# PART Y-11
## Pre-Commercial Thinning (PCT)

WAC

**WAC 296-307-804 Pre-commercial thinning.**

**WAC 296-307-30401 Purpose and applicability.**

**Purpose and Scope.**

This part only applies to operations in the state of Washington engaged in reforestation (including pre-commercial thinning), timber tracts, Christmas tree growing; and, tree farms etc.

Operations in the state of Washington engaged in reforestation (including pre-commercial thinning), timber tracts, Christmas tree growing; and, tree farms etc. are also covered by all parts in Chapter 307.

In the event that the provisions of this Part conflict with the provisions contained in any other Part of Chapter 307 or any chapter of Title 296 WAC, the requirements in this Part will prevail.

**WAC 296-307-80402 Definitions.**

**American National Standards Institute (ANSI).** A consensus of standards for products, services, processes, systems, and personnel in the United States.

**Accessible.** Defined as maximum of one-quarter mile or five minutes travel time from the worksite.

**Backcut** (felling cut). The cut in a felling operation made on the opposite side from the undercut.

**Boom.** A chain or line of connected floating timbers extended across a river, lake, or harbor.

**Boomstick.** Any of the timbers chained end to end to form a boom in pre-commercial thinning.

**Buck.** Means the process of severing a tree into sections (logs or bolts).

**Chain shot danger zone or shot cone zone.** The area included within 15 degrees on either side of the guide bar and up to a distance of at least 250 feet.

**Competent Person.** One who is capable of identifying hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous.

**Cutter.** An employee whose primary job is to fall, buck, or limb trees before they are moved to the landing area.

**Danger trees.** Any tree of any height, dead or alive, that presents a hazard to workers because of rot, root, stem or limb damage, lean, or any other observable condition created by natural process or man-made activity.

**DBH.** Diameter at breast height.

**Domino felling.** The partial cutting of multiple trees which are left standing and then pushed over with a pusher tree.

**Dutchman.** (a) A block used to change direction of line lead (sideblocking). (b) A method used to pull a tree against its lean by leaving a section of the undercut on one corner of the face. The portion left consists of a single saw kerf in one side of the face, with the face completely removed on the opposite side of the face cut. A single saw kerf must never extend completely across the stump.

**Experienced person.** A person who has been trained and has participated in the subject process for a period of time long enough to thoroughly acquaint the person with all facets of the process.

**Fell (fall).** To cut down trees.

**Feller (faller).** An employee who fells trees.

**First aid.** The extent of treatment expected from a person trained in basic first aid, using supplies from a first-aid kit

**First-aid trained.** The person holds a current certificate of first-aid training.

**Flag Person or Flagger.** A person who provides temporary traffic control in order to reduce risk to those in vicinity.

**F.O.P.S** Falling object protective structure.

**Hazardous falling area.** The area within a circle centered on the tree being felled and having a radius not less than twice the height of that tree.

**Kerf.** A slit or notch made by a saw.

**Personal protective equipment (PPE). E**quipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses.

**Pre-Commercial Thinning.** The removal of trees not for immediate financial return but to reduce stocking to concentrate growth on the more desirable trees.

**Serviceable condition.** Tool or equipment in such condition capable to perform its intended function or use.

**Swing cut.** An intentional dutchman left on one corner of an undercut or a backcut in which the holding wood on one side is cut through in conjunction with an intentional dutchman to achieve a desired lay for the tree being fell.

**Tree pulling.** A method of falling trees in which the tree is pulled down with a line.

**Undercut.** A notch cut in a tree to guide the direction of the tree fall and to prevent splitting or kickback.

**Yarding.** The movement of logs from the place they are felled to a landing.

**WAC 296-307-80405 Personal protective equipment (PPE).**

**The employer must keep PPE in safe and good condition.**

(1) The employer must make sure all PPE is safe for the work to be performed. The PPE must:

(a) Be durable.

(b) Fit snugly.

(c) Not interfere with the employee's movements.

(2) The employer must make sure PPE is used and maintained in a clean and reliable condition.

**Defective equipment MUST NOT be used.**

(3) The employer must make sure if employees provide their own PPE, that it is adequate for the workplace hazards, and maintained in a clean and reliable condition.

(4) The employer must provide training to each employee who is required to use PPE on the job. The training must include when to use, proper use, maintenance and disposal of PPE; and, include a demonstration on how to use the PPE properly.

Note: The employer is not required to provide logging boots for employees engaged in pre-commercial thinning operations. The cost of logging boots may be borne by the employees. The employer must ensure, however, that logging boots as well as all PPE provided by the employer, are worn by employees and are in serviceable condition that meet the requirements in subsection (5) of this section.

**WAC 296-307-80410 Head protection.**

The employer must provide, at no cost to the employee, and ensure that all employees wear a hard hat whenever there is the potential exposure to danger of flying or falling objects, unless the employees are protected by FOPS, cabs, or canopies meeting the requirements of this chapter.

(1) Head protection (hard hats) must comply with any of the following consensus standards:

(a) ANSI Z89.1-2009, "American National Standard for Industrial Head Protection";

(b) ANSI Z89.1-2003, "American National Standard for Industrial Head Protection"; or

(c) ANSI Z89.1-1997, "American National Standard for Personnel Protection – Protective Headwear for Industrial Workers – Requirements."

**Note:** The employer may use protective helmets that do not meet these ANSI standards if the employer can demonstrate that they are equally effective as those constructed in accordance with the above ANSI standards.

