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The ABCs of Cabling & Bracing
By Peter Gerstenberger
Learn about the special tools, materials and techniques that arborists need to install or maintain effective tree support systems.

OSHA Publishes New Standard
By Brian Barnard
This set of regulations affects all companies whose employees may work within ten feet of electrical conductors.

Building Golf Courses
By Raymond Stanton
A Canadian firm creates instant forests amid the fairways!

Tree Maintenance on Golf Courses
By Peter Gerstenberger
Two arborists describe some of the techniques they use to sell, schedule and carry out golf course tree care.
OUTLOOK

It is purely coincidence that there is an article in this month’s magazine about the benefits of belonging to a trade association as well as a report of the National Arborist Association’s success with the Occupational Safety and Health Administration on the vertical standard for the electric utility industry. That success certainly speaks to the benefits members receive from belonging to a trade association.

If one line clearance contractor had tried to have input into the development of that standard, the contractor would have been accused of trying to influence changes for economic benefit. It could have cost the contractor considerable time and certainly a substantial amount of money. It’s doubtful that the effort would have resulted in the numerous changes in the final regulation that NAA was able to achieve. I don’t think the government would have even given a contractor the opportunities to present suggestions, much less consider them.

The preamble to the regulation, published in the Federal Register, quotes NAA everywhere. How many eyebrows would have been raised in Washington had the preamble referred to XYZ Tree Company? No regulatory agency would risk that, no matter how good the input was.

With NAA carrying the ball, no particular contractor was identified. There didn’t have to be any concern for favoritism or undue influence. This was an industry speaking, providing the consensus opinion of experts.

The cost, which over nine years of effort exceeded $200,000, was absorbed by many contractors. The cost for each was infinitesimal compared to what it would have been for an individual company. NAA staff and NAA’s attorney did all of the work with the guidance of the contractors, but little contractor staff time was devoted to the effort. NAA is fortunate to have Steven R. Semler as its labor counsel. He is a brilliant attorney and an authority on dealing with OSHA.

The whole point is this: Much more can be accomplished collectively than any one of us can accomplish singularly. The economics of a collective effort, consensus input, the availability of association staff, access to prominent authorities and multiple resources clearly identify the benefits of belonging to any group - NAA, ISA, your state or local arborist association, the Chamber of Commerce, etc.

There is strength in numbers, and this OSHA effort is but one example. Be part of the action, no matter where it is.

Robert Felix, Publisher
You want a stronger business. Have you considered a stronger saw?

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The ABC’s Of

Cabling & Bracing

By Peter Gerstenberger

A tree may give every outward appearance of beauty and vitality while its structural support system is crumbling. But because people place a high value on the very trees that are beginning to succumb to their own weight, the art and science of cabling and bracing evolved as a technique for saving the tree.

Cabling or bracing a tree is costly compared to other practices. Therefore, it may be one of the arborist’s last resorts, used only when the tree is mature or nearly mature, and it has a high economic or aesthetic value, or creates a hazardous situation.

A serious condition that benefits from cabling and bracing is the development of co-dominant stems. Weak crotches can develop when both branches are close to the same diameter, or co-dominant. Tests have shown that these are the weakest branch attachments. As the tree grows, such crotches may also be weakened from included bark. Pressure to split can develop as each branch increases in diameter and pushes against the other. Ideally, corrective pruning should remove most or all of one of the co-dominant limbs before the tree is large. Once the tree is grown, it is difficult to remove entire branches without disfiguring the tree and creating a large wound that is susceptible to decay.

Cabling and bracing can be used to prevent damage or repair damage. Wind, ice and snow often cause branches to break and weak crotches to split. Proper bracing can prevent much of this damage. Following storm injury, bracing can be used to save some damaged branches.

Cabling and bracing can also help alleviate adverse conditions caused by naturally weak species, extra heavy foliage growth, decay, exposure to winds from removal of nearby trees, borer infestation and other harmful environmental conditions.

Some applications call for cables and rod braces to be used together. Frequently, cables will be installed without rod braces. However, there are few situations where installing rod braces without a cable system provides adequate protection.

Rod bracing

Rod bracing uses threaded metal rods screwed into the wood to hold branches together. The rod may be of various sizes: 5/8-inch rod for branches up to 10 inches in diameter; 7/8-inch for branches up to 30 inches; and 1-inch for branches over 30 inches in diameter. Rod bracing is called “rigid bracing.” Rods are usually placed at or near weak points.

Single rod bracing involves placing a single bolt or threaded rod through the weak crotch. This is the simplest type of bolting procedure. It is used for co-dominant crotches where the two branches must be held together securely.

The screw rod should not extend beyond the bark. Drill a hole that is 1/16-inch smaller than the rod. The hole must extend all the way through the limb on one side of the crotch and at least 50% of the way into the second limb. Measure the length needed before drilling. Turn the rod into place using a pipe wrench, or by placing two nuts together to act as a jam nut for a wrench or by using a rod driver. When the rod has been turned to within 1/2 inch of the end of the hole, cut the
rod one-third of the way through from either side. Turn the rod the rest of the way in. Gently bend and twist to break the rod at the cut spot. The position of this break should be just below the surface of the bark. Neither end of the rod should be exposed.

If the crotch is split, pull the two limbs together with a hand winch to help close the crotch before drilling holes for the bolts. A bolt and nuts can be used to close the crotch tighter. To install a bolt, the hole should be drilled the same size or 1/16-inch larger than the bolt diameter. It should extend completely through both branches. Insert the bolt through the hole and place round washers and nuts on each end. The washers should be countersunk so they rest on the outermost layer of wood. The nuts can be tightened to draw the split halves together.

Bolts, washers and nuts are always used if decay is present as decay may spread along the rod, weakening the wood around the threads. A washer and nut will give a broader base for holding. Care should be taken not to damage the bolt. Clean and lubricate threads before installing nuts.

Multiple rod bracing reduces crotch stress from limb twisting. It involves two or more rods placed parallel to each other but not side by side. These may be either screw rods or bolts. Rods should be placed at least five inches but not more than 18 inches apart. As a rule of thumb, rods are separated by one-third to one-half the diameter of the limb or crotch. For example, if you are bolting an 18-inch diameter crotch with multiple rods, the rods should be from six to nine inches apart.

Additional bolts may be used above the crotch to increase the rigidity of a weak attachment. An additional bolt is placed from one to six feet above the crotch. This bolt should always be installed after installing the bolts through the crotch and before cabling. It should be a bolt, requiring washers and nuts, not a rod.

Rubbing limbs may be braced together or held apart to prevent rubbing and bark damage. Branches braced together may eventually form a graft union. In bracing branches apart, use washers or a piece of pipe to hold branches in place.

Cabling

Cables are used to support the weight of a limb or to restrict lateral limb movement. Cabling involves the use of flexible galvanized steel cable placed in a tree to prevent wind damage to long limbs and reduce stress on weak crotches or limbs.

Before installing a cable system, all branches and limbs should be examined for cracks, splits and poor attachments. Cables should be placed in a tree as high as practical or two-thirds of the distance from the crotch to the end of the branch. Be sure the wood is large enough to hold the anchor. Cables should be placed approximately the same distance from the crotch on each limb. For the strongest support, the cable should be perpendicular to the imaginary line that bisects the angle formed by the two limbs being cabled.

Only one cable should be attached to each lag or bolt anchor. Anchors should be spaced at least a foot apart on the limb, to avoid weakening the limb. Do not align lags or bolts on the branch, or a crack could form.

The anchor is the first step of a cabling system. Cast eye lags, lag hooks and through-bolts are used to anchor cables. The process is somewhat like bracing. If the branch is sound and relatively small, a lag screw will hold satisfactorily. If the branch is decayed or larger than eight inches in diameter, a through-bolt is needed.

