



Navigating the Stand: Safety in Partial Cutting and Commercial Thinning

For woodlot owners and community forest operators, partial cutting and commercial thinning are excellent silvicultural tools for improving stand health and generating intermediate revenue. However, operating ground-based harvesting equipment around residual standing timber fundamentally changes the site's hazard profile compared to clearcutting.

Leaving trees standing increases the risk of overhead hazards, complicates machine maneuverability, and makes manual falling significantly more dangerous. Under WorkSafeBC's [Occupational Health and Safety Regulation \(OHSR\) Part 26 \(Forestry Operations\)](#), operators must take specific precautions to manage these risks.

Part 1: Integrating Safety into Operational Planning and Layout

Licensees and contractors hold the responsibility to identify risks unique to partial cutting systems. Ensuring worker safety means integrating management objectives with operational activities, both in the office and in the field. Operational plans should avoid being overly restrictive to provide flexibility, emphasizing clear objectives so workers can safely apply their expertise during field verification, layout, engineering, and harvesting.

Key Site Assessment & Hazard Identification

When assessing a site for partial cutting, planners must evaluate landscape-level objectives and on-the-ground realities:

- Identify hazardous areas, including unstable class IV/V slopes, floodplains, rock faces, and avalanche tracks.
- Evaluate traditional and non-traditional weather patterns, such as prevailing winds and seasonal storms.
- Propose mitigation strategies where harvesting might impact identified values or other resource users.

- Use field verification to drive layout modifications, ensuring both operational feasibility and safety.

Core Safety Elements to Address

Licensees must ensure the following elements are structurally addressed in harvest plans:

- Felling patterns, techniques, and safe danger tree removal protocols.
- Equipment access limitations, operability, and suitable skidding methods.
- Ground stability risks, including rock slides, mudslides, and organic materials.
- Environmental hazards like wind exposure, drought, rain, and fire protection.
- Clear guidelines for reserve zones, machine-free zones, and wildlife tree retention.

***Leveraging Industry Resources:** Planners should source expertise to minimize risks effectively. The BC Forest Safety Council provides vital resources, including sample [emergency response plans](#) and [best practice guides for steep slopes, lock-out procedures, and chain shot](#).*

1. Managing Overhead and Falling Hazards

In partial cutting, the canopy remains intact. Dead limbs, loose bark, and hung-up trees are constant threats that require a blend of strict regulation and practical site management.

Type	Focus Area	Required Action & Precautions
WorkSafeBC	Dangerous Tree Assessment	A qualified person must assess worksites for snags, root-sprung trees, or dead tops before work begins (OHSR 26.11). Fall them safely or establish a no-work zone.
WorkSafeBC	Manual Falling	Fallers must clear an escape route before the backcut (OHSR 26.21-26.29). This requires extra vigilance in dense, partially cut stands.
WorkSafeBC	Hung-up Trees	Must be brought down immediately using mechanical assistance. Never leave them unmarked, unattended, or attempt to fall the supporting tree.

Best Management Practices

Hazard Scanning	Train crews on the "Look Up, Look Down, Look Around" principle to continuously scan for "widowmakers" suspended in the canopy.
Wind Limitations	Set strict shutdown criteria for high winds. Partial canopies create a wind-tunnel effect, increasing blowdown risks for newly exposed trees.
Mechanization	Use mechanized feller-bunchers or processors whenever terrain allows to keep workers protected inside reinforced cabs.

2. Machine Requirements for Ground-Based Systems

Ground-based harvesting is the standard for commercial thinning, but navigating tight trails requires highly specific machine safety standards to protect the operator.

Type	Focus Area	Required Action & Precautions
WorkSafeBC	Protective Structures	Mobile equipment requires heavy-duty Roll-Over and Falling Object Protective Structures (ROPS/FOPS) per OHSR 26.16 .
WorkSafeBC	Slope Limitations	Do not exceed manufacturer limits. Baseline maximums are typically 30-35% for wheeled machines and 40% for tracked, unless tethered.
WorkSafeBC	Window Guards	Cabs must be fitted with polycarbonate screens or heavy steel mesh to prevent "jill-poking" (branches snapping into the cab).

