Maine Propane & Natural Gas Technician Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. **What is a typical setback temperature for a programmable thermostat used with gas heating?**

   A. 3-6°F

   B. 5-10°F

   C. 10-15°F

   D. 1-4°F

2. **What is the maximum distance a gas shut-off valve can be installed from the equipment it serves?**

   A. 4 feet

   B. 6 feet

   C. 8 feet

   D. 10 feet

3. **What safety measure should be taken when installing gas appliances?**

   A. Ensure proper ventilation

   B. Install without permits

   C. Use any available pipe fittings

   D. Keep installation instructions out of reach

4. **What is the minimum distance that a floor shall be protected by millboard and sheet metal around a food service appliance installed on a combustible floor?**

   A. 3 inches

   B. 4 inches

   C. 6 inches

   D. 8 inches

5. **What size corrugated stainless steel tubing should be installed to transport 217,000 cubic feet per hour of natural gas to an appliance 98 feet away?**

   A. Tubing size 20 (EHD)

   B. Tubing size 30 (EHD)

   C. Tubing size 40 (EHD)

   D. Tubing size 10 (EHD)

6. What is the impact of a 0.5 in. w.c. pressure drop in a gas line system with an inlet pressure of 11.0 in w.c.?

A. Decrease gas flow

B. Increase gas flow

C. No impact on gas flow

D. System failure

7. What is the maximum distance off the ceiling for an indoor combustion air opening installation?

A. 6 inches

B. 10 inches

C. 12 inches

D. 18 inches

8. How are underground propane tanks typically installed?

A. They must be above ground

B. They must be buried at a minimum depth

C. They must be placed in a concrete enclosure

D. They must be ventilated to the outside

9. What size chimney is needed for a factory with a total BTU input of 962,000 from two Category I fan-assisted appliances?

A. 6 inch

B. 8 inch

C. 9 inch

D. 10 inch

10. At what inlet pressure is the gas supply considered less than safe for residential use?

A. 1 psi

B. 1.5 psi

C. 2 psi

D. 2.5 psi

Answers

1. B
2. B
3. A
4. C
5. B
6. A
7. C
8. B
9. C
10. C

Explanations

1. What is a typical setback temperature for a programmable thermostat used with gas heating?

A. 3-6°F

B. 5-10°F

C. 10-15°F

D. 1-4°F

A typical setback temperature for a programmable thermostat used with gas heating is generally in the range of 5-10°F. This range is effective for reducing heating costs while maintaining comfort levels in the home. By allowing the temperature to drop during times when the home is unoccupied or when occupants are sleeping, energy can be conserved significantly. Setting the thermostat to lower temperatures during these periods can optimize energy efficiency without sacrificing too much comfort. A setback of 5-10°F is sufficient to reduce energy usage effectively; going much higher may result in diminished comfort and increased energy demands when the heating system needs to work harder to bring the temperature back up to normal levels. The other ranges either might be too small to yield significant energy savings or are likely impractical for ensuring comfort during occupied times. Thus, the 5-10°F range strikes a balance that is often recommended for programmable thermostats in residential gas heating systems.

2. What is the maximum distance a gas shut-off valve can be installed from the equipment it serves?

A. 4 feet

B. 6 feet

C. 8 feet

D. 10 feet

The maximum distance a gas shut-off valve can be installed from the equipment it serves is defined to ensure safety and efficiency in gas systems. In this case, a distance of 6 feet is specified, which allows for easy access to the shut-off valve in case of emergencies or maintenance needs. Positioning the valve within 6 feet of the equipment ensures that an operator can quickly access it to shut off the gas supply if there is a leak or another hazardous situation. This limitation also aligns with industry standards and building codes that prioritize safety in gas installation and operation contexts. Distances greater than 6 feet could pose a risk of delay should a rapid response be required, potentially leading to safety hazards. Thus, the 6-foot requirement is a practical measure that supports quick action in emergency scenarios, making it the correct standard for residential and commercial installations.

