

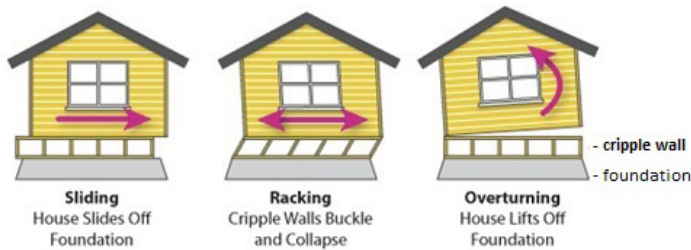
# Earthquake Retrofit Your Home

This bulletin covers the basics of strengthening a wood frame residence against earthquake damage and the steps to getting a building permit for retrofit work. For questions, call the Permit Center at 408-535-3555 and we will walk you through the steps.

Also view our presentation on earthquake retrofits at: <https://www.sanjoseca.gov/home/showdocument?id=48773>

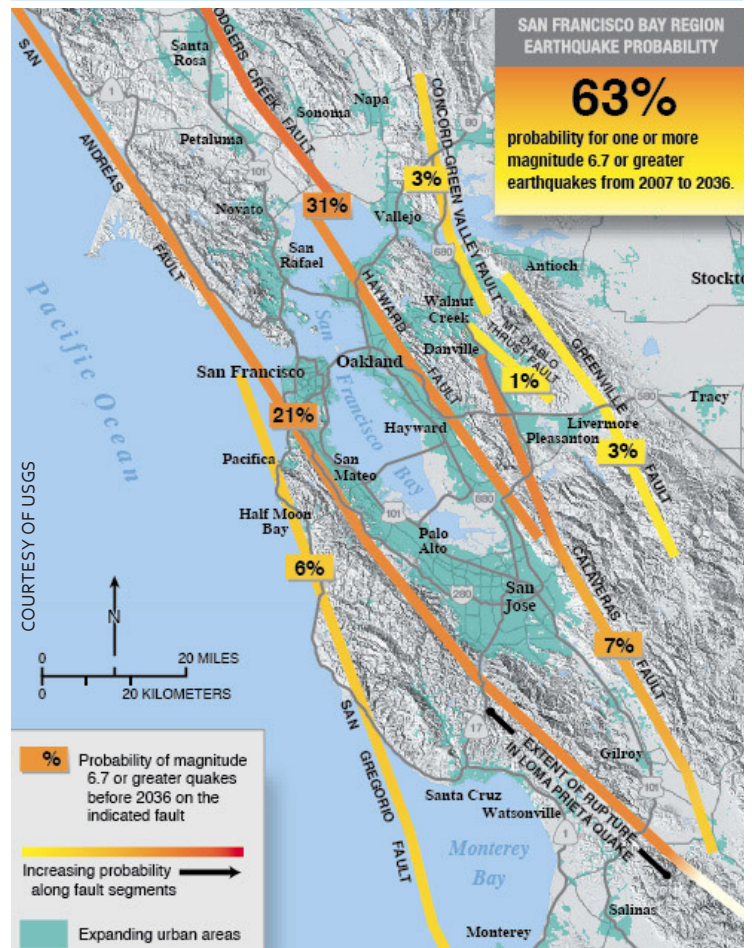
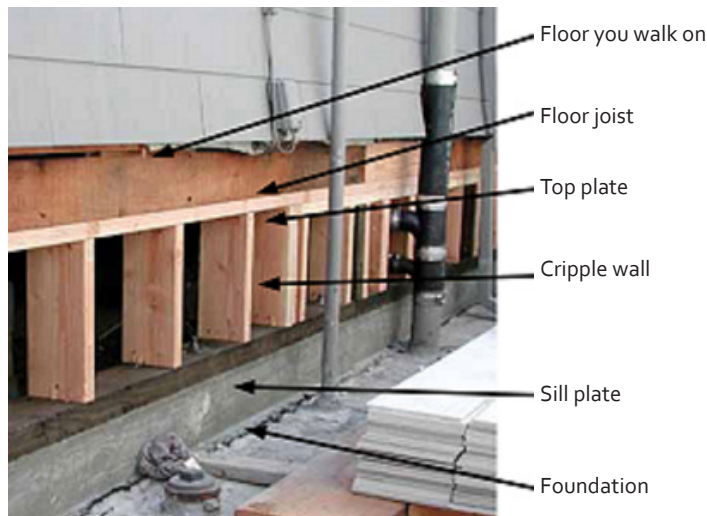
## WHAT CAN HAPPEN DURING AN EARTHQUAKE

Houses that are not bolted down can slide off their foundation or even overturn; the lower cripple walls can also buckle and collapse. Older wood-framed homes that are not built to modern-day earthquake standards are particularly at risk.