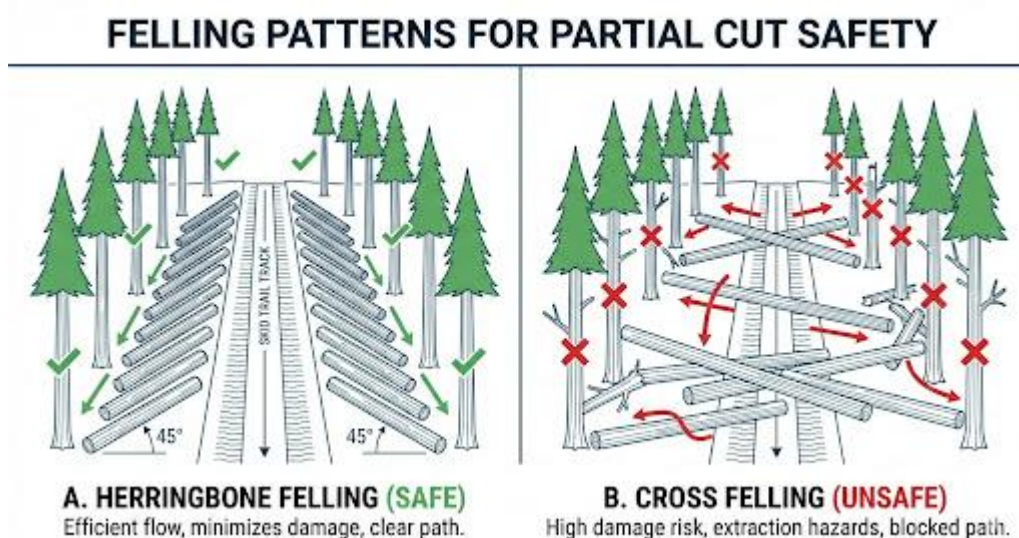
Best Management Practices

Pre-locate Skid Trails	Lay out straight extraction trails before falling begins so logs can be skidded without pivoting into and damaging standing trees.
Match Machine to Tree	Ensure the processor or feller-buncher is appropriately sized. Handling oversized timber with undersized machines easily causes rollovers.

Ground Conditions	Monitor soil moisture closely and implement rainfall shutdowns. Machines lose traction and stability rapidly in deep mud.
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Trail Design & Machine Operability

- **The Hazard:** "Boxing in" the operator. Trails that are too narrow prevent the operator from swinging the boom to protect the cab or escape a falling hazard.
- **Elaborated Control:**
 - **The 15% Rule:** Trails should be at least **15% wider** than the machine width to allow for minor maneuvering/slippage.
 - **Junction Angles:** Layout skid trail junctions at **45 degrees (or less)**. 90-degree turns force operators to hit standing timber to make the turn, creating "widow makers" (hanging broken limbs).



3. Communication and Contractor Management

In community forests and woodlots, the licensee often acts as the "Prime Contractor." If you have a logger, a manual faller, and a log hauler on-site simultaneously, you are legally responsible for coordinating their safety.

- **The "Two Tree-Length" Rule:** Ensure no worker operates within two tree-lengths of a manual faller or mechanized harvester without making positive radio contact first.
- **Daily Tailgates:** Conduct a brief morning safety meeting to discuss the day's harvest block. Highlight specific hazards like steep pitches, soft ground, or heavy root rot.
- **Check-in Procedures:** Establish a strict working-alone check-in schedule for operators isolated in insulated cabs, especially in remote blocks with poor cell service.

PART 2: GROUND-BASED HARVESTING EXECUTION

Operating in a "Confined Space" forest.

1. Felling to Lead (Directional Felling)

- **The Hazard:** "Cross-felling." Trees felled across the trail require the skidder/processor to wrestle them out, damaging retention trees and risking cabin impact.
- **Elaborated Control:**
 - **Herringbone Pattern:** Trees must be felled at a 30-45 degree angle *toward* the skid trail.
 - **Butt-First vs. Top-First:** Decide this in the parking lot.
 - *Butt-First:* Safer for the faller/buncher (more control).
 - *Top-First:* Reduces damage to residual trees during skidding but requires more skill to extract.

2. The "Rub Tree" Technique

- **The Hazard:** Hull damage and structural compromise of the machine cab from impacting standing timber.
- **Elaborated Control:**
 - **Designate Sacrificial Trees:** On tight corners or steep grades, leave a "rub tree" (bumper tree) intentionally.
 - **The Protocol:**
 1. Use the rub tree to pivot the load around the corner.
 2. **Cut the rub tree LAST.** Once the skidding is finished in that lane, fall and remove the damaged rub tree. *Never leave a damaged rub tree standing for the next entry.*

3. Visibility & The "Ghost Trail"

- **The Hazard:** Depth perception fails in standing timber. Operators cannot see ground depressions or small rock bluffs hidden by understory.
- **Elaborated Control:**
 - **Probing:** In deep slash or brush, use the boom to "feel" the trail ahead before committing the tracks.
 - **Positive Contact:** When two machines (e.g., Feller and Skidder) are in the same partial cut block, they must maintain radio contact at **every** phase change (e.g., "I am moving to Trail 4"). Visual confirmation is unreliable in partial cuts.