

TABLE 304.1
 COMBUSTION AIR REQUIREMENTS FOR GAS-FIRED
 APPLIANCES WHEN THE COMBINED INPUT IS UP TO
 AND INCLUDING 400,000 Btu/hr

TOTAL INPUT OF APPLIANCES ¹ , THOUSANDS OF Btu/hr (kW)	REQUIRED FREE AREA OF AIR-SUPPLY OPENING OR DUCT, SQUARE INCHES (sq mm)	ACCEPTABLE APPROXIMATE ROUND DUCT EQUIVALENT DIAMETER ² , INCH (mm)
25 (8)	7 (4,500)	3 (75)
50 (15)	7 (4,500)	3 (75)
75 (23)	11 (7,000)	4 (100)
100 (30)	14 (9,000)	4 (100)
125 (37)	18 (12,000)	5 (125)
150 (45)	22 (14,000)	5 (125)
175 (53)	25 (16,000)	6 (150)
200 (60)	29 (19,000)	6 (150)
225 (68)	32 (21,000)	6 (150)
250 (75)	36 (23,000)	7 (175)
275 (83)	40 (26,000)	7 (175)
300 (90)	43 (28,000)	7 (175)
325 (98)	47 (30,000)	8 (200)
350 (105)	50 (32,000)	8 (200)
375 (113)	54 (35,000)	8 (200)
400 (120)	58 (37,000)	9 (225)

1. For total inputs falling between listed capacities, use next largest listed input.
 2. If flexible duct is used, increase the duct diameter by one inch.*
- *Flexible duct shall be stretched with minimal sags.

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 m³/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.

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

(Equation 3-1)

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

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

(Equation 3-2)

where:

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

I_{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).

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 (2,200 mm²/kW) of the total input rating of all appliances in the space, but not less than 100 square inches (0.06 m²). 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 mm²/kW) of total input rating of all appliances.

304.6 Outdoor combustion air. Outdoor *combustion air* shall be provided through opening(s) to the outdoors in accordance with Section 304.6.1 or 304.6.2. The minimum dimension of air openings shall be not less than 3 inches (76 mm).

304.6.1 Two-permanent-openings method. Deleted.

304.6.2 One-permanent-opening method. When any natural draft *appliances* are installed, one permanent opening, commencing within 12 inches (300 mm) of the bottom of the enclosure, shall be provided. When other than natural draft *appliances* are installed, one permanent opening, commencing within 12 inches (300 mm) of the top of