

ANSI Z133.1-2006 – Safety Requirements for Arboricultural Operations

Proposed Revisions – Public Review: August 12 – September 11, 2011

Forward comments to Janet Huber at the International Society of Arboriculture (jhuber@isa-arbor.com) no later than September 11, 2011.

Note: Black strike-through indicates proposed deletion of text. Proposed new language is indicated in red.

3.2 Traffic Control

New Section 3.2.1 Traffic and pedestrian control around the jobsite shall be established prior to the start of all arboricultural operations.

Revised Section 3.2.5 Pedestrians should have separate movement from the work activity area and vehicular traffic with a reasonably safe, convenient, and accessible path

3.3 Emergency Procedures and Readiness

Revised Section 3.3.2 A first-aid kit, ~~adequately stocked and maintained,~~ meeting the requirements of ANSI Z308.1 shall be provided by the employer when and where arboricultural operations are being carried out. Arborists and other workers shall be instructed in its use and specific location.

3.4 Personal Protective Equipment (PPE)

Revised Section 3.4.2 The **employer** shall assess the work area to determine if hazards are present, or are likely to be present. This assessment will be used to determine the type of personal protective equipment that might be required for employee protection. (Definition for “**employer**” added to glossary.)

4 ELECTRICAL HAZARDS

Revised Section 4.1.3 (a) Arborists and other workers shall be instructed that

- (a) ~~electrical shock will occur when a person, by either **direct contact** or **indirect contact** with an energized electrical conductor, energized tree limb, tool, equipment, or other object, provides a path for the flow of electricity to a grounded object or to the ground itself. Simultaneous contact with two energized conductors **phase to phase** will also cause electric shock that may result in serious or fatal injury.~~
- (a) the human body's good conductive properties pose little resistance to electric current and provide a path for the flow of electricity to a grounded object or to the ground itself.
- (b) **direct contact** or **indirect contact** (phase-to-ground contact) with an electrical conductor, energized tree limb, tool, equipment, or other energized object may lead to significant injury and/or electrocution that may result in fatal injury.
- (c) simultaneous contact with two separate energized conductors (**phase-to-phase** contact) will cause electric shock that may result in serious or fatal injury.
- (d) electrical shock may occur as a result of **ground fault** when a person stands near a grounded object (for example, if an uninsulated aerial device comes into contact with a conductor with outriggers down).
- (e) (in the event of a downed energized electrical conductor or energized grounded object, there exists the hazard of **step potential**).

Revised Section 4.1.4 If the **minimum approach distance** (shown in Table 1) cannot be maintained during the arboricultural operations, the **qualified line-clearance arborist** shall request that the electrical system owner/operator's designated supervisor in charge coordinate communications and operations between the **electrical system owner/operator** and the qualified line-clearance arborist to **mitigate** the electrical hazard. Mitigation options should include all safe, OSHA-compliant, and practical work methods, and where necessary, **de-energizing, testing, isolating,** and grounding the electrical conductors by the electrical system owner/operator. The designated electrical system owner/operator employee and the designated qualified line-clearance arborist in charge shall confirm that protective ground(s) have been installed as close as practical to the line-clearance work to be performed to prevent hazardous differences in electrical potential.

5.2 Aerial Devices

Revised Section 5.2.8 Aerial devices shall be provided with **fall protection anchor(s) meeting design requirements of the ANSI/SIA A92.2 Standard on which to secure an approved system of personal fall protection (Example: full body harness with an energy absorbing lanyard or a body-belt and lanyard), which shall be worn by the operator(s) whenever aloft.**

Revised Section 5.2.30

- (a) Platforms on insulated aerial devices shall have no thru-cracks or holes below the lip of the platform.
- (b) Insulating liners shall have no holes below the lip of the liner or vertical cracks greater than 5 inches.

5.7 Cranes and Knucklebooms

Revised Section 5.7.13.2 The arborist climbing line shall be secured to the crane in such a way that it does not interfere with the function of any of the crane's components. No part of the crane shall be allowed to compromise the climbing line or any component of the climbing system. The qualified arborist ~~should~~ **shall** use two means of being secured to the crane while being hoisted into position in the tree.

6.3 Chain Saws

Revised Section 6.3.7 (Previously 6.3.8) ~~Arborists shall use a second point of attachment (for example, lanyard or double crotched climbing line) when operating a chain saw in a tree, unless the employer demonstrates that a greater hazard is posed by using a second point of attachment while operating a chain saw in that particular situation. Using both ends of a two-in-one lanyard shall not be considered two points of attachment when using a chain saw.~~

Arborists shall be tied-in and use a second means of being secured (i.e., work-positioning lanyard or second climbing line) when operating a chain saw in a tree. Using two work-positioning lanyards or both ends of a two-in-one work-positioning lanyard shall not be considered acceptable as two means of being secured when using a chain saw in a tree.

EXCEPTION: When the employer demonstrates that a greater hazard is posed by using a second means of being secured while operating a chain saw in that particular situation.

