



Vented Attics for New Homes: Solutions That Work

Introduction

Vented Attics for New Construction

In new home construction, a properly vented attic improves energy efficiency, prevents moisture damage, and helps roofing materials last as long as intended.

Properly insulated vented attics provide:

- Improved energy efficiency
- Improved comfort
- Improved longevity for shingles and roof materials
- Reduced risk of mold and other health and durability issues

Vented attics allow air to flow through:

- Soffit vents
- Ridge vents
- Box/slant-back vents
- Gable vents
- Turbine and power vents



Critical Components of Vented Attics

This guide will help provide information and details on installing a vented attic in new construction and is organized around building science priorities and the following steps:



Air Sealing: First, identify and properly air seal potential areas where air leakage may occur allowing air from the home or ductwork to leak into the attic.

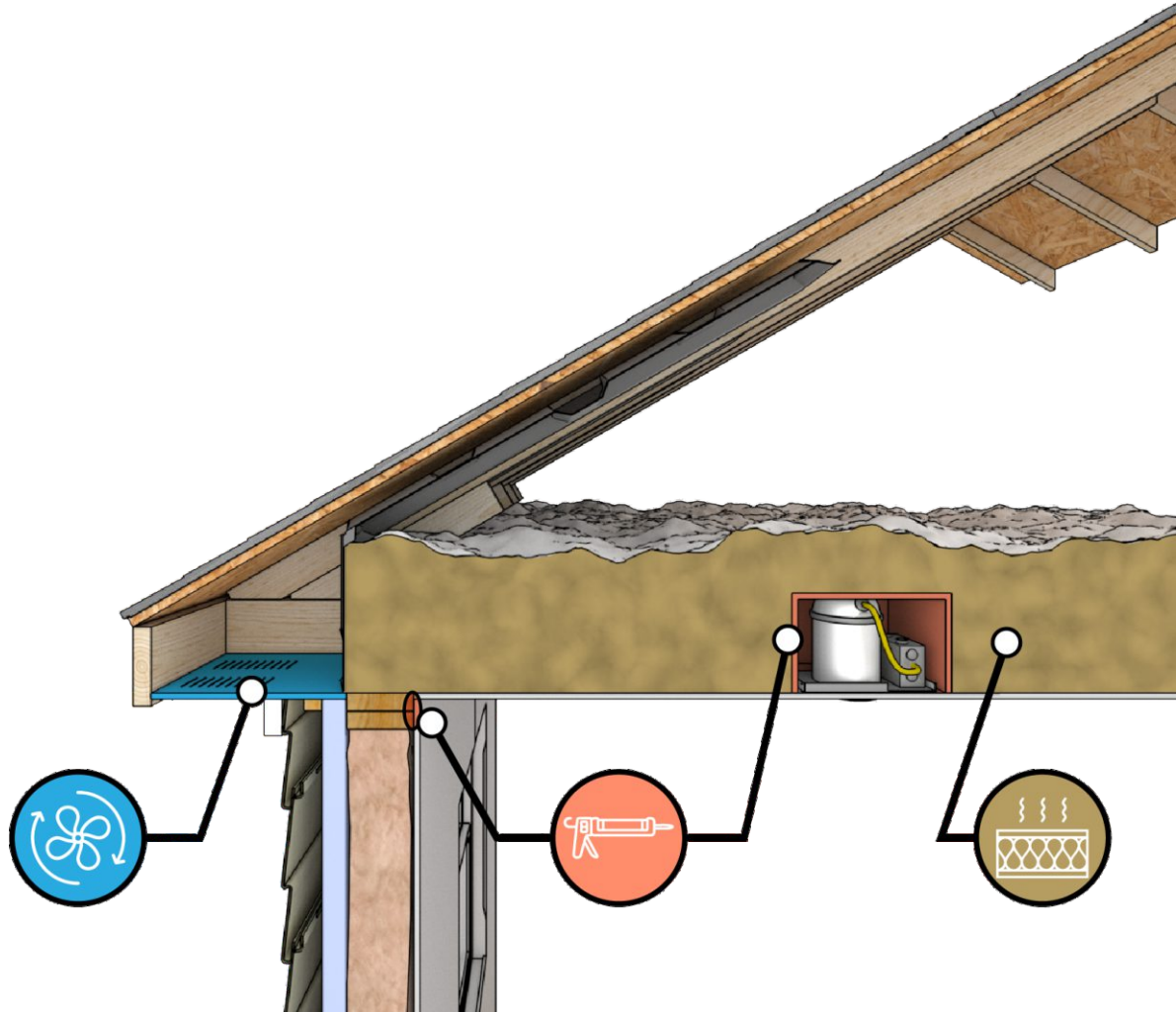


Ventilation: 40-50% of the ventilation openings should be installed in the bottom third of the roof, typically as soffit vents, and the remaining 50-60% within three feet of the uppermost part of the roof to allow for ample airflow through the space.



Insulation: With the air sealing complete and the ventilation components in place, we can now install insulation into the attic space to limit energy loss or heat gain.

A properly installed vented attic improves energy efficiency, prevents moisture damage, and extends roof life. Achieving these benefits requires strict adherence to manufacturer installation instructions and compliance with building codes.

