

ANCHORING WATER HEATERS

Strapping your water heater to the wall and having a flexible gas line installed will greatly reduce both the danger of fire (if you are using gas) and major water damage. If you have a gas water heater, look for a flexible metal tube where the gas line enters the water heater at its base. If your gas water heater has a rigid connection only, call the utility company or a licensed plumber to install a flexible line. Strapping the water heater is a fairly simple procedure. We have included two examples in this section, which have been developed by the Office of the State Architect. The first example is for a water heater located in a closet or in a corner and uses metal plumbers tape/band in a corner location. The second example is for a water heater located against a wall and uses metal conduit for a water heater against the wall. You can exchange or combine the installation details shown in **Figures 4 and 5** to fit your water heater location. In recent earthquakes, the conduit method was more effective in preventing damages. Whichever method you use be sure to follow the installation instructions completely. If you have difficulty using these examples to fit your specific situation, contact your building department for other examples.

Instructions for installing a water heater restraint for corner placement of water heater using tape method:

1. Mark water heater 9" down from the top and approximately 4" up from the top of the controls.
2. Using a stud finder or other similar method, locate the closest wall stud behind and to one side of the water heater. Positioning of the water tank with respect to the location of the support studs is important. Stretch a string between the support studs and determine if the distance to the face of the tank meets the requirements as shown in Figure 3. If it does not, it may be necessary to empty the tank and move it if it has flexible connections, or if not moveable, the locations of support can be moved using the details seen in Figure 3.
3. Measure and mark the wall where the stud identified in step 2 was located.
4. Drill a 3/16" diameter pilot hole in the marked stud least 3" deep.
5. Using 3/4" x 24 gauge perforated steel plumbers tape, anchor one end of the tape to the wall with 1/4" diameter lag screw and flat washer, wrap the tape around the tank and pull tight to anchor stud on the opposite wall.
6. Mark point for hole in opposite wall and drill pilot hole.
7. Cut off excess tape and install another lag screw with a washer. It is important that the tape be tightly stretched. If the tape is not tight, remove the lag screw and place it in the next 1/4" hole in the tape and tighten.
8. Repeat as necessary for all pieces of tape required.

Instructions for installing a water heater restraint for water heater on straight wall using conduit method:

1. Mark water heater 9" down from the top and approximately 4" up from the top of the controls. Locate wood studs in the wall on both sides of the water heater.
2. Using a stud finder or another appropriate method, locate the closest stud behind and to one side of the water heater.
3. Transfer marks on the water heater horizontal to the adjacent wall where the stud identified in step 2 was located.
4. Drill a 3/16" diameter, 3" deep pilot hole at the marked locations for the 1/4" diameter by 3" long lag screw.
5. Measure around the water tank and add 2" to the measurement. Cut two pieces of 3/4" x 24 gauge perforated steel plumbers tape to the length. Place a bolt with washer through end hole of one end and bend out 90 degrees as close to the edge of the washer as possible. Most plumbers tape comes with 1/4" diameter holes 1" apart with 1/8" diameter holes in between. The tape can be broken at the smaller holes by bending several times.
6. Place tape around tank and place bolt with washer through the nearest hole in the end of the tape, place a washer and nut on the bolt and tighten. The tape should be tight. If the tape is not tight, remove the bolt, place it through the next adjacent 1/4" hole and tighten.
7. Using a straight stick, place the end at the hole in the wall with the side of the stick against the side of the tape around the tank. Measure the distance from where the stick touches the water heater to the hole in the wall. Add 1" to this measurement and cut 1/2" diameter conduit to this length. Repeat this for each piece of conduit.
8. Using a hammer or vise, flatten 1" at each end of the 4 pieces of conduit. Be sure to flatten both ends of each piece of conduit in the same plane.
9. Drill a hole in one end of each conduit approximately 1/2" from each end. Measure 1" in from each end and bend up approximately 45 degrees. This angle will have to be corrected slightly as the work progresses. Hold the conduit on the wall with the hole in the conduit over the hole in the wall, and mark the other end at one of the holes in the plumbers tape. Mark holes in the tape and on the tank and conduit. Take down conduit and drill a hole at the mark for the bolt through the flattened end of the conduit. Repeat for the conduit on the other side.
10. Loosen strap around the tank and place a bolt with washer from the inside through the holes in the tape at all locations. Tighten the tape around the tank so that the bolts are at the marks on the tank. It may be easier to do one side of the tank at a time, as positioning the tape can be difficult. Place conduit on bolt protruding from the strap and place a washer and nut on the bolt and tighten. (A 4d-finish nail inserted in the slot in the bolt will prevent the head from turning.) Position the opposite end at the hole in the wall and insert lag screw with washer and tighten. Do not drive lag screw with a hammer.
11. Repeat the above procedure for the rest of the conduits.

NOTE: The 1/4" x 1" bolts referred to above are called 1/4" x 1" round head machine screws with nut, at the hardware store.