To ensure indoor air quality and reduce heat loss, Washington State's amendments to the *International Residential Code* (IRC) place installation requirements on all solid fuel combustion appliances, including:

- All wood stoves, including cook stoves.
- Pellet stoves.
- Fireplaces.
- Masonry heaters (must have Washington State Department of Ecology approval).

**Combustion Air**

In order to prevent backdrafting, an adequate supply of combustion air must be supplied to each solid fuel combustion appliance (see Figure 8-1).

Combustion air must:

- Come from outside the building structure.
- Originate from a point below the firebox.
- Enter through a minimum 4-inch diameter duct (minimally 6 square inches for fireplaces) less than 20 feet in length.
- Be directly connected to the appliance (see Figure 8-1).

**Exceptions:** Combustion air may be supplied to the room in which the solid fuel combustion appliance is located rather than directly to the appliance when either:

- The appliance is part of a central heating system installed in an unconditioned space in accordance with the *International Mechanical Code* (IMC).
- The appliance is installed in existing construction directly on a concrete floor or surrounded by masonry as in a fireplace.
Backdrafting
Caused by reduced air pressure relative to outside

Correctly Operating Stove with Outside Combustion Air
Wind can initiate backdrafting

Exhaust fans can initiate backdrafting

Screen or loose-fitting door

Correctly Operating Fireplace with Outside Combustion Air
Design of air duct per stove manufacturer’s recommendations

Damper

Tight-fitting door

Outside combustion air

Air duct of 6 sq. inches (minimum) ducting from outside directly to firebox

Damper

Outside combustion air
Site-built fireplaces may use a flue draft induction fan instead of doors.

**In addition:** Alternative methods of providing combustion air (using the manufacturer’s specifications) are allowed if the unit and combustion air supply have been certified. They must have passed a test specified by the IRC Section 1006.2 and the test must have been done by an independent lab.

**Tight-Fitting Doors**

All solid fuel burning appliances, fireplaces and masonry heaters must have tight-fitting ceramic glass or metal doors.

**Exception:** Site-built fireplaces may use a flue draft induction fan instead of doors.

*Note: Although a flue draft induction fan will minimize potential backdrafting, glass doors are also recommended to prevent heat loss when the fireplace is not in use.*

**Flue Dampers**

Fireplaces must have a tight-fitting flue damper.

**Exception:** Fireplaces with gas logs must be installed in accordance with the IMC.