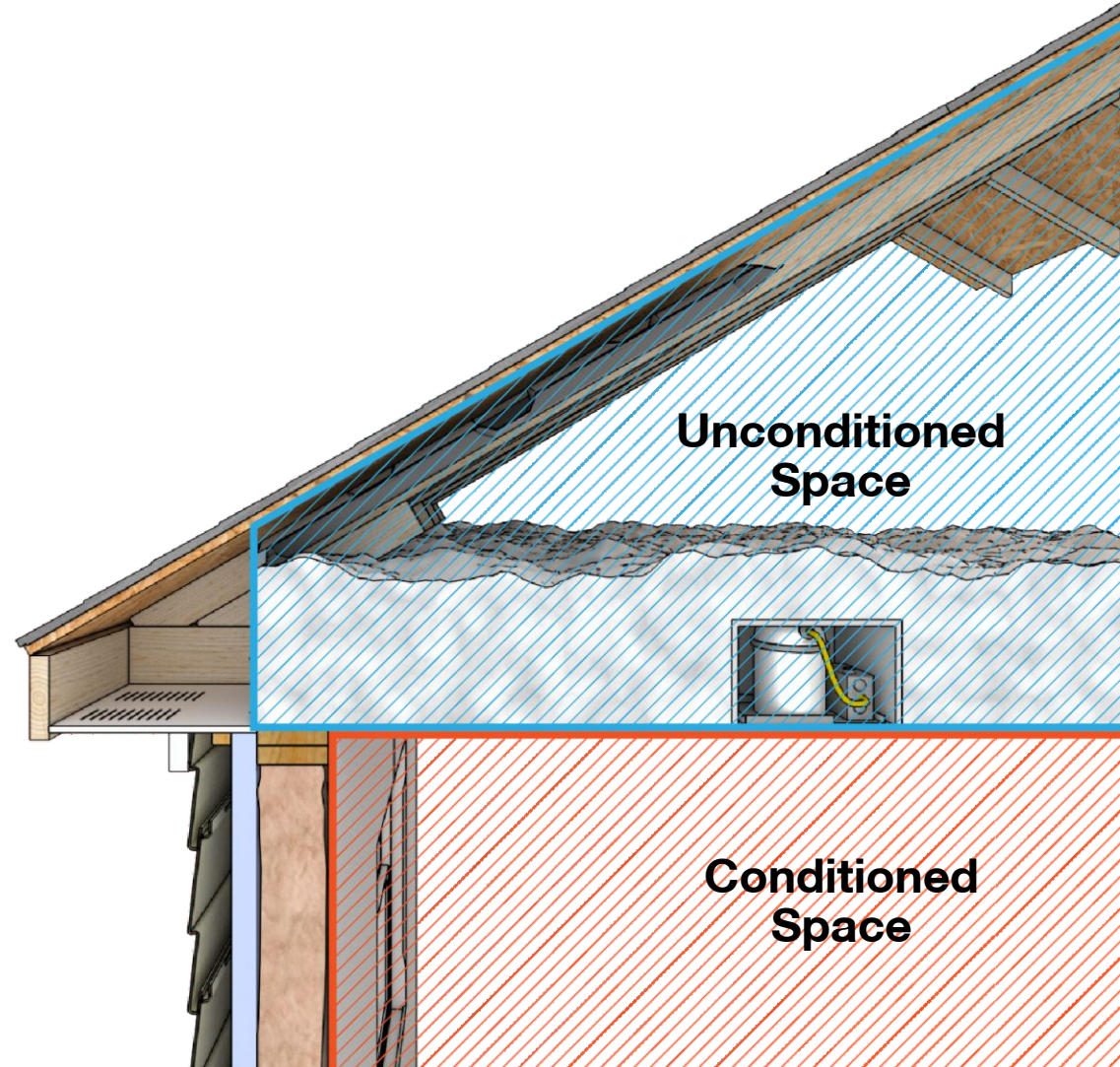


Air Sealing

Why

Air leaks between the attic and living space are a major cause of moisture problems known as “wetting.” Warm, humid air in the attic or moist, warm air inside the home will move in-and-out of the insulation assembly—resulting in condensation in the attic or in the home.

This same air leakage contributes to energy waste, ice damming, attic “rain,” deterioration of roofing materials, and comfort issues, and can draw potentially unhealthy air into the living space.



