cesf bulletin CALIFORNIA EARTHQUAKE SAFETY FOUNDATION 1

What is your home built on?

The frame and huge foundation of the earth Shak'd like a coward. (The First Part of King Henry the Fourth; Act III. Scene I, William Shakespeare, 1564–1616).

In earthquake country, it is generally accepted that a home built on rock would be generally better off than a home built on soil; however, it is not possible for everyone to have their homes founded on the rock, as many of our cities and towns in California are established along coastal margins, along rivers, and in valleys where there may be deep soil deposits. Also because of our growing population, there are many homes that are built in hillside or mountainous areas.

In past California earthquakes, it has been observed that homes can be damaged by the effects of soil liquefaction – a phenomenon where saturated soils can lose their strength with strong earthquake shaking and thus cause buildings to settle and deform, as observed in the Marina District of San Francisco in the 1989 Loma Prieta earthquake.

In the 1994 Northridge earthquake, there was much damage to homes built in hillside areas. Some homes were destroyed by earthquake-induced landsliding and many more were damaged by settlement of man-made fills placed in hillside areas.

How can you know if you are in an area that may be affected by the next earthquake? With the enactment of the Seismic Hazards Mapping Act, the California Geological Survey is producing maps showing areas that are subject to Soil Liquefaction and Seismic-induced Landsliding. You can find these maps at the following website:
http://gmw.consrv.ca.gov/shmp/

If you live in an area not covered by these maps, you can contact your local city or county government and ask for their seismic safety element, which should address seismic hazards affecting your community.

If you live in a hillside area, or if you are considering buying a home in a hillside area, you should be aware that houses built on man-made fill areas have been observed to be more prone to distress from earthquake than houses built on cut areas. Man-made fill materials have more tendencies to settle than natural soils found in cut areas. In particular, houses built over the transition between cut and fill areas are very susceptible to damage in an earthquake as the portions constructed over fill may settle more than the portions constructed over cut. Homes constructed on sites with a varying depth of fill are also subject to differential settlement as the amount of settlement tends to increase with greater depth of fill.

So what is your home built on? Don't be afraid to ask and find out.

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