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Weatherization Manufactured Home Job Aids

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Prepare a Manufactured Home Ceiling for Insulation

Job Aid for Insulate the Ceiling of a Manufactured Home Badge

Aligns With Standard Work Specifications 4.0103.8, 4.0103.9, 4.0103.10, 4.0103.11, 4.0103.12

BEFORE YOU BEGIN

Make any repairs and preparation as noted from assessment, as well as fixing any new issues that could cause the ceiling to be compromised because of the additional weight of insulation.

Ensure plumbing and exhaust vents terminate outside.

Dam around high-temperature flues *(note: flue in image is in need of work).*

Replace non-insulation contact rated can lights with insulation contact-rated cans.

Repair roof leaks or other damage, as possible, or defer job if necessary.

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Checklist

Insulate the ceiling of a manufactured home

DESIRED OUTCOME

Consistent, uniform thermal boundary and air barrier between the conditioned space and unconditioned space.[1]

Ceiling prepared for insulation:

- ☐ Any high-temp issues have been safely addressed.
- ☐ Ventilation ductwork terminates to the exterior.
- ☐ Plumbing stacks terminate to the exterior.
- ☐ Recessed lights are insulation contact-rated or are replaced with insulation contact-rated fixtures or equipped with inserts.
- ☐ Roof/ceiling is in good repair.
- ☐ Interior ceiling penetrations are sealed.
- ☐ Dust control measures installed as needed.

Insulation:

- ☐ Drill holes or otherwise access cavities to allow for consistent, uniform coverage to the proper depth.
- ☐ Install insulation according to the manufacturer's requirements to achieve density of 1.5–1.6 lbs per cubic foot.
- ☐ Overblow no more than 5 bags according to manufacturer's coverage chart.
- ☐ Repair access points/holes in a workmanlike manner.
- ☐ Fill out applicable sections of house-wide insulation certificate with[2] insulation type, coverage area, installed thickness, settled thickness, R-value, and number of bags installed.

1. Relevant Standards: 4.0103.8, 40103.9, 4.0103.10, 4.0103.11, 4.0103.12

2. Underlined details are required on all insulation certificates. Other items are required only when using blown-in insulation.

The Weatherization Installer Job Aids were developed by Simonson Management Services under contract (GS-10F-0065U/89243422FEE400259) and published by the National Renewable Energy Laboratory under contract (DE-AC36-08GO28308) with the U.S. Department of Energy. These job aids were funded by the Weatherization Assistance Program with contributions from the weatherization training network.

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7-2

Manufactured Home Insulation: Gable End Blow Method

Job Aid for Insulate the Ceiling of a Manufactured Home Badge

Aligns With Standard Work Specifications 4.0103.9

Verify the integrity of the ceiling to ensure it can support the weight of additional insulation.

Clamp a piece of copper wire to a metal connector to discharge static electricity build up.

Remove or carefully fold the gable end cladding material to access the attic. Access can also be achieved by removing the existing gable vents or installing new ones.

Insert the insulation fill tube as far as possible, moving the tube side to side while slowly retracting it to ensure adequate insulation coverage. If a marriage wall is present, use this technique on each side of the wall.

When complete, post a dated insulation certificate/receipt signed by the installer with the required information (e.g., insulation type, area insulated, thickness, etc.).

Depending on the method of access, reseal gable end cladding material or install vents with mesh screening no larger than 1/4 inch. Repeat all steps from the other end as needed to ensure adequate coverage.

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Checklist

Insulate the ceiling of a manufactured home

DESIRED OUTCOME

Consistent, uniform thermal boundary and air barrier between the conditioned space and unconditioned space.[1]

Ceiling prepared for insulation:

- ☐ Any high-temp issues have been safely addressed.
- ☐ Ventilation ductwork terminates to the exterior.
- ☐ Plumbing stacks terminate to the exterior.
- ☐ Recessed lights are insulation contact-rated or are replaced with insulation contact-rated fixtures or equipped with inserts.
- ☐ Roof/ceiling is in good repair.
- ☐ Interior ceiling penetrations are sealed.
- ☐ Dust control measures installed as needed.