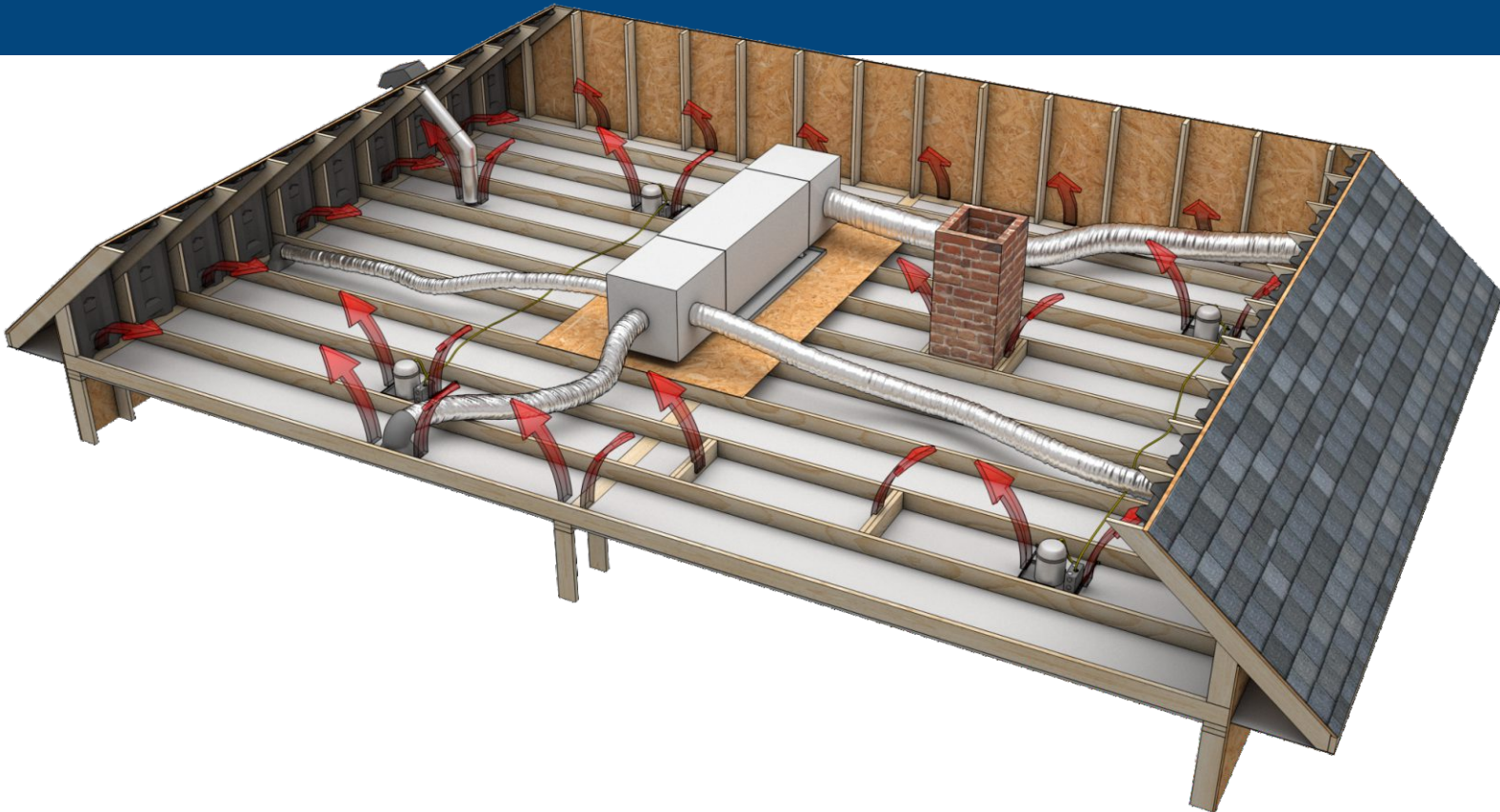
Air Sealing

What

Common air leakage points include recessed/can lighting, plumbing penetrations, HVAC registers (supply/return), interior wall top plates, penetrations, attic chases, access hatches, speakers, smoke detectors, outlets, and anything penetrating the ceiling drywall.

How

- Air sealing these vulnerable areas should be done before insulation is installed.
- Look for whole house fans in the Southwest and chimneys in the North, where chases may need to be sealed.
- All gaps should be sealed with appropriate and approved air sealing materials such as caulking, tapes, or gaskets.
- Performing a blower door test after air sealing is complete can verify the home is properly prepared for insulation installation.