When installing a lag, a starter hole should be drilled 1/16 inch smaller than the diameter of the threads. The hole should be drilled slightly deeper than the lag length to avoid splitting when it is tightened. The lag should be installed on the limb so the cable and lag will be in direct line with the other limb to be cabled.

The lag should not be tightened the last half-turn to allow for cable tensioning. Do
not turn a lag hook in so far that the hook damages the bark.

The main differences between hooks and eyes in use are that the cable can slip off a hook that is improperly installed, and hooks can bend or open up when loaded too heavily.

A through-bolt is installed in the same way as a bolt in rigid bracing. Drill the lead hole 1/16-inch larger than the diameter of the bolt. Carefully countersink to allow washers to lie flat on the wood layer.

Anchors should be installed so the anchor and the cable form a straight line. With an angled pull, the safe working load of the anchor decreases dramatically. For example, the safe load on an eyebolt under a 45-degree pull is 80% less than with a straight pull.

Select an appropriate size and type of cable. The arborist’s standard has been seven-strand galvanized, soft lay, common grade cable. Extra high strength (EHS) cable has recently gained popularity. Common grade cable is spliced to form an eye, while EHS cable uses a cabled loop or “tree grip” to form the eye. The cable eye is placed over the lag hook or through the lag eye. Regardless of the cable type, a thimble should always be used where cable meets anchor. Tree differences, winds, decay and other factors should be considered when determining cable size.

Before installing the cable and to make sure the cable will stay tight when leaves are off or on the tree, the limbs are gently pulled together. A block-and-tackle or come-along can be used for this purpose. Measure the distance between the two limbs carefully - a piece of rope works well as a measure. The cable can then be cut on the ground.

One end of the cable may be prepared on the ground with a thimble and splice. Measure the cable, add 10 to 12 inches for the second splice, and cut it off. The second splice is usually made in the tree, but can be made on the ground if exact measurements are known.

If eye lags, eye bolts or amen nuts are used, the cable must be passed through the eye and then spliced.

The eye splice is important in cabling. Cable clamps must not be used on trees. They are easy to use but only about 15% as strong as the cable. A proper eye splice is as strong as the cable itself and considered to be more reliable and professional.

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The cable is bent around a thimble so 10 to 12 inches of surplus cable extend beyond the thimble. The wires of the end of the cable are unwrapped and placed alongside the main cable. Wrap one wire tightly around both the main cable and the remaining strands of the end. Begin next to the thimble, lay each wrap tight against the previous wrap. The strands need to be wrapped around three or four complete turns to make a strong splice. The end of that strand is cut off and pinched tightly against the cable. The remaining strands are wrapped in the same fashion, one at a time, beyond the previous wrap.

If right-hand and left-hand threaded lags are used, both eye splices can be made on the ground and the cable eyes quickly slipped over the hooks attached in the tree. The lag hooks should be twisted the last half turn to take up slack and prevent the cable from slipping out. If eye bolts are used, one of the eye splices must be made while in the tree.

Once both ends of the cable have been eye-spliced and attached to the anchors, release the come-along and check the cable tension. The cable should be taut, but not G-string tight.

On deciduous trees, be sure slack does not develop during the winter. Slack should be avoided in all cases because it allows the limb to move and slam against the anchor. Repeated jerking and slamming will cause the lag to bend and break.

**Types of cable systems**

There are three types of cable systems: simple direct, box or rotary, and triangular. These systems may be used together.

A simple direct system is one cable installed between two limbs. It is used to cable structurally weak limbs or restrict movement of co-dominant stems arising from a weak crotch. A simple direct cable should only be used where the limb is so structurally weak that it may break from its own weight. To be strong, tree limbs must move up and down while growing. A healthy limb will become weakened if its weight is artificially supported for several years. It is likely to fail if that support is removed.

Box cable systems restrict lateral limb movement. Cables are installed to aid the limb in times of wind stress, not to hold the weight of a limb that cannot support itself. In a box system, cables are attached...
from lateral limb to lateral limb in the outer canopy all the way around the tree, ending with the first limb. On some trees this can be done with three cables. On others, six to eight cables are required.

A direct cable can be used within this system to reduce strain on a weak crotch. The box method is recommended for use on all limbs that are held by simple direct cable to reduce lateral movement. A box system is preferred where a crotch has split and been bolted to prevent the two trunks from twisting apart.

Limbs supported with a box system can develop strong wood fibers because the cables do not hold the weight. Limbs can move up and down and maximum lateral movement is allowed.

Triangular systems are most useful for structural problems in crotches, and several triangular systems may be contained within a box system. A triangular system by itself may not work to prevent wind damage. If the limbs in question are exposed to high winds, a box system should be installed as well.

**Guying**

The materials and methods of guying trees are similar to those of cabling.

Tree-to-ground guying uses cables to support newly transplanted trees or trees that have been blown over. The anchor could simply be a stake driven in the ground, a buried timber oriented perpendicular to the pull of the cable, or a piece of hardware designed specifically for this purpose.

Inter-tree guying of large trees is used when trees are in danger of falling over or blowing down because of weak root systems. Cables may be placed between two or more trees to support the weak one from several directions. This practice should be used only in exceptional cases. Put cable as high as practical in the tree to be braced. Place the support tree's anchor points high enough to discourage vandalism and to prevent people from being injured by the guy cable. Ten feet is usually adequate.

As with many injuries suffered by trees, it is sometimes easier to prevent the injury than to treat it satisfactorily after it has occurred. The treatment of broken branches is a perfect example. Braces and cables can be helpful in preventing or reducing damage to large branches. It is preferable to prune away smaller branches that may become problems and allow the tree to fill in the voids.

On large and small trees, selective pruning in the crown can be helpful in reducing injury. When many branches are present, they offer a large surface area on which snow or ice can accumulate. Resistance to wind is also greater in such trees, with the result often being broken branches.

Preventive pruning can help reduce damage from both ice and wind. If smaller branches are thinned, there is less surface area for ice buildup and less wind resistance. After such pruning, strong winds can more easily pass through the tree, thus reducing injury.

If pruning is the technique used to prevent or reduce wind damage, special attention should be given to the removal of co-dominant crotches. This is especially true for smaller trees. Proper pruning can result in the development of U-shaped crotches that are able to support more weight and force without breaking.

Some final words of caution: Check for overhead electrical conductors before going up a tree to install cables. If there
is a reasonable chance that cabling hardware might contact a conductor, consider alternatives to cabling. If the tree has a lightning protection system, be sure to tie cables into it with approved connecting hardware so the cables are grounded.

There are tools, materials and techniques that can make cabling and bracing jobs easier and more profitable. These are available through most arborist supply houses.

Rod driver - Use your heavy-duty electric drill to drive wood screw rod. You can either place the rod directly in the drill chuck or make a driver. Weld a nut on the end of a short section of same-size rod and grind the opposite end so the drill chuck will accept it. Tighten it in the chuck, spin your rod into the nut, and you're ready to go.

Dead ends - TREE GRIP™ dead ends do way with the need to eye-splice cables, and can provide a stronger anchoring system than common grade cable. Dead-ends must be installed with left-hand lay cable. They have the same published Rated Breaking Strength (RBS) as extra-high strength (EHS) cable. For example, 5/16-inch common grade cable’s RBS is 3,200 pounds, while the RBS for 5/16-inch EHS and dead end is 11,200 pounds. TREE GRIPS come in a variety of sizes suitable for almost any cabling job.

Tree rod - When there is tree bracing to be done, many arborists swing by the local hardware store to pick up 3-foot lengths of machine-threaded rod. Metal rod sold specifically for tree bracing might offer some advantages. First, it comes in a variety of lengths, diameters and thread patterns. Perhaps the most versatile type is galvanized lag-threaded rod. The coarser thread allows it to be installed as a wood screw, where the bite of the thread in the wood does the holding, or as a bolt, where nuts do the holding.

