



Structural Mitigation

Wood-framed homes – safe & sound?

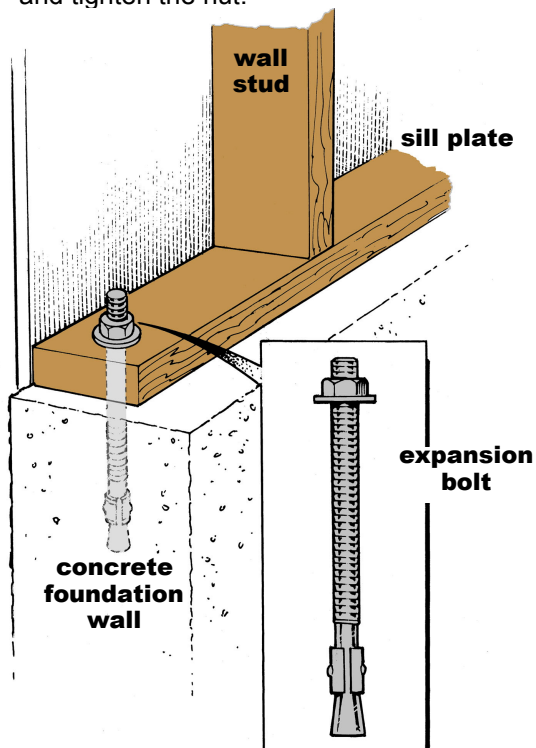
Homes that have been framed in wood are generally quite resistant to earthquake damage. While it is unlikely that conventionally framed houses will collapse, your assurances of safety are dramatically improved if the home remains on its foundation, and the roof, ceiling, and walls remain connected. If you have specific questions about your home, please contact an engineer experienced in seismic strengthening. These can be found in the yellow pages of the phone book.



Securing your foundation

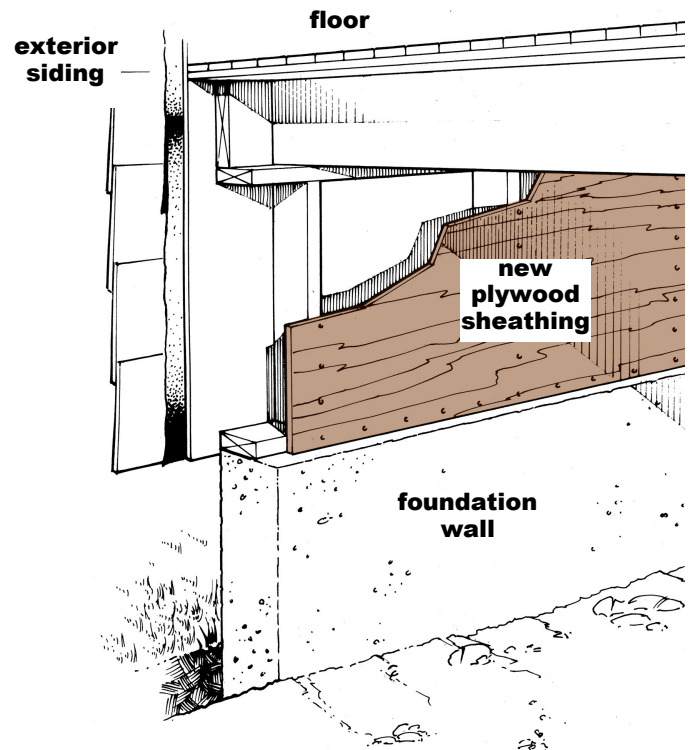
The majority of residential structural damage is caused by homes sliding off their foundations during major earthquakes.

- Check your house and garage for foundation bolts. These bolts secure the wood structure to the concrete foundation. They should be placed every six feet along the sill plate.
- Using a hammer drill and a carbide bit, drill a hole through the sill plate into the foundation. Place these holes every six feet.
- Drop a 1/2" x 8" expansion bolt into the hole and tighten the nut.



Cripple walls

- Inspect the vertical studs that extend from the foundation to the first floor of your home. These are common in crawl space areas and are called cripple walls. If they are exposed (for example, without sheathing) on the inside, they could buckle in the ground motion that accompanies many large earthquakes.
- Strengthen the cripple walls by nailing plywood sheathing to the vertical studs, sill plate, and top plate.



CAUTION: Retrofitting done improperly may actually cause damage to your home during an earthquake.

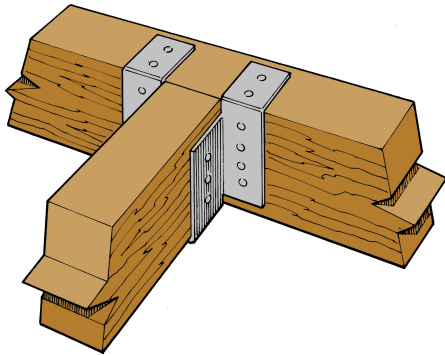
These pages are intended to illustrate the types of structural retrofitting houses need to be seismically safe. They are NOT intended to provide the specific directions on how to do the retrofitting.

Check with your local office responsible for issuing building permits for complete instructions.

Strengthening the frame

For a building to stay together in an earthquake, all its parts must be fastened together. Commercially available metal connectors are used to strengthen places where beams, posts, walls, the floor, and the ceiling join.

- Strengthen the connections between ceilings, walls, and floors using the appropriate hardware:



- Inspect all exposed framing in garages, basements, porches, and patio covers. Strengthen this where necessary.

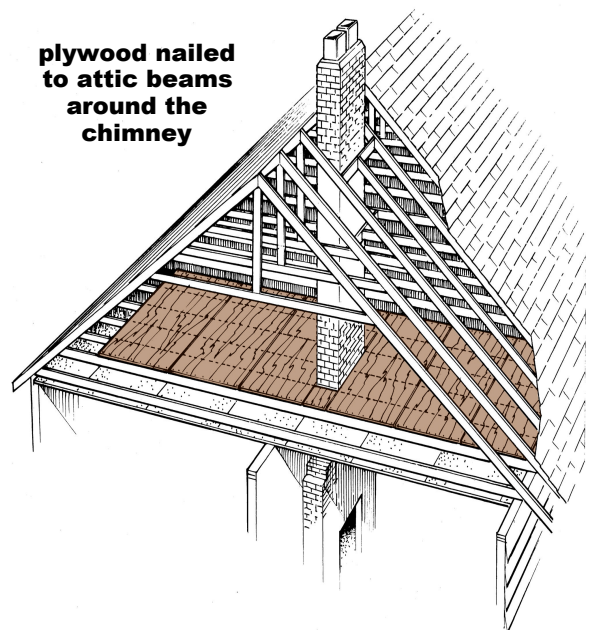
Brick & masonry facades

- Check all brick, masonry, and stone facades to make sure they are securely attached to your home. Consult a structural engineer for advice on how to do this.

Chimney

One of the most common types of damage suffered in earthquakes is a toppled chimney. This becomes extremely dangerous when bricks penetrate the roof and fall to the rooms below.

- Check the chimney for loose tiles and bricks.
- Reinforce the ceiling surrounding the chimney with 3/4" plywood nailed to the beams. This provides protection from falling bricks that might break through the roof.



- If your chimney is old and extends more than five feet above the roof, consider bracing it. Check the yellow pages in the phone book for engineers who are experienced in seismic strengthening.

Windows

- Inspect all large plate glass windows to make sure they are safety glass.
- Consider adding a safety film to all windows. This does not prevent the window from breaking, but it does keep the glass from falling and injuring loved ones.

