

**State of North Dakota
Weatherization Assistance Program
Worst-Case Draft Test Form**

Name:	Job#	Date:	
COMBUSTION APPLIANCE ZONE (CAZ) WORST-CASE DRAFT TEST			
Test Steps (refer to Field Standards for details)	Test 1	Test 2	
1. Inspect combustion appliances and venting before test setup.			
2. Put dwelling in wintertime condition.			
3. Record outdoor temperature.	°F	°F	
4. Deactivate all combustion appliances and exhaust fans.			
5. Close all operable vents.			
6. If furnace, replace or clean filter if needed.			
7. Check and clean lint filter in dryer.			
8. Setup and adjust manometer to measure CAZ with reference to (WRT) outdoors.			
9. Setup pressure hoses to measure CAZ with reference to (WRT) outdoors.			
10. With all interior doors open, record Baseline Pressure, CAZ WRT outdoors.	Pa	Pa	
11. Turn on all exhaust fans and record Exhaust Pressure, CAZ WRT outdoors.	Pa	Pa	
12. If furnace, activate air handler. Record Air Handler Pressure, CAZ WRT outdoors.	Pa	Pa	
13. Position all interior doors for worst-case depressurization in CAZ.			
14. Position CAZ door for worst-case depressurization in CAZ. (circle door position)	Open / Closed	Open / Closed	
15. Is worst-case depressurization with air handler on or off? (circle switch position)	On / Off	On / Off	
16. Record worst-case depressurization CAZ WRT outdoors.	Pa	Pa	
17. What are the dominant forces causing depressurization?			
18. Under worst-case conditions, fire appliance. Does it spill after 2 minutes?			
a. Appliance 1 description: _____	Yes / No	Yes / No	
b. Appliance 2 description: _____	Yes / No	Yes / No	
c. Appliance 3 description: _____	Yes / No	Yes / No	
d. Appliance 4 description: _____	Yes / No	Yes / No	
19. Under worst-case conditions, fire appliance and measure draft.			
a. Appliance 1	___ Pa or WG	___ Pa or WG	
b. Appliance 2	___ Pa or WG	___ Pa or WG	
c. Appliance 3	___ Pa or WG	___ Pa or WG	
d. Appliance 4	___ Pa or WG	___ Pa or WG	
20. If appliance fails, correct problem.			
21. If dwelling has other combustion appliance zones, repeat test there.			
22. Return dwelling, exhaust fans, and combustion appliances to normal settings.			
Notes:			

---- For Use with Worst-Case Draft Test ----

Atmospheric Gas Appliances Only					
Acceptable Draft Test Readings for Various Outdoor Temperature Ranges					
F°	<20	21-40	41-60	61-80	>80
Pascals	-5	-4	-3	-2	-1
Water Column inches	-0.02	-0.016	-0.012	-0.008	-0.004

---- For Use with Worst-Case Draft Test ----

Power Oil Burners	
Acceptable Draft Readings Overfire and at Breech	
Draft Reading Location	Acceptable Draft
Overfire Draft	-0.02 inches or -5 Pascals
Vent Connector or Breech	-0.04 to -0.06 or -10 to -15 Pascals

---- For Use with Carbon Monoxide Testing ----

Carbon Monoxide (CO) Action Levels and Allowable Levels			
<i>Appliance</i>	<i>Action CO Level</i>	<i>Allowable CO Level</i>	<i>Comments</i>
Gas Furnace / Boiler	100 ppm / 200 ppm	200 ppm / 400 ppm	as-measured / air-free
Gas Water Heater	100 ppm / 200 ppm	200 ppm / 400 ppm	as-measured / air-free
Range Bake Burner	800 ppm	800 ppm	air-free
Oil Furnace / Boiler	100 ppm	200 ppm	as-measured
Oil Water Heater	100 ppm	200 ppm	as-measured

“Action CO Level” indicates level above which repair or adjustment to appliance is recommended to lower CO emissions.
 “Allowable CO Level” indicates maximum CO emission levels allowed by the North Dakota Weatherization Program.

---- For Use with Depressurization Tightness Limit Procedure ----

Exhaust Appliance Nominal CFM	
<i>Appliance</i>	<i>CFM Nominal</i>
Bathroom exhaust fan	50
Kitchen range hood	100
Kitchen wall fan	250
Kitchen down-vent fan (Jenn-Air)	300 - 600
Dryer	180
Central vacuum	150
Fireplace	200 - 400

Note: Actual CFM might be significantly less than nominal – or rated – CFM.

---- For Use with Depressurization Tightness Limit Procedure ----

Building Depressurization Limits for Various Appliance Types (Used to calculate the Depressurization Tightness Limit)	
<i>Appliance Type</i>	<i>Building Depressurization Limit, Pascals</i>
Water heater only, atmospheric gas	-2
Water heater and atmospheric furnace	-5
Furnace or boiler, gas atmospheric or fan assist., Category I	-5
Oil or gas unit with power burner	-5
Induced draft appliance (fan at point of exit at wall)	-5
Direct-vent appliances	-10