Insulation:

- ☐ Drill holes or otherwise access cavities to allow for consistent, uniform coverage to the proper depth.
- ☐ Install insulation according to the manufacturer's requirements to achieve density of 1.5–1.6 lbs per cubic foot.
- ☐ Overblow no more than 5 bags according to manufacturer's coverage chart.
- ☐ Repair access points/holes in a workmanlike manner.
- ☐ Fill out applicable sections of house-wide insulation certificate with[2] insulation type, coverage area, installed thickness, settled thickness, R-value, and number of bags installed.

1. Relevant Standards: 4.0103.9

2. Underlined details are required on all insulation certificates. Other items are required only when using blown-in insulation.

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Manufactured Home Insulation: Edge Blow Method

Job Aid for Insulate the Ceiling of a Manufactured Home Badge

Aligns With Standard Work Specifications 4.0103.10

Verify the integrity of the ceiling to ensure the ceiling can support the weight of additional insulation.

Prepare stable work area to access roof edge.

Unfasten and remove J channel from edge of roof.

Clean old butyl tape or putty from J channel and store J channel somewhere safe until it can be reinstalled.

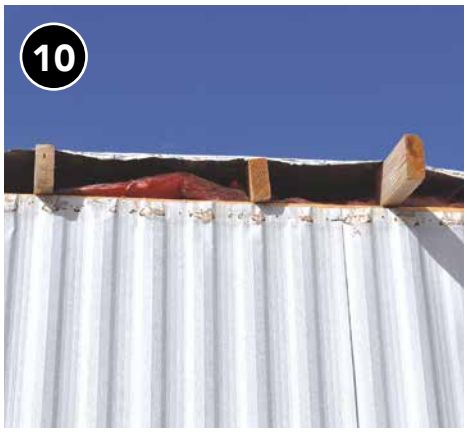
Remove staples holding down edge of roof.

Insert blocks to hold roof edge up approximately 6 inches.

Ground fill hose to reduce chance of electrical buildup.

Insert blower hose as far as possible into cavity and retract slowly while filling space between trusses.

Work down the edge of the roof until entire cavity is full.



Remove blocks and reattach edge of roofing over exterior sidewall paneling.

Replace butyl tape on J channel.

Reattach J channel, lapping over edge of roof. Repeat entire process for other side, if necessary.

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Checklist

Insulate the ceiling of a manufactured home

DESIRED OUTCOME

Consistent, uniform thermal boundary and air barrier between the conditioned space and unconditioned space.[1]

Ceiling prepared for insulation:

- ☐ Any high-temp issues have been safely addressed.
- ☐ Ventilation ductwork terminates to the exterior.
- ☐ Plumbing stacks terminate to the exterior.
- ☐ Recessed lights are insulation contact-rated or are replaced with insulation contact-rated fixtures or equipped with inserts.
- ☐ Roof/ceiling is in good repair.
- ☐ Interior ceiling penetrations are sealed.
- ☐ Dust control measures installed as needed.

Insulation:

- ☐ Drill holes or otherwise access cavities to allow for consistent, uniform coverage to the proper depth.
- ☐ Install insulation according to the manufacturer's requirements to achieve density of 1.5–1.6 lbs per cubic foot.
- ☐ Overblow no more than 5 bags according to manufacturer's coverage chart.
- ☐ Repair access points/holes in a workmanlike manner.
- ☐ Fill out applicable sections of house-wide insulation certificate with[2] insulation type, coverage area, installed thickness, settled thickness, R-value, and number of bags installed.

1. Relevant Standards: 4.0103.10

2. Underlined details are required on all insulation certificates. Other items are required only when using blown-in insulation.

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Manufactured Home Insulation: Interior Blow Method

Job Aid for Insulate the Ceiling of a Manufactured Home Badge

Aligns With Standard Work Specifications 4.0103.12

Prior to drilling evenly spaced access holes, confirm the structural integrity of the roof assembly and ensure no roof leaks exist.

Blow loose fill fiberglass insulation to the correct density while ensuring complete coverage.