Wire basket, or cable dispenser - There is no way of completely eliminating the difficulties of dealing with several hundred feet of heavy, unwieldy cable. However, the cable dispenser, a simple wire basket, is said to eliminate some of the problem, and it keeps leftover cable in neat coils for the next job.

Tool pouch - Wrenches, hand braces and pliers can hurt when dropped from any distance overhead. They aren’t a convenient size to be shoved in a pocket. It makes sense to suspend cabling tools from the climber's saddle in a simple bucket or pouch. Several styles are available.

Cable grip - It used to be that you’d haul the free end of a cable up by threading it through the strands of your manila climbing line. There is a better system. A cable grip is a simple mechanical friction device. Clamp it on the free end of your cable, attach it to your come-along, and you can pull up and tension your cable in one operation.

Cable winch hoist or come-along - A hand-operated winch is essential for cabling jobs. Be sure to get one that is equal to the size and weight of the limbs to be cabled.

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Cable winch hoist or come-along - A hand-operated winch is essential for cabling jobs. Be sure to get one that is equal to the size and weight of the limbs to be cabled.

The National Arborist Association Standard for Bracing, Cabling and Guying is a useful guide. It can help you determine safe load levels for materials used in cabling and bracing and illustrates accepted cabling and bracing methods. For more information, call the NAA at 1-800-733-2622.
Light caution

The February 1994 Tree Care Industry contained a most interesting and informative article on “Lighting the Landscape.” “Nightscaping” can be a profitable venue but it is not without its pitfalls and, if not approached with a high skill level, can and does end up with disastrous consequences.

Night lights can easily disrupt the growth of trees. In the buds and leaves of trees are located “eyes” called phytochrome; they respond to the red portion of the light spectrum. It is phytochrome that tells a tree when to blossom, when it is spring, when to go into dormancy. Night lighting can fool a tree into thinking days are longer than they actually are. A tree can continue growing during normal dormancy periods, making it more susceptible to freezing temperatures. The formation of chlorophyll in leaves is also inhibited. Yellowing of leaves can occur. Night lights can drastically change the bloom cycle, the amount of blooms and create long and spindly branches. Some trees have a high tolerance to night lighting while other species do not. Sensitive trees, such as dogwood, red bud, yellow poplar, black locust, silver bell and others, will need a higher degree of maintenance including more water and fertilizer. Insect and disease problems must be more closely monitored. If a tree must be continuously and directly lighted, use a light source that is low in red light such as mercury vapor lamps. High pressure sodium and incandescent filaments are rich in red light and will greatly alter the growth of a tree.

In conclusion, one of the most important lights in nightscaping should be the caution light. And, as always, thank you for TCI.

Joseph R. Samnik, certified arborist Palm Harbor, Florida

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GCSAA Explores Health Projects

By Brian Barnard

The Golf Course Superintendents Association of America (GCSAA) plans to launch a series of health research projects after preliminary results of a study on pesticide use and worker mortality rates on golf courses showed that golf course superintendents may face a higher risk of lung cancer and cardiovascular illness than the general population.

The study was conducted by the University of Iowa's Institute of Agricultural Medicine and Occupational Health. Because lung and other head and neck cancers have been strongly associated with cigarette and cigar smoking, Dr. Burton Kross, associate director of the institute, cautioned that the study is not yet complete and that the preliminary results should not be used to draw a cause-and-effect relationship to any illness.

The study was a statistical analysis of death certificates for 618 golf course superintendents who died between 1970 and 1992 and was presented at the annual meeting of the GCSAA in Dallas, Texas. The next phase of the overall effort could include helping workers to stop smoking, in addition to completing a statistical mortality ratio study to put UI's preliminary data into context. "Results of the mortality study provide the GCSAA with a scientific basis to encourage stop-smoking programs and improved pesticide handling practices among its members," Kross said.

In a statement released by GCSAA, Stephen F. Mona, GCSAA executive director/CEO said: "Our mission in funding this independent mortality study was to begin the first phase of an overall look at occupational health and safety issues that affect our members. This is a long-term commitment to ensuring that superintendents work in a safe and healthy environment."

OSHA Clarifies Hazard Communication

The Occupational Safety and Health Administration (OSHA) has clarified its Hazard Communication standard in an effort to ensure full compliance and make the standard easier for employers to implement.

The Hazard Communication standard, commonly referred to as the "Right to Know" law, has been in place since 1985 and is designed to provide employees with information and training about hazardous chemicals used in the workplace.

The new rule clarifies and slightly modifies the duties of distributors and manufacturers to provide material safety data sheets, and clarifies certain provisions regarding the content of safety data sheets.

Every tree company should have a working Hazard Communication program. This requires furnishing Material Safety Data Sheet to product users and providing information and training to potentially exposed workers.

To ensure full compliance, employers should designate an employee to monitor the company's hazard communication program. That person should take inventory of all hazardous chemicals in the workplace and ensure that all products are properly labeled, make sure all MSDS's are available for the products, and that all employees know where to find these MSDS's and how to read them.

A written hazard communication training program is also required. The firm's hazard communication director should conduct information and training sessions for employees and document employee training. This helps employees understand what products they work with, how to handle material safely and where to find information in emergency situations.

Hazardous materials include more than pesticides. In general terms, a hazardous material is any product that could adversely affect human health. For example, a cleaning company would include cleaning supplies in its hazard communication program, because these products are used extensively. In the same sense, a tree company should include gasoline and bar oil in its hazard communication program.

OSHA requires every employer to inform employees of hazardous materials in the workplace. Firms that do not currently have a working hazard communication program should not take this rule lightly. Violation of the Hazard Communication rule is the most frequently cited OSHA regulation.

Brian Barnard is Government Affairs specialist for the National Arborist Association.
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Why Join An Association?

By Richard G. Ensman Jr.

Why bother to join a trade or professional association? After all, association membership usually involves a commitment of time and money and, with so many other obligations pressing on your busy life, is one more commitment really worth it?

The National Arborist Association is the national trade organization completely devoted to the interests of commercial arborist firms. The NAA's purpose is to advance the interests of commercial arboriculture and to distribute valuable information relating to the business of arboriculture. It produces a variety of technical and safety training programs, management guidelines and newsletters. The NAA encourages sound, useful legislation and helps maintain ethics and standards of practice.

The NAA has more than 1000 active member firms and 100 associate member firms. There is an active 10-person Board of Directors. Membership is open to commercial tree care companies as well as companies that supply equipment, materials or knowledge to arborists. For more information on the NAA, call 800-733-2622.

In case you’ve forgotten what association membership is all about - or in case you never really knew - browse through the following reasons for becoming involved. If you’re already convinced of your association’s value, clip this article and pass it along to a friend or acquaintance who might benefit from membership.

So, why should you join an association?

An association is a “one-stop” center for advice, contacts, inspiration and suggestions on a wide range of topics.

Advocacy - Bad news on the economic horizon? The regulatory front? In the courts? Membership in an association gives you and your peers the opportunity to speak with a single voice on matters of importance to your industry.

An association represents your interests before the business community and government, acts as an “early warning system” for its members, and helps ward off potential industry-wide problems. And if your business or industry faces major threats, your association is right there, fighting for you.

Benefits - Many associations offer a variety of tangible benefits to members and their employees: purchasing discounts, group health and life insurance, retirement plans and more.

Management support - An association is the most cost-effective vehicle for managing industry-wide concerns and activities. More important, an association frequently provides in-depth management assistance and support to members. So if you’re trying to solve a difficult problem or set the stage for a new project, don’t reinvent the wheel when it comes time to save money, consolidate an operation or enhance efficiency. Your association is as near as the telephone and can often point you in the direction of solutions and strategies. An association provides you with examples of firms “doing things right” and gives you the chance to learn from them. Tell your association what you’re trying to do, and your association can put you in touch with one or more individuals who have the “know-how” you need.

