

The Problem

The large opening of a garage door and the weight of a second-story room built over the garage can result in the walls being too weak to withstand earthquake shaking.

When the narrow sections of the wall on each side of the opening are not reinforced or braced, the weakness is worse.

How to Identify

- ✓ Is the garage door opening in line with the rest of the house? (See Figure 26)
 - If this is the case, additional bracing **may not** be needed.
- ✓ Is the house shaped like Figure 27? If this is the case, are there braces or plywood panels around the garage door opening?
 - If there are no braces or plywood panels, strengthening may be needed.
- ✓ Consult a licensed architect or engineer to determine the strengthening required.

Remember

- Many homes with this weakness have been severely damaged in past earthquakes.



Office of Emergency Services

Figure 25 - This mountain home was built over a garage, and its walls were not strong enough to withstand an earthquake.

HOUSE VIEWED FROM ABOVE

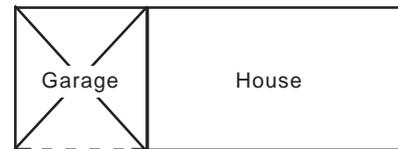


Figure 26 - If the wall of the main house is in line with the wall containing the door of a garage with a room over it, the adjoining wall may help brace the garage.

HOUSE VIEWED FROM ABOVE

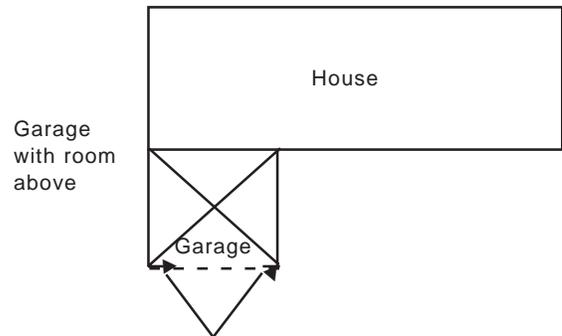


Figure 27 - Additional bracing. Home configuration where there is no in-line wall. Additional bracing may be appropriate in this situation.

The Solution

Consult a licensed architect or engineer to design plywood paneling or a steel frame around the door opening (See Figure 28).

Have plans drawn.

Obtain a permit from your local Building Department.

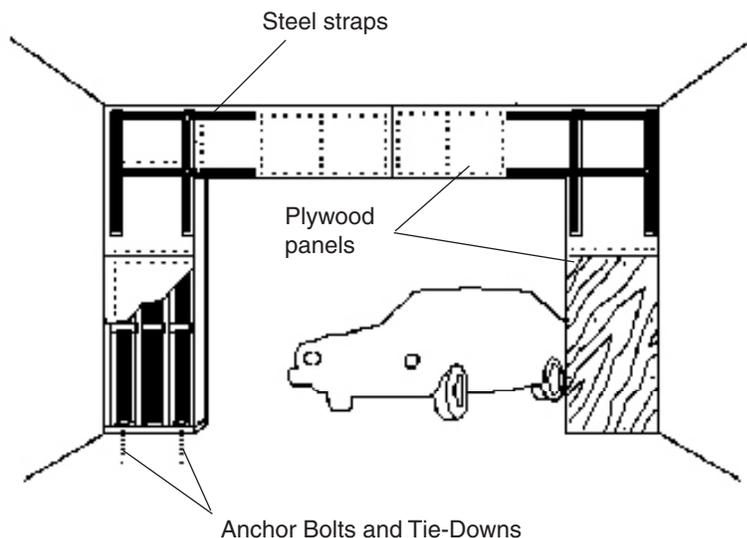


Figure 28—Bracing garage walls. If your house has a room over the garage, the garage walls may not be strong enough to hold up during an earthquake unless they are braced with plywood panels and steel straps.

How-to Resource

- Detailed information can be found in the [International Existing Building Code](#), published by the International Code Council.

Comparison of Cost: Preventing vs. Repairing Earthquake Damage

Project Cost	Cost to Repair After an Earthquake
\$5,000 to \$25,000	\$15,000 to total value of home (if completely destroyed)