Illinois Weatherization Standards
July 2015

Significant Changes from the March 2013 Standards

100 Diagnostics

1112 Blower Door Test
Pressurization Test
A mote was added regarding vermiculite insulation.
- Presence of suspected asbestos containing material (ACM) such as vermiculite attic insulation which could be drawn into the home during a depressurization test. See section 501, “Vermiculite”.

11122 Target CFM50 Rates
Air sealing target rates have been reduced. The Target rates from the 2013 Standards are shown on the left; the new targets are shown on the right. Three examples showing the difference in target rates are then provided.

<table>
<thead>
<tr>
<th>2013 Target Table</th>
<th>2015 Target Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing CFM50</strong></td>
<td><strong>Target CFM50 Rates</strong></td>
</tr>
<tr>
<td>0 to 1250</td>
<td>80% of existing CFM50</td>
</tr>
<tr>
<td>1251 to 1560</td>
<td>72% of existing CFM50</td>
</tr>
<tr>
<td>1561 to 2750</td>
<td>64% of existing CFM50</td>
</tr>
<tr>
<td>2751 to 4250</td>
<td>56% of existing CFM50</td>
</tr>
<tr>
<td>4251 to 5500</td>
<td>48% of existing CFM50</td>
</tr>
<tr>
<td>5501 to 7500</td>
<td>44% of existing CFM50</td>
</tr>
<tr>
<td>&gt; 7500</td>
<td>40% of existing CFM50</td>
</tr>
</tbody>
</table>

11124 Contractor Blower Door Requirements
This is a new section.
- Contractors are required to do an initial blower door test before beginning work to confirm the assessor’s existing leakage rate and target CFM50 rate.
  - If the contractor’s existing leakage rate is off by plus or minus 10%, the contractor should call the assessor to ensure that house set-up is the same as it was during the assessment. If necessary, the assessor may re-calculate the target CFM50 rate.
- Contractors should ensure the effectiveness of air sealing work.
Air sealing work should be validated using smoke with the house under depressurization or pressurization.
Zone pressure measurements should be taken and compared to the assessor’s zone pressure numbers.

- Contractors must submit their final blower door reading to the WX agency.
- Architectural contractors and crews are required to conduct a spillage test-out every day following completion of work (see section 117, “Spillage Test-Out”). This test is only required for natural draft appliances.

112 ASHRAE 62.2-2013
Illinois WX is now using the 2013 version rather than the 2010 version. This should have a minor impact on required ventilation rates. However, be sure that you’re using the spreadsheet titled “IHWAP Diagnostics – v2015”. You should have received this from OEA.

117 Spillage Test-Out
Two significant changes have been added to this procedure. First, turning-on the air handler is now included.
2. Close all interior doors, including door to combustion appliance zone (CAZ). Leave doors to rooms with exhaust fans, such as bathrooms and kitchens, open.
3. Turn on clothes dryer. Turn on all exhaust fans, such as bathroom and kitchen exhaust fans, such that they operate at maximum speed. Do not turn on whole house fans.
4. Turn on furnace air handler.
5. Turn-on natural draft appliance. Test for spillage at the draft diverter or draft hood with a mirror or smoke pencil.
6. Check for spillage –

Secondly, ambient CO must be monitored by the contractor or crew while doing the test.
7. Ambient CO will be monitored during combustion testing. If ambient CO levels exceed 9 ppm, see section 502-2, “Indoor Ambient CO Action Levels”, for additional guidance.
100 Architectural Standards

21231 Worker Safety
This is a new section.
When applying low pressure 2-part spray polyurethane foam, air purifying masks with an organic vapor cartridge and P-100 particulate filter shall be used. When applying high-pressure SPF insulation, supplied air respirators (SARs) will be used. Consult safety data sheet (SDS) for respiratory protection requirements.

Spray foam will be handled in accordance with manufacturer specifications or SDS standards to eliminate hazards with the use of foam. Appropriate personal protective equipment (PPE) shall be used.

213 Attic Insulation
2131 Safety
Standards allow for commercially available recessed can covers in addition to the drywall boxes.
Alternately, commercially available recessed can covers may be used if they meet the following criteria;
- meet the fire rating requirements of 5/8 inch gypsum board (1 hour rating)
- meet the minimum clearances listed above,
- are non-vented, and
- are non-metallic.