(2) Hard hats must be maintained in serviceable condition.

**WAC 296-307-80415 Eye and face protection.**

The employer must make sure that employees have, use, and care for the appropriate personal protective equipment (PPE). PPE is an item or items used to protect the eyes, face, head, body, arms, hands, legs, and feet such as goggles, helmets, head covers, gloves, rubber slickers, disposable coveralls, safety shoes, protective shields, and barriers. The employer must provide, at no cost to the employee, and ensure that each employee wears:

(1) Eye protection, where there is potential for eye injury from falling or flying objects.

(a) The employer must make sure employees exposed to hazards from flying objects have eye protection with side protection, such as safety glasses with clip-on or slide-on side shields.

(b) The employer must make sure eye protection for employees who wear prescription lenses:

i. Incorporates the prescription into the design of the eye protection; or

ii. Is large enough to be worn over the prescription lenses without disturbing them.

(2)Face protection where there is potential for facial injury such as, but not limited to, operating a chipper. An employee using a chain saw may use either eye or face protection.

The employer must make sure PPE used to protect the eyes and face meet the specifics of either the 1989 version, the 1998 revision, or the 2003 version of ANSI Z87.1, American National Standard Practice for Occupational and Education Eye and Face Protection.

Other protective eye and face protection devices may be used if the employer demonstrates that they are at least as effective as those constructed in accordance with one of the above consensus standards.

***Note:*** *The employee does not have to wear separate eye protection when the face protection also covers the eyes.*

***Note:*** *Mesh type screen type goggles or face shields, which conform to ANSI Z87.1 may be used while operating a chain saw or during chipping operations.*

**WAC 296-307-80420 Hearing protection.**

The employer must provide hearing protection when required by Part Y in Chapter 307, Hearing loss prevention (noise).

**WAC 296-307-80425 Leg protection.**

(1) The employer must provide, at no cost to the employee, and ensure that each employee who operates a chain saw wears leg protection meeting the requirements of ASTM F1897 "American Society for Testing and Material Standard Specification for Leg Protection for Chain Saw

Users." The leg protection must cover the full length of the thigh to the top of the boot on each leg to protect against contact with a moving chain saw.

***EXCEPTION:***
*This requirement does not apply to an employee working aloft in trees when supported by climbing spurs and climbing belt, or when an employee is working from a vehicle-mounted elevating and rotating work platform.*

(2) Leg protection must be maintained in serviceable condition.

**WAC 296-307-80430 Foot protection.**
(1) Each employee must wear foot protection that covers and supports the ankle, such as heavy-duty boots.

(2) Each employee who operates a chain saw must wear cut resistant foot protection that will protect the employee against contact with a running chain saw.
For example: Leather logging boots, insulated rubber pacs (boots), and rubber boots with cut protection will meet the cut-resistant requirement of this section.
(3) All employees whose duties require them to walk on logs or boomsticks must wear sharp-calked boots, or the equivalent.

***EXCEPTION 1:*** *When calks are ineffective because of ice, snow, or other conditions and other footwear does not provide suitable protection, employees must be prohibited from working on logs or boomsticks.*
***EXCEPTION 2:*** *The employer may allow employees to wear nonslip boots instead of calks when the nonslip boots provide greater employee*

*protection than calks (such as at scaling stations, log sorting yards, etc.). The nonslip boots must still provide firm ankle support and secure footing.*

(4) Foot protection must be maintained in serviceable condition.

**WAC 296-307-80435 Arrangement of work areas and emergency contact.**

(1) Employee work areas must be spaced and employee duties organized so the actions of one employee do not create a hazard for any other employee.

(2) Work areas must be assigned so that:

(a) Trees cannot fall into an adjacent occupied work area;

(b) The distance between work areas is at least two tree lengths of the trees being fell;

(c) The distance between work areas reflects the degree of slope, the density of the growth, the height of the trees, the soil structure and other hazards reasonably anticipated at the worksite; and

(d) A distance of more than two tree lengths is maintained between work areas on any slope where rolling or sliding of trees or logs is reasonably foreseeable.

(3) Each employee must be within visual, audible, or radio/telephone contact with another person who can assist in case of emergency.

(4)In any pre-commercial thinning operation where cutting is performed, there must be at least two employees working as a team.

(5) Each employee must have visual or audible signal contact with another employee as often as this schedule requires:

(a) Cutters - 30 minutes.

(6) Mechanics or other employees must not be assigned to work on equipment by themselves when there is a probability of a fall from elevated work locations or equipment. Also, if the work is of such nature that heavy parts require moving, or there is a probability that anything heavy could fall on the person, there must be another person in the immediate area to render assistance.

(7) The employer must establish a method of checking the employees in from the woods at the end of each shift, including operators of all movable equipment. Each immediate supervisor must account for their crew.

(8) Each pre-commercial thinning worksite must have at least one serviceable and operable two-way radio, phone, or radio/phone combination available to reach emergency service. Citizen band radios are permitted only as a secondary means of communication.

(9) Each pre-commercial thinning worksite must have an emergency medical plan to ensure rapid emergency medical care for employees with major illnesses and injuries. The plan must be in writing and include the following:

(a) Township, range, and section numbers or latitude and longitude;

(b) Directions by road, or escort provisions to the site;

(c) Telephone number of emergency medical services; and

(d) Provisions for emergency vehicle(s) access, when working behind locked gate(s).

