

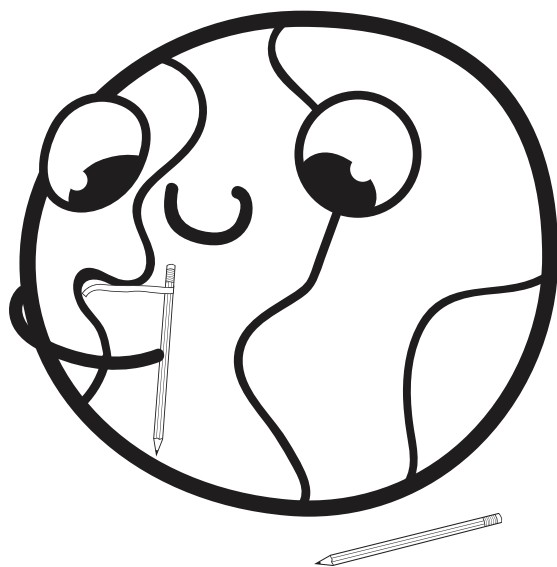
# Seal of Approval



Adjusting the thermostat doesn't always save energy well if your home is not insulated or sealed properly. Poorly insulated attic spaces result in tremendous amounts of energy being wasted through the roof. Furthermore, air can leak or filter out through small cracks and gaps in walls and around windows and doors. This can add up to leaving a door wide open all day, every day. Sealing those gaps with caulking and weatherstripping will reduce air infiltration. Adding insulation in the attic to achieve the recommended R-value will ensure that your energy saving behaviors are not counteracted by a leaky attic. Insulation is helpful in warm and temperate climates!

## Materials

- Outlet and light switch gaskets from kit
- Tissue paper strip or strip of plastic wrap
- Pencil
- Tape
- Sticky notes
- Ruler
- Screwdriver



## Procedure

1. Tape the short edge of the tissue paper strip to the pencil, so it extends away from the pencil.



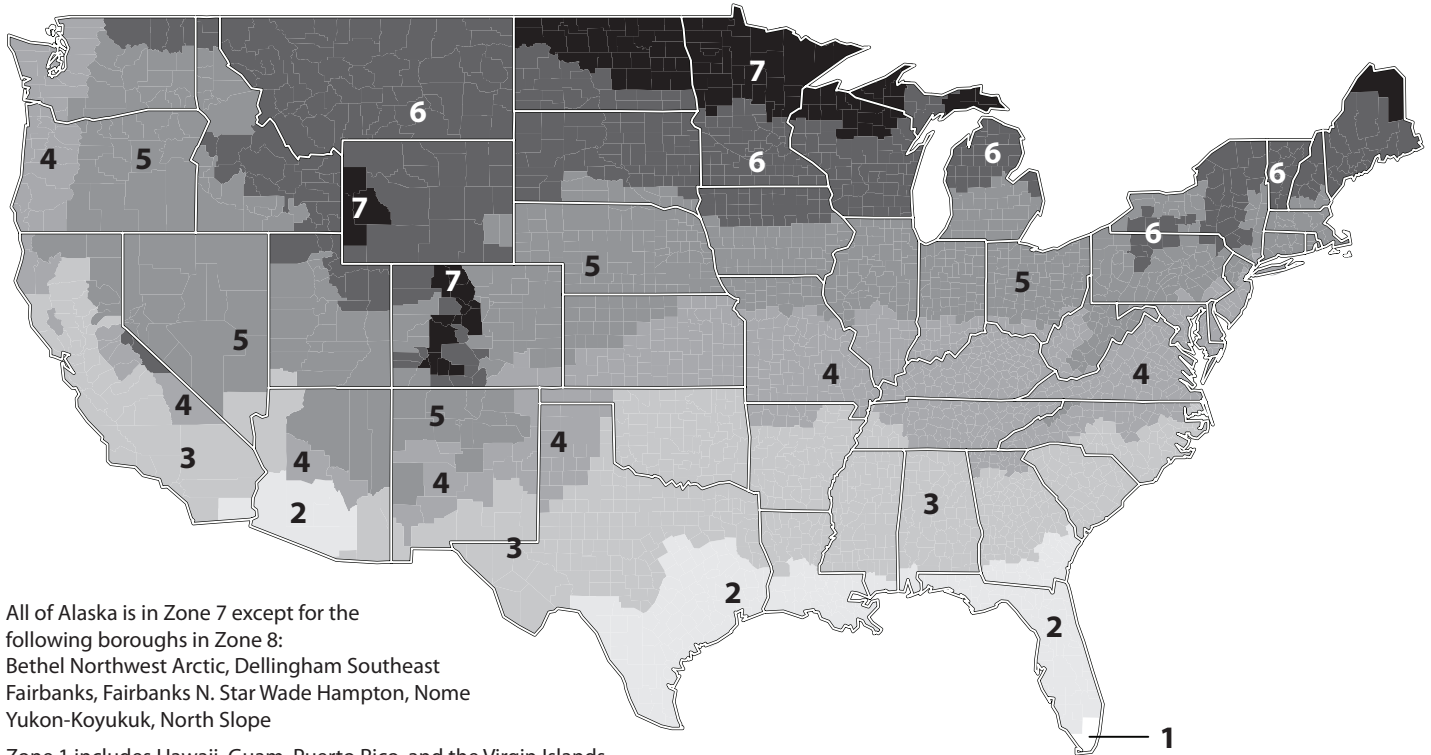
2. Make sure all fans are turned off and windows and outside doors are closed. Turn off the heating or air conditioning system while you do this test, if possible.
3. Moving from room to room, hold the pencil so the paper hangs from the pencil. Hold it up to places where air could leak. Test all windows, outside doors, and any electrical outlets or light switches that are on outside walls. Anywhere you notice significant air movement, place a sticky note (or tape) on the wall or near the crack, and keep tally on the data sheet.
4. Windows and doors with air leaking in should be sealed with caulking or weatherstripping.
5. Any electrical outlets or light switches can be sealed by using the screwdriver to remove the cover, inserting the gasket from the kit, and replacing the cover.
6. After corrections have been made, re-test with the tissue paper.
7. Go into the attic (if able to safely do so) and measure the thickness of the insulation if you see it. Record information about your insulation on the data sheet.
8. Use the R-value graphic to determine how much insulation you should have.



