

Massachusetts Unrestricted Construction Supervisor License Practice Test (Sample)

Study Guide



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SAMPLE

Questions

SAMPLE

- 1. What is the occupancy load of a diner that contains 20 booths with each booth containing 2 benches that measure 72 inches long?**
 - A. 100**
 - B. 120**
 - C. 150**
 - D. 80**
- 2. Why is nosing projection important in stair design?**
 - A. It affects the aesthetic appeal**
 - B. It can influence safety and usability**
 - C. It is not relevant**
 - D. It is required in commercial buildings only**
- 3. Is a building permit required for the construction of a 10 x 20 accessory storage?**
 - A. Yes**
 - B. No**
 - C. Only if it is attached to a main building**
 - D. Only for buildings over 200 sq. ft.**
- 4. Which of the following concealed spaces in a building does NOT require fireblocking?**
 - A. Spaces of stud walls and partitions of ceiling levels**
 - B. Between stair stringers in stairways**
 - C. Architectural trim at a maximum of twenty feet intervals**
 - D. Slab on grade floors on gymnasiums**
- 5. What is the maximum allowed height of a manual fire alarm box?**
 - A. 54 inches**
 - B. 48 inches**
 - C. 36 inches**
 - D. 60 inches**

- 6. A magnetic particle ray test is used for testing which of the following?**
- A. Concrete**
 - B. Welds**
 - C. Steel beams**
 - D. Insulation integrity**
- 7. Which of the following is a requirement for the egress width of a stairway in an office building?**
- A. 1 inch per occupant**
 - B. 0.25 inches per occupant**
 - C. 0.2 inches per occupant**
 - D. 0.3 inches per occupant**
- 8. What is the maximum vertical rise allowed for a means of egress stairway before a landing is required?**
- A. 10 feet**
 - B. 12 feet**
 - C. 14 feet**
 - D. 16 feet**
- 9. What is the minimum required width of a concrete footing for a 2-story single-family dwelling supported by soil with a load-bearing capacity of 2000 psf?**
- A. 10 inches**
 - B. 12 inches**
 - C. 14 inches**
 - D. 16 inches**
- 10. A foundation that has a finished grade that slopes away from the building must be a minimum of ____ inches lower at a point ____ feet away from the face of the wall?**
- A. 4, 6**
 - B. 6, 10**
 - C. 8, 12**
 - D. 10, 15**

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What is the occupancy load of a diner that contains 20 booths with each booth containing 2 benches that measure 72 inches long?

A. 100

B. 120

C. 150

D. 80

To determine the occupancy load of the diner, you begin by calculating the total number of individuals that can be seated in the booths. Each booth consists of two benches, and the length of each bench is 72 inches. In terms of seating capacity based on the dimensions provided, each bench can accommodate approximately 3 adults comfortably. This is a common standard in the building codes which typically consider about 24 inches of bench space per person. Therefore, each booth, with its two benches, can comfortably seat around 6 people (3 people per bench x 2 benches). With 20 booths in the diner, the total seating capacity would be calculated as: 20 booths x 6 people per booth = 120 people. Thus, the occupancy load of the diner is correctly identified as 120. Knowing the rationale behind these calculations and how to apply standards for seating capacity is critical for managing safety and ensuring compliance with local building codes.

2. Why is nosing projection important in stair design?

A. It affects the aesthetic appeal

B. It can influence safety and usability

C. It is not relevant

D. It is required in commercial buildings only

Nosing projection is significant in stair design because it directly influences safety and usability. The nosing is the part of the stair tread that extends beyond the riser, providing a noticeable edge for users. This projection helps to prevent slips and falls by making the stairs more visible, particularly in low-light conditions. Additionally, when the nosing is designed properly, it can enhance the grip for pedestrians, making the stairs easier and safer to navigate. This is particularly important for individuals with mobility challenges or for anyone carrying items that may obstruct their view. An adequate nosing projection can also aid in the efficient use of stairs, as it creates a more comfortable transition from one step to the next. While aesthetic appeal and requirements in commercial buildings may play a role in stair design, the primary focus should always be on ensuring safe access and usability for all. Thus, the role of nosing projection as a safety feature is crucial in the overall design and construction of stairs.