**WAC 296-307-80440 First-aid training.**

At pre-commercial thinning worksites, each employee, including supervisors, must hold a valid certificate of first-aid and CPR training. New employees not holding a valid certificate of training

must be trained within six months of being hired and they must be working on a crew where at least one person holding a valid certificate of first-aid and CPR training is present at all times.

***Note:*** *This requirement only applies to pre-commercial thinning activities.*

***Note:*** *Chapter 296-307 Part B applies to all other agricultural operations covered by Chapter 307.*

(2) First-aid and CPR training must cover at least the following:

(a) The definition of first aid.

(b) Legal issues of applying first aid (Good Samaritan Laws).

(c) Basic anatomy.

(d) Patient assessment and first aid for the following:

(i) Respiratory arrest.

(ii) Cardiac arrest.

(iii) Hemorrhage.

(iv) Lacerations/abrasions.

(v) Amputations.

(vi) Musculoskeletal injuries.

(vii) Shock.

(viii) Eye injuries.

(ix) Burns.

(x) Loss of consciousness.

(xi) Extreme temperature exposure (hypothermia/hyperthermia).

(xii) Paralysis.

(xiii) Poisoning.

(xiv) Artificial ventilation.

(e) CPR.

(f) Applying dressings and slings.

(g) Treating strains, sprains, and fractures.
(h) Immobilizing injured persons.
(i) Handling and transporting injured persons.
(j) Treating bites, stings, or contact with poisonous plants or animals.

**WAC 296-307-80445 First-aid kits.**

(1) The employer must provide first-aid kits at all worksites.

(2) Worksite first-aid kits must contain the following minimum supplies at all times:

Note: The contents of the first-aid kit listed should be adequate for small worksites of two or three employees. For larger or multiple pre-commercial thinning operations conducted at the same location, the employer should provide additional first-aid kits or additional quantities of supplies in the first-aid kits.

(a) Gauze pads (at least 4 x 4 inches).
(b) Two large gauze pads (at least 8 x 10 inches).
(c) Box adhesive bandages (band-aids).
(d) One package gauze roller bandage at least 2 inches wide.
(e) Two triangular bandages.
(f) Wound cleaning agent such as sealed moistened towelettes.
(g) Scissors.
(h) At least one blanket.
(i) Tweezers.
(j) Adhesive tape.
(k) Latex gloves.
(l) Resuscitation equipment such as resuscitation bag, airway, or pocket mask.
(m) Two elastic wraps.

(n) Splint.

(o) One stretcher or equivalent weather proof litter at any three or more person worksites, and at all pre-commercial thinning sites.

(3) When six or more employees are generally being transported on any one trip, the first-aid kit must be increased in size following the requirements of subsection (2) of this section. Subsection (2)(h),(n) and (o) are optional.

(4) The employer must maintain the contents of each first-aid kit in a serviceable condition.

**WAC 296-307-80450 Chain shot awareness and prevention.**

**WAC 296-307-80451 Definition**

**Chain shot.** The high velocity separation and ejection of a piece or pieces of cutting chain from the end of a broken chain in mechanized timber harvesting.

Chain shot exposes both machine operators and bystanders to a risk of serious injury or death. Chain shot typically occurs near the drive end of the cutting system but can also come from the bar tip area.

A chain shot consists of two breaks in a chain. First, the loop of the chain breaks and forms two ends. One end moves past the drive sprocket or bar tip and is rapidly accelerated due to a whip-like motion of the chain end. The whip action causes the second break, releasing small parts at extremely high speed.

**WAC 296-307-80455 Chain shot awareness and prevention training**

(1) Employees who will be working on or around any kind of machinery equipped with a hydraulic driven bar and chain are to receive chain shot awareness training appropriate to their job. This training must include:

(a) Clearance distances for workers around the machine. All bystanders and nonessential personnel should stay clear of the shot cone. Chain shot can travel in excess of 250 feet from the saw. See Illustration 1 for an explanation of the impact area for chain shot awareness.

(b) Personnel expected to maintain chains are to be trained in the proper repair, assembly, inspection, and sharpening as specified by the chain manufacturer.

(2) Operators are to be trained specifically on:

(a) When possible, position the saw bar so the chain shot cone is directed away from the operator and other personnel.

(b) How to properly inspect the cutting system and report any problems.

(c) **Sample chain shot training program.**

**"Chain Shot" Awareness and Prevention Training**

Employee _____ Trainer _____ Date _____

All employees who operate or work around or perform maintenance and/or repair of any kind of machinery equipped with a hydraulic powered bar saw must receive "chain shot" awareness training appropriate to their job.

