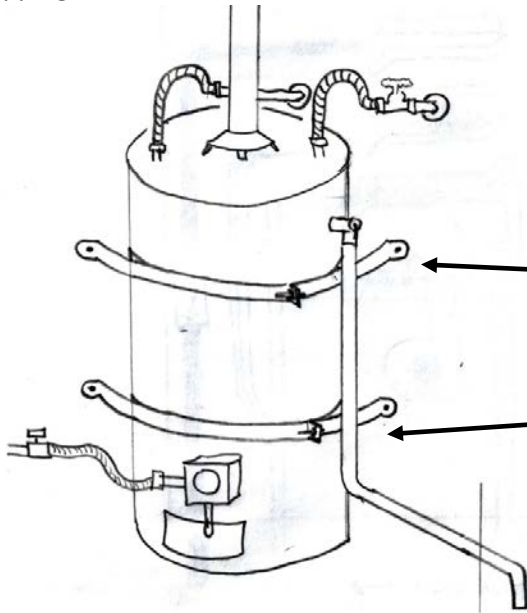
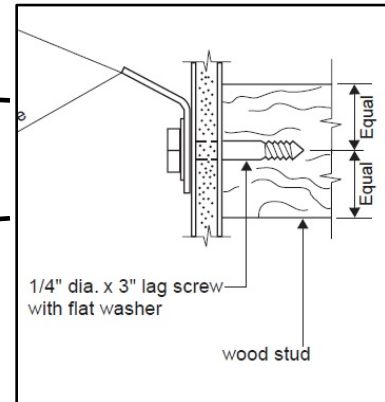


Water Heater Strapping

CPC 507.2 Seismic Provisions. Water heaters shall be anchored or strapped to resist horizontal Displacement due to earthquake motion. Strapping shall be at points within the upper on third (1/3) and lower one-third (1/3) of its vertical dimensions. At the lower point, a minimum distance of four (4) inches shall be maintained above the controls with the strapping.



Do not attach straps with small screws.



Division of State Architect Guidelines for water heaters up to 75 gallons can be found at this link.

http://www.seismic.ca.gov/HOG/waterheaterbracing_08-11-04.pdf

Changes to strapping recommendations

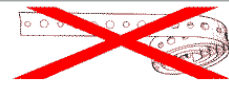
Your tank may be strapped, but incorrectly, as old methods are no longer recommended. Experts have modified the recommended procedure for strapping water heaters because many tanks broke through their strapping in both the 1989 Loma Prieta (San Francisco) and the 1994 Northridge (Los Angeles) earthquakes. Experts recommend these two important changes:

1. Secure both the top and the bottom, rather than just the top or just the middle, of the hot water tank.
2. Use heavy-gauge metal strapping rather than plumber's tape. Many water heaters in both the 1989 and the 1994 earthquakes broke through the plumber's tape that was intended to keep them secure. The thin metal in plumber's tape has been found to be too brittle to be effective.

Securing your hot water tank

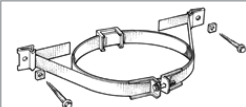
Secure your water heater.

- There should be very little space between the water heater and the wall. If there is more than 1 or 2 inches, attach a wooden block to the wall studs with long lag screws (see illustration on page 20). The purpose is to prevent the heater from tipping backwards.
- Wrap the heavy-gauge metal strapping 1½ times around the tank. Start by placing the strapping at the back of the tank. Bring it to the front and then take it back to the wall (see illustration below).
- Secure this strapping to the wall studs or the wood block using several 1/4" x 3" or longer lag screws with oversized washers. If you are securing it directly into concrete, use 1/4" expansion bolts in place of the screws.
- Replace all copper and metal piping with flexible natural gas and water line connectors.



Do NOT use this - this is plumber's tape. Use heavy gauge steele strapping instead.

Source: SPAN Disaster Services, Inc.



Commercially available kits like this one come complete with the strapping, lag screws, washers, spacers, and tension bolts. These kits can be purchased at many local hardware stores, and are recommended.

Source: SPAN Disaster Services, Inc.

Additional tips from the Earthquake Country Alliance.

<http://www.earthquakecountry.org/step1/waterheater.html>

- This document is meant to offer perspective and does not imply to be an exhaustive code evaluation or a prescriptive repair to your property. It is your responsibility to determine proper installation, determine what work requires permits, and to obtain permits when required.