

IBA Home Energy Conservation Program New Furnace Installation Inspection Form

**Job Information**

Client name: \_\_\_\_\_ Client/Job Application ID: \_\_\_\_\_

Client Address: \_\_\_\_\_ Contractor: \_\_\_\_\_

County: \_\_\_\_\_ Install date: \_\_\_\_\_

Auditor: \_\_\_\_\_ Inspection Audit date: \_\_\_\_\_

Home type: Site built home \_\_\_\_\_ Mobile home \_\_\_\_\_ Manufactured home \_\_\_\_\_ Multi family \_\_\_\_\_

Furnace or CAZ location: \_\_\_\_\_

**Equipment Information**

Furnace make: \_\_\_\_\_ Model number: \_\_\_\_\_ Serial number: \_\_\_\_\_

Furnace Type: 80% \_\_\_\_\_ 90% \_\_\_\_\_ Electric \_\_\_\_\_ Heat pump \_\_\_\_\_ Oil \_\_\_\_\_ Space heater \_\_\_\_\_ Other \_\_\_\_\_

Fuel type: Natural gas \_\_\_\_\_ Propane/LP \_\_\_\_\_ OIL \_\_\_\_\_ Electric \_\_\_\_\_ Furnace airflow: Up \_\_\_\_\_ Down \_\_\_\_\_ Horizontal \_\_\_\_\_

Furnace input: \_\_\_\_\_ btuh Oil nozzle: \_\_\_\_\_ gph Min/max temp rise: \_\_\_\_\_ deg. F. to \_\_\_\_\_ deg. F.

Water heater: Gas \_\_\_\_\_ Electric \_\_\_\_\_ Btuh \_\_\_\_\_ If gas, is it common vented with furnace? Yes \_\_\_\_\_ No \_\_\_\_\_

A/C or Heat pump make: \_\_\_\_\_ Model number: \_\_\_\_\_ Serial number: \_\_\_\_\_

If system has existing A/C, is it operational? Yes \_\_\_\_\_ NO \_\_\_\_\_

Have equipment installation and/or operational manuals been read and instructions followed? Yes \_\_\_\_\_ Yes \_\_\_\_\_

**Section 1**

**Venting**

*Please circle Y for Yes, N for No or NA for Not applicable*

80% and Natural Draft Appliances

	Installer			Final		
a) Is masonry chimney on an exterior wall? ( one or more sides exposed)	Y	N	NA	Y	N	NA
b) Is clay liner missing or cracked or misaligned?	Y	N	NA	Y	N	NA
c) Is clay liner to large? ( exceeds the 7 times rule in NFPA 54, cannot be more than 7 times the area of the smallest draft hood outlet or connector)	Y	N	NA	Y	N	NA
d) Is there a draft induced, mid-efficiency appliance vented into masonry chimney alone?	Y	N	NA	Y	N	NA

If "Yes" is checked for any of the questions above, the masonry chimney must be lined with an approved chimney liner or type B gas vent.

Oil furnaces require class A vent or type L vent pipe and must comply with NFPA 31 venting requirements



**Section 4**

**Gas Piping**

	Installer			Final		
a) Is natural gas piped with black iron, galvanized or stainless steel?	Y	N	NA	Y	N	NA
b) Is LP gas piped with black iron, galvanized, stainless steel or copper?	Y	N	NA	Y	N	NA
c) Does the gas furnace have black iron from gas control valve to outside the cabinet?	Y	N	NA	Y	N	NA
d) Is there a sediment trap installed near the furnace?	Y	N	NA	Y	N	NA
e) Is there a user friendly manual gas shut-off installed outside the furnace?	Y	N	NA	Y	N	NA
f) Is there a union installed between the shut-off and the furnace?	Y	N	NA	Y	N	NA
g) Is the gas piping properly sized?	Y	N	NA	Y	N	NA
h) Is the gas piping supported properly? ( hanger every four feet)	Y	N	NA	Y	N	NA

**Section 5**

**Oil Piping**

	Installer			Final		
a) Is oil piped in black iron, brass, galvanized or copper and free of kinks?	Y	N	NA	Y	N	NA
b) Is oil line free of compression fittings? (pipe thread or flare fitting only)	Y	N	NA	Y	N	NA
c) Is a manual user friendly shut-off installed?	Y	N	NA	Y	N	NA
d) Is there at least one oil filter installed in oil supply line?	Y	N	NA	Y	N	NA

