Massachusetts Plumbers Journeyman Practice Exam (Sample)

Study Guide

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Questions

1. Which of the following fixtures are prohibited?

A. Exposed trap urinals

B. Flush valve toilets

C. Urinals with an invisible seal

D. Wall-hung urinals with a visible trap

2. What is defined as the installation of all plumbing system parts that can be completed before the installation of fixtures, including drainage piping, water supply piping, vent piping, and fixture supports?

A. Water Distribution Pipe

B. Roughing-in

C. Barometric Loop

D. Developed Length

3. What material should the seat of a toilet for public or semi-public use be made of?

A. A. Metal

B. B. Plastic

C. C. Wooden

D. D. Smooth non-absorbent material

4. How far should the thermostatic relieving element extend into the top of a tank as per guidelines?

A. 3 inches

B. 5 inches

C. 7 inches

D. 10 inches

5. What pressure gauge calibration is required for testing a Waste and Vent system for tightness?

A. 1/2 pound increments

B. 1 pound increments

C. 5 pound increments

D. 10 pound increments

6. How thick should the concrete wall be for constructing sumps and tanks for sewage?

A. 1 inch

B. 2 inches

C. 3 inches

D. 4 inches

7. When rock is encountered during trenching, what depth below the grade line should it be removed to?

A. One foot

B. Two feet

C. Three feet

D. Four feet

8. When conducting a deflection test on hubless cast iron soil pipe, what is the minimum required deflection per lineal foot?

A. 1/2"

B. 3/4"

C. 1"

D. 1 1/4"

9. If there is reason to believe that a plumbing system has become defective, what action should be taken based on regulations?

A. Notify the building owner

B. Continue regular use

C. Subject it to test and inspection

D. Ignore the issue

10. What must potable water connections to a heating boiler be equipped with to prevent cross-connections?

A. Check Valve

B. Expansion Tank

C. Backflow Preventer

D. Pressure Reducing Valve

Answers

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

Explanations

1. Which of the following fixtures are prohibited?

A. Exposed trap urinals

B. Flush valve toilets

C. Urinals with an invisible seal

D. Wall-hung urinals with a visible trap

The choice indicating that urinals with an invisible seal are prohibited is correct because these fixtures can create issues with hygiene, maintenance, and proper function. An invisible seal can sometimes lead to harboring bacteria and make it difficult to maintain or inspect the plumbing effectively. Therefore, plumbing codes often prohibit such designs to ensure sanitary conditions and ease of access for repairs and cleaning. The other options, while they may present design challenges in some contexts, do not generally fall under prohibitions as strict as for fixtures that cannot maintain hygiene and safety. For example, exposed trap urinals and wall-hung urinals with a visible trap are allowed, provided they meet specific code requirements regarding installation and maintenance. Flush valve toilets are also widely used fixtures that comply with regulations when correctly installed.

2. What is defined as the installation of all plumbing system parts that can be completed before the installation of fixtures, including drainage piping, water supply piping, vent piping, and fixture supports?

A. Water Distribution Pipe

B. Roughing-in

C. Barometric Loop

D. Developed Length

The term that describes the installation of all plumbing system components that can be completed prior to the installation of fixtures is "roughing-in." This process includes laying out and connecting drainage piping, water supply piping, vent piping, and fixture supports, ensuring that all the necessary infrastructure is in place for a smooth installation of the actual fixtures later on. Proper roughing-in is essential for the functionality and efficiency of the plumbing system, as it lays the groundwork for everything that follows. Other options do not encompass this broader aspect of plumbing installation. For instance, the water distribution pipe refers specifically to the pipes that deliver water to various fixtures, while a barometric loop is a specific plumbing configuration used to equalize pressure in certain systems. Developed length is a term used to describe the total length of a piping run, including all its angles and bends, rather than the installation process itself. Thus, roughing-in is the most accurate description of the initial phase of plumbing installation mentioned in the question.

3. What material should the seat of a toilet for public or semi-public use be made of?

A. A. Metal

B. B. Plastic

C. C. Wooden

D. D. Smooth non-absorbent material

The seat of a toilet for public or semi-public use should be made of a smooth, non-absorbent material because this type of material is more hygienic and easier to clean. It helps to prevent the growth of bacteria and fungi, which can thrive in porous or absorbent materials, making them unsuitable for environments that see high traffic. Additionally, smooth surfaces are less likely to harbor dirt and can be sanitized effectively. Choosing smooth, non-absorbent materials ensures durability and longevity under constant use, while also providing a consistent level of comfort for users. This approach aligns with health standards and sanitary regulations often required in public and semi-public facilities.

4. How far should the thermostatic relieving element extend into the top of a tank as per guidelines?

A. 3 inches

B. 5 inches

C. 7 inches

D. 10 inches

The correct answer is that the thermostatic relieving element should extend 5 inches into the top of the tank according to guidelines. This specification is important for the efficient and safe operation of the water heater. When the thermostatic element extends this distance, it allows for accurate temperature sensing and helps to ensure that the temperature of the water within the tank is effectively monitored. If the element were positioned incorrectly, it could lead to improper temperature readings, which might not activate the relief mechanism when necessary. This could pose a risk of overheating or excessive pressure buildup within the tank, leading to potentially hazardous situations. Ensuring that the element is properly placed also contributes to the longevity of the water heater and its components by promoting better heat distribution and minimizing thermal stresses. Thus, adhering to the 5-inch guideline is critical for safety, efficiency, and reliability in water heating systems.

