



COMBUSTION AIR – GAS APPLIANCES IN ENCLOSED SPACES

Chapter 7 of the Mechanical Code allows combustion air to be obtained from inside the room, if the volume of such room is equal to or greater than fifty (50) cubic feet per one thousand (1,000) BTU/h input rating of all fuel burning equipment contained therein. The required room volume shall be equal to or greater than the aggregate Btu/hr input rating of all fuel burning equipment divided by a factor of 20. Excluded from this requirement are direct vent appliances, listed cooking appliances, and domestic clothes dryers.

However, if the volume of the room is not sufficient, other methods shall be considered to provide adequate combustion air to the space. Refer to Table 1 and Figure 1 below for common methods of obtaining combustion air from outside. If none of the methods in Table 1 are used, please contact the Mechanical Section for guidance.

If combustion air is obtained through a louvered door, upper and lower louvers shall be within 12 inches of the room ceiling and room floor, respectively, as shown in Figures 2(A) and 2(B). If the upper louver is not within 12 inches of the ceiling, a different louver sized to meet the upper combustion air requirement shall be provided within 12 inches of the ceiling. Figures 2(C) and 2(D) illustrate the incorrect installation of louvers. The net free area of the louvered openings shall be documented on the manufacturer's data sheet. Otherwise, use twenty-five (25) percent of the area of wood louvers and seventy-five (75) percent of the area of metal louvers to determine the clear or net opening area. All combustion air openings shall be covered with not less than 1/4-inch mesh.

Combustion air ducts to the attic must rise at least 6 inches above the joist or insulation, whichever is higher, to avoid the possibility of blocking the combustion air ducts.

EXCEPTION: Residential occupancies



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Table 1. Common Methods of Sizing Openings for Combustion Air

	Volume Formula (ft ³)	Size Formula Per Opening (in ²)	Minimum Size	Required Openings	Example (200,000 BTU/h Water Heater)	Acceptable Condition Example
Standard Method	$\frac{\text{BTU/h}}{20}$				$\frac{200,000}{20} = 10,000 \text{ ft}^3$	35 ft × 35 ft × 10 ft = 12,250 ft ³
Two Outdoor Openings Thru Louvers or Vertical Ducts ¹		$\frac{\text{BTU/h}}{4000}$	3 in	One commencing 12" from top of enclosure and one	$\frac{200,000}{4000} = 50 \text{ in}^2$	5 in × 10 in = 50 in ²
Two Outdoor Openings Thru Horizontal Ducts ¹		$\frac{\text{BTU/h}}{2000}$	3 in	commencing 12" from floor	$\frac{200,000}{2000} = 100 \text{ in}^2$	3 in × 34 in = 102 in ²
One Outdoor Opening ²		$\frac{\text{BTU/h}}{3000}$	3 in	One commencing 12" from top of enclosure	$\frac{200,000}{3000} = 67 \text{ in}^2$	7 in × 10 in = 70 in ²

¹ Horizontal and vertical ducts cannot be joined.

² Cannot be less than the sum of the areas of the vent connectors in the spaces.

