Tree Climbing Safety

Presented by:

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Tree Climbing

Tree climbing/rope access permits skilled workers to safely and efficiently access elevated portions of trees that may not be otherwise accessible to conduct required work

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Tree Climbing

Tree climbing is physical and potentially hazardous

- Requires skilled, well-trained workers:
  - Understand and conform with OSHA and ANSI Z133.1
  - Ability to work safely and effectively in the tree
    - Industry safety practices
  - Inspect all equipment, the tree and site before climbing
  - Proper plan all work before tree entry and as work progresses
  - Conduct all work according to technically correct standards and practices

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Tree Climbing Safety

Too often, unqualified individuals use ropes to climb

or

Experienced workers not trained or ignore safety practices

- Significantly increases risk to worker and public
- Results in injuries and sometimes fatalities
- Damages trees

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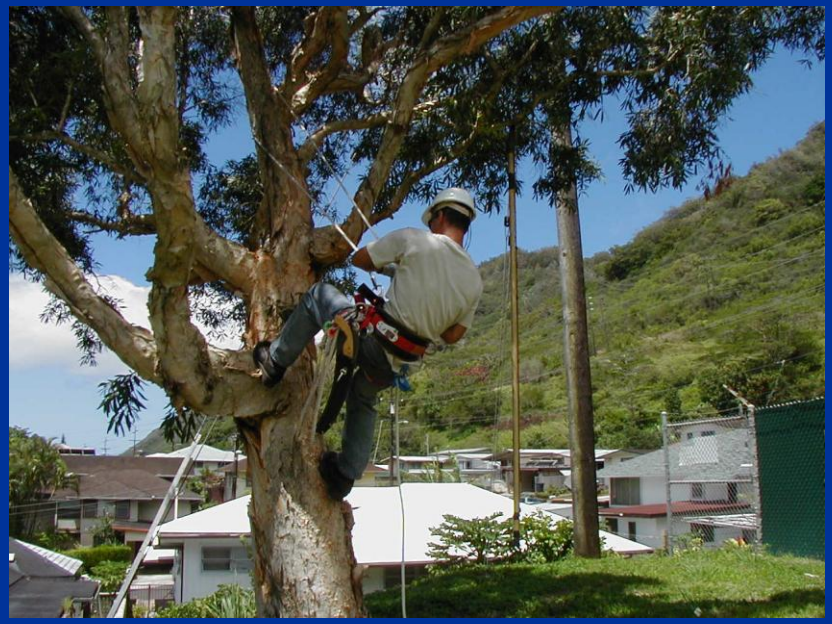
Tree Climbing Accidents

Most common fall causes:

- Disconnect fall protection
- Cut fall protection
- No use of fall protection
- Failure of tie-in point



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Tree Climbing Safety

Always follow safety requirements:

- Applicable laws and regulations (OSHA)
- ANSI Z133.1 standards
- Manufacturer's tool and equipment instructions

Inspection of Gear

Safety depends on proper equipment in good working condition - Personal Protective Equipment (PPE)

- Protective Clothing
- Head Protection
- Eye Protection
- Hearing Protection
- Leg Protection/Chaps
- Boots
- Gloves

Inspection of Gear

Fall protection equipment:

Inspect all equipment according to manufacturer's instructions

- By eye and feel

Equipment Inspection

"Field Modification"

- Modifications in structure, attachments or use not permitted Unless
- Certified in writing by the manufacturer or nationally recognized testing laboratory, to be in conformity with ANSI A92.2-1969 and as safe as before modification

Rope Inspection

Fall protection and secures logs and equipment

- Synthetic fiber
- Minimum breaking strength of 5,400 lbs
- Minimum diameter of ½", but not less than 7/16"
    - Manufactured for tree climbing

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Rope Inspection

Inspect for damage, defects and excessive wear:

- Retire if > 25% braided & > 10% 3-strand
  - Cuts
  - Abrasion
  - Pulls
  - Glossy/glazed – 2X damage observed

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Rope Inspection

Retire if observed

- Discoloration- brittle/stiff
- Inconsistent diameter – flat or bumps
- Inconsistent texture/stiffness – dirt embedded.