21324 Top Plates
Clarified soffit chute requirement.
Soffit chutes are installed only where soffit vents are present. One soffit chute shall be installed for every three rafter cavities.

2135 Attic Access Hatches
Expanded information for boxing around retractable attic stairways.
An insulated box shall be built and installed over retractable attic stairways. Hatches will be insulated to the maximum R-value structurally allowable up to the R-value of the adjoining insulated assembly. Pull-down stair rough opening will be surrounded with a durable dam that is higher than the level of the attic floor insulation.

Modified R-value requirement for access hatches (was R30).
Attic access hatches shall be insulated to the same R-value as the adjoining assembly with foam board insulation – hatches are not to be insulated with batt insulation.

2151 Crawl Space Foundation Insulation
Fibrous insulation is no longer allowed.
Extruded polystyrene and polyisocyanurate insulation are the most appropriate insulation types for flat concrete or concrete block walls. Two-part foam is also an option for insulating
foundation walls and care must be taken to assure that the proper thickness is obtained. **Fibrous insulation is not to be used for foundation wall insulation.**

2152 Crawl Space Floor Insulation
*Two additional techniques for insulating floors above crawl spaces have been added.*
Crawl space floor joist cavities may be insulated in one of **four** manners.
- Batt insulation
- Spray foam
- Dense Pack with Rigid Barrier
- Loose Fill with Netting

2154 Ground Moisture Barrier
Seams in ground cover must be overlapped a minimum of 12 inches. Ground cover must still extend up the foundation wall a minimum of 6 inches.
- **Overlap ground moisture barrier at least 12 inches** and seal seam with acoustical sealant or 3M #8086 builders’ tape or equivalent.

217 Rim Joist Insulation
*Fibrous insulation of any kind cannot be used.*
Penetrations in rim joist must be sealed before insulating. Two-part spray foam is recommended for air sealing and insulating the rim joist. Rigid foam board may also be used, but the insulation must be foamed in place to provide an air seal. **Kraft, foil-faced, vinyl-faced and unfaced batt insulation are not permitted.**

2184 Window Replacement
*Window replacement guidelines have been clarified.*
Windows may only be replaced if SIR is greater than or equal to 1.0 or has been approved as an air sealing measure.

2192 Door Replacement
*Door replacement guidelines have been clarified.*
Doors may only be replaced if SIR is greater than or equal to 1.0 or has been approved as an air sealing measure.
220 Baseload
*Light Emitting Diodes (LEDs) have been included in the Standards.*
Both LED and CFL lamps must be *ENERGY STAR* rated.

*Replacement guidelines have also been provided.*

<table>
<thead>
<tr>
<th>Light Output</th>
<th>LEDs</th>
<th>CFLs</th>
<th>Incandescents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumens</td>
<td>Watts</td>
<td>Watts</td>
<td>Watts</td>
</tr>
<tr>
<td>450</td>
<td>4.5</td>
<td>8.12</td>
<td>40</td>
</tr>
<tr>
<td>300-900</td>
<td>6-8</td>
<td>13.18</td>
<td>60</td>
</tr>
<tr>
<td>1100-1300</td>
<td>9.13</td>
<td>18.22</td>
<td>75-100</td>
</tr>
<tr>
<td>1600-1800</td>
<td>16.20</td>
<td>23.30</td>
<td>100</td>
</tr>
<tr>
<td>2600-2800</td>
<td>25.28</td>
<td>30.55</td>
<td>150</td>
</tr>
<tr>
<td>Light bulb projected lifespan</td>
<td>50,000 hours</td>
<td>10,000 hours</td>
<td>1,200 hours</td>
</tr>
</tbody>
</table>

22021 Disposal (Refrigerators)
*Refrigerator disposal information has been clarified.*
All refrigerators and freezers removed from clients’ homes must be taken to a recycling facility. Contractors must obtain a certificate or receipt indicating the appliance has been accepted by the recycling facility. A copy of the certificate or receipt indicating the appliance has been accepted by the recycling facility must be provided to the local weatherization agency and be placed in the client file for each refrigerator/freezer replacement. Contact the Weatherization Agency regarding nearest recycling facility or process.

2205 Showerhead and Aerator Summary
*New section*
Warranty information, operation manuals, and installer contact information will be provided to the occupant for both low flow showerheads and aerators.