3. What safety measure should be taken when installing gas appliances?

A. Ensure proper ventilation

B. Install without permits

C. Use any available pipe fittings

D. Keep installation instructions out of reach

Ensuring proper ventilation is a critical safety measure when installing gas appliances. Proper ventilation allows for the safe dispersal of any potentially harmful gases, such as carbon monoxide, which can result from incomplete combustion in gas appliances. Adequate airflow is essential to maintain safe operating conditions and to prevent the buildup of toxic gases within a confined space. By following ventilation guidelines, technicians can help ensure that the gas appliance operates efficiently and safely, minimizing risks to occupants. Adhering to proper ventilation practices also aligns with applicable building codes and fuel gas codes, which often dictate specific requirements for airflow in areas housing gas appliances. This compliance not only promotes safety but also enhances overall performance and longevity of the installed equipment.

4. What is the minimum distance that a floor shall be protected by millboard and sheet metal around a food service appliance installed on a combustible floor?

A. 3 inches

B. 4 inches

C. 6 inches

D. 8 inches

The minimum distance that a floor must be protected by millboard and sheet metal around a food service appliance installed on a combustible floor is established to ensure safety and reduce the risk of fire hazards. A distance of 6 inches is deemed appropriate as it provides adequate heat shielding to protect the combustible materials from temperatures that may rise due to cooking operations. This specification helps to prevent any ignition of the floor material, which could lead to dangerous fire situations in a kitchen or food service environment. This regulation aligns with safety standards that recognize the importance of having a controlled buffer zone around appliances that generate significant heat. Adhering to this requirement is crucial for maintaining a safe operating environment in food service facilities.

5. What size corrugated stainless steel tubing should be installed to transport 217,000 cubic feet per hour of natural gas to an appliance 98 feet away?

A. Tubing size 20 (EHD)

B. Tubing size 30 (EHD)

C. Tubing size 40 (EHD)

D. Tubing size 10 (EHD)

To determine the appropriate size of corrugated stainless steel tubing (CSST) needed to transport a significant volume of natural gas, such as 217,000 cubic feet per hour over a distance of 98 feet, it's essential to consider the demand for gas flow rate and the pressure losses that occur over that distance. The correct choice indicates that tubing size 30 (Extra High Density or EHD) is suitable for this application. This is mainly due to the fact that size 30 tubing has a larger internal diameter compared to smaller tubing sizes, which allows for sufficient gas flow without excessive pressure loss. In situations where a significant volume of gas is required, the larger diameter of the tubing helps maintain an adequate pressure to the appliance, ensuring that the appliance operates efficiently and safely. Furthermore, the specific flow requirements, including gas velocity and the need to prevent excessively high velocities that can lead to noise and potential damage to the piping, are also factors that must be considered. Tubing size 30 is designed to accommodate higher flow rates while keeping pressure losses within acceptable limits over longer distances. When designing gas piping systems, adhering to both the flow demands and local codes and standards is essential, which this size meets. In contrast, the other tubing sizes would likely

6. What is the impact of a 0.5 in. w.c. pressure drop in a gas line system with an inlet pressure of 11.0 in w.c.?

A. Decrease gas flow

B. Increase gas flow

C. No impact on gas flow

D. System failure

A pressure drop in a gas line system indicates a reduction in the driving pressure available to push the gas through the piping system. When the inlet pressure is 11.0 inches of water column (w.c.) and there is a loss of 0.5 in. w.c., the effective pressure pushing the gas will be reduced to 10.5 in. w.c. This decrease means that the force propelling gas through the system is diminished, resulting in a lower flow rate. The relationship between pressure and flow in gas lines is significant; as pressure decreases, gas flow tends to decrease correspondingly. In addition, if the system is designed to operate optimally at a certain pressure, any reduction can hinder performance and lead to decreased efficiency in gas delivery. Therefore, a 0.5 in. w.c. pressure drop in this scenario directly impacts the gas flow by decreasing it.

