WARM WISE Audit Form *JUNE 2017*

Customer Info:

Name: _____ Address:

_____

Account Number: _____ Email

Address: _____ Home

Phone: _____

Work Phone: _____ Other

Phone: _____ Landlord

name and phone number:

Auditor Name: _____ Audit

Date: _____ Job Finished Date: _____

Each Team Member must check off as file proceeds through the system:

- ☐ Audit done
- ☐ Contractor has file - ready to install measures
- ☐ Info faxed or emailed to HVAC
- ☐ Complete file (all papers, see below) sent to Post Inspector
- ☐ Other

Spending allowance: 12 Year CAP without Julie's permission Coordinating State WX services with WARM WISE Services? ☐ Yes ☐ No

Met-Ed ☐ Yes ☐ No

Forms to Send to Post Inspector

- ☐ Pre Screen Form
- ☐ Signed Release-unvented combustion
- ☐ Wx Release Form
- ☐ Lead Abatement Form
- ☐ Audit Form and all diagnostic forms
- ☐ Pre and Post Combustion Testing documentation
- ☐ Clean and Tune Invoice and HVAC material / equip invoice
- ☐ Wx invoice
- ☐ KAIR form
- ☐ Internal Post Inspection Form
- ☐ Wrap-up Pledge
- ☐ Action Plans

Directions or other notes: _____

_____

_____

Gas use is: ☐ Low ☐ Mid Range ☐ High

Customer Interview

Introduce the Partnership Concept.

Ask the customer to describe heating, cooling, hot water, comfort problems:

_____

_____

Ask customer to describe building problems such as appliance, electrical, plumbing, roofing or moisture problems:

_____

_____

Do they ever use unvented combustion appliances to help them heat in the winter? ☐ Yes ☐ No ☐ NA
If so, no air sealing or insulation will be allowed.

What do they think is the main reason for the high use you may have identified when preparing for this audit?

_____

_____

Does the customer have any health issues or problems that we should be aware of? ☐ Yes ☐ No

_____

Is lead present that needs remediation, LS Work practices / other for WX work? ☐ Yes ☐ No ☐ NA

Is evidence of mold present that needs testing? ☐ Yes ☐ No

Will customer remediate mold prior to WX? ☐ Yes ☐ No

Demographic/Dwelling Information Required by PUC:

1. Customer/Contact Name: _____
2. Customer's Date of Birth: _____
3. Relationship to customer ☐ 0. Same ☐ 1. Spouse ☐ 2. Sibling ☐ 3. Parent
   ☐ 4. Relative ☐ 5. Non-relative ☐ 99. Other _____
4. Ethnic Origin: ☐ 1. Caucasian/White ☐ 2. African American ☐ 3. Hispanic
   ☐ 4. Asian/Pacific Is. ☐ 5. Native American ☐ 99. Multi-Racial
5. Number of Occupants: _____ Number of Handicapped Occupants: _____
6. Age of Occupants: Under Age 18 _____ Ages 19 to 62 _____ Over 62 _____
7. Occupancy Type: ☐ 1. Own Proof shown? ☐ Yes ☐ No ☐ 2. Rent ☐ 99. Other
8. Household Income: $_____ /yr.
9. Primary Income Source: ☐ 1. Employment ☐ 2. Public Assistance
   ☐ 3. Pension/Retirement ☐ 4. Unemployment ☐ 5. Disability ☐ 99. Other
10. Structure Type: ☐ 1. 1-1/2-2 Story ☐ 2. Ranch ☐ 3. Bi-level ☐ 4. Mobile Home
    ☐ 5. Rowhouse(inside) ☐ 6. Rowhouse(outside) ☐ 7. Duplex ☐ 8. Multi-family
    ☐ 99. Other (please describe) _____
11. Approx. Year Constructed: _____
12. Size of Gas Heated Area: _____ sq. ft.
13. Type of Heating System: ☐ 1. Gas Boiler ☐ 2. Gas Furnace ☐ 3. Heat Pump with gas back up
    ☐ 99. Other (please describe) _____
14. Is Supplemental Heat used ? ☐ Yes ☐ No Type(s)_____
    Locations_____
    Reason(s) for use_____
    Contribution of Supplemental Heat to total household heating %_____

Washer and Gas Dryer Assessment

Number of washer loads per week (complete if water heater is **gas**): _____

Hot Wash _____/ # Warm Wash _____ / # Cold Wash _____ / # Rinse _____Warm/Cold

Washer comments: _____

Dryer Type: ☐ Electric ☐ Gas

Number of **gas** dryer loads per week? _____ How long does it take to dry a load? _____