Note that IHWAP’s maximum flow rate for both low-flow shower heads and faucet aerators exceed those outlined in the SWS. IHWAP standards will be followed.
300  Mechanical Standards

312  Combustion Safety Testing

*Personal CO monitors must be worn by assessors, mechanical contractors and final inspectors. New ambient CO action levels, based on ANSI/BPI-1200-S-2015, are used. The 35 ppm taught during QCI is not being used.*

Assessors, mechanical contractors and final inspectors are required to wear personal CO monitors while conducting combustion safety testing. See section 502, “Ambient Carbon Monoxide Monitoring”, for additional information.

If ambient CO levels exceed 9 ppm, see section 502-2, “Indoor Ambient CO Action Levels”, for additional guidance.

*Combustion safety testing involves three tests. Measuring draft is no longer required.*

- Worst Case depressurization
- Spillage
- CO

31213  Measuring Worst Case Depressurization

*A WCD form has been revised and is attached at the end of this document.*

*If WCD limits are exceeded, the following guidance is provided (no change in table values).*

The limits in table 300-3 represent WCD values where spillage may occur if measured WCD values are more negative. Likewise, spillage is unlikely to occur if the measured WCD values are less than the limits. However, spillage may occur at any WCD number. Care should be taken that homes are set-up in worst case condition and that appliances pass the spillage test regardless of the measured WCD value.

**Table 300-3  Worst Case Depressurization Limits**

(Depressurization measurements shown are for the CAZ with reference to the outside)

<table>
<thead>
<tr>
<th>Appliance</th>
<th>Chimney Height (ft)</th>
<th>Unlined Chimneys on Exterior Wall</th>
<th>Metal Lined, Insulated or Interior Chimneys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas fired furnace,</td>
<td>13 or less</td>
<td>-3 Pa (0.02 in)</td>
<td>-5 Pa (0.02 in)</td>
</tr>
<tr>
<td>boiler, water heater</td>
<td>14 – 20</td>
<td>-3 Pa (0.02 in)</td>
<td>-6 Pa (0.024 in)</td>
</tr>
<tr>
<td></td>
<td>+ 21</td>
<td>-3 Pa (0.02 in)</td>
<td>-7 Pa (0.028 in)</td>
</tr>
<tr>
<td>Oil fired furnace,</td>
<td>13 or less</td>
<td>-4 Pa (0.016 in)</td>
<td>-4 Pa (0.016 in)</td>
</tr>
<tr>
<td>boiler, water heater</td>
<td>14 – 20</td>
<td>-4 Pa (0.016 in)</td>
<td>-5 Pa (0.02 in)</td>
</tr>
<tr>
<td></td>
<td>+ 21</td>
<td>-4 Pa (0.016 in)</td>
<td>-6 Pa (0.024)</td>
</tr>
<tr>
<td>Fireplace (wood or gas)</td>
<td>all heights</td>
<td>-3 Pa (0.012 in)</td>
<td>-4 Pa (0.016 in)</td>
</tr>
<tr>
<td>Airtight fireplace,</td>
<td>all heights</td>
<td>-10 Pa (0.04 in)</td>
<td>-10 Pa (0.04 in)</td>
</tr>
<tr>
<td>wood stove</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Induced draft appliances</td>
<td>all heights</td>
<td>-15 Pa (0.06 in)</td>
<td>-15 Pa (0.06 in)</td>
</tr>
</tbody>
</table>
3122 Spillage Test

Spillage had to cease within 3 minutes in the old Standards. The Standard Work Specifications (SWS) had a 2 minute limit. A 1 minute limit was taught during QCI. Forget all that.

The new Standards use ANSI/BPI-1200-S-2015 and are shown below.

**Natural Draft Water Heaters** -
Spillage must cease (water heater begins drafting) within two minutes. If water heater begins drafting within two minutes, the water heater passes the test.

**Natural Draft Furnaces - Warm Vent** (when furnace thermostat is on heat) –
Spillage must cease (furnace begins drafting) within two minutes. If furnace begins drafting within two minutes, the furnace passes the test.

**Natural Draft Furnaces - Cold Vent** (when furnace thermostat is not on heat) –
Spillage must cease (furnace begins drafting) within five minutes. If furnace begins drafting within five minutes, the furnace passes the test.

Essentially, water heaters are always 2 minutes. Natural draft furnaces during the heating season is also 2 minutes. Natural draft furnaces during the summer are 5 minutes.