5. What pressure gauge calibration is required for testing a Waste and Vent system for tightness?

A. 1/2 pound increments

B. 1 pound increments

C. 5 pound increments

D. 10 pound increments

The requirement for pressure gauge calibration when testing a Waste and Vent system for tightness is critical to ensure accurate and safe measurements. Using gauges calibrated in 1/2 pound increments allows for a more precise detection of any pressure changes, contributing to more effective identification of leaks within the system. This level of detail is essential as even small leaks can lead to significant issues in plumbing systems, including potential health hazards due to sewer gas or water damage. Calibration in smaller increments ensures that the testing can detect subtle changes in pressure that might indicate a problem. In contrast, larger increments would provide less sensitivity, potentially allowing minor leaks to go unnoticed, which could compromise the integrity of the plumbing system. Thus, the choice of 1/2 pound increments aligns with best practices in plumbing for maintaining system reliability and safety.

6. How thick should the concrete wall be for constructing sumps and tanks for sewage?

A. 1 inch

B. 2 inches

C. 3 inches

D. 4 inches

The recommended thickness for concrete walls in the construction of sumps and tanks designed to hold sewage is generally around 3 inches. This thickness provides a balance between structural integrity and weight, ensuring that the tank can withstand the pressure exerted by the sewage inside. Additionally, a thickness of 3 inches helps protect against potential leaks and reinforces the overall durability of the tank or sump in various environmental conditions. Thinner walls, such as 1 inch or 2 inches, may not provide the necessary strength or durability to accommodate the weight and pressure of the sewage, increasing the risk of structural failure. While 4 inches may seem like a robust option, that could be unnecessarily heavy and more costly than required for typical applications, potentially leading to inefficient usage of materials. Therefore, 3 inches is often considered the optimal standard in practice.

7. When rock is encountered during trenching, what depth below the grade line should it be removed to?

A. One foot

B. Two feet

C. Three feet

D. Four feet

When rock is encountered during trenching, it is important to remove it to a depth of at least two feet below the grade line. This depth ensures proper installation of the utilities being placed in the trench, allowing for adequate coverage and minimizing the risk of future issues such as heaving or instability. Removing the rock to this depth helps to create a stable foundation for the utility infrastructure and facilitates proper drainage around the installation. By adhering to this depth requirement, it also aligns with safety standards and best practices, preventing potential damage to both the utilities and the surrounding soil structure. In practice, if the layer of rock is shallow and minimally addressed, it could lead to inadequate backfill and problematic settling of the soil over time. This specific depth is commonly recognized in plumbing codes to ensure that all installations meet regulatory standards and maintain functional integrity.

8. When conducting a deflection test on hubless cast iron soil pipe, what is the minimum required deflection per lineal foot?

A. 1/2"

B. 3/4"

C. 1"

D. 1 1/4"

The correct deflection amount for hubless cast iron soil pipe during a deflection test is indeed measured at a minimum of 1 inch per lineal foot. This standard is crucial to ensure the pipe can accommodate typical loads and stresses that it may encounter during its lifespan without significant deformation or compromise to the plumbing system's integrity. Deflection testing is an important quality control measure that helps to ensure that the installed pipe remains functional under pressure and during environmental changes. A minimum of 1 inch of deflection indicates that the pipe has sufficient flexibility to handle both thermal expansion and contraction as well as potential ground movement without risk of failure or leakages. Other options reflect lesser amounts of deflection, which would not meet the necessary performance criteria for this type of plumbing installation. Proper adherence to these standards ensures longevity and reliability in plumbing systems.

9. If there is reason to believe that a plumbing system has become defective, what action should be taken based on regulations?

A. Notify the building owner

B. Continue regular use

C. Subject it to test and inspection

D. Ignore the issue

When there is suspicion that a plumbing system has become defective, the regulations emphasize the importance of subjecting the system to testing and inspection. This action is crucial because it allows for an accurate assessment of the plumbing system's condition to determine the extent of the defect and the necessary remedial steps. Testing and inspection can uncover hidden issues such as leaks, obstructions, or code violations that could lead to further complications if not addressed promptly. Taking proactive measures to test and inspect helps ensure the safety, functionality, and compliance of the plumbing system with local codes and regulations. This practice not only protects the building occupants but also mitigates potential damage to property and health risks associated with defective plumbing. Regular assessment is a key component in maintaining the integrity of plumbing systems.

10. What must potable water connections to a heating boiler be equipped with to prevent cross-connections?

A. Check Valve

B. Expansion Tank

C. Backflow Preventer

D. Pressure Reducing Valve

Potable water connections to a heating boiler must be equipped with a backflow preventer to prevent cross-connections. A backflow preventer ensures that water flows in only one direction, preventing any backflow of contaminated water into the potable water supply. This is essential in maintaining the quality and safety of the water supply in a plumbing system. The other options are not suitable for preventing cross-connections in this scenario: - A check valve is designed to allow flow in only one direction but may not offer the same level of protection against backflow as a backflow preventer. - An expansion tank is used to accommodate the expansion of water in a closed-loop heating system and is not directly related to preventing cross-connections. - A pressure reducing valve is used to reduce the pressure in a plumbing system and does not address the issue of backflow and cross-connections.