

**KNAUF**INSULATION

# INSULATING YOUR HOME

SELECTION + INSTALLATION GUIDE



# WHY INSULATE?



## SAVE MONEY

You could save up to 20%\*  
on cooling and heating.



## YEAR-ROUND COMFORT

Stay cooler in summer,  
and warmer in winter.



## REDUCE NOISE

Wall insulation minimizes  
indoor and outdoor sounds.



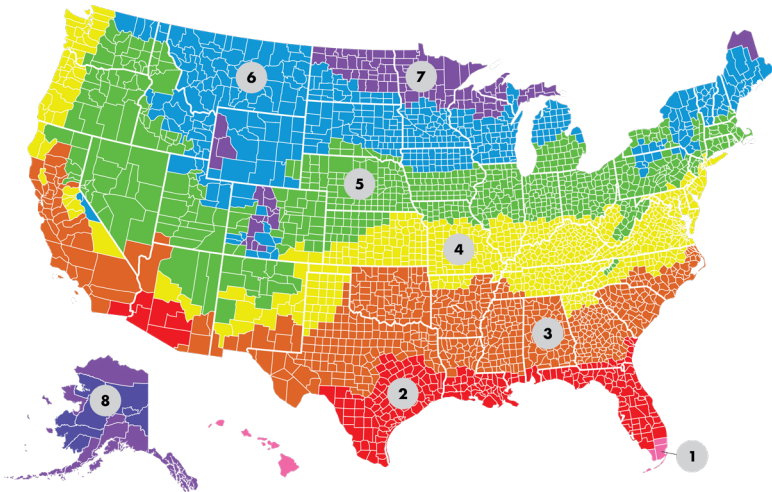
## BOOST RESALE VALUE

Homebuyers prefer  
energy-saving homes.

\*Results vary.

# DETERMINE YOUR INSULATION NEEDS

Locate your zone



Zone	Add Insulation to Attic		
	Uninsulated Attic	Existing 3–4 Inches of Insulation	Floor
1	R-30 to R-49	R-25 to R-30	R-13
2	R-30 to R-60	R-25 to R-38	R-13 to R-19
3	R-30 to R-60	R-25 to R-38	R-19 to R-25
4	R-38 to R-60	R-38	R-25 to R-30
5 to 8	R-49 to R-60	R-38 to R-49	R-25 to R-30

**Wall Insulation: Whenever exterior siding is removed on an:**

**Uninsulated wood-frame wall:**

- Drill holes in the sheathing and blow insulation into the empty wall cavity before installing the new siding, and
- Zones 3–4: Add R-5 insulative wall sheathing beneath the new siding
- Zones 5–8: Add R-5 to R-6 insulative wall sheathing beneath the new siding.

**Insulated wood-frame wall:**

- For Zones 4 to 8: Add R-5 insulative sheathing before installing the new siding.

**R**  
VALUE

Insulation’s effectiveness is measured in R-value, which is the ability to resist heat transfer. The higher the R-value, the better the insulation properties are, saving you more money. Use the map above to determine the suggested R-value for your home. Actual R-value code requirements may be different than those suggested above. Refer to the current building code for your location to determine the code requirement for your climate zone.

# GET THE RIGHT INSULATION FOR YOUR PROJECT

## KRAFT FACED VS. UNFACED INSULATION

Faced insulation helps to provide vapor control in exterior walls and basements. Kraft facing is a vapor retarder and is required in certain climate zones. Refer to your location's current building and energy codes to determine if vapor retarders are required in your climate zone. Unfaced insulation is used when no vapor control is needed.