*Note: Employers who have employees who are potentially exposed to the chain shot but do not operate, inspect, or maintain the equipment can limit training to the information in Section 1.*

☐ **Indicates that the employee has received training.**

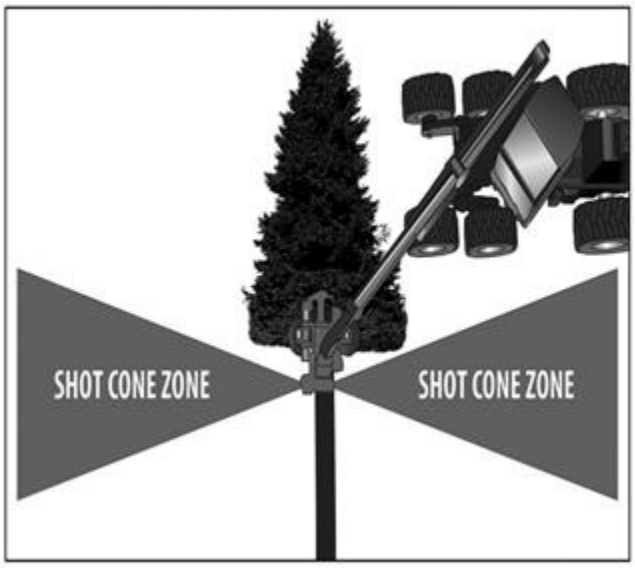
☐ **Section 1 General information**

(1) Chain shot is the high velocity separation and ejection of a piece or pieces of cutting chain from the end of a broken chain in mechanized timber harvesting/processing. Chain shot exposes both machine operators and bystanders to a risk of serious injury or death. Chain shot typically occurs near the drive end of the cutting system but can also come from the bar tip area.

(2) A chain shot consists of two breaks in a chain. First, the loop of chain breaks and forms two ends. One end moves past the drive sprocket or bar nose and is rapidly accelerated due to a whip-like motion of the chain end. The "whip action" causes the second break releasing small parts at extremely high speed.

(3) The "shot cone zone" is the area along the plane of the guide bar where pieces of a broken chain usually travel unless pieces are deflected. The SCZ angles out approximately at a 15 degree angle on both sides of the guide bar and a distance that possibly exceeds 250 feet.

(4) Employees should stay clear of the shot cone zone.



☐ **Section 2 Cutting system inspection**

The cutting system must be inspected before initial use during each work shift. Defective parts that would make the cutting system unsafe to operate, must be replaced or repaired before the cutting system is placed in service. Report unsafe conditions to your supervisor.

Inspections must include:
(1) The lubrication system for leaks or damage.
(2) The chain for cracks or worn/damaged parts.
(3) The bar for wear and straightness and ensure the tip is properly secured.
(4) The sprocket.
(5) The chain catcher if equipped.
(6) The chain shot guard if equipped.

☐ **Section 3 Cutting system maintenance**

(1) Sharpen, assemble and repair chains in accordance with the manufacturer's specifications.
(2) Maintain proper bar and chain lubrication, making sure to use the right type and amount of lubricant.
(3) Replace the drive sprocket when it has excessivewear.
(4) Clean guide bar grooves and oil port holes regularly.
(5) Guidebars should be flipped regularly to ensure even wear.

☐ **Section 4 Cutting system operation**

(1) The operator and other persons should be kept clear of the shot cone zone.

(2) Follow chain manufacturer's recommendations for chain speed. "Boosting" or exceeding the recommended chain speed is prohibited.
(3) Maintain proper chain tension.

**WAC 296-307-80460 Cutting system inspection.**

(1) The cutting system must be inspected before initial use during each workshift. Inspections must include:

(a) The lubrication system for leaks or damage.

(b) The chain for cracks of worn/damaged parts.

(c) The bar for wear and straightness and ensure the tip is properly secured.

(d) Sprocket.

(e) Chain catcher if equipped; and

(f) Chain shot guard if equipped.

(2) The employer must repair defects or damage or the unserviceable machine must be replaced before beginning work.

**WAC 296-307-80465 Cutting system maintenance.**

(1) Sharpen chains to the manufacturer’s specifications.
(2) Maintain proper bar and chain lubrication, making sure to use the right type and amount of lubricant.
(3) Replace the drive sprocket when it has excessive wear.
(4) Clean guide bar grooves and oil port holes regularly.
(5) To keep wear even the bar should be flipped regularly.

**WAC 296-307-80470 Cutting system operation.**

(1) When possible, keep the chain shot cone clear of the operator and other persons.

(2) Follow the chain manufacturer's recommendation for chain speed. "Boosting" or exceeding the manufacturer's recommendation is prohibited.
(3) Maintain proper chain tension.

**WAC 296-307-80475 Hand and portable powered tools.**

(1) Each hand and portable powered tool, including any tool provided by an employee, must be maintained in serviceable condition.
(2) Each tool, including any tool provided by an employee, must be inspected before initial use during each workshift. The inspection must include at least the following:
(a) Handles and guards, to ensure that they are sound and tight-fitting, (properly shaped, free of splinters and sharp edges, and in place);
(b) Controls, to ensure proper function;
(c) Chain saw chains, to ensure proper adjustment;
(d) Chain saw mufflers, to ensure that they are operational and in place;
(e) Chain brakes and/or nose shielding devices, to ensure that they are in place and function properly;
(f) Heads of shock, impact-driven and driving tools, to ensure that there is no mushrooming.
(3) Each tool must be used and maintained according to the following requirements:
(a) Each tool is used only for purposes for which it was designed.
(b) Any shock, impact-driven or driving tool is repaired or removed from service when the head begins to chip.

(c) The cutting edge of each tool is sharpened according to manufacturer's specifications whenever it becomes dull during the workshift.

(d) Each tool is stored in the provided location when not being used at a worksite.

**Note:** For use and maintenance of tools and other equipment not covered by section, see Chapter 296-307-195, Part M WAC.

**WAC 296-307-80480 Chain saws.**

(1) Operators must inspect chain saws daily to ensure that handles and guards are in place, and controls and other moving parts are functional.