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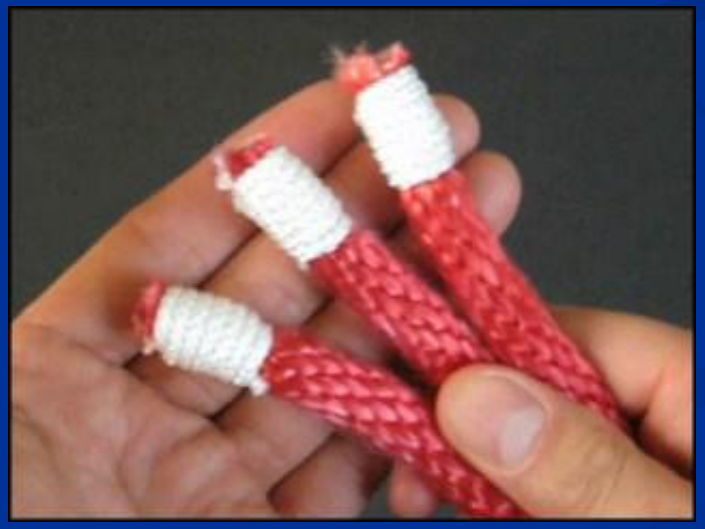
Rope Inspection

- Rope ends finished to prevent unraveling
- Stored and transport to prevent damage
  - Sharp tools
  - Chemicals



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Arborist Saddle/Harness Inspection

- Must be specifically designed for tree climbing
- Inspect for damage, defects and excessive wear:
  - Retire if significant damage
    - Cuts in material
    - Stitching broken
    - Metal cracked or damaged
    - Grommets damaged/missing.

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Carabiner Inspection

- Self-closing and self-locking
- 5,000 lbs (22.24kN) minimum tensile strength
- At least 2 consecutive motions to prepare gate to open
- Inspect for damage, defects and excessive wear:
  - Retire if significant damage
    - Missing or altered parts
    - Nicks, cracks or breaks
    - Deformation/bends
    - Excessive wear
    - Corrosion or pits
    - Function
      - Opens and closes easily
      - Safety lock operates.

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Snap Inspection

- Self-closing and self-locking
- 5,000 lbs (22.24kN) minimum tensile strength
- Inspect for damage, defects and excessive wear:
  - Retire if significant damage
    - Missing or altered parts
    - Nicks, cracks or breaks
    - Deformation/bends
    - Excessive wear
    - Corrosion or pits
    - Function
      - Opens and closes easily
      - Safety lock operates.

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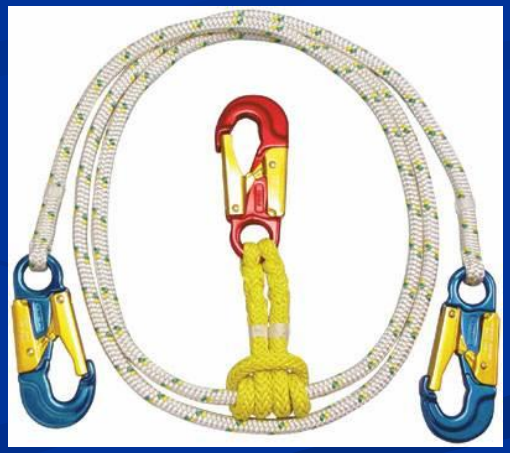
Work Position Lanyard Inspection

- Meets all standards for rope, snaps and carabiners
- Inspect for damage, defects and excessive wear:
  - Retire if significant damage
    - Rope inspection process and standards
    - Snap/carabiner inspection process and standards.



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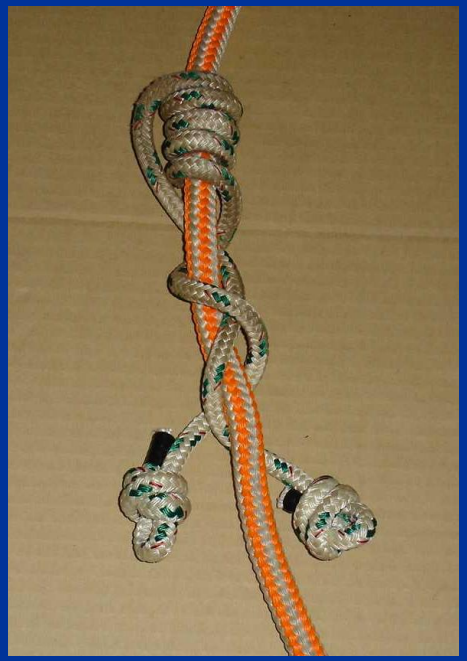
Prusik Loops & Split Tails

Must meet minimum strength standard as climbing lines
Inspect for damage, defects and excessive wear:

- Retire if significant damage
  - Rope inspection process and standards.