Networking - One of the most valuable benefits of association membership is the opportunity to “listen in” on the creativity of peers. An association is a “one-stop” center for advice, contacts, inspiration and suggestions on a wide range of topics and provides members with the opportunity to discuss mutual problems, probe new directions and share and criticize each other’s thoughts - all with a high degree of respect and candor. Your association’s members are people who have many of the same concerns, needs and interests as you. They’re the kind of people you’ll enjoy meeting, and they’re the kind of people who will probably end up as your friends.

Association events, meetings, member directories and information exchanges make networking a reality for you and your peers.

Knowledge - Associations are known for their expert publications: journals
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OSHA Publishes New Standard

By Brian Barnard

At last, the Occupational Safety and Health Administration (OSHA) has published the final draft of the Vertical Standard, OSHA 1910.269, which directly affects any employer whose employees are trained to work near electrical conductors. OSHA first proposed the Vertical Standard in 1985, creating a flurry of action by industry leaders.

Through the efforts of the National Arborist Association (NAA) and others, the final version of the Vertical Standard provides challenging but workable requirements for tree care employers.

If your crew performs any operations within 10 feet of an electrical conductor, you should familiarize yourself with the requirements set forth in OSHA 1910.269, the Vertical Standard, because it regulates your operations. OSHA will begin enforcement of the standard on May 31, with the training section being enforced January 31, 1995.

Training requirements

The most obvious change for all employers is set forth in the training section of the Vertical Standard. The standard clearly states that the employer shall certify that each employee has received the training required. This puts the training requirement on the shoulders of the employer, not any other party.

A second requirement in the Vertical Standard involves cardiopulmonary resuscitation (CPR) training. The Vertical Standard requires that at least two persons on all crews of two or more employees be trained in CPR if the crew is working near electrical conductors. Only one trained person need be available if all new employees are trained in first aid and CPR within three months of hire.

In addition to requiring job briefings and daily inspection of equipment, the Vertical Standard requires spotters for backing vehicles off the road and protective roll cages over tractors and related equipment. Also, the standard requires that a second line clearance tree trimmer be within normal voice communication when working near lines in excess of 750 volts.

Equipment use

The Vertical Standard addresses use of an aerial lift device within 10 feet of electrical hazards with an attached unit, such as a chipper. If the aerial lift does not have an insulated boom and there is a risk of the boom contacting energized equipment, then either the chipper has to be insulated in some fashion or disconnected from the truck. This breaks the flow of electricity if the uninsulated boom contacts power lines, charging the truck. If the boom is insulated, then the chipper need not be insulated or disconnected.

Equipment used by climbers to perform work is outlined in the standard. Some requirements are more stringent than what the tree worker may be familiar with. For example, chain saws heavier than 15 pounds used in a tree must be attached to a separate line. This does not apply when work is performed from an aerial lift and...
during removal operations where no support limb is available. The 1994 edition of ANSI Z133 had changed this weight limitation from 15 pounds to 25 pounds. The OSHA rule prevails for line clearance tree trimming.

New definitions for workers
The definitions of a “line clearance tree trimmer” and a “qualified employee” are different in the OSHA document. A qualified employee, as defined in 1910.269, is a person with the knowledge to actually work on power lines, such as a lineman. Line clearance tree trimmers know how to work on trees, not power lines. This difference in the OSHA document is important because qualified employees have training requirements beyond those of line clearance tree trimmers.

Ease of compliance
For responsible tree care employers, the new Vertical Standard’s requirements will be simple to implement. Many of its required safety procedures are being done now and have been common practice for many years. A fairly simple coordination process of existing programs will help the responsible tree company get started in the direction of full compliance. However, those employers who view OSHA requirements as unworkable and ignore compliance should wake up now, because the Vertical Standard clearly focuses on their operations. Non-compliance with the Vertical Standard or any OSHA standard can be costly for employers and puts employees at risk of injury or death.

The NAA provided the basis upon which certain portions of the regulation were developed. The original document contained sections that were clearly unworkable for the line clearance tree trimmer. For example, the original OSHA proposal would have prohibited any cleanup work after a storm emergency, and would have required that line clearance tree trimmers be as knowledgeable about electricity and electrical apparatus as a utility lineman. NAA also was successful in clearly defining permissible operations after a storm, preserving the use of wood-handled tools as being non-conductive, allowing the use of climbing ropes for aerial rescues, modifying the CPR requirement and continuing recognition of the ANSI Z133.1 standard as the basic industry safety code.

Yes, after nine years of labor by your peers and OSHA representatives, the Vertical Standard is now a part of tree care. While tree work around electrical lines will still be profitable, the new standard will likely be credited with saving lives. OSHA will propose more regulations to regulate the safe work practices of this industry. Employers must realize, however, that greater emphasis on worker safety will most likely reduce direct OSHA regulations on the tree care industry in the future.
Have You Trained Your Tree Workers In Electrical Hazard Awareness? PROVE IT!!!

That's the question you're sure to be asked by OSHA inspectors or accident investigators. Besides training your workers, you now have to document and certify that they have been properly trained.

The alphabet soup that covers these changes are OSHA 1910.269, OSHA 1910.331 and ANSI Z133.1-1994.

OSHA 1910.269. Effective January 31, 1995, you must certify that all employees who come closer than 10 feet to energized wires have received electrical hazard training.

OSHA 1910.331. Effective in August, 1991, all employees who may come within 10 feet must be trained in electrical hazard awareness, and that training must be documented.

ANSI Z133.1-1994 outlines the required training subjects. Remember, an ANSI violation is an OSHA violation.

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Training may be expensive, but try costing out ignorance.

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Boom Years Put Firm On Course

By Ray Stanton

When Jack Nicklaus hooked his ball around a stand of trees at Canada’s famous Devil’s Pulpit Golf Course during a recent televised Skins game, Phil Dickie smiled in appreciation.

The clump of trees had been moved to that location by Fast Forest, the company Dickie runs. It’s a subsidiary of Gateman-Milloy, Inc., probably Canada’s biggest golf course contractor.

Gateman-Milloy built the Pulpit and its adjacent sister course, Devil’s Paintbrush, for the inventors of the popular board game "Trivial Pursuit." Located in the scenic Caledon Hills outside Toronto in southern Ontario, the courses were the launching pad for Gateman-Milloy’s rise to fame as golf course builders.

The company is currently building five courses in locations from coast to coast in Canada. And with a U.S. operation based in Columbus, Ohio, the company’s owners, Blaire Gateman and Michael Milloy, have their sights set on making a similar name for themselves south of the Canadian border.

The boom years

The construction boom of the late 1980s accounted for much of Fast Forest’s growth. At least 60% of business involved supplying, delivering and installing trees for parks, golf courses and new residential, commercial and industrial developments. The remaining work involved simply relocating trees.

Moving trees became such a major part of their landscaping business that the partners spun off the Fast Forest subsidiary in 1987. Its first piece of equipment was a used Vermeer 66-inch spade mounted on a 1975 truck. Since then, Fast Forest has grown to become one of Canada’s largest tree movers. Growth in business
WHEN THIS TREE IS TALL ENOUGH TO NEED TRIMMING, THIS EQUIPMENT WILL STILL BE AROUND TO DO THE JOB.

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volume is mirrored by the current lineup of tree spades, all Vermeer.

Over the past seven years, Fast Forest has worked on the construction of 15 golf courses. Among them have been some epic tree moves. The Devil’s Pulpit project required the supply, installation and relocation of close to 300 trees. And at the Carlisle Golf and Country Club, near Toronto, Phil Dickie used two 94-inch spades working non-stop for 4-1/2 months to move 1,400 white pines and red oaks from an adjacent bush to delineate fairways, screen tees and create accent plantings.

