

# INJECTION OF TIGER FOAM INTO CLOSED WALLS FOR INSULATION OF OLDER HOUSES

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Many houses were built in the 1950s through the 1980s were constructed with hollow walls, wooden exterior siding and plastered or plasterboard interior walls. This construction does not provide very efficient insulation from both the weather and from sound.

Adding expandable foam insulation in the voids between the interior and exterior walls is an excellent and relatively low cost method of adding insulation to the home.

Tiger Foam Kits provide an easy solution to injecting this insulation between the walls, however, we have found that the insulation must be injected under very controlled conditions. If too much material is injected, there is a risk of buckling or bowing-in the interior walls, if too little material is injected, there will be voids in the insulation.

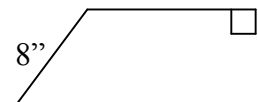
Here is the method that we have developed that works, and is relatively easy.

1. Prepare a block of wood  $5/8$ " thick x  $3/4$ " wide and about 1- $1/4$ " long.
2. Tape the block to the trigger to limit the trigger travel to about 50% of full on.
3. Obtain several 8" lengths of thin wall  $1/4$ " ID Teflon tubing.
4. Attach the tubing to several mixer nozzles. See Photo below for a view of the modified gun.



Keep one 8" length of tubing aside for a "feeler"; its use will be described later.

Also prepare a coat hanger with one end 10" long nearly straight, but bent at about  $45^\circ$  from the remainder; this will also be used as a different "feeler", described below.



Preparation of the house for insulated foam injection:

The injection may be performed from either inside or outside the home. Keep in mind that the liquid foam must be at 75° to 85° F for best results.

Inside injection: pros are warm/controlled temperature, ease of finding studs; cons: possibility of getting foam on walls, floors and carpets, difficult access to some walls because of furniture, windows, and wall accessories.

Outside Injection: Pros; ease of access, less worry about spillage and stray foam, ease of covering up access holes; cons; difficult to control temperature and weather.

Choose which injection side of the wall that best fits your situation.

Materials Required:

- Tape measure
- Black Marking pen
- Electric Drill
- 3/8" Drill bit
- Watch with sweep second hand, or stop-watch
- Above mentioned bent coat hanger.

Procedure:

A. Preparation of the home walls for insulation:

If between stud voids are 3.5" x 14.5" x 96" the volume is about 2.8 cubic feet, so without windows or obstructions, 50 cubic feet of foam should fill about 27 linear feet of wall.

Plan on preparing about 30 to 50 linear feet of wall at a time

Locate and mark the location of all studs if possible by using a stud finder

Halfway between each stud mark a hole location about 48" from the floor and another about 88" from the floor.

If unsure of stud location, this is where the bent coat hanger comes in handy.

Choose a guesstimate hole location and drill a 3/8" hole in the wall about 48" from the floor and aimed down at about 30°

Insert the bent coat hanger thru the hole and rotate it to the left and to the right to "feel" about where the studs are located.

Once the studs are found, estimate the center between, then drill a second hole either 16" to the left or to the right of the expected center between the studs aimed 30° down; repeat the coat hanger feeler routine.

If the holes are a little off-center from the studs, there is no problem.

Continue drilling holes between the studs for the entire 30 to 50 foot section.

If you hit a stud with your drill, mark it as "NO Hole", measure about 8" from that hole and re-drill. Drill all the 48" high holes, each with about a 30° downward incline.

Repeat drilling above each acceptable hole location, but about 88" from the floor.

Each drilled hole should slant down about 30°. You should now have about a 30' to 50' wall section with two holes between each stud set and placed at 48" & 88" above the floor.

## B. Foam Tank and Gun Preparation

1. Place the two foam tanks onto a small wagon or cart for ease in transporting from hole to hole as you proceed. Tape the tanks together and to the cart with duct tape.
2. Connect the hoses to the tanks, observe the red striped hose is on tank "A" and the black striped hose is on tank "B". Tighten the hose nuts securely.
3. Use the injector gun with the modified trigger as described above.
4. Connect a mixer nozzle (with the 8" length of Teflon tubing) onto the gun.
5. Don gloves, goggles and old long-sleeve shirt.

## C. Insulation Injection into wall

1. Insert the gun tubing about 6" into the lower hole on the first wall section to be treated.
2. Pull the gun trigger to the stop (about 50%) of full on, and start timing the fill.
3. Allow the fill to proceed for 40 seconds, then stop.
4. Repeat steps 1-3 for all of the lower (48" high) holes.
5. Once all the lower sections are filled, start filling the higher (88" high) holes starting at the same section as chosen in step 1 above.
6. Pull the gun trigger to the stop (about 50%) of full on, and start timing the fill.
7. Allow the fill to proceed for 40 seconds, then stop.
8. Repeat steps 6, 7 for all of the higher (88" high) holes.

Once complete, use the above mentioned spare piece of 1/4" tubing to "feel" the expanded foam level of each filled section.

If there are sections that are not completely full, top them off with a 5 or 10 second dose of foam chemicals.

If you over-fill a little bit, no worry, the foam will stream out the hole like a worm. Do not try to catch it, its sticky, instead allow it to cure about 30 minutes or so, and by using a sharp putty knife, you can easily scrape off the excess dried foam that has streamed out

## D. Filling the access holes.

If the access holes are on the outside wall, purchase several 3' or 4' lengths of 3/8" diameter wooden dowel rod and cut them into 1-1/4" long pieces at 30° to be used to fill each hole. You will need one short dowel for each hole.

Coat each 1-1/4" rod with a little Elmer's Wood Glue and drive into each hole until flush. Allow 24 hours for the glue to cure; then sand flush and repaint.

If the access holes are on the interior walls, drill out the excess foam from each hole and fill the holes with patching plaster, then sand flush and repaint.

A standard Tiger Foam 50 cubic foot kit will provide enough foam for about 40 to 60 linear feet of wall insulation (depending on wall thickness and window areas).

If there is chemical left over after the first section of wall, prepare another 10 or 20 feet of wall as per above and repeat filling until the tanks are empty, i.e. blowing excess air into the mixing gun.