

# Indoor Combustion Air

Source: Fuel Gas Code New York State

**304.5 Indoor combustion air.** The required volume of indoor air shall be determined in accordance with Section 304.5.1 or 304.5.2, except that where the air infiltration rate is known to be less than 0.40 air changes per hour (ACH), Section 304.5.2 shall be used. The total required volume shall be the sum of the required volume calculated for all appliances located within the space. Rooms communicating directly with the space in which the appliances are installed through openings not furnished with doors, and through combustion air openings sized and located in accordance with Section 304.5.3, are considered to be part of the required volume.

**304.5.1 Standard method.** The minimum required volume shall be 50 cubic feet per 1,000 Btu/h (4.8 m<sup>3</sup>/kW) of the appliance input rating.

**304.5.2 Known air-infiltration-rate method.** Where the air infiltration rate of a structure is known, the minimum required volume shall be determined as follows:

For appliances other than fan-assisted, calculate volume using Equation 3-1.

(Equation 3-1)

$$\text{Required Volume}_{\text{other}} \geq \frac{21\text{ft}^3}{\text{ACH}} \left( \frac{I_{\text{other}}}{1,000 \text{ Btu/h}} \right)$$

For fan-assisted appliances, calculate volume using Equation 3-2.

Equation 3-2)

$$\text{Required Volume}_{\text{fan}} \geq \frac{15\text{ft}^3}{\text{ACH}} \left( \frac{I_{\text{fan}}}{1,000 \text{ Btu/h}} \right)$$

Where:

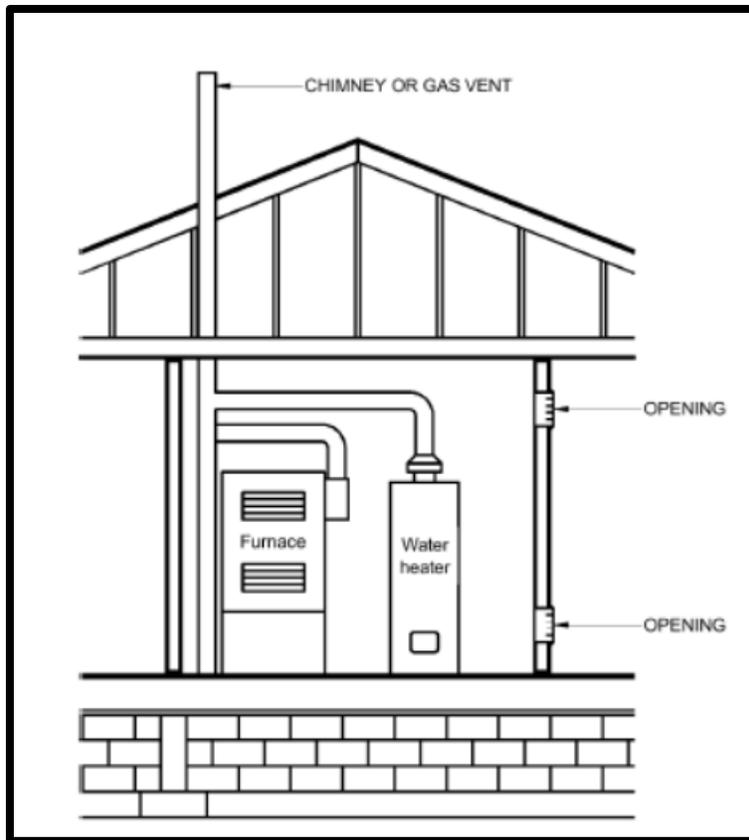
$I_{\text{other}}$  = All appliances other than fan assisted (input in Btu/h).

$I_{\text{fan}}$  = Fan-assisted appliance (input in Btu/h).

ACH = Air change per hour (percent of volume of space exchanged per hour, expressed as a decimal).

For purposes of this calculation, an infiltration rate greater than 0.60 ACH shall not be used in Equations 3-1 and 3-2.

**304.5.3 Indoor opening size and location.** Openings used to connect indoor spaces shall be sized and located in accordance with Sections 304.5.3.1 and 304.5.3.2 (see Figure 304.5.3).



**FIGURE 304.5.3 ALL AIR FROM INSIDE THE BUILDING (see Section 304.5.3)**

**304.5.3.1 Combining spaces on the same story.** Each opening shall have a minimum free area of 1 square inch per 1,000 Btu/h (2200 mm<sup>2</sup>/kW) of the total input rating of all appliances in the space, but not less than 100 square inches (0.06 m<sup>2</sup>). One opening shall commence within 12 inches (305 mm) of the top and one opening shall commence within 12 inches (305 mm) of the bottom of the enclosure. The minimum dimension of air openings shall be not less than 3 inches (76 mm).

**304.5.3.2 Combining spaces in different stories.** The volumes of spaces in different stories shall be considered as communicating spaces where such spaces are connected by one or more openings in doors or floors having a total minimum free area of 2 square inches per 1,000 Btu/h (4402 mm<sup>2</sup>/kW) of total input rating of all appliances.

For additional information see the following link:

<http://publicecodes.cyberregs.com/st/ny/st/b1000v10/index.htm>