In addition, there has been a steady stream of rehabilitation contracts for numerous courses, including Glen Abbey, also outside Toronto, a PGA Tour stop for the annual Canadian Open, where Fast Forest’s spades are regularly seen planting new trees or relocating others.

Other work
An increasing level of environmental awareness in recent years has provided work for Fast Forest.

Many Canadian municipalities now require private developers to institute tree preservation programs. These require moving trees to new locations before development begins. In a few cases, younger trees are kept in on-site holding areas and then re-planted according to an approved planting plan.

More homeowners, too, are looking for ways to preserve trees that have grown too
large or are in the way of building additions.

"We get lots of calls from people looking for a home for a tree," says Dickie.

He doesn’t charge the homeowner to take the tree away if he has someone willing to buy a mature specimen for the cost of moving it. One nearby city area advertised for tree donations from homeowners in this position.

 Officials were swamped with calls and Phil Dickie was called in to assess the quality and suitability of the trees. The result: a city contract for Fast Forest’s tree spades to pick up more than 20 mature trees and plant them in three different city parks.

High profile jobs like this help keep Fast Forest’s name in the public eye and brings Phil Dickie requests for estimates for various government and privately financed projects. The company has donated numerous large trees for ceremonial plantings in various cities within the company’s market area.

In one case, a 94-inch spade had to be ferried across part of Lake Ontario to an island park off Toronto for a ceremonial tree planting. In a new residential development which featured an island park, a causeway was built to allow Fast Forest’s spades to bring in large caliper trees.

**Equipment maintenance**

Dickie supervises a staff of three driver-operators and two assistant operators. They are responsible for a rigidly observed program of routine equipment maintenance which includes ongoing lubrication throughout the operating day. This usually confines downtime to such unforeseen incidents as torn hydraulic hoses and flat tires resulting from the often-rugged terrain under which the spades operate.

A small inventory of smaller parts is kept in stock but Dickie relies on Vermeer’s Toronto sales and service centre - only 80 miles away - for any major parts required. He’s impressed with Vermeer’s research and development operation and the desire for customer feedback to improve the product.

**Long winters**

The long Canadian winters keep the spade fleet inactive for several months, although Dickie finds the larger spades helpful in extending the season because they can penetrate up to eight inches of frost. Even so, hydraulic equipment and lubricants are affected by severe cold and winter operations are minimal.

Dickie uses this time promoting new business, attending trade shows, sending out mailings and making personal contact with past and prospective clients.

The slow economy and budget cuts imposed by government at all levels have affected Fast Forest’s sales and Dickie is taking a close look at adding other aspects of tree management to the services he offers, including pruning, fertilizing, felling, chipping and stump removal.

But with the onset of another season, he’s optimistic that the Fast Forest fleet will again be changing the landscape of southern Ontario.

Ray Stanton is a public relations specialist.

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TREE CARE INDUSTRY - APRIL 1994
Tree Maintenance On Golf Courses

By Peter Gerstenberger

How would you like to have a client with 100 or so acres, and maybe 500 to 600 trees? What if that client was dedicated to the preservation of those trees, and at least somewhat knowledgeable about and appreciative of professional tree care? That's exactly what you might expect when your client is a golf course.

While golf course maintenance presents its own challenges, it can be lucrative and rewarding. And if you're a golfer besides being an arborist, you have an advantage in that you can view the course from both perspectives.

That's the case with Gary Mullane, who runs a tree business, Low Country Tree Care, as well as a consulting service, Mullane and Associates, in Hilton Head, South Carolina. As a golfer and arborist, Mullane has a rapport with the golf course superintendent and the golf course pro. For instance, when a superintendent was perplexed because golfers were using only half of a particular tee, Mullane noticed several trees whose limbs protruded over the fairway 150 yards away. Rather than having their drives knocked down, golfers were teeing up away from the trees. Mullane's crews pruned the trees and the superintendent's problem was remedied.

A word about the golf course superintendent. Most superintendents are highly knowledgeable about maintaining their tees, fairways and greens. They may not understand trees and tree problems, but most are willing to learn. They are at least aware of the importance of the trees and shrubs on their courses, though they may view them as a necessary evil.

The age and prestige of the course, the superintendent's seniority, and whether the course is public or private will all affect the amount of decision-making power the superintendent has. And he is the arborist's main contact person.

Mountain High Tree Service in Lakewood, Colorado, owned and operated by Ralph Bronk, is a perfect example of the importance of making strong connections with the superintendent and other decision-makers. Bronk landed his current golf course contract because of a previous association with the superintendent at a different course. The superintendent actually called them.

"To build this sort of work, you have to know the golf course superintendents' community and be involved in their organizations," Mullane says. Once you please one superintendent with your work, your reputation spreads by word of mouth to other superintendents.

Mullane tries to cultivate a relationship with the assistant superintendent, the course pro, the greens committee chair and committee members. "A broad base of influence never hurts," he says, "especially if the superintendent moves out of the picture."
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Course features

Putting greens are the most intensively managed areas on a golf course. Mullane’s crews thin and elevate woody vegetation around the greens to increase air circulation. Large trees on golf courses in the Southeast are especially prone to lightning strikes. Mullane’s company installed between 40 and 50 lightning protection systems last year.

Trees help to make a course distinctive. “They affect the way the course is played,” says Mullane. That statement is the basis for a good bit of advice for the arborist looking to work on golf courses: Learn to see the trees through the eyes of the golfer and the superintendent. To the golfer, trees may be the challenge in a dogleg par four hole. To the superintendent, they may be the objects that interfere with the growth of his turf.

Sometimes a tree is key to the degree of difficulty of a hole. Many times that tree is taken for granted when it should really be nurtured to ensure its continued existence.

Mullane’s experience is with golf courses established in naturally wooded areas. “The problems you’ll run into depend on the age of the course,” he observes.

On new courses, saving trees is the priority for the first three to five years. Developers often try to keep more trees than is feasible. The arborist uses pruning, tree fertilization and pest control to help restore tree health and vitality. When the arborist recommends further tree removal, he often has to argue his case with the developer and homeowners. It is a situation similar to new house construction in a wooded area.

On an older course, the arborist’s job is almost strictly maintenance for safety and aesthetics. Keeping in mind that trees affect play, the arborist must view crown thinning or elevation differently than he would in a residential setting.

Scheduling work and pricing

Scheduling golf course work can be challenging. Lakewood Country Club is closed on Mondays, so Bronk schedules much of the pruning and removal then. His pest management crews often start at daybreak on the first tee, and proceed sequentially through to stay ahead of golfers with early tee times. Grounds crews will sometimes move tee placements to accommodate work, or assist with cleanup in floatation tire vehicles to avoid turf injury.

For Mullane, scheduling was easier when he worked in the Northeast with its longer slow season. Now his crews do their best to work around golfers, and they take full advantage of the slowest times. He uses large crews to get in and out fast.

Mullane firmly believes that a large company doing golf course work should assign one sales representative to all accounts for consistency in pricing and recommendations.

Mullane approaches a new golf course contract systematically. The first year he devotes to “putting out fires.” In that time, he likes to start work on some of the course’s high-visibility trees, such as those around the clubhouse and practice green. This gives him exposure and helps him win support from members. From there, he takes the superintendent on a walking tour from tee to green on every hole. He gathers information on tree needs, and working with the superintendent, develops a 3-to-5-year maintenance program with the goal of seeing tree maintenance established as a line item in the club’s budget.

One of Mullane’s key selling points in his presentations to club officials is that proper tree maintenance can significantly reduce the club’s liability. However, he and Bronk find that club members are somewhat less inclined to have a potentially hazardous tree removed than the average client.

Golf courses are very intensively managed properties so it is no surprise that golf course managers are a bit more demanding than the average client. With that in mind, Bronk and Mullane note that an arborist has to be willing and able to give them top priority among clients. On the other hand, superintendents are generally willing to pay a premium for prompt professional service and professional-looking crews. Mullane adds, primarily because the company they hire is a reflection of them.

