

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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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 tensile strength that low alloy rods typically start at?**
 - A. 60 ksi
 - B. 70 ksi
 - C. 80 ksi
 - D. 90 ksi

- 2. If a groove weld has a specified size, what kind of penetration is it likely to achieve?**
 - A. Complete joint
 - B. Partial joint
 - C. Minimum joint
 - D. Insufficient joint

- 3. What does Chapter 7 in the D1.1 deal with?**
 - A. Inspection Techniques
 - B. Fabrication
 - C. Stud Welding
 - D. General Requirements

- 4. What is the main gas used in GMAW?**
 - A. O₂
 - B. Argon
 - C. CO₂
 - D. Acetylene

- 5. What does 'W' or 'WF' indicate in structural terms?**
 - A. Wide Flange Beams
 - B. Welded Frames
 - C. Weight Flange Beams
 - D. Wrought Flange Beams

- 6. GMAW is typically performed with what type of electrical currents?**
 - A. AC only
 - B. DC positive (DCEP) and DC reverse polarity (DCRP)
 - C. Single phase AC
 - D. DC negative (DCEN)

- 7. What does proper welder training primarily ensure?**
- A. Reduced costs
 - B. High productivity
 - C. Quality and safety in welds
 - D. Quick project completion
- 8. Which electrode designation is typically associated with clean steel applications?**
- A. ER70S-3
 - B. ER70S-6
 - C. ER90S-6
 - D. ER50S-6
- 9. What is a common term for the zone of material adjacent to a weld that experiences changes due to heat?**
- A. Weld zone
 - B. Heat Affected Zone
 - C. Fusion zone
 - D. Hardened zone
- 10. What does the term "porosity" refer to in welding?**
- A. Excessive Heat Damage
 - B. Gas Pockets or Voids Trapped in the Welds
 - C. Incomplete Fusion Between Base Materials
 - D. Excessive Spatter

Answers

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

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Explanations

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1. What is the tensile strength that low alloy rods typically start at?

- A. 60 ksi
- B. 70 ksi
- C. 80 ksi**
- D. 90 ksi

Low alloy rods are commonly used in structural welding applications for their enhanced strength and durability compared to standard carbon steels. The tensile strength of low alloy rods typically begins around 80 ksi (kilopounds per square inch). This level of strength makes them suitable for a variety of demanding applications, including those in heavy construction and structural components that require higher resistance to stress and loads. The designation of 80 ksi reflects the ability of these rods to withstand significant tensile forces, which is critical in ensuring the integrity and safety of welded structures. This level of strength is advantageous in applications where weight savings and high performance are desired, as it allows for the use of thinner materials while still achieving necessary structural support. Understanding the properties of low alloy rods, including their tensile strengths, is vital for welders and engineers when selecting materials for specific projects and ensuring that the final weldments meet required safety and performance standards.

2. If a groove weld has a specified size, what kind of penetration is it likely to achieve?

- A. Complete joint
- B. Partial joint**
- C. Minimum joint
- D. Insufficient joint

When discussing groove welds and their specified sizes, it's important to understand the concept of penetration and how it relates to the quality and effectiveness of the weld. A specified size for a groove weld indicates the designed depth and width of the weld that is expected to provide adequate strength and support for the joint being welded. In this context, a groove weld that has a specified size is likely to achieve partial joint penetration. This means that the weld will penetrate to a certain depth into the joint but may not fully penetrate through the entire thickness of the materials being joined. This is often acceptable in various welding applications where full penetration is not necessary for structural integrity, and it allows for manufacturing efficiencies and cost savings. Furthermore, partial penetration may be sufficient for the specific design requirements of the structure, as long as it meets the appropriate standards and guidelines outlined in welding codes such as the D1.1. This understanding is crucial for welding professionals, as it affects their joint design choices, welding parameters, and inspection criteria.

3. What does Chapter 7 in the D1.1 deal with?

- A. Inspection Techniques
- B. Fabrication
- C. Stud Welding**
- D. General Requirements

Chapter 7 of the D1.1 code specifically addresses Stud Welding. This chapter outlines the requirements, standards, and practices for welding studs to base materials, which is a specialized area within the field of welding. Stud welding is commonly used in construction and fabrication, allowing for effective attachment of components to structural members. Understanding the specific requirements of stud welding, such as the types of studs, the welding process, and quality control measures, is essential for ensuring both the integrity of the welds and the safety of the structures involved. This chapter provides detailed guidelines, helping welders understand how to properly execute stud welding and the necessary inspection methods to verify quality and compliance with the applicable codes. The other chapters cover different areas; for instance, inspection techniques, fabrication processes, and general requirements are addressed in separate chapters, each focusing on their unique aspect of welding practices.

4. What is the main gas used in GMAW?

- A. O₂
- B. Argon
- C. CO₂**
- D. Acetylene

The main gas used in Gas Metal Arc Welding (GMAW) is typically a mixture of argon and carbon dioxide, or just carbon dioxide alone in some applications. While carbon dioxide can be one of the gases in use, argon is generally favored because it provides a more stable arc and better control over the welding process. Argon is an inert gas, which helps in producing a cleaner weld with less spatter and oxidation. In many GMAW applications, particularly when welding thin materials or when a clean appearance is desired, a blend of argon with a small percentage of carbon dioxide is often used. This mixture leverages the benefits of both gases; argon for arc stability and carbon dioxide to enhance penetration. In summary, while carbon dioxide can be utilized in certain GMAW processes, argon is commonly recognized as the main gas due to its versatile properties in welding applications, contributing significantly to the overall quality of the weld.

5. What does 'W' or 'WF' indicate in structural terms?

- A. Wide Flange Beams**
- B. Welded Frames
- C. Weight Flange Beams
- D. Wrought Flange Beams

In structural terms, 'W' or 'WF' specifically denotes Wide Flange Beams. These beams are characterized by their wider flanges in relation to their web thickness, making them ideal for use in a variety of structural applications due to their strength and stability. The design and nomenclature are standardized, allowing engineers and builders to easily identify and specify the appropriate beam dimensions for construction projects. The 'W' designation ensures clarity in communication among professionals in the industry, providing certainty regarding the beam's shape and load-carrying capabilities. This understanding is crucial for anyone working in structural welding, as selecting the right beam type directly impacts the integrity and safety of the construction.

6. GMAW is typically performed with what type of electrical currents?

- A. AC only
- B. DC positive (DCEP) and DC reverse polarity (DCRP)**
- C. Single phase AC
- D. DC negative (DCEN)

GMAW, or Gas Metal Arc Welding, is primarily performed using direct current, specifically DCEN (Direct Current Electrode Negative) and DCEP (Direct Current Electrode Positive). The correct answer indicates that GMAW effectively utilizes both DCEP and DC reverse polarity (DCRP). In the context of GMAW, using DCEP is beneficial for providing a deeper penetration in the weld pool and ensuring better arc stability. This is particularly important for welding thicker materials or when a strong and stable arc is necessary. The DCRP can also be utilized in specific applications, enhancing the overall versatility of this welding process. GMAW is not typically performed with alternating current (AC), as this method can lead to an unstable arc and is less effective for the types of materials and thicknesses most commonly welded