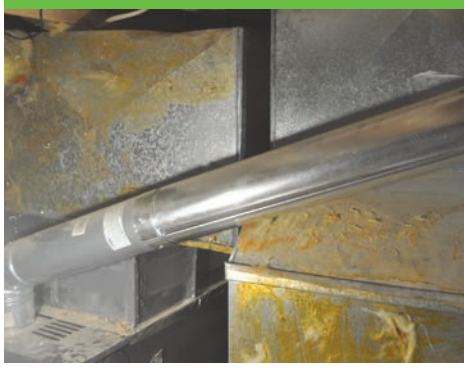
# Insulate Plenum

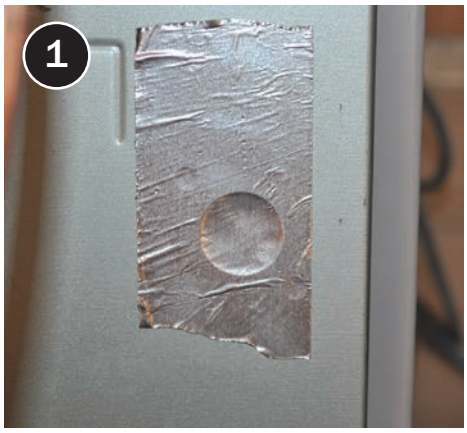
## Job Aid for Insulate Ducted Distribution System Badge

## Aligns With Standard Work Specifications 5.0107.1, 5.0107.2

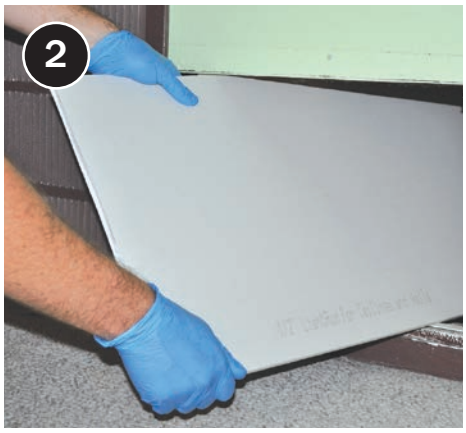
**BEFORE**



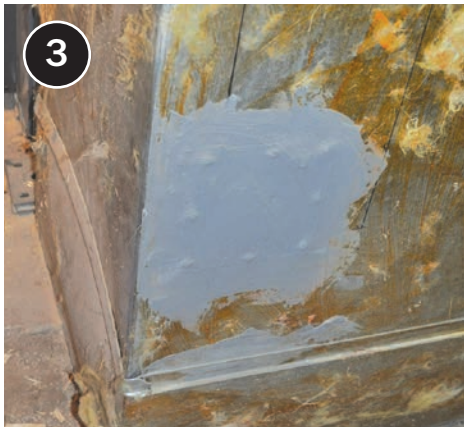
Uninsulated supply and return plenums located in unconditioned spaces allow for energy loss and contribute to occupant comfort issues.



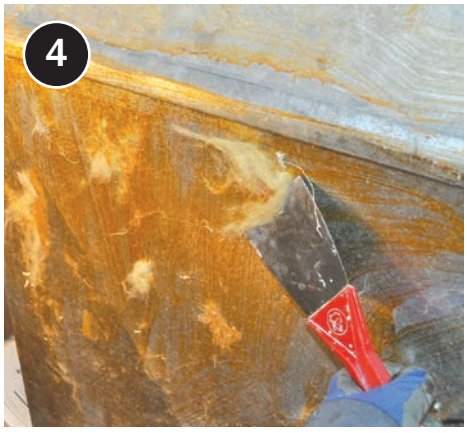

Cover any unnecessary holes in the air handler cabinet.



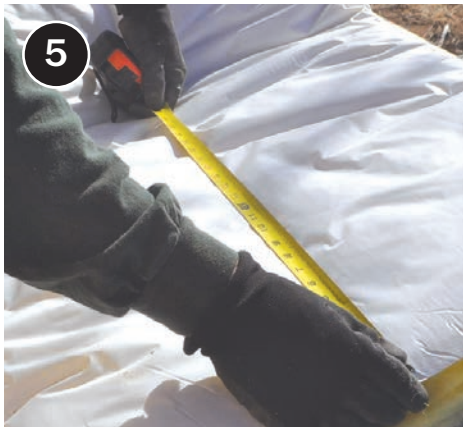

Check return cavities inside building envelope to ensure they are sealed off from unconditioned spaces.




Patch holes in ducts and plenum with appropriate materials (see 19-1 Seal Ducts With Mastic).




Prepare plenum by removing any residue from old insulation.




Measure insulation to take maximum advantage of large sheets of duct insulation.