Both agreed that golf course work is good money. Bronk noted that his company’s golf course work is done time-and-material at a modest profit margin. The combined advantages of his contract make the work very lucrative. His contract and others like it are usually larger than the average. Much of the work can be done in slow months.

Bronk noted that having his office a half mile from the course had certainly worked to his advantage. And visibility is an added benefit, because virtually every member of a country club is a potential client.

Bronk said that his employees generally like golf course work. “They have no streets, no wires, no backyards and few people to contend with,” he noted.

As a consultant and avid golfer, Mullane lists getting to play on championship courses around the country as an added bonus.
TEST YOUR KNOWLEDGE

CABLING AND BRACING

1. In many cases, crown thinning via drop crotch pruning may be all that is necessary to reduce the potential risk of branch or trunk failure.
   a. True
   b. False

2. When installing cables in a tree, the cable should be installed so it is
   a. perpendicular to the branch in which it is being installed.
   b. perpendicular to an imaginary line which bisects or divides the angle between the limbs and the crotch.
   c. parallel to the ground.
   d. as perpendicular to the ground as possible.

3. When installing rigid bracing (tree rod) in crotches which have not yet split, the hole drilled should be no more than __ inch larger in diameter than the threaded rod.
   a. 1/8
   b. 3/16
   c. 1/4
   d. 1/16

4. Lag screws used to attach cables should be drilled with holes that are the same diameter as the lag screw being installed
   a. True
   b. False

5. When installing washers in bracing operations, the washer should
   a. be countersunk to the inner bark.
   b. be countersunk to the wood layer.
   c. be countersunk to just below the cambium.
   d. not be countersunk because it wounds the tree.

6. It is imperative to match published breaking strengths of all components of a cable/bracing system to prevent a “weak link” which would be the point most apt to fail under a load.

7. An advantage of using right- and left-handed lag screws during cabling is that the cable tension can be adjusted easily by turning the lags should there be too much cable slack.
   a. True
   b. False

8. When installing more than one bracing rod in a tree to provide extra strength and reinforcement to a split or weak crotch, it is best to
   a. install the rods one above the other but at least 12 inches apart;
   b. not install more than one rod at any time.
   c. install the rods so they are not in vertical alignment with each other.
   d. install parallel rods above and below the crotch.

9. Although wood screw rods have the advantage of the threaded rod providing support, it is best to use washers and nuts with them because most of the “holding power” is formed by the subsequent annual ring growth over the hardware.
   a. True
   b. False

10. Cables should generally be installed approximately ___ the distance from the bottom of a crotch to the tips of the branches.
    a. 1/4
    b. 1/3
    c. 1/2
    d. 2/3

11. If cabling is done during the summer, it is best to make sure the cable is just taut but not overly tight to allow for slackening after the leaves have fallen.
    a. True
    b. False

12. When cabling a multi-stemmed tree, extra support can be added to the system by
    a. using double cables on each lag.
    b. installing cables low in the tree.
    c. cabling the limbs together in combinations of 3.
    d. using turnbuckles for maximum tension control.

13. The following statement that is not a factor in determining the need for bracing is the
    a. amount of leverage bearing on the crotch.
    b. presence of included bark in the crotch.
    c. species of tree under consideration.
    d. time of year cabling is to be done.

14. The type of cable used to form an eye splice with its own strands is
    a. aeronautical cable
    b. common grade seven strand cable
    c. extra high strength cable
    d. all of the above

15. Cables should be attached to large limbs by
    a. installing eyebolts or threaded rods with amon eye nuts.
    b. running the cable through rubber hose and wrapping around the limb.
    c. countersinking the cable to just above the cambium.
    d. attaching a cover plate with large screws.

16. A branching situation that may create a potential hazard is
    a. a lateral branch similar in diameter to the parent branch or stem.
    b. multiple branches originating from one point, lacking branch bark ridges.
    c. codominant stems which have grown close together in the crotch.
    d. all of the above.

17. When a cable is installed between two
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ANSWER KEY

1. a
2. b
3. d
4. b
5. c
6. a
7. a
8. c
9. a
10. d
11. a
12. a
13. d
14. b
15. a
16. d
17. a
18. d
19. b
20. b
21. b
22. a
23. b
24. c
25. a

This test was compiled by Chris Carlson, a professor and director of Horticulture Technology at Kent State University, Salem, Ohio, campus.
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Hickey Named Distinguished Arborist By New York State Arborists

Jon Hickey, Lehman Plant Care Co., Inc., was presented the Distinguished Arborist Award at the Empire State Tree Conference held in Suffern, New York. The award was presented to Hickey in recognition of his years of outstanding service to the arboriculture profession.

Hickey started his career at the age of 14 by working part-time at K & W Nurseries on Long Island. After graduation from SUNY Farmingdale, he worked as a tree climber for two companies. He also worked as a private arborist, performing private tree care before becoming assistant manager and then general manager at Parr & Hanson in Hicksville. Since 1986, Hickey has been a consulting arborist at Lehman Plant Care Co., Inc. His wealth of practical experience has made him a welcome guest lecturer at various trade associations and garden clubs. He is also qualified as an arboricultural expert in Nassau County Supreme Court, Criminal Court and District Court as well as Suffolk County Supreme Court and District Court.

Hickey has served the NYSAA as a governor, ISA liaison and president. He has received many awards and citations during his distinguished career: Past President Award - Long Island Arborist Association, 1972; Past President Award, NYSAA, 1981; Herb Kastl Award for Outstanding Member, Nassau/Suffolk Landscape Gardeners Association, Nassau chapter, 1983; Gold Leaf Award, ISA, 1988; and the Past President Award, Society of Commercial Arborists, 1988.

Bill Smith, Cornell University, received the Scholar/Research Award for his production of Chem News. Greg Frank also announced that Charles Schulz, creator of the “Peanuts” gang, will be given the Gold Leaf Award for the 1994 Arbor Day poster, which features the gang.

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SMA Offers County Accreditation Program

The Society of Municipal Arborists announces a program to provide accreditation for county forestry departments. This program supplements the SMA’s successful municipal forestry department accreditation. The county accreditation program is a non-governmental, voluntary system of self-regulation which sets the highest standards for county urban forestry. Its purpose is to improve citizens’ health and welfare, increase the value of real property, enhance a county’s beauty and ensure the safety of the traveling public. The program evaluates each Forestry Department on the basis of its stated objectives as well as compliance with these minimum standards.

The benefits of obtaining an accreditation certificate for a county Forestry Department are many: Accreditation is the endorsement and public recognition that a department has met all the formal requirements of excellence in service, facilities, standards and quality; a county’s liability can be reduced because it meets the highest county forestry standards in the nation; the county arborist will be recognized by other professionals as having a beautiful, tree-covered county; the public recognizes that the County Forestry Department is an efficient, technically competent and up-to-date operation; the county’s operation conforms to a number of standards which indicate arboricultural excellence; the County Forestry Department has been subjected to an objective, overall review by peers that is not limited to local experience or local cultures; the county forester certifies the protection and safety of residents through arboricultural standards; the county forester is individually recognized as being a leader of one of the nation’s best county forestry departments.

This accreditation program must be renewed every five years. The standards are continually updated to ensure a county is as current as possible regarding its forestry program. The awarding of accredited county forestry programs will be made at the annual meeting of the Society of Municipal Arborists. Recipients will also receive a certificate to hang at their offices. All county forestry programs are eligible whether they are separate departments or part of another department, so long as they meet the requirements of this program.

For an application of the Municipal Arborists Forestry Department Accreditation Program, contact Leonard E. Phillips Jr., Accreditation Committee Chairman, Park and Tree Division, 56 Woodlawn Avenue, Wellesley Hills, MA 02181. Phone: 617-235-7600; FAX: 617-237-1936. Specify whether you want a County or Municipal Forestry Department accreditation application.