Apply a bead of caulk around the edge access hole plugs or seal holes using an alternative method that is aesthetically acceptable (e.g., foam plug covered with spackling compound).

Close and seal all access holes to ensure an airtight and durable repair.

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Checklist

Insulate the ceiling of a manufactured home

DESIRED OUTCOME

Consistent, uniform thermal boundary and air barrier between the conditioned space and unconditioned space.[1]

Ceiling prepared for insulation:

- ☐ Any high-temp issues have been safely addressed.
- ☐ Ventilation ductwork terminates to the exterior.
- ☐ Plumbing stacks terminate to the exterior.
- ☐ Recessed lights are insulation contact-rated or are replaced with insulation contact-rated fixtures or equipped with inserts.
- ☐ Roof/ceiling is in good repair.
- ☐ Interior ceiling penetrations are sealed.
- ☐ Dust control measures installed as needed.

Insulation:

- ☐ Drill holes or otherwise access cavities to allow for consistent, uniform coverage to the proper depth.
- ☐ Install insulation according to the manufacturer's requirements to achieve density of 1.5–1.6 lbs per cubic foot.
- ☐ Overblow no more than 5 bags according to manufacturer's coverage chart.
- ☐ Repair access points/holes in a workmanlike manner.
- ☐ Fill out applicable sections of house-wide insulation certificate with[2] insulation type, coverage area, installed thickness, settled thickness, R-value, and number of bags installed.

1. Relevant Standard: 4.0103.12

2. Underlined details are required on all insulation certificates. Other items are required only when using blown-in insulation.

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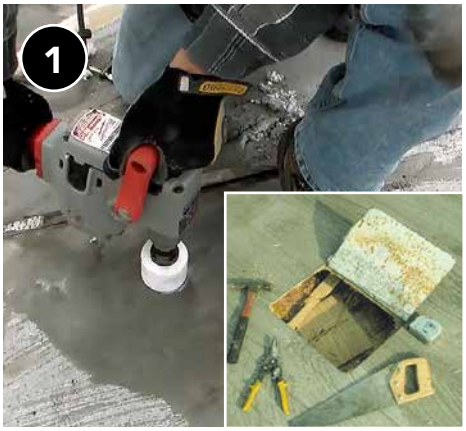
Manufactured Home Insulation: Roof Top Blow Method

Job Aid for Insulate the Ceiling of a Manufactured Home Badge

Aligns With Standard Work Specifications 4.0103.11

BEFORE

Confirm the structural integrity of the roof assembly and verify no active roof leaks exist prior to installation.



Cut access holes (rectangular or round holes) large enough to fit a fill tube in each cavity.

Carefully insert a fill tube or pipe and insulate all areas to the correct density using fiberglass insulation.

Prepare the area around the hole before installing a metal patch.

Install a bead of sealant and mechanically fasten a metal patch in place.

Install a flexible adhesive roof patch over the first patch. When complete, apply a final coat of elastomeric paint over the affected area.

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Checklist

Insulate the ceiling of a manufactured home

DESIRED OUTCOME

Consistent, uniform thermal boundary and air barrier between the conditioned space and unconditioned space.[1]

Ceiling prepared for insulation:

- ☐ Any high-temp issues have been safely addressed.
- ☐ Ventilation ductwork terminates to the exterior.
- ☐ Plumbing stacks terminate to the exterior.
- ☐ Recessed lights are insulation contact-rated or are replaced with insulation contact-rated fixtures or equipped with inserts.
- ☐ Roof/ceiling is in good repair.
- ☐ Interior ceiling penetrations are sealed.
- ☐ Dust control measures installed as needed.

Insulation:

- ☐ Drill holes or otherwise access cavities to allow for consistent, uniform coverage to the proper depth.
- ☐ Install insulation according to the manufacturer's requirements to achieve density of 1.5–1.6 lbs per cubic foot.
- ☐ Overblow no more than 5 bags according to manufacturer's coverage chart.
- ☐ Repair access points/holes in a workmanlike manner.
- ☐ Fill out applicable sections of house-wide insulation certificate with[2] insulation type, coverage area, installed thickness, settled thickness, R-value, and number of bags installed.

