



Single-Family Floor Insulation

PREPARATION

- ❑ Evaluate crawlspace for ground moisture, crawlspace venting, plumbing leaks, presence of ground cover, and existing rodent infestations and debris.
- ❑ Remove all degradable and absorbent scrap materials from the crawlspace, especially wood and cardboard. 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.
- ❑ Extend all exhaust ducts, such as those for down-flow kitchen ranges and dryers, to the outside of the crawlspace with a code-approved end cap.
- ❑ If necessary, install a new 6-mil ground-moisture barrier before installing underfloor insulation.
- ❑ 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 area as a default standard, or 1/300 when vents are evenly distributed around the perimeter.
- ❑ Ensure access hatches from the interior or exterior close completely and securely. Weatherstrip and insulate any hatches that connect to the conditioned area of the home.

Specification Checklist

[Download Checklist](#)

For details on all BPA requirements, refer to the [BPA Residential Weatherization Specifications and Best Practices Guide](#).

- ❑ Size batts to fill the entire joist bay and cut to fit around obstructions so no gaps, voids or compression exist.
- ❑ If the installed batt has a vapor-retarder facing, the facing must be installed against the 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.**
 - Spray-foam insulation typically needs no support. 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-joist 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-11 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.

Connect with the local serving utility to confirm pre- and post-condition requirements.



Pre-Condition:

R-0 to R-11
R-12 to R-19

Post-Condition:

R-19, R-25 or R-30
R-30



MINIMUM REQUIRED DOCUMENTATION

You can use the [Optional Weatherization Data Collection Tool](#) to collect this information. Contact the serving [utility](#) for specifics on required documentation.

1. Documentation that the measure requirements have been met (e.g., manufacturer, model number, type, size and quantity of equipment or product installed or used).
2. Documentation of pre-and post-insulation R-values and square footage of installed insulation.
3. Primary heating type.
4. Invoice showing order or purchase date, cost, post-condition.

PAIRS WELL WITH

- Prescriptive Air Sealing.
- Prescriptive or PTCS Duct Sealing.

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