LOS ANGELES CITY STRUCTURAL WELDING CODE – STEEL (D1.1) 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. What type of welding manipulation should be generally avoided with low hydrogen electrodes?

A. Dragging

B. Oscillating

C. Vertical

D. Horizontal

2. What is the primary characteristic of the parent metal?

A. It's used as filler material.

B. It's a type of electrode.

C. It's the base material being welded.

D. It refers to the coating on welding rods.

3. Which of the following is an acceptable profile for a fillet weld?

A. Slightly concave

B. Flat faced

C. Slightly convex

D. All of the above

4. What is a possible cause of porosity in welds?

A. High Voltage

B. Moisture, Paint, Oil, Grease, Excessive Arc Length

C. Low Temperature

D. Fast Travel Speed

5. What is the designation for low alloy electrodes under AWS specifications?

A. A5.5

B. A5.2

C. A5.7

D. A5.1

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6. Which type of arc welding is known for using a non-consumable tungsten electrode?

A. GMAW

B. GTWA

C. FCAW

D. SAW

7. What is a common reason for failure in GMAW?

A. Using too high a welding speed

B. Improper voltage settings

C. Using the wrong filler material

D. All of the above

8. Using an extensive arc length when arc welding will lead to what issue?

A. Increased strength

B. Less splatter

C. Slightly cooler welds

D. Splatter

9. What is ASTM 500 specifically used to create?

A. Square Tubular Steel

B. Wide Flange Beams

C. Steel Plates

D. Channel Steel Sections

10. Which manipulation type is recommended for welding with 6010 and 6011 electrodes?

A. Dragging

B. Oscillating

C. Stringer

D. Circular

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Answers

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

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Explanations

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1. What type of welding manipulation should be generally avoided with low hydrogen electrodes?

A. Dragging

B. Oscillating

C. Vertical

D. Horizontal

Dragging is generally avoided with low hydrogen electrodes due to the potential for creating defects in the weld, such as porosity and hydrogen embrittlement. When a welder drags the electrode, it maintains a consistent and prolonged contact with the base material, which can lead to excessive penetration and undesirable heat input. This can enhance the likelihood of hydrogen absorption by the weld metal, increasing the risk of cracking, particularly in high-strength steels when low hydrogen electrodes are used. On the other hand, oscillating, vertical, and horizontal manipulations can be used effectively with proper technique, as they allow for better control over heat distribution and can help minimize issues related to hydrogen entrapment. It is essential to consider the welding position and the specific requirements of the project, but dragging should generally be minimized to ensure the integrity and performance of the weld joint.

2. What is the primary characteristic of the parent metal?

A. It's used as filler material.

B. It's a type of electrode.

C. It's the base material being welded.

D. It refers to the coating on welding rods.

The primary characteristic of the parent metal is that it is the base material being welded. Understanding this concept is essential in welding because the parent metal serves as the foundation for any welding process. It is the original material to which the weld is applied, and its properties, such as composition, thickness, and mechanical characteristics, significantly influence the outcome of the weld. When welders prepare to join two pieces of metal, they need to consider the characteristics of the parent metal to determine the appropriate welding techniques, filler materials, and electrodes to use. This ensures the integrity and safety of the welded joint. In contrast, the other options present different aspects related to the welding process but do not describe the parent metal itself. Filler materials and electrodes are supplementary components used in the welding process, while coatings on welding rods do not pertain to the base material.

3. Which of the following is an acceptable profile for a fillet weld?

A. Slightly concave

B. Flat faced

C. Slightly convex

D. All of the above

A fillet weld can assume various profiles while still being acceptable based on the standards outlined in the welding code. The profiles include slightly concave, flat-faced, and slightly convex shapes. Each of these profiles can provide adequate strength and fulfill the design requirements. A slightly concave profile occurs when the weld's surface curves inward slightly. This profile can help distribute stresses more evenly through the weld. A flat-faced profile means that the weld has a flat surface. This shape is often desirable for aesthetic reasons and can also ensure an even distribution of loads when connecting two surfaces. A slightly convex profile is characterized by a subtle outward curve at the top of the weld, which can enhance the weld's resistance to cracking and improve overall performance. Accepting all three profiles acknowledges the variability in welding conditions and the allowable tolerances under the applicable code, thereby accommodating practical considerations encountered in real-world welding applications. Such flexibility ensures that welders can achieve good weld quality under different circumstances while adhering to the requirements of the code.

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4. What is a possible cause of porosity in welds?

A. High Voltage

B. Moisture, Paint, Oil, Grease, Excessive Arc Length

C. Low Temperature

D. Fast Travel Speed

Porosity in welds is primarily caused by the entrapment of gas bubbles during the solidification process of the weld metal. The presence of contaminants such as moisture, paint, oil, and grease on the base material can lead to the formation of vapor when the weld is heated. This vapor can become trapped in the weld as it solidifies, resulting in small holes or pockets known as porosity. Moisture is particularly critical because when water vaporizes at high temperatures, it can produce significant gas that the molten weld metal cannot escape from quickly enough. Similarly, oil, grease, and paint can release gases as they burn away due to the intense heat of the welding process, contributing to this defect. While aspects like high voltage, low temperature, and fast travel speed can impact weld quality, they are not directly associated with the specific chemical and physical processes that lead to porosity in the same way that contaminants are. Therefore, the focus on various forms of contamination as a major cause effectively highlights the importance of proper surface preparation and material cleanliness in welding practices.

