

Standard Operating Procedures

S.O.P's



Standard Operating Guidelines

S.O.G's



Standard Operating Procedures

step by step instructions



SOP's

- formal written instructions
- describe operational procedures



Standard Operating Guidelines

S.O.G's



Standard Operating Guidelines

recommended,
non-mandatory
controls



Standard Operating Guidelines

Guidelines serve as a reference when no applicable standard is in place.



SOP's or SOG's

So which applies to
tree care?



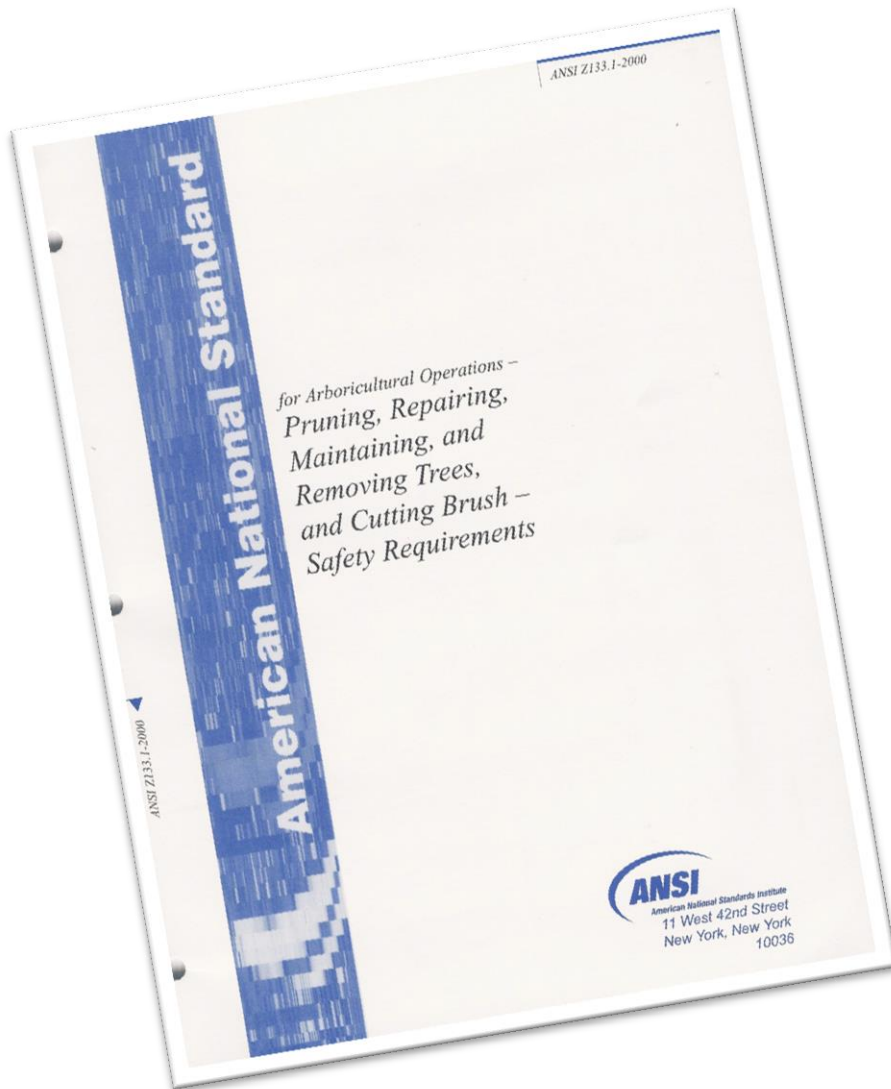
SOP's or SOG's

Do we lack
standards?

What is going on!



What standards do we have?



Standards

1 General

1.1. Scope

This Standard contains arboriculture safety requirements for pruning, repairing, maintaining, and removing trees; cutting brush; and for using equipment in such operations.

1.2 Purpose

The purpose of this Standard is to provide safety criteria for arborists, other workers, and the public. It is intended as a guide to Federal, state, and local authorities in drafting their regulations and may be adopted in whole or in part.



open-face notch (9.5.15.1): (Figure 3) A directional felling cut into the side of the tree, facing the intended direction of fall and consisting of two cuts creating a notch greater than 70 degrees.

