

AEE Energy Auditor Field Guide

The Association of Energy Engineers (AEE) Energy Auditor Field Guide is used during a practical certification exam simulating key tasks an energy auditor performs in real life. The virtual exam gives candidates the opportunity to demonstrate their skills remotely in a realistic test home. To earn the Home Energy Professionals Single-Family Energy Auditor certification, candidates must meet prerequisite requirements and pass a 100-question multiple-choice written exam in addition to passing the simulation field exam.

Gated Items

Gated items are tasks that must be completed successfully to pass the exam.

1. Candidate prepared combustible gas and carbon monoxide measurement instruments per manufacturer's instructions.
2. Candidate tested indoor ambient carbon monoxide levels and took appropriate action according to the current standard of reference.
3. Candidate tested indoor air levels for carbon monoxide throughout combustion safety and efficiency testing and took appropriate action according to current standard of reference.
4. Candidate ensured that combustion appliances cannot fire during blower door testing.

Exterior

- Candidate prepared combustible gas and carbon monoxide measurement instruments per manufacturer's instructions.
- Candidate identified roof penetrations and condition of flashing.
- Candidate determined orientation of the building.
- Candidate identified exterior heating and cooling equipment and documented name plate information.
- Candidate identified all exhaust and combustion appliance vent terminations.
- Candidate identified the anticipated location of the thermal and pressure boundary from the exterior.
- Candidate determined one exterior cladding material.
- Candidate identified existing health and safety issues.

Windows

- Candidate identified one window type, glazing and interior shading features.
- Candidate identified the exterior shading and orientation of one window.
- Candidate identified condition of one window.

- Candidate identified the number of windows on each level of the house, including the subspace.

Interior

- Candidate tested indoor ambient carbon monoxide levels and took appropriate action according to the current standard of reference.
- Candidate inspected the ambient lower explosive limit (LEL%) on each level of the dwelling.
- Candidate identified existing exhaust ventilation.
- Candidate identified existing health and safety issues.
- Candidate determined the location of the thermal and pressure boundary of the interior.

Walls

- Candidate evaluated and determined wall data including stud depth, existing insulation, and framing type.
- Candidate inspected wall cavity depth and determined R value.

Baseloads and Other

- Candidate documented name plate data for the refrigerator.
- Candidate determined flow in gallons per minute of one water fixture.
- Candidate identified lighting type and wattage of one fixture.

Attic

- Candidate determined attic type.
- Candidate correctly measured joist spacing.
- Candidate determined existing attic ventilation location and type.
- Candidate identified and evaluated existing moisture issues in the attic.
- Candidate identified the location of the attic thermal and pressure boundary.
- Candidate determined attic insulation depth, type, and R value.
- Candidate identified existing health and safety issues in the attic.

Foundation

- Candidate identified foundation type.
- Candidate determined the foundation insulation type.
- Candidate identified whether the subspace is vented or unvented.
- Candidate identified penetrations in the foundation.
- Candidate identified existing health and safety issues within the foundation.
- Candidate identified existing moisture issues in the foundation.

Combustion Safety Testing

- Candidate tested indoor air levels for carbon monoxide throughout combustion safety and efficiency testing and took appropriate action according to current standard of reference.
- Candidate inspected fuel supply lines for leaks on one combustion appliance (from the meter to the appliance).
- Candidate prepared home and manometer and tubing correctly for CAZ depressurization testing.
- Candidate recorded baseline pressure differential of CAZ with reference to the outdoors.
- Candidate turned on all exhaust appliances and recorded pressure reading.
- Candidate turned on the air handler, determined its impact on CAZ depressurization, and recorded the reading.
- Candidate determined the impact of the CAZ door and interior doors on depressurization and recorded the readings.
- Candidate determined the worst-case CAZ depressurization scenario (e.g., greatest depressurization achievable).
- Candidate fired the water heater while the CAZ was at the greatest depressurization and measured spillage based on the current version of ANSI/BPI-1200.
- Candidate indicates if appliance passes spillage test.
- Candidate conducted carbon monoxide (CO) measurements for all combustion appliances after five minutes of operation.
- Candidate successfully measured steady state efficiency of the furnace.
- Candidate determined temperature rise of the furnace.
- Candidate identified safety concerns related to the venting of all combustion appliances.

Blower Door Testing

- Candidate ensured that combustion appliances cannot fire during the blower door testing.
- Candidate ensures that home is appropriately set up for blower door testing.
- Candidate prepared blower door equipment for testing.
- Candidate prepared manometer for depressurization blower door testing.
- Candidate prepared fan for building depressurization.
- Candidate set baseline on manometer based on existing conditions.
- Candidate measured blower door test CFM50 results.
- Candidate conducted zone pressure differential test on one zone.
- Candidate conducted pressure pan test on duct work located outside the thermal and pressure boundary.

Dwelling Ventilation

- Candidate measured the CFM flow of one bathroom exhaust fan and determined window operability.
- Candidate identified the number of occupants and bedrooms.
- Candidate identified one exhaust ventilation type.
- Candidate calculated the volume of the conditioned space.