8 WORK PROCEDURES

Revised Section 8.1.3 Climbing lines used in a **split-tail** system and split-tails shall be terminated with an eye splice or a knot that interfaces appropriately with the connecting link that it is attached to. ~~The termination knot selected shall remain secure under normal loading and unloading. When using a carabiner without a captive eye, the knot or eye splice shall cinch in place to prevent accidental opening and/or side loading of the carabiner.~~ **When using a carabiner without a captive eye, the termination selected shall maintain loading along the major axis. The connection between carabiners and terminated rope ends shall be compatible as to limit the possibility of accidental disconnection or minor axis loading of carabiners.**

Revised Section 8.1.5 Arborist saddles and lanyards used for work positioning shall be identified by the manufacturer as suitable for tree climbing. **Arborist ropes, work-positioning harness(es), and climbing equipment shall be approved by the manufacturer for use within the tree care industry.**

Revised Section 8.1.6 Arborist saddles **harness(es)** and lanyards used for work positioning shall not be altered in a manner that would compromise the integrity of the equipment.

Deleted Section 8.1.7 ~~Hardware used in the manufacture of arborist saddles shall meet the hardware material, strength, and testing requirements outlined in ANSI 359.1.~~ **(New Deletion)**

Revised Section 8.1.11 Carabiners used as part of a climber's work-positioning (suspension) system shall be self-closing and self-double-locking, and shall have a gate-locking mechanism that requires at least two consecutive, deliberate actions to unlock. Carabiners shall be capable of withstanding a 5,000 pound (22.24 kN) load **along its major axis with the gate closed** without breaking or distortion sufficient to release the gate.

Deleted Section 8.1.15 ~~All load bearing components of the climbing system shall meet the minimum standards for arborist climbing equipment.~~ **(New Deletion)**

8.4 Rigging

Revised Section 8.4.11 A method of verbal, **audible, or** visual communication shall be discussed and established during the job briefing, prior to the start of removal **or** rigging operations. The verbal, **audible, or** visual communication system shall use an established command and response system (see example) or pre-arranged, two-way hand signals. The communication method shall be clearly understood and used during all rigging operations.

Example, **but not limited to:**

Command: Stand clear!

Response:

- All Clear!
- Underneath!
- or No!

Revised Section 8.4.15 Arborists working aloft shall position themselves so as to be above or to the side of the

piece being rigged and out of the path of movement of the piece when it has been cut. ~~Climbers and their climbing systems shall be positioned outside of the rigging system itself when a cut is being made or a load is being moved or lowered.~~ Climbers shall have an escape plan prepared.

New Section 8.4.16 Climbers and their climbing systems shall not contact moving or swinging parts of the rigging system when making a release cut or when the load is moving. Rigging systems shall not compromise any part of the climbing system.

Deleted Section 8.4.17 (Previously 8.4.16) ~~The spars, limbs, or leaders being worked on and the spars being used for tie in and/or rigging points shall be assessed for structural integrity and potential reaction forces that could cause a spar to split when it is cut.~~ (New deletion.)

New Section 8.4.19 A hand saw shall be with a worker aloft to make or finish cuts.

8.5 Tree Removal

Revised Section 8.5.4 In manual tree felling operations, non-involved workers shall be beyond ~~the danger zone,~~ twice the height of the tree or trunk away from the tree or trunk being removed. (Proposed definition of “**danger zone**” removed from glossary.)

Revised Section 8.5.6 A planned retreat/escape path for all workers within the drop zone ~~or danger zone~~ shall be prepared before piecing down or manual-felling any standing tree or tree parts.

8.7 Limbing and Bucking

New Section 8.7.3 Before bucking or limbing wind-thrown trees, precautions shall be taken to prevent the root ball or butt log from striking a worker.

New Section 8.7.7 When necessary to prevent rolling, logs shall be blocked with wood or other suitable material. (Clause is being reinstated after being inadvertently deleted from the 2000 version of the Z133 Standard.)

New Glossary Terms (Annex A)

backstay: A rope or cable that is set to share the load on a spar, limb, jib, pole, or other load-bearing member.

employer: a person or entity, engaged in a business or work activity that has employees working at his/her (their) direction; or, the designated representative of this person or entity.

split-tail: Separate, short length of rope used to tie the friction hitch in a climbing system.

work-positioning lanyard: A component of a climbing system consisting of a flexible line of rope or a strap that generally has a connecting link at each end and may incorporate a knot or mechanical device to allow for adjustability. This line or strap is designed to be used under tension to support an arborist or other worker on an elevated surface, such as a tree limb, and allow him or her to work with both hands free. Correct use of a work-positioning lanyard demands the lanyard be attached from one side D-ring of the harness (saddle), around the anchorage, to the opposite side D-ring of the harness. Both ends of the lanyard may also be attached to the center attachment point of the harness. Arborists shall not attach both ends of the lanyard to the same side D-ring of the harness.

Addition to Annex D – Additional Resources**D.1 Applicable American Standards**

Boom-Supported Elevating Work Platforms (A92.5-2006)

Minimum Requirements for Workplace First Aid Kits and Supplies (Z308.1-2009)

Supplemental Support Systems (A300-Part 3)

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