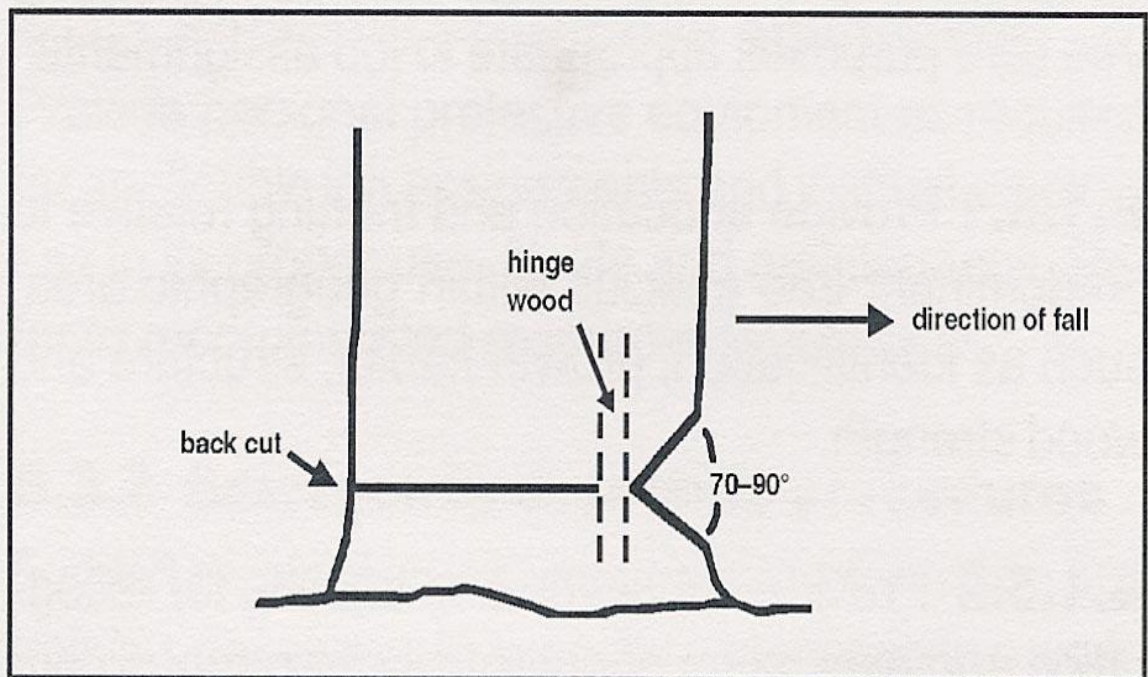


Figure 3

SOG's

**essential to the
development and
deployment of
daily operations**



FTSOW

Who
What
Where
When
Why



Purpose

Who and What



Who is responsible?

What is everyone responsible for?

Scope

Where and When



Climbing

Removals

PHC

Estimation

Application

Why

FTSOW

To provide
guidelines to
perform work
safely

SOG's

**A valuable
resource when an
incident occurs
that lacks
standards**



Example

Single Rope Technique

SRT



Tree Climbing Standard Guidelines

SRT

Single Rope
Technique



Tree Climbing Standard Guidelines

Overview

Bartlett Tree Experts recognizes that advancements in climbing technologies can have a positive impact on field operations, and that different employees may embrace different techniques at their own pace and discretion. Bartlett Tree Experts also recognizes that ascending trees using a single rope technique (SRT) is an advanced technique that may offer several distinct advantages over other methods of ascending large trees. The advantages may include; the ability to set the access line high in the tree canopy without the need to isolate the two ends of the line as is required when foot-locking, the ability to use a combination of hand and foot ascenders allowing a climber can ascend quickly and with minimal effort to heights of 100 feet or more, and the ability to gain access into large, mature trees (particularly conifers) that would not be practical to climb without spurs.

Therefore, the Safety Committee has researched and reviewed several variations of use of the single rope technique (SRT), and has approved the methods of use and the equipment set forth in the policy statement below.



Tree Climbing Standard Guidelines

Administrative Responsibilities

It is the responsibility of each local manager to ensure that all employees who choose to use single rope technique are familiar with the terms of this policy, trained accordingly, and adhere to its content at all times. In addition, each local manager shall ensure that all required equipment is in place and used at all times when employees choose to climb with this technique.



Tree Climbing Standard Guidelines

Dynamic or Doubled Rope Tree Climbing Systems –DdRT

- All climbing equipment must be industry approved.



Tree Climbing Standard Guidelines

Policy Statement

Because SRT deviates significantly from a traditional dynamic climbing system the use of this technique requires that specific safety issues must be addressed: While ascending, the climber must be attached to the access line with a non-mechanical friction hitch back up and there must be a method in place for the climber to descend in an emergency. The following are training guidelines for safe use of the SRT system and recommendations to maximize efficiency.

Note: The division safety and training coordinator must authorize the use of the single rope technique with each employee prior to use.



