

ANSI A300 Standard Practices

Putting A300 Standards to Good Use

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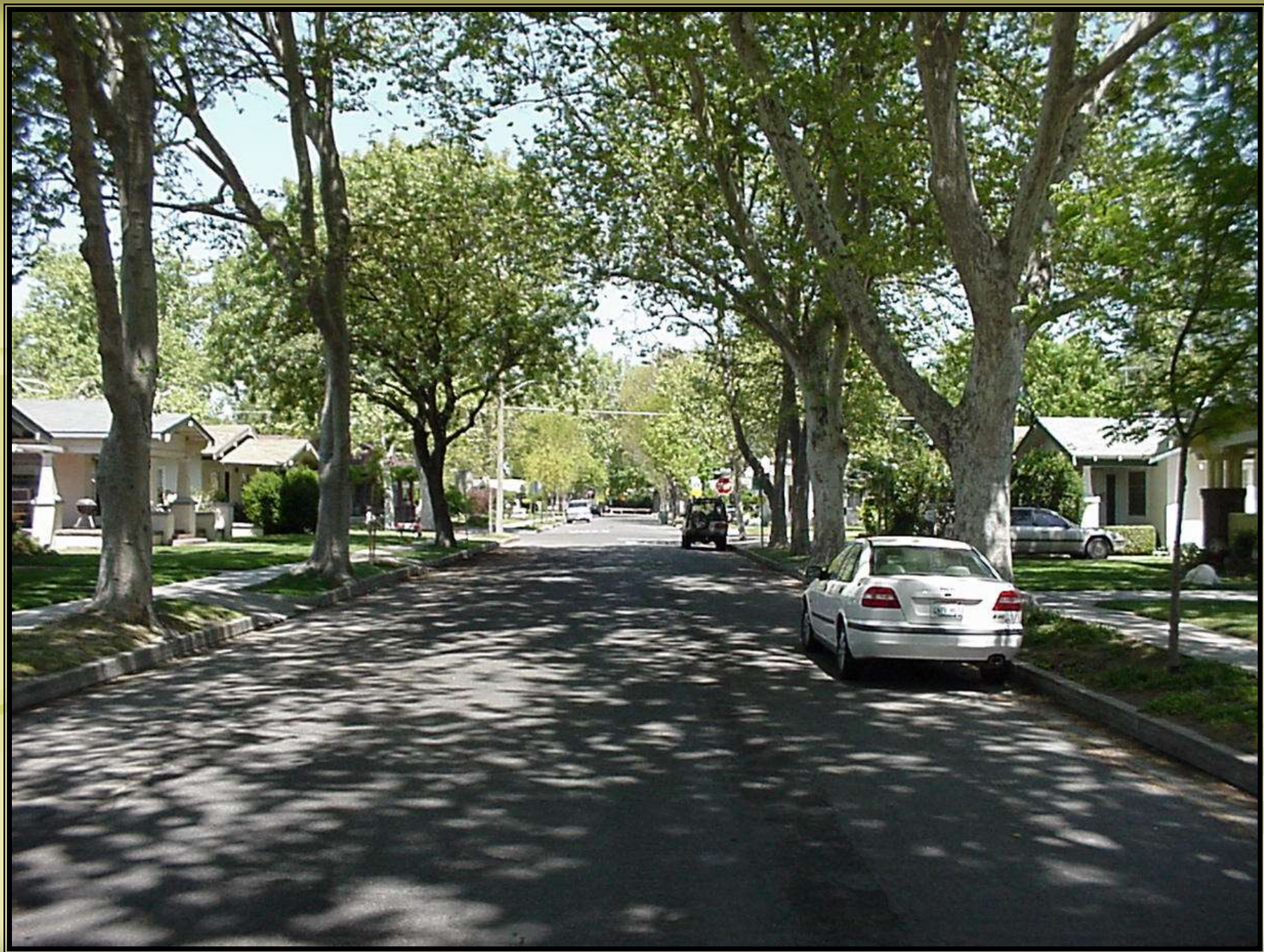


Purpose

- Familiarize our members and constituents with ANSI A300
- Promote and support the incorporation of the standards into community use – ordinances, policies, practices, permit conditions, and management plans.

Outline

- Trees are Infrastructure
- What is a Standard
- What is ANSI and A300
- Examples to use A300
- Conclusion





What is a standard?

- ❖ “something established by authority, custom, or general consent as a rule for the measure of quantity, weight, extent, value, or quality”
- ❖ “a model or example to be followed: a definite level or degree of quality that is proper and adequate for a specific purpose” - *2000 Merriam-Webster* ©

What is a standard? (cont.)

- ❖ a set of characteristics or qualities that describes features of a product, process or service
- ❖ “Something, such as a practice or a product that is widely recognized or employed, especially because of its excellence.” *The American Heritage® Dictionary of the English Language*

Why Standards?

- ❖ promote most proven tree care practices
- ❖ embody professionalism
- ❖ enhance communication between clients, field personnel and office staff, and the public
- ❖ reduce miscommunication between all of the above
- ❖ educate the public
- ❖ facilitate contractual fulfillment
- ❖ reduce liability exposure

American National Standards Institute (ANSI)



- ❖ a federation of organizations, associations/societies, governmental agencies, international bodies, etc.
- ❖ oversees the development, creation, promulgation and use of thousands of standards that directly impact industries in nearly every sector.

WHAT IS ANSI (cont.)

- ❖ ANSI does not develop standards; they accredit committees with expertise in a particular subject area to develop standards relating to that industry.
- ❖ ANSI A300 standards are developed by a committee, the **ASC A300**.
- ❖ the ASC A300 was approved June 28, 1991
- ❖ To maintain accreditation, the committee must comply with ANSI procedures.

Accredited Standards Committees

- ❖ are used when a standard affects a broad range of interests; or
- ❖ where multiple associations or societies with similar interests exist
- ❖ are administered by a secretariat (TCIA) to ensure compliance with ANSI operating procedures

Development of ANSI Standards involves:

- ❖ industry professionals (public and private sectors)
- ❖ transparency, due process, cooperation, compromise and consensus among stakeholders.

ASC A300 Committee:

- ASCA
- ASLA
- ANLA
- Asplundh
- ALCA
- Bartlett
- Davey
- ISA
- NPS
- PGMS
- PLCA
- SMA
- USFS
- TCIA
- UAA

The A300 Committee



- **Consensus:** all, or the vast majority, of the committee come to an agreement on every line in the standard.



The background of the slide features a close-up, slightly out-of-focus image of green leaves. The leaves are various shades of green, from light lime to a deeper forest green, and their veins are clearly visible. They are arranged in a way that creates a sense of depth and texture, filling the entire background.

**The Tree Care Industry
developed:**

**ANSI A300 Tree Care
Operations: Standard
Practices for Tree, Shrub
and Other Woody Plant
Maintenance**

Currently, there are 7 parts

ANSI Standards – Current and under development

- ❖ Part 1 - Pruning (2008)
- ❖ Part 2 - Fertilization (2004)
- ❖ Part 3 - Tree Support Systems (2006)
- ❖ Part 4 - Lightning Protection Systems (2008)
- ❖ Part 5 - Tree Protection (Construction) (2005)

- ❖ Part 6 – Transplanting (2005)
- ❖ Part 7 - Integrated Vegetation Mgmt. (2006)
- ❖ Part 8 - Soil Modification*
- ❖ Part 9 – Moisture Management*
- ❖ Part 10 - Risk Management*
- ❖ Part 11 - Pest Management**

* In draft stage

** In discussion stage

ANSI A300 Documents:

- ❖ The current standard for developing written specifications for tree care practices.
- ❖ Consists of standardized language, definitions, methods, practices (requirements, recommendations and limitations) to develop job specifications.
- ❖ Protects the consumer,
- ❖ Aligns the industry's services,
- ❖ Standardizes tree care operations, and
- ❖ Levels the playing field.

A300

- ❖ Takes precedence over all previously existing tree care industry standards.
- ❖ Are still voluntary—not rules or regulations.
- ❖ Some governmental agencies reference them in local or regional ordinances or have enacted them as law.
- ❖ The federal government encourages adoption of ANSI standards in its agencies.

A300

- ❖ Intended as guidelines for federal, state, municipal and private entities, including arborists, property owners, property managers, and utilities in the development of their management specifications.
- ❖ Applies to any person or entity engaged in the management of trees, shrubs, or other woody plants (whether they know it or not).