(a) Each chain saw placed into initial service after February 9, 1995, must be equipped with a chain brake and, shall otherwise meet the requirements of ANSI B175.1-1991 "Safety Requirements for Gasoline-Powered Chain Saws" and the requirements of this chapter;

(b)Each chain saw placed into service before February 9, 1995, must be equipped with a protective device that minimizes chain saw kickback, i.e., reduced kickback bar, chains, bar tip guard, or chain brake;

(c) No chain saw kickback device shall be removed or otherwise disabled; and

(d) Chain saws must be operated and adjusted in accordance with the manufacturer's instructions.

(2) Saw pinching and subsequent chain saw kickback must be prevented by using wedges, levers, guidelines, and saw placement, or by undercutting.

(3) Chain saws must be:

(a) Shutoff while fueling;

(b) Fueled outdoors at least ten feet from anyone smoking or from other potential sources of ignition; and

(c) Started at least 10 feet (3 m) from the fueling area

(4) Chain saws must have a positive means of stopping the engine.

(5) Unless the carburetor is being adjusted, the chain saw must be shut off before any adjustments or repairs are made to the saw, chain, or bar.

(6) Using a chain saw with a faulty clutch is prohibited.

(7) The bar must be handled only when the chain saw motor is shut off.

(8) The drive end of the chain saw bar must be guarded.

(9) The chain saw must have an automatic throttle control that will return the engine to idle speed when the throttle is released.

***Note:*** *Idle speed is when the engine is running and the chain does not rotate on the bar.*

(10) The chain saw must be started:

(a) With the chain brake engaged, unless the manufacturer prohibits; or

(b) On the ground, log or where otherwise firmly supported.

Drop starting a chain saw is prohibited.

(11) A chain saw must be held with the thumbs and fingers of both hands encircling the handles during operation unless the employer demonstrates that a greater hazard is posed by keeping both hands on the chain saw in a specific situation.

(12) The chain saw must be carried in a manner that will prevent operator contact with the cutting chain and muffler.

(13) The chain saw must be shut off or at idle before the faller starts to retreat.

(14) The chain saw must be shut down or the chain brake engaged whenever a saw is carried:

(a) Further than 50 feet (15.2 m); or

(b) Less than 50 feet if conditions such as, but not limited to, the terrain, underbrush, and slippery surfaces, may create a hazard for an employee.

(15) A chain saw must not be used to cut directly in a manner where the operator could lose control of the saw, or that would cause limbs, chunks of bark or pieces of wood to fall on the operator.

(16) The chain saw operator must be certain of footing before starting to cut. The chain saw must not be used in a position or at a distance that could cause the operator to become off-balance, to have unsteady footing, or to relinquish a firm grip on the saw.

**WAC 296-307-80485 Falling and bucking—General**

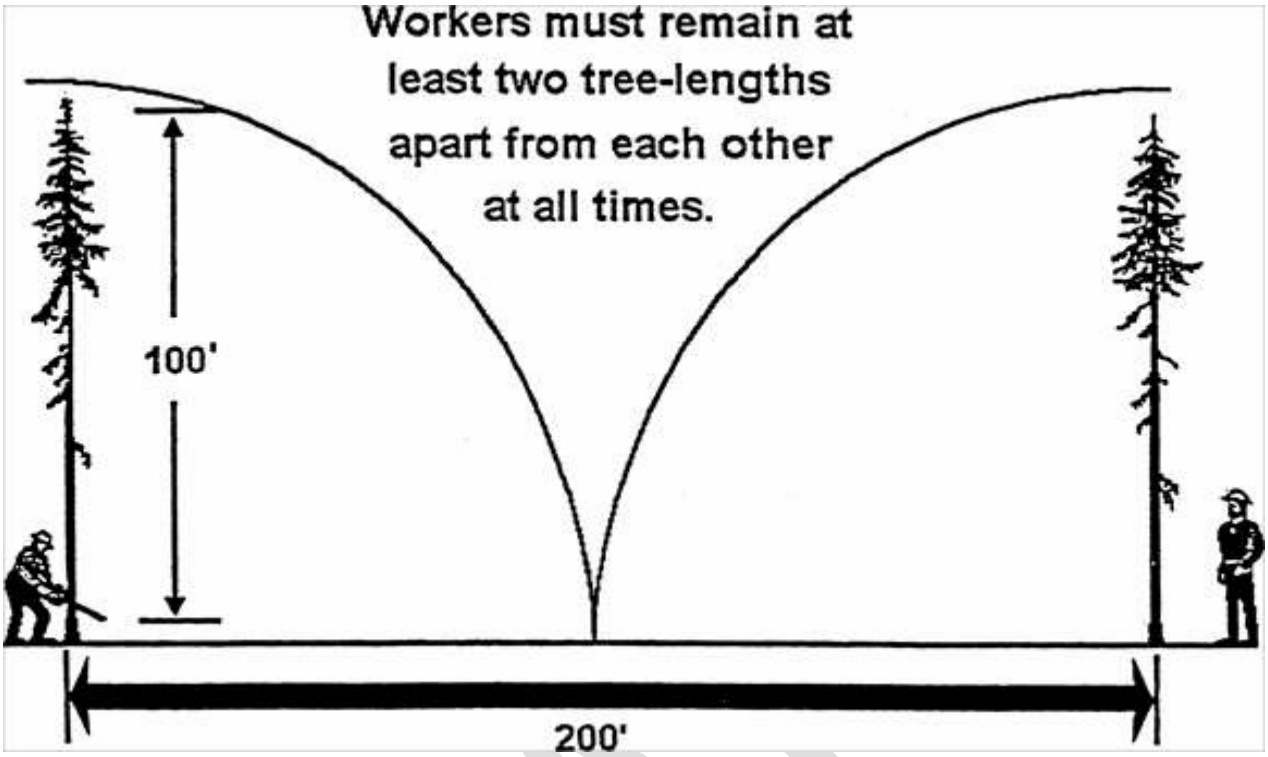
***Note:*** *Undercuts large enough to safely guide trees and eliminate the possibility of splitting must be used on all trees over six inches DBH.*

