

Heat Pump Home Runs

- Air Source Heat Pump
- 1.5 Story Cape Cod Home



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Cape Cod-style homes are 1.5 stories with living space on the first floor and bedrooms on the second floor. Often, they don't have dedicated returns on the second floor, making ductless heat pumps the best option upstairs. Tip: run refrigerant lines through knee walls!

Existing Duct Work Evaluation

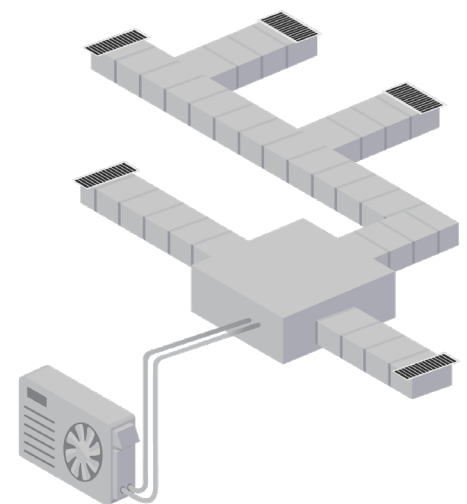
If the answer to any of the questions below is “no” then the distribution system is not in good working order and likely needs modification or replacement to accommodate a ducted heat pump.

- » Is the duct system obviously noisy with the fan on?
- » Is the duct work sealed?
- » Is the duct work free from panned or cavity returns?
- » Does the current duct system provide adequate airflow for heating with a heat pump?



Follow Best Practices!

- » Measure system airflow to get a baseline
- » Perform a Manual D to determine required duct sizing



Which heat pump design is right for this house?

Is the ducted distribution in good working order (or can be functionally modified in place)?



Yes



Recommendation – Ducted + Ductless: Ducted system using existing ducts where possible. Use additional ductless to serve bedrooms on second floor.



No, does not have duct work or in it is in poor condition.



Recommendation – Ductless: Several ductless systems to serve each zone of the house.



Follow Best Practices!

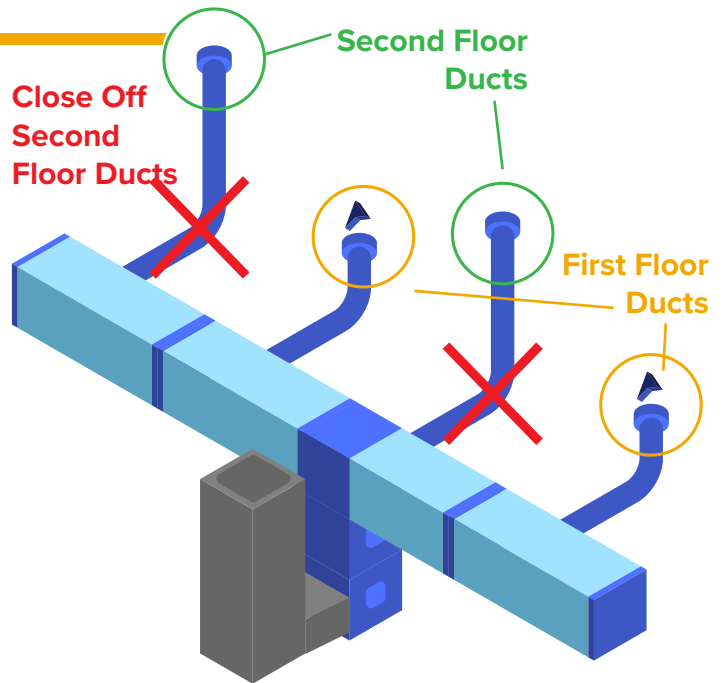
- » Always perform a load calculation.
- » Look for opportunities to reduce the load with air sealing and insulation.

Learn More About System Design Recommendations



Ducted + Ductless Considerations

- » Evaluate supply and return duct work.
- » If there is no existing central AC, evaluate the electric panel capacity.
- » If there are no dedicated returns on the second floor, modify the duct system to serve the first floor only.
- » Install ductless units on the second floor. Cape Cods often have low ceilings and small attics. A compact ducted unit installed in the knee wall that serves both bedrooms is a good solution.



Ductless Considerations

- » Evaluate the electric panel capacity.
- » Install multiple single-zone heat pumps for the easiest way to match capacity to load.
- » Install compact ducted units in the knee wall to serve both bedrooms if there are low ceilings and a small attic.
- » Avoid over-zoning: using multiple ductless heads for a given outdoor unit requires careful sizing around the min and max capacity of the unit and the load served.



Electric Panel Capacity Evaluation

Panel upgrades add significant cost to a job. Use the tips below to evaluate the likelihood a panel upgrade is needed.

- » If the home already has central AC panel capacity is probably adequate.
- » If the house is served by a 100 amp panel an upgrade is likely required.
- » If there are fewer than 2 empty breaker slots available, discuss the below options with an electrician.

Options by cost:

\$ Support another load with a tandem breaker and use thin double-pole breaker for heat pumps.

\$\$ Add a subpanel to combine loads to free up space on the main panel.

\$\$\$ Use an automatic circuit sharing device such as NeoCharge, Dryer Buddy and others.

\$\$\$\$ Upgrade to a larger panel.



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