### BATTS

#### KRAFT FACED OR UNFACED

- For walls, floors and attics
- More square feet than rolls
- Pre-cut for easy installation



### ROLLS

#### KRAFT FACED OR UNFACED

- For walls, floors and attics
- Easy to transport and carry
- Can be cut to desired length



### LOOSE FILL

#### BLOWING WOOL

- For attics
- Quick installation over large areas
- Requires two people and an insulation blower



### ACCESSORY

#### MULTI-PURPOSE FILLER

- For small projects and spaces
- Easy to handle and cut
- Stops energy loss around doors, windows, ducts and pipes





# RECOMMENDATIONS FOR APPLICATION AREAS

## WALLS

### Faced batts and rolls

- Kraft facing is a vapor retarder
- Install product so the kraft facing is positioned towards the warm-in-winter side of the home, it fills the cavity completely and is in full contact with the drywall
- Use rolls for large spans
- Use batts for small spans

## FLOORS/CEILINGS

### Faced batts and rolls

- Use over unfinished areas
- Kraft facing is a vapor retarder
- The side of the batt with the kraft facing should be positioned toward the home interior
- Foil faced products have durable, resilient surfaces that provide greater water vapor resistance

## ATTICS

### What type of insulation is used?

- Attics are typically insulated with loose fill insulation, though faced or unfaced batts or rolls may be used

### Loose fill

- Loose fill insulation offers excellent coverage through the attic, including hard-to-reach areas (such as faraway corners)

### Faced batts and rolls

- Faced insulation is generally used for new insulation
- Kraft facing is a vapor retarder; check local codes for requirements

### Unfaced batts and rolls

- Helps muffle sound in interior walls
- May be combined with vapor retarder and used in exterior walls
- Use rolls for large spans
- Use batts for small spans

- Use rolls for large spans
- Use batts for small spans

### Unfaced batts and rolls

- Helps muffle sound between finished spaces
- Use rolls for large spans
- Use batts for small spans

- If installing kraft-faced batts, the kraft facing should be positioned toward the home interior
- Do not use kraft faced insulation when adding a second layer to attic insulation
- Use rolls for large spans
- Use batts for small spans

### Unfaced batts and rolls

- Unfaced insulation is generally used as an addition to existing insulation
- Use rolls for large spans
- Use batts for small spans

# BEST PRACTICES FOR INSTALLATION

Estimating how much insulation is needed

## WALLS + FLOORS/CEILINGS

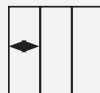
1

List the R-value you want your finished insulation to provide.

EXAMPLE  
**R-21**

2

Measure the distance between studs or joists to determine the correct width of insulation.



3

Find the total square footage of the area you want to insulate, by multiplying the space's width by its length.

$$\begin{array}{r} \text{WIDTH} \\ \times \text{LENGTH} \\ \hline = \text{SQ. FT.} \end{array}$$

4

Divide the total square footage of the space to be insulated by the square feet covered by one package of the insulation you're using. This should tell you how many packages are necessary to finish the job.

$$\begin{array}{r} \text{TOTAL SQ. FT.} \\ \div \text{SQ. FT. OF} \\ \text{1 PKG.} \\ \hline = \text{NUMBER OF} \\ \text{PKGS. NEEDED} \end{array}$$

## ATTICS

1

Use an Attic Ruler to measure your attic's current insulation depth. Next, subtract that figure from the R-value you want to achieve. The resulting number will be the R-value you need to add.

EXAMPLE

$$\begin{array}{r} \text{Desired} \\ \text{R-49} \\ - \text{Existing} \\ \text{R-11} \\ \hline = \text{R-38} \\ \text{Additional needed} \end{array}$$

2

Find the total square footage of the area you want to insulate, by multiplying the space's width by its length.

$$\begin{array}{r} \text{WIDTH} \\ \times \text{LENGTH} \\ \hline = \text{SQ. FT.} \end{array}$$

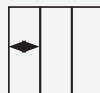
3

Divide the total square footage of the space to be insulated by the square feet covered by one bag of the insulation you're using. This should tell you how many packages are necessary to finish the job.

$$\begin{array}{r} \text{TOTAL SQ. FT.} \\ \div \text{SQ. FT. OF} \\ \text{1 BAG} \\ \hline = \text{NUMBER OF} \\ \text{BAGS NEEDED} \end{array}$$

4

If insulating an uninsulated attic with batts or rolls, measure the distance between studs or joists to determine the appropriate insulation width.



