



*A Berkshire Hathaway Company*

Temp Control Mineral Fiber Batts

## INSTALLATION INSTRUCTIONS FOR MINERAL FIBER BATTS

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Johns Manville mineral fiber batt insulation is easy to install and does not require a certified installer. Wherever insulation is installed in a building, it is very important that it fits snugly on all sides. If the insulation is too long for a space, cut it to the correct size. If it is too short, cut a piece to fill the void. Unfaced batts are friction fit it into the cavities.

### Personal Protective Equipment:

Safety glasses with side shields are recommended to keep dust out of the eyes. Use ear protection (earplugs, hood or earmuffs) to prevent airborne dust or fibers from entering the ear, if necessary. Leather or cotton gloves should be worn to protect against mechanical abrasion. Optional: wear a NIOSH-certified disposable or reusable particulate respirator with efficiency rating of N95 or higher (per 42 CFR 84) except required when dust or fiber concentrations exceed the applicable exposure limits of dust 15 mg/m<sup>3</sup> (\*OSHA 1910.1000 Table Z-3). Wear a cap, a loose-fitting, long-sleeved shirt and long pants to protect skin from irritation. Exposed skin areas should be washed with soap and water after handling or working with mineral fiber insulation.

### Site Preparation:

Other trades, including but not limited to, electrical, plumbing, and mechanical should have already installed their required materials prior to the mineral fiber batts being installed. Proper air sealing should be completed prior to mineral fiber batt installation to insure full performance of the mineral fiber batts. The insulation must be kept clean and dry during transport, storage and installation.

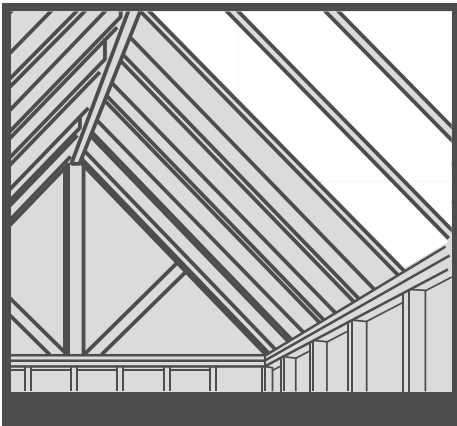
## Insulating Ceilings:

Ceiling insulation provides essential sound control and thermal performance between floors in your home. Insulating the ceiling above the top story is the most important area to control heat loss, and insulating the ceilings between stories will make your home a more peaceful and quiet place because it will ensure that footsteps and other sounds do not migrate to other rooms.

### *How to Install Insulation In Ceilings*

1. Seal around all penetrations in band joists. Any walls that leak water must be repaired before insulating.
2. Caulk where wiring runs through the ceiling joists and around the top of the wall.
3. Gently press the insulation between the joists. Allow friction to hold the insulation in place (called "friction fit method"). If a polyethylene vapor retarder is used, staple it across the face of the studs. Check to make sure there are no openings where moisture can escape. In attic installations, make sure the insulation completely covers the top plate of the outside wall at the end of each joist run. However, it should not block the flow of air from the eave vents. If necessary, install baffles at the inside of eaves.
4. Expand the insulation to its full thickness in the joist cavity to insure complete coverage. Avoid compressing the insulation material, because compression will reduce its R-value.

## Insulating Cathedral Ceilings:



Sloped, vaulted, and cathedral ceilings are different names for essentially the same ceiling configuration. These ceilings are very popular in newer homes and remodeled homes, and they certainly add dramatic visual interest to a room. But because there is little or no attic space separating inside and outside air, proper insulation is especially important.

Many cathedral ceilings will require that insulation be installed around recessed light fixtures. There are some important safety measures you should be aware of when working with insulation around light fixtures. Be sure to review the Special Considerations section for the information you need to complete the installation without creating potential fire hazards.

To make your cathedral ceiling insulation job easier, Johns Manville makes special high-performance R-value insulation designed specifically for cathedral ceilings.