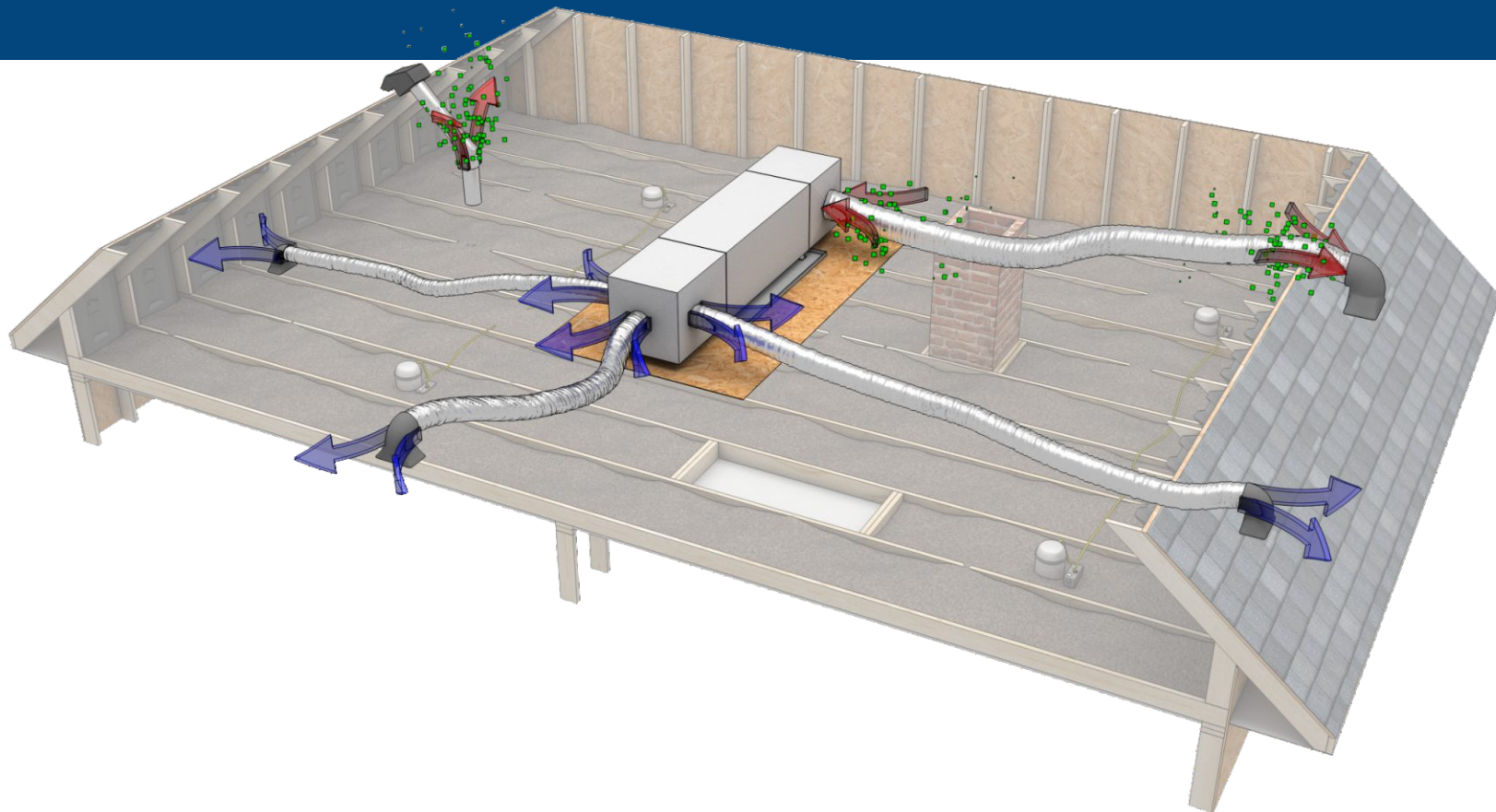
Air Sealing And Insulating HVAC Ductwork

With new construction we have the opportunity to get the installation right and create a durable and efficient system that will last for decades.

The key to success is making sure ducts are sealed and insulation levels are as designed. Leaky, uninsulated ductwork in an attic can lead to significant energy loss, poor HVAC performance, and wetting/water damage of attic materials. Unsealed supply ducts leak conditioned air