Tree Climbing Standard Guidelines

- 1) **Setting the access line**- Typically the access line is set high in the tree with a throw line or big-shot. Even though the line is often set over multiple limbs the climber must be sure that the highest limb is strong enough to support his weight. KEEP IN MIND THAT THE FORCE ON THE LIMB (CLIMBER'S WEIGHT) IS NEARLY DOUBLED WHEN USING AN SRT SYSTEM. If this limb fails the rope will drop down onto the next limb below resulting in shock loading on the ascenders and probable rope damage and injury to the climber. IF YOU CAN'T SEE THE HIGHEST LIMB SUPPORTING YOUR LINE THEN YOU MUST RESET YOUR LINE. Once the access line has been set it must be tested to ensure suitability. This should be done by two persons applying their weight to the access end of the access line.



Tree Climbing Standard Guidelines

- 2) **Tying off access line-** There are two approved options (each climber may choose at their discretion which tie off option to use based on the circumstances and personal preference):
- a. One end of the access line is tied off to the base of the tree, using a Port-a-Wrap. How the line is tied off is critical and must achieve two things: It must be 100% secure and it must allow a ground worker to safely release the hitch while under tension (weight of the climber) and lower the climber to the ground. It is paramount that the port-a-wrap be specifically designated for the SRT system and must be backed up with a prussic. This can be done with color coding and using a different size than for rigging.



Small port-a-wrap and sling with prussic back-up



Tree Climbing Standard Guidelines

- b. One end of the access line is tied off to the base of the tree, using an approved knot, making the line secure and unable to be released from the ground.



The following method is required for SRT tie-off:

Note: For situations where the access line may not be long enough to lower the climber, a second line is attached to the access line, using an approved knot, and tied off to the port-a-wrap.



Tree Climbing Standard Guidelines

- 3) **Ascent system**- The ascender system must accomplish three things:
- A. Securely attach the climber to the line by means of a non-mechanical back-up (prussic or other friction hitch) attached above the upper hand ascender.
 - B. Allow the climber to ascend the line using primarily leg strength.
 - C. Allow the climber a means of descending in an emergency.

The ascenders provide the mechanical means for ascending the rope with minimal effort. A combination of hand, and foot ascenders allows the climber to move up the rope using leg strength. Ascenders are not designed for sideways loading and must be used directly in line with the access rope. Ascenders are not to be considered primary life support so they must be used with a back up system.



Tree Climbing Standard Guidelines

- 4) **Back Up System**-The climber must be attached to the access line by a non-mechanical friction hitch that is placed above the highest hand ascender. The climber is tied into this hitch with his approved dynamic climbing system (see picture below). The back up system serves to support the climber should the ascender fail and allows for a secured descent should an emergency occur.



Back-up system attached above highest ascender to access line with friction hitch



Tree Climbing Standard Guidelines

- 5) **Methods and Efficiency**-The upper hand ascender is attached to the climber's saddle with an approved lanyard. The length of this lanyard will vary with the height of the climber. The lanyard should allow the climber to reach the ascender comfortably when his weight is on the lanyard.

While ascending, the foot ascender is typically attached to the right foot. The left foot can be placed over the right foot to allow both legs to help raise the climber (similar to foot locking). If the access line is up against the trunk then the foot without the ascender can "walk" up the trunk to stabilize / balance the climber on the way up. Between raises the climber rests on the upper ascender that is attached to the saddle. The arms are only used to advance the ascender(s) NOT TO SUPPORT THE CLIMBER'S WEIGHT.



Tree Climbing Standard Guidelines

- 6) **Descending or working off the access line**-While ascending the tree the climber may have a need to “work off the access line”. A non-mechanical backup prussic is required when working off the access line. This can be done by shifting the backup prussic a couple of inches above the hand ascender, placing a stopper knot (marlin spike) on the access line between the prussic and the hand ascender, and engaging the prussic tightly on the access line (this allows the prussic to act independently without interference from the hand ascender), shifting their weight off the ascenders by taking the slack out of the climbing line (back up), detaching from the ascenders, and then descending to the ground. With their weight on the backup system, the climber can then descend to the ground. This prevents the friction hitch from slipping down the access line.



Tree Climbing Standard Guidelines

Note: Under no circumstances may an ascender be used as a false crotch for a climbing line. Ascenders are not designed for the lateral loading that would occur in this situation.



Access line locked off to allow climber to work from climbing line during ascent.

Note: In an emergency, the climber has the option to shift the backup prussic a couple of inches above the hand ascender and engage the prussic tightly on the access line (this allows the prussic to act independently without interference on the hand ascender), shift their weight off the ascenders by taking the slack out of the climbing line (back up), detaching from the ascenders, and then descend to the ground. With their weight on the backup system, the climber can then descend to the ground.



Tree Climbing Standard Guidelines

7) Equipment

The following equipment will be available for every climber who uses the single rope technique system, and will be used during single rope technique climbing activities:

Note: Each climber using this technique must inspect each individual piece of equipment prior to each use. Any defective equipment must be removed from service.

