WorkSafe Bulletin

Air evacuation in forestry operations

This document describes some important planning considerations for emergency response at remote forestry worksites. If air transportation (helicopter) is the primary or only way of transporting an injured worker from your worksite, or it may be required for another type of emergency rescue, the following best practices will help get your workers to safety as quickly as possible. Consider incorporating these practices into your formal emergency response plan (ERP), and train your crew accordingly. Every worksite is different, so remember to revisit these questions before starting new work and as conditions change.

Review with the helicopter company

Effective communication between companies and understanding each other's strengths and limitations are critical for a successful evacuation. Before starting any project that may require helicopter support, take time to review the following points with the helicopter company:

- Is a daily check-in system required? What arrangements have you and the helicopter company agreed on regarding machine availability, and how will service interruptions be handled?
- In an emergency situation, what type of helicopter will be sent to you?
- Is your first aid equipment compatible with the type of helicopter you will receive? Will your stretcher fit, and can it be properly secured?
- Has your first aid attendant (FAA) received training and orientation in air evacuation procedures from the heli company?
- Have you discussed what rescue systems will be utilized? Do they meet Transport Canada requirements?
- If rigging/slinging equipment is required, what exactly is needed and who is providing it? Does your crew require additional rigging training?
- If you need to call for help, what is the best method and number to contact the helicopter company (e.g., sat/cell phone or radio repeater)?
- Does the heli company have your radio frequencies (and tones) for air-to-ground communication on site?
- Does the heli company know generally where you will be working and lodging before work starts? Confirm when you will provide them with more specific coordinates for each site.
- How long will it take for a helicopter to arrive at your site?
- Who else is working in the area? What equipment do they have? Mutual aid is important for small crews, and a helicopter company might be able to help coordinate resources, such as equipment and helpers.
- What are the options for treatment facilities? Is there an available landing pad at the closest hospital?

On-site procedures and training your crew

As you develop your ERP, gather the following information and establish who is responsible for what. Be sure to review these points with everyone on your site before work starts and as new workers join the crew:

- Locations and state of helipads, if there are any. Can a helicopter shut down or only toe in? In an emergency, make sure the heli company gets this information.
- Is it possible to pack an injured worker on a stretcher to the helipad? If not, review extraction options and requirements with the heli company.
- Have you established heli staging areas for each site? Where are they? Long-line extractions should only involve a quick transfer to a staging area.
- Is extraction an option at the site? Look for overhead hazards, such as standing timber, that would make an extraction impossible. A minimum canopy opening of 25 m x 25 m is suggested for long-line extraction.
- How will you get first aid and emergency transportation equipment to the FAA and injured worker?
- Is your FAA trained and qualified in helicopter evacuation procedures? Is further training required?
- Who is responsible for coordinating air evacuations, and how do workers communicate with that person?
- What is the priority phone number or radio channel for contacting help? Has it been tested from your current location?
- What communication equipment will the caller use? Do you have a no-fail system for getting a call out? Are all workers trained in how to use it?
- Is the caller trained to provide as much information as possible about the surrounding area, such as terrain, weather, and required equipment?

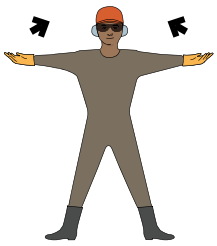
Above all, count on weather interfering with your plans. What is your backup plan if you can't fly your worker out?

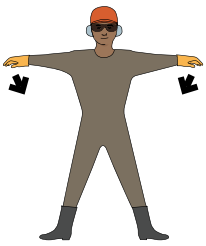
- Does the caller have written references for radio frequencies (with tones) and exact current work locations? Latitude and longitude coordinates are recommended, not universal transverse mercator (UTM) coordinates.
- Are hand signals known so ground workers can communicate with the pilot? Don't rely on radio alone — it can be difficult to hear with a helicopter overhead and other issues could arise, such as battery failure or equipment malfunction. For some common helicopter hand signals, see the next page of this bulletin.
- Have you established a backup helicopter service provider?
- If there is an evacuation delay or air evacuation is not possible, what is your backup plan to assist the FAA and injured worker?
- Do you perform ERP drills at new worksites and as conditions change to test your response capability for various scenarios?