Another Familiar ANSI Standard

Z133.1

- Safety Requirements for Arboricultural operations
- Purpose is to provide safety criteria for arborists, other workers and the public
- Used by OSHA at federal and state level



ANSI A300 (Part 1)-2001 Pruning
Revision of ANSI A300-1995

American National Standard

ANSI A300 (Part 1)-2001 Pruning
Revision of ANSI A300-1995

*for Tree Care Operations —
Tree, Shrub, and Other Woody Plant
Maintenance —
Standard Practices (Pruning)*



ANSI A300 (Part 3)-2006 Supplemental Support Systems
Revision of ANSI A300 (Part 3)-2000

American National Standard

ANSI A300 (Part 3)-2006
Revision of ANSI A300 (Part 3)-2000

*Tree, Shrub, and Other Woody Plant
Maintenance — Standard Practices
(Supplemental Support Systems)*



Designed for Municipal Tree Care

- The A300 standards apply exclusively to the management of "woody landscape plants."
- "The [A300] standard does not apply to agriculture, horticultural production, or silviculture, except where explicitly noted otherwise." (p.ii, Forward)
- The goals of pruning for these divisions of arboriculture/forestry (for production of wood, food, or forest products) might well require *very different pruning methods and the removal of more live foliage or wood than would be advisable when pruning woody landscape plants such as our urban forest trees.*

How Can We Use A300?

- "A300 Pruning standards are performance standards and shall not be used as job specifications." (p.11, Annex B)
- "These standards [the A300] are used to develop written specifications for work assignments. They are not intended to be used as specifications in and of themselves. (p.ii, Forward)
- Then how can it be enforced?

ANSI A300 Standards consist of a number of “shall” and “should” statements:

- ❖ **Shall:** is "a mandatory requirement." A mandatory requirement is not optional and must be followed for ANSI A300 compliance.

Shall vs. Should

- ❖ **Should:** is an advisory recommendation which may be deviated from when defensible reasons or valid justifications for non-compliance exist.

Writing Specifications or Laws

- The word "should" is used in some areas of the A300 standards, but is not used in specifications or laws.
- The word "shall" is used in specifications and laws.

How to Use in Specifications and Laws

Specifications and Laws could include two approaches to incorporate A300:

1) that "all work shall be completed in accordance with ANSI A300 standards;"

2) all ANSI A300 "advisory recommendations" must be either adhered to or defensible/valid reasons be given for non-compliance.

When no "shoulds" remain, that the A300 becomes enforceable.

Other Examples of Language for Including ANSI A300 Pruning Standards into our Communities:

- Work shall be performed in accordance with the most current version of the ANSI A300 standards and to the following specifications:
(list of specific parts or clear descriptions follows)

Examples of Language (cont.)

The City adopts the most current version of the ANSI A300 Pruning Standards as the standard for pruning all trees regulated by ordinance with the following exceptions:

- Espalier and pollarding are not acceptable pruning practices.
- Specifications for pruning shall be verbal or written, developed and administered by an arborist [or qualified person] for all work performed.

Examples of Language (cont.)

Work shall be performed in compliance with A300 standards following specifications which accomplish the objective(s) for pruning the particular tree(s):

Objectives State the Why

Why is the work is being performed - it must be specific enough to guide the performance of the work.

- I can't say: The objective is "to prune" or "to maintain" the tree. This doesn't create a clear enough goal or outcome for how the work will be performed.
- I can say: The objective is: to reduce risk while leaving as large a tree as possible; or provide clearance in the right-of-way of 14 feet over the street and 8 feet over the sidewalk; or reduce the presence of disease and parasites; or combinations of the above; or other valid objectives.

Reasons / Goals for pruning:

- ❖ Reduce risk from falling branches
- ❖ Reduce risk from major structural defects
- ❖ Reduce disease and pests
- ❖ Reduce density of live branches
- ❖ Provide clearance
- ❖ Increase light levels below & reduce wind resistance
- ❖ Restore damaged trees
- ❖ Reduce height and or spread
- ❖ Improve aesthetics
- ❖ Your reason for making a cut to a tree branch ...

Pruning methods: One or more of the following methods shall be specified to achieve the objective(s).

Clean: pruning to remove one or more of the following non-beneficial parts: dead, diseased and/or broken branches.

Thin: selective pruning to reduce density of live branches.

Reduce: pruning to decrease height and/or spread (branch or crown).

Raise: pruning to provide vertical clearance.

How A300 Was Used In Redwood City

- **Tree Preservation Ordinance** – permit required to prune or remove trees; pruning performed to specifications written in accordance with ANSI A300
- **Street Tree Ordinance** – permit required to plant, prune, treat, or remove trees; pruning performed to specifications written in accordance with ANSI A300
- **Bid Specifications** – Pruning work shall be performed in accordance with the most current version of the ANSI A300 standards and to the following specifications: (list follows)
- **Construction Plans and Tree Preservation Plans** – care and pruning; pruning performed to specifications written in accordance with ANSI A300
- **Permit Conditions** - pruning performed to specifications written in accordance with ANSI A300

How I Used A300 (cont.)

City's Verified Tree Care Company List: *required information to be listed – voluntary participation by companies:*

- Current full-time Certified Arborist or Board Certified Master Arborist on staff, (Certified Tree workers will be noted as a bonus listing)
- Current City Business License
- Current State Contractors License (required for any job greater than \$500), CA Law, not enforced by City
- Evidence of liability and workers compensation insurance. Certificates of insurance naming the City as additional insured will be needed to perform permitted work on City-owned trees.
- Sign Agreement to educate their City customers about the City's tree permit processes.
- Sign Agreement to follow City's codes for tree permit processes and tree replacement.
- Sign Agreement to perform pruning work to specifications written in accordance with ANSI A-300 Pruning Standards

A300 and Regulations

The key to the current version of ANSI A300 is the need for pruning objectives and specifications. Specific Language:

2.3.2 Pruning specifications shall be adhered to.

6.1 Pruning Objectives shall be established prior to beginning any pruning operation.

7.1 One of more of the following methods shall be specified to achieve the objective.

Enforcement

If someone prunes a tree without an objective, or if the objective and methods don't align, how can they be working in accordance with the standards?

If they don't have a written objective or specification, they can be interviewed - write down their statement, and have them sign it!

Long Term Thinking

The preferred strategy for long term success is to:

- Educate the public and responsible businesses in proper work.

It doesn't make long term sense to:

- Wish everyone would do everything in the proper manner.
- Set the rules to bust the (hopefully the minority) poor practicing businesses..

Summary

- It is up to the municipal arborists to set the bar for tree care in their community.
- ANSI A-300 provides a standard on par with Engineering Standards and Uniform Building Codes
- Work with your City Attorney to find the correct language for your jurisdiction

Conclusion

- ANSI A300 provides the municipal arborist with a clear set of industry standards
- SMA members can grow the inclusion of the A300 standards like we included the use of “Certified Arborist” in our rules and specs
- The language can be correctly worded for your community ordinances, permit conditions, specifications, and tree preservation plans
- Set the bar high for your community – the trees deserve it!

Appendix

The following slides help to provide a more thorough understanding of parts of the A300 Pruning Standards and how they apply to tree pruning work

Compliance: Topping is considered an unacceptable pruning practice, yet making heading-cuts is justifiable to meet a valid objective:

- ❖ start a pollard system
- ❖ repair damaged trees
- ❖ reduce risk
- ❖ shorten an over-extended limb, when there are no suitable laterals to cut to
- ❖ achieve adequate utility clearance

Clear Differentiation

- 4.18 Heading – The reduction of a shoot, stem, or branch back to a bud or a lateral branch not large enough to assume the terminal role
- 4.51 Topping – Reduction of tree size using inter-nodal cuts without regard to tree health or structural integrity. Topping is not an acceptable pruning practice.





This begs the question: Is 'topping' ever acceptable?

- ❖ As a routine practice, NO!
- ❖ It depends on the situation and **objective** to manage resources and avoid removal.
- ❖ What about managing 200' tall blue gum eucalyptus close to homes?
- ❖ What about managing conifers or other large, excurrent trees under powerlines?
- ❖ What about managing overgrown trees on slopes to prevent erosion?

There is a caveat:

- ❖ Inspections, additional pruning to control re-growth
- ❖ As a professional when you 'top' a tree, you assume responsibility for potential problems.
- ❖ You just can't walk away.
- ❖ You need to specify a follow-up program to manage potential problems.
- ❖ This involves periodic future maintenance: manage epicormic sprouts, etc.

