


BPI/RESNET
Home Performance Analyst Standard

ACI Solutions For Success
 Saratoga, NY, February 7, 2008
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Scope (edited)

1.1 “This *Standard* provides the requirements and sets forth the test methods for conducting a home performance analysis.

1.2 “This *Standard* includes requirements for analyzing the home, specific testing of the home and work-scope development. The standard is applicable for low rise residential buildings and is applicable to both new and existing homes.”

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What’s the scope of the HPA?

Focus on what the **certified individual does** in the house and what the *product* is

- The work that gets done is outside the scope of the Analyst
- Of course the work is of *concern* to the analyst

Includes items that are verifiable and within the scope of the analyst


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Example (imaginary):

“Flex duct is not allowed” (from early BA draft?)
 Should be:
 ~ “When the work scope includes repair or replacement of duct systems, it may specify the use of flex duct under _____ conditions”

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Scope of work

By definition is not a contract for work

- Must be comprehensive
 - Certainly includes conditional inclusions
- may include HP contractor or 2nd or 3rd party work
- May be adopted by homeowner, in whole or in part in a contract
- Sponsors/funding partners may require/incentivize any or all
 - Or introduce additional prescriptive or conditional requirements

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Example:

Draft: “When any work scope is presented to the building owner or occupant, combustion appliance testing shall be conducted both before and after work is completed.”

Should read:~ “When any work scope is presented to the building owner or occupant, combustion appliance testing after work is completed (as required) shall be included in the work scope.”

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Summary of 10/2007 Draft

Important: Analyst standard is not installation standard

- Analyst may be a consultant or contractor
- Independent of Installer/installation requirements

HERS Rating is optional

- Must follow RESNET guidelines if completed

Simplify/clarify combustion testing requirements



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Summary (continued)

Analysis calibrated to consumption history

- When available
- Adjustments/limitations

Pre- and post-work testing as required

- Confirmation tests for new construction

Work scope development

Disclosure (includes limitations of test conditions)



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Required tests

Blower door (per RESNET Standards)

- As required for software to take credit
- Required when air sealing, insulating >15%, or duct sealing

Duct leakage (per RESNET Standards or E1554)

- As required for software to take credit
- When tightening system or specifying limit

Combustion appliance tests

- All new and existing



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Combustion appliance tests

Gas Leak, CO (per appliance type), Oven, Vent system inspection

CAZ and Spillage test

- Optional when work scope includes replacement with (or new home contains) sealed/direct vent
- With sealed/direct, needed only if large exhaust appliances >CFM50 of home

CAZ and Spillage test

Exception for **CONFIRMED** isolated zone

- Meets combustion air requirements using only outdoor air
- Isolation of CAZ from HVAC pressures (<2 Pa with AH running)
- Isolation from house confirmed with blower door (<5 Pa when house is at 50Pa)
 - Visual confirmation including duct sealing
- Spillage test under non-depressurization conditions




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Combustion Zone Depressurization Limits

Appliance type	Depress. limit, Pa
Direct-vent or power-vent	50
Pellet stoves with exhaust fans and sealed vents	15
Atmospherically vented oil and gas system (except water heater); oil power burner; fan-assisted (induced-draft) gas; solid fuel-burning, closed controlled combustion or decorative	5
Atmospherically vented water heater	2



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Appliance CO limits, maximum



Appliance Type	As measured	Air free
Furnace, boiler, water heater, vented space heater	100 ppm *	400 ppm
Oven	200 ppm	800 ppm

*or original equipment manufacturer's recommended level if specified



"Ambient" CO limits

NIOSH Personal Exposure Limit (time weighted average)	8 hr	35 ppm
NIOSH Personal Exposure Limit (ceiling)	15 min.	200 ppm

Work scope development:

"The work scope shall include a comprehensive home performance package, including (where applicable) measures that bring ductwork inside the thermal boundary, upgrades to the building enclosure, and installation of new high efficiency, direct-vent or power vented equipment that is properly sized"



Work scope development

Prioritized by analysis &/or programmatic

- Comprehensive/complete

Includes mitigation of pre-existing problems:

- Moisture, combustion (CO, gas, spillage CAZ, vent system)
 - Prioritizes replacement of equipment
 - CAZ mitigation exceptions: Spill switch or alarm installation for water heaters

Work scope development

Shell upgrades, generally: IECC minimum

Mechanical equipment

- Air flow, duct repair (option for envelope adjustment)

Mechanical ventilation complying with 62.2 (4.1)



- Exemptions per 4.1.3 (very leaky homes)
- No exhaust only systems when CAZ limits exceeded or are predicted post-work

Unvented combustion appliances

- No shell, duct sealing (allow exterior ducts in CZ 1-3)


CO detector

Electrical (recessed lights, knob & tube)

Work scope development

"When the total cost of repairs to equipment (including necessary combustion appliance testing) exceeds the cost to replace or upgrade to a higher performance option, the work scope shall include replacement of equipment"





BPI comments include

Additional general requirements:

- Homeowner interview / Utility bill/review
- Light/appliance inspections
- Inspections of envelope components in detail
- General inspections of mechanical equipment including some combustion safety concerns
- Inspections for moisture damage/evidence
- Customer review requirements

Requirement for HERS rating

Many useful details / clarifications



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RESNET comments include

Details in definitions

Questions on non-HERS analysis methods and required adjustments/calibration to usage

Other details on required language



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