

BUILDING ANALYST TECHNICIAN FIELD GUIDE

Effective Date - March 1, 2025

Oral Questions

1.	What are three important things needed for combustion to occur?
2.	According to ANSI/BPI-1200, what are two points of data to be collected during combustion safety inspection and testing?
3.	Name one way carbon monoxide is generated.
4.	According to ANSI/BPI-1200 what is the minimum required slope of a vent connector?
5.	What two important factors are needed to determine if there is adequate combustion air?
6.	Name two conditions that can affect baseline CAZ (combustion appliance zone) pressure differential measurement.
7.	Name two causes of depressurization in the CAZ.
8.	Name two acceptable tools/equipment for visually assessing spillage as specified in ANSI/BPI-1200.
9.	If a mechanical fan is removing 100 cfm of air, how much air will be replaced in two minutes?
10.	Name the organizations whose standards are referenced in ANSI/BPI-1200 regarding indoor air quality/ventilation and combustion appliance venting.
11.	Candidate will be asked to match forced air system terms to numbered components on image.
12.	Candidate will be asked to match residential construction structural components terms to numbered images.
13.	Candidate will be asked to identify the amperage of the main electric panel from an image.
14.	Candidate will be asked to identify four data points to collect from images of heating or cooling appliance data plate.
15.	Candidate will be asked to match light bulb terms to numbered images.

Exterior Evaluation

1.	(GATED ITEM) Candidate prepared combustible gas and CO measurement instruments for use according to ANSI/BPI-1200.
2.	Candidate measured the perimeter of the test house in linear feet (lf) within 10% accuracy, or measured wall section/s specified by the proctor.
3.	Candidate identified or discussed two basic exterior moisture control strategies/components.
4.	Candidate identified the exterior wall construction of the test house and discussed one other type of exterior wall construction.

Interior Safety Evaluation

1.	(GATED ITEM) Candidate sampled indoor ambient CO levels. Candidate compared results to ANSI/BPI-1200 and stated appropriate action level.
2.	(GATED ITEM) Candidate sampled indoor ambient air for combustible gas levels on one floor of the house. Candidate compared results to ANSI/BPI-1200 and stated appropriate action level.
3.	Candidate located one smoke detector and one CO detector (or one unit if combined).
4.	Candidate named one potential electrical hazard that may have an impact on a work scope.
5.	Candidate discussed three characteristics of radon.
6.	Candidate discussed the primary health risk of radon.
7.	Candidate discussed two potential sources or entry points in the home for radon.
8.	Candidate discussed how to detect radon in the home.

BUILDING ANALYST TECHNICIAN FIELD GUIDE

Effective Date - March 1, 2025

Interior Safety Evaluation (continued)

9.	Candidate discussed two conditions needed for mold growth.
10.	Candidate discussed two common areas of the home where mold might be found.
11.	Candidate discussed one potential health risk of mold.
12.	Candidate discussed two common building materials that might contain asbestos.
13.	Candidate discussed one potential health risk of asbestos.
14.	Candidate discussed how asbestos becomes hazardous.
15.	Candidate discussed two sources of lead in homes.
16.	Candidate discussed one potential health risk of lead exposure.
17.	Candidate identified appropriate personnel for lead testing procedures.

Combustible Fuel Leak Testing

1.	Candidate named two fossil fuels.
2.	Candidate identified or discussed two components of the fuel delivery system for each type of fuel named.
3.	Candidate named two safety concerns about flexible gas lines and flexible connectors.
4.	Candidate conducted combustion gas leak testing for 1-2 minutes and at three fittings.
5.	Candidate stated how to confirm a leak according to ANSI/BPI-1200.
6.	Candidate stated what actions to take when a leak is confirmed according to ANSI/BPI-1200.
7.	Candidate stated the appropriate actions according to ANSI/BPI-1200 when fuel line deficiencies are identified.
8.	Candidate performed visual inspection of oil supply system and identified leaks in accordance with ANSI/BPI-1200. In the absence of a fuel oil system, candidate discussed the steps of the visual inspection and mentioned two potential deficiencies.
9.	Candidate discussed appropriate action levels for identified oil supply system deficiencies in accordance with ANSI/BPI-1200.

Doors and Windows

1.	Candidate identified material and operation type for one exterior door.
2.	Candidate identified operation type, framing material, and number of panes for one window.
3.	Candidate identified and discussed the orientation of one window and its exterior shading.
4.	Candidate determined and discussed fit, operation, and general condition of one window and one exterior door.
5.	Candidate accurately measured one window or door.