(1) The employer must assign work areas so that:

(a) Trees cannot fall into an adjacent occupied work area;

(b) The distance between work areas is at least two tree lengths of the trees being fell

(see Figure 1: Distance Between Work Areas);




(c) The distance between work areas reflects the degree of slope, the density of the growth, the height of the trees, the soil structure and other hazards reasonably anticipated at the worksite; and

(d) A distance of more than two tree lengths is maintained between work areas on any slope where rolling or sliding of trees or logs is reasonably foreseeable.

***EXCEPTION:*** *This rule does not apply to a team of cutters working on the same tree.*

(2) Before falling or bucking, conditions such as, but not limited to, snow and ice accumulation, the wind, the lean of tree, dead limbs, and the location of other trees, must be evaluated by the cutter and precautions taken so a hazard is not created for an employee. Accumulations of snow and ice that may create a hazard for

an employee must be removed before beginning falling in the area, or the area must be avoided.

(3) Employees must not approach a cutter closer than two tree lengths of trees being felled until the cutter has acknowledged that it is safe to do so.

(4) A competent person, properly experienced in this type of work, must be placed in charge of falling and bucking operations. Inexperienced workers must not be allowed to fall timber, buck logs or windfalls unless working under the direct supervision of an experienced cutter.

(5) Trees must not be fell if the falling tree can strike any line in the pre-commercial thinning operation and endanger workers.

(6) Before an employee falls or bucks any tree:

(a) A sufficient work area must be swamped;

(b) The cutter must plan and clear an escape path; and

(i) The escape path must extend diagonally away from the expected felling line unless such an escape path poses a greater hazard than an alternate escape path; and

(ii) An escape path must be used as soon as the tree or snag is committed to fall, roll, or slide.

(7) If a cutter has determined a tree cannot be safely fell, the work must stop until the cutter has conferred with a supervisor or an experienced cutter and determined the safest possible work method or procedure.

(8) The person in charge of cutting crews must regularly inspect the work of the cutting crews and is responsible to ensure the work is performed in a proper and safe manner.

(9) All cutters must carry or have in near proximity at all times:

(a) An axe or suitable tool for driving wedges;

(b) A minimum of two wedges;

(c) A whistle carried on the person; and

(d) A first-aid kit.

(i) The first-aid kit must contain at least two trauma bandages or equivalent absorbent gauze material and a means to secure the material in place.

(ii) First-aid supplies must be kept clean and dry.

(10) A flagperson(s) must be assigned on roads where hazardous conditions are created from falling trees. Where there is no through traffic, such as on a dead end road, warning signs or barricades may be used instead of a flagperson(s).

(11) One worker must not fall a tree or danger tree when the assistance of another worker is necessary to minimize the risk of injury caused by overhead hazards, loose bark, or interlocked limbs, conditions of the tree, terrain or cutting conditions.

(12) When manual falling or tree jacking, trees must not be felled directly uphill when the probability of the tree sliding back past the stump is likely.

**WAC 296-307-80490 Falling and bucking—Falling.**

(1) Where felled trees are likely to roll and endanger workers, cutting must proceed from the bottom toward the top of the slope, and uphill from previously fell timber.

(2) A cutter must not be placed on a hillside immediately below another cutter or below other pre-commercial thinning operations where there is probable danger.

(3) Cutters must be informed of the movement and location of other employees placed, passing, or approaching the vicinity of trees being fell.

(4) Before falling trees cutters must:

(a) Ensure that all personnel are out of reach of the tree; and

(b) Ensure that all personnel are in the clear of logs, fallen trees, snags, or other trees that may be struck by the falling tree.

(5) While manual falling is in progress, all logging machines must be operated at least two lengths away from trees being manually fell.

***EXCEPTION:*** *This provision does not apply to logging machines performing tree pulling operations or logging machines called upon by the cutter to ground hazard trees. All cutters must be notified of the logging machine's entrance into the area and all falling within two tree lengths of the logging machine must stop.*

(6) Trees must be fell into the open whenever conditions permit.

(7) Cutters must not fall into another strip; trade leaners on the line.

(8) Knocking over trees larger than six inches in diameter in lieu of cutting is prohibited.

(9) Domino falling of trees, including danger trees, is prohibited. Domino falling does not include the falling of a single danger tree by falling another single tree into it.

(10)Undercuts large enough to safely guide trees and eliminate the possibility of splitting must be used on all trees over six inches DBH.

For example: A tree with no perceptible lean, having an undercut depth of one-fourth of the diameter of the tree and a face opening equal to one-fifth of the diameter of the tree would meet the requirement.

(11) A cutter must place an adequate undercut and leave enough holding wood to ensure the tree will fall in the intended direction.