If the dryer is unvented, vent it to the outside. If the vent needs to be shortened or straightened; or the vent material needs to be replaced. *Use smooth-walled metal. All joints must be taped w/ high temp foil tape and clamps or snap locked. No screws are allowed.*

Dryer venting details: Venting location _____ ☐ Make a new hole

☐ Vent the dryer out using an existing hole Approx # of feet _____ # of elbows _____

☐ Add new vent cap/hood

Would a clothesline be cost effective? ☐ Yes ☐ No Is one being installed? ☐ Yes ☐ No

Other drying issues: _____

Gas Water Heating Assessment

Document water heating issues here, such as family runs out of hot water, tank rusted:

_____

Is the water heater leaking? ☐ Yes ☐ No

Is the water heater rusted/corroded? ☐ Yes ☐ No

Should water heater be replaced? ☐ Yes ☐ No

Existing water heater size: _____ Replacement water heat size: _____

Replace or add expansion tank? ☐ Yes ☐ No Install pressure reducing valve? ☐ Yes ☐ No

Did you change the temperature? ☐ Yes ☐ No Existing Temp_____ Approx New Temp____

Is the shower head flow more than 3 gpm? ☐ Yes ☐ No If so, please replace.

Are you wrapping water pipes in unheated areas? ☐ Yes ☐ No If so, # of linear feet: _____

Other hot water pipes being wrapped in heated areas? ☐ Yes ☐ No # of linear ft _____

Are you wrapping water heater ? ☐ Yes ☐ No

Comments: _____

Are there any other hot water leaks? ☐ Yes ☐ No If yes, where? Repair ☐ Yes ☐ No

_____ _____

Would a GFX System work? Shower is used at least 15 minutes per day; basement; drain stack servicing the most-used shower is exposed; at least 34" of vertical height available on the drain stack; drain pipe is at least 3" in diameter: ☐ Yes ☐ No

If yes, how far is the drain pipe from the cold water supply: _____ ft.

How far is the drain pipe from the water heater? _____ ft. Installing GFX? ☐ Yes ☐ No

Gas Heating System

Follow the PA WX Field Guide for Heating System Repair and Replacement Procedure for determining condition of the heating system and whether or not the system needs to be repaired or replaced. Replacement should be considered if existing heating system falls outside the parameters for health, safety and/or efficiency. HVAC contractor will be cleaning and tuning the system, as well as repairing or replacing as necessary with heat load calculations to size the new systems from added insulation and air sealing work.

Type of Heating System: Boiler / Furnace / Elec. Base / Heat Pump

Approximate Age: _____ MFG.: _____ Date: _____ Model #: _____

Serial #_____

General shape of the heating system**:**

Is there friable asbestos ? ☐ Yes ☐ No

Comments :

Are you wrapping hot water boiler pipes in unheated areas? ☐ Yes ☐ No #of linear ft____

Are you wrapping steam boiler pipes in unheated or heated areas? ☐ Yes ☐ No

# of linear ft_____# of elbow's_____# of T's_____

Furnace Cement needed around Flue Pipe at Chimney? ☐ Yes ☐ No ☐ W.H. ☐ Heater

Filter(s) to be cleaned/replaced in the heating system?: ☐ Yes ☐ No

Number cleaned:_____ Number replaced :_____

Gas Heating Assessment

What are the customer's heating system thermostat setting habits?

Is the thermostat(s) accurate? ☐ Yes ☐ No If No state reason:

Do you recommend thermostat(s) replacement? ☐ Yes ☐ No If yes, provide replacement details and install back plate for wall defects. ☐ Regular ☐ Setback

Does the heating system need repair or replacement? ☐ Yes ☐ No If yes, provide repair/replacement details:

If system is replaced, heat load calculations are required. Attach.

Structure Assessment: Attic/Basement/Crawl/House

Attic Insulation and Attic Floor Air Sealing: Are there any attic spaces that have less than an effective R19? ☐ Yes ☐ No Are there any obvious holes in the attic floor? ☐ Yes ☐ No

Is there live knob and tube wiring ? : ☐ Yes ☐ No Location(s)_____

Existing type of venting and approximate quantity _____ Is vermiculite obvious? ☐ Yes ☐ No

Other Comments or Details:

Basement?

Crawl? Vented? ☐ Yes ☐ No

House?

