

# Indiana Weatherization Gas Furnace Installation Inspection Form



Revised  
Dec 2014

Inspection Date: \_\_\_\_\_

## Job/Client Information

Client name: \_\_\_\_\_ Client/Job number: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_

## Equipment Information

Fuel type:	<input type="radio"/> Natural	<input type="radio"/> Propane	Btuh Input:			5.3003.1
Furnace type:	<input type="radio"/> Draft hood	<input type="radio"/> 80%	<input type="radio"/> 90%	<input type="radio"/> Mobile home	<input type="radio"/> Space	
Application:	<input type="radio"/> Up flow	<input type="radio"/> Down flow	<input type="radio"/> Horizontal	<input type="radio"/> Lowboy	<input type="radio"/> Package	
Make:	_____		Model:	_____		
Serial:	_____					
Temperature rise minimum:	_____ °F		Maximum:	_____ °F		
Furnace Location (CAZ):	_____		Manifold pressure:	_____ In. W.C		
Water heater:	<input type="radio"/> Gas		<input type="radio"/> Electric			
WH Location (CAZ):	_____		Btuh input:	_____		

## Gas Piping

	Technician		Inspection		SWS Detail
	Y	N	Y	N	
Gas piping system leak tested and code compliant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2.0201.1

## Vent System

	Technician		Inspection		SWS Detail
	Y	N	Y	N	
Furnace venting installed per manufacturers specifications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2.0201.1
Water heater vented properly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

## Thermostat

	Technician		Inspection		SWS Detail
	Y	N	Y	N	
Thermostat location functional, level and opening sealed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5.3003.9
Heat anticipator or cycle rate set	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Heat anticipator setting: N/A _____	_____ A		_____ A		

## Filter system

	Technician		Inspection		SWS Detail
	Y	N	Y	N	
Filter size: _____ X _____ X _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5.3001.2
Filter clean, properly supported, user friendly and minimum Merv 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

## Electrical

	Technician		Inspection		SWS Detail
	Y	N	Y	N	
Polarity to furnace and ground tested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5.3003.4
Switch within reach of furnace	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5.3003.7

## Combustion Air

	Y	N	Y	N	SWS Detail
Combustion air requirements provided for non-direct vent appliances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2.0201.2

## CAZ Depressurization Testing

## Baseline test Set-up

Turn all combustion appliances off, remove furnace filter  
 Close all exterior windows, doors, wood stove and fireplace dampers  
 Set-up gauge: CAZ w/ reference to outside  
**Record baseline CAZ pressure**

Technician	Inspection	SWS Detail
<input type="radio"/> Done	<input type="radio"/> Done	2.0201.1
<input type="radio"/> Done	<input type="radio"/> Done	
<input type="radio"/> Done	<input type="radio"/> Done	
Pa	Pa	

## Blower off test set-up

Turn on dryer and all exhaust fans  
 Blower door @ 300 CFM for fireplace  
 CAZ supplies closed, all others open  
 Close interior doors to rooms w/o exhaust fans

<input type="radio"/> Done	<input type="radio"/> Done	2.0201.1
<input type="radio"/> Done	<input type="radio"/> Done	
<input type="radio"/> Done	<input type="radio"/> Done	
<input type="radio"/> Done	<input type="radio"/> Done	

*Smoke or pressure test any doors that separate stories or sections of the house to determine door position with CAZ at your back. Positive pressure( blows smoke toward you) close door. Negative pressure(sucks smoke under) open door.*

**Blower off with CAZ door open**  
**Blower off with CAZ door closed**

Technician	Inspection	SWS Detail
Pa.	Pa.	2.0202.1
Pa.	Pa.	

## Blower on test set-up

*Turn blower on, smoke or pressure test all doors to rooms with exhaust or returns to determine door position with CAZ at your back. Positive pressure( blows smoke toward you) close door. Negative pressure(sucks smoke under) open door. Retest doors that separate stories or sections of the house.*

**Blower on with CAZ door open**  
**Blower on with CAZ door closed**  
**Worst-case pressure adjusted for baseline**  
 Outdoor temp.

Technician	Inspection	SWS Detail
Pa.	Pa.	2.0201.1
Pa.	Pa.	
Pa.	Pa.	
°F	°F	

## Water Heater(or smallest Btuh input appliance) Combustion Safety Test

**Set-up CAZ in "worst case" condition for testing, monitor ambient carbon monoxide while testing**

**Fire the water heater**  
 Establishes flow within 5 seconds  
 Passes spillage test within 2 minutes  
 Draft pressure after 5 minutes  
 Carbon monoxide after 5 minutes

Technician		Inspection		SWS Detail
Y	N	Y	N	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2.0201.1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Pa		Pa		
"w.c.		"w.c.		
/	ppm	/	ppm	

**(Note: Leave water heater fired for re-test purposes)**



# Indiana Weatherization Gas Furnace Installation Inspection Form

## Furnace(or larger Btuh input appliance) Combustion Safety Test

Fire the furnace	Technician		Inspection		SWS Detail	
	Y	N	Y	N		
Establishes flow within 5 seconds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.0201.1	
Passes spillage test within 2 minutes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<b>Re-test water heater after 80% furnace burners fire or when there is no spillage from draft hood appliance. Also re-test water heater after firing any other vented appliance that shares combustion air.</b>						
Spillage at the water heater draft hood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.0201.1	
Re-test draft pressure on water heater		Pa		Pa		
		"w.c		"w.c		
Was there reduction in draft when any combustion appliance that shares vent system or combustion air was fired	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Furnace draft pressure after 5 minutes		Pa		Pa		
		"w.c		"w.c		
Furnace CO in flue gas after 5 minutes		ppm		ppm		
CO in each cell on draft hood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Furnace Operational Testing