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Climbing Safety

Always use fall protection

- When > 6 feet off ground, secure fall protection
- Guide: do not lift feet off ground without fall protection

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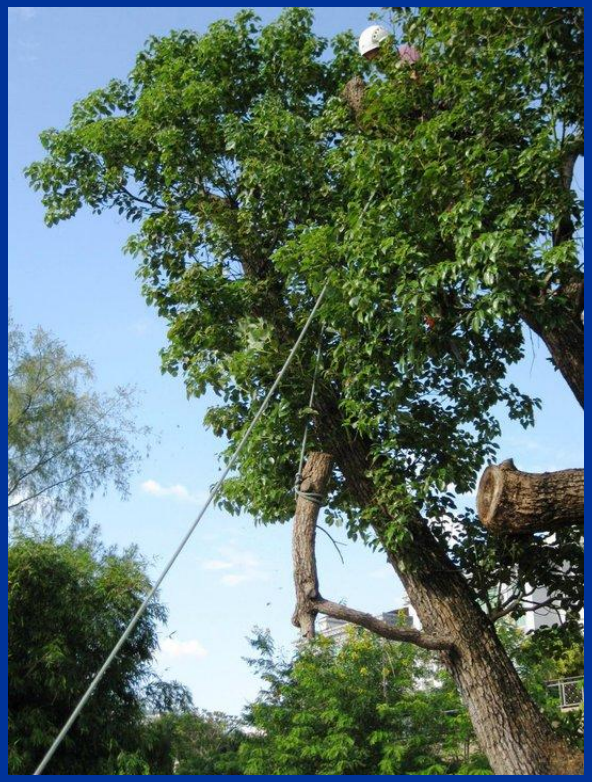
Climbing Safety

Never use fall protection equipment for other purposes

- Lowering wood
- Pulling loads
- Permitted to raise and lower tools



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Climbing Safety

Second person with emergency procedures training shall be present

- Above 12 feet off ground
- Within voice or visual range

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Climbing Safety

3-point contact while climbing

- Feet, rope, hands
- Hands and feet should be on separate limbs, if possible

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Climbing Safety

3-point support while working

- Feet, rope, hands
- Maintain weight on rope(s)
- Maintain stability and control
  - Especially while cutting

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Climbing Safety

Avoid long falls or uncontrolled swings

- Do not permit slack in climbing line to loop below feet
  - Permits > 5’ fall
- Do not permit climbing line > 45 degree angle

Climbing Safety

Final tie-in as high and central as safe and practical

- Secure lanyard or redirects if extended to avoid swing
- Minimize uncontrolled swing if slip

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Climbing Safety

Select strong, properly structured tie-in points

- Rope around primary stem, not lateral branch
- Support stem is at least 4 inches diameter
- Ensure no structural defects at tie-in point

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Climbing Safety

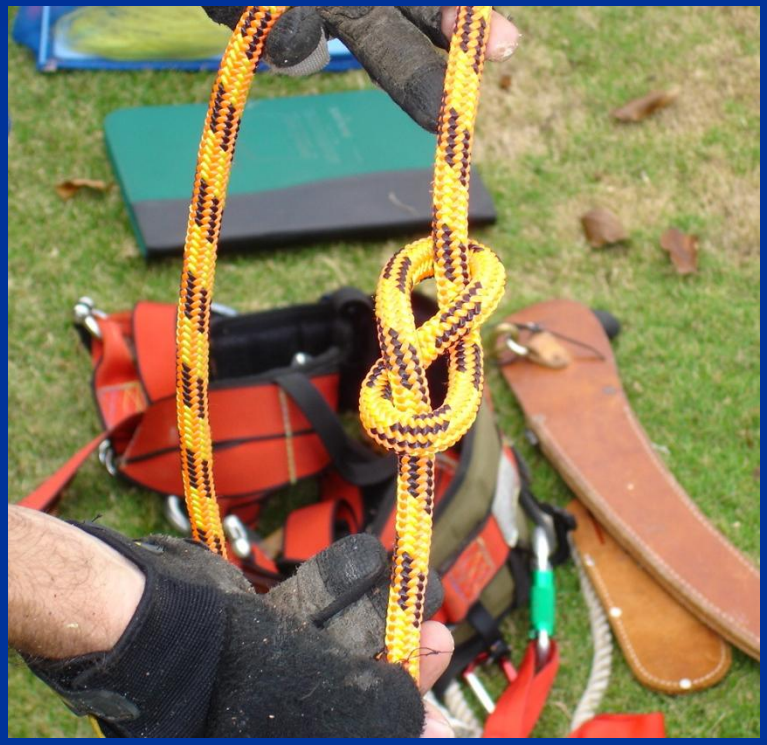
Tie-in Selection

- Wide crotch for easy rope movement
- Avoid tie-in that permits swing into hazards (example = power lines)

Climbing Safety

Figure 8 at the end of the climbing line

- When at heights > ½ length of climbing line
- When using Blakes, tautline or other open climbing hitch



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Split-tails

- Terminated with eye-splice or knot
- Remain secure under loading and unloading
- If without captive eye
  - Cinch in place to prevent carabiner opening or side-load