1. Relevant Standard: 4.0103.11

2. Underlined details are required on all insulation certificates. Other items are required only when using blown-in insulation.

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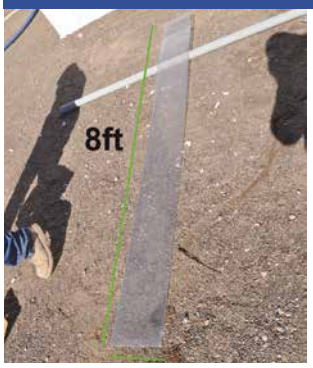
Insulate Manufactured Home Sidewalls With Batts

Job Aid for Insulate the Walls of a Manufactured Home Badge

Aligns With Standard Work Specification 4.0202.3

BEFORE YOU BEGIN



Prepare a flexible plastic insulation stuffing tool if needed to guide the insulation into the cavity.

Remove siding as needed, starting from the bottom and taking note of any obstacles that may compress insulation.

Measure the cavity depth, width, and length.

Plastic-wrapped fiberglass batts provide both insulation value and vapor retarder.

Cut batt to length for cavity and trim the width if needed to ensure a proper fit.

Fold the batt over the insulation stuffing tool.

Insert batt into cavity, sliding under top belt rail to top of cavity, and pull the stuffing tool back out to allow batt to fill in space.

Gently tug batt into place, tuck remaining batt under lower belt rail, and fit down to bottom of cavity with minimal compression.

Carefully reinstall the siding.

Reattach mechanical fasteners.

AFTER

Properly installed insulation will have no gaps and minimal compression when complete.

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Checklist

Insulate the walls of a manufactured home

DESIRED OUTCOME

Consistent thermal boundary and air barrier between the conditioned and unconditioned space.[1]

Site prepared for insulation:

- ☐ Worker inspected for damage and repairs needed prior to installation identified.
- ☐ Wall hangings removed from walls to be insulated.
- ☐ Proper job site protection measures installed or used (e.g., covering shrubs).

Insulation:

- ☐ Access cavities to allow for consistent, uniform, and complete coverage.
- ☐ Install insulation to provide consistent, thorough coverage of proper density.
- ☐ Ensure insulation has no gaps, voids, compression, or misalignment.
- ☐ Reinstall removed siding or skirting.
- ☐ Fill out applicable sections of house-wide insulation certificate with coverage area, thickness, and R-value.
- ☐ Clean job site.

1. Relevant Standards: 4.0202.3

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Insulate Manufactured Home Sidewalls With Blown Insulation

Job Aid for Insulate the Walls of a Manufactured Home Badge

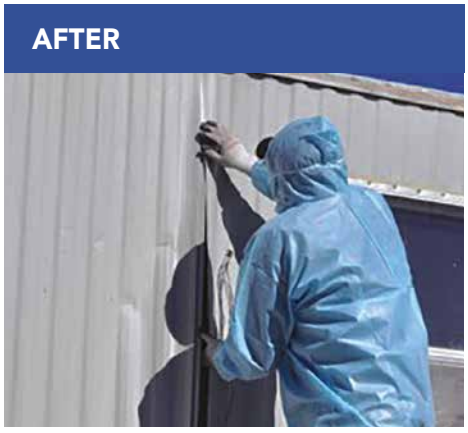
Aligns With Standard Work Specifications 4.0202.4, 4.0202.5

Ensure the integrity of the wall to be insulated, both from exterior and interior. Note: This home is not suitable for wall insulation as the exterior does not keep water out and the cladding is damaged beyond basic repair.

Remove siding as needed, from the bottom.

Fill cavity with blown fiberglass insulation; carefully maneuver the fill tube past the belt rail and around the electrical boxing/wiring.

Carefully reinstall the siding using new fasteners.



When properly insulated, siding should not bulge or be dented as a result of the installation. Document the location of any pre-existing dents and point them out to the building owner prior to starting a project.