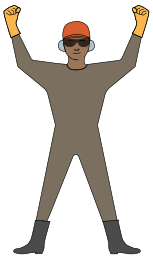
Exact procedures after a helicopter arrives will vary. They should include which people and what gear needs to be flown where and what is done first. These decisions will be made at your site based on factors such as terrain, conditions, injury severity, and crew training. Everyone on site should know who is in charge of coordinating these decisions, and a qualified backup person should be designated.

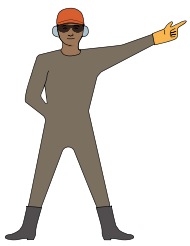
Document these findings in your written evacuation plan. Ensure all workers have access to important contact numbers, landing options, equipment locations, and procedures.

Helicopter hand signals

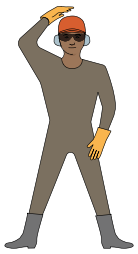

Move up


Move down

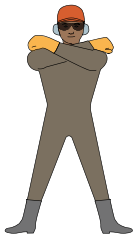

Hold hover


Take off


Clear


Lower hook


Release sling load


Radio failure

Regulatory information

Forestry operations often involve remote work, so many rescues rely heavily on helicopters. Aerial work, including helicopter operations, generally falls under the jurisdiction of Transport Canada. However, when a workplace is involved WorkSafeBC also has some requirements. Notably, the evacuation and rescue provisions in the Occupational Health and Safety Regulation require employers to develop an adequate ERP that will get workers to safety. This section is meant to clarify some common misunderstandings about which agency regulates what with respect to helicopter rescues.

Background

In the mid-1990s, the Canadian Air Regulatory Advisory Committee restricted the transport of human cargo. It was determined that there had to be a failsafe system to prevent unintentional release of the load. In 2008, Transport Canada outlined requirements that Class D operations must meet, including human external loads.

In 1998, Transport Canada issued an approval for helicopter external transport system (HETS) assemblies, which are designed to back up a helicopter cargo hook. According to Transport Canada, Billy Pugh baskets and long-line operations are not accepted for human cargo. To fly with human cargo outside a helicopter, a company must be approved for Class D operations, including the use of a certified HETS unit and a Class D pilot. For more information, see the following web pages:

- Canadian aviation regulations (http://laws-lois.justice.gc.ca/eng/regulations/SOR-96-433/index.html)
- Class D external loads (http://laws-lois.justice.gc.ca/eng/regulations/SOR-96-433/page-130.html#h-1136)

WorkSafeBC does not have jurisdiction in determining what equipment is acceptable but does require employers to have adequate rescue planning in place. WorkSafeBC expects employers and helicopter companies to understand and comply with Transport Canada requirements.

The table on the following page summarizes WorkSafeBC requirements for helicopter rescue that are specified in the Regulation.

WorkSafeBC — Key Regulation requirements for helicopter rescue

	Section
Have you completed a risk assessment, which is required for any workplace where the need for evacuation or rescue may arise?	4.13(1)
If your risk assessment shows a need for evacuation or rescue, do you have written procedures in place? Is someone assigned to coordinate and implement the plan?	4.13(2)
Are first aid procedures written, provided, and posted?	3.17(1)(a) to (f) and (2)
Are all workers who are authorized to call for transportation trained in the procedures?	3.17(3)
If air transportation is the primary or only way of transporting an injured worker from your worksite, have you contacted a helicopter company before starting operations to ensure an aircraft is available?	3.17.1(a)
Are you checking daily with the helicopter company to ensure that an appropriate aircraft is available every day?	3.17.1(b)(i)
Is there an established procedure to notify the employer if the aircraft is no longer available?	3.17.1(b)(ii)
Is there is a method of communication between the pilot and the FAA while the aircraft is in transit and during transport? Typically this requires two-way radios and pilot access to whatever radio channel the FAA is working on, and vice versa.	3.17.1(c)
Are there written safe work procedures for workers who are exposed to hazards from aircraft operations? Do workers receive documented instruction, and can they demonstrate the ability to safely perform their work tasks?	29.3(a), (b), and (c)
Is there communication between air and ground crews? Communication must be effective and include a two-way radio and approved hand signals. Have all workers who might work around the helicopter received training in hand signals and communication procedures?	29.5(1) and (2) and 32.8

Other resources

For more information on how to improve your ERP, see the following resources on **worksafebc.com**:

- ***Every Minute Counts* video**
- ***Every Minute Counts* discussion guide**
- ***Emergency Response Planning: 12 Tips for an Effective Emergency Response Plan (ERP)***