Is lead present? ☐ Yes ☐ No Location(s):_____

Is evidence of mold present? ☐ Yes ☐ No If Yes— Location(s):_____ Size area: _____

Attics

Attic accesses: *Insulated and/or weather-stripped, horizontal, vertical kneewall staircover.*

Horizontal attic access should be insulated to at least the equivalent R value of the attic	☐ Already done Wx Stripped: ☐ Yes ☐ No	☐ Will do Location:_____
Vertical openings should be insulated to at least R-11	☐ Already done Wx Stripped: ☐ Yes ☐ No	☐ Will do Location:_____
Pull down stairs should be insulated to at least R-19	☐ Already done Seal: ☐ Yes ☐ No	☐ Will do Location: _____
Be sure to dam the access if it will remain operable.	Recommended	☐ Yes ☐ No

Heat Producing Fixtures

Are there recessed heat producing fixtures**?** ☐ Yes ☐ No Type: Light/Bath Fan/Other _____
How many recessed fixtures are there? _____ Light _____ Bathfan _____ Other _____

If you are going to insulate the attic floor or air seal the fixtures, please continue. Need to include Bath Fans and Whole House Fans.

IC rated? _____ # non-IC rated? _____ # unknown rating? _____

How many will be dammed to protect them from insulation? _____Light _____Bathfan _____Other ____ ____ ____
How many will be air sealed either with sealed dams or with air tight inserts? _____
Will customer allow recessed light(s) to be changed out? ☐ Yes ☐ No ____ ____
How many will be replaced with air tight, IC rated recessed or surface mounted fixtures? _____
How many are under the floored attic & protected w/ metal dam or fiberglass batt blocking? _____ ____ ____

When complete, the recessed fixtures must not leak air into the attic and dams must be able to be seen from the attic unless they are under the attic floor.

Be sure to dam any chimneys or flues. Recommended ☐ Yes ☐ No / Seal with Hi Temp? ☐ Yes ☐ No ____ ____

Indicate areas where air sealing is needed (always air seal the attic floor – use zonal test results) and/or performed:

Attics (continued)

Air Sealing Measures:	Location/Description	Materials	Labor Hrs		
☐ Top Plates				____	____
☐ Plumbing penetrations				____	____
☐ Electrical penetrations				____	____
☐ Dropped ceilings				____	____
☐ Bulkhead soffits				____	____
☐ Recessed fixtures				____	____
☐ Access				____	____
☐ Ducts				____	____
☐ AC or htg system air handler				____	____
☐ Other					

If there are kneewalls, are they blocked by joist bays? Air barrier on the backs? ☐ Yes ☐ No
Blocking : ☐ Yes ☐ No

Insulation: If installing blown-in, be sure to install markers identifying final level .
Existing eave chutes: □ Y □ N Qty if needed

Area	Sq.Ft.	Existing Effective R Value	Add R	New Insulation Type	Comments		
Open Attic 1						____	____
Open Attic 2						____	____
Open Attic 3						____	____
Floored Attic						____	____
Cathedral						____	____
Finished Attic						____	____
Kneewall						____	____
Kneewall						____	____
Other Comments:							

Basement/Crawlspaces/Mobile Home Belly

Basement Air Sealing/Crawl Airsealing:

☐ Perimeter (doors, windows, rim joist, walls) ____ ____

☐ Ceiling ____ ____

☐ Ducts ____ ____

☐ Other: _____ ____ ____

Decide if the basement and/or crawlspace is inside or outside the thermal and pressure boundaries. Then decide if air sealing and insulation should be at the basement and/or crawlspace perimeter or at the ceiling.

Insulation:

Area	Sq.Ft.	Existing Effective R Value	Add R	New Insulation Type	Comments (such as joists running lengthwise or widthwise—16" or 24" joist bay size)
Base/Floor/Crawl space					
Perimeter					
Other					
Belly					
Install ground cover? ☐ Yes ☐ No					
Comments:					

____ ____

House Air Sealing

	QTY - Ul/Lin. Ft./ #	Location(s)	Description	Materials	Labor Hrs		
Doors: ☐ Replace						____	____
☐ Weatherstrip						____	____
☐ Sweep(s)						____	____
☐ Threshold(s)						____	____
☐ Sealing						____	____
Windows: ☐ Replace						____	____
☐ Add Storms						____	____
☐ Rpl broken glass						____	____
☐ Reglaze						____	____
☐ Weatherstrip						____	____
☐ Sash lock (s)						____	____
☐ Sealing						____	____
Other: ☐ Dryer/Other Vents						____	____
☐ Fireplace						____	____
☐ Plumbing						____	____
☐ Electrical						____	____
☐ Walls						____	____
☐ Stairs						____	____
Other/Comments:							