BUILDING ANALYST TECHNICIAN FIELD GUIDE

Effective Date - March 1, 2025

Building Components and Construction Details

1.	Candidate identified or discussed two locations of existing thermal boundary.
2.	Candidate identified or discussed two common thermal boundary deficiencies in basements, crawlspaces, or slabs.
3.	Candidate discussed the function/purpose of a vapor control layer.
4.	Candidate discussed the appropriate location of a vapor control layer on a wall.
5.	Candidate discussed two types of vapor control materials.
6.	Candidate identified or discussed three infiltration/exfiltration points and the location for each.
7.	Candidate discussed two common infiltration points from attached garages.
8.	Candidate identified existing attic ventilation type.
9.	Candidate discussed two factors that could negatively affect attic ventilation performance.
10.	Candidate determined insulation thickness, type, rated R-value, condition, and identified framing member dimensions in an attic open cavity.
11.	Candidate described how to safely determine insulation thickness and type; and identified framing member dimensions in a closed cavity exterior wall.
12.	Candidate described how to safely measure depth in a closed cavity exterior wall.

Building Airflow and Ventilation

1.	Candidate identified or discussed two types of mechanical ventilation.
2.	Candidate discussed one way mechanical ventilation might affect building exfiltration/infiltration.
3.	Candidate identified one existing ventilation type.
4.	Candidate determined the type of one existing fan control.
5.	Candidate assessed the condition of the ventilation ductwork. If ductwork is not accessible, candidate discussed possible ductwork issues.
6.	Candidate discussed two factors that could negatively affect ventilation system performance.
7.	Candidate measured the flow rate of a local exhaust ventilation fan.

Heating, Cooling and DHW Equipment

1.	Candidate identified basic heating/cooling system type.
2.	Candidate identified three basic heating/cooling system components.
3.	Candidate identified the controls (thermostat/climate control) and how the setpoint controls the system's cycling.
4.	Candidate identified or described two acceptable methods for temporarily disabling mechanical equipment.
5.	Candidate completed a visual inspection of combustion appliance flue system/s to identify and discuss concerns or problems. If no deficiencies exist, the candidate discussed one common concern or problem.
6.	Candidate identified domestic hot water (DHW) appliance type, heating capacity, venting type, and fuel source.
7.	Candidate identified two basic components of the DHW equipment and controls.
8.	Candidate described how the DHW system maintains its temperature settings.
9.	Candidate described the procedure for measuring domestic hot water temperature, and described the condition, and location of pressure relief valve and piping.

BUILDING ANALYST TECHNICIAN FIELD GUIDE

Effective Date - March 1, 2025

Heating, Cooling and DHW Equipment (continued)

10.	Candidate identified or discussed opportunities for water heater insulation based on name plate data or manufacturer
11.	Candidate identified or discussed opportunities for domestic hot water pipe insulation.

Combustion Safety Testing

1.	Candidate discussed one common condition that can adversely affect baseline pressure differential measurement.
2.	Candidate discussed one common corrective action that could stabilize a baseline pressure measurement under adverse conditions.
3.	Candidate identified the specific location and boundaries of the primary CAZ and any secondary combustion appliance zone/s.
4.	Candidate properly set up home for CAZ testing.
5.	Candidate measured baseline pressure differential.
6.	Candidate turned on exhaust appliances and recorded CAZ pressure differential measurement.
7.	Candidate determined if central forced air handler is able to run independently of the HVAC system. If the air handler can run independently, candidate checked air handler impact on CAZ depressurization (appliance not firing). Candidate recorded measurement and determined whether to leave air handler on or off. If the air handler cannot run independently, candidate discussed potential impact of air handler operation within the CAZ.
8.	Candidate checked impact of opening/closing interior door to CAZ.
9.	Candidate recorded CAZ pressure differential measurement and determined whether to leave CAZ door open or closed.
10.	Candidate identified conditions causing greatest CAZ depressurization.
11.	Candidate identified the smallest BTU appliance and whether it is a warm vent or cold vent.
12.	Candidate checked for spillage in one atmospherically vented combustion appliance under greatest CAZ depressurization. Candidate stated appropriate time limit for spillage test based on ANSI/BPI-1200.
13.	Candidate determined if the combustion appliance passes the spillage test.
14.	Candidate identified appropriate action levels for spillage based on ANSI/BPI-1200.
15.	Candidate discussed the proper protocol for testing multiple combustion appliances sharing a chimney and/or venting system in accordance with ANSI/BPI-1200.

