

# Landslides

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Thousands of landslides occur every year in Canada. While most are small, the most damaging landslides are typically in the mountainous regions. In Alberta, the 1903 Frank Slide buried part of the mining town of Frank. 82 million tonnes of limestone rock slid down Turtle Mountain within 100 seconds. It was one of the largest landslides in Canadian history and remains the deadliest. Between 70 and 90 of the town's residents were killed, most of whom remain buried in the rubble.

## Before a Landslide

### Minimize the risk

There are a variety of methods one can use to minimize the risk of landslide, including:

- **Avoidance** - with expert input and careful planning, communities can identify unstable slopes and restrict or control development in hazard zones.
- **Protective measures** - for communities that are already established, the local or provincial authorities must consider whether protective engineering measures or buy-outs and moving of people and buildings should be undertaken.
- **Engineered solutions** - if unstable slopes cannot be avoided, there are numerous engineered solutions to deter landslides including:
  - Improving drainage
  - Reducing the angle of the slope
  - Excavating to unload the top of the slope
  - Building a protective berm or wall to buttress the bottom of the slope
- **Containment or diversion structures** - where landslides can neither be prevented nor avoided, a number of physical containment or diversion structures have been designed, including:
  - Nets and artificial walls to prevent falling rock or earth from hitting roads or structures
  - Catchment dams and containment basins to control debris and water
  - Artificial channels or chutes to redirect debris flow

### Protect your home

Although landslides usually occur without warning, understanding this natural hazard can help to protect your family and home.

- Learn about your local geology and the potential for landslides in your area.

- Avoid actions that would increase instability. For example, do not undercut a steep bank; do not build near the top or base of steep slopes; do not place fill on steep slopes; and do not drain pools or otherwise increase water flow down steep slopes.
- Learn how to recognize signs of potential failure in your locality. Examples include slope cracks, slope bulges, unusual seepage of water on the slope and small rock or sediment falls.
- Know who to notify if you recognize these signs (e.g. municipal or community emergency contact numbers and engineers).

## During a Landslide

### If indoors

- Find cover in the section of the building that is furthest away from the approaching landslide.
- Take shelter under a strong table or bench.
- Hold on firmly and stay put until all movement has ceased.

### If outdoors

- Move quickly away from its likely path, keeping clear of embankments, trees, power lines and poles.
- Stay away from the landslide. The slope may experience additional failures for hours to days afterwards.

## Be Informed

- Download the [Alberta Emergency Alert](#) app to receive current information about disasters or emergencies impacting your community.
- To learn more about landslides, look into data on [landslide activity](#) and browse satellite Earth observational data.

*For more information on hazards in Alberta, contact your municipality or community's Director of Emergency Management or the Alberta Emergency Management Agency at 780-422-9000 (Dial 310-0000 for toll-free access outside Edmonton). You can also visit [www.aema.alberta.ca](http://www.aema.alberta.ca).*