Cantilever Overhangs

Are there cantilever overhangs? ☐ Yes ☐ No

Are they blocked with an impermeable air barrier? ☐ Yes ☐ No If No, will they be blocked /insulated ☐ Yes ☐ No

Insulation:

Area	Sq.Ft.	Existing Effective R Value	Add R	New Insulation Type	Comments
Cantilever					

Sidewalls

Siding Type: ☐ Wood ☐ Asphalt ☐ Stucco ☐ Aluminum ☐ Vinyl ☐ Brick ☐ Asbestos ☐ Other

Interior wall material: _____ Can the sidewalls be insulated? ☐ Yes ☐ No

If yes, list the facing direction of the sidewalls you want to insulate:

☐ Front _____ sq. ft ☐ Rear _____ sq. ft ☐ Left _____ sq. ft ☐ Right _____ sq. ft

Be sure to document sidewall issues such as weak walls, open wall cavities, recessed features such as wall heaters, electrical issues:

_____

_____

Other Zones such as Garages

Insulation:

Area	Sq.Ft.	Existing Effective R Value	Add R	New Insulation Type	Comments
Garage Ceiling					

Other Zones Outside Thermal and Pressure Boundaries, *i.e.*, porches, bay windows: _____

_____

_____

Ducts

Duct leaks or disconnects observed? ☐ Yes ☐ No Ducts outside the thermal boundary? ☐ Yes ☐ No

Location_____ Seal? ☐ Yes ☐ No Supply/Return Location _____ # Feet

Existing Duct Materials: ☐ Metal ☐ Ductboard ☐ Flex

System Type: ☐ Heat Pump ☐ Central Air/Gas ☐ Gas Furnace alone ☐ Other _____

Always test ducts for gas furnaces. *Always seal duct disconnects, any supply or return leaks within 10 feet of the air handler, large leaks that cause comfort problems, return leaks in polluted areas. When pressure pan testing, note house pressure here: Test Pressure used ☐ -25 Pa ☐ -50 Pa*

Register	**# 1**		**# 2**		**# 3**		**# 4**		**# 5**		**# 6**		**# 7**		**# 8**	
Room																
Reading	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*
Supply																
Return																

Note: *Number registers by floor going away from Air Handler Unit (AHU). Register #1 will always be the one closest to AHU.* Comments:

Customer Name: _____

Copy this page for as many tests are needed. Typically, there should be at least two of this form, one for pre-work testing and one for post-work testing.

Check which test this one is: ☐ PRE-WORK ☐ LAST TESTING SESSION ☐ OTHER

Tech Name:_____

Test Date: _____

Combustion Safety Testing

Combustion Equipment Safety Tests must be performed if any air sealing or insulation is done or proposed and/or if there is any modification to the combustion appliances.

Are there any **unvented** combustion heating appliances? ☐ Yes ☐ No

	CO Initial Reading		CO After 5-10 min		Gas Leak Det. Y/N	Flame Roll-Out Y/N	Spillage Y/N		Spillage after 1 min. Y/N		Draft Pressure Pa		Draft Pass Y/N		CO Flue		CO Pass Y/N		optional		
																			Stack Temp	O_2	Eff.
Appliance	AMB	CAZ	AMB	CAZ			W/C	NAT	W/C	NAT	W/C	NAT	W/C	NAT	W/C	NAT	W/C	NAT			
Water Heater																					
Furnace/Boiler																					
Other																					
Other																					
Burners Write in CO ppm for each burner:	○		○		NOTES:																
	○		○																		
Oven If CO at oven vent is 100 to 300 ppm, install CO alarm and recommend service. If CO at oven vent is greater than 300 ppm, service oven prior to air sealing.																					
Oven CO ambient:____ CO at oven vent:_____																					

AMB = Ambient, CAZ = Combustion Appliance Zone, Det = Detected, W/C = Worst Case Conditions, NAT = Natural, Temp = Temperature, Eff = Efficiency

Pa = Pascal, IWC = Inches of Water Column

50 Pa. = .2 IWC 25 Pa. = .1 IWC 1 Pa. = .00401 IWC

Outdoor Temperature _____Indoor Temperature _____

CAZ Worst Case Depressurization: Natural: _____WC: _____ Net: _____

Pass? ☐ Yes ☐ No

Circle Appliances On At Worst Case Test:

Dryer Bath
Fan Kitchen
Fan
HVAC Air Handler

Other

Use BPI BA Standards for Action Levels and Actions for passing or failing tests.