Professionalism

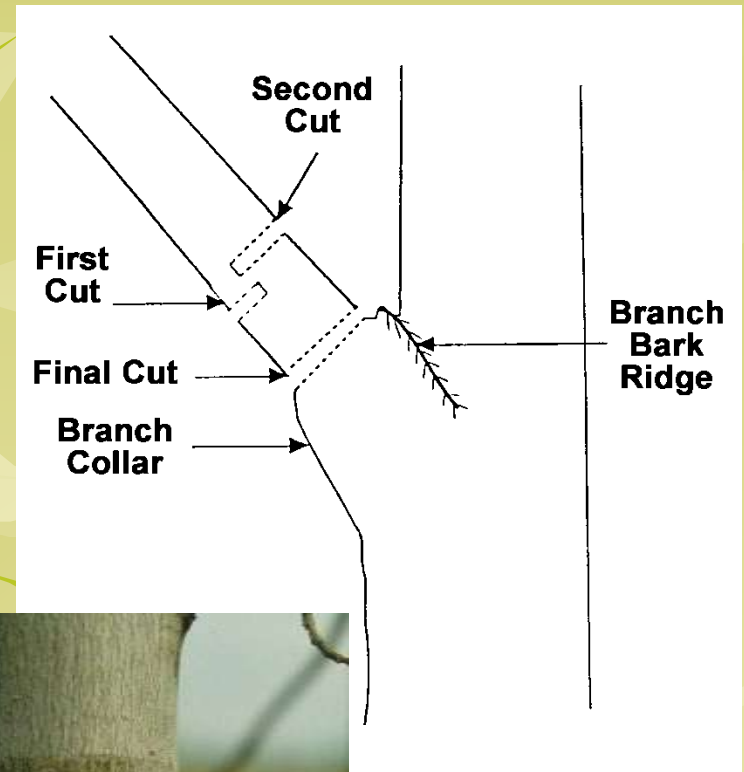
- ❖ As professional arborists, we have an obligation to perform work that meets industry standards:
 - ANSI A300 Standard Practices
 - ANSI Z133.1
 - ISA's BMPs
- ❖ However, ANSI A300 and ISA's BMPs, as guidelines, do *not require* compliance
- ❖ How do we reconcile this?
- ❖ If you are a professional, there is no contradiction

Are pruning standards needed?

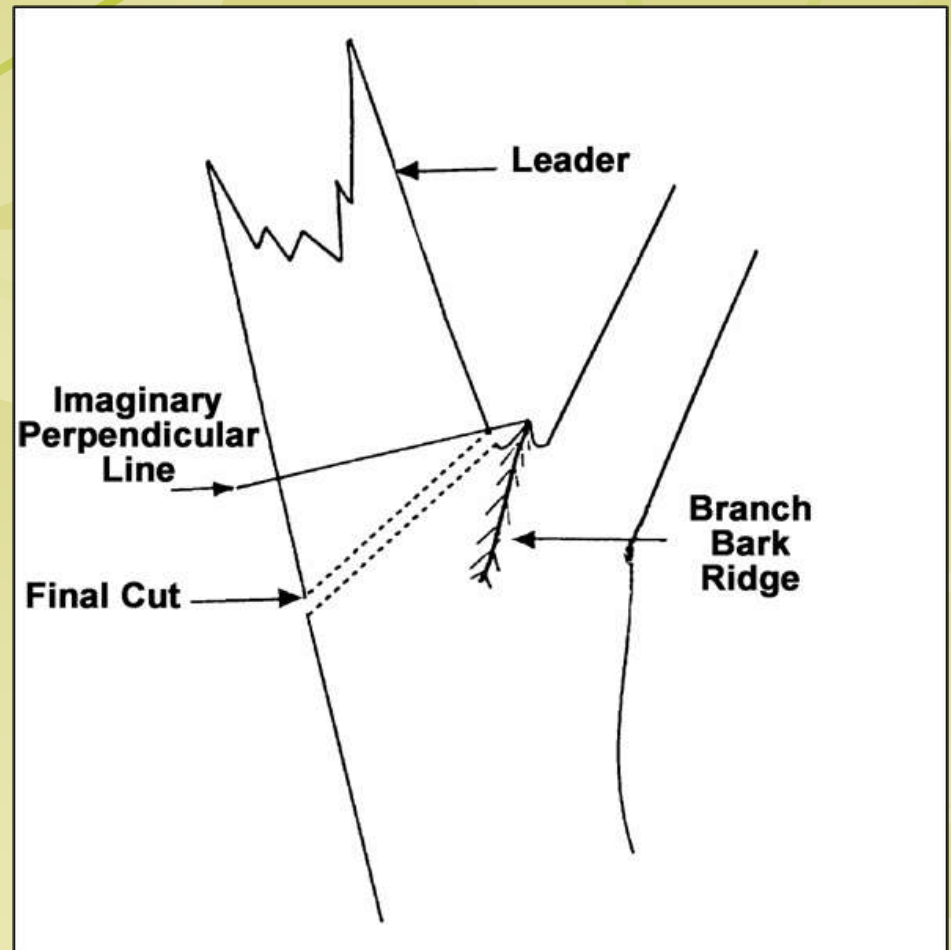


❖ Pruning cuts

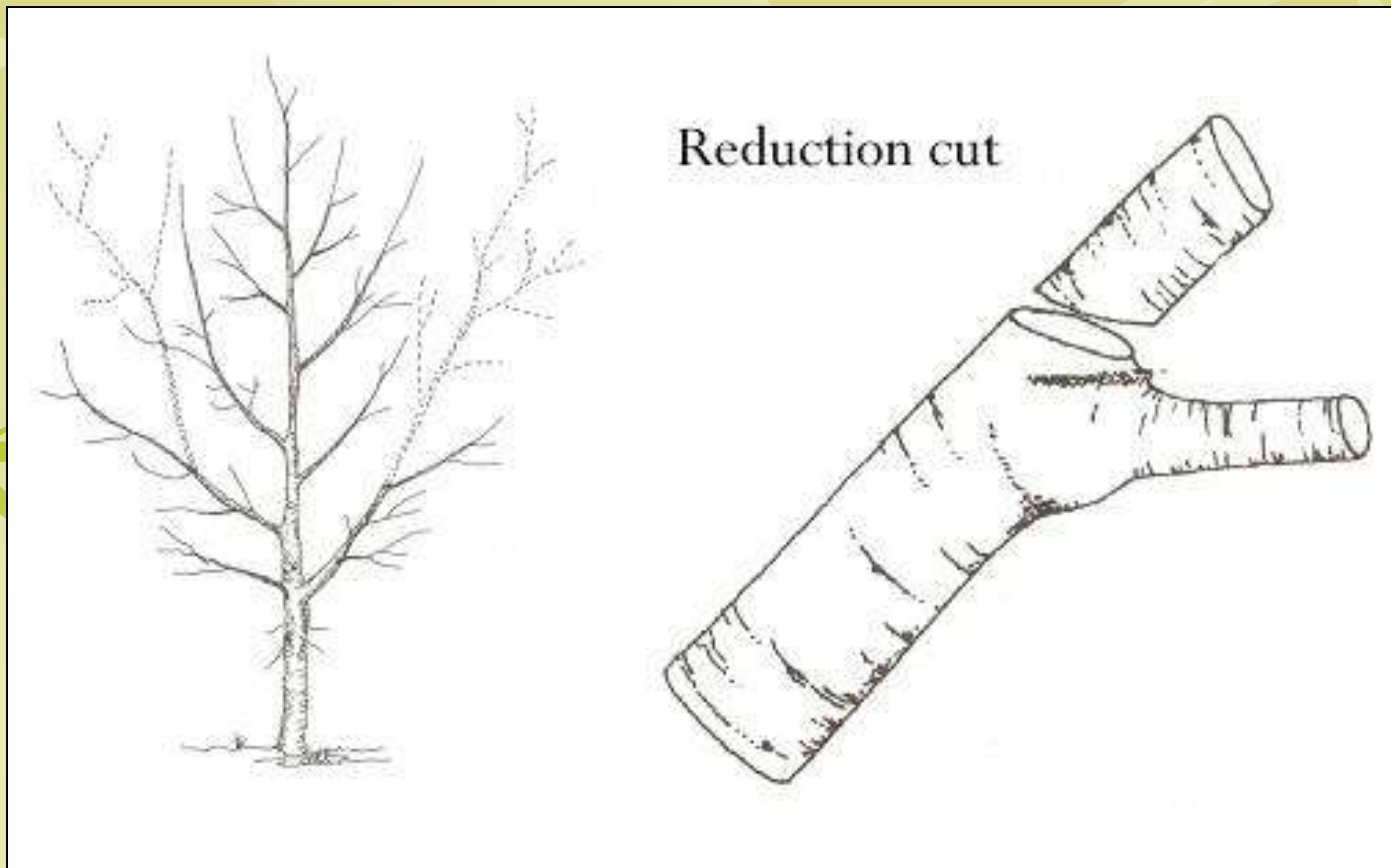
- “A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent branch without cutting into the branch bark ridge or branch collar or leaving a stub.”



- "A pruning cut that reduces the length of a branch or parent stem should bisect the angle between its branch bark ridge and an imaginary line perpendicular to the branch or stem."



Reduction cut: in BMPs, not in the standard. The standard no longer includes types of pruning cuts.



- ❖ A300: When pruning to a lateral, the remaining lateral branch should be large enough to assume the terminal role.
- ❖ BMPs: A rule of thumb is that the remaining branch should be at least $\frac{1}{3}$ to $\frac{1}{2}$ the diameter of the portion removed.
- ❖ BMPs: Keep reduction cuts small (1 to 4 inches in diameter- not always possible).
- ❖ A300: When removing a dead branch, the final cut shall be made just outside the collar of living tissue. *Exception – disease reduction objective*

A300 and BMP's

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- ❖ A300: When removing a dead branch, the final cut shall be made just outside the collar of living tissue. *Exception – disease reduction objective*



❖ Pruning objectives:

- Shall be established prior to beginning any pruning operation.
- Established objectives should be specified in writing.