3. Is a building permit required for the construction of a 10 x 20 accessory storage?

A. Yes

B. No

C. Only if it is attached to a main building

D. Only for buildings over 200 sq. ft.

In Massachusetts, a building permit is generally required for any construction or alteration of buildings, including accessory structures such as a storage shed or outbuilding. An accessory storage structure, regardless of its size, typically must adhere to local zoning and building regulations, which often mandate obtaining a permit to ensure compliance with safety, structural, and land use standards. In this case, a 10 x 20 accessory storage structure totals 200 square feet. Many municipalities require a permit for structures of this size or larger, particularly when they involve any type of permanent installation. The necessity for a permit encompasses not just the construction process but also the inspections that ensure the structure meets local code requirements and safety standards. While certain local jurisdictions may have specific provisions or allowances regarding small structures (such as exempting very small accessory buildings from permit requirements), the general rule is to obtain a permit for any construction that could affect the building integrity or neighborhood environment. Therefore, obtaining a permit for construction is necessary to comply with these regulations.

4. Which of the following concealed spaces in a building does NOT require fireblocking?

A. Spaces of stud walls and partitions of ceiling levels

B. Between stair stringers in stairways

C. Architectural trim at a maximum of twenty feet intervals

D. Slab on grade floors on gymnasiums

In the context of fire safety and construction standards, fireblocking is a critical component used to slow the spread of fire and smoke through concealed spaces in buildings. Each of the other choices listed involves concealed areas that can allow for fire to travel from one area to another, hence the requirement for fireblocking. The option noting "slab on grade floors on gymnasiums" does not require fireblocking. Slab on grade construction refers to a concrete slab that is poured directly on the ground without the use of a basement foundation or crawl space. Since this type of construction does not create a concealed space that would allow a fire to spread, there is no need for fireblocking in this situation. The solid nature of the slab itself acts as a barrier, reducing potential pathways for fire movement. The other options pertain to spaces that can create pockets where fire can travel undetected. For instance, concealed spaces in stud walls and partitions, voids between stair stringers, and areas behind architectural trim can all provide a channel for fire to propagate, therefore necessitating the implementation of fireblocking to enhance safety and compliance with building codes.

5. What is the maximum allowed height of a manual fire alarm box?

- A. 54 inches**
- B. 48 inches**
- C. 36 inches**
- D. 60 inches**

The maximum allowed height for a manual fire alarm box is 48 inches. This regulation is established to ensure that the fire alarm box is easily accessible to individuals, including those who may be shorter or facing mobility challenges. Standards set by the National Fire Protection Association (NFPA) dictate this height to promote safety, ensuring that in an emergency situation, anyone can quickly and efficiently pull the alarm without impediment. The height is designed to strike a balance between visibility and accessibility, enhancing the overall safety measures in a building.

6. A magnetic particle ray test is used for testing which of the following?

- A. Concrete**
- B. Welds**
- C. Steel beams**
- D. Insulation integrity**

A magnetic particle ray test is primarily utilized for detecting surface and near-surface discontinuities in ferromagnetic materials, which includes welds. This non-destructive testing method involves applying a magnetic field to the test material and then using magnetic particles to reveal any flaws. When the material is magnetized, if there are any cracks, voids, or other surface defects, the magnetic particles will cluster at these discontinuities, making them visible for evaluation. Welds are particularly important to test using this method, as they are crucial connections that need to maintain structural integrity. The other materials listed, such as concrete, steel beams, and insulation integrity, typically require different testing methods more suited to their specific properties and the types of flaws that need to be detected. Concrete, for instance, may undergo ultrasonic testing, while insulation integrity is often assessed using thermal imaging or similar techniques.