### Combustion Analysis

	Technician	Inspection	SWS Detail
Carbon monoxide	<input type="checkbox"/> ppm	<input type="checkbox"/> ppm	5.3003.14
Oxygen	<input type="checkbox"/> %	<input type="checkbox"/> %	
Carbon dioxide	<input type="checkbox"/> %	<input type="checkbox"/> %	
Excess air	<input type="checkbox"/> %	<input type="checkbox"/> %	
Steady State Efficiency	<input type="checkbox"/> %	<input type="checkbox"/> %	
Stack temperature	<input type="checkbox"/> °F	<input type="checkbox"/> °F	

### Verify Input

\* Clock meter for natural gas      \* Check manifold pressure for propane

**Time seconds for 2 cu.ft. gas flow, e.g. 4 turns of 1/2 ft. dial or 8 turns of 1/4 ft. dial**

	Technician	Inspection
Seconds timed for 2 cu.ft. gas flow	<input type="checkbox"/> sec.	<input type="checkbox"/> sec.
Total seconds divided by 4	<input type="checkbox"/> sec.	<input type="checkbox"/> sec.
Cubic feet/hr. from clocking table	<input type="checkbox"/> cu.ft.	<input type="checkbox"/> cu.ft.
or	<input type="checkbox"/> cu.ft.	<input type="checkbox"/> cu.ft.
7200 ÷ Seconds for 2 cu.ft. flow		
Average Btu content of gas used	X <input type="checkbox"/> Btu	
Multiply cu.ft. per hour by Btu content of gas equals Btuh input	Btuh input	Btuh input
<b>Input must be within 5 % of rated input without going over</b>		
Furnace gas manifold pressure	<input type="checkbox"/> "w.c.	<input type="checkbox"/> "w.c.

# Indiana Weatherization Gas Furnace Installation Inspection Form

## Air Flow

	Technician	Inspection	SWS Detail
Supply air temperature	<input type="text"/> ° F.	<input type="text"/> ° F.	5.3003.3
Return air temperature	<input type="text"/> ° F.	<input type="text"/> ° F.	
Temperature rise	<input type="text"/> ° F.	<input type="text"/> ° F.	
Temp rise within specifications	<input type="radio"/> Y <input type="radio"/> N	<input type="radio"/> Y <input type="radio"/> N	
<b>If rise not within specifications, test furnace airflow static pressures to determine corrective measures</b>			

## Verify Controls

	Y	N
Limit switch functions	<input type="radio"/>	<input type="radio"/>
Record plenum temperature when tripped:	<input type="text"/> ° F.	
Record and adjust fan off temperature	<input type="text"/> ° F.	<input type="text"/> ° F.

## Air flow calculation by temperature rise method

**Heat output:** Use Btuh input multiplied by efficiency e.g., 100,000 input X 90% = 90,000 output

**Calculation:** Heat output ÷ ( temperature rise X 1.08 ) = CFM

Temperature rise:  °F Multiplied by 1.08 equals:  °F Adjusted temperature rise

Btuh output:  Divided by adjusted temperature rise =  cfm

5.3003.3

## Static Pressure Readings

A: Supply duct static pressure	<input type="text"/>	" w.c.		5.3003.3
B: Furnace total supply static pressure	<input type="text"/>	" w.c.		
C: Furnace total return static pressure	<input type="text"/>	" w.c.		
D: Return duct static pressure	<input type="text"/>	" w.c.		

**Subtract A:** Supply duct static from B: Furnace total supply static pressure

Pressure drop across coil:

"w.c.

5.3003.3

**Add B:** Furnace total supply static pressure to C: Furnace total return static pressure

Total or External static pressure:

"w.c.

5.3003.3

**Subtract D:** Return duct static pressure from C: Furnace total return static pressure

Pressure drop across filter:

"w.c.

5.3003.3

## Client Education

Basic operation of the equipment explained to the client	<input type="radio"/> Done	2.0702.2
Proper operation and programming of the thermostat explained to the client	<input type="radio"/> Done	2.0702.2
Electrical disconnects and fuel shut offs demonstrated to the client	<input type="radio"/> Done	2.0702.2
Proper filter selection and how to change filter explained	<input type="radio"/> Done	2.0702.2
Location of combustion air inlets will be identified for and not blocking inlets will be explained to the client	<input type="radio"/> Done	2.0702.3



# Indiana Weatherization Gas Furnace Installation Inspection Form

Installing technician \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Inspection performed by: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

## Minimum Draft Pressure Requirements

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



Pg. 1

Gas Meter Dial Used					
Secandr far ano revolution	One Half cu. Ft.	One cu. Ft.	Two cu. Ft.	Five cu. Ft.	Ten cu. Ft.
Cubic Feet Per Hour					
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



Pg. 3

Gas Meter Dial Used					
Secandr far ano revolution	One Half cu. Ft.	One cu. Ft.	Two cu. Ft.	Five cu. Ft.	Ten cu. Ft.
Cubic Feet Per Hour					
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	29	54	109	273	546
68	28	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



Pg. 2

Gas Meter Dial Used					
Secandr far ano revolution	One Half cu. Ft.	One cu. Ft.	Two cu. Ft.	Five cu. Ft.	Ten cu. Ft.
Cubic Feet Per Hour					
30	60	120	240	600	1200
31	58	116	232	581	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	176	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



Pg. 4

Gas Meter Dial Used					
Secandr far ano revolution	One Half cu. Ft.	One cu. Ft.	Two cu. Ft.	Five cu. Ft.	Ten cu. Ft.
Cubic Feet Per Hour					
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