Pruning objectives:

- ❖ Risk reduction
- ❖ Clearance
- ❖ Manage health
- ❖ Structural
- ❖ Aesthetic improvement
- ❖ View enhancement 'Vista/view'
- ❖ Pollard
- ❖ Espalier
- ❖ Restoration





When determining the objective, the growth cycles, crown structure, species characteristics, condition, and extent of pruning to be performed shall be considered.

❖ Not more than 25 percent of the foliage should be removed within an annual growing season.

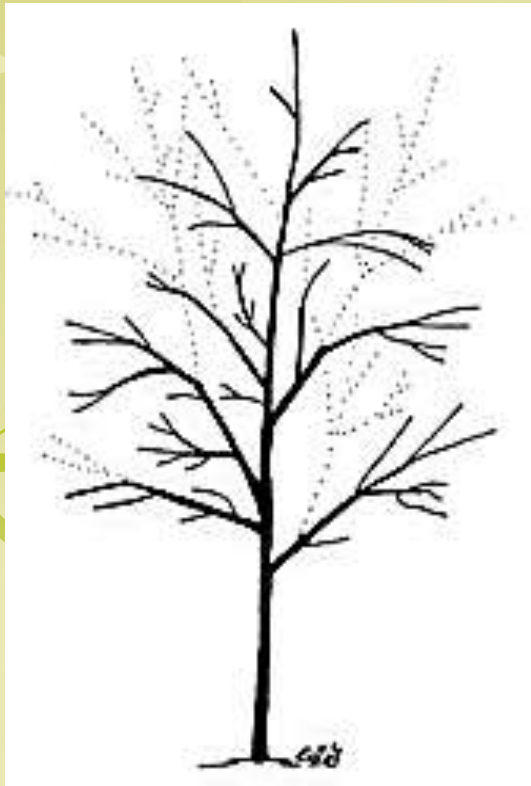
It may be necessary to exceed this limitation to meet an objective, e.g., correct defective structure, minimize risk, etc.

❖ Topping and lion's tailing shall be considered unacceptable pruning practices for trees.

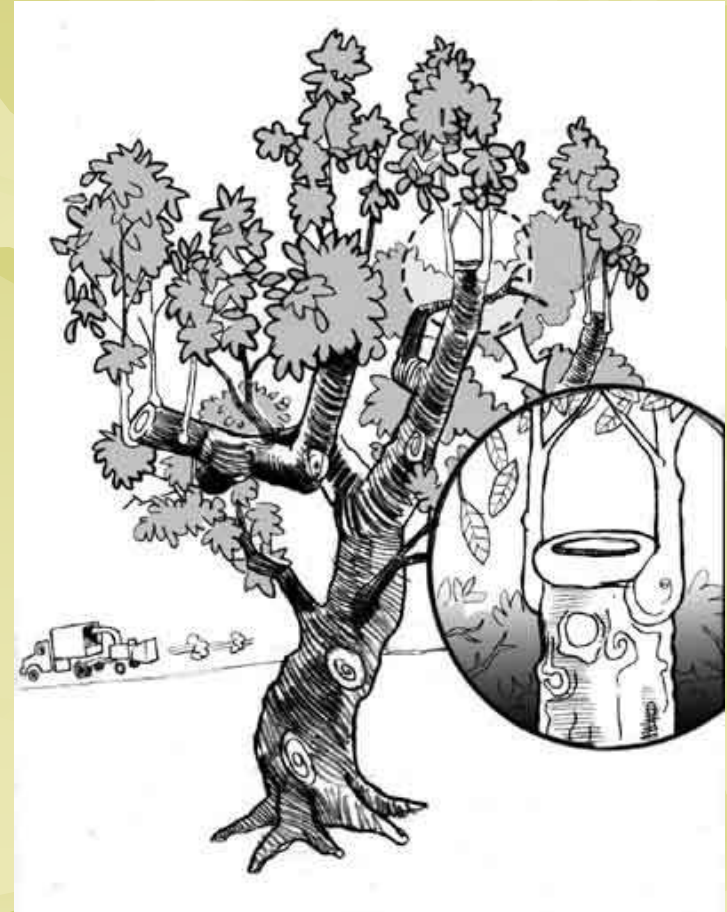


- ❖ **Structural:** Improve branch and tree architecture. Size and location of leaders or branches to be subordinated or removed should be specified. (branch spacing, defective branches, dominant leader)
- ❖ **Restoration:** selective pruning to redevelop structure, form, and appearance of severely pruned, vandalized or damaged trees.
- ❖ **Vista/view:** use of one or more pruning methods to enhance a specific line of sight.
- ❖ **Espalier**
- ❖ **Pollarding**

Structural



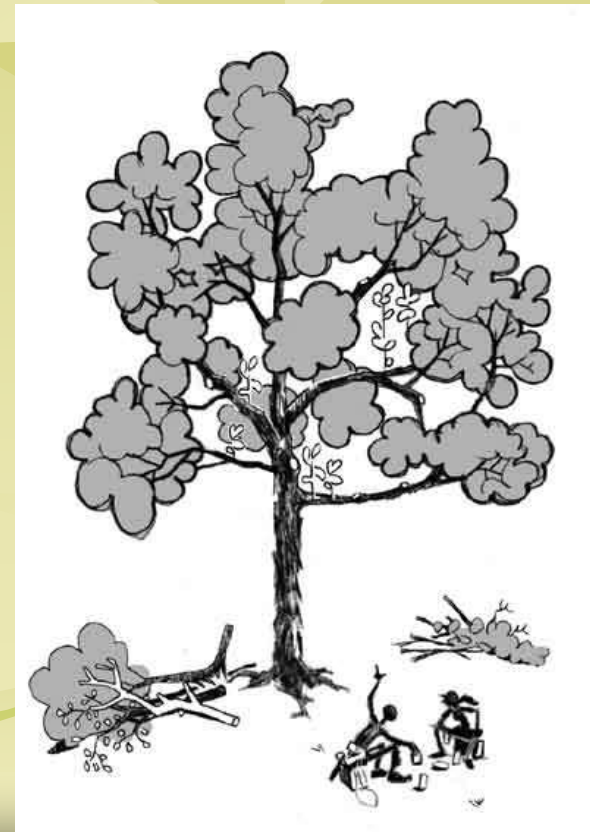
Restoration



Vista/view and Pollard

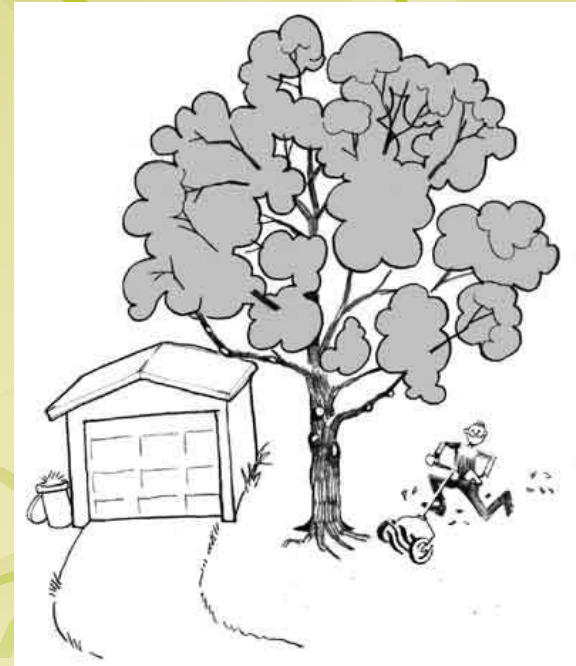
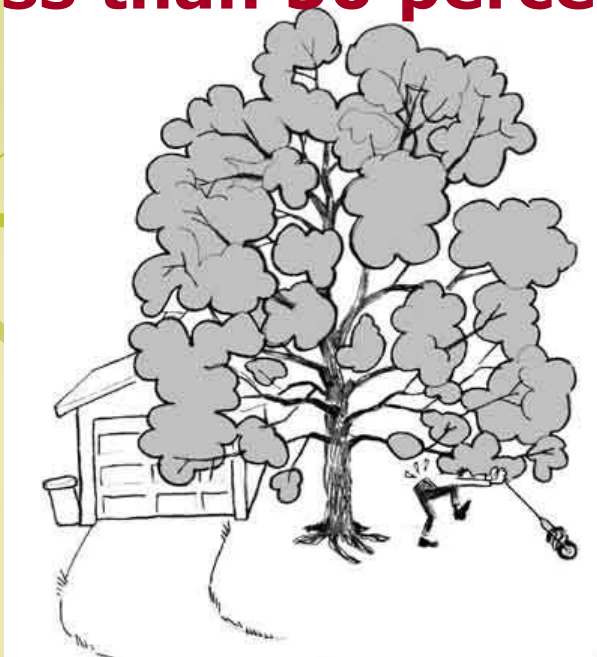


- ❖ **Clean:** Selective pruning to remove non-beneficial parts: dead, diseased, and/or broken branches.
 - Location of parts and size range of parts to be removed shall be specified.