# SUPPLIES NEEDED

## WALLS + FLOORS/ CEILINGS

### Protective clothing

- Long-sleeved shirt
- Work gloves
- Safety glasses
- Dust mask

### TOOLS

- Tape measure
- Staple gun and staples
- Utility knife
- Straight edge
- Silicone cutting mat or board

- Apply tape to seal any holes in kraft facing (if used)
- Broom handle for pushing insulation into hard-to-reach corners
- Flexible sealant, caulk or equivalent, to air seal any holes/openings prior to installing insulation



## ATTICS

### Protective clothing

- All clothing recommended above for insulating walls and floors/ceilings.
- A hard hat, to guard against nails in the roof.

### TOOLS

- If insulating with batts or rolls, all tools recommended above for insulating walls and floors/ceilings.
- If insulating with loose fill insulation, omit tape and add multiple Attic Rulers (one for every 10 feet of space) and a blowing machine if using EcoFill® Wx.

# INSTALLING INSULATION IN WALLS

## ADDING INSULATION TO EXTERIOR SIDEWALLS

- Seal and caulk any holes or openings.
- Make sure insulation fits snugly against the top, bottom and all sides of the framing.
- When installing insulation with a vapor retarder (such as kraft facing), be sure the faced side is positioned toward the home's interior.
- When installing kraft faced batts, start at the top and gently work your way down, stapling the paper's tab or flange either on the inside face of the wall studs or on the face of the stud that is toward the interior. Check current codes for approved fastening. Fit tightly against the bottom framing. Unfaced batts are installed by friction fit.
- Do not compress the insulation.
- If using unfaced insulation, a separate vapor retarder may be required.
- Kraft faced batts are flammable and should not be left exposed. Once insulation is in place, cover with drywall or another approved finish material.
- For garage walls, place insulation between studs and point the vapor retarder toward the garage interior. Again, because the facing may be flammable, it should not be left exposed without a code approved ignition barrier. All kraft and other flammable facings must be covered with a code compliant ignition or fire barrier. Drywall is a commonly used fire retardant covering.

## CAVITIES WITH NARROW FRAMES

- When insulating framed spaces with non-standard widths, cut the faced batt one inch wider than the space to be filled. After stapling the insulation's flange, pull the facing on the cut side to the other stud, stapling it to the stud through its vapor retarder.
- Make sure insulation is an appropriate distance from heat-generating, fossil-fuel appliances. Consult the National Fire Protection Association (NFPA) or the appliance manufacturers' recommendations for specifics.
- When insulating between wood framing and masonry chimneys, use only unfaced insulation.

## INTERIOR WALLS

- Seal and caulk any holes or openings.
- Split insulation to fit snugly around wiring, ductwork and plumbing. Be sure the cavity is filled completely.
- Once insulation is in place, cover it with drywall or another approved finish material.

## WALL CAVITY DEPTH

- Use the proper thickness of insulation for your wall cavity's depth. Typically, 2" x 4" assemblies have a depth of 3½", and 2" x 6" assemblies have a depth of 5½".



# INSTALLING INSULATION IN FLOORS/CEILINGS

- Place insulation between floor/ceiling joists, starting at one end and working away.
- Make sure the batt is flush against the bottom of the floor above, and that its ends fit snugly against the band joists.
- When installing insulation with a vapor retarder (such as kraft facing), be sure the faced side is positioned toward the home's interior.
- Insulation should be installed in full contact against the subfloor.
- If the home is on pilings and the floor's underside is easily accessible, cover the insulation with an exterior material, to keep it safe from weather and other abuse.
- To insulate bridging or cross bracing of floor/ceiling joists, split a batt vertically down the middle, putting one half in the upper opening and the other in the lower opening. (You may also butt the batt to the bridging, then fill the bridging space with scrap insulation.)

## FACED AND UNFACED BATT OR ROLL INSULATION

- When insulating floors/ceilings in an unfinished or unheated basement, use faced batts or rolls to limit moisture. Kraft or other flammable facings must be covered with an ignition or fire retardant barrier as may be required by current codes and/or the National Fire Protection Act.
- If a vapor retardant is already in place, use unfaced batts or rolls.

## SECURING INSTALLED INSULATION

### Support wires

- Insulation shall be substantially supported. Refer to current local codes for compliance.

### Floor/ceiling cavity depth

- Use the proper thickness of insulation for your floor/ceiling cavity's depth. Typically, 2" x 8" assemblies have a depth of 7¼", 2" x 10" assemblies have a depth of 9¼", and 2" x 12" assemblies have a depth of 11¼".