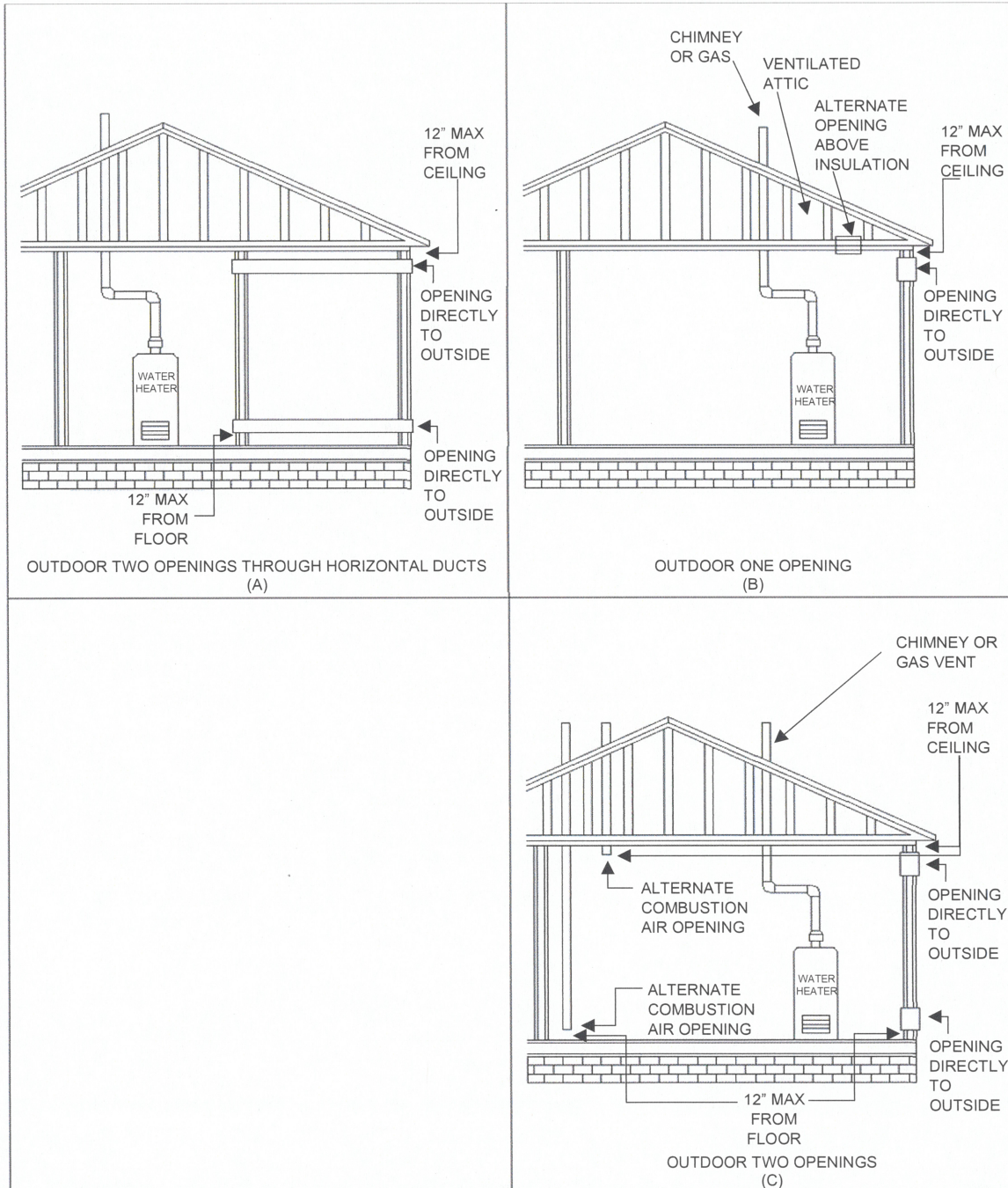


Figure 1: Examples of outdoor openings per Section 701.6 of County of Los Angeles Mechanical Code.

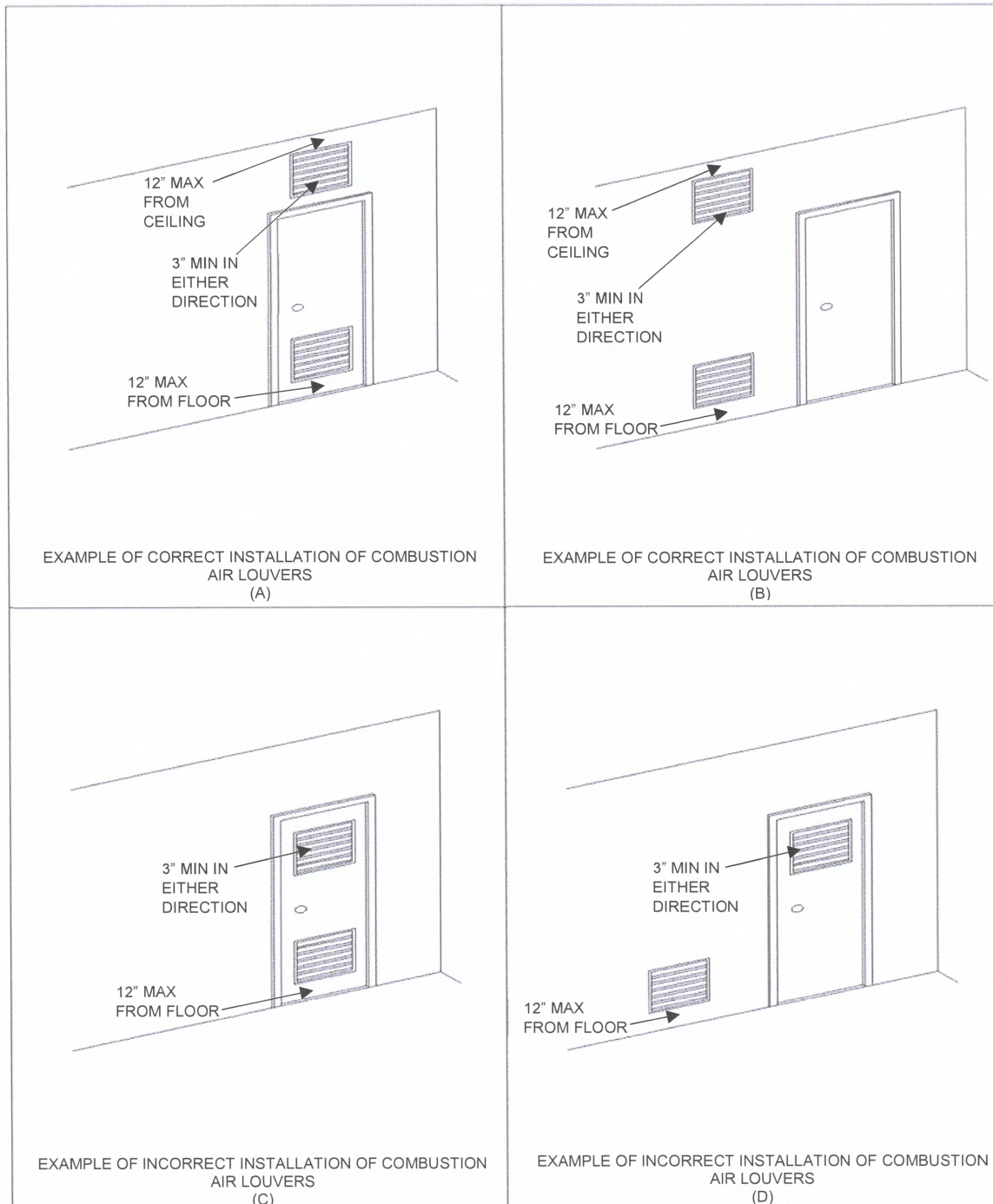


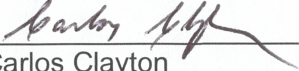
Figure 2: Examples of correct and incorrect installations of combustion air louvers.



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