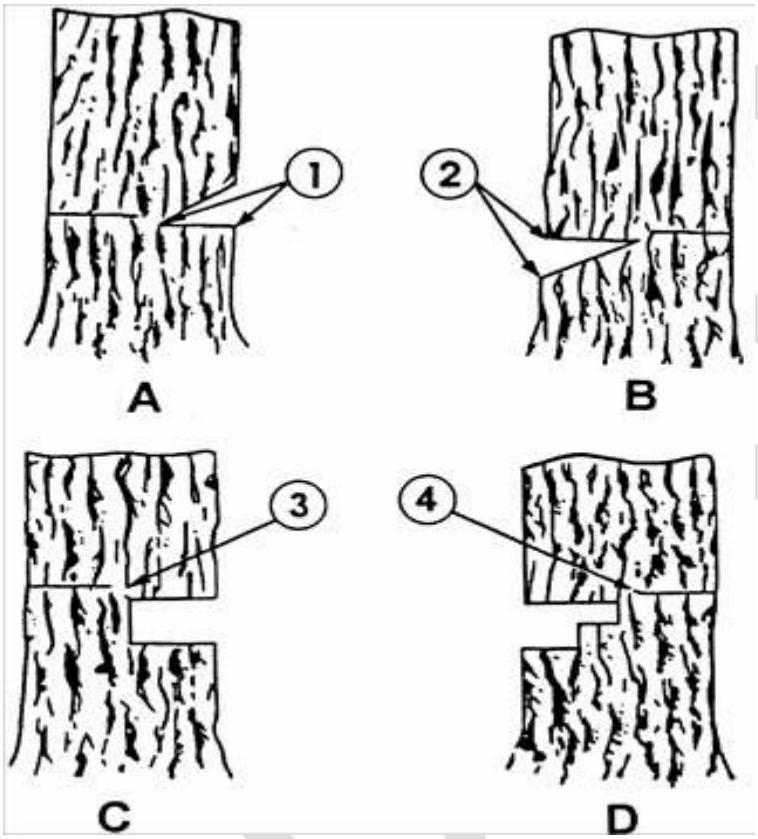
(12) The two cuts that form the undercut must not cross where they meet, except where a dutchman is required on either side of the cut.
(13) The undercut must not be made while other workers are in an area into which the tree could fall.
(14) A backcut must be made in each tree being fell.
(a) The backcut must be as level as possible;
(b) The backcut must leave enough hinge wood to hold the tree to the stump during most of its fall so that the hinge is able to guide the tree's fall in the intended direction; and
(c) The backcut must be above the level of the horizontal facecut to provide an adequate platform to prevent kickback.

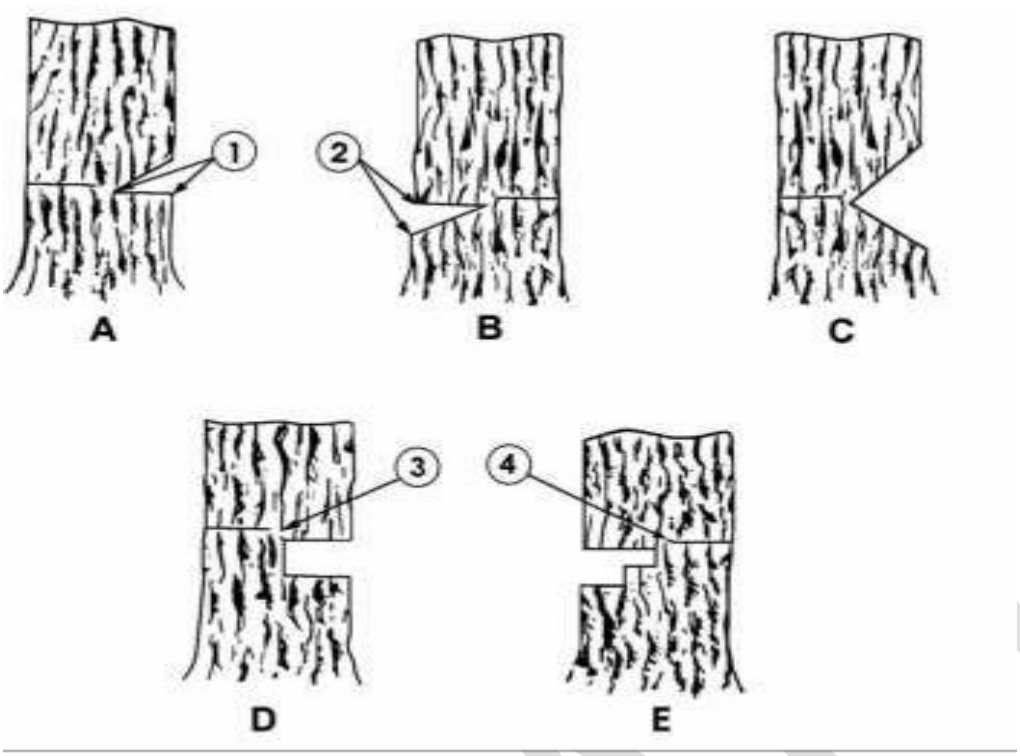
***EXCEPTION:*** *This requirement does not apply to open-faced falling where two angled facecuts are used instead of a horizontal facecut.*

(d) In tree-pulling operations the backcut may be at or below the undercut hinge point.
(15) Cutting holding wood instead of using wedges is prohibited. Swing cuts are prohibited except by an experienced person.
(16) Trees with face cuts and/or backcuts must not be left standing unless all the following conditions are met:
(a) The cutter clearly marks the tree;
(b) Discontinues work in the hazardous area;
(c) Notifies all workers who might be endangered; and
(d) Takes appropriate measures to ensure that the tree is safely fell before other work is undertaken in the hazardous area.
(17) Undercuts and backcuts must be made at a height above the highest ground level to enable the cutter to safely begin the cut, control the tree, and have freedom of movement for a quick escape from a falling tree.

