

1.10 Earthquake Safety

An excellent guide for citizens to minimize earthquake hazard in their daily lives was put together by the U.S. Geological Survey in Pasadena. The 1995 guide, *Putting Down Roots in Earthquake Country*, is available on the Internet:

<http://www.scecdc.scec.org/eqcountry.html>

The sections below contain excerpts from *Putting Down Roots in Earthquake Country*.

1.10.1 Anatomy of a Safe Building

Buildings are built to withstand the downward pull of gravity. Earthquakes push on a building in all directions--up and down, but most of all, sideways. A safe building is one that can withstand the sideways push.

A safe building is built on a firm foundation. The foundation should be solid with a continuous perimeter. The house should be securely fastened to the foundation--so it cannot be pushed off--by drilling bolts through the mudsill and into the concrete of the foundation.

A safe building securely connects the building components together. Mortar in brick and masonry dissolves under even moderate shaking and should not be a structural element. A house with a crawl space (not a slab foundation) needs bracing of the cripple walls that surround the crawl space to resist the sideways push. The opening of a garage door supports nothing and other walls must compensate if that is the first floor of a multistory building.

A safe building is built of strong materials. Damaged concrete and rotten wood undermine the integrity of the building.

A safe building protects the plumbing. Broken water pipes will cause water damage and broken gas pipes are a great fire hazard. Pipes need some but not too much room to sway.

Most houses in southern California are not as safe as they could be. The following presents some common structural problems and how to recognize them. To fix them, you will need to obtain more information. Refer to the recommended resources in Section 1.10.5 and consult with a professional contractor or engineer.

- **INADEQUATE FOUNDATIONS:** Go into your crawl space and look at your foundation. If the foundation is damaged or built in the "pier and post" style, consult a contractor or engineer about replacing it with a continuous