STRUCTURAL WELDING CODE – STEEL (D1.1) CITY CERTIFICATION PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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.

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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!

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Questions

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1. CO_2 is low cost and deep penetrating; it causes more what?

A. Oxidation

B. Spatter

C. Porosity

D. Slag

2. In the FCAW electrode identification system, what does the letter "X" represent?

A. The type of current used

B. The position of the weld

C. The flux type

D. The diameter of the wire

3. When adjusting the amperage, what else is typically adjusted?

A. voltage

B. wire speed

C. electrode length

D. feed rate

4. Low alloy W and S beams are made out of which materials?

A. ASTM A36 and A992

B. ASTM A572 and A992

C. ASTM A500 and A525

D. ASTM A106 and A53

5. Base metals are also known as what?

A. Parent metal

B. Weld filler

C. Alloy metal

D. Core metal

6. Which two electrodes are most commonly used for GMAW?

A. ER70 S-2 and ER70 S-4

B. ER70 S-3 and ER70 S-6

C. ER80 S-3 and ER80 S-6

D. ER60 S-3 and ER60 S-6

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7. What does PJP stand for in welding terminology?

A. Partial Joint Penetration

B. Partial Junction Point

C. Primary Joint Penetration

D. Primary Junction Point

8. Low alloy electrodes are classified as having what minimum yield strength?

A. 60 KSI or higher

B. 70 KSI or higher

C. 80 KSI or higher

D. 90 KSI or higher

9. Electrodes that operate with DCEN are numbered from?

A. 1 to 6

B. 7 to 11

C. 12 to 15

D. 10 to 14

10. What position corresponds to welding horizontally?

A. Vertical

B. Flat

C. Overhead

D. Horizontal

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Answers

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

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Explanations

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1. CO_2 is low cost and deep penetrating; it causes more what?

A. Oxidation

B. Spatter

C. Porosity

D. Slag

The selection of spatter as the result of using CO_2 gas in welding processes is accurate due to the characteristics of carbon dioxide as a shielding gas. When CO_2 is used, it tends to produce a higher heat input which can lead to increased droplet formation from the weld pool. This is particularly relevant in processes like GMAW (Gas Metal Arc Welding), where the conductive properties of CO_2 create a more energetic arc. As a result, more molten metal can be expelled from the weld, manifesting as spatter. Spatter consists of small droplets of molten metal that are expelled during the welding process, and its occurrence is often influenced by the type and composition of the shielding gas. With CO_2, the energy concentration tends to be greater, causing more metal to be ejected from the weld bead. This aspect is important for welders to consider, as excessive spatter can impact the quality of the weld and the amount of cleanup needed after the welding operation. Understanding this phenomenon is crucial for welding applications, especially in regards to maintaining a clean working environment and achieving high-quality welds. This knowledge aids welders in making informed decisions about shielding gases based on their application requirements and desired outcomes.

2. In the FCAW electrode identification system, what does the letter "X" represent?

A. The type of current used

B. The position of the weld

C. The flux type

D. The diameter of the wire

In the FCAW (Flux-Cored Arc Welding) electrode identification system, the letter "X" signifies the position of the weld. This is an essential aspect of the electrode classification, as the weld position directly affects the performance and usability of the electrode in different scenarios. Each letter in the identification system corresponds to specific properties or characteristics of the electrode. For instance, the position pertains to whether the welding occurs in a flat, horizontal, vertical, or overhead orientation. This information is critical for welders to select the appropriate electrode that functions optimally in the required position, thus ensuring a strong, quality weld. Understanding the significance of the "X" helps in choosing the right flux-cored electrode for a particular application, ensuring both safety and integrity of the welded structure over various positions.

3. When adjusting the amperage, what else is typically adjusted?

A. voltage

B. wire speed

C. electrode length

D. feed rate

When adjusting the amperage during a welding operation, wire speed is typically adjusted as well. This is because the amperage and wire feed speed must be coordinated to achieve the desired weld characteristics and ensure that the right amount of filler material is delivered to the weld joint. In gas metal arc welding (GMAW), for example, increasing the amperage usually requires an increase in wire feed speed to maintain a consistent arc length and weld quality. If the wire speed remains unchanged while increasing amperage, it could lead to issues such as excessive penetration, burn-through, or an incomplete weld due to insufficient filler material. Therefore, a harmonious adjustment of both parameters is crucial for effective weld performance.

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4. Low alloy W and S beams are made out of which materials?

A. ASTM A36 and A992

B. ASTM A572 and A992

C. ASTM A500 and A525

D. ASTM A106 and A53

Low alloy W and S beams are primarily constructed from ASTM A572 and ASTM A992 materials. ASTM A572 specifies high-strength low-alloy steel that offers improved strength-to-weight ratios and excellent weldability, making it ideal for structural applications like beams. This specification includes various grades that provide different yield strengths, allowing for flexibility in design based on load requirements. ASTM A992 is specifically tailored for structural steel shapes, particularly for wide-flange (W) and S beams. It is widely used because of its favorable properties, including higher yield strength, better toughness, and fatigue resistance. The combination of A572 and A992 ensures that the structural components meet rigorous performance requirements in construction applications. Thus, these materials are preferred choices for creating low alloy W and S beams used in construction, which is why the answer is based on their properties and applications outlined in the Structural Welding Code.