### *How to Insulate Your Attic and Cathedral Ceiling*

1. Caulk where wiring runs through the ceiling joists and around the top of the wall.
2. Staple prefabricated vent chutes between joists with one end over the wall top plate. Vent chutes ensure there is at least 1 inch (25 mm) of space between the roof sheathing and insulation, allowing vapor water to flow out and to cool the roof. Depending on your house, vent chutes may be placed only at the soffit areas or run all the way up to the ridge line.
3. Place insulation between the joists and gently press into position allowing friction to hold it in place. Insulation should be expanded to its full thickness in the cavity to extend over the top of the framing or trusses to insure complete coverage. However, avoid compressing the insulation material, because compression will reduce its R-value.
4. Be sure to keep insulation at least 3 inches (75 mm) away from recessed lighting fixtures, unless the fixture is IC rated. Also, make sure the insulation is installed at least 3 inches (75 mm) away from any metal chimneys, gas water heater flues or other heat-generating sources.

## Insulating Exterior Walls:

An exterior wall is any wall that faces outside or otherwise separates conditioned spaces from unconditioned spaces. These walls should be thoroughly insulated in order to create the all-important thermal envelope around your living space. Properly insulated exterior walls make all the difference between a comfortable, energy-efficient home and a drafty one.

Take time to fit the insulation carefully so heat cannot escape in the winter and the inside stays cool in the summer. A good, tight insulation job saves energy, saves money, and protects your home for the future.

Since exterior walls may have plumbing and wiring running through them, review the Special Considerations for tips on installing insulation around these obstacles.

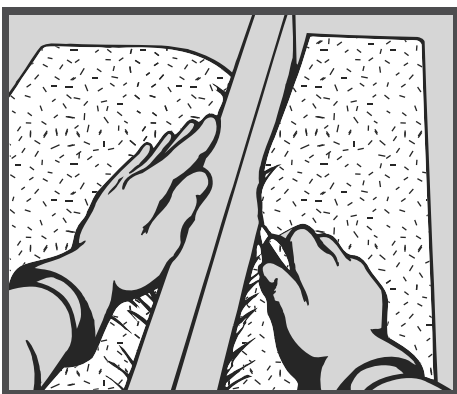
In cold climates, local building codes may require a separate vapor retarder to be installed on the warm (interior facing) side of the insulation.

### How to Install Insulation in Exterior Walls



Insulation should be installed in all exterior walls that separate conditioned spaces from unconditioned spaces.

1. Place the insulation into the cavity, making sure that it is the correct size and fits snugly at the sides and ends and does not protrude in the back.
2. If the insulation is too long, cut it to fit properly. Don't double it over or compress it. Use a sharp utility knife and straightedge. Cut batts on a smooth, flat surface, and cut them about 1 inch (25 mm) larger than the framing cavity. If the material is too short, cut a piece to size to fill the gap.
3. Fill in any narrow gaps between joists by forcing pieces of insulation into the gaps with a screwdriver or putty knife.
4. To control air leakage, apply caulk or foam sealants around openings like window and door frames and any openings where wires or pipes go through the exterior wall.



#### To apply a vapor retarder:

1. To apply the poly film, start at the top plate in one corner of the room.
2. Pull the film tight and staple at least every 12 inches (300 mm).
3. Drive staples at the center of every stud and around openings, working around the room.
4. Overlap the sheets by one complete cavity to minimize leakage. Then staple evenly through, fastening both sheets to the studs at one- to two-foot intervals.
5. Pull the film tight along the sole plate and staple in the same manner, making sure the staples are driven flat, flush to the stud surface.
6. Trim out the poly from over windows, doors and electrical boxes.