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NY Arborist Establishes Award At Paul Smith’s College

George Callaway, owner of Lienroc Tree Experts in Argyle, New York, has established a new award for Urban Tree Management (URTM) students at Paul Smith's College in upstate New York.

As a member and past president of the New York State Arborists Association, Callaway reviewed scholarship applications for an award the association gave annually to New York college students in horticulture and arboriculture programs. Impressed with the quality of past applications from Paul Smith's College students, Callaway approached the school with an offer to establish the $1500 award for students in the Urban Tree Management program. Students who have saved for their college education will be eligible for Callaway's matching funds.

Stressing the work ethic and need to save and plan for the future, Callaway hopes this will assist those students who most want to achieve a college education. "I am now in a position in life where I can give back something to the industry and the best way to do that is through our young people just entering the field," said Callaway. "I want to help instill the importance of work and education to prepare one for the horticulture profession."

The Urban Tree Management program at Paul Smith's College is part of the forestry division and has been accepting students for eight years. Currently there are 44 students in the 2-year program, which leads to an associate's in Applied Science.

Participants in the award program, called the Lienroc Matching Fund, will be recognized for the first time this year.

Randall Swanson, Paul Smith's faculty member who heads the urban tree management curriculum, is pleased with the new award and appreciates the attention given the program from the tree care industry. "Supporting students in this way certainly helps retain high-quality students in the program, which will ultimately benefit the profession itself," said Swanson. "Mr. Callaway's award is a generous and thoughtful gesture that is greatly appreciated."
The Doggett Corporation will be adding organic Humic Acid to its tree fertilizers. This organic, dry soluble humic acid is a proven root stimulator as well as an enhancer of nutrient uptake. Fertilizer mixing rates are reduced with the addition of this humic acid. Doggett has three analyses of soluble, slow-release fertilizers to which the humic acid will be added. These fertilizers are powdered concentrates to be diluted in water and soil injected into the feeder root area beneath trees and shrubs. The Doggett Corporation, Cherry Street, Lebanon, NJ 08833. Phone: 908-236-6335.

A new video, "Ropes, Knots and Tree Climbing," is available from the National Arborist Association, the tree care industry trade group. "Ropes, Knots and Tree Climbing" offers essential information on ropes, slings, saddles, snaps and other climbing hardware. The video training program covers the newest techniques for using carabiners, the prusik loop and false crotches, and basic instruction in knots and climbing techniques. The contents of the program comply with the requirements of ANSI Z133-1994. National Arborist Association, P.O. Box 1094, Amherst, NH 03031-1094. Phone: 800-733-2622

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TREE CARE INDUSTRY - APRIL 1994
With the unique “Super Sleeve™,” the new Greenlee Fairmont Limb-Lopper® Model 48200 Utility Pruner can be field converted to either open-center or closed-center hydraulic systems in an instant by a simple rotation of the sleeve. The 48200 also features capacity to cut up to 2-inch limbs without hesitation; powered return for smooth, positive operation; durable, lightweight fiberglass extension tube and pull rod to protect against electrical shock; 7-foot length for long reach; easy blade adjustment without disassembly. Greenlee Textron, 4455 Boeing Drive, Rockford, IL 61109-2988. Phone: 815-397-7070.

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Stihl’s new model 020T chain saw is designed for arborists and tree trimmers who require high power, low weight and optimum balance. The 020T has a 2.15-cubic-inch (35.2cc) engine producing 2.2 hp. The saw weighs 7.7 pounds and is equipped with an attachment ring. The 020T also features Stihl’s exclusive oil saving Ematic™ bar, single lever master control, side access chain tensioner, lifetime warranted electronic ignition system, anti-vibration, translucent fuel tank and Stihl Quickstop™ inertia chain brake. For nearest dealer and/or product information call 800-437-8445.

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Morbark introduces the E-Z Beever Model 10, a mid-sized hand-fed brush chipper for commercial processing of brush, limbs and other wood waste. Standard features include an 18-inch diameter hydraulic feed wheel to feed limby brush, a 10-by-16-inch infeed throat opening to accept 10-inch diameter logs or large volumes of limby material, and gas or diesel powered engines ranging from 44-60 horsepower. With the same patented drum and pocket design as the larger E-Z style chippers, the E-Z Beever Model 10 offers low maintenance costs, easy knife changes, excellent productivity and heavy-duty commercial construction. E-Z Beever Co., P.O. Box 1000, Winn, MI 48896. Phone: 800-362-9010.

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There are two ways to work smarter...

Work harder or work smarter? Some people think that's an easy question to answer. But there are hard ways to work smarter and there are easy ways. You could take accounting, management, government and other related courses, and in, say, five years, you'd be ready to take your tree care business right to the top.

Or, become a National Arborist Association member and tap into a source that has all that information ready for tree care companies. A source that doesn't have to reinvent the wheel every time a question comes up. A source that offers you all the experience of its staff and other members, to help you work smarter.

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- A Toll-Free Hotline: Tree care answers to your tree care business and technical questions. When you need them.
- Business Management Guidelines: What would you pay for accounting, cost analysis, sales compensation and human resource guidelines that are already set up for tree care companies?
- Federal Regulation Guidelines: NAA members get the rules spelled out for them exactly as they relate to tree care companies. No more wading through page after page of government gibberish!
- Safety and Technical Training Materials: There is no other source that offers such comprehensive training programs at such a reasonable cost.
- Networking with Peers: You could find out how a tree care company similar to yours turned a problem into a profit center. Maybe you can't call another tree care company in your area with a question, but why not a fellow NAA member from across the country?
- Better Group Rates on Insurance: NAA searches out the best plans, then negotiates for you and executes "power buys" to keep the cost of insurance under control.
- Better Advertising and Public Relations: An ongoing public awareness program including events such as the National Arborist Day at Arlington National Cemetery, means that the NAA logo on your advertising and stationery carries more weight with cautious homeowners and businesses. Plus, the NAA offers an excellent array of professionally developed brochures and marketing materials at a fraction of what they'd cost you to produce.

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June 6
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Housatonic Community-Technical College
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July 28-29
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Summer Conference
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Rockville, Md.
Contact: Sue Stott, 301-948-0810

September 21
Landscape Contractors Association
Landscape Expo
Howard County Fairgrounds
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October 5-7
ISA/Pacific Northwest Chapter
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Victoria Conference Center
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Contact: Lynnette Claire, 206-365-3901.

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April 94

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Never Say Never

Even though we had had our doubts, one never knows what can be accomplished until an emergency calls for his or her best efforts.

By Mark F. Kline

In June, the crews had been dispatched, phone calls returned and my partner and I were just taking a breather before starting in on a long day when the phone rang.

Our largest commercial grounds care client was on the line and told us the storm the night before had caused some tree damage that would need to be cleaned up. He wanted us to stop by and talk with him about it before noon.

When your best customer calls with a problem, it is always a good idea to respond quickly. So we both headed to the site for a first-hand look at the damage.

What we found was a real shocker; it went down hill from there. The “tree damage” was a 50-inch weeping willow that had fallen in the garden area of the company grounds and the cleanup had to be completed by 9 a.m. the next day.

Every year this particular company holds a fitness weekend for employees and the general public and the next three days had been planned for months in advance. Thousands of people were expected and the willow was right in the middle of a major display area.

We immediately contacted all crews in the landscape and maintenance divisions by radio and told them to report to the site with full equipment and to be prepared to work late. Within the hour the crews arrived and the planning began. The two-way radios were a great investment. How did we ever get along without them?

The garden area of the grounds consisted of approximately 1.5 acres of trees, walkways, flower beds and patio areas for use by company employees. The entire area was surrounded by an 8-foot fence with limited access through a single gate. There was no time to remove and replace the fence to allow trucks and equipment in, so the entire tree would have to be removed in sections small enough to be wheeled out by hand. The willow had never looked as big as it did that day on the ground.

