



Combustion Safety Test Form

REV
1/24/2020
BPI1200

		PRE		POST	
Client		Date			
Job #		Technician Name			
Start Combustion Analyzer, Gas Sniffer, & 4 Gas Monitor outside building. Check CO and LEL inside for safe levels					
Natural Gas and LP Piping Leakage Testing		PRE	POST		
Leaks Detected?					
Leak(s) confirmed using leak detection fluid					
Appliance name:		1:		2:	
Visual Inspection of CAZ for Unsafe Conditions		PRE	POST	PRE	POST
CAZ free of flammable products					
CAZ free of combustibles (rags, paper in the immediate area of appliance)					
Water heater in garage is 18" above the floor or FVIR listed					
Combustion appliance vent has appropriate clearance to combustibles					
Set up CAZ in worst case		PRE	POST	PRE	POST
Record baseline pressure in CAZ WRT outside					
Turn on EXHAUST equipment ONLY & Record pressure WRT outside					
Turn on Forced air blower & Record pressure WRT outside					
If CAZ more negative with blower on, leave on. If CAZ more positive, turn blower off for the rest of the test					
Close CAZ door & Record pressure in the CAZ WRT outside					
Open CAZ door & Record pressure in the CAZ WRT outside					
Test house with the largest negative pressure in the CAZ based upon test results above					
Test CO and Spillage of appliance with the most appropriate of the following 3 Test below					
1	CO & SPILLAGE SINGLE VENT STACK	PRE	POST	PRE	POST
Record ambient CO BEFORE test starts then start appliance					
Did the appliance spill at 2 minutes of main burner operation?					
Record CO AIR FREE of undiluted flue gases at 5 minutes					
Record ambient CO AFTER test					
2	CO & SPILLAGE 2 APPLIANCES WITH A COMMON VENT	PRE	POST	PRE	POST
Record ambient CO BEFORE test starts then start appliance(s)					
Spillage FIRST appliance (Test at 2 minutes after second appliance)					
Spillage SECOND appliance (Test at 2 minute mark)					
Record CO AIR FREE of undiluted flue gases at 5 minutes					
Record ambient CO AFTER test					
3	CO WITH NO DRAFTHOOD OR BAROMETRIC DAMPER	PRE	POST	PRE	POST
Record CO AIR FREE of undiluted flue gases at 5 minutes					
Record ambient CO AFTER test					
Natural Gas and LP Oven Testing		PRE	POST	PRE	POST
Conduct visual inspection: oven & range burner cleanliness & any stored material					
Record CO AS MEASURED of undiluted flue gases at 5 minutes					
Record ambient CO AFTER oven test					
Woodstove/Fireplace		PRE	POST	PRE	POST
Conduct visual insp vent stack, chimney, clearance, combustibles					
IF COMBUSTION SAFETY TEST FAILS, ACTION TO BE TAKEN:					

COMBUSTION SAFETY TEST FORM REFERENCE TABLES

Vent Categorization Per NFPA 54

(line 4d)

Category I: NFGC			AFUE 65-83%	Category III: Airtight			AFUE 78-87%	
Non-Condensing Negative Pressure (-) High Temperature Flue Gases Natural or Fan Assisted Drafts	Typical Materials	Clearance		Non-Condensing Positive Pressure (+) High Temperature Flue Gas Fan Assisted Draft	Typical Materials	Clearance		
		B-vent	1"			Sealed metal	NA	
		Single wall metal	6"			Sealed plastics	NA	
		L-vent	9"			per manufacturer		
	Lined Masonry	no extra						
Category II: Corrosion Resistant			<<Rare>>	Category IV: Airtight & Corrosion Resist			AFUE 90%+	
Condensing Negative Pressure (-) Low Temperature Flue Gases	Typical Materials	Clearance		Condensing Positive Pressure (+) Low Temperature Flue Gas Sealed Combustion	Typical Materials	Clearance		
		Special	as needed			Sealed plastics	NA	
		as designated by manufacturer				per manufacturer specification		

ANNEX D (BPI-1200) ACTION LEVELS FOR SPILLAGE AND CO IN COMBUSTION APPLIANCES

Test Results	Action Required
Greater CAZ depressurization occurs with the air handler on *	CONDUCT further analysis of the distribution system to determine if leaky ducts or other HVAC induced imbalances are the cause of the spillage. Specify measures to mitigate CAZ depressurization.
Greater CAZ depressurization occurs with door to CAZ closed, but is alleviated when the door to CAZ is open *	Specify measures to improve air transfer between the CAZ and the core of the house.
Spillage traced to excessive exhaust ** independent of CAZ door position, air handler, or a problem with the flue +	VERIFY sufficient combustion air is available per ANSI Z223.1/NFPA 54 for gas-fired appliances & NFPA 31 for oil fired appliances or have verification by a qualified professional Specify further evaluate/service by professional to address venting/combustion air issue
* In the case where both spillage and excessive CO are present, in addition to the specific <u>directions</u> above, Specify that the appliance be shut down until it can be serviced by a qualified professional.	
** Refers to exhaust caused by mechanical ventilation and/or other means of exfiltration.	
+ When a recommendation to replace atmospherically vented combustion equipment inside the pressure boundry is made, and when cost-effective, Specify replacement with direct or power vented equipment (or non-combustion equipment, such as a heat pump), which is ENERGY STAR® labeled.	

CO ACTION LEVELS (& LEL)

(lines 1,6,7,&9)

CO Levels 70 ppm and GREATER ***
1. Immediately TERMINATE inspection
2. Notify occupants to evacuate the building
3. Notify emergency services from outside building
CO Levels 36 ppm - 69 ppm
1. Notify occupants of elevated levels
2. Open windows and doors
3. RECOMMEND to the occupant that a possible source of CO be turned off immediately
4. RECOMMEND occupants contact qualified professional to service permanently installed appliance
CO Levels 9 ppm - 35 ppm
1. Notify occupants that CO has been detected
2. RECOMMEND to open doors and windows
3. RECOMMEND checking possible sources of CO
4. Recommend occupants contact qualified professional to service permanently installed appliance
CO Levels BELOW 9 ppm
1. Do nothing
*** Actions also required if LEL ≥ 10%

CO THRESHOLDS Combustion Appliances

(lines 6,7,8 &9)

Appliance	Threshold Limit***
Central furnace (all categories)	400 ppm air free
Boiler	400 ppm air free
Floor Furnace	400 ppm air free
Gravity Furnace	400 ppm air free
Wall Furnace (BIV)	200 ppm air free
Wall Furnace (Direct Vent)	400 ppm air free
Vented Room Heater	200 ppm air free
Unvented Room Heater	200 ppm air free
Water Heater	200 ppm air free
Oven/Broiler	225 ppm AS MEASURED

Action Level

If CO level above threshold-notify client & recommend service