CO Testing

1.	Candidate discussed three potential CO sources in a home.
2.	Candidate measured CO in the flue gases of one combustion appliance.
3.	Candidate identified appropriate flue gas CO action levels of one combustion appliance based on ANSI/BPI-1200.
4.	(GATED ITEM) Candidate monitored ambient CO levels in the CAZ during all combustion safety testing and stated results.
5.	Candidate discussed the procedure for measuring flue gas CO in direct-vented and power-vented appliances.

BUILDING ANALYST TECHNICIAN FIELD GUIDE

Effective Date - March 1, 2025

CO Testing (continued)

6.	Candidate checked inside the oven for items. Candidate identified or discussed concerns with excessive debris inside the oven.
7.	Candidate measured and recorded a CO reading for the oven.
8.	Candidate identified the action level recommendations for the CO test results in the oven in accordance with ANSI/BPI-1200.

Blower Door Testing

1.	Candidate identified or discussed two potential hazards or circumstances that would prevent completing a blower door test.
2.	Candidate identified the conditioned space of the home.
3.	Candidate measured and calculated the floor area and the volume of a room.
4.	Candidate described the difference between blower door pressurization and depressurization testing.
5.	Candidate explained the difference in the blower door equipment set-up when performing pressurization and depressurization
6.	(GATED ITEM) Candidate set combustion appliances to pilot or standby to ensure they do not fire during the blower door test.
7.	Candidate verified solid fuel combustion appliances are in the appropriate condition to allow for blower door testing. If solid fuel combustion appliances are not present, candidate discussed appropriate conditions for blower door testing.
8.	Candidate set up house for blower door testing in accordance with one of the approved methods listed in ANSI/BPI-1200.
9.	Candidate set up the blower door frame, shroud, fan, and manometer.
10.	Candidate established baseline pressure differential and conducted test to obtain an accurate CFM50 reading.
11.	Candidate checked for infiltration points in two rooms with blower door running.
12.	Candidate performed pressure pan testing in one location (other than ductwork) and took accurate reading/s.
13.	Candidate conducted blower door assisted pressure pan testing for duct leakage in one supply or return duct. If ductwork is inaccessible, the candidate described how blower door assisted pressure pan testing for duct leakage in one supply or return duct would be conducted.
14.	Candidate measured the zonal pressure differential between a conditioned and unconditioned space and stated what the measurement means.

HVAC Distribution System

1.	Candidate identified the HVAC distribution system type and described its condition.
2.	Candidate identified the HVAC distribution system insulation type, rated R-value, and condition.
3.	Candidate identified one supply and one return duct.
4.	Candidate determined location and condition of the HVAC filter.
5.	Candidate measured size of one supply register and one return grille.

BUILDING ANALYST TECHNICIAN FIELD GUIDE

Effective Date - March 1, 2025

HVAC Distribution System (continued)

6.	Candidate performed room to room pressure differential diagnostics between two spaces within the home with the air handler in operation. If the air handler cannot be operated, candidate described how the pressure differential diagnostics would be conducted.
7.	Candidate discussed two conditions that can impact supply register performance.
8.	Candidate discussed two conditions that can impact return grille performance.
9.	Candidate discussed two conditions that can affect hydronic baseboards.
10.	Candidate described three potential negative impacts that can occur when the distribution system is outside of the thermal envelope.
11.	Candidate discussed one purpose of duct pressurization testing.

Appliances and Lighting

1.	Candidate located a manufacturer's data plate on one major electric appliance (e.g., refrigerator, freezer, dishwasher, dehumidifier, microwave, washer, dryer) and stated the appropriate data to be collected according to ANSI/BPI-1200.
2.	Candidate discussed two topics they would ask a homeowner about the operation of their lighting and appliances.
3.	Candidate described where to find wattage rating on a light bulb.
4.	Candidate described how to determine total wattage of lighting in a single room.

Baseload, Renewables and Water Conservation

1.	Candidate described the difference between baseload and seasonal energy use.
2.	Candidate provided two factors used in determining baseload and two factors in determining seasonal energy usage.
3.	Candidate discussed one method or source by which to determine the electrical consumption of appliances.
4.	Candidate described one method of determining the flow rate of faucets and showerheads.
5.	Candidate identified a renewable system and related equipment, if present. In the absence of renewable systems, candidate described two types of renewable system components.