Connecticut Combustion Appliance Safety Inspections and Testing

Are there any **unvented** combustion heating appliances? ☐ Yes ☐ No Inspect venting; clearance to combustibles; adequate combustion air; CO alarms

Step 1: While outside, record the outside temperature, zero the analyzer and gas leak detector.
Step 2: Record house ambient CO and CO in the CAZ – nothing is on.
Step 3: Look for signs of flame roll out or backdrafting – nothing is on.
Step 4: Perform a gas leak test.
Step 5: Drill holes for the draft measurements.
Step 6: Start the worst case depressurization test procedure – appliances off; measure base pressure; pressure in CAZ under worst case conditions and get net; THEN -
Step 7: Turn on the water heater first
Step 8: Check for spillage. Must not exceed 1 minute.
Step 9: Measure undiluted CO, Measure draft pressure and efficiency.
Step 10: Repeat spillage, CO, draft test, and efficiency for boiler or furnace, and then test together
Step 11: Record all test data

	CO in Air around technician		Spillage? Y/N		Draft (1 min) Established Y/N		Draft Pressure Pa.		Draft Pass? Y/N		CO Flue ppm	Gas Leak Check Y/N/NA	Eff.	Outdoor Temp _____ °
Appliance	AMB	CAZ	W/C	NAT	W/C	NAT	W/C	NAT	W/C	NAT				
Water Heater														CAZ Worst Case Depressurization
Furnace/Boiler														
Other														
Other														NAT: _____
Burners optional) Oven/Range (if undiluted gasses test >100 ppm, call for service) **Oven**	○ ○ ○ ○													Worst Case: _____ NET: _____ Pass Y/N:_____

AMB=Ambient, CAZ=Combustion Appliance Zone, W/C=Worst Case Conditions, NAT=Natural, Pa=Pascal, Eff=Efficiency, IWC=Inches of water column

CO Test Result in Flue	And/ Or	Spillage & Draft Test Result	Retrofit Action
0 - 50 ppm	And	Passes	Proceed with work
Over 50 ppm	And	Passes	Recommend that the CO problem be fixed
Over 50 ppm	And	Fails at worst case only	Recommend a service call for the appliance and/or repairs to the home to correct the problem
Over 50 ppm	Or	Fails under natural conditions	Stop work: Work may not proceed until the system is serviced and the problem is corrected

CAZ Depressurization Limits: **Venting Condition**	**Limit (Pa)**
Orphan natural draft water heater (including outside chimneys)	-2
Natural draft boiler or furnace commonly vented with water heater	-3
Natural draft boiler or furnace with damper commonly vented with water heater	-5
Individual natural draft boiler or furnace	-5
Induced draft boiler or furnace commonly vented with water heater	-5
Power vented or induced draft boiler or furnace alone, or fan assisted DHW alone	-15
Chimney-top draft inducer; exhausto type or equivalent; high static pressure flame retention head oil burner; Direct vented appliances; Sealed combustion appliances	-50

Minimum Worst-Case Draft, Acceptable Ranges

Appliance	Outdoor Temperature (ºF)								
	< 10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**> 90**
Gas-fired furnace, boiler or water heater w/ atmospheric chimney	-2.5 Pa. -0.01 IWC	-2.25 Pa. -0.009 IWC	-2.00 Pa. -0.008 IWC	-1.75 Pa. -0.007 IWC	-1.50 Pa. -0.006 IWC	-1.25 Pa. -0.005 IWC	-1.00 Pa. -0.004 IWC	-0.75 Pa. -0.003 IWC	-.50 Pa. -0.002 IWC
Oil-fired furnace, boiler or water heater w/ atmospheric chimney	-15 Pa. -0.06 IWC	-13 Pa. -0.053 IWC	-11 Pa. -0.045 IWC			-9 Pa. -0.038 IWC			-7 Pa. -0.030 IWC