## Floor Insulation:

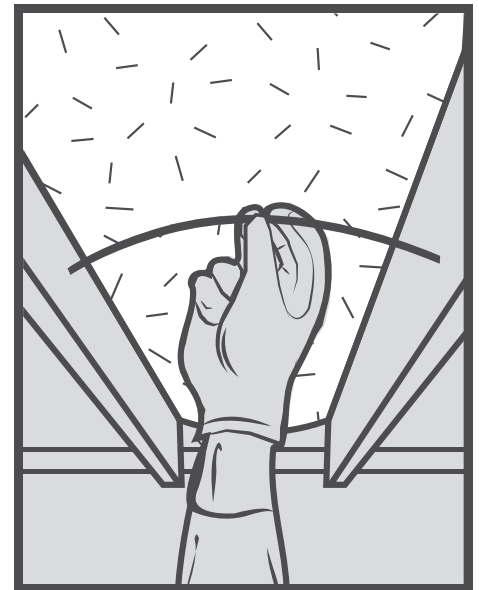
Under floor means the floor above an unheated crawl space or basement. Once the under floors are properly insulated, you will increase the overall comfort of your home because under floor insulation provides valuable sound control and thermal control.

The procedure for installing insulation in under floor applications is similar to installing ceiling insulation. Follow the installation tips below to ensure that you do a professional job.

### *How to Install Underfloor Insulation*

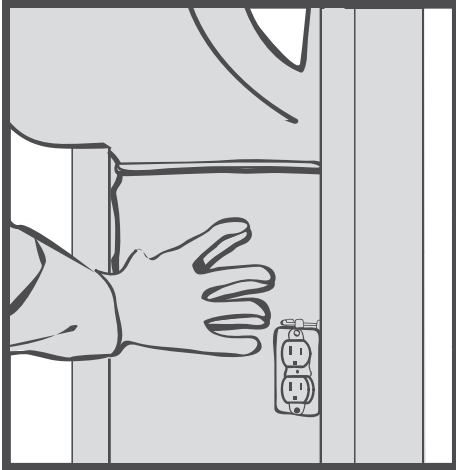
1. Caulk where wiring runs through the floor joists and around the top of the wall.
2. Gently press the insulation between the joists. If you're using unfaced batts or rolls, allow friction to hold the insulation in place (called "friction fit method.")
3. Expand the insulation to its full thickness in the joist cavity to insure complete coverage. However, avoid compressing the insulation material, because compression will reduce its R-value.

The easiest and most effective method of holding insulation in place is to use straight, rigid wire fasteners (preferably galvanized), with pointed ends. The fasteners are made for joist spacings of 12 inches (300 mm), 16 inches (405 mm), 18 inches (458 mm), 20 inches (508 mm) and 24 inches (600 mm), and may be used against wood, metal or concrete. The fasteners, which are slightly longer than the joist spacing, are placed by hand between the joists and bowed upwards into the insulation, causing the insulation to be in contact with the sub-flooring. Install the fasteners so they hold the insulation in contact with the sub-floor but avoid unnecessary compression. Spacing of fasteners is as required to prevent sagging of the insulation, normally 12 inches (300 mm) to 24 inches (600 mm) apart and not more than 6 inches (152 mm) from ends of the insulation.



Keep all insulation at least 3 inches (75 mm) away from combustible sources such as chimneys, non-IC fixtures and heated (furnace, water heater, etc.) flue pipes.

## Insulating Around Electrical:



Installing insulation around junction boxes that house electrical receptacles and switches, and around wiring in walls and ceilings requires some special techniques. When cutting insulation around wiring, be sure to keep your utility knife clear of the wires.

**Junction Boxes** - Hold the insulation up in the wall cavity and check where the junction box lines up. Cut a notch in the batt for the junction box. Place that cutout of insulation behind the junction box, and then insert the rest of the batt in the cavity.

**Wiring in Walls** - When electrical wiring passes through a stud cavity, split the insulation with a utility knife and fit half in front of and half behind the wire so that the wire is nested inside the insulation. If the wiring is located close to the inside surface, then press insulation behind the wiring.

