

Combustion air

Homes need fresh air for combustion in furnaces, fireplaces, wood stoves, gas water heaters and clothes dryers. Homes that have been tightened to prevent heat loss can become starved for air.

This is especially true when you're using exhaust fans and vented appliances, which draw air from inside your house; air from outside can then be pulled into your home, possibly down the furnace vent or fireplace chimney. Called "backdrafting," this can cause carbon monoxide (CO) to form.

To prevent homes from becoming starved for air, the Minnesota Uniform Mechanical Code requires all new homes be built with a special duct that brings outside air directly to the heating system. All furnace and boiler installations in existing homes are also required to have a combustion air duct.

To learn more about the causes, symptoms and prevention of carbon monoxide buildup, ask for our brochure, "The Inside Story on Carbon Monoxide."

Results of your fresh air check

- If the match remains lit and the match flame pulls toward the draft hood, this indicates sufficient fresh air. Check draft hoods on all other equipment such as gas space heaters, water heaters and additional heating systems. Return appliances and exhausting devices to their original condition.
- If the match goes out, the vent may be plugged and/or your home's air supply may be inadequate. You should:
 1. Check for plugged vent connectors and chimneys. Repair stoppage and test again.
 2. If the match goes out even when the vent is clear, additional air for combustion must be brought from outside by adding a vent or fresh air intake directly to the furnace area. To avoid backdrafting, limit use of your clothes dryer, fireplace, furnace, and mechanical exhaust fan until the new vent or fresh air intake is installed.

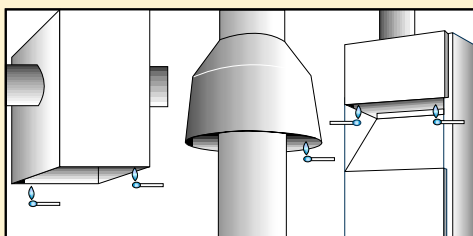
See the Minnesota Uniform Mechanical Code or call a qualified heating contractor or local gas utility service department for installation instructions.

Doing a fresh air check

To see if your home is receiving enough fresh air:

1. Close all doors and windows.
2. If you have a fireplace, build a fire.
3. Turn on all exhausting devices, such as kitchen and bathroom exhaust fans, gas or electric dryers, and attic fans.
4. Turn on all vented gas appliances, such as heating equipment and water heaters, and wait 10 minutes for drafts to stabilize.
5. Hold a lit match below each heating system draft hood air intake as shown below.

Draft hoods

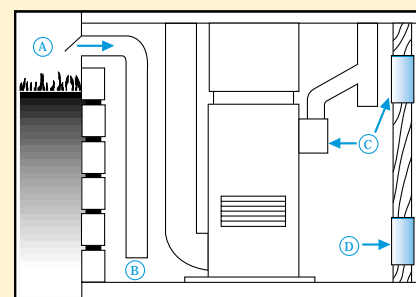


Installing fresh air ducts

The following are examples of places you can install fresh air ducts to increase your home's combustion air. **Always be sure to check the Minnesota Uniform Mechanical Code before you begin** or contact your local building codes office for size and materials. Flexible ducting is not recommended because ridges create turbulence and reduce air flow.

To supply outside air to floor in furnace area

1. Place outside air intake duct (A) at least 1' above grade level.
2. Cover air intake with 1/4" mesh screen and weather hood.
3. The duct must discharge the fresh air at a level no more than 1' off the floor (B).

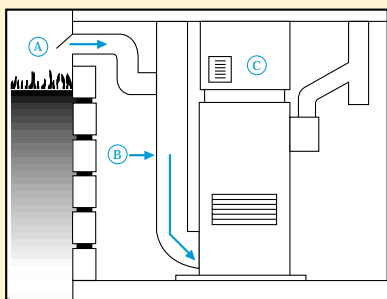


To help keep cold air from spreading across your basement floor, build a closed-bottom box out of sheet metal or use a 5-gallon bucket that allows air to flow freely in and out. Drop the combustion air supply duct into the containment box and permanently attach the duct to it. **To avoid restricting airflow, the box or bucket cannot be more than 1' high.**

To supply outside air into cold air return

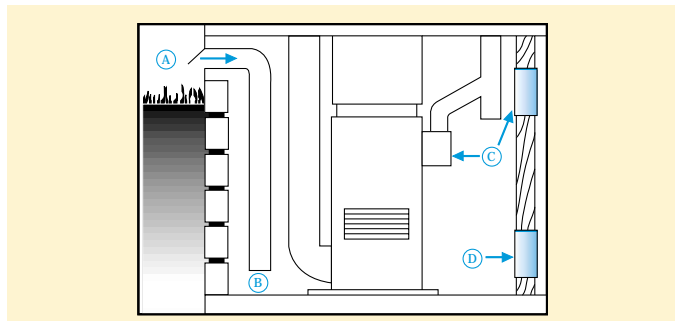
This method is permitted by code but has been known to shorten equipment life, reduce performance in unusually cold temperatures and void warranties. To install:

1. Place air intake duct (A) at least 1' above grade level.
2. Cover air intake duct with 1/4" mesh screen and weather hood.
3. Install duct in return side of heating system (B).
4. A register without a damper (C) must be installed in plenum of furnace. Its free area size must be at least one half free area of common vent.



To supply to a furnace in a confined area

1. Duct must discharge fresh air at a level no more than 1' off the floor (B).
2. Ventilation air must be supplied to the furnace area through two openings to the main house area located as follows:
 - A ventilation air outlet grill in a wall or door, at a level higher (C) than the draft hood opening. The grill area must provide one square inch for every 2,000 Btus per hour of natural gas input to the gas equipment in the area.



- A ventilation air inlet grill located in the wall or door, level with or below (D) the combustion air inlet to the lowest burner. The area of the grill must provide one square inch for every 2,000 Btus per hour of natural gas input to gas equipment in the area.

For example:

A furnace of 80,000-Btu input has 40 units of 2,000 Btus. $40 \times 1 \text{ in}^2 = 40 \text{ in}^2$. A grill $10" \times 4" = 40 \text{ in}^2$. But since only the free area of the grill, not the slats, is counted, two grills (an inlet and an outlet) measuring $10" \times 6"$ each, are used. Locations are shown.

Proper maintenance and periodic care of your home heating system will help ensure safety, extend the system's operating life, save energy, and increase efficiency. Follow manufacturer's recommendations. If your heating system is not working properly, contact a qualified heating contractor or local utility service department.

Keep fresh air intake clear of snow, leaves, or other debris. Never block it.

For more information on indoor environment, ask for our fact sheets entitled "Humidity and the Indoor Environment" and "Indoor Air Quality."

612-372-4727 (1-800-245-2377)

minnegasco.CenterPointEnergy.com

CenterPoint Energy Minnegasco

Customer Relations
PO Box 59038
Minneapolis, MN 55459-0038