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Climbing Safety

Always maintain at least 1 tie-in point at all times

- **Always secure a second tie-in before disconnect primary fall protection**

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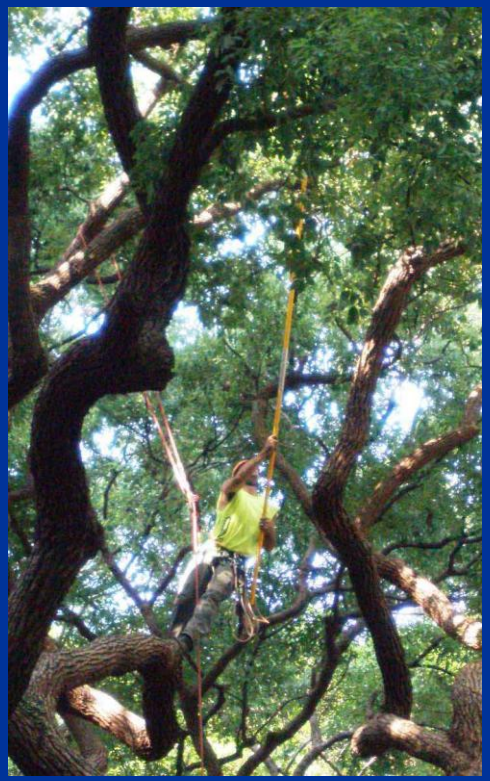
Climbing Safety

Always maintain at least 2 tie-in points when cutting

- Required to possess at least 1 extra means to secure while working
- Tie-ins at separate locations



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Climbing Safety

False crotch may be used if natural crotch not available/suitable

- Ensure false crotch secure
- Use proper knots, secured
- Only use climbing ropes/straps

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Climbing Safety

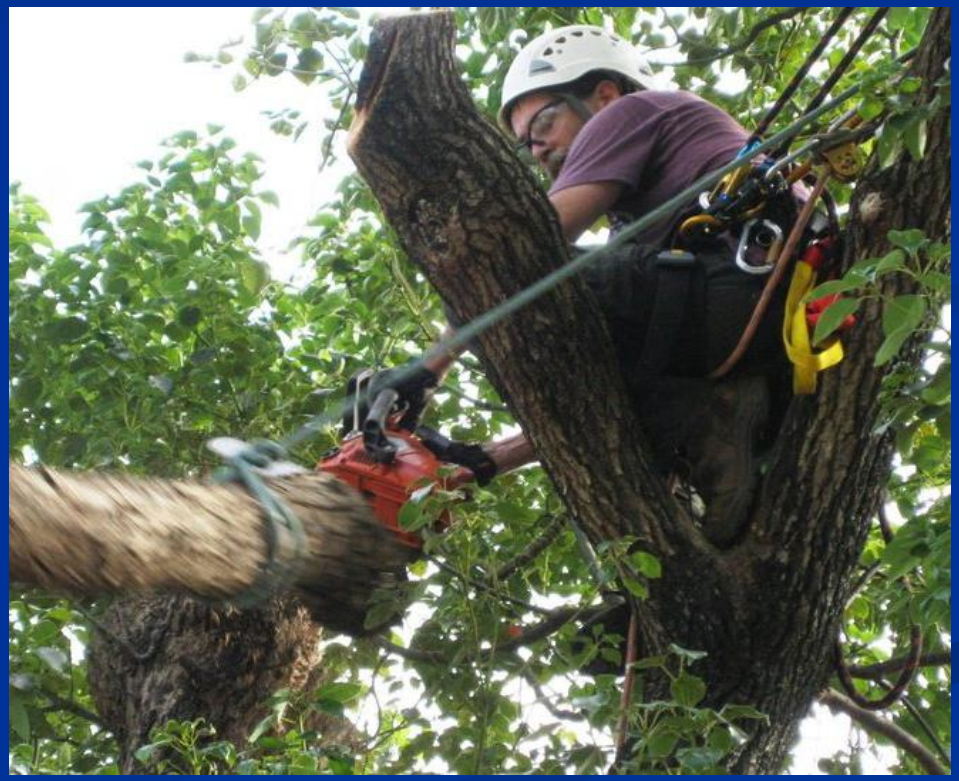
Chain saw

- Must use chain saw lanyard
  - Long enough for saw to position below feet
- Operator stable and secure when cutting
- Chain brake on when not cutting
- 2 tie-in points whenever cutting, in case one is accidentally cut

Climbing Safety

Rigging rope confusion

- Potential to confuse with fall protection lines
  - Rigging ropes clearly marked or different color.



Use only qualified personnel
Always conduct all inspections
Consistently apply correct practices

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