

# Wall Insulation

Insulation keeps your home cool in the summer and warm in the winter. Just like other parts of the home, it is important to insulate exterior walls for a more comfortable and energy efficient home. You should add wall insulation if you have an older home without any insulation in the exterior walls, or if you plan to finish an unfinished space like a basement or bonus room. Additional wall insulation also may be installed when replacing exterior siding.

## Why is exterior wall insulation important?

Heat flows naturally from warmer spaces to cooler spaces. In the winter, heat moves through exterior walls to the outdoors. In the summer, heat moves from the outdoors through the exterior walls to the house interior. Installing insulation in your exterior walls will decrease the workload on your HVAC system and make your home more comfortable. Homes with no existing wall insulation can install wall insulation to maximize potential energy savings.

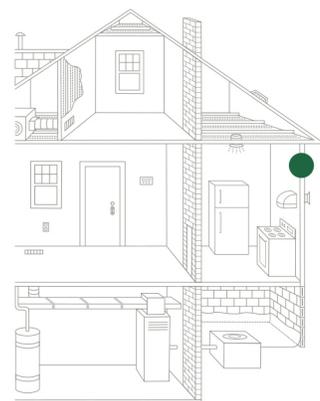


## How much exterior wall insulation should I add?

Insulation levels are specified by R-values that measure the insulation's ability to resist heat flow. The higher the R-value, the better the thermal performance of the insulation. The amount of wall insulation you should add depends on the size of your walls (e.g., 2"x 4") and the type of insulation that you and your contractor decide to install. Generally, exterior walls should be insulated to at least R-13.

## Why is air sealing important in exterior walls?

Insulation works best when air is not moving through or around it. Exterior walls typically have penetrations for electrical wiring and outlets, as well as gaps in the top, bottom, and sides of the walls that can leak warm air either into or out of your home. In addition to increasing heating and cooling costs, these air leaks can introduce water vapor into your walls, potentially resulting in condensation and damage. Typical blown-in and batt insulation does not stop air leakage. Air leaks need to be sealed with caulk or foam before installing insulation. If penetrations and gaps are not accessible for air sealing, such as with existing walls, installation of dense pack insulation (cellulose or fiberglass) or blown-in foam insulation will provide an adequate level of air sealing.



## TVA INCENTIVES

Currently, TVA does not offer incentives for wall insulation.

For more details, call 1-855-2eScore (1-855-237-2673) or go to [www.2eScore.com](http://www.2eScore.com)

# TVA Installation Requirements for Wall Insulation\*

## General Installation Standards for Wall Insulation

- Live knob and tube wiring shall be replaced with new wiring by a licensed electrician.
- Quality Contractor Network (QCN) member shall advise participant to install a working carbon monoxide (CO) monitor if the home has any gas appliances or an attached garage.

## Installation Standards for Exterior Walls

- Moisture conditions shall be corrected prior to installing wall insulation.
- Walls with masonry exteriors shall contain a barrier that prevents blown insulation from contacting the masonry.
- Wall cavities shall be free of hazards prior to installation.
- Insulation dams shall be installed around openings to crawlspace or basement, heat sources, and electrical hazards.
- Sealants shall be installed in a manner that continues the function of the drainage plane and does not hold water in the wall assembly.
- Insulation shall be installed without gaps, voids, compressions, misalignments, or wind intrusions.

## Installation Standards for Basement Walls

- If home has experienced ground water leakage through the wall, then a continuous drainage plane that is pumped or drains to outside shall be installed at interior surface of walls.
- On rough finish walls, drainage plane shall be replaced with a waterproof membrane.
- A non-absorbent insulation, such as closed-cell spray foam or expanded polystyrene, shall be used.
- Insulation shall be attached with a durable connection with a minimum expected life of 20 years.
- Batt insulation shall not be used unless it is in addition to a non-absorbent insulation material that separates the batt insulation from the concrete foundation.
- Material shall be fire-rated if exposed, or covered with a fire barrier, such as ½" wallboard.
- A continuous air barrier shall be installed on the warm side of the insulation.
- Wall assembly shall remain vapor permeable to the interior.

\* This sheet is not a substitute for the TVA Standards.



## RECOMMENDED BEST PRACTICES

- Area to be insulated should be air sealed before installing insulation.
- All structural, mechanical, and other penetrations should be air sealed.
- Whenever exterior siding is removed, add R-5 thermal insulating sheathing beneath the new siding.
- Air seal and insulate band joist if accessible from basement or crawlspace.
- If your home is old, an electrician should check to make sure insulation on wiring is not degraded and wiring is not overloaded.
- Inspect installations with an infrared camera to identify any voids that need to be filled.
- If sub-slab drainage is installed in connection with basement wall insulation, termite treatment should be performed before reinstalling the slab.
- An ENERGY STAR® dehumidifier should be installed to maintain basement relative humidity of less than 45 percent; condensate should be drained or pumped to daylight.