(18) Lodged trees must be clearly marked and identified by a predetermined method and all persons in the area must be instructed not to pass or work within two tree lengths of the trees except to ground them.

***Note: See Figure No. 2, for illustrations of undercuts.***






***(A) Conventional under cut.*** *Can be made with parallel saw cut and axe diagonal cut or but cuts with the saw. Generally used on trees of small diameter.*

***(B) Humboltd undercut.*** *Leaves square-end log. Same as (A), except that waste is put on the stump.*

*(**C) Open face undercut.** Both cuts are made with the saw. The top and bottom face cuts generally form a 90 degree angle when completed. Works best on small diameter trees.*

***(D) Two parallel cuts with the saw.*** *The material between the cuts is chopped out with an axe-adz (Pulaski) combination. Used on trees over 30 inches in diameter.*

***(E) Three parallel cuts with the saw, leaving a step.*** *Same in principle as (C). Used on trees of very large diameters.*

**Item**

1. Undercut depth
2. Undercut height
3. Holding wood

4. Backcut

**WAC 296-307-80495 Falling and bucking—Danger trees.**

*Note:* Undercuts large enough to safely guide trees and eliminate the possibility of splitting must be used on all trees over six inches DBH

(1) Each danger tree must be carefully checked for signs of loose bark, broken branches and limbs, or other damage before they are fell or removed. Accessible loose bark and other damage that may create a hazard for an employee must be removed or held in place before falling or removing the tree. When a danger tree has elevated loose bark that cannot be removed, the buddy system must be used to watch for and give warning of falling bark or other hazards.
(2) Danger trees that are unsafe to cut must be blown down with explosives or fell by other safe methods.
(3) To avoid use of wedges, which might dislodge loose bark or other material, danger trees should be fell in the direction of lean unless other means (mechanical or dynamite) are used.

**296-307-80500 Motor Vehicles**

(1) The seats of each vehicle must be securely fastened. (2) Each school bus type vehicle that will transport nine or more passengers must have a substantial barricade behind the driver. The barricade must extend from the floor to at least a level even with the top of the driver's head.
(3) Adequate provisions must be made for safe entrances and exits. Each vehicle must have mounting steps and handholds wherever it is

necessary to prevent an employee injury when entering or leaving the vehicle.

(4) When equipment or tools are carried inside the vehicle, you must provide and use racks, boxes, holsters or other means to transport tools so that a hazard is not created for any vehicle operator or passenger.

(5) No one may enter or exit any vehicle until the vehicle is completely stopped.

(6) Employees must keep all parts of the body within the vehicle.

(7) Heat and light must be available in the passenger area of the vehicle. Use of stoves in vehicles is prohibited.

(8) Vehicles designed to transport nine or more passengers must have an emergency exit that:

(a) Is at least six and one-half square feet in area, with the smallest dimension being at least eighteen inches;

(b) Is placed at the back of the vehicle or near the back on the side opposite the regular entrance; and

(c) Has an unobstructed route to and from the exit.

(9) When no fuel is transported in the crew vehicle, a minimum rated 5/BC dry chemical fire extinguisher must be kept in the passenger compartment. When fuel is transported on the crew vehicle according to subsection (12) of this section, a minimum rated 10/BC dry chemical fire extinguisher must be kept in the passenger compartment. The extinguishing agent must be nontoxic and preferably noncorrosive.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-307-340.

(10) Exhaust systems must be designed and maintained to eliminate the exposure of passengers to toxic agents.

(11) Operating and maintenance instructions must be available in each vehicle. Each vehicle operator and maintenance employee must comply with the operating and maintenance instructions.

(12) Fuel must be transported or stored only in approved safety containers. Enclosed areas where fuels are carried or stored must be vented so that a hazardous concentration of fumes cannot accumulate. All containers or drums must be properly secured to the vehicle while being transported. Commercially built pick-up or flatbed trucks with a maximum seating capacity of six persons may be used to carry fuel in or on the bed of such vehicles, if the fuel is not carried in the crew compartment. Van-type vehicles may be used to carry fuel only when a vapor-proof bulkhead is installed between the passenger compartment and storage compartment. A maximum of forty-two gallons of gasoline may be carried or stored in the compartment and each container must have a maximum capacity seven gallons.

(13) Motor vehicles used regularly to transport employees must be covered against the weather and equipped and operated according to applicable state of Washington motor vehicle laws.

(14) All operators of crew vehicles must be experienced drivers and have a valid operator's license for the class of vehicle being operated.

(15) Dump trucks must only be used in an emergency to transport workers and have adequate safety chains or locking devices that eliminate the possibility of the body of the truck being raised while employees are riding in the truck. “Emergency” means any unforeseen circumstances that call for immediate action when danger to life or danger from fire exists.

(16) An effective means of signaling must be provided for communication between the driver and the passengers being transported when they are in separate compartments.

(17) The passenger load limit of a crew vehicle must not exceed the seating capacity of the vehicle.