into the unvented attic, wasting energy. Unsealed return ducts can pull in contaminated air from the surrounding space. This can circulate dust, toxins, and pollutants throughout the home.

If the ductwork is installed on top of the ceiling joists, consider burying the ductwork in attic insulation, as allowed by code, which will save energy and make the home more comfortable.



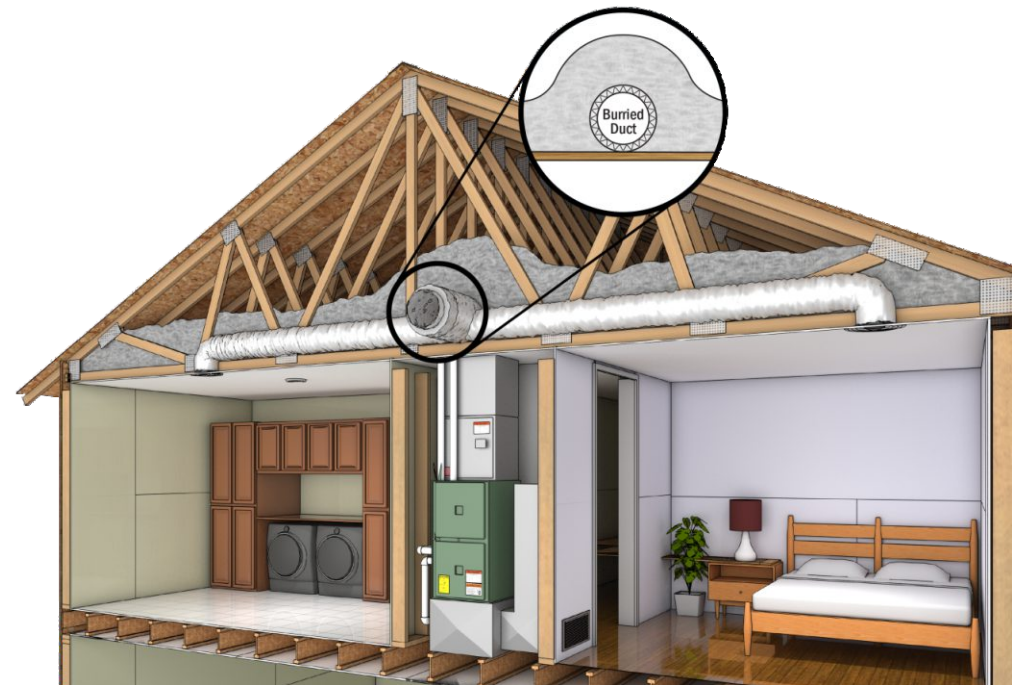
Air Sealing and Insulating HVAC Ductwork