3123 Carbon Monoxide (CO) Testing

A limit of 100 ppm “as measured” was used in the old Standards. CO should now be measured as “air free”. The CO limit is based upon appliance type.

- CO air free readings are to be taken and compared to the values in Table 300-4.
- CO air free readings are not to exceed those in Table 300-4.
- CO readings are to be taken after 5 minutes of main burner operation.
- Appliances with CO emissions higher than the threshold limits should be cleaned and tuned and tested for CO emissions again. Contact Weatherization Agency if high CO emission problem cannot be corrected.
- If the CO thresholds are exceeded and ambient CO levels do not exceed 70 ppm (see section 502-2, “Indoor Ambient CO Action Levels”), work in the home may continue.

| Table 300-4 CO Threshold Limits for Combustion Appliances²⁰ |
|-----------------|-----------------|
| **Appliance**   | **Threshold Limit** |
| Furnace         | 400 ppm air free |
| Water Heater    | 200 ppm air free |
| Boiler          | 400 ppm air free |
| Vented Space Heater | 400 ppm air free |

3131 Natural Draft Appliances & 3132 Fan Induced Appliances (sealing test holes)

**Clarification on type of caulk to be used is provided.**

- Single wall pipe is preferred location for test holes, but double wall B vent can be drilled if necessary. If B vent is drilled, seal inner pipe with high temperature RTV caulk (or equivalent) and metal tape over the outer pipe. Caulk must be red in color and rated to 600°F.
31532  Duct Sealing Materials

*Tape can no longer be used to seal ducts. Only mastic or mastic and reinforcing fiberglass mesh tape can be used. This also applies to mobile homes.*

Duct mastic is the required duct sealing material because of its superior durability and adhesion. Tapes cannot be used for duct sealing in the Illinois Weatherization Program.

Tape is not to be used in the Illinois Weatherization Program as it cannot be expected to hold a joint together nor expected to resist the force of compacted insulation or joint movement (. Joints should rely on mechanical fasteners to prevent joint movement or separation and mastic for sealing.

320  Water Heater Retrofits

3201  Tank Insulation

*In addition to electric water heaters, water heater wraps can now be installed on gas and propane-fired water heaters if the SIR is equal to or greater than 1.0. However, the water heater should be checked for a label that may warn against doing so. If such a label is found or if no label is visible, do not recommend water heater wrap.*

Do not insulate water heater if the unit has a manufacturer’s warning against adding additional insulation. If label is not visible, assume that insulation cannot be added to the tank.

*The minimum R-value of the wrap has been increased from 10 to 24.*

Water heaters shall be insulated to at least R24. Insulation must be mineral fiber manufactured as a water heater blanket with vinyl or foil facing. The insulation must conform to ASTM C592-80 and ASTM 892-79 with a flame spread rating no higher than 25.

321  Gas Ovens

*New section – note that CO measurements are “air free”.*

- Inspect the stove for gas leaks at the fittings using gas leak detector.
- Gas burners shall be turned-on and visibly inspected. A Potential Hazardous Condition form shall be completed and given to the client if:
  - The flames have any discoloration, flame impingement or an irregular pattern, or
  - The burners are visibly dirty, corroded or bent.
- Inspect oven for stored materials and remove before testing.
- Turn on oven to bake temperature of 500°F.
- Place test probe of CO analyzer on throat of oven exhaust.
- Test for CO after oven has reached steady-state (CO readings have steadied).
- CO shall not exceed 800 ppm air-free when measured in undiluted flue gases. If CO exceeds 800 ppm air-free, a Potential Hazardous Condition form shall be completed and given to the client.

322  Contractor Checklist

*The Contractor Checklist has been revised and is attached to this document.*
400 Mobile Home Standards
The only change in this section regards duct sealing. Tape cannot be used. Duct mastic or duct mastic and reinforcing fiberglass mesh tape can be used.

500 Health and Safety Standards

501 Vermiculite
New section – note last paragraph.
Vermiculite is a naturally-occurring mineral composed of shiny flakes, resembling mica. When heated to a high temperature, flakes of vermiculite expand as much as 8-30 times their original size. The expanded vermiculite is a light-weight, fire-resistant, and odorless material and has been used in numerous products, including insulation for attics and walls.