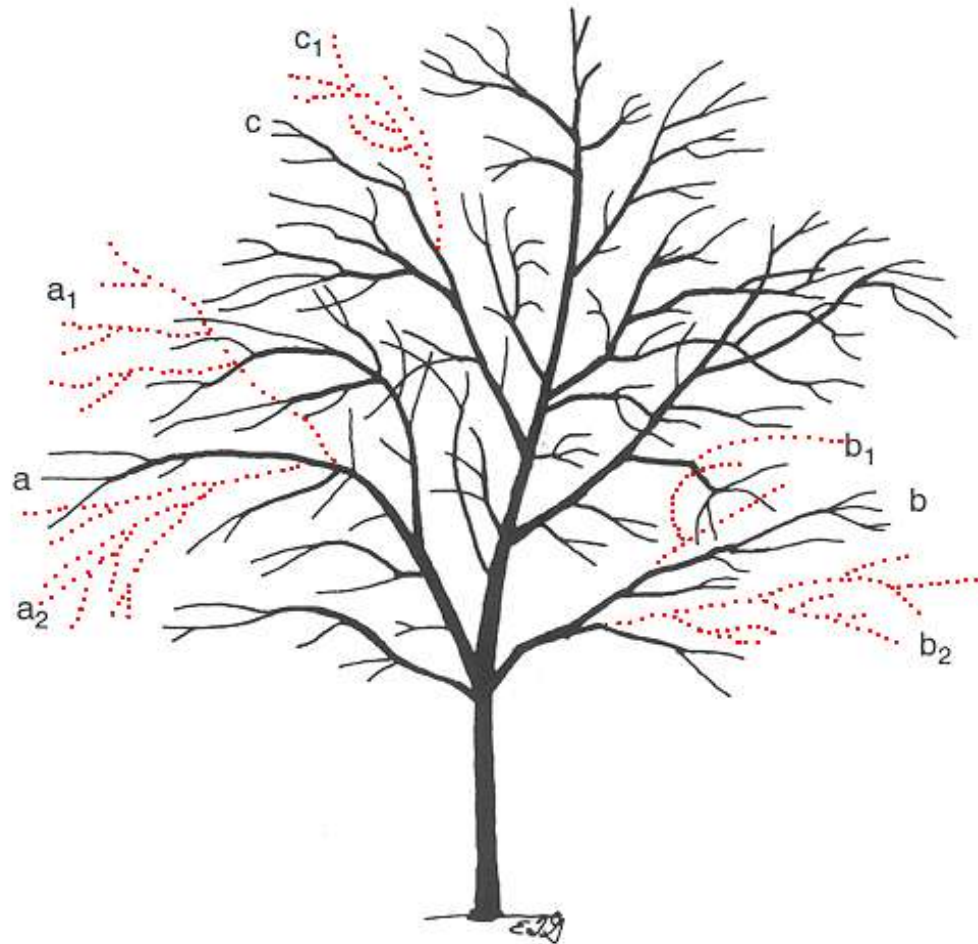


❖ **Raise:** selective pruning to provide vertical clearance.

- Clearance distance shall be specified.
- Location and size range of parts to be removed should be specified.
- Live crown ratio should not be reduced to less than 50 percent.



Appropriate raising

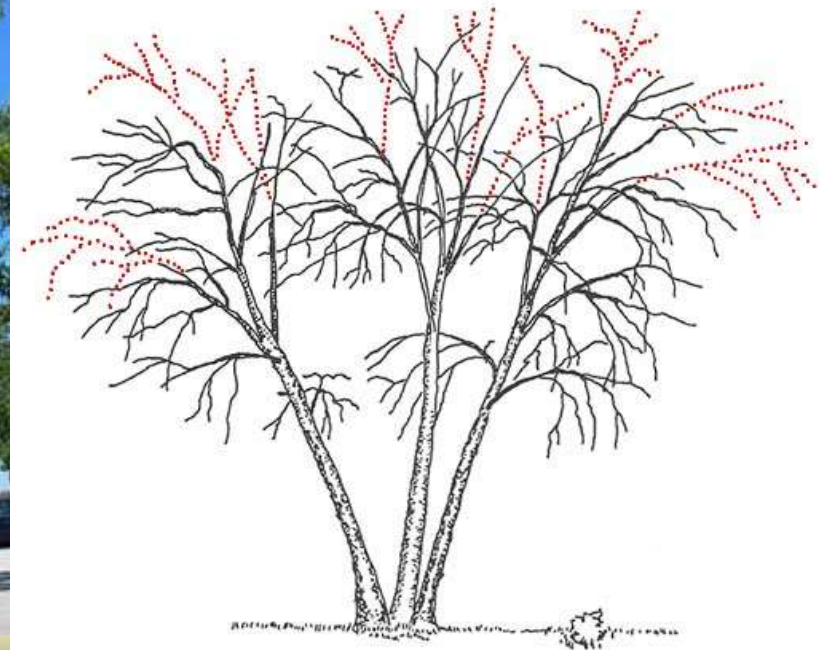
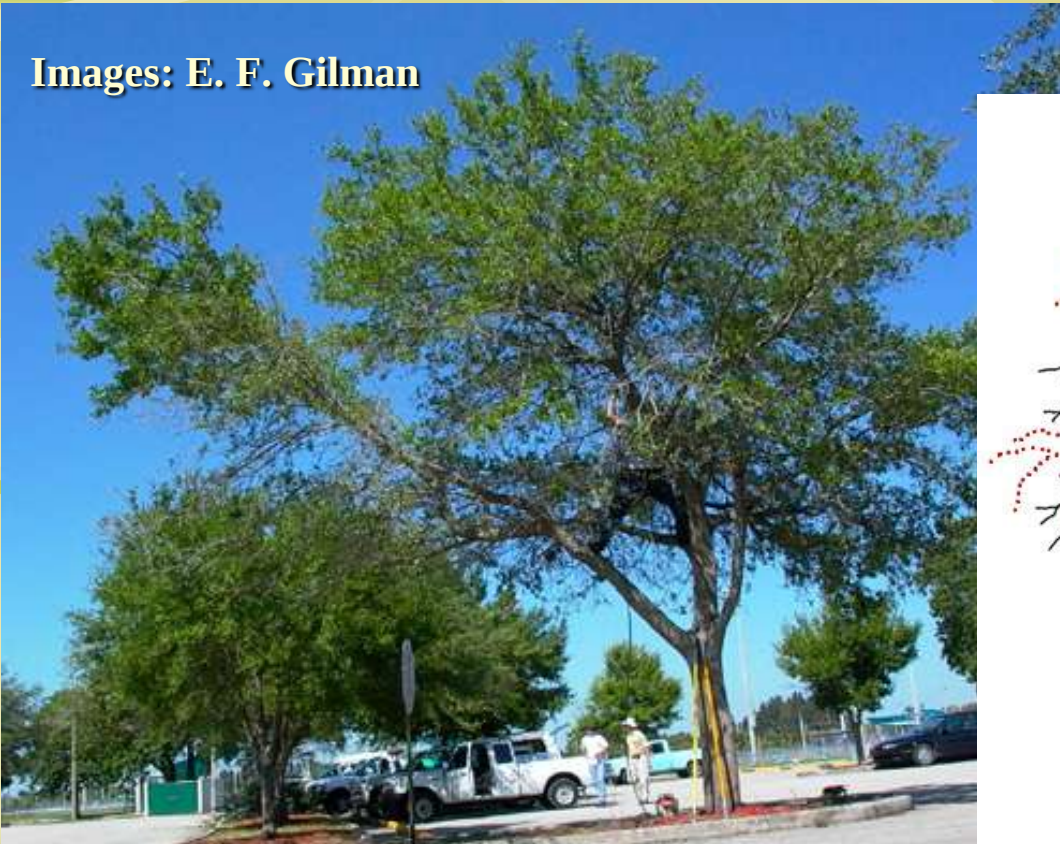


Gilman, E. F. 2002. An illustrated Guide to Pruning, 2nd ed. Delmar, Albany, New York

❖ **Reduce:** Selective pruning to decrease height and/or spread.

- Location of parts to be removed or subordinated shall be specified.
- Size of parts should be specified.

Images: E. F. Gilman



❖ **Thin:** selective pruning to reduce density of live branches.

- Thinning should result in an even distribution of branches on individual branches throughout the crown.
- Not more than 25 percent of the crown should be removed within an annual growing season.
- Location of parts to be removed shall be specified.