Not a single person on the crew, including myself, really believed we could handle the job before dark, but we would give it our best shot. I offered free pizza to everyone who stayed and helped complete the job.

After a review of the safety rules, we assigned tasks and started in on the tree.

I handled the saw work and 10 employees wheeled sections of tree 75 yards to a holding area at the back of the garden area. The limbs were removed first to clean up the sidewalk areas and the large sections of trunk were removed last.

By 8 p.m., we had finished the cleanup of the flower beds and walkways. The company grounds manager had returned to his office to work late and was surprised to see the final cleanup underway. He told us he initially didn’t believe the task could have been done on such short notice.

The following day the company held its fitness fest as planned. The event was a complete success and not one person mentioned the missing tree.

The following week the tree was removed from the holding area and repairs were made to the turf, sprinkler systems and planting beds.

Even though we had had our doubts, one never knows what can be accomplished until an emergency calls for his or her best efforts. Never say never.

Mark F. Kline is vice president of Landsystems, Inc., in Davenport, Iowa.

Do you have a story for From the Field? TCI will pay $100 for published articles. Submissions become the property of TCI and are subject to editing for grammar, style and length. Entries must include the name of a company and a contact person or they will not be considered for publication. Articles and photos must be received by the first day of the month for the following month’s issue.
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   A premium 16-strand braided climbing line made with specially treated polyester for extra service and abrasion resistance. E-Z See Orange combines the performance and handling characteristics of regular Braided Tree-Master with alternating orange and white strands. The distinctive color patterns of E-Z See Orange makes it easy to identify.

3. **REBATES**
   For a limited time, Samson offers a $5.00 rebate on 120' and 150' polybagged lengths of both Braided Tree-Master and E-Z See Orange, and $20.00 back on 600' reels. Ask your participating dealer, or contact Samson for details. Rebate offer valid until Sept. 16, 1994.

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Tree Pruning Guidelines

Pruning trees is a standard practice in the arboriculture field, and a recent survey of National Arborist Association member companies revealed that 10% of all tree work is related to pruning. Because pruning is such a common practice, it's important to understand the techniques involved.

A new national standard has been established by ANSI A300, "Pruning Trees, Shrub, Vines, and Small Diameter Stems." This standard replaces the old Arborist Association order form located in the classified section of this magazine.

Before pruning any tree, always check to see if the work is safe to climb. Look for potential hazards such as loose limbs. When you reach the pruning area, ensure the tree is being removed for good reason. Perhaps a mountain ash has a large dead branch or a Norway maple is interfering with the site. The final result must be determined during a pruning job.

Welcome to the Treeworker! Refer to the 10% off subscription information below.

Find your cost per subscription (12 issues, 1 full year) from the table, then multiply your cost per subscription by the number of subscriptions to find your total cost (Example: 1 subscription $13.20 x 1 = $13.20). Please enter your total cost on the National Arborist Association order form located in the classified section of this magazine.

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No. 142
APRIL 1994
Pesticide Use and Safety

Pesticide applicators must use products responsibly. The consumer demands responsibility, the law requires it, and our environment begs you to use pesticides carefully.

Review these pesticide safety tips.

1. **Properly identify the pest.** What methods of control are available? Spraying is only one option of many in a well rounded pest management program.

2. **Always read the label.** The label is the law, and the user must follow what it says. Use pesticides only for the purpose listed and in the manner described.

3. **Read and carry the Material Safety Data Sheet (MSDS) for the product.** The MSDS offers additional information about the product such as health hazard data and emergency procedures. If you do not have MSDS sheets for every product you use, contact the manufacturer or distributor.

4. **Wear appropriate protective clothing and equipment** when working with pesticides. The label and MSDS clearly state what protective equipment is required.

5. **Be sure that sprayers are calibrated correctly.** If equipment is not applying enough pesticide, you may have poor control. Too much spray can be damaging.

6. **Do not smoke when spraying.**

7. **Keep people and pets away from sprayed areas.** Read the product label for reentry information.

8. **Always have extra water available** at the worksite for washing.

9. **Wash with soap and water after using pesticides.** Launder your clothes before wearing them again.

10. **Have adequate spill containment equipment** available on the vehicle. Make sure you have a written plan for spills and other emergencies.

11. **Maintain accurate records.** This includes what you spray and what you have in stock.

12. **Triple rinse or pressure rinse empty pesticide containers.** Puncture plastic containers after rinsing so they cannot be reused. Check the product label for container disposal information. Your state or region may have specific requirements for pesticide container disposal.

**Arborist Quiz**

1. Before pruning a tree, make sure _______.
   a. it is safe to climb
   b. the final desired pruning result is determined
   c. your spurs are sharp
   d. both a and b are correct

2. The pesticide label is the law.
   a. true
   b. false

3. An MSDS sheet for the product being used must be carried on the truck.
   a. true
   b. false

4. Only reuse pesticide containers if they are entirely empty.
   a. true
   b. false

5. When hooking up a trailer, safety chains are only necessary if the truck's hitch is worn.
   a. true
   b. false

*Look for answers in the May Issue of the Treeworker*
Proper trailer hook-up is as important as driving to the job safely. If the chipper or stump grinder attached to the truck falls off the hitch, a severe accident is likely to occur.

The photo shows proper trailer hook-up. With the latch closed on top of the ball, and the locking pin secured to prevent the latch from opening, the trailer should stay attached. Safety chains are crossed under the tongue, and securely fastened to the truck. If the hitch comes unfastened or fails, the safety chains keep the trailer attached to the truck. Always make sure the lighting apparatus is securely plugged in and working.

In a rush to get to the job site, it may be tempting to overlook proper trailer hook-up. Never compromise your safety or the safety of others on the road! Always ensure that the unit being pulled is properly attached before traveling.

Pruning Terms

Arborists should understand basic terms related to trees and pruning. Review the following list from the ANSI A300 Glossary.

**Branch** - A secondary shoot or stem arising from one of the main axes (i.e., trunk or leader) of a tree or woody plant.

**Branch Bark Ridge** - Raised area of bark in the branch crotch that marks where the branch wood and trunk wood meet.

**Closure** - The process of wound-wood covering a cut or other tree wound.

**Decay** - Degradation of woody tissue as caused by certain biological organisms.

**Pruning** - Removal of plant parts.

**Wound** - The opening that is created any time the tree's protective bark covering is penetrated, cut or removed, injuring or destroying living tissue. Pruning a live branch creates a wound, even when the cut is properly made.

Are any of these terms new to you? The ANSI A300 standard is a guideline developed to help arborists offer uniform pruning specifications for clients. Contact the National Arborist Association for details on ANSI A300. Information on how to prune trees is available in the International Society of Arboriculture's manual titled "Tree Pruning Guidelines".

March Drawing Summary

You should note one very obvious safety problem with this drawing. No responsible tree crew should perform operations with people this close to the work area. The second violation is being done by the chain saw operator. You should not run a chain saw with one hand. The last problem with this drawing is hidden. Look closely at the rope, and you will see that it is frayed. Never use a rope with obvious weak spots.

Did you find any other safety violations?
What's Wrong With The Picture?

March Arborist Quiz Answers

1. **d** Every non-rope component in a false crotch system must have a minimum breaking strength rating of 5,000 pounds.
2. **d** With hazardous materials, carry a spill containment kit, MSDS sheets, and emergency phone numbers.
3. **b** Never throw pulleys from trees.
4. **d** If you spill a pesticide product, provide first aid, keep people away, contain the spill, and call the office.
5. **d** When constructing a false crotch, attach the pulley to the sling with a locking carabiner or steel quick link.

The Treeworker
Brian Barnard
National Arborist Association

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