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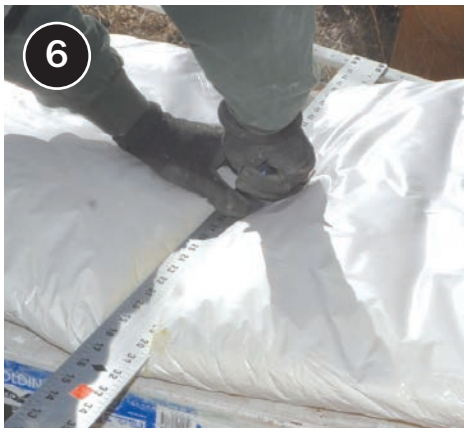
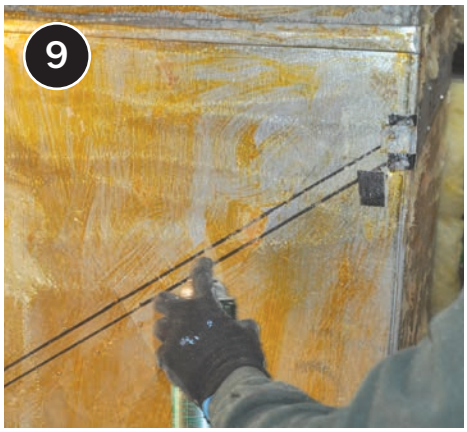



Cut to size for area to be covered. Insulate all exposed metal of the plenum.

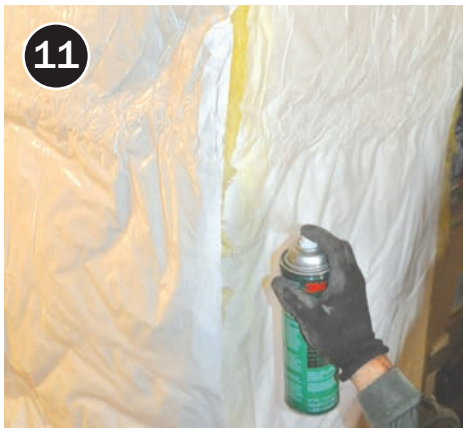

To ensure a complete vapor retarder, trim insulation from vapor barrier to create overlap flap for seams or tape seams with UL-181 tape.


Ensure clean surface for adhesion at overlap seam.




Spray adhesive over area where piece will be installed.


Ensure smooth and unrippled adhesion of insulation to metal of plenum.




Spray adhesive along vapor retarder at seam to seal closed.

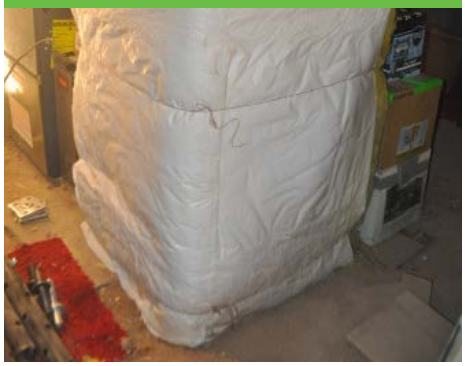
# Insulate Plenum




Ensure overlapping flap is securely attached to the lower layer to maintain a complete vapor barrier, or tape seams with UL-181 tape.


Support insulation to prevent movement over time, securing in place without puncturing vapor retarder.

**AFTER**



Ducts are connected, supported, and air-sealed properly.

CHECKLIST

# Insulate ducted distribution system

## DESIRED OUTCOME

**Reduced conductive heat transfer of duct system and minimized condensation on the duct system.**[1]

## Preparing for the work:

- [ ] Ducts are prepared and sealed according to "air seal ducted distribution system" guidelines.

## General:

- [ ] Duct insulation has an attached and continuous vapor barrier.
- [ ] Duct insulation is mechanically fastened and sealed with no exposed ducts.
- [ ] All insulation seams are sealed.
- [ ] Ducts are adequately supported, and support materials do not cause the interior dimensions of the ductwork to be smaller than specified.

## Metal Ducts:

- [ ] Insulation is securely attached to the ducts with metal wire or rot-proof nylon twine.
- [ ] Pattern of wire or twine is sufficient to securely hold the duct insulation tight to the duct.
- [ ] Duct insulation vapor barrier seams are sealed with manufacturer approved tape.
- [ ] Duct insulation is minimum R-8.[2]

## Flex ducts:

- [ ] All metal fittings including boots, elbows, and take-offs are insulated separately using a duct wrap of the minimum acceptable R-value with vapor retarder.
- [ ] Insulation on metal fittings, boots, elbows, and take-offs is mechanically fastened (e.g., stitch staples, tie bands) and sealed with no exposed metal.
- [ ] Any replacement flex duct is sized accordingly.
- [ ] Interior liner of flex-to-metal connections is fastened with tie bands using tie band tensioning tool.[3]
- [ ] Interior liner of flex-to-metal connections is sealed with UL 181 B-M listed mastic.
- [ ] The exterior liner of the flex duct is fastened with tie bands using a tie band tensioning tool.
- [ ] Exterior liner connections are sealed with UL 181 B-M listed mastic.

*1. Relevant Standards: 5.0107.1, 5.0107.2*

*2. If variance request has been approved, replace this with approved figure.*

*3. Or other appropriate mechanical fasteners as necessary.*

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**For more information, visit:** energy.gov/eere/wap

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