- ☐ No. of existing CO alarms < 5 yrs old _____ Locations:: _____
- ☐ Install CO alarms in these locations: _____
- ☐ Emergency situation. Gas company called to fix gas leak or other.
- ☐ Work cannot continue due to one or more failed tests over Action Level.

NOTES:

Customer Name:_____

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																			Stack Temp	O_2	Eff.
Appliance	AMB	CAZ	AMB	CAZ			W/C	NAT	W/C	NAT	W/C	NAT	W/C	NAT	W/C	NAT	W/C	NAT			
Water Heater																					
Furnace/Boiler																					
Other																					
Other																					
Burners Write in CO ppm for each burner: **Oven** If CO at oven vent is 100 to 300 ppm, install CO alarm and recommend service. If CO at oven vent is greater than 300 ppm, service oven prior to air sealing. **Oven** CO ambient:____ CO at oven vent:_____	○	○	○	○	NOTES:																

AMB = Ambient, CAZ = Combustion Appliance Zone, Det = Detected, W/C = Worst Case Conditions, NAT = Natural, Temp = Temperature, Eff = Efficiency

Pa = Pascal, IWC = Inches of Water Column

50 Pa. = .2 IWC 25 Pa. = .1 IWC 1 Pa. = .00401 IWC

Outdoor Temperature _____

CAZ Worst Case Depressurization: Natural: _____WC: _____ Net: _____

Pass? ☐ Yes ☐ No

Circle Appliances On At Worst Case Test:

Dryer Bath
Fan Kitchen
Fan
HVAC Air Handler
Other

Use BPI BA Standards for Action Levels and Actions for passing or failing tests.

- ☐ Install CO alarms in these locations: _____
- ☐ Emergency situation. Gas company called to fix gas leak or other.
- ☐ Work cannot continue due to one or more failed tests over Action Level.

NOTES:

Air Leakage Diagnostics Testing Results

Customer Name:_____ Date:_____

Using ASHRAE 62-89: (see example below) **Target BAS: _____CFM50**	**Circle All That Apply** **Pre-treatment test result: _____CFM 50** **bsmt door** **open / closed** **attic door** **open / closed**
Blower door location pre-treatment: _____ **Blower door location post-treatment: _____**	**other door** **open / closed**
Notes, such as barriers to doing the test:	**Post-treatment test result: _____CFM 50** **bsmt door** **open / closed** **attic door** **open / closed**

Example of calculating Building Airflow Standards (BAS) according to ASHRAE 62-89 Given the following information: Living space = 1200 square feet Basement = 600 square feet Ceiling height is 8 feet 3 occupants 2 stories above grade Located in PA What is the Building Airflow Standard (BAS)? At what point must mechanical ventilation be included in the work scope for the installer? Do the math here*: Answer to the right.	Answer: *Try it first. But if you need help, read this Air needed for the building 1200 + 600 = 1800 square feet 1800 x 8 = 14,400 cubic feet .35 air changes per hour x 14,400 = 5040 5040 ÷ 60 minutes = 84 CFM Air needed for the occupants 15 CFM x 3 occupants = 45 CFM Choose the higher of the two numbers; in this case, 84 CFM **84 x 15.4 (N factor for a 2 story building in PA) = 1294 CFM 50. This is the BAS.** **If the building is air sealed lower than 1294 CFM 50, mechanical ventilation must be recommended or installed.** **1294 x 70% = 905.8. If the building is air sealed tighter than 906 CFM 50, mechanical ventilation must be installed.** **If the building is air sealed between 906 CFM 50 and 1294 CFM 50, mechanical ventilation must be recommended**

.

Do your calculation of BAS here:

Additional/General Comments:

	Thermal Boundary: In or Out? ✓		**ZONE TEST RESULTS**					
			What was blower door set at? House/Outside		**House/Zone**		**Zone/Outside**	
Zones	**In**	**Out**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
Ex: Attic	✓		-50	-50	-50	-50	0	0
Basement								
Vented Crawl								
Attic A								
Attic B								
Knee wall A								
Knee wall B								
Garage								
Garage Attic								
Cantilever								

- The numbers above simply tell you whether or not the zone is connected to the house. Another calculation must be done to quantify

the connection to determine if it is worth sealing. Use any of the three Methods to quantify: Open a Door, Add a Hole, or Estimate Ventilation, and the Relative Size of Leaks Chart.

Finished 3rd Floor/Attic

2nd Floor

Basement/Crawl

1st Floor