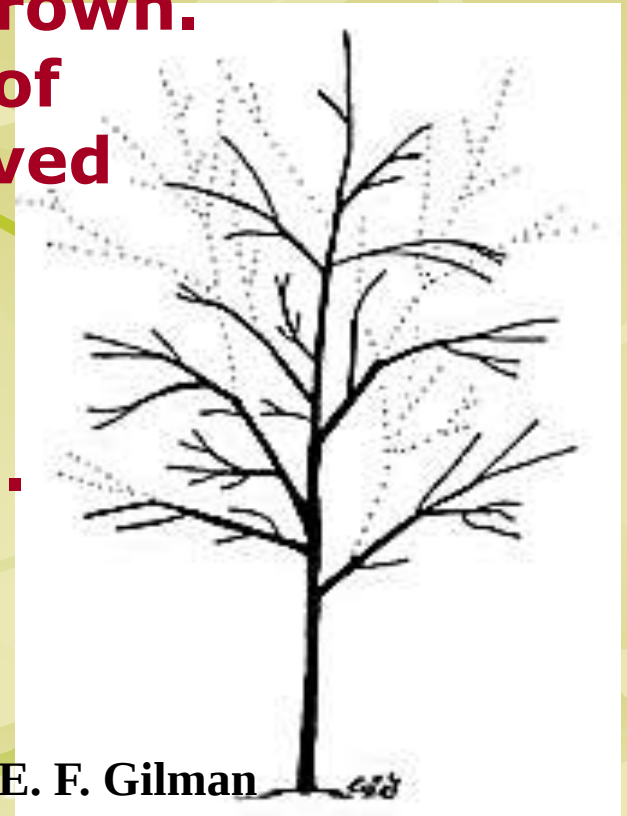


Image: E. F. Gilman

Incorporating ANSI A300 language in proposals and contracts

- ❖ Discuss your client's expectations and then determine objective.
- ❖ Pruning objectives shall be established prior to beginning work.
- ❖ This will help with specification writing and determine method(s) of pruning to specify.

Specifications:



Image: Tom Smiley

Specifications:

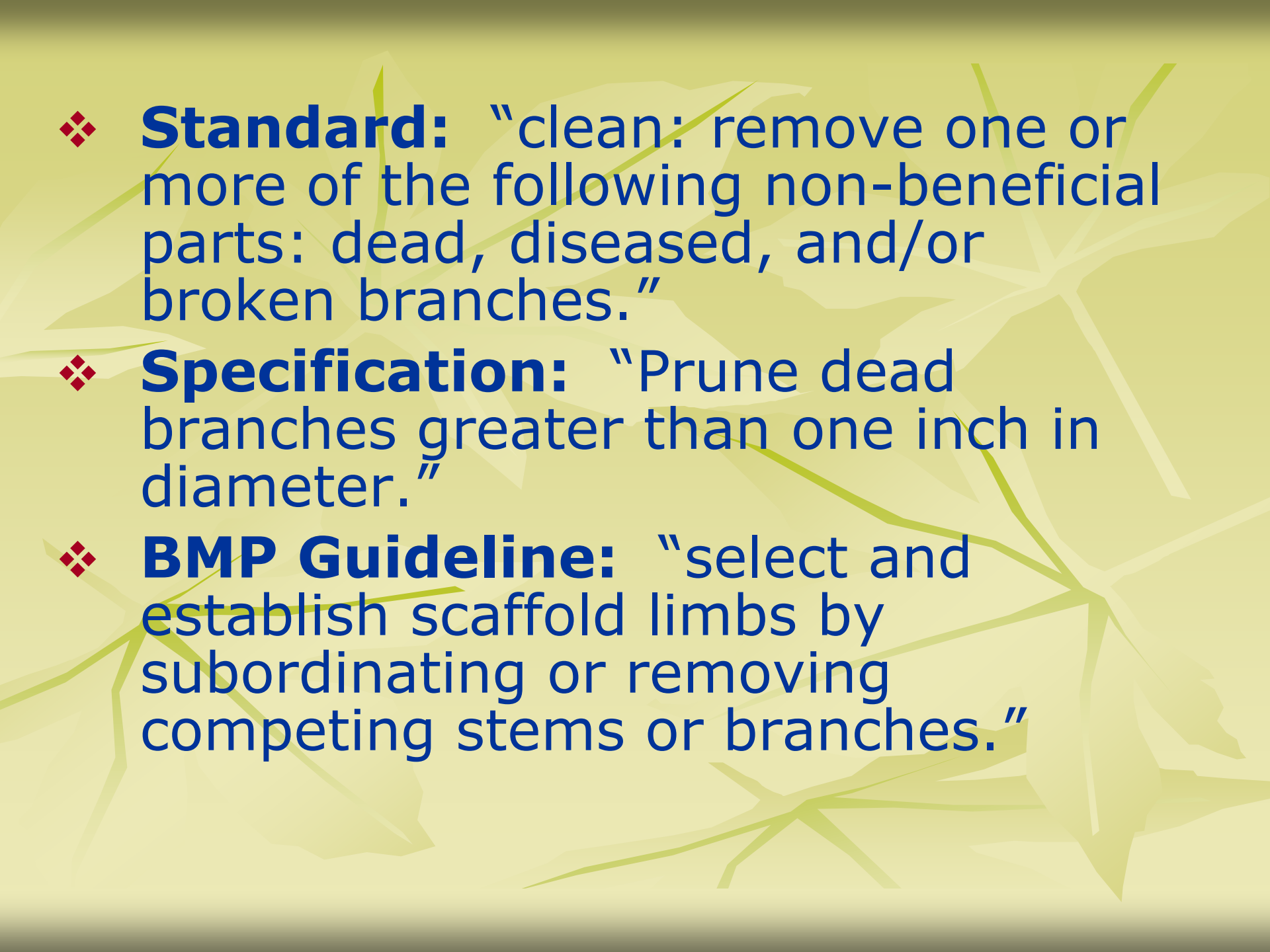
- ❖ state the objectives of the work being proposed to the client.
- ❖ provide detailed written directions and specific methods to accomplish a specific objective.

Specifications v. Standards

- ❖ Standards are used as guides for writing specifications. They state how the work is to be done using standardized language (“clean”); they lack details...
- ❖ Specifications describe the work and provide details, e.g., prune dead and broken branches greater than one inch throughout crown.

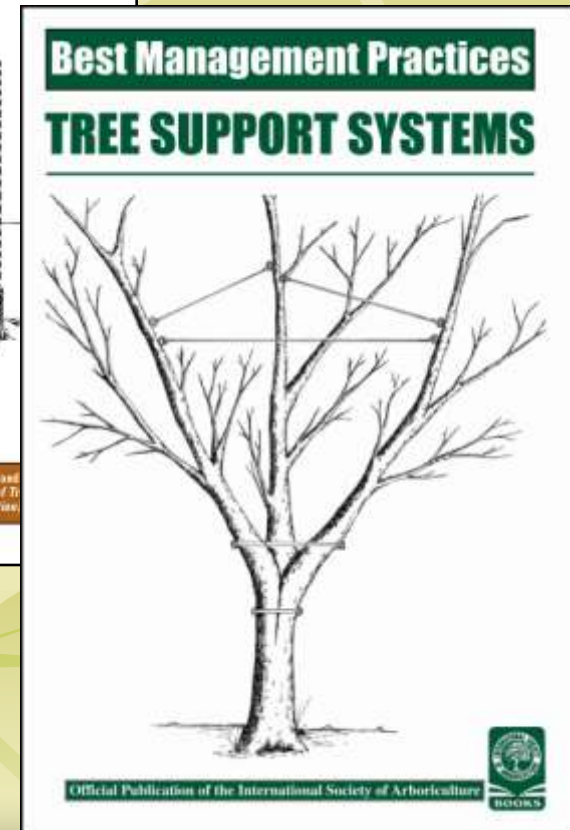
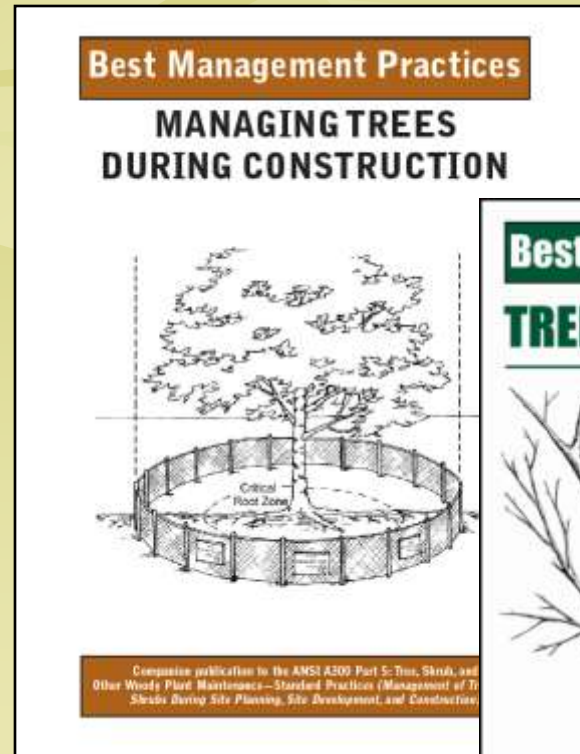


❖ Specifications provide a detailed, and measurable work plan, including specific practices—clear and concise.