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## Recommended R-Values for New Wood-framed Homes



ZONE	ATTIC	CATHEDRAL CEILING	WALL INSULATION		FLOOR
			CAVITY	INSULATION SHEATHING	
1	R30 to R49	R22 to R38	R13 to R15	None	R13
2	R30 to R60	R22 to R38	R13 to R15	None	R13, R19 to R25
3	R30 to R60	R22 to R38	R13 to R15	R2.5 to R5	R25
4	R38 to R60	R30 to R38	R13 to R15	R2.5 to R6	R25 to R30
5	R38 to R60	R30 to R60	R13 to R21	R2.5 to R6	R25 to R30
6	R49 to R60	R30 to R60	R13 to R21	R5 to R6	R25 to R30
7	R49 to R60	R30 to R60	R13 to R21	R5 to R6	R25 to R30
8	R49 to R60	R30 to R60	R13 to R21	R5 to R6	R25 to R30

Data: U.S. Department of Energy

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### Data

#### Results of Air Infiltration Test:

\_\_\_\_\_ windows leaked \_\_\_\_\_ doors leaked \_\_\_\_\_ electrical outlets or switches leaked

Notes:

\_\_\_\_\_ windows sealed \_\_\_\_\_ doors sealed \_\_\_\_\_ electrical outlets or switches sealed

Notes:

#### Results of Attic Insulation Inspection:

Thickness of Insulation: \_\_\_\_\_

Type of Insulation: \_\_\_\_\_

R-value of this thickness and type of insulation (see chart)

\_\_\_\_\_ inches thick × \_\_\_\_\_ R-value/inch = \_\_\_\_\_ R-value

Recommended R-value for your attic in your area: \_\_\_\_\_

	What You See	What It Probably Is	R-value / inch
Loose fibers	Light-weight yellow, pink, or white	Fiberglass	2.5
	Dense gray or near-white, may have black specks	Rock wool	2.8
	Small gray flat pieces or fibers (newsprint)	Cellulose	3.7
Granules	Light-weight	Vermiculite or perlite	2.7
Batts	Light-weight yellow, pink, or white	Fiberglass	3.2

Source: *Insulation Fact Sheet, Oak Ridge National Laboratory*

### Discussion

1. If your home is underinsulated, you can save energy costs immediately by adding insulation. The Energy Calculator from Lawrence Berkeley National Laboratory can help you determine what you need to add: <http://hes.lbl.gov/consumer/>. Do you need additional insulation? How much do you need?
2. Homes should not be sealed up 100% air-tight. As a household, discuss why a small amount of fresh air is needed in your home.
3. Download the Insulation Fact Sheet from Oak Ridge National Laboratory for additional information and insulation pointers. <http://web.ornl.gov/sci/buildings/docs/factSheets/Insulation-FactSheet-2008.pdf>