



Combustion Air Requirements

For Water Heaters & Other Category 1 Appliances

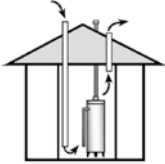
Gas vent shall be supported, strapped or braced in accordance with their listings and manufacturers installation instruction. (2010 CPC Sec. 510.6.5).

The maximum horizontal length of a single-wall connector shall not exceed 75 percent of the height of vent. The maximum horizontal length of a Type "B" connector shall not exceed 100 percent of the height of vent. (2010 CPC Sec. 510.10.9.2 (3)).

Air for Combustion, Ventilation & Dilution

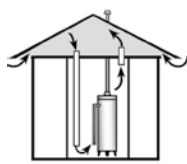
Combustion air must be provided per 2010 CPC Section 507.0. For water heaters located in room large enough to support combustion process (minimum 50 cubic feet of space per 1000 BTU/Hr. of appliances input rating (507.2.1) additional openings not required. In all other instances, please refer to the Code for specific details and requirements.

Vertical Ducts to Outdoors



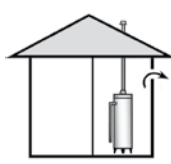
2 vertical ducts
min. 1 sq.in./4kBtu each

Vertical Ducts to Attic



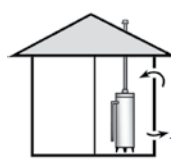
2 openings to ventilated attic
min. 1 sq.in./4kBtu each & sleeved min 6 in. above joist

Single-Opening Method



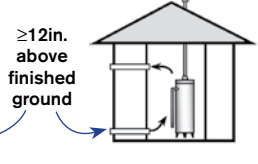
1 opening in upper 12 in. of exterior wall
min. 1 sq.in./3kBtu

2 Direct Exterior Openings



2 openings in exterior wall
min. 1 sq.in./4kBtu each

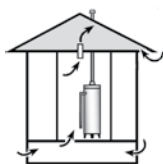
Horizontal Ducts



≥12 in. above finished ground

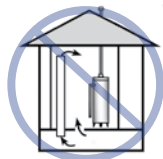
2 openings in exterior wall
min. 1 sq.in./2kBtu each

Crawl-Space & Attic Openings

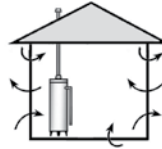


Attic & crawl space
min. 1 sq.in./4kBtu each

Crawl Space Cannot Be Upper Air Source

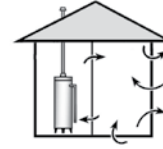


All Air from Indoors



Space w/ >0.40 ACH sufficient if volume ≥50 cu.ft./kBtu.

Confined Space Indoors



Openings from enclosed appliance space to building interior min. 100sq.in. each and per table below. One in upper 12 in. & 1 in. lower 12 in. of enclosed space.

COMBUSTION AIR OPENING SIZES				
Btu	Indoor Air ^A		Outdoor Air Openings	
	Opening size ^B	cu.ft. min. (sq.ft. ^C)	1 in./4kBtu/hr.	1 in./2kBtu/hr.
30k	100 sq.in.	1,500 (188)	15 sq.in.	7.5 sq.in.
40k	100 sq.in.	2,000 (250)	20 sq.in.	10sq. n.
50k	100 sq.in.	2,500 (313)	25 sq.in.	12.5 sq.in.
60k	100 sq.in.	3,000 (375)	30 sq.in.	15 sq.in.
80k	100 sq.in.	4,000 (500)	40 sq.in.	20 sq.in.
100k	100 sq.in.	5,000 (625)	50 sq.in.	25 sq.in.
125k	125 sq.in.	6,250 (781)	62.5 sq.in.	31.3 sq.in.
150k	150 sq.in.	7,500 (938)	75 sq.in.	37.5 sq.in.

A. For construction w/ known air infiltration rate >0.40/hr.
 B. Req'd opening between confined space (<50 cu.ft. per kBtu's) & unconfined space.
 C. Ex: sq. ft. for 8 ft. ceiling – use actual room volume.