7. What is the maximum distance off the ceiling for an indoor combustion air opening installation?

A. 6 inches

B. 10 inches

C. 12 inches

D. 18 inches

The maximum distance off the ceiling for an indoor combustion air opening installation is 12 inches. This specification is crucial for ensuring proper airflow to combustion appliances. Maintaining this distance helps to promote efficient air intake and reduces the risk of insufficient combustion air, which could lead to incomplete combustion, producing harmful carbon monoxide. When combustion appliances draw in air for proper function, it is vital that the air is taken from a location that allows for optimal performance, which includes being situated within a defined vertical range from the ceiling. A distance of 12 inches strikes a balance, allowing enough vertical clearance to prevent obstruction while supporting efficient air movement. Choosing distances larger or smaller than this specified range could lead to various issues. If the opening is too high above the ceiling, it might not effectively draw in the necessary combustion air, which could impair the functioning of the appliance. Meanwhile, if the opening is too close to the ceiling, it might be too close to any potential contaminates, which could affect the quality of air going into the combustion process. Understanding the importance of this specification helps technicians ensure that installations comply with safety standards and maintain optimal appliance performance.

8. How are underground propane tanks typically installed?

A. They must be above ground

B. They must be buried at a minimum depth

C. They must be placed in a concrete enclosure

D. They must be ventilated to the outside

Underground propane tanks are required to be installed at specific depths to ensure safety and compliance with regulations. This minimum depth is crucial as it helps to protect the tank from surface disturbances, reduces the risk of accidental damage, and minimizes the chance of propane vapor buildup, which can lead to safety hazards. By adhering to these guidelines for installation depth, technicians ensure that the installation is safe, legally compliant, and suitable for efficient operation. While other installation methods or requirements, such as placing tanks above ground or in concrete enclosures, may be relevant in different contexts, those do not apply to underground installations specifically. Ventilation to the outside is also important for certain installations, but it directly pertains to specific conditions rather than the fundamental requirement for a safe underground installation.

9. What size chimney is needed for a factory with a total BTU input of 962,000 from two Category I fan-assisted appliances?

A. 6 inch

B. 8 inch

C. 9 inch

D. 10 inch

To determine the appropriate chimney size for a factory with a total BTU input of 962,000 from two Category I fan-assisted appliances, it is important to refer to the guidelines and standards provided by relevant codes and manufacturers. Category I appliances typically vent flue gases by using natural draft, which necessitates a properly sized chimney to ensure safe and efficient venting. The flue diameter must match the output of the appliances to prevent backdraft or improper venting, which could lead to hazardous conditions. In this case, with a total BTU input of 962,000, calculations based on the total input capacity would indicate that the recommended flue size falls within a certain range. For Category I appliances, the standard practice suggests having a larger diameter chimney to accommodate the high volume of flue gases produced. For the given input, a flue size of 9 inches would be appropriate because it balances the need for sufficient venting capacity with the requirements of the appliances being used. A larger diameter helps to optimize the drafting of the chimney, ensuring that flue gases exit efficiently without causing issues within the system. In summary, the 9-inch chimney size is suitable for handling the specified BTU input from these appliances, facilitating effective vent

10. At what inlet pressure is the gas supply considered less than safe for residential use?

A. 1 psi

B. 1.5 psi

C. 2 psi

D. 2.5 psi

In residential gas supply systems, the inlet pressure at which gas is supplied is crucial for safety and proper operation of appliances. An inlet pressure of 2 psi is generally recognized as the maximum allowable pressure for most residential applications. Pressures above this threshold can pose safety risks, such as increased stress on regulators and appliances, potential leaks, and improper combustion. At pressures exceeding this amount, the risk of hazardous conditions increases, as residential systems are designed to safely handle lower pressures. Therefore, when an inlet pressure is above 2 psi, it is not considered safe for residential use. This delineation is important because proper functioning of appliances relies on maintaining specific pressure ranges, ensuring efficiency and safety for residents. In contrast, pressures below 2 psi, such as 1 psi and 1.5 psi, are within safe operating limits for residential systems, providing adequate fuel supply without introducing excessive risks.