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Checklist

Insulate the walls of a manufactured home

DESIRED OUTCOME

Consistent thermal boundary and air barrier between the conditioned and unconditioned space.[1]

Site prepared for insulation:

- ☐ Worker inspected for damage and repairs needed prior to installation identified.
- ☐ Wall hangings removed from walls to be insulated.
- ☐ Proper job site protection measures installed or used (e.g., covering shrubs).

Insulation:

- ☐ Access cavities to allow for consistent, uniform, and complete coverage.
- ☐ Install insulation to provide consistent, thorough coverage of proper density.
- ☐ Access holes are repaired/plugged.
- ☐ Ensure insulation has no gaps, voids, compression, or misalignment.
- ☐ Reinstall removed siding or skirting.
- ☐ Fill out applicable sections of house-wide insulation certificate with coverage area, thickness, and R-value.
- ☐ Clean job site.

1. Relevant Standards: 4.0202.4, 4.0202.5

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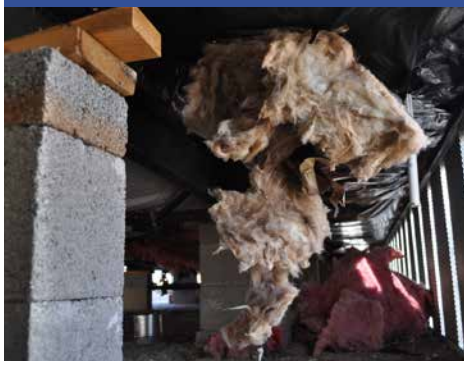
Insulate a Manufactured Home Belly

Job Aid for Insulate the Belly of a Manufactured Home

Aligns With Standard Work Specifications 3.0102.5, 4.0302.9

BEFORE YOU BEGIN



Determine if belly repairs are needed and make sure no plumbing or other issues preventing additional insulation exist. All duct sealing should be complete and the direction of the floor joists (crosswise or lengthwise) must be identified.

Remove old insulation if necessary and make repairs as needed in preparation for belly patch material.

Mechanically fasten belly repair material. Seal all seams and edges.

Based on installer preference and site conditions, bellies can be insulated from underneath or the edge when using a fill tube or pipe.

Cut access holes to ensure entire cavity will receive continuous and consistent insulation.

Fill entire belly cavity to prescribed R-value while ensuring plumbing has sufficient insulation value to prevent condensation or freezing.

Apply waterproof, permanent adhesive to patch for belly wrap, with patch sized at least 3 inches larger than hole in barrier.

Stitch staple patch to ensure permanent adhesion.

AFTER

Manufactured home bellies that are insulated with complete coverage with durable repairs improve the overall efficiency of the floor assembly.

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Checklist

Insulate the belly of a manufactured home

DESIRED OUTCOME

Consistent thermal boundary between conditioned and unconditioned space to the prescribed R-value.[1]

Site prepared for insulation:

- ☐ Worker inspected to ensure belly was prepared for insulation:
  - ☐ Duct sealing from exterior is complete.
  - ☐ Gas, water, waste and electrical lines are safe, leak free and supported at least every 4 feet to a floor joist or framing member.
  - ☐ Water lines are insulated if needed.
  - ☐ Bottom board/belly fabric/rodent barrier is complete and sound enough to support insulation.

Insulation:

- ☐ Access cavities accessed to allow for consistent, uniform, and complete coverage.
- ☐ Install insulation to provide consistent, thorough coverage to specified R-value.
- ☐ Over-blow no more than 5 bags according to manufacturers' coverage chart.
- ☐ Ensure insulation has no gaps, voids, compression, or misalignment.
- ☐ Seal all openings made to install insulation or other seams or gaps in the air barrier in a durable, weather-tight manner.
- ☐ Reinstall any removed skirting.
- ☐ Clean job site.
- ☐ Fill out applicable sections of house-wide insulation certificate with[2] insulation type, coverage area, installed thickness, settled thickness, R-value, number of bags installed.

1. Relevant Standards: 3.0102.5, 4.0302.9

2. Underlined details are required on all insulation certificates. Other items are required only when using blown-in insulation.

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