A mine near Libby, Montana, was the source of over 70 percent of all vermiculite sold in the United States from 1919 to 1990. There was also a deposit of asbestos at that mine, so the vermiculite from Libby may be contaminated with asbestos. It should be assumed that vermiculite insulation is from Libby and the material should be treated as if it contains asbestos.

Attic insulation that looks like vermiculite should not be removed or disturbed. Blower door testing is still permitted and should be done in pressurization mode. Therefore, since vermiculite cannot be disturbed, air-sealing cannot be performed in an attic with vermiculite and ventilation may not be installed through such an attic. If it is not possible to comply with ASHRAE ventilation requirements through supply ventilation, balanced ventilation, or exhaust ventilation that goes through a side wall, the home would be a deferral.

502 Ambient Carbon Monoxide (CO) Monitoring
502-1 Requirements
New section
Assessors and final inspectors shall have a designated ambient CO monitor operating at all times while in working in the home. Monitors are to be worn near the breathing zone (chest or higher).

The ambient air shall be sampled upon entering the home. The ambient air may be sampled while taking the initial walk-through of the home. Sampling should be done in all occupiable areas of the home, including basements, utility rooms and attached or tuck-under garages.

Architectural contractors are required to wear personal CO monitors while conducting spillage test-out. Mechanical contractors are required to wear personal CO monitors while conducting Combustion Safety Testing.

Monitors are to be turned on outside the building away from any combustion outlets and automobile traffic areas, adjusted to zero and otherwise prepared for use in accordance with manufacturer’s instructions.
Assessors, final inspectors, architectural and mechanical contractors shall comply with CO exposure action levels specified in section 502-2 and shall not proceed with work when CO concentrations in the home exceed 70 ppm.

### 502-2 Indoor Ambient CO Action Levels

*New section based on ANSI/BPI-1200-S-2015.*

Actions in response to ambient CO measurements shall be taken as follows:

- If the CO monitor indicates an ambient CO level of 70 ppm or greater, the assessment, architectural work, mechanical work or the final inspection shall immediately cease. The client shall be notified that all building occupants are to evacuate the building. The Weatherization Agency is to be contacted such that the appropriate emergency services can be notified.
- If the CO monitor indicates an ambient CO reading in the range of 36 ppm-69 ppm, the assessor, architectural contractor, mechanical contractor or final inspector shall advise the client that elevated levels of ambient CO have been detected. Windows and doors shall be opened. All possible sources of CO are to be turned off immediately. Where it appears that the source of CO is a permanently installed appliance, a recommendation shall be made that the appliance be turned off. Weatherization work not impacted by opening windows and doors or turning off the suspected appliance may proceed. The Weatherization Agency shall be contacted for further direction.
- If the CO monitor indicates an ambient CO reading in the range of 9 ppm-35 ppm, the assessor, architectural contractor, mechanical contractor or final inspector shall advise the client that CO has been detected and recommend that windows and doors be opened. All possible sources of CO should be checked. Where it appears that the source of CO is a permanently installed appliance, the mechanical contractor should be contacted to service the appliance. Weatherization work not impacted by opening windows and doors may proceed. The Weatherization Agency shall be contacted for further direction.
- If the CO monitor indicates an ambient reading in the range of 0 ppm-9 ppm, weatherization work may proceed in a normal fashion.

### 517 Carbon Monoxide Detectors

#### 5172 Location and Placement

*New requirement.*

All homes with attached or tuck-under garages must receive a CO detector regardless if the home has combustion appliances.
Worse Case Depressurization (WCD)

House Set-Up:
- close all exterior windows and doors
- open all interior doors, including door to combustion appliance zone (CAZ)
- turn off all exhaust fans (including ASHRAE fan if present) and clothes dryer
- remove, clean and replace lint filter from dryer
- if dirty, remove filter from furnace; do not remove filter cap if present
- close supply air registers in CAZ
- close fireplace damper, if present
- set water heater to pilot or vacation; ensure other combustion appliances are off

Manometer Set-Up:
- run hose from outside to reference tap on A channel
- leave tap open to CAZ

Baseline:
- set baseline on manometer

Measurements:

P1  Turn on clothes dryer all exhaust fans in house:

P2  Turn on furnace air handler: Pa (leave clothes dryer & exhaust fans running)

P3  Position all doors: Pa (leave everything running)

Compare highest negative values to WCD limits in Table 300-3. The limits in table 300-3 represent WCD values where spillage may occur if measured WCD values are more negative. Likewise, spillage is unlikely to occur if the measured WCD values are less than the limits. However, spillage may occur at any WCD number.

