



## BPI/RESNET Comprehensive Home Energy Audit

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### Scope (edited)

- 1.1 “This Standard provides the requirements and sets forth the test methods for conducting a comprehensive home energy audit.
- 1.2 “This Standard includes requirements for analyzing the home, testing the home, rating the home, and developing a scope of work for the home.
- 1.3 “The standard is applicable for low rise residential buildings and is applicable to both new and existing homes.”



### What’s the scope of the CHEA?

- Focus on what the **certified individual does** in the house and what the **product is**
  - Testing – measurement – analysis
  - Writing work scope
  - The work that gets done is outside the scope of the auditor
  - Work scope *does* include post-testing



### Summary of Public Comment Draft

- Audit standard is not installation standard
  - Auditor may be a consultant or contractor
- Home Energy Rating following RESNET guidelines for Comprehensive Audit
  - Not entirely consistent within document
- Simplify/clarify combustion testing requirements



### Summary (continued)


- Analysis limited by 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)



### General requirements:



- Homeowner interview / Utility bill/review
- Lighting / appliance inspections
- Inspections of envelope components
- General inspections of mechanical equipment
- Inspections for moisture damage/evidence
- Customer review requirements






**Required tests**

- Blower door (per RESNET Standards)
- Duct leakage (per RESNET Standards)
  - Exception when ducts are  $\geq 75\%$  inside envelope
  - Pressure pan test all  $< 3$  Pa, average  $< 1$  Pa
- Combustion appliance tests
  - All new and existing
  - Minimal testing required if sealed/power vent specified in work scope



**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, or with sealed/direct




**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
  - Baseload reductions (such as efficient lighting and appliances)


**Work scope development (cont):**

- Water-saving measures
- Cooling load reductions such as shading devices
- Passive or active solar heating or water heating systems
- Measures that meet or exceed applicable state or local codes





**Work scope development (cont):**

- Compliance where possible with 2006 IECC for thermal and mechanical systems, or maximum possible upgrade
- Replacement of equipment with high-efficiency, direct-vent or power vented replacement(s)


**Work scope development**

- Prioritized by analysis &/or programmatic
- Includes mitigation of pre-existing problems:
  - Moisture, combustion appliance
- Requirements for crawl drainage, leaks, electrical components (but outside SOW)



## Work scope development

- Mechanical equipment
  - Air flow, duct repair (option for envelope change)
- Mechanical ventilation complying with 62.2 (4.1)
  - Exemptions per 4.1.3 (very leaky homes)
- Unvented combustion appliances
  - No shell, duct sealing (allow exterior ducts in CZ 1-3)
- CO alarm(s) installed





## Standards Review Committee:

BPI                      RESNET



**Co-Chairs:**

<b>Laverne Dagleish</b>	<b>Philip Fairey</b>
Dave Abrey	Bruce Harley
Jim Fitzgerald	Michael Holtz
John Krigger	Mark Jansen



## Comments Received:

- 8: Simplify overall--too onerous/unworkable
- 12: Editorial/organization of content / clarify / plain English
- 12: Simplify data collection, reduce detail, allow more flexibility in reporting "as needed"
- 2: Simplify/reduce customer interview requirement



## Comments Received

- 2: Misunderstanding / clarification
- 3: Accreditation/certification
- 3: Questioning scope (larger MF, central equipment)


## Comments: Analysis / Software


- 16: Allow flexibility on software / HERS requirements / savings reporting
- 2: Include utility analysis / weather normalization

## Comments: Combustion Appliance



- 8: Simplify / clarify Combustion Appliance testing
- 1: add more stringency







**Comments: HVAC assessment**

- 2: Simplify HVAC assessment
- 8: Include comprehensive HVAC assessment / referenced standard





**Comments: Blower Door**

- 2: Detail
- 3: allow optional at audit (conditions)
- 1: delete lead/asbestos risk exception
- 1: add vermiculite risk exception





**Comments: Duct testing**

- 1: simplify
- 1: pressure pan only
- 3: eliminate DB test / PP only
- 3: eliminate PP screening
- 2: allow optional at audit



**Comments: Scope of Work**

- 1: simplify
- 2: make optional at audit
- 4: eliminate DB test / PP only
- 3: eliminate PP screening



**Other:**

Reporting requirements on financial analysis; rater knowledge of cost of measures

Standards process comment

Informational (apparent statement of lack of relevance)

Avoid duplications that are “covered” by code

Remove analysis requirements for “deep retrofits”

Include radon testing as recommendation