- 
- ❖ **Standard:** “clean: remove one or more of the following non-beneficial parts: dead, diseased, and/or broken branches.”
 - ❖ **Specification:** “Prune dead branches greater than one inch in diameter.”
 - ❖ **BMP Guideline:** “select and establish scaffold limbs by subordinating or removing competing stems or branches.”

ISA Best Management Practices (BMPs)

- ISA has developed these companion publications to aid in the interpretation and implementation of ANSI A300 standards."



Arborists must first interpret the Standard's wording, then apply their assessment of the tree's structure, condition and environmental influences to develop specifications.



Specifications should state:

Pruning shall conform to (or be in accordance with) the techniques and standards in the current edition of ANSI A300 (Tree, Shrub and Other Woody Plant Maintenance - Standard Practices) Part 1 (Pruning).

Specifications should:

- ❖ be written.
- ❖ identify the tree(s) on which work is to be done.
- ❖ state the objective(s).
- ❖ specify the method(s) of pruning to be used to meet objective(s).
- ❖ define extent of pruning, and location of pruning in the tree or parts to be pruned.

Other information to include:

- ❖ size range of parts to be removed
- ❖ Percentage of foliage to be removed.
- ❖ portion of crown where pruning will be done.
- ❖ maximum size of pruning cuts.
- ❖ vertical clearance height.
- ❖ branch aspect ratios of reduction cuts.

Avoid non-standard language

- ❖ standard prune
- ❖ safety prune
- ❖ shape
- ❖ round-over, balance
- ❖ lace-out
- ❖ drop-crotch
- ❖ reduce wind resistance
- ❖ raise the skirt, lift

Municipal arborists, governmental agencies, property managers:

- ❖ should put contracts out for bid with work specifications written according to A300 standards:
 - ensuring that contractors know what is to be done and how it is expected to be done
 - allowing for fair comparison of bids
 - requiring conformance

- ❖ “Pruning shall conform to (or be in accordance with) the techniques and standards in current edition of ANSI A300 (Part 1) Pruning (Standard Practices for Tree, Shrub and Other Woody Plant Maintenance).”
- ❖ And in a manner consistent with ISA Best Management Practices – Pruning - 2009

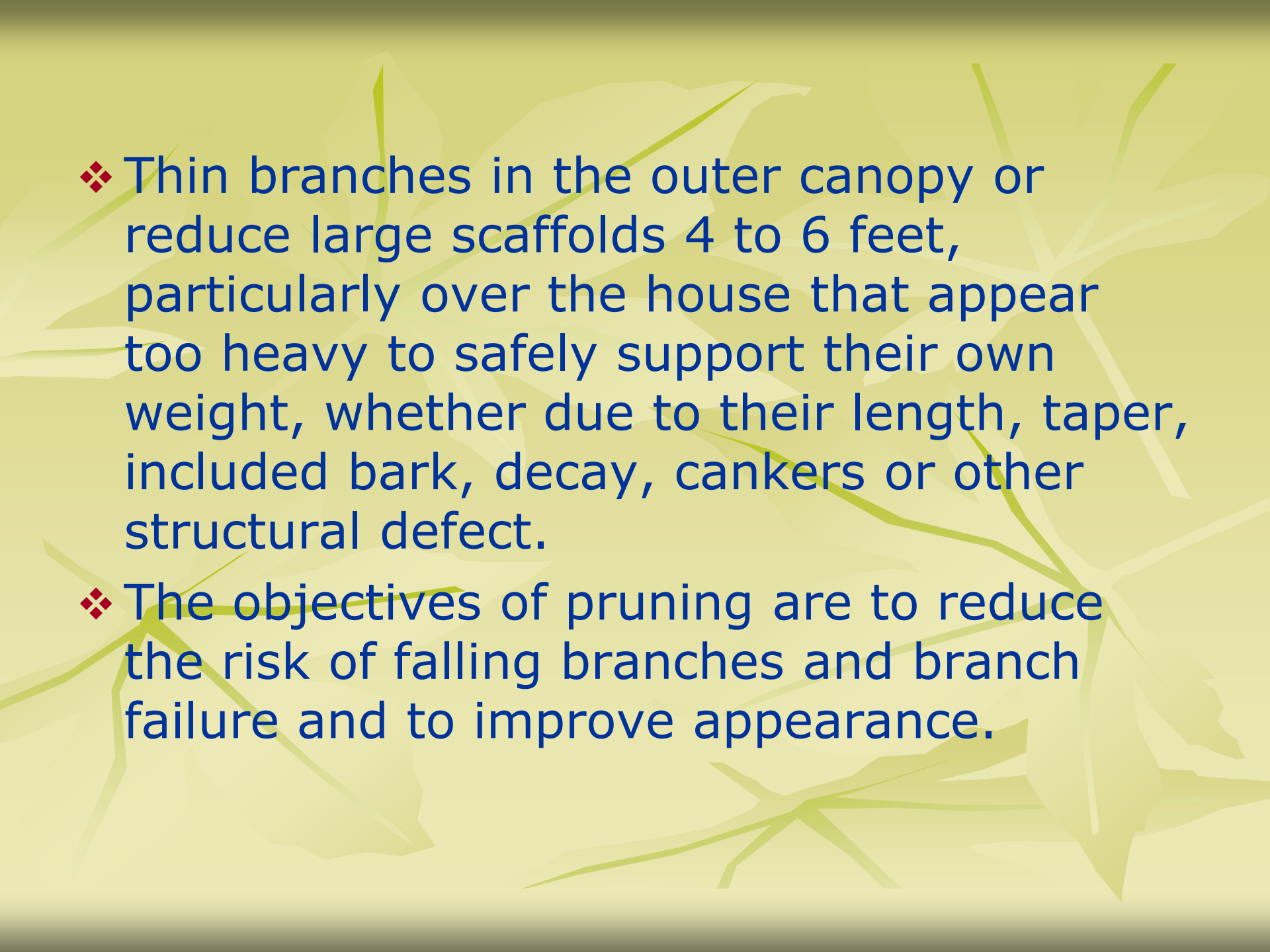
GENERAL PRUNING SPECIFICATIONS

Clearance of foliage shall be as follows:

- ❖ Clearance over traffic lanes and bike lanes shall be a minimum of fourteen (14) feet above pavement level.
- ❖ Clearance over private property shall be a minimum of ten (10) feet above ground level. Clearance from structures shall be a minimum of ten (10) feet, vertical and horizontal."

Sample specifications:

- ❖ CA live oak (*Quercus agrifolia*): 30 in dbh, over the deck in the back of the house. Perform the following pruning methods: **clean, thin and reduce** crown. Remove dead branches greater than 1 inch in diameter. Remove or reduce branches with included bark. Selectively remove live branches in the outer canopy to reduce overcrowding. Thinning shall not exceed 10 percent of the live branches. Avoid the removal of inner and lower lateral branches. The goal shall be even distribution of branches on stems and individual limbs.

- 
- ❖ Thin branches in the outer canopy or reduce large scaffolds 4 to 6 feet, particularly over the house that appear too heavy to safely support their own weight, whether due to their length, taper, included bark, decay, cankers or other structural defect.
 - ❖ The objectives of pruning are to reduce the risk of falling branches and branch failure and to improve appearance.

Pruning standards:

- ❖ are just a tool.
- ❖ are only as meaningful as our interpretation and application in the field.

Palm Pruning



Palm Pruning:

- ❖ Live healthy fronds should not be removed.
- ❖ Live, healthy fronds above horizontal shall not be removed.
- ❖ Fronds removed should be severed close to the petiole base without damaging living trunk tissue.
- ❖ Palm peeling (shaving) should consist of the removal of only the dead frond bases at the point they make contact with the trunk without damaging living trunk tissue.

❖ Removing all live fronds below a 45° angle shall be considered an unacceptable practice.