5. What is the designation for low alloy electrodes under AWS specifications?

A. A5.5

B. A5.2

C. A5.7

D. A5.1

The designation for low alloy electrodes under AWS specifications is A5.5. This designation is part of a system that categorizes various welding materials according to the American Welding Society's standards. Low alloy electrodes are specifically designed to provide enhanced mechanical properties, such as improved strength and toughness, compared to conventional carbon steel electrodes. These attributes are particularly important in applications where welded components must withstand higher stresses or environmental challenges. The correct designation A5.5 signifies that the electrodes meet the criteria laid out for low alloy steel fillers, ensuring that welds performed using these electrodes will maintain the required performance characteristics. Understanding the specific designations like A5.5 is essential for selecting the appropriate materials for various welding applications, as it directly impacts the quality and strength of the welds produced.

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6. Which type of arc welding is known for using a non-consumable tungsten electrode?

A. GMAW

B. GTWA

C. FCAW

D. SAW

The type of arc welding that utilizes a non-consumable tungsten electrode is Gas Tungsten Arc Welding (GTWA), also known as Tungsten Inert Gas (TIG) welding. In this process, the tungsten electrode is used to create the weld pool, and because it does not melt during the welding process, it remains intact throughout the operation. The heat generated by the electric arc between the tungsten electrode and the workpiece melts the base metal, and filler material can be added separately if needed. This method is particularly useful for welding thin materials and is known for producing high-quality, clean welds with excellent control over the welding parameters. The inert gas, typically argon or helium, protects the weld area from atmospheric contamination, ensuring strong and durable welds. Understanding the characteristics of GTWA is crucial for recognizing its suitable applications compared to other welding processes, which rely on consumable electrodes or different mechanisms. This knowledge enhances the ability to select the appropriate welding technique for various structural applications in accordance with the Los Angeles City Structural Welding Code.

7. What is a common reason for failure in GMAW?

A. Using too high a welding speed

B. Improper voltage settings

C. Using the wrong filler material

D. All of the above

A common reason for failure in Gas Metal Arc Welding (GMAW) is indeed related to various factors such as welding speed, voltage settings, and the choice of filler material. Each of these elements plays a crucial role in the quality of the weld. Using too high a welding speed can lead to inadequate fusion of the base material and the filler material. This can result in weak welds that lack strength and ductility, making them more prone to defects. Improper voltage settings can significantly affect the arc stability and heat input. If the voltage is too high or too low, it can lead to issues such as excessive spatter, poor arc control, and penetration problems, which detracts from the overall weld quality. Choosing the wrong filler material can also cause complications; using a filler that doesn't match the base metal properties can create issues such as cracking, reduced corrosion resistance, or insufficient strength in the weld. Since all these factors can contribute to a failure in GMAW, it underscores the importance of careful attention to welding parameters and material selection. Each choice reflects a critical aspect of the welding process that must be controlled to ensure strong and reliable welds.

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8. Using an extensive arc length when arc welding will lead to what issue?

A. Increased strength

B. Less splatter

C. Slightly cooler welds

D. Splatter

Using an extensive arc length during arc welding results in splatter due to the increased distance between the welding electrode and the workpiece. When the arc length is too long, the energy concentrated on the weld pool decreases, causing the molten metal to not be properly contained. This can lead to an erratic welding arc that produces additional spatter as the weld metal is ejected from the pool, rather than flowing smoothly into the joint being welded. In contrast, a shorter or correctly adjusted arc length allows for better control of the welding process, ensuring a more consistent and efficient operation, ultimately reducing the amount of splatter produced. This understanding is crucial for welders to master, leading to cleaner welds and minimize post-weld cleanup.

9. What is ASTM 500 specifically used to create?

A. Square Tubular Steel

B. Wide Flange Beams

C. Steel Plates

D. Channel Steel Sections

ASTM A500 is a specification that focuses on cold-formed welded and seamless carbon steel structural tubing in round, square, and rectangular shapes. Specifically, it addresses the requirements for the material's physical and mechanical properties, chemical composition, and manufacturing processes. The terminology "square tubular steel" directly aligns with one of the primary applications of ASTM A500, which guides the design and construction of structural components made from square tubes. The specification ensures that this type of steel tubing meets specific standards for strength, ductility, and toughness, making it suitable for various structural applications. The widespread use of square tubular steel in construction, for supports, frames, and other structural components, underscores its importance in complying with the ASTM A500 standard. Thus, this choice accurately reflects the primary purpose of ASTM A500.

10. Which manipulation type is recommended for welding with 6010 and 6011 electrodes?

A. Dragging

B. Oscillating

C. Stringer

D. Circular

The recommended manipulation type for welding with 6010 and 6011 electrodes is oscillating. Oscillating refers to a side-to-side motion while welding that helps in achieving better penetration and weld bead shape, especially with electrodes designed for producing deep penetration. 6010 and 6011 electrodes, which are commonly used for root passes and in situations where strong, penetrating welds are necessary, benefit from the oscillating technique because it spreads the heat and filler material across the weld joint more effectively. This technique allows the operator to control the weld pool better, which is crucial when working on plate edges or in difficult positions where the electrode needs to achieve a consistent fusion with the base metal. Other methods such as dragging or stringer may not provide the same level of control or penetration, which can lead to issues such as incomplete fusion or poor bead profile. Circular techniques may also be less effective with these specific electrodes. Therefore, using an oscillating motion optimizes the performance of 6010 and 6011 electrodes and contributes to building a strong and reliable weld.

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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:

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

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