs to the Battalion Chief of Special Operations, and assist with the delivery of rope rescue training at the direction of the Battalion Chief of Special Operations. As noted within this document, the Rope Program Manager is responsible for making recommendation to the Battalion Chief

of Special Operations as to whether or not a life safety rope or equipment is to be retired from service.

3. Battalion Chief of Special Operations – In the context of this guideline, it is the responsibility of the Battalion Chief of Special Operations to coordinate with the Battalion Chief of Training on the implementation of rope rescue related training. Additionally, he or she is responsible for selecting the Rope Program Manager and ensuring that the assigned individual is successful in adhering to the provisions of this guideline.

Revision History			
Revision Date	Section	Summary	Principal Author
A	Special Operations	Initial SOG Release	Lt. S. Petit