What

All heating and cooling ducts located in the vented attic need to be sealed and insulated. Other exhaust ducts from the conditioned space—such as bathroom and kitchen ventilation ducts or laundry dryer ducts—should also be properly sealed and vented to the outside. The sealing of ducts must happen prior to insulation installation.

How

- Seal all ducts, connections, and penetrations with approved mastic or tape.
- Ensure the ductwork insulation meets the required R-value and the manufacturer's installation instructions.
- If insulated ductwork will be used, ensure it meets the code-required R-value.
- For non-insulated ductwork, cover or wrap ducts with the minimum insulation R-value required by code to minimize heat transfer and limit wetting of the ducts due to condensation.
- A duct blaster test after sealing will verify the task, and help identify any spots that need further sealing.

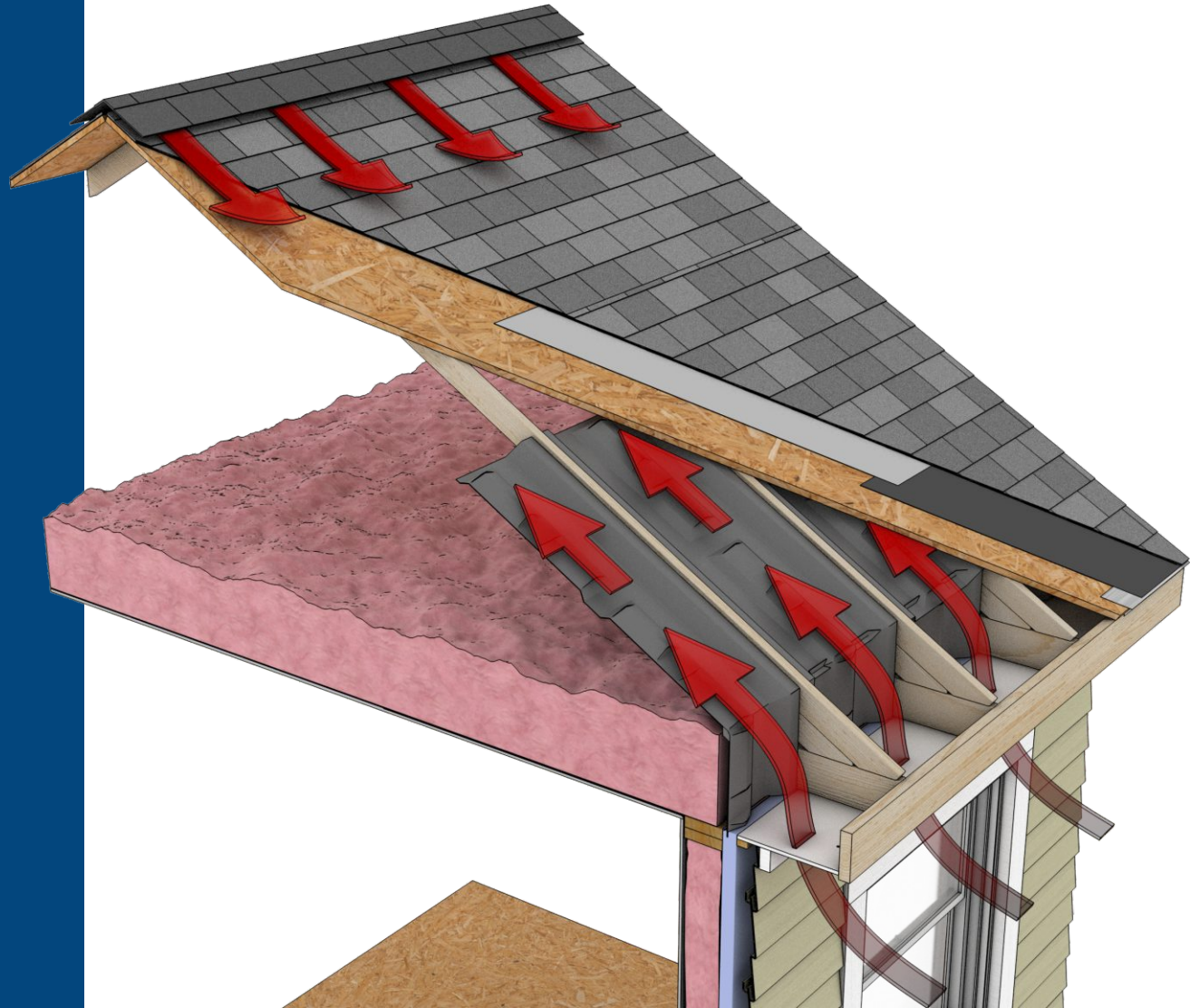


Ventilation

Effective attic ventilation should be installed per IRC 806.2 and requires two essential conditions:

- 1) **A complete air barrier between attic and living space.** This prevents conditioned air from escaping into the attic and stops unconditioned attic air from entering the home
- 2) **Balanced ventilation.** Unobstructed natural airflow reduces heat and moisture:
 - Intake vents near the bottom (soffit or lower roof edges) allow fresh air to enter.
 - Exhaust vents near the top (ridge or upper roof) allow warm, moist air to exit.
 - This natural circulation helps regulate attic temperature and removes excess moisture.
 - When properly balanced, attic ventilation works passively to protect the home's structure and improve energy performance.

Pro tip! For wildfire prone areas, consider installing soffit vents that prohibit embers from entering.



