



Installation Checklist

Crawlspace Floor Insulation

PREPARATION

- Evaluate crawlspace for ground moisture, crawlspace venting, plumbing leaks, presence of ground cover, and existing rodent infestations and debris.
- Remove all unnecessary materials from the crawlspace. Repair any water leaks and moisture damage prior to performing work.
- Bulk-water problems and plumbing leaks must be repaired, and standing water drained before insulating. If there is evidence of mold or organic growth it must be mitigated before insulating. Any structural damage to the floor framing shall be addressed prior to insulating.
- Assure that all exhaust ducts, such as those for down-flow kitchen ranges and dryers, are installed to code and sealed to the outside of the crawlspace and have a code-approved end cap.
- If necessary, install a new 6-mil black -moisture barrier overlapping at least 12" at seams and edges.
- The total net-free area of foundation vents must meet code requirements, typically not be less than 1 square foot for each 150 square feet of underfloor net free area as a default standard. It should be evenly distributed around the perimeter. Vent openings shall be secured to prevent entry of vermin or pests.
- Ensure access hatches close completely and securely. Weatherstrip and insulate any hatches that connect to the conditioned area of the home, insulate floor hatches to R25 or greater and wall hatches to R 15 or greater Outside access hatches shall be weather and vermin resistant. All hatches should remain operable to allow for inspection.
- Air sealing must be done to all floor penetrations between the crawlspace and conditioned area of the home. This is done around wiring, plumbing, duct connections or framing openings. Use approved spray foam, caulking or rigid material.
- Knob and tube wiring located in the floor cavities shall be inspected by an electrician and decommissioned.
- Asbestos containing material, radon concerns, or other safety hazards will be addressed prior to insulating that area. Installers to follow local jurisdictional requirements.
- Basements that contain HVAC systems and ducting, or are significantly connected to the conditioned space of a home, shall be considered conditioned space. Attempting to separate the basement from the main conditioned area of the home is not permitted with out prior approval.

INSTALLATION

- Use appropriately sized batts to fill the entire joist bay and cut to fit around obstructions gaps, voids or compression. Insulation must be in contact with the floor with minimum compression. If the installed batt has a vapor-retarder facing, the facing must be installed against the heated floor sheathing or be removed.

- Support fiberglass batts so they remain in contact with the subfloor using the following materials, starting no more than 3 inches from the ends:
- Wood lath needs to be a minimum of ¼ x 1 inch for spans up to 48 inches. Spans greater than 48 inches must use 1 x 2 lumber.
- Twine must be non-stretching polypropylene or polyester.
- Wire must be stainless steel, copper or an equivalent material of similar corrosion resistance, with a minimum diameter of 0.040-inch, size 18 AWG.
- Fasteners must be corrosion resistant screws, nails or power actuated staples that can penetrate wood 5/8 inch. DO NOT USE SELF-SUPPORTING HANGERS or lightening clips.
- Twine spacing Shall not exceed 18" for 24" or less spans, 12" for 48" spans, 8" for 60" spans, and 6" for 72" spans.
- Two-part spray foam applications require program preapproval. a Whenever two-part spray foam is applied it must be done to manufacture specifications and installed by manufacture trained individuals. sheets must be provided to the owners prior to installation. When installing fiberglass batts or blown fiberglass underneath foam, as additional floor insulation or as an ignition barrier, support the fiberglass insulation.
- Walls between conditioned space and underfloor spaces:
- If the floor-joint cavities are open between the conditioned and unconditioned spaces, block with a rigid material and seal with caulk or foam.
- Insulate the walls to a minimum of R-15 for a 2 x 4 cavity and R-21 for a 2 x 6 cavity.
- Protect underfloor insulation for un-skirted crawlspaces and cantilevered floors with an air barrier.
- All hot and cold-water pipes need to be insulated to R 3 or greater and secured with twine, corrosion-resistant wire or plastic compression ties.
- Floor cavities between unconditioned and conditioned areas, such as a garage under a conditioned space, shall be insulated to fill the floor cavity.
- Rim joists in conditioned basements shall be air sealed prior to installing insulation. Seal all the gaps between the sill plate and the basement foundation wall. Batt-type or foam board insulation shall be securely installed to a minimum of R-15. Insulation shall comply with applicable state and local jurisdictional codes. A human contact barrier shall be installed over batt-type insulation. Foam board shall have an ignition barrier meeting local codes. All accessible rim joist surfaces shall be insulated.
- Overhangs or cantilevered floor cavities shall be insulated to fill the cavity. Insulation will be secured with minimum compression if using batt-type insulation. Blown insulation can be used in this application if blocking is installed between band or rim joist and the open floor cavity. The bottom of the cantilevered floor cavity shall be sealed off with rigid material, sealed at the perimeter, and be primed and paint ready.
- Any underfloor insulation that is near human access areas shall have a human contact barrier installed.

Installation Examples



Insulation fills cavity, properly supported.

Courtesy of U.S. Department of Energy



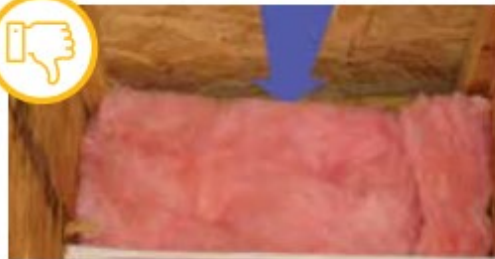
Insulation does not fill cavity and not properly supported.

Courtesy of ENERGY STAR, U.S. Environmental Protection Agency



Insulation in full contact with floor.

Courtesy of ENERGY STAR, U.S. Environmental Protection Agency



Air gap between floor and insulation.

Courtesy of U.S. Department of Energy



Crawl hatch insulated and weatherstripped.

Courtesy of Dan Wildenhaus



Crawl hatch NOT insulated or weatherstripped.

Courtesy of U.S. Department of Energy and Oregon Energy Coordinators Association



Vented to minimum amount and well distributed.

Courtesy of Dan Wildenhaus



Poorly vented and not evenly distributed.

Courtesy of Dan Wildenhaus