



BUILDING DEPARTMENT CALCULATIONS FOR COMBUSTION AIR

Address: _____ Owner: _____ Permit No.: _____

This form must be filled out for all of the following permits:

1. New home construction
2. Finished basements
3. Boiler, furnace and water heater replacements

What is the total combined gross btu ratings of all appliances located in the boiler room or rooms?
_____.

What is the volume of this room? (length x width x height) _____.

Does the volume equal more than 50 cu.ft. for each 1,000 Btu's of combined appliance ratings? _____

If it does, combustion air is not required.

If it is less than 50 cu.ft. for each 1,000 Btu's of combining rating, combustion air is required.

How will compliance with combustion air be achieved? Check one below:

1. Interior air _____
For interior air, what is the volume of the room the air is being taken from? _____.
2. Air directly from the exterior of the building through screened openings. _____.
3. Air directly from the outside through horizontal ducts. _____.

What is the calculated size of each opening? _____.

Where will each opening be located? _____.

Copies of your calculations must be submitted to the Building Official or included below.

I attest that I have done the above required calculations based on the 2015 International Residential Code.

Signed _____ Date _____

Printed Name _____

Company Name _____ Tel Number _____

Calculation Area:

EXAMPLE:

What is the total Btu rating for all fuel burning appliances?

2 furnaces at 100,000 Btu's = 200,000 Btu's

1 water heater at 85,000 Btu's = 85,000 Btu's

Total Btu's **285,000 Btu's**

How many cubic feet are contained in the room that the appliances are located in?

Example:

The room is 40 ft long by 28 ft wide by 7ft 6 inches high = **8,400 cubic feet**.

The code requires a room to be 50 cubic feet for each 1,000 Btu's of appliances.

Therefore, in the above illustration, we have **285,000 Btu's** so you would need 50 x 285 or **14,250** cubic feet to avoid supplying combustion air. There is only **8,400** so it is necessary to introduce combustion air to that area.

Where we get the air for combustion will determine what size openings are required.

Getting the air from an interior space, you will need 1 square inch for each 1,000 Btu's of combined rating. In the above example you will need each opening to be 285 square inches with one opening within 12 inches of the ceiling and one opening within 12 inches of the floor.

Getting air directly from the outside through louvers, you will need 1 square inch for each 4,000 Btu's.

This requires 72 square inches but the code has set a minimum at 100 square inches. Therefore 2 openings will be required at 100 square inches each located within 12 inches of the ceiling and one opening within 12 inches of the floor.

Getting air directly from the outside through horizontal ducts, you will need 1 square inch for each 2,000 Btu's. Therefore each of the 2 required openings shall be 143 square inches (285 divided by 2) within 12 inches of the ceiling and one opening within 12 inches of the floor.

Additional calculation area: