ICC Structural Masonry Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- **Practice answering questions under realistic conditions,**
- **Improve accuracy and speed,**
- **Review explanations to strengthen weak areas, and**
- **Approach the exam with greater confidence.**

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here’s how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don’t just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There’s no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. **How much lap length is required for reinforcing bars in masonry elements?**

   A. 8"

   B. 10"

   C. 12"

   D. 14"

2. **Which term describes the vertical alignment of masonry units?**

   A. Course

   B. Joint

   C. Bond

   D. Panel

3. **Are cleanout openings required for low-lift grouting?**

   A. Yes

   B. No

   C. Only under certain conditions

   D. Only for high-lift grouting

4. **After initial mixing, at what ambient temperature must mortar be discarded after 2 hours?**

   A. 80 degrees F

   B. 85 degrees F

   C. 90 degrees F

   D. 95 degrees F

5. **What type of inspection is characterized by the special inspector being intermittently present during work being performed?**

   A. Continuous inspection

   B. Periodic special inspection

   C. Final inspection

   D. Pre-construction inspection

6. Which type of mortar is typically specified for adhered masonry veneer installations?

A. Type M

B. Type S

C. Type N

D. Type O

7. What type of masonry units does ASTM C 90 specifically address?

A. Loadbearing concrete masonry units

B. Clay masonry units

C. Autoclaved aerated concrete units

D. Glass block units

8. What is the requirement for curing conditions of grout specimens?

A. They must be dry

B. They should be damp

C. They can be exposed to air

D. They should be submerged

9. According to C.C.R. Title 24, what is the maximum spacing for reinforcing steel?

A. 1 foot each way

B. 2 feet each way

C. 3 feet each way

D. 4 feet each way

10. How are masonry units typically arranged in a structure?

A. Stack bond or running bond pattern

B. Diagonal bond or mesh bond pattern

C. Flat bond or layered bond pattern

D. Interlocking bond or zigzag bond pattern

Answers

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

Explanations

1. How much lap length is required for reinforcing bars in masonry elements?

A. 8"

B. 10"

C. 12"

D. 14"

The correct amount of lap length required for reinforcing bars in masonry elements is typically determined by the codes or standards specifically designed for structural masonry. In most cases, the lap length is dictated by factors like the diameter of the bars being used and the type of masonry construction. For instance, various building codes, including the International Building Code (IBC), suggest that for reinforcing bars, a lap length of 12 inches is commonly required. This measurement helps ensure that the bars are adequately anchored and achieve sufficient bond strength within the masonry. This length also considers varying factors such as the concrete type, the grade of steel reinforcement, and the specific design of the masonry wall. The need for a minimum lap length of 12 inches is rooted in ensuring the safety, structural integrity, and performance of masonry walls under load. It accounts for potential variations in installation practices and provides a safety margin to accommodate any potential discrepancies during construction.

2. Which term describes the vertical alignment of masonry units?

A. Course

B. Joint

C. Bond

D. Panel

The term that describes the vertical alignment of masonry units is "course." In masonry construction, a course is a horizontal layer of masonry units—such as bricks or blocks—stacked one on top of another. Each course is crucial in providing structural integrity and aesthetic appeal to the wall. The vertical alignment of these courses is essential for maintaining proper load distribution and ensuring the overall stability of the structure. The other terms relate to different aspects of masonry work. A joint refers to the space or mortar between two masonry units. Bond describes the pattern and arrangement of the masonry units that contribute to the wall's strength and can include various types of bonding techniques. A panel typically refers to a predefined section or segment of masonry work, not specifically addressing the vertical alignment of the units. Therefore, course is the most precise term for indicating how masonry units are vertically aligned.

3. Are cleanout openings required for low-lift grouting?

A. Yes

B. No

C. Only under certain conditions

D. Only for high-lift grouting

Low-lift grouting refers to a process in masonry construction where grout is placed in a masonry unit at a lower height, typically not exceeding 5 feet, as opposed to high-lift grouting, where larger sections of grout are poured. Cleanout openings are essential in high-lift grouting to ensure that the grout can flow adequately to fill the units and to remove any debris or obstructions that may be present in the wall. However, for low-lift grouting, cleanout openings are not required because the height is manageable and can typically be accessed during the grouting process. The method usually allows for better control over the placement of the grout and minimizes the risk of blockage that would necessitate cleanouts. Therefore, in this context, the absence of a requirement for cleanout openings during low-lift grouting makes it a correct choice.

4. After initial mixing, at what ambient temperature must mortar be discarded after 2 hours?

A. 80 degrees F

B. 85 degrees F

C. 90 degrees F

D. 95 degrees F

Mortar is a critical material in masonry construction, and its performance can be significantly impacted by temperature. When mortar is mixed, it has a specific pot life—the time during which it remains workable. This pot life can decrease under higher temperatures, leading to rapid setting and diminished workability. When the ambient temperature reaches 90 degrees Fahrenheit, mortar begins to set much more quickly. This rapid setting can hinder the ability to manipulate the mortar effectively on the job site, leading to potential quality issues in the masonry work if it is used past its workable timeframe. Therefore, at 90 degrees Fahrenheit, it is recommended that the mortar should be discarded after 2 hours to ensure optimal performance. Adhering to this guideline helps ensure the structural integrity and quality of the finished masonry work. In contrast, while other temperatures mentioned (80, 85, and 95 degrees Fahrenheit) also affect mortar's performance, the specific threshold for discarding mortar that has been mixed for 2 hours is correctly identified at 90 degrees Fahrenheit, as this is the point where the pot life significantly diminishes, and the mortar is likely to have set prematurely.

5. What type of inspection is characterized by the special inspector being intermittently present during work being performed?

A. Continuous inspection

B. Periodic special inspection

C. Final inspection

D. Pre-construction inspection

The type of inspection characterized by the special inspector being intermittently present during work being performed is known as periodic special inspection. This form of inspection entails the inspector observing the work at various intervals rather than being present continuously. This allows the inspector to verify that construction adheres to the applicable codes and standards during key phases of work without needing to observe every single task or operation continuously. Intermittent presence during construction activities means that the inspector could be on-site at critical moments—such as when specific materials are being installed or when parts of the structure are being prepared—ensuring compliance without being fully embedded in the daily activities. This approach provides flexibility while still maintaining oversight and quality assurance throughout the construction process. In contrast, continuous inspection involves an inspector being present at all times during the work, while final inspection occurs at the completion of the project to ensure that everything is built according to plans and specifications. Pre-construction inspection is conducted prior to the onset of work to establish existing conditions or verify that all prerequisites for construction are met. Each of these inspection types has distinct functions that cater to different phases and needs of the construction process.

6. Which type of mortar is typically specified for adhered masonry veneer installations?

A. Type M

B. Type S

C. Type N

D. Type O

For adhered masonry veneer installations, Type S mortar is typically specified due to its balanced properties that offer good compressive strength and bond strength, making it suitable for applications where the veneer needs to adhere securely to the substrate. This type of mortar contains a higher cement content and is mixed with hydrated lime, providing a strong, workable mixture that can withstand various stresses, including wind loads and thermal expansion. Type S mortar has a compressive strength of at least 1,800 psi and is recommended for use in below-grade foundation walls, reinforced masonry, and areas where the masonry is exposed to high moisture or other environmental stresses. Its formulation allows for adequate flexibility and resistance to cracking, which is crucial for thin veneers that may experience movement. While other types of mortar, such as Type M, Type N, and Type O, have their specific applications, they do not provide the same combination of strength and flexibility required for adhered masonry veneer installations as effectively as Type S mortar does.

7. What type of masonry units does ASTM C 90 specifically address?

A. Loadbearing concrete masonry units

B. Clay masonry units

C. Autoclaved aerated concrete units

D. Glass block units

ASTM C 90 specifically addresses load-bearing concrete masonry units, which are essential components in structural masonry construction. These units are designed to support vertical loads and contribute to the overall stability and strength of a building. The standard outlines the requirements for these concrete masonry units, including their dimensions, physical properties, and performance criteria to ensure that they meet the necessary structural requirements for various construction applications. In contrast, the other types of masonry units mentioned in the options, such as clay masonry units, autoclaved aerated concrete units, and glass block units, are governed by different standards. Clay masonry units are typically covered under ASTM C 62, while autoclaved aerated concrete units fall under ASTM C 1693. Glass block units, used primarily for decorative and non-loadbearing applications, do not fall under ASTM C 90 either. Therefore, the focus of ASTM C 90 on load-bearing concrete blocks makes it vital for engineers and architects involved in structural design to ensure their projects comply with this standard for the integrity and safety of the structures they create.

8. What is the requirement for curing conditions of grout specimens?

A. They must be dry

B. They should be damp

C. They can be exposed to air

D. They should be submerged

Curing conditions for grout specimens are crucial to ensure proper hydration and achieve the desired strength and durability of the material. Grout, being a cement-based product, requires adequate moisture to allow the chemical reactions necessary for curing to take place effectively. Maintaining damp conditions during the curing process helps prevent the grout from drying out too quickly. If the grout dries out, it can lead to incomplete hydration of the cement particles, which adversely affects the strength and durability of the grout. Keeping the specimens in a damp environment aids in ensuring that the water is available for the entirety of the curing period, typically ranging from 24 hours to several days depending on the specific mix design and environmental conditions. In contrast to the other choices, which suggest various degrees of dryness or exposure to air, these would not provide the necessary moisture required for effective curing. Ensuring specimens are damp strikes a balance that promotes the necessary conditions for optimal hydration and strength development in grout.

9. According to C.C.R. Title 24, what is the maximum spacing for reinforcing steel?

A. 1 foot each way

B. 2 feet each way

C. 3 feet each way

D. 4 feet each way

The maximum spacing for reinforcing steel as specified in C.C.R. Title 24 is indeed 2 feet each way. This requirement is established to ensure adequate structural integrity and load distribution in masonry elements. Spacing the reinforcing steel too far apart can lead to insufficient support, potentially compromising the structural integrity under various load conditions. By limiting the spacing to 2 feet, it ensures that there is enough reinforcement to handle tensile stresses, especially in walls and slabs subjected to lateral loads, such as wind or seismic activity. This guideline is crucial for maintaining the overall safety and durability of masonry structures, reflecting best practices in design to prevent cracking and failure. Overall, this spacing criterion helps design professionals comply with the building codes while ensuring the longevity and stability of masonry constructions.

10. How are masonry units typically arranged in a structure?

A. Stack bond or running bond pattern

B. Diagonal bond or mesh bond pattern

C. Flat bond or layered bond pattern

D. Interlocking bond or zigzag bond pattern

Masonry units are typically arranged in structures using the stack bond or running bond pattern, which are widely regarded for their effectiveness in providing strength and stability to walls. In a stack bond configuration, masonry units are stacked directly on top of one another, aligning in both vertical and horizontal orientations. This method lends itself well to aesthetic applications where the linearity of the units is emphasized, although it may not provide as much lateral stability as other arrangements. On the other hand, the running bond pattern is characterized by offset joints, where each subsequent course of masonry units is aligned with the center of the units below it. This arrangement allows for better distribution of loads and increases overall wall strength, making it one of the most common and effective patterns used in masonry construction. It enables the vertical joints between units to be staggered, thereby enhancing the structural integrity of the wall. Both of these patterns are recognized for their ability to effectively resist shear forces and improve the overall durability of masonry structures, making them standard choices in construction practices. The options that refer to diagonal bond, mesh bond, flat bond, layered bond, interlocking bond, or zigzag bond patterns are not standard terminology in masonry construction and do not represent conventional practices used in the arrangement of masonry units.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://iccstructuralmasonry.examzify.com

We wish you the very best on your exam journey. You've got this!