- One Rope Bag, Red with Pockets (4569PR2-200).
- One long access line, with core plus a sheath, and must be between 11 and 13 mm diameter, low stretch. This rope must meet EN 1891 type A standards. The length and specific brand must be approved by the division safety and training coordinator.
- One 5/8" Tenex Sling, 20 ft long, spliced with a thimble to a small Port-A-Wrap (601MQ1)
- One eye and eye split tail and carabineer used as a back-up to the Port-a Wrap
- One eye and eye split tail with climbing carabineer and DMM Pinto pulley (to attach backup system to access line).
- One Petzl Ascentree Dual Handled Ascender
- One CMI type foot ascender (right)
- One eye to eye adjustable Prusik system (39NE16Q2)
- Three DMM Ultra-O carabiner's
- One 3/8" quick link
- 2 Bee line eye to eye 8mm Prusik (P9J8P-10-30)



Tree Climbing Standard Guidelines

Conclusion

The information and techniques listed above are the approved process for utilizing the single rope technique. Prior to any employee using the single rope technique, the division safety and training coordinator must review this information with the employee, and authorize the use of this technique. Prior to using the approved Single Rope Technique system, both the employee and the division safety and training coordinator must sign this policy below acknowledging the approved system and techniques.

The Safety Committee will review this process, and new advancements periodically, and changes will be made to this policy as warranted.



Tree Climbing Standard Guidelines

I, _____, clock number _____, have received instruction on the company approved Single Rope Technique (SRT) climbing system, and I acknowledge that this system is the only SRT system authorized for use by Bartlett Tree Experts.

Employee Signature and Date:

Safety Coordinator Signature and Date:



Tree Climbing Standard Guidelines -2013

Static or single rope climbing system

1. Tree climbers are workers who are competent in the establishing tree climbing systems, equipment selection and implementation.
2. Tree climbers must have all necessary PPE.
3. Each tree to be climbed is risk assessed and inspected for strength and stability specifically the root system and tie in locations.
4. An approved climbing line is installed onto a selected temporary anchor point location in the canopy of the tree and one end of the climbing line is anchored to the base of the tree being climbed.
5. The temporary anchor point is field tested by performing, pull and load tests.
6. Approved connecting links, cordage and harnesses are selected and knots and hitches are tied, dressed and set to establish a static suspension climbing system.
7. The climber ascends only in the static suspension climbing system and shall not perform any work activities while in this system; it is simply for tall tree canopy access.
8. Upon reaching a suitable temporary anchor point in the tree climber can commence tree work once the static tree climbing system has been disassembled and replaced with a dynamic work positioning suspension tree climbing system tree climbing system prior to commencing work the temporary anchor and climbing system must be load tested.
9. All work is performed with the climber tied in at all times and when operating saws the worker shall be double tied.
10. In the event a climber has to establish another temporary anchor point it must also be inspected and assed prior to use and the temporary anchor and climbing system must be load tested prior to use.
11. Tree climbers climb smoothly and avoid unnecessary shock loading that can be generated by swings or falls, this is achieved by keeping all lines tensioned and slack free at all times and by employing the use of a work positioning lanyard whenever possible and absolutely when using saws.
12. Tree climbers shall not climb above their temporary anchor points or climb horizontally from the temporary anchor point to where their climbing rope angle exceeds 45 degrees from the perpendicular axis of the temporary anchor point.



Tree Climbing Standard Guidelines -2013

Dynamic or Doubled Rope Tree Climbing Systems

1. Tree climbers are workers who are competent in the establishing tree climbing systems, equipment selection and implementation.
2. Tree climbers must have all necessary PPE.
3. Each tree to be climbed is risk assessed and inspected for strength and stability specifically the root system and tie in locations.
4. An approved climbing line is installed onto a temporary anchor point in the canopy of the tree and the temporary anchor point is field tested by performing, pull and load tests.
5. Approved connecting links, cordage and harnesses are selected and knots and hitches are tied, dressed and set to establish a work positioning suspension system.
6. The tree climbing system is load tested prior to climber beginning ascent.
7. All work is performed with the climber tied in at all times and when operating saws the worker shall be double tied.
8. In the event a climber has to establish another temporary anchor point it must also be inspected and assed prior to use and the temporary anchor and climbing system must be load tested prior to use.
9. Tree climbers climb smoothly and avoid unnecessary shock loading that can be generated by swings or falls, this is achieved by keeping all lines tensioned and slack free at all times and by employing the use of a work positioning lanyard whenever possible and absolutely when using saws.
10. Tree Climber shall not climb above their tie points or climb horizontally from the tie in point to where their climbing rope angle exceeds 45 degrees from the perpendicular axis of the temporary anchor point.

