would be ineffective and would not protect the homes. However, supporting structures could be used in the starting zone to hold the snow in place, and vonAllmen recommended the installation of avalanche netting. But he pointed out serious permitting problems would be encountered. Though the runout zone was on private property, the starting zone was within a designated U.S.F.S. wilderness area.

Allen chose not repair his dream home, and abandoned the damaged house. In 1987 his insurance carrier filed suit against the development company (Transamerica Insurance Company v. Sundance Development Corporation and others). On November 8, 1989 the court dismissed the suit and ordered each party to bear its own costs.

Avalanche Data

Severe weather kept avalanche workers from visiting the starting zone after the slide. However, evidence after the avalanche told what happened. The starting zone and track of the Bearclaw avalanche path are both 37°. The avalanche fell about 1,900 vertical feet to the house. Near the top of the runout zone the house is located on a 17° slope, too steep for large avalanches to decelerate and stop before hitting the house.

The vegetative record around the house told of a history of avalanches. This was not the first, nor will it be the last, avalanche to reach the area of the house. Uprooted and broken trees lie decaying in the avalanche path. Older, still-standing trees within the path and near the house show scarring on the uphill sides caused by earlier avalanche events.

Consulting engineer vonAllmen and avalanche expert Lev thoroughly studied the avalanche event. Their conclusion was, "the avalanche that struck the Allen residence was not unusual, and it was far short of the potential." Because of the inverted snowpack widespread natural avalanching occurred throughout the Wasatch on the 13th and only involved the new snow. The experts felt that this avalanche also involved only new snow. If it had released into deeper layers, or later in the storm, a much larger and more damaging avalanche would have resulted.

While inspecting the area during the summer of 1986 the men deduced that actually two slides were responsible for the damage to the house. The Bearclaw Cabin and the Water Tank Slide paths released simultaneously. Debris from the Bearclaw Cabin avalanche reached the runout zone first. Debris from the Water Tank Slide flowed into the runout zone and helped to pushed the Bearclaw debris into the house.

Comments

Avalanche runout zones can be attractive building sites (see accident 84-7), and most homeowners probably build without fully realizing the danger and the consequences they might incur. Though Utah County has a natural hazards ordinance, the zoning ordinance does not include avalanches. Thus, there was no process to keep development out from avalanche areas where the risk was unacceptable. One study of the Allen avalanche found that the avalanche hazard at the Sundance Mountain Home Development was "either ignored or not recognized." Avalanches were not considered in the planning, designing and construction of homes in the Bearclaw Cabin runout zone.

Without strong avalanche zoning ordinances future accidents of this kind are certain, not just in Sundance but in all mountain developments where structures and homes can be affected by avalanches. In the absence of zoning regulations buyers must be made aware of the avalanche threat. Having a home destroyed, or loved-ones killed, is a ignominious way to name an avalanche path.

86-7 FEBRUARY 15, 1986

Reflection Lakes, Mt. Rainier National Park, Washington

1 ski tourer caught and partly buried

Weather Conditions

Saturday, February 15, was cloudy and snowy at Paradise (5,400 feet) on the south side of Mt. Rainier. At 0845, 8 inches of heavy, wet snow (1.45 inches of water equivalent) was reported, and the temperature was already 32°F. Winds were light from the southwest, averaging 15 mph. At Narada Falls, a thousand feet lower in elevation and a short distance down the road, it was raining.