5. Base metals are also known as what?

A. Parent metal

B. Weld filler

C. Alloy metal

D. Core metal

Base metals are commonly referred to as parent metals. This term emphasizes that base metals serve as the primary material in welding and fabrication processes, providing the foundational structure to which additional materials, such as fillers or coatings, may be applied. The parent metal is the primary metal being welded or joined. Understanding this terminology is crucial, particularly in the context of welding, as the properties of the base metal (such as its composition, strength, and thermal conductivity) significantly influence the overall quality and performance of the weld. The knowledge of parent metals is essential for selecting appropriate welding techniques, filler materials, and the required pre- and post-weld treatments to ensure the integrity of the weld joint.

6. Which two electrodes are most commonly used for GMAW?

A. ER70 S-2 and ER70 S-4

B. ER70 S-3 and ER70 S-6

C. ER80 S-3 and ER80 S-6

D. ER60 S-3 and ER60 S-6

The most commonly used electrodes for Gas Metal Arc Welding (GMAW) are those that provide a good balance of weld quality and cost-effectiveness, particularly in industry standards. The ER70 S-3 and ER70 S-6 electrodes are well-suited for general applications and are frequently utilized for both carbon steel and low-alloy steel welding. ER70 S-3 is typically used for applications where moderate strength is sufficient and offers a good deposition rate. Meanwhile, ER70 S-6 provides slightly better chemical composition and mechanical properties, making it advantageous in more demanding situations that might require a higher strength or better toughness in the weld. Both electrodes are suitable for various welding positions and allow for good bead appearance and weld integrity. The use of these electrodes also aligns with the requirements outlined in the Structural Welding Code, ensuring that the resulting welds meet necessary performance and safety standards. In contrast, the other options consist of electrodes from different categories or standards, such as higher-strength electrodes that are not typically used for general GMAW applications or those that do not meet the balance of versatility and performance expected in most welding scenarios.

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7. What does PJP stand for in welding terminology?

A. Partial Joint Penetration

B. Partial Junction Point

C. Primary Joint Penetration

D. Primary Junction Point

PJP stands for Partial Joint Penetration in welding terminology. This refers to a type of weld configuration where the weld does not penetrate completely through the thickness of the base materials being joined. Instead, it only partially fills the joint, which may be sufficient for certain applications depending on the structural requirements and load conditions. Partial Joint Penetration welds are commonly used when complete joint penetration (CJP) is not necessary or when a full weld would be costly or impractical. Understanding this concept is crucial in selecting the appropriate welding process and technique for a given project, as it impacts the weld strength and the overall integrity of the structure. In contrast, the other options suggest terms that are not recognized within the context of welding standards and practices, making them relevant to the misunderstanding of welding terminology. Knowledge of terms like PJP is essential for certification in the field of structural welding, emphasizing the importance of correct terminology in ensuring clarity and communication among welders and engineering personnel.

8. Low alloy electrodes are classified as having what minimum yield strength?

A. 60 KSI or higher

B. 70 KSI or higher

C. 80 KSI or higher

D. 90 KSI or higher

Low alloy electrodes are recognized for their improved mechanical properties compared to conventional carbon steels, primarily through their yield strength. According to the Structural Welding Code – Steel (D1.1), low alloy electrodes typically require a minimum yield strength of 70 KSI. However, many classifications highlight electrodes that meet or exceed 80 KSI to qualify as low alloy. This higher yield strength is essential for applications that demand enhanced performance, including resistance to atmospheric corrosion and improved toughness in critical applications. The classification as low alloy reflects the strength and performance capabilities of the welds made with these electrodes, which contribute to overall structural integrity in demanding scenarios. This standard ensures that welds produced with low alloy electrodes can meet the rigorous requirements specified for structural applications, particularly those exposed to dynamic loading and harsh environmental conditions.

9. Electrodes that operate with DCEN are numbered from?

A. 1 to 6

B. 7 to 11

C. 12 to 15

D. 10 to 14

Electrodes that operate with Direct Current Electrode Negative (DCEN) have specific numbering as part of the classification system outlined in the AWS A5 series of specifications. The correct numbering for electrodes that utilize DCEN is indeed from 7 to 11. This classification relates to the polarity and the type of current the electrodes are designed to work with during the welding process, which influences the penetration, bead shape, and overall weld quality. Understanding the electrode numbering is crucial for welders to select the proper electrode for their specific application and ensure compatibility with their welding equipment. Choosing the correct electrode that corresponds to the DCEN classification ensures optimal welding performance, making it essential for anyone working with the Structural Welding Code to be familiar with these standards.

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10. What position corresponds to welding horizontally?

A. Vertical

B. Flat

C. Overhead

D. Horizontal

The position that corresponds to welding horizontally is indeed horizontal. In this position, the weld is made with the workpiece positioned horizontally, allowing the welder to easily access the weld joint from the side. This is a common welding posture where the bead flows with the force of gravity, which can result in a more controlled and uniform weld. Welding in the horizontal position can present unique challenges, such as managing the heat input to prevent excessive build-up of weld material or distortion. Mastery of this position is crucial, particularly in applications where structural integrity is paramount, making it important for welders to be well-trained in the proper techniques associated with horizontal welding. The mention of other positions, such as vertical or overhead, refers to different orientations of the workpiece that require different skill sets and techniques. Each of those positions has its standards and practices that are marked distinctly in welding codes. Understanding these unique positions helps welders achieve quality work while adhering to code requirements.

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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://structuralweldingcodesteel.examzify.com

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

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