Do not remove live healthy
fronds above horizontal



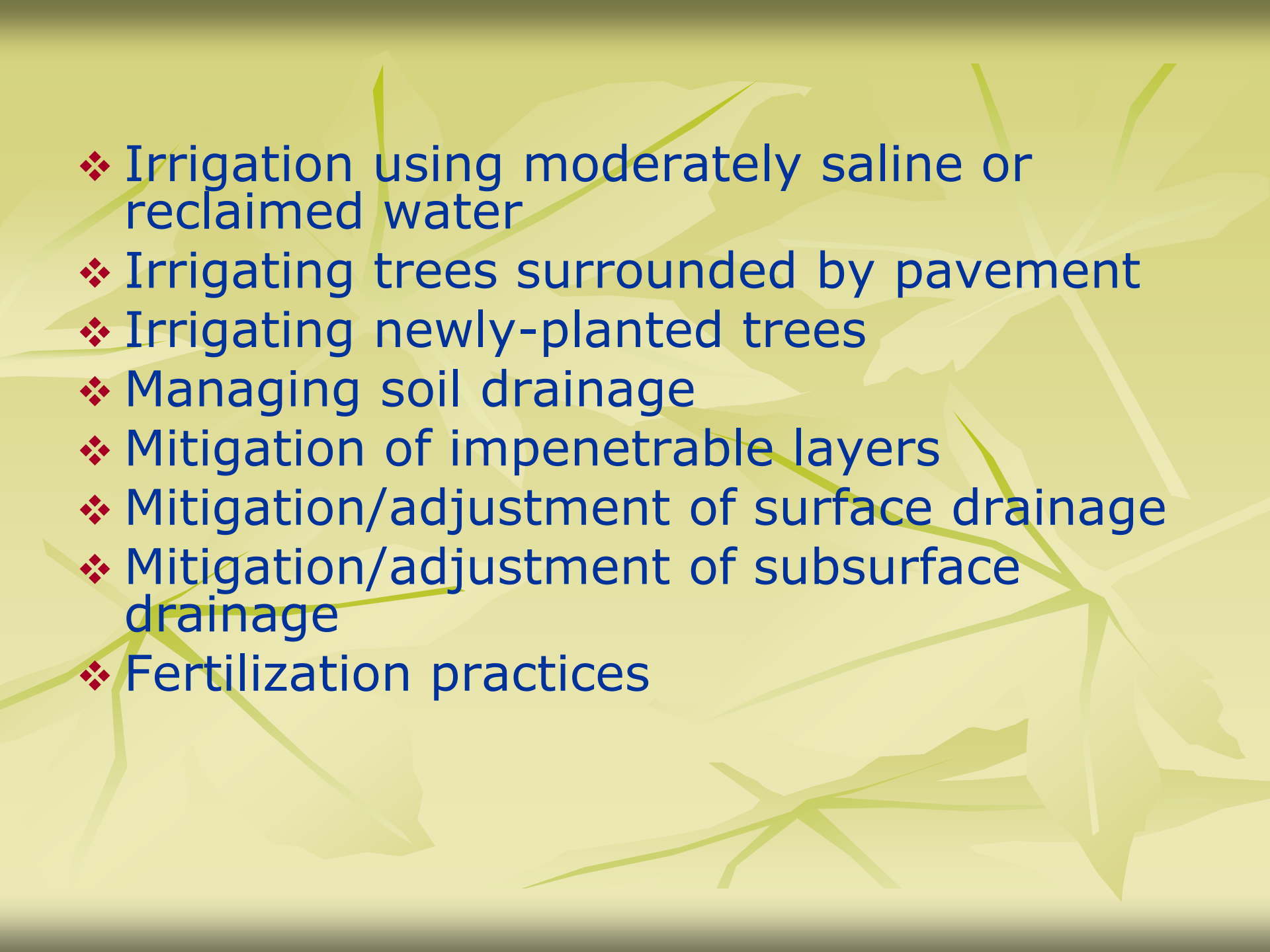
**Not an acceptable pruning practice:
Removing all live healthy
fronds below a 45 degree
angle from horizontal.**

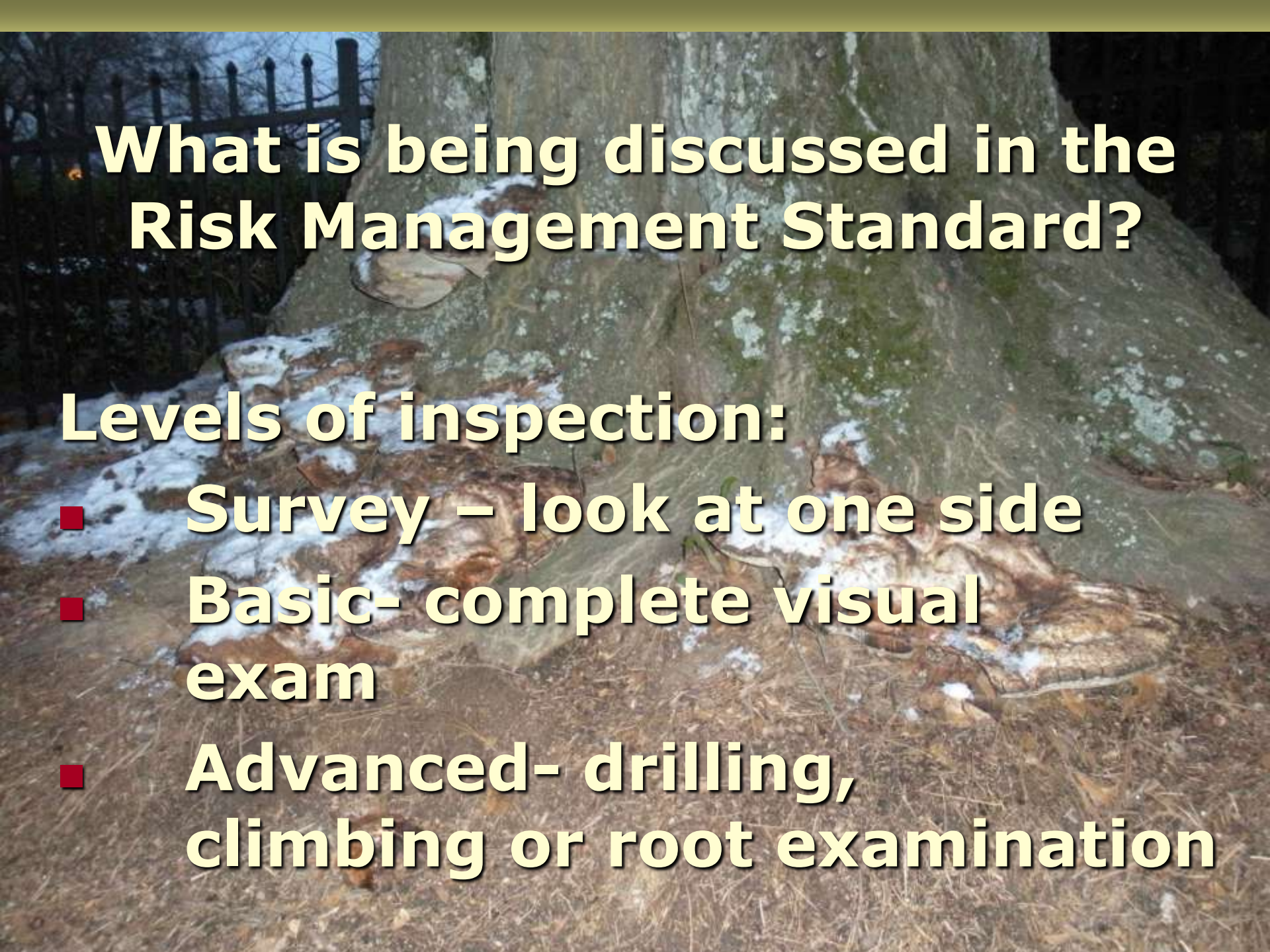
BMPs in process

- ❖ Tree Risk Assessment
- ❖ Urban Forest Data Standards
- ❖ Soil management:
 - Soil assessment
 - Managing soil organic matter content
 - Mulching

Soil Management Continued...

- ❖ Prevention and mitigation of soil compaction
- ❖ Mechanical soil loosening
- ❖ Incorporation of soil amendments
- ❖ Fill soils
- ❖ Soil volume for new plantings
- ❖ Soil reaction (pH) adjustment
- ❖ Soil Moisture Management
- ❖ Irrigation

- 
- ❖ Irrigation using moderately saline or reclaimed water
 - ❖ Irrigating trees surrounded by pavement
 - ❖ Irrigating newly-planted trees
 - ❖ Managing soil drainage
 - ❖ Mitigation of impenetrable layers
 - ❖ Mitigation/adjustment of surface drainage
 - ❖ Mitigation/adjustment of subsurface drainage
 - ❖ Fertilization practices



What is being discussed in the Risk Management Standard?

Levels of inspection:

- **Survey – look at one side**
- **Basic- complete visual exam**
- **Advanced- drilling, climbing or root examination**

Tree Risk Assessment BMP

- Basics of Risk – definitions, infrastructure, targets, goals
- Conducting a Risk Assessment
- Inspection Levels – Survey, Basic and Advanced
- Defects to look for – 8 categories
- Decay Assessment
- Inspection Frequency
- Remedial Actions
- Reporting



Part 9. Risk Standard Flow Chart

- ❖ Establish risk management objectives
- ❖ Risk assessment
 - ❖ Visual analysis
 - ❖ Qualitative structural analysis
 - ❖ Target analysis
- ❖ Risk reporting
- ❖ Decision
- ❖ Risk abatement/Mitigation
- ❖ Residual risk reporting
- ❖ Monitoring and follow-up recommendations

ANSI A300 Standard Practices

- ❖ **Scope:** to present performance standards for the care and management of trees, shrubs and other woody plants.
- ❖ **Purpose:** intended audience: federal, state, municipal and private entities including arborists, property owners, property managers, and utilities for developing written specifications.
- ❖ **Application:** applies to any person or entity engaged in the management of trees, shrubs or other woody plants.