**Section 6**

**High Voltage**

	Installer			Final		
a) Is the furnace equipped with a SSU switch? (not required on mobile homes)	Y	N	NA	Y	N	NA
b) Is the SSU switch installed in an easily reached, usable location for the client?	Y	N	NA	Y	N	NA
c) Is the SSU switch equipped with the proper fuse? (15 amp for gas and 20 amp for oil)	Y	N	NA	Y	N	NA
d) Is the polarity correct to the SSU? (power to the center tab and not to the outer ring)	Y	N	NA	Y	N	NA
e) Is the furnace properly grounded? (120V read from hot to ground wire when unhooked)	Y	N	NA	Y	N	NA
f) Is the wire in flexible or rigid conduit from ceiling to floor and away from vent pipes?	Y	N	NA	Y	N	NA
g) Is the furnace on its own dedicated circuit breaker?	Y	N	NA	Y	N	NA

**Section 7**

**Low Voltage**

	Installer			Final		
a) Has the thermostat been replaced with a new digital thermostat?	Y	N	NA	Y	N	NA
b) Is the thermostat level and hole sealed behind the sub-base?	Y	N	NA	Y	N	NA
c) Is the thermostat location correct? (not on outside wall, near heat source or sunlight)	Y	N	NA	Y	N	NA
d) Is the cycle rate set properly? (refer to manufacturers instructions)	Y	N	NA	Y	N	NA

**Section 8**

**Worst Case Draft Testing**

<p>New appliances are to be tested under " Worst Case Depressurization" conditions even if previously done.                  New forced air systems may cause problems that were not an issue with original system.</p>						
Part1	Worst Case Set-up					
	Installer			Final		
a) Are the combustion appliances turned off or to pilot?	Y	N	NA	Y	N	NA
b) Are all exterior doors and windows closed?	Y	N	NA	Y	N	NA
c) Are all interior doors closed? (except for rooms with exhaust fan and no supply)	Y	N	NA	Y	N	NA
d) Are all fireplace and wood stove dampers closed?	Y	N	NA	Y	N	NA
e) Are all exhaust fans on including clothes dryer? (except whole house fan)	Y	N	NA	Y	N	NA
f) If house has working fireplace, is blower door set-up for 300 cfm to simulate fire?	Y	N	NA	Y	N	NA
g) Is furnace filter clean or removed from furnace?	Y	N	NA	Y	N	NA
h) Is pressure gauge set-up to read CAZ pressure with reference to outside?	Y	N	NA	Y	N	NA

Part 2

Determine Worst Case Configuration

		Installer	Final
i) Is there a door between the CAZ and the rest of the structure?		Yes / No	Yes / No
j) Is there a blower on the heating system?		Yes / No	Yes / No
To determine, test CAZ pressure under, up to, four different configurations. Installer <b>CAZ Door:</b> Open                      Closed			
Final Inspection <b>CAZ Door:</b> Open                      Closed			
Fan Off	- _____ Pa/"wc - _____ Pa/"wc	Fan Off	- _____ Pa/"wc - _____ Pa/"wc
Fan On	- _____ Pa/"wc - _____ Pa/"wc	Fan On	- _____ Pa/"wc - _____ Pa/"wc

Part 3

Appliance Testing

After determining "worst case", leave the structure in that configuration.  
 While monitoring ambient carbon monoxide levels for personal safety perform "5-2-5" tests, starting with lowest BTUH rated input appliance.