## UNDERSTANDING THE HOME'S FOUNDATION

A key area to strengthen on a wood frame home are the cripple walls. Whether hiring a contractor to perform the retrofit or undertaking the project yourself, you should understand how the foundation of your home works:



# Earthquake Retrofit Your Home CONTINUED

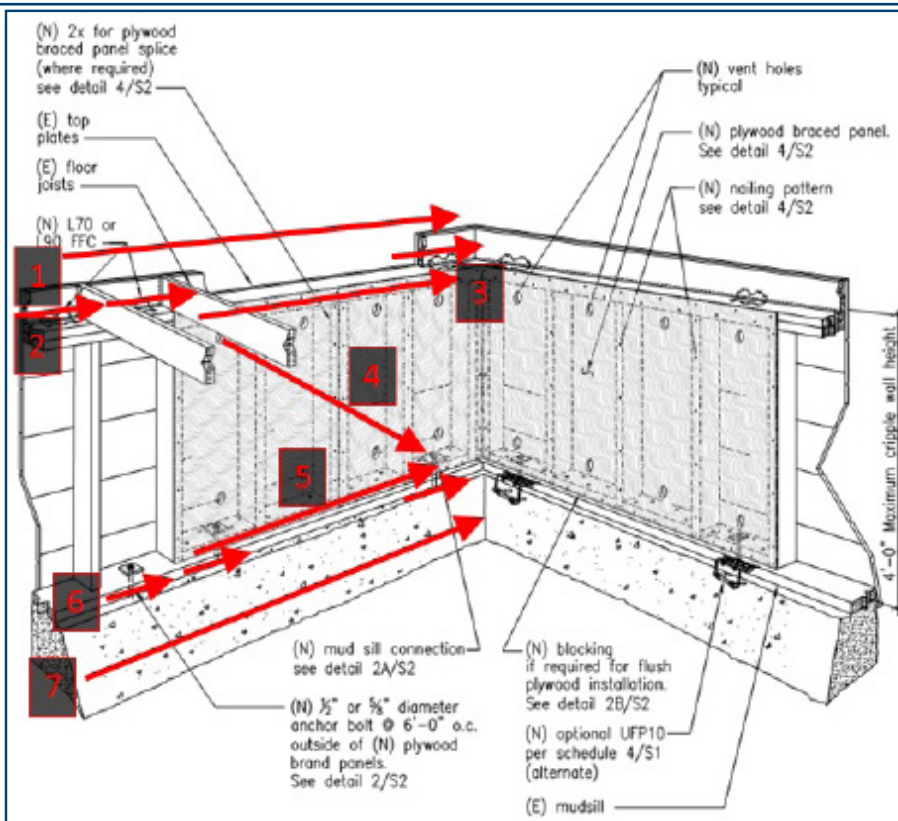
## STRENGTHENING A WOOD FRAME HOME

The key steps to strengthening are:

- Clip floor blocking to the top plate
- Place plywood (shear walls) over cripple wall
- Bolt/attach mudsill to the foundation

The goal of the retrofit is to transfer the earthquake load or force from the house to the ground. As shown in the illustration:

1. The shaking building forces the energy load into the floor...
2. into clip angles...
3. into top plate and nails in plywood...
4. through plywood...
5. into nails in plywood at bottom plate/mudsill...
6. into bolts in mudsill...
7. into foundation.



## OTHER ITEMS NEED YOUR ATTENTION, TOO!

Earthquake damage can also be caused by large, unsecured items. Go through your home to check that these items are all bolted to walls or otherwise secured:

- Appliances
- Chimneys
- Furniture
- Lighting fixtures
- Wall hangings
- Water heaters



### IT'S THE LAW!

Water heaters must be braced and strapped.

Read our handout,

[Bulletin #293 - Water Heater](#)

[Installation Information](#), available at [www.sanjoseca.gov/buildingbulletins](http://www.sanjoseca.gov/buildingbulletins)

LEARN MORE about earthquake readiness: [www.earthquakeauthority.com](http://www.earthquakeauthority.com)

Development Services Permit Center  
200 E. Santa Clara St., San José, CA  
408-535-3555  
[www.sanjoseca.gov/permitcenter](http://www.sanjoseca.gov/permitcenter)

Earthquake retrofits require a building permit. We're here to help you with the steps. Come to the Permit Center with:

- A completed **Building Permit Application**, available at [www.sanjoseca.gov/buildingbulletins](http://www.sanjoseca.gov/buildingbulletins). You will use our Over-the-Counter service — walk in with an accurate plan, walk out with your permit. Contact the Permit Center for more information, including cost of permit fees, at [www.sanjoseca.gov/PermitCenter](http://www.sanjoseca.gov/PermitCenter).
- We accept the **Residential Seismic Strengthening Plan** template approved by the Association of Bay Area Governments (ABAG). You or your contractor simply add your home's data to the template. Download the template at: <http://resilience.abag.ca.gov/wp-content/documents/Plan-Set-A.pdf>.

