



Burlington Fire Department

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Section: 01 - Suppression	
SOG Number: 01.56	Effective Date: 03.15.2019
Subject: Rope Assisted Search	
By Order of Fire Chief Steven A. Locke	

I. Purpose:

The intent of this guideline is to ensure consistency within the department when circumstances dictate that rope assisted search methods be utilized. Additionally, the purpose of this guideline is to ensure that the methods utilized by members are simple and manageable in limited visibility conditions.

II. Scope:

This guideline applies to all officers and firefighters of the Burlington Fire Department when rope assisted searches are being conducted. The methods discussed within this guideline are most likely to be used in large buildings that might pose a challenge to firefighters attempting to maintain orientation while conducting a targeted search (i.e. commercial, industrial, large residential, or similar structures).

III. Definitions:

Human Anchor – A team member holds the search rope line, guaranteeing its security. It takes little time to establish and increases the speed and safety of the search. It is the most reliable of the anchor options.

Object Anchor – An immovable anchor that is either external or internal to the building. Interior object anchors are often either fixed objects or an interior wall. These are often time-consuming anchors to establish, especially in limited visibility conditions.

Rescue Crew – The crew that is assigned to follow an established search line that has been placed by the search team to provide a pathway for locating and then removing either a victim or firefighter.

RIC – Rapid intervention crew.

Search Crew – The crew initially assigned to make use of a large area search rope, utilizing the methods discussed within this guideline, to conduct a rope assisted search in an effort to locate victims, missing firefighters, or maintain orientation within a large building.

IV. Guidelines:

A). General Considerations

1. The search rope will consist of 200’ of 9.5mm Kevlar over polyester rope with (2) non-rated carabiners (one for each end of the rope), stored in a large search line bag. The search line bag and the end of the rope first removed from the bag upon deployment should both have unit identification (i.e. T-1). The search rope will have knots indicating each 50’ segment and the direction of travel. At each 50’ increment, a 2” key-ring will indicate the direction of the exit and, in the direction of line deployment, be followed by an appropriate number of knots to indicate the distance traveled; each knot will represent a 50’ increment.
2. If committing to a rope assisted search, it must be for a specific purpose (i.e. downed firefighter, missing civilian, maintaining orientation in a cold-smoke situation).
3. The incident commander should consider using point of entry accountability if a rope assisted search is being conducted.
4. If the expectation is that a victim might be located, for each crew committed, an equal size crew should be on stand-by near the point of entry as a back-up and to serve as the “rescue crew” upon the “search crew” locating a victim. This backup crew does NOT count as the RIC. There needs to an additional crew assigned specifically for the RIC.
5. If a rope assisted search is being conducted, the incident commander should automatically go to at least a 3rd alarm in an effort to ensure adequate on scene resources are present to support all ongoing operations.

B). Search Crew Size

1. Maximum crew size shall be (4), including the RTS/Officer.
2. Maximum crew size has been defined, as accountability will become an issue with larger crew sizes.
3. Minimum crew size of (2), including the RTS/Officer.

C). Search Crew Assignments

1. Position 1: Crew leader/officer (TIC & Search Rope).
2. Position 2: Firefighter #1 (Halligan)
3. Position 3: Firefighter #2 (Flat-head axe and/or hydraulic forcible entry tool)
4. Position 4: Firefighter #3 (RIT Air or Can/Tool)

5. The crew leader must give consideration to the crew size, personnel capabilities, and the mission when it comes to assigning roles, especially when the crew size is less than the (4) person maximum.
6. If a (3) person team, the 3rd person will be responsible for RIT Air.
7. If a (2) person team, the firefighter will be responsible for RIT Air when searching for a firefighter in distress. When conducting a search for a missing civilian, the firefighter will bring a halligan or other similar tool.

D). Search Rope Principles: The search crew will utilize the “Anchor, Point, Shoot” process when conducting rope assisted searches.