Insulation

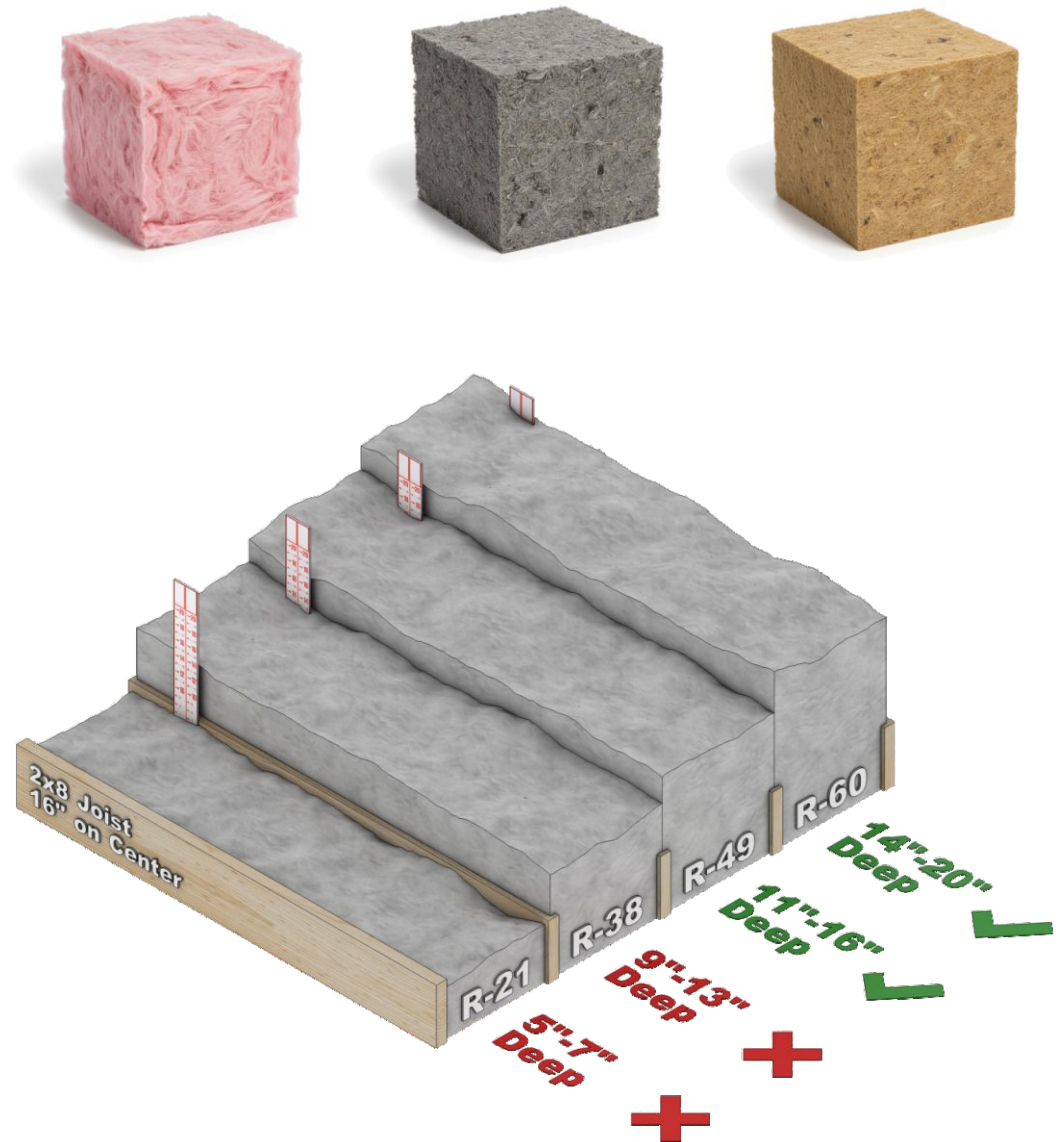
Insulating a vented attic can be accomplished with a selection of traditional, cost-effective insulation materials, including:

- Fiberglass
- Mineral wool
- Cellulose (loose fill)

When completed properly per manufacturer's instructions, vented attics can have the same level of energy efficiency and long-term durability as more costly and time-consuming spray foam insulation installations.

Insulation type and depth will directly impact the R-value of the vented attic. Upgrading attic floor insulation improves energy efficiency, thermal performance, occupant comfort, and will reduce heating and cooling costs.

Pro tip! Storage areas and decking should be constructed such that the full height of insulation can be installed underneath.



Conclusion

While each vented attic will be different, the key components of the process and expectations remain the same. Air seal the space, provide proper ventilation, ensure the duct work is sealed and insulated, and then install the correct amount of insulation.

By following these steps homes will be more energy efficient, have improved air quality, and be less susceptible to water intrusion and moisture damage.

This summary is offered for informational purposes only. It does not purport to be an exhaustive analysis of code requirements or provide advice that will ensure guaranteed compliance with any energy code provision. Please consult with local authorities before finalizing your installation plans.



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This guide was prepared for NAIMA by Construction Instruction (Ci), a nationally recognized building science company dedicated to helping the construction industry build better, more durable, and more energy-efficient homes. With over 100 years of building science experience, Ci Partners have worked alongside leading builders, manufacturers, and trade professionals across North America to improve building performance through education, consulting, field support, applied research, and visual education. Visit <https://constructioninstruction.com> for more information.

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