Tree Felling & Rigging Safety

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Tree Felling & Rigging

Tree felling and rigging required to best manage tree function, health and safety
Tree Felling & Rigging

Felling and rigging is physical and potentially hazardous

- Logs and branches may be very heavy
- Defects may be present, but not visible to unqualified person
- Requires skilled, well-trained workers:
  - All qualifications for personnel and equipment
  - Understand tree anatomy and structure
  - Practical knowledge in tree biomechanics
  - Understand dynamic and shock loading of equipment
  - Advanced experience and ability in rigging
Tree Felling & Rigging Safety

Too often, unqualified individuals fell and rig trees or

Experienced workers not trained or ignore safety practices

• Significantly increases risk to worker and public
• Results in injuries and sometimes fatalities
• Damages trees and property
Tree Felling & Rigging Accidents

Most common felling and rigging accidents:

- Crush
- Lacerations and punctures
- Chain saw cuts
Tree Felling & Rigging Safety

Always follow safety requirements:

• Applicable laws and regulations (OSHA)
• ANSI Z133.1 standards
• Manufacturer’s tool and equipment instructions
Inspection of Gear

Correct equipment
- Designed and rated for felling and rigging
- Adequate size and strength for loads
  - Working load limits conformed
  - Load <20% of rated and calculated tensile strength
    - Considering age/wear and knots
Inspection of Gear

Inspect all equipment according to manufacturer’s instructions
  • Inspect by eye and feel
Felling & Rigging Safety

Develop and follow safe work plan – H.O.P.E.

- Hazards
- Obstacles
- Plan
  - Cutting plan
  - Communications plan
  - Escape route
- Equipment
Hazards & Obstacles

Identify and mitigate hazards and obstacles
Hazards & Obstacles

Assess integrity of structure
  • Visible defects that could alter operation
  • If defects cause risk due to forces and strains of operation
    • Alternate plan must be developed and applied
Hazards & Obstacles

- Species and form of tree
- Lean
- Loose limbs and overhead material
- Decayed or weak spots on tree and branches
  - Parts where felling cuts will be made
- Evidence of bees or wildlife in tree
Hazards & Obstacles

• Terrain characteristics
• Size of fall zone
• Electric lines
• Wind force and direction
Plan felling/rigging operation

- Felling cuts
- Notch required for any tree > 5” diameter
Plan - Cutting

Use appropriate cutting techniques

- Drop cut
- Snap cut
- Hinge cut
Plan - Cutting

Direct and control fall

- Correct face and back-cut
- 45 degree angle or greater
- Guide fall and prevent splitting
  - Standard notch
  - Humbolt
  - Open-face notch
Plan - Cutting

Height of notch and back-cut
- Enable safe control of saw, tree and escape
- Standard/Humbolt - Back-cut 1” to 2” above notch apex

Depth of notch
- Shall not exceed 1/3 diameter of tree

Back-cut
- Shall not penetrate hinge
Plan - Cutting

Barberchair

- Splitting of tree due to excessive forces
- Improper cutting practices
- Prevention
  - Chain/strap butt of log
  - Plunge cut
Plan - Cutting

Use ropes and equipment to control wood - Rigging

- Control tree/limb to manage fall
  - May permit removal of large limbs faster and safer
- Rigging most advanced tree work techniques
- Only experienced workers should perform rigging
- New techniques should be practiced before application.
Plan - Cutting

Taglines control wood during cutting and lowering

- Avoid obstacles and potential hazards
- Protect cutter and property
- Reduce work effort
Plan - Cutting

Assess rigging points to ensure adequate strength

• If required, ensure no splits, snaps or other failures

Ensure cutter cannot get entangled with lines should system fail
Escape Route

Escape route

• When tree begins to fall, move quickly away
Escape Route

Cutter always positioned to avoid fall of wood
  • Above or to side
  • Fall protection lines cleared from fall path
Communications Plan

Personnel position and duties

- Workers not directly involved must be clear
- 2X tree height
Communications Plan

• Voice or visual
• Alert what, when and where
• 2-way – command and response
Communications Plan

Clearly identify fall zone

- Location and safety zone
- No person enters without approval of qualified arborist
- Verify no person in zone when dropping wood
Equipment

- Chain saw
- Ropes
- Wedges
Equipment

- Chain saw adequately fueled
- All equipment in good working condition.
Follow all Safety Standards & Practices

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