



FEMA

Factsheet

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LANDSLIDES: Is your home SAFE?

If your house is in danger of landslide damage, leave immediately. Don't delay!

Landslides occur throughout Washington, most commonly during the wet winter months. As the population of Washington grows, there are increasing pressures to develop in landslide-prone areas, so that knowledge of these hazards has become increasingly important. If you live in or are planning to move into or build a new home in a landslide-prone area, here are some important things to consider.

SCOTT BURNS



Fig. 1 - Landslide indicators.

Is my home in a landslide-prone area?

Become familiar with the land around you, especially if you live on or near steep slopes, and learn whether landslides or debris flows have occurred in your area. Channels, streams, gullies, ponds, and erosion on slopes indicate potential problems. Road and driveway drains, as well as gutters and downspouts, can concentrate and accelerate flow. Ground saturation and concentrated, rapid surface runoff are major causes of slope failure and subsequent landslides.

Vegetative characteristics can indicate slope conditions. Bare slopes may show evidence of erosion and sliding. Trees that bend downhill or tilt uphill (Fig.1) are also hints that the ground has moved. Ferns or other wet-loving plants often indicate seeps or springs that create saturated ground, which can lead to slope failure.



Fig. 2 - Structural indicators.

Structural deformation such as cracks in foundations, walls and chimneys (Fig.2); gaps between floors and walls; misaligned or sticking doors and windows; failing retaining walls; cracks in driveways, curbs and roads; and tilted power poles (Fig.3) can be warnings of slope instability.

What can I do to reduce landslide risk around my home?

If you are looking for or building a home, avoid sites that you know or suspect to be hazardous on the basis of the criteria listed above. Minimize lawn watering or other irrigation on slopes; make sure that water and sewer lines do not leak; and avoid removing material from the base of slopes or adding material or excess water to the top of slopes. Control runoff from roads or driveways and water from gutters and downspouts so that it flows away from steep slopes and into storm drains or natural drainageways. Plant ground cover with deep roots on slopes.



Fig. 3 - Tilted powers poles indicators.



Debris flow in Skagit County in January 2009.

When are slides most likely to happen?

Water is the most common trigger of landslides, and most recent slides and debris flows have occurred after several hours or, in some cases, several days of heavy rain or rapid snow melt. Volcanoes have spawned debris flows by superheating water in the soil or melting glacier ice, generating water that rushes downhill. Earthquakes can destabilize slopes and the shaking can liquefy fine-grained, unconsolidated soils. If you are on sloping ground or near a riverbank during an earthquake, be alert for landslides.

What should I do during “dangerous” weather?

Stay alert and stay awake! Listen to a radio or TV for warnings of intense rainfall. If you are in an area susceptible to landslides or debris flows, consider leaving if you are able to do so safely, remembering that driving during an intense storm is hazardous. Listen for loud or unusual noises in your house or from outside (trees cracking, boulders knocking together, or the sound of sudden increases or decreases in the flow of nearby streams) and be aware of tilting or cracking walls or floors, ground cracks under your house, or any part of your house falling away. Such changes may indicate landslide or debris flow activity upstream, so be prepared to move out and away from your home quickly.

Who should I consult if I have questions or concerns about landslide risks to my home or property?

Contact local officials (in emergency management, planning, land-use, and/or building ordinance offices), State geological surveys or departments of natural resources, and university departments of geology to learn where

landslides and debris flows have occurred in the past and areas where they are likely to occur in the future. Local officials can provide a list of licensed engineering geologists and geotechnical engineers who are qualified to make a technical assessment of any landslide risks to your home or property. These experts can also assist with mitigation design.

Remember, if you hear or see the signs of an imminent landslide at your home, leave immediately! Save yourself and your family, not your belongings.

Additional Information

To report new landslides or learn where landslides occurred:

Department of Natural Resources
Geology and Earth Science Resources Division
<http://www.dnr.wa.gov>
(360) 902-1450

To see publications and educational material about landslides:

U.S. Geological Survey Landslide Hazards Program at:
<http://landslides.usgs.gov>
(800) 654-4966