**Wiring in Ceilings** - Insulation should be placed between electrical wiring and the ceiling.

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## Insulating Around Plumbing & Piping:

In almost any insulation project, you are bound to encounter plumbing pipes in walls and ceilings. It's important to insulate around these obstacles properly, especially in exterior walls where an improper installation could lead to frozen pipes. Remember, in that particular application, the object is to block cold air from the pipes. You should have no problem tucking JM insulation into position. Take your time to ensure that the insulation fills the width of the cavity, and do your best to eliminate gaps wherever possible. Never stress pipes by inserting the insulation too forcefully or tightly.

In walls where plumbing fixtures are to be placed, insulation must be installed first. Where there is plumbing in exterior walls, install the insulation **BEHIND** the pipes, between the pipes and the exterior. To protect pipes from freezing, insulation should never be placed between the pipes and the warm side of the wall.

For vented crawl spaces in cold climates where water pipes run through the joists, install insulation below the pipes to protect them from freezing.

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## Insulating Around Windows:

**Exterior Wall Windows** - Apply sealants around all windows. Sealants can eliminate drafts, provide thermal resistance, and keep out moisture, dust and insects. The sealants you will be using are generally of two types: caulk and urethane foam.

Caulk is a paste-like material that cures to a solid state. It is applied with a caulking gun to seal small cracks or gaps. As you apply the caulk to these small spaces, move at a slow, steady pace, forcing caulk into the gap. Smooth excess caulk with your fingertip or a putty knife before it dries.

Urethane foams are liquid materials that expand rapidly as they set to a semi-rigid state. They are used to fill larger gaps and holes. The most common type is available in an aerosol can or large canister. To apply urethane foam, follow the directions on the label. Place the nozzle over one end of the gap, and then squeeze the trigger while dragging the nozzle across the gap. Because this material will expand, do not overfill the gap.

### **Insulating Around Windows (continued):**

Use small scraps of insulation to fill in the cracks around windows and doors. Separate the insulation from the facing and use a putty knife or screwdriver to work it into spaces between studs or anywhere you can see daylight. This is an important quality step on every job.

**Basement Windows** – If there are windows in your basement wall, you can make a metal window frame and attach it to the walls around the window. Cut out insulation and tuck it behind the frame to finish.

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### **Insulating Around Ductwork:**

To insulate around heat ducts in ceilings or floors, cover ducts with insulation so the air temperature in the ducts can be maintained more efficiently.

In basement ceilings, whenever possible, pull the insulation behind any ductwork.

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### **Insulating Non-standard Size Spaces and Narrow Cavities:**

You will need to trim and piece the insulation.

1. Cut the insulation and facing about 1 inch (25 mm) wider than the space using a sharp utility knife against a safe backstop, such as an unfinished floor or other smooth, flat surface.
2. For shorter spaces, cut the insulation to fit properly. Don't double it over or compress it. Compression changes the R-value of the insulation.
3. If it takes more than one batt to fill the height of a wall cavity, you need to make sure the two pieces are butted snugly together.

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### **Insulating Around Recessed Lights in Ceilings:**

Recessed lighting fixtures, as well as fan motors and other heat sources protruding into the ceiling, are a potential fire hazard. Building and fire codes require that there be at least a 3 inches (75 mm) clearance from any heat-generating source—including chimneys—unless the fixture is IC rated. This rating will be clearly marked on the fixture.

To ensure that this 3 inches (75 mm) clearance is maintained, you can install a baffle made with metal, cardboard or sheet metal around the heat source. If there are facing materials, trim them around the baffle to ensure adequate clearance from the fixture.

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### **Insulating Scuttles & Pull-Down Stairways:**

A scuttle is the opening for accessing the attic. Scuttles, pull-down stairways and other attic access holes should also be insulated to the same R-value as your attic.

Many attics are filled with loose-fill insulation. However, that does not work for scuttles or pull-down stairways. Batt insulation, however, can be glued directly to a scuttle hatch. Pull-down stairways may require a build-up framework to lay batts on and around.

If you have pull-down attic stairs or an attic door, seal these similarly: weatherstrip the edges and put a piece of rigid foam board insulation on the back of the door.