Combustion Safety Checklist

Name: _____CAZ _____
[CAZ = Combustion Appliance Zone]

Address _____ Phone _____Date_____

Combustion/dilution air for confined spaces
[NFPA 54: using 50 cubic feet per 1000 Btu/hr. input]

Write your answer in the* before column *if this checklist is done before repair.
Write the answer in the* after column *if this checklist is done after repair.

LINE			BEFORE	AFTER
1 A.	Combustion equipment Btu/hr input [Record input for each gas appliance in this CAZ]	Furnace		
		Water heater		
		Dryer		
		Other		
B.	Total Btu/hr input [Add the above Btu/hr]			
C.	Volume required [Total Btu/hr input X 0.05]			
D.	Current CAZ volume [Length X width X height]			
E.	Is the current CAZ too small? [Is C larger than D?]		Yes/No	Yes/No
F.	Is the CAZ of unusually tight construction?		Yes/No	Yes/No
G.	Current combustion/dilution air inlet area	Upper		
H.	Current combustion/dilution air inlet area	Lower		
I.	Calculate required combustion/dilution inlet area	Upper		
		Lower		
J.	Is either of the current combustion/dilution air inlets too small?	Upper	Yes/No	Yes/No
	[Is I. Upper larger than G.? Is I. Lower larger than H.?]	Lower	Yes/No	Yes/No
K.	Do either of the current combustion/dilution air inlets have restrictions?	Upper	Yes/No	Yes/No
	[Look for screening or grilles, etc., obstructing the air inlets. For net free area of an undocumented grille, use 50% of grille opening for metal and 25% for wood.]	Lower	Yes/No	Yes/No

If you answered "yes" to any of the above questions, then additional combustion/dilution air inlet area may be required.

		BEFORE	AFTER
2.	Are there visible signs of vent pipe leaks or damage?	Yes/No	Yes/No


IF YES, it must be repaired prior to any other work being done on the house.

	BEFORE	AFTER
3. Is the vent installation and termination proper?	Yes/No	Yes/No
4. Are there gas fumes or indications of gas leaks?	Yes/No	Yes/No

IF YES, do not fire the equipment.

CAZ maximum depressurization test

	BEFORE	AFTER
5. What is the temperature outside?		
6. CAZ base pressure [Record CAZ WRT outside]		
Measure depressurization CAZ WRT outside "P1"		
[Air handler(s) on, all fans and exhaust equipment on including powered attic and crawlspace fans, dryer (clean lint trap), etc. Close all interior doors, close supply registers and other closable openings in CAZ. Smoke all doors; if smoke goes in, open that door. Exception, if smoke goes into the CAZ, leave that door closed.]		
Measure depressurization CAZ WRT outside $P2^{open}$ [Turn off air handler, leave all exhaust equipment on, open doors with exhaust behind them, open CAZ to house door.Re-smoke the remaining closed doors; if smoke goes in, open that door.]		
Measure depressurization CAZ WRT outside $P3^{closed}$ [Same as P2 but with CAZ door closed.]		
Maximum depressurization is: [record P1, P2 or P3 and the amount]		

7. Prepare to fire up non-sealed combustion appliance(s). [House set up for maximum depressurization, all tools installed and ready.]

DO NOT fire if large magnitude negative pressure (-8.0 pascals/-0.032"wc) in CAZ. Have your carbon monoxide (CO) meter running and monitor its read-out continually throughout the following tests!

If two appliances have a common vent, fire the smaller Btu input appliance first. Complete test, leave it burning and fire the second. When testing the water heater first, confirm if the A/H fan should be on.

IF backdrafting gases reach 200 ppm CO or IF ambient air reaches 35 ppm CO, turn off gas appliance!

	BEFORE	AFTER
8. Flame roll-out on any of the appliances?	Yes/No	Yes/No

IF YES, list which appliance(s). _____

	BEFORE	AFTER
9. Spillage of combustion gases for more than one minute?	Yes/No	Yes/No

If yes, list which appliance(s) and length of spillage time: _____

	BEFORE	AFTER
10. Flame change in the furnace when the furnace fan came on?	Yes/No	Yes/No

IF YES, treat the appliance as though it has a cracked heat exchanger.

Allow five minutes from fire-up before recording the following:

	BEFORE	AFTER
11. Measure the carbon monoxide (CO) in the CAZ **If backdrafting gases reach 200 ppm turn off the appliance**	ppm	ppm

IF backdrafting gases reach 200 ppm CO or if ambient air reaches 35 ppm CO, turn off the appliance.

12. Draft tests				
	Furnace	Vent WRT CAZ		
	Water heater	Vent WRT CAZ		
	Other_____	Vent WRT CAZ		

Minimum acceptable draft pressures **[GAS]**

Below 20° F -5.0 Pascals or -0.02″ w.c.
20° to 40° F -4.0 Pascals or -0.016″ w.c.
40° to 60° F -3.0 Pascals or- 0.012″ w.c.
60° to 80° F -2.0 Pascals or -0.008″ w.c.
above 80° F -1.0 Pascals or -0.004″ w.c.

Minimum acceptable draft pressures **[Oil]**
Overdraft -5.0 pascals or- 0.02” w.c.
Vent pipe -10.0 pascals or -0.04” w.c. to -15 pascals or -0.06” w.c.

	BEFORE	AFTER
13. Carbon monoxide (CO) in the flue gases. [Measure in each port, work from left to right. Separate each reading from the same appliance with a slash 56/34/35/278]		
Furnace	ppm	ppm
Water heater	ppm	ppm
Other _____	ppm	ppm

14. Heat rise test [Temperature rise across the heat exchanger. The heat rise for the furnace can be found on the furnace plate. If the heat rise is not posted on the furnace it should be at least 40° F and no greater than 80° F. If temperature is outside of these limits, then service is needed.]		
Furnace	Delta T	Delta T
Other _____	Delta T	Delta T

Re-set temperature and dump hot water until water is below 120 degrees F!

15. Unvented appliance carbon monoxide (CO) test
Gas range
Burner CO ppm, back left _____, back right _____, front left _____, front right _____
Oven CO ppm, _____
Oven CO ppm, self cleaning mode, _____
Other appliance _____ CO ppm _____
Other appliance _____ CO ppm _____