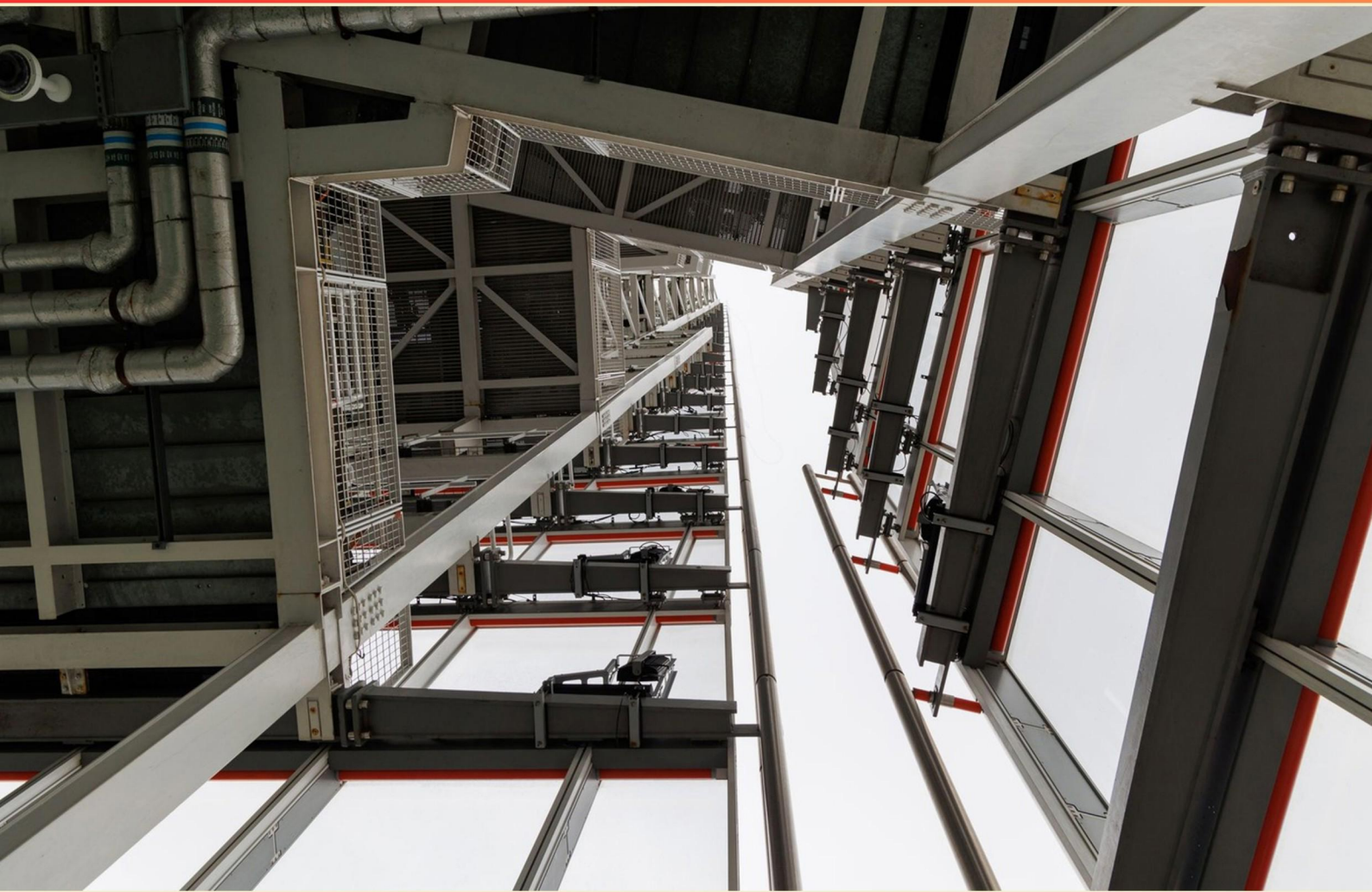


ICC STRUCTURAL STEEL AND BOLTING CERTIFICATION PRACTICE TEST (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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

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- 1. What is the ASTM standard for high-strength washers?**
 - A. F436
 - B. F844
 - C. F2170
 - D. F606

- 2. How can a special inspector verify that a structural steel member is suitable for its location in the building?**
 - A. By checking the certification papers from the fabricator
 - B. By reviewing the shop drawings provided by the architect
 - C. By viewing the fabricator's marking on the member
 - D. By conducting a visual inspection of the member's shape

- 3. What is the mill straightness tolerance for a W-shape member with a 6 inch width flange and a length of 30 feet?**
 - A. .375 inch
 - B. .250 inch
 - C. .500 inch
 - D. .300 inch

- 4. Who performs material tests of the structural steel for verification of material properties?**
 - A. The fabricator
 - B. The contractor
 - C. The steel supplier
 - D. The special inspector

- 5. Who is responsible for the accurate location and strength of foundation piers for base plates as per the Code of Standard Practice?**
 - A. Site engineer
 - B. Owners designated representative for construction
 - C. General contractor
 - D. Structural engineer

- 6. Which type of shims is recommended by the AISC for setting column base plates?**
- A. Treated hardwood shims
 - B. Steel shims
 - C. Plastic shims
 - D. Rubber shims
- 7. Under which condition can fastener components that accumulate rust or dirt be used in work?**
- A. When they are prequalified
 - B. When they are painted
 - C. When they are newly manufactured
 - D. When they are cleaned
- 8. Who conducts the material tests for identification of structural steel as per specifications?**
- A. Design engineers
 - B. Fabricator or Testing Laboratory
 - C. Manufacturers
 - D. Project Managers
- 9. What must be checked regarding high-strength bolts from storage?**
- A. Only the quantity
 - B. Condition of the bolt and washer
 - C. Manufacturer's certification
 - D. All available sizes
- 10. What is the minimum bolt pretension required for an A325 bolt with a diameter of 1-¼ inch?**
- A. 50 kips
 - B. 60 kips
 - C. 71 kips
 - D. 80 kips

Answers

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

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Explanations

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1. What is the ASTM standard for high-strength washers?

- A. F436**
- B. F844
- C. F2170
- D. F606

The ASTM standard for high-strength washers is F436. This standard specifically covers the requirements for hardened, high-strength washers that are designed to be used with high-strength bolts, particularly in structural applications. The use of such washers is critical in ensuring that the bolt connections maintain their integrity under load, as they help distribute the load over a larger area and minimize the risk of bolt failure or loosening. The emphasis on high-strength washers outlined in ASTM F436 relates to their dimensional specifications, material properties, and manufacturing processes, ensuring that they provide adequate support and performance in structural applications. This makes F436 essential for applications involving bolted joints where high strength and reliability are necessary. In contrast, the other options pertain to different aspects of fastener technology or standards that do not focus specifically on high-strength washers. F844 covers flat washers used with bolts and screws but does not delineate the requirements for high-strength washers. F2170 pertains to the measurement of relative humidity during concrete curing, while F606 relates to the testing methods for mechanical properties of fasteners. Thus, ASTM F436 is clearly the standard associated with high-strength washers, making it the correct choice in this context.

2. How can a special inspector verify that a structural steel member is suitable for its location in the building?

- A. By checking the certification papers from the fabricator
- B. By reviewing the shop drawings provided by the architect
- C. By viewing the fabricator's marking on the member**
- D. By conducting a visual inspection of the member's shape

To verify that a structural steel member is suitable for its location in the building, it is essential to check the fabricator's marking on the member. This marking typically contains critical information such as the identification number, material specifications, and grade of the steel. This helps ensure that the member has been manufactured according to relevant codes and standards, indicating its suitability for the specific structural application. The marking serves as a reliable reference that ties the structural member back to the documented specifications and certifications made by the fabricator. Therefore, a special inspector can ascertain that the member is made from the correct material and meets design criteria by confirming the properties as per the marking. While the other options may contribute to the assessment process, they do not, on their own, provide the same level of direct verification regarding the member's compliance with specified requirements.

3. What is the mill straightness tolerance for a W-shape member with a 6 inch width flange and a length of 30 feet?

- A. .375 inch**
- B. .250 inch
- C. .500 inch
- D. .300 inch

The mill straightness tolerance for a wide flange (W-shape) member is determined by the specifications outlined in standards such as ASTM A992 or A572, commonly referenced in structural steel construction. For a W-shape member with specific dimensions—such as a 6-inch wide flange and a length of 30 feet—the appropriate mill straightness tolerance is indeed 0.375 inches. This tolerance is crucial in ensuring the structural integrity and proper fit of steel members during construction. It accounts for the permissible deviation in straightness over a specified length of the member. The dimensional criteria are aligned with industry standards which account for the physical properties of steel and the manufacturing processes involved, ensuring reliability and safety in structural applications. Understanding these tolerances is essential for professionals involved in steel fabrication and construction, as it impacts how these members will be handled, installed, and ultimately, how they perform in a structural context. The other values provided reflect tolerances that may not apply to this specific size and shape of the W-member, underscoring the importance of consulting the appropriate design specifications for accurate assessment.

4. Who performs material tests of the structural steel for verification of material properties?

- A. The fabricator
- B. The contractor
- C. The steel supplier**
- D. The special inspector

The steel supplier performs material tests of the structural steel for verification of material properties, ensuring that the materials meet the required specifications and standards before they are delivered to the project site. This testing is critical because it confirms that the supplied steel complies with the prescribed design and safety requirements, including aspects such as yield strength, tensile strength, and other relevant material characteristics. The responsibility of the steel supplier in this context includes conducting standard tests and providing documentation, such as Mill Test Reports (MTRs) or Certificates of Compliance, which serve as evidence that the materials meet the necessary code requirements and project specifications. This proactive testing helps to prevent issues related to material failure or deficiencies during construction or after project completion. While other roles, such as the fabricator, contractor, or special inspector, play important functions in the overall construction process, their primary responsibilities lie in different aspects of the project. The fabricator focuses on the production and assembly of the steel components, the contractor oversees the overall project execution, and the special inspector is generally responsible for verifying compliance with codes and standards through inspections but does not usually conduct the initial material tests. Thus, the steel supplier is specifically tasked with the verification of material properties through testing before the steel is utilized in construction.

5. Who is responsible for the accurate location and strength of foundation piers for base plates as per the Code of Standard Practice?

- A. Site engineer
- B. Owners designated representative for construction**
- C. General contractor
- D. Structural engineer

The correct answer highlights the critical role of the owner's designated representative for construction in ensuring the accurate location and strength of foundation piers for base plates according to the Code of Standard Practice. This representative acts on behalf of the owner to oversee and ensure that construction practices meet specified requirements and standards. This responsibility involves coordinating with various parties, including the design team and the construction crew, to confirm that the foundation's specifications are met and that the piers are correctly placed to support the structural loads. The representative must ensure that all aspects of the construction align with the contractual obligations and industry standards, facilitating communication between the owner and the contractors. In contrast, while the structural engineer is crucial in designing the piers and guaranteeing their strength, the execution and oversight responsibility falls predominantly on the owner's representative. Meanwhile, the site engineer and general contractor play significant roles too, but primarily in implementation and construction management rather than being directly responsible for verifying location and strength per the Code of Standard Practice.

6. Which type of shims is recommended by the AISC for setting column base plates?

- A. Treated hardwood shims
- B. Steel shims**
- C. Plastic shims
- D. Rubber shims

The recommendation from the American Institute of Steel Construction (AISC) for setting column base plates is to use steel shims. Steel shims provide the necessary strength and rigidity required for structural applications, particularly in the context of steel columns and base plates. Using steel shims ensures that the load is properly distributed and the base plate is securely aligned. Steel can withstand the forces and stresses that occur in structural applications, making it a superior choice compared to other materials like wood, plastic, or rubber, which may deform or compress over time under heavy loads. Additionally, steel shims can be accurately machined to precise thicknesses, allowing for fine adjustments during installation to achieve level and plumb conditions necessary for proper structural performance. Choosing steel shims enhances the overall stability and integrity of the structure, reducing the risk of settlement or misalignment in the columns as the structure is subjected to various loads throughout its lifecycle.

7. Under which condition can fastener components that accumulate rust or dirt be used in work?

- A. When they are prequalified**
- B. When they are painted
- C. When they are newly manufactured
- D. When they are cleaned

Fastener components that have accumulated rust or dirt can be used in work when they are prequalified. Prequalification refers to the process in which fasteners are assessed for their performance and suitability under specific conditions, including the presence of minor contaminants. If fasteners are prequalified, it means they have met certain standards and criteria established by relevant codes or specifications, ensuring that despite the presence of rust or dirt, their integrity and ability to perform effectively in connections have been validated. Prequalified fastener components help ensure that they will still function as intended in structural applications, even under less-than-ideal surface conditions, provided those conditions are accounted for in their qualification testing. This is crucial in construction and engineering practices, where safety and reliability are paramount. In contrast, simply painting, manufacturing new components, or cleaning them does not guarantee their acceptability without proper prequalification assessment to confirm their reliability and strength under operating conditions. Thus, prequalification is key to determining whether fasteners can be used in the presence of such impurities.

8. Who conducts the material tests for identification of structural steel as per specifications?

- A. Design engineers
- B. Fabricator or Testing Laboratory**
- C. Manufacturers
- D. Project Managers

The process of conducting material tests for identifying structural steel according to specifications is primarily the responsibility of the fabricator or a qualified testing laboratory. These entities are equipped to perform a variety of tests that ensure the steel meets the required mechanical and chemical properties stipulated in the design specifications and relevant codes. The fabricator plays a crucial role in the construction process, as they not only fabricate the steel components but also ensure that the materials used comply with the specifications. In many cases, they partner with testing laboratories that specialize in material testing to verify the quality and characteristics of the steel through established testing methods such as tensile tests, impact tests, and chemical analysis. This testing confirms that the structural steel will behave as expected when subjected to the design loads and environmental conditions, thus ensuring the integrity and safety of the overall structure. While other roles, such as design engineers and manufacturers, contribute to the process, it is the fabricator or testing laboratory that directly conducts the essential material tests for steel identification.

9. What must be checked regarding high-strength bolts from storage?

- A. Only the quantity
- B. Condition of the bolt and washer**
- C. Manufacturer's certification
- D. All available sizes

High-strength bolts must be carefully inspected for their condition and that of washers before being used in construction. The integrity of bolts is crucial because any defects, corrosion, or contamination can significantly compromise the performance of the connection they are intended to form. Ensuring that the bolts and washers are in good condition helps to guarantee that they meet the necessary safety standards and performance requirements outlined in codes and specifications. The condition of high-strength bolts is particularly important given that these components are often under considerable loads and stresses. Any surface damage or deterioration can lead to failures during service, potentially resulting in catastrophic consequences. While other factors such as quantity, manufacturer's certification, and available sizes are important as well, the immediate priority upon inspection is to evaluate the physical state of the fasteners and their accompanying components to ensure safe and effective assembly. This preventative measure is essential in maintaining structural integrity and compliance with construction standards.

10. What is the minimum bolt pretension required for an A325 bolt with a diameter of 1- $\frac{1}{4}$ inch?

- A. 50 kips
- B. 60 kips
- C. 71 kips**
- D. 80 kips

The minimum bolt pretension required for an A325 bolt can be determined using specifications outlined in standards like those provided by the American Institute of Steel Construction (AISC). For A325 bolts, the pretension is usually calculated based on the diameter of the bolt and is meant to ensure proper clamping force between connected parts, which is crucial for the joint's structural integrity. For a 1- $\frac{1}{4}$ inch diameter A325 bolt, the acceptable minimum pretension is specified to be around 70 kips, with some allowances based on factors such as bolt length and application specifics. Rounding to the closest round number, this value is typically cited as 71 kips. This pretension helps prevent loosening of the connection under load and optimizes load distribution among the bolts. Properly achieving this pretension is vital in construction and engineering practices to maintain safety and reliability in steel structures. Thus, the knowledge of minimum bolt pretension values is essential for anyone involved in structural steel design and construction.

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://iccstructuralsteelandbolting.examzify.com>

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

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