Table 300-3  Worse Case Depressurization Limits

<table>
<thead>
<tr>
<th>Appliance</th>
<th>Chimney Height (ft)</th>
<th>Unlined Chimneys on Exterior Wall</th>
<th>Metal Lined, Insulated or Interior Chimneys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas fired furnace, boiler, water heater</td>
<td>13 or less</td>
<td>-5 Pa (0.02 in)</td>
<td>-5 Pa (0.02 in)</td>
</tr>
<tr>
<td></td>
<td>14 – 20</td>
<td>-5 Pa (0.02 in)</td>
<td>-5 Pa (0.02 in)</td>
</tr>
<tr>
<td></td>
<td>+ 21</td>
<td>-5 Pa (0.02 in)</td>
<td>-6 Pa (0.028 in)</td>
</tr>
<tr>
<td>Oil fired furnace, boiler, water heater</td>
<td>13 or less</td>
<td>-4 Pa (0.016 in)</td>
<td>-4 Pa (0.016 in)</td>
</tr>
<tr>
<td></td>
<td>14 – 20</td>
<td>-4 Pa (0.016 in)</td>
<td>-5 Pa (0.02 in)</td>
</tr>
<tr>
<td></td>
<td>+ 21</td>
<td>-4 Pa (0.016 in)</td>
<td>-6 Pa (0.024 in)</td>
</tr>
<tr>
<td>Fireplace (wood or gas)</td>
<td>all heights</td>
<td>-3 Pa (0.012 in)</td>
<td>-4 Pa (0.016 in)</td>
</tr>
<tr>
<td>Airtight fireplace, wood stove</td>
<td>all heights</td>
<td>-10 Pa (0.04 in)</td>
<td>-10 Pa (0.04 in)</td>
</tr>
<tr>
<td>Induced draft appliances</td>
<td>all heights</td>
<td>-15 Pa (0.06 in)</td>
<td>-15 Pa (0.06 in)</td>
</tr>
</tbody>
</table>

1 If using older DG3 manometer, measure and record baseline pressure.
2 If ASHRAE fan has been installed, set to operate at its maximum CFM exhaust rate.
3 Do not turn on whole house fan if present.
**CONTRACTOR CHECKLIST -**

**Job#________________________________________**  **Date________________**  **Contractor name________________________________________________**

**Client Name_________________________________________**  **Address___________________________________________**  **City______________________________**

**Phone_____________________________**  **Furnace/Boiler brand & model number _________________________________**  **Serial #_______________________________**

(Circle all that apply)

**Residential Furnace**  **Mobile Home**  **Boiler**

<table>
<thead>
<tr>
<th>Natural Gas</th>
<th>Propane</th>
<th>Electric</th>
<th>Clean &amp; Tune</th>
<th>Appliance</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furnace</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect vent system &amp; vent connections</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric shutoff switch present</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual gas valve present &amp; operational</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment trap at unit location present</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean &amp; inspect pilot, &amp; burners</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replace thermocouple</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect wiring for cracks &amp; overheating</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean and inspect heat exchanger</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combustion Blower cleaned</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean main blower and secondary heat exchanger</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision impaired thermostat installed?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set back thermostat installed &amp; programed</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermostat calibrated &amp; leveled</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are all rooms receiving heat</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is adequate return air present</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air filter cover present</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas leak test all gas appliance &amp; supply lines</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit installed on blocks?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **90+ Furnaces** | | | | | |
| Two pipe vent installed per PMI | Yes | No | NA | | |
| Vent termination per PMI | Yes | No | NA | | |
| If no, state reason ________________________________ | | | | | |

| **Mobile Homes** | | | | | |
| Listed mobile home furnace | Yes | No | NA | | |
| Flue Collar/Roof Jack installed | Yes | No | NA | | |
| Defective floor registers replaced | Yes | No | NA | | |
| Floor Supply/Return ducts/boots sealed | Yes | No | NA | | |
| Approved Mobile Home vent pipe | Yes | No | NA | | |

| **Electric Heat** | | | | | |
| Condition of Elements & Links ____________________________ | | | | | |
| Voltage _____________________________________________ | | | | | |
| Condition of wiring ____________________________________ | | | | | |
| Rated amp draw__________________ Measured amp draw__________ | | | | | |
| Temp Rise per Manufacturer’s Specifications ________________ | | | | | |
| Supply temp.(AVG) _______ Return Temp. _______ Temp. Rise _______ | | | | | |

