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 pressure differential measurement.
7.	Name **two** causes of depressurization in the CAZ (combustion appliance zone).
8.	Name **two** acceptable tools/equipment for visually accessing spillage as specified in ANSI/BPI-1200.
9.	Candidate will be asked to match forced air system terms to numbered components on image.
10.	If a mechanical fan is removing 100 cfm of air, how much air will be replaced per minute?
11.	Candidate will be asked to match residential construction structural components terms to numbered images.
12	Candidate will be asked to identify the amperage of the main electric panel from an image.
13.	Candidate will be asked to identify data points to collect from images of heating or cooling appliance data plate.
14.	Candidate will be asked to match light bulb terms to numbered images.
15.	Name the organizations whose standards are referenced in ANSI/BPI-1200 regarding indoor air quality/ventilation and combustion appliance venting.

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 the **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.
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 Gas Leak Testing

1.	Candidate named **two** fossil fuels.
2.	Candidate identified or discussed **two** components of the fuel delivery systems 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 identify leaks in accordance with ANSI/BPI-1200. In the absence of a fuel oil system, candidate discussed the steps of the visual inspection and mention two potential deficiencies.
9.	Candidate discussed appropriate action levels in accordance with ANSI/BPI-1200.

Doors and Windows

1.	Candidate identified **one** exterior door material and operation type.
2.	Candidate identified **one** window operation type, framing material, and number of panes.
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 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, and slabs.
3.	Candidate discussed the function/purpose of a vapor control layer.
4.	Candidate discussed the appropriate location a vapor control layer.
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, and condition, and identified framing member dimensions in an attic open cavity.
11.	Candidate described how to safely determine insulation thickness and type; and identify 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.
6.	If ductwork is not accessible, candidate discussed possible ductwork issues.
7.	Candidate discussed **two** factors that could negatively affect ventilation system performance.
8.	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 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, then the candidate must discuss **one** common concern or problem.
6.	Candidate identified domestic water heating 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.
10.	Candidate identified or discussed opportunities for water heater insulation based on name plate data or manufacturer specifications.
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 will establish a stable baseline pressure under adverse conditions.
3.	Candidate identified the specific location and boundaries of the primary combustion appliance zone (CAZ) and any secondary combustion appliance zone(s).
4.	Candidate properly set up home for combustion appliance zone (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 system blower is able to run independently of the HVAC system. If so, candidate checked air handler impact on CAZ depressurization (appliance not firing). Candidate recorded reading and determined whether to leave air handler on or off.
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 appliance under greatest CAZ depressurization Candidate stated appropriate time limit for spillage assessment based on ANSI/BPI-1200.
13.	Candidate determined if the appliance passes the spillage assessment.
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** sources 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 combustion appliance zone (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.
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 gas 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 testing.
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 measured the pressure differential between a conditioned and unconditioned space and stated what the measurement means.

HVAC Distribution System

1.	Candidate identified the distribution system type and described its condition.
2.	Candidate identified the distribution system insulation type, rated R-value, and condition.
3.	Candidate identified **one** supply and **one** return.
4.	Candidate determined location and condition of the filter.
5.	Candidate conducted blower door assisted pressure pan testing for duct leakage in **one** supply or return duct. In the absence of ductwork, the candidate must accurately describe how blower door assisted pressure pan testing for duct leakage in **one** supply or return duct would be conducted.
6.	Candidate measured size of **one** supply register and **one** return grille.
7.	Candidate performed room to room pressure differential diagnostics between two spaces within the home with the air handler in operation. In the absence of an air handler, candidate described how the pressure differential diagnostics would be conducted.

8.	Candidate discussed **two** conditions that can impact supply register performance.
9.	Candidate discussed **two** conditions that can impact return grille performance.
10.	Candidate discussed **two** conditions that can affect hydronic baseboards.
11.	Candidate described **three** potential negative impacts that can occur when the distribution system is outside of the thermal envelope.
12.	Candidate discussed **one** purpose of duct pressurization testing.

Appliances and Lighting

1.	Candidate located a manufacturer's data plate on a 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 bulb.
4.	Candidate described how to determine total wattage of 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.