		Installer	Final
Does the smallest appliance establish flow in the vent within 5 seconds?		Y N NA	Y N NA
Does the smallest appliance stop spillage within 2 minutes?		Y N NA	Y N NA
Document the 5 minute draft reading.		_____ Pa	_____ Pa
		_____ "wc	_____ "wc
Record outdoor ambient temperature.		_____ deg.F.	_____ deg.F.
Does the vent draft pressure meet the requirements with regard to outside temperature?		Y N NA	Y N NA
Record the CO level under both sides of the draft hood after 5 minutes of operation.		_____ ppm	_____ ppm

		Installer	Final
Does the larger appliance establish flow in the vent within 5 seconds?		Y N NA	Y N NA
Does the larger appliance stop spillage within 2 minutes?		Y N NA	Y N NA
Document the 5 minute draft reading.		_____ Pa	_____ Pa
		_____ "wc	_____ "wc
Retest smaller appliance for spillage and draft		_____ Pa	_____ Pa
		_____ "wc	_____ "wc
Does the vent draft pressure meet the requirements with regard to outside temperature?		Y N NA	Y N NA
Record the CO level under the draft hood after 5 minutes of operation.		_____ ppm	_____ ppm
Record the efficiency of the furnace as calculated or read from analyzer.		_____ %	_____ %
Did the larger appliance cause spillage or reduction in draft of smallest appliance?		Y N NA	Y N NA



Meter Dial Used

Seconds for one revolution	One half Cu. Ft.	One Cu. Ft.	Two Cu. Ft.	Five Cu. Ft.	Ten Cu. Ft.
<b>Cubic Feet Per Hour</b>					
10	180	360	720	1800	3600
11	164	327	655	1634	3272
12	150	300	600	1500	3000
13	138	277	555	1385	2770
14	129	257	514	1286	2572
15	120	240	480	1200	2400
16	112	225	450	1125	2250
17	106	212	424	1059	2118
18	100	200	400	1000	2000
19	95	189	379	947	1894
20	90	180	360	900	1800
21	86	171	343	857	1714
22	82	164	327	818	1636
23	78	157	313	783	1566
24	75	150	300	750	1500
25	72	144	288	720	1440
26	69	138	277	692	1384
27	67	133	267	667	1334
28	64	129	257	643	1286
29	62	124	248	621	1242
30	60	120	240	600	1200
31	58	116	232	580	1162
32	56	113	225	563	1126
33	55	109	218	545	1090
34	53	106	212	529	1058
35	51	103	206	514	1028
36	50	100	200	500	1000
37	49	97	195	486	972
38	47	95	189	474	948
39	46	92	185	462	924
40	45	90	180	450	900
41	44	88	175	440	880
42	43	86	172	430	860
43	42	84	167	420	840
44	41	82	164	410	820
45	40	80	160	400	800
46	39	78	157	391	782
47	38	77	153	383	766
48	37	75	150	375	750
49	37	73	147	367	734

Meter Dial Used

Seconds for one revolution	One half Cu. Ft.	One Cu. Ft.	Two Cu. Ft.	Five Cu. Ft.	Ten Cu. Ft.
<b>Cubic Feet Per Hour</b>					
50	36	72	144	360	720
51	35	71	141	353	706
52	35	69	138	346	692
53	34	68	136	340	680
54	33	67	133	333	666
55	33	65	131	327	654
56	32	64	129	321	642
57	32	63	126	316	632
58	31	62	124	310	620
59	30	61	122	305	610
60	30	60	120	300	600
62	29	58	116	290	580
64	29	56	112	281	562
66	28	54	109	273	546
68	26	53	106	265	530
70	26	51	103	257	514
72	25	50	100	250	500
74	24	48	97	243	486
76	24	47	95	237	474
78	23	46	92	231	462
80	22	45	90	225	450
82	22	44	88	220	440
84	21	43	86	214	428
86	21	42	84	209	418
88	20	41	82	205	410
90	20	40	80	200	400
94	19	38	76	192	384
98	18	37	74	184	368
100	18	36	72	180	360
104	17	35	69	173	346
108	17	33	67	167	334
112	16	32	64	161	322
116	15	31	62	155	310
120	15	30	60	150	300
130	14	28	55	138	276
140	13	26	51	129	258
150	12	24	48	120	240
160	11	22	45	113	226
170	11	21	42	106	212
180	10	20	40	100	200

**Minimum Draft Pressure Requirements**

Outdoor Temperature	Negative Inches of water column	Pascals Negative
Greater than 80 degrees F.	0.005" w.c.	1 Pa
Between 60 and 80 degrees F.	0.008" w.c.	2 Pa
Between 40 and 60 degrees F.	0.012" w.c.	3 Pa
Between 20 and 40 degrees F.	0.016" w.c.	4 Pa
Less than 20 degrees F.	0.02" w.c.	5 Pa