| **Testing** | | | | | |
| Worst case conditions ____PA | Spillage test passed | Yes | No | NA | | |
| Draft Reading (see table)_______CO Reading __________________ | | | | | |
| Condition of Flame ____________________________ | | | | | |
| Rated Input __________ Btuh | Clocked Input __________ Btuh | | | | |
| Gas pressure___________________________iwc. | | | | | |
| Temp rise per PMI __________________________ | | | | | |
| Supply air temp (T1)__________ (T2)__________ (T3)__________ AVG__________ | | | | | |
| Return air Temp__________ Temp Rise__________ | | | | | |
| Blower on temp__________ Blower off temp________________ | | | | | |

**Appliances**

<table>
<thead>
<tr>
<th><strong>Gas Stove</strong></th>
<th><strong>Gas Dryer</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shutoff w/ handle present and operational</td>
<td>Yes</td>
</tr>
<tr>
<td>Sediment trap present</td>
<td>Yes</td>
</tr>
<tr>
<td>Uncoated brass flex connectors replaced</td>
<td>Yes</td>
</tr>
<tr>
<td>Gas leak test conducted</td>
<td>Yes</td>
</tr>
<tr>
<td>Rigid vent present &amp; connected</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Acceptable draft values</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 21F</td>
</tr>
<tr>
<td>21F to 40F</td>
</tr>
<tr>
<td>41F to 60F</td>
</tr>
<tr>
<td>61F to 80F</td>
</tr>
<tr>
<td>Above 80F</td>
</tr>
</tbody>
</table>
BOILER

Inspect vent system & vent connectors Yes No NA
Gas shutoff valve present & operational Yes No NA
Sediment trap present Yes No NA
Electric shutoff switch present Yes No NA
Clean & inspect burners and pilot Yes No NA
Clean & inspect heat exchanger? Yes No NA
Inspect wiring? Yes No NA
Gas leak test all appliance & supply lines Yes No NA
Repair water/steam leaks? Yes No NA
Fill Valve operational? Yes No NA
IID/Vent Damper installed? Yes No NA
Pressure/Temp. Valve operational? Yes No NA
Expansion tank drained? Yes No NA
System bled? Yes No NA
Low Water cutoff cleaned? Yes No NA
Is Low Water cutoff operational? Yes No NA
Is water sight glass visible & cleaned? Yes No NA
Pigtail removed & cleaned (Steam) Yes No NA

Testing
Gas Pressure __________ iwc. Flue Temp__________ Degrees
Worst case conditions ______ Pa CO reading____________
Flame condition ______ Spillage test passed Yes No NA
Circulator on Temp. ____________ Circulator off temp. __________
Rated Input _____________________BTU Clocked Input ________
Heat Anticipator settings ____________
Replace Thermostat Yes No NA
Outdoor Temp. Controls Checked? Yes No NA

OIL HEAT

Oil Nozzle replaced? Yes No NA
Chimney cleaned? Yes No NA
Change Oil Filter? Yes No NA
Barometric damper operational? Yes No NA
Class A vent installed? Yes No NA
Draft over flame? ______________________________________
Oil Nozzle size ______________ Smoke Test reading__________
Efficiency ______________ CO Reading ______________ ppm
Draft reading __________________________________
Condition of chimney __________________________________
Condition of fuel lines __________________________________
Stack control drop out time ________________________________
Condition of Electrodes __________________________________

WATER HEATER

GAS ________ Electric ______

Testing
Draft Reading ____________________________ iwc
Worst case conditions ___ PA Spillage test passed Yes No NA
CO Reading ______________ ppm
Condition of venting ____________ Condition of burner ____________

GAS ________ Electric ______

Testing
Draft Reading ____________________________ iwc
Worst case conditions ___ PA Spillage test passed Yes No NA
CO Reading ______________ ppm
Condition of venting ____________ Condition of burner ____________

I certify that I have inspected all existing, and newly installed gas lines and gas appliances for any gas leaks, and that all combustion appliances are working safely within the specified IHWAP parameters. I understand that all invoices must be itemized with Labor/Material costs and submitted with the Work Order and this document.

__________________________________________________________
Technician Signature Date