



Combustion Safety Test Form

3/1/2019
BPI1200

		PRE		POST	
Client		Date			
Job #		Technician Name			
1	START test equipment outside the building- turn on Combustion Analyzer, CGD (gas sniffer), & 4 Gas Monitor ✓ CO and LEL for safe levels				
2	Natural Gas and LP Piping Leakage Testing		PRE	POST	
2a	Leaks Detected?				
2b	Leak(s) confirmed using leak detection fluid				
3	Identification of Appliances				
3a	Appliance name:		1:	2:	
4	Visual Inspection of CAZ for Unsafe Conditions		PRE	POST	PRE POST
4a	CAZ free of flammable products				
4b	CAZ free of combustibles (rags, paper in the immediate area of appliance)				
4c	Water heater in garage is 18" above the floor or FVIR listed				
4d	Combustion appliance vent type? Meet clearance?				
Comments: _____					
5	Setting up CAZ in worst case		PRE	POST	PRE POST
5a	Record baseline pressure in CAZ WRT outside				
5b	Turn on EXHAUST equipment ONLY & Record pressure WRT outside				
5c	Turn on Forced air blower & Record pressure WRT outside				
<i>If CAZ more negative with blower on, leave on. If CAZ more positive, turn blower off for the rest of the test</i>					
5d	Close CAZ door & Record pressure in the CAZ WRT outside				
5e	Open CAZ door & Record pressure in the CAZ WRT outside				
<i>Test house with the largest negative pressure in the CAZ based upon test results above</i>					
6	CO & SPILLAGE Assessment (Single Vent)		PRE	POST	PRE POST
6a	Record ambient CO BEFORE test starts then start appliance				
6b	Did the appliance spill at 2 minutes of main burner operation?				
6c	Record CO AIR FREE of undiluted flue gases at 5 minutes				
6d	Record ambient CO AFTER test				
7	CO & SPILLAGE Assessment (Common Vent ONLY)		PRE	POST	PRE POST
7a	Record ambient CO BEFORE test starts then start appliance(s)				
7b	Spillage FIRST appliance (Test at 2 minutes after second appliance)				
7c	Spillage SECOND appliance (Test at 2 minute mark)				
7d	Record CO AIR FREE of undiluted flue gases at 5 minutes				
7e	Record ambient CO AFTER test				
8	CO Assessment-Furnace ONLY (WITHOUT draft hood or barometric damper)		PRE	POST	PRE POST
8a	Record CO AIR FREE of undiluted flue gases at 5 minutes				
8b	Record ambient CO AFTER test				
9	Natural Gas and LP Oven Testing		PRE	POST	PRE POST
9a	Conduct visual inspection: oven & range burner cleanliness & any stored material				
9b	Record CO AS MEASURED of undiluted flue gases at 5 minutes				
9c	Record ambient CO AFTER oven test				
10	Woodstove/Fireplace (FPWSZ)		PRE	POST	PRE POST
10a	Measure & Record FPWSZ pressure WRT outside				
10b	Vent pipe, chimney, or clearance problems observed (note in margin below)				

Install CO detectors before weatherization work begins

COMBUSTION SAFETY TEST FORM REFERENCE TABLES

Vent Categorization Per NFPA 54

(line 3)

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

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

(line 6)

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 boundary 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 for Fossil-Fuel Fired Combustion Appliances

(lines 6,7,&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 and recommend service