7. Which of the following is a requirement for the egress width of a stairway in an office building?

- A. 1 inch per occupant**
- B. 0.25 inches per occupant**
- C. 0.2 inches per occupant**
- D. 0.3 inches per occupant**

The requirement for the egress width of a stairway in an office building is based on safety regulations that ensure a sufficient escape route during emergencies. The code typically specifies that the minimum width must allow for the safe and efficient movement of occupants. The correct choice, which indicates a requirement of 0.2 inches per occupant, aligns with standards for egress design as it effectively accommodates the number of occupants likely to use the stairway at any given time. This figure is derived from building codes that aim to prevent bottlenecks and allow for a smooth and quick exit during emergency situations. While the other options suggest different increments for width, they do not meet the established standards that have been determined to ensure adequate safety levels for occupants in buildings.

8. What is the maximum vertical rise allowed for a means of egress stairway before a landing is required?

- A. 10 feet**
- B. 12 feet**
- C. 14 feet**
- D. 16 feet**

The requirement for a landing in a means of egress stairway is aimed at ensuring safety and accessibility during exiting a building. According to the Massachusetts building codes, when a stairway has a vertical rise that exceeds a certain height, a landing must be incorporated to provide a safe place for individuals to pause, gather their breath, or transition to another stairway, especially in emergency situations. In Massachusetts, the code specifies that a landing is required when the maximum vertical rise is 12 feet. This requirement helps to mitigate the risks associated with long, continuous stairways, such as fatigue or loss of balance, which could lead to accidents. Therefore, if a stairway's vertical rise does not exceed 12 feet, there is no need for an additional landing; however, once it reaches that height, a landing becomes essential for safety and compliance with the building code.

9. What is the minimum required width of a concrete footing for a 2-story single-family dwelling supported by soil with a load-bearing capacity of 2000 psf?

A. 10 inches

B. 12 inches

C. 14 inches

D. 16 inches

To determine the minimum required width of a concrete footing for a 2-story single-family dwelling, it is essential to consider factors such as the load-bearing capacity of the soil and the loads that the structure will impose on the footing. With a soil load-bearing capacity of 2000 pounds per square foot (psf), the design of the footing must ensure that the pressure exerted by the building does not exceed this capacity. A generally accepted practice for concrete footings in the residential construction industry is to use a width that provides a safe and adequate distribution of the structural loads. In many building codes and engineering principles, a minimum footing width of 12 inches is typically utilized for residential structures, especially those with two stories. This width helps to safely disperse the load from the walls and roof of the home into the ground without risking localized failure of the soil beneath. Therefore, given the structural requirements and the soil conditions, the selection of a 12-inch wide footing is considered appropriate for a 2-story single-family dwelling under these circumstances, balancing safety and economic considerations.

10. A foundation that has a finished grade that slopes away from the building must be a minimum of ____ inches lower at a point ____ feet away from the face of the wall?

A. 4, 6

B. 6, 10

C. 8, 12

D. 10, 15

The correct answer is based on the established guidelines concerning the drainage and grading necessary for effective water management around a building's foundation. When the finished grade slopes away from the foundation, it is crucial to maintain a specific elevation difference to ensure that water moves away from the structure, helping to prevent water pooling and potential damage to the foundation. The requirement that the foundation must be a minimum of 6 inches lower at a point 10 feet away from the face of the wall is aligned with best practices in construction and drainage management. This guideline ensures that the slope is adequate to facilitate effective drainage, thereby reducing the risk of water infiltration and other related issues that could compromise the structural integrity of the building over time. In terms of the other options, while they may suggest different measurements and distances, each fails to adhere to the recommended standards that dictate the necessary slope for effective drainage. Thus, option B is the most accurate response reflecting the approved practices for building site drainage.