## INSTALLING MULTI-PURPOSE INSULATION

- Use an insulation knife to cut the blanket to the size required for the application
  - **Water Lines:** Cut the blanket into 1½" to 2" wide strips along the full length of the blanket and install around the water line in a spiral manner overlapping each wrap. Secure both ends with tape or twine.
  - **Metal Ducts:** Seal all duct connections before installing insulation. Use for short sections of metal ducts. Cut the blanket into 12" wide strips along the full length of the blanket and install around the duct in a spiral manner similar to wrapping a water pipe.
  - **Exterior Wall Electrical Outlets and Switches:** Cut the blanket the same size as the outlet or switchbox. Place the cut piece behind the box so that it is in contact with the exterior wall sheathing and the back of the box. It may be necessary to cut an additional piece or pieces to fill the entire space behind the box. Fill the remainder of the wall cavity with EcoBatt® insulation and cut to fit around the box.

# INSTALLING INSULATION IN ATTICS

## BATT AND ROLL INSULATION

### Preparing the attic

- Seal and caulk any holes, openings and penetrations through the ceiling.
- Place protective baffles over all attic ventilation, such as soffit or eave vents, to keep them from being blocked.
- Lay plywood planks across joists, and walk only on those two surfaces.

### Adding insulation to previously insulated attics

- Measure the existing insulation with an Attic Ruler to determine how much insulation must be added to achieve your desired R-value.
- If the height of the existing insulation does not reach the top of the joist, lay unfaced batts in the joists, on top of the old.
- When joists are full to the top, place additional unfaced batts at right angles to the existing insulation, to further protect against air gaps.
- Begin by laying insulation at the outer edges, and work toward the middle.
- Keep insulation at least three inches away from vents, and any heat-producing devices (such as motors or lighting fixtures).
- Only IC-rated lighting fixtures may be touched directly by insulation.
- When necessary, cut insulation to fit around obstructions.
- Staple a piece of batt insulation over the top of the attic access door.

### Installing in non-insulated attics

- If there is no pre-existing insulation in the attic, faced insulation may be used, with the facing side directed toward the home's interior. Check local current codes if vapor retarders are required for this application.
- Otherwise, installation of faced batts and rolls is identical to the installation of unfaced batts and rolls (above).



# INSTALLING INSULATION IN ATTICS

## INSULATING WITH LOOSE FILL INSULATION

### Preparing the attic

Prepare attic as you would for insulation with batts or rolls—caulking openings, keeping air vents from being blocked, and laying plywood over joists.

In addition:

- Seal any unsealed duct joints.
- Install a code-approved insulation barrier around the attic access opening, to keep insulation from falling out.
- Install baffling around non-IC-rated, heat-generating sources, maintaining the fixture manufacturer's required clearance, often at least three inches. Again, only IC-rated lighting fixtures may safely touch insulation.
- Staple Attic Rulers on joists or vertical framing (placing one stick about every 10').
- Make sure the bottom of each Attic Ruler is level with the bottom of your attic's existing insulation.
- When insulation is blown, it should reach the desired R-value on the Attic Ruler.

### Renting a blowing machine

- Installing EcoFill® Wx into your attic will require the rental of a blowing machine and a second person to help operate the machine.
- Carefully read all instructions on the blowing machine before operating it.

### Blowing the insulation in

- Keep the blowing machine outside or in your opened garage, and feed only the hose up to the attic.
- Once the blowing machine is started, begin by blowing insulation at the points furthest from the attic's access.
- As each attic section is filled, the installer should move slowly backward toward the access door.
- Again, care should be taken not to block any ventilation in the attic.
- Continue to blow insulation until you have reached your desired R-value.
- Run blowing machine until machine and hose are both empty.



## WHY KNAUF INSULATION?

- Softer to the touch, easy to cut, split and install
- Provides superior thermal and sound control performance
- GREENGUARD Gold certified, free of Red List chemicals and formaldehyde
- Bonded with industry-transforming, plant-based ECOSE® Technology
- Made from a high degree of recycled content