1. *Anchor*: The crew leader will anchor the search rope to a fixed, outside point (typically on the exterior of structure, but sometimes within the structure in an area of refuge with simple egress i.e. a stairwell). Additional anchor points will be to either objects or search crew members. An anchor point will be used anytime there is a change in direction of the search.
2. *Point*: Once an anchor point is established, the crew leader determines and indicates to the crew the direction of travel.
3. *Shoot*: The search crew leader moves forward and deploys rope in the direction of interest.
4. Members should travel on the right side of the search rope. This will alleviate confusion should the rescue crew be deployed along the same search rope that was established by the search crew. If search crew members are exiting as rescue crew members are entering, they should be able to travel by each other without losing contact with the search rope.
5. The expectation should be that a search crew will locate and attempt to package any located victims, while a separate crew, the rescue crew, will follow the search rope to the victim and conduct the victim removal. This expectation, however, should not prohibit the search crew from conducting the removal if able. Consideration must be given to the environmental conditions, as well as crew air consumption and fatigue.

E). Rope Assisted Search Techniques – Untethered Search

1. When using this method, the crew leader utilizes the search rope as a means of orientation, but does not have the other crew members tether to the search rope. Instead, under the guidance of the crew leader with a thermal imaging camera, these members conduct small searches off of the search rope.

F). Rope Assisted Search Techniques – Tethered Search

1. When using this method, each member (excluding the crew leader) should have a carabiner and a 20’-24’ length of 1” webbing that is tied in a loop. These items are to be used to tether to the main search rope.
2. Acceptable methods for conducting tethered searches:
 - a. *Member-attended tether* – one member holds the webbing tether by its loop and carabiner, grasping the main line while the other member extends out, holding

the other end of the loop and performing a sweeping search of an area about 180° to his side of the line.

- b. *Overhand Knot Tether* – An overhand on a bight is placed into the main search line at any point of interest (ensure that it is not a slip knot). One member places his or her webbing into the loop of the overhand knot with his carabiner, or it can be held by another member attending to it, while the member extends out to search with the length of his webbing.
- c. *Free Gate Tether* – A webbing tether with its carabiner hooked onto the main line and is unattended while the searching member extends out, searching up and down the main line in between two team members.
- d. *Double Extended Tether* – two individual looped webbings are attached by their carabiners, or one looped webbing is attached by its carabiner to the main line with the other looped webbing attached to the loop of the first piece. This requires a member to attend to the extended tether where it meets the main line because of potential management and entanglement problems that could occur to the member searching from being out an extended distance longer than 20 feet.
- e. *Crew Leader Fanning Method* – using the main line rope from the search rope bag, one member holds tight the rope as an anchor point, while the crew leader plays out 10 to 20 feet of rope while holding it taut; he or she fans from right to left or left to right directly in front of the team members on line (Imagine a wide fog pattern coming from a nozzle).

V. Responsibility:

1. Firefighters – firefighters are responsible for being familiar with this guideline and having proficiency with the equipment and techniques that might be required while conducting a rope assisted search.
2. Company Officers – Company officers are responsible for having familiarity with this guideline, educating assigned firefighters of the guideline and ensuring that training occurs so that members are familiar with the methods referenced above. The company officers, which includes senior firefighters who are in an acting capacity as an RTS, are responsible for ensuring that the requirements of this guideline are met, should rope assisted search techniques be necessary. While conducting the rope assisted search, it is the crew leader (officer/RTS) who is responsible for ensuring that the search rope remains taut and off the floor.
3. Shift Commanders – The shift commanders, including captains who are in an acting capacity, are responsible for ensuring that rope assisted searches are conducted when the conditions and circumstances are appropriate. These personnel are also responsible for ensuring that sufficient resources are present to ensure that conditions of this guideline can be met, especially when it comes to ensuring that a rescue crew is available, in addition to any identified RIC, and that point of entry accountability is conducted.

Revision History			
Revision Date	Section	Summary	Principal Author
03.15.2019	All	Initial Release of Document	Sf. S. Petit