

# ESP FOCUS

## Landslides



### The ground can move without a quake!

When most Californians think about ground movement, they probably envision images of the ground below them moving from side to side, or up and down, during an earthquake.

After large-scale wildfires, areas left barren of grasses, plants, shrubs and trees are vulnerable to landslides through sliding, falling and flowing soil, rock, mud, brush and trees, particularly during and after heavy rains. Therefore, it's important that residents of steep hillsides and canyons prepare for slides.

Slow-moving landslides can cause significant property damage, but they usually don't cause any deaths. Mudslides, however, are much more dangerous. According to the California Department of Conservation, mudslides can easily exceed speeds of 10 miles per hour and often flow at rates of more than 20 mph. Because mudslides travel much faster than landslides do, they can cause deaths, injuries and significant property damage.

Wherever you live, work or play, use the recommendations on the reverse side of this Focus Sheet to help reduce your risk of death, injury and property losses from landslides, mudslides and other types of ground failure.

*Each month, ESP will examine a different hazard that could affect Californians and offer suggestions on how to reduce its impacts. These hazards are not limited to the month featured in the ESP Focus Sheet and can occur at any time.*



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# FEBRUARY

## Before the Landslide

You can reduce the potential impacts of land movement by taking steps to remove yourself from harm's way:

- Assume that burn areas and canyon, hillside, mountain and other steep areas are vulnerable to landslides and mudslides.
- Build away from steep slopes.
- Build away from the bottoms or mouths of steep ravines and drainage facilities.
- Consult with a soil engineer or an engineering geologist to minimize the potential impacts of landslides.
- Develop a family plan that includes:
  - Out-of-state contact
  - Place to reunite if family members are separated
  - Routes to evacuate
  - Locations of utility shut-offs
- Store the following emergency supplies:
  - Food
  - Water
  - First aid kit
  - Flashlights and batteries
  - Battery-operated radios
  - Special medications/eye care products
- Store an evacuation kit that includes:
  - Cash (small bills and change)
  - Important documents
    - Birth certificates
    - Insurance policies
    - Marriage certificates
    - Mortgage documents
  - Irreplaceable objects
  - Games, toys for children
- Purchase supplies to protect your home:
  - Hammer
  - Nails
  - Plywood
  - Rain gauge
  - Sand
  - Sandbags
  - Shovel
- Limit the height of plants near buildings to 18 inches.
- Use fire-retardant plants and bushes to replace chaparral and highly combustible vegetation.
- Water landscape to promote early growth.
- Eliminate litter and dead and dry vegetation.
- Inspect slopes for increases in cracks, holes and other changes.
- Contact your local public works department for information on protection measures.

## When it Rains

- Monitor the amount of rain during intense storms. More than three to four inches of rain per day, or 1/2-inch per hour, have been known to trigger mudslides.
- Look for geological changes near your home:
  - New springs
  - Cracked snow, ice, soil or rocks
  - Bulging slopes
  - New holes or bare spots on hillsides
  - Tilted trees
  - Muddy waters
- Listen to the radio or watch television for information and instructions from local officials.
- Prepare to evacuate if requested to do so.
- Respect the power of the potential mudslide. Remember, mudslides move quickly, can cause damage and kill.
- Prioritize protection measures:
  - Make your health and safety and that of family members the number one priority.
  - Make your home the number two priority.
  - Make pools, spas, patios and other elements the next priority.
- Implement protection measures when necessary:
  - Place sandbags
  - Board up windows and doors

## Key Considerations

- Use permanent measures, rather than sandbags, if possible.
- Deflect, rather than stop or dam, debris.
- Use solutions that do not create problems for your neighbors.

*Extracted and adapted from the Los Angeles County Department of Public Works publication "Homeowners Guide for Flood, Debris and Erosion Control" and the California Department of Conservation publications "Hazards from Mudslides—Debris Avalanches and Debris Flows in Hillside and Wildfire Areas" and "Landslide Facts."*

## GETTING IT DONE IN 2001 PREPARING FOR ALL HAZARDS



This action sheet is produced as part of the Earthquake Survival Program (ESP). ESP is an awareness campaign designed to increase individual and home earthquake preparedness. ESP was developed by the County of Los Angeles. The California Governor's Office of Emergency Services (OES); representatives from Imperial, Inyo, Kern, Los Angeles, Mono, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Ventura, and Yuma counties; and representatives from Southern California Edison assist in the development of campaign materials and coordination of the campaign.