

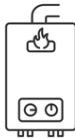
# HOME HARDENING FOR EARTHQUAKE

Guide #10

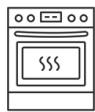


In an earthquake or other disaster, many items in and around your residence can become hazards. Take steps now to minimize the amount of damage to your family and property.

## MINIMIZE HAZARDS INSIDE YOUR RESIDENCE



**HOT WATER HEATER** - If your water heater tips over or breaks in an earthquake it can cause injury, possible explosion, or fire if the gas line breaks. Strap your water heater securely to the wall studs in two places with a water heater strapping system. Use flexible gas and water connectors.



**LARGE ELECTRICAL AND GAS APPLIANCES** - Movement during an earthquake can pull on electrical cords, breaking them and creating a potential for fire. Check electrical cords to make sure that they are long enough to allow for movement of up to a few feet. Broken gas lines can cause a fire and/or an explosion. Have a qualified professional replace all short, non-flexible gas lines or connectors on gas appliances with longer, flexible connectors.



**CABINETS** - Be careful when opening cabinet doors after an earthquake because items may have shifted and could tumble out. Install strong latches on kitchen, laundry room and bathroom cabinets to keep the contents from flying or spilling out. Lay soft rubber shelf covering on dish and canned good shelves.



**HEAVY OBJECTS** - Heavy items can become flying objects during an earthquake and may cause injury. Secure computers, microwave ovens, stereos and other items with fasteners or straps such as hook-and-loop tape. Secure breakable objects with products such as quake (museum) wax or gel. Place heavy objects only on lower shelves.



**PICTURES AND MIRRORS** - The shaking during an earthquake can cause pictures to fall off walls and break the glass into sharp shards. Fasten large pictures and mirrors securely by hanging them with a wire on a closed or "maze" hook. Use clear acrylic plastic instead of glass to cover pictures. Avoid having glass and heavy objects around or over your bed or where you often sit.



**TALL AND HEAVY FURNITURE** - Top-heavy furniture such as entertainment centers, bookshelves or dressers can tip over during an earthquake, causing injury or damage. Securely fasten these to the wall studs with metal "L" brackets, cable straps or specially-designed flexible hook-and-loop straps that allow slight movement during an earthquake.



**HOUSEHOLD CHEMICALS** - During an earthquake, containers of household chemicals can tip over and spill, causing potentially dangerous conditions. Limit the amount of hazardous materials in storage. Store chemicals in their original containers in a shallow pan on a low shelf or inside cupboards that can be securely latched to limit possible leaking, splashing or dripping.

# MINIMIZE HAZARDS OUTSIDE YOUR RESIDENCE



**PORCHES AND DECKS** - Porches, decks and balconies that are not properly attached to the house may collapse and fall during an earthquake. Consult with a licensed contractor to determine if these structures are securely attached.



**CHIMNEYS** - Chimneys damaged by shaking from an earthquake can fall and cause injury. Have chimneys frequently cleaned and inspected for cracks by a qualified professional.

## STRENGTHEN YOUR HOME AGAINST DAMAGE

**HAVE YOUR HOME INSPECTED** - Homes in earthquake zones should be designed to withstand the horizontal and vertical forces from an earthquake. **The earthquake's forces should pass through the frame of the house to its foundation and leave the building intact – this is known as the continuous load path.**

Consider hiring a licensed contractor or structural engineer certified in seismic work to inspect your home, especially if it is older (pre-1980), and to identify any weaknesses in the structure that may require retrofitting, for example:



### BOLTING DOWN THE SILL PLATE

If the sill plate is not securely anchored to the foundation then an earthquake may cause the house to shift, potentially causing severe damage. Through bolts or other approved fasteners, brackets or connectors can be installed to anchor the sill plate to the foundation.

### INSTALLING SHEAR WALLS

Shear walls (plywood bracing) can be added in crawl spaces and to interior and exterior walls to help limit the house from swaying (shearing) and to help prevent the wall studs from collapsing.

**OTHER STRUCTURAL CONCERNs** - The seismic inspection may identify additional structural concerns and hazards that should be addressed, including:

- ❖ a large, open ground floor space that lacks interior walls (i.e., a weak or “soft” story)
- ❖ a foundation that is weakened from settling (especially crucial on sloping sites)
- ❖ pest damage or wood decay that undermines the integrity of the structure
- ❖ unreinforced walls made of bricks, cinder blocks, hollow clay tiles or adobe that can collapse
- ❖ weak garage-door openings

## PREPAREDNESS TIP



**Provide street address numbers on your building/structure that are clearly visible from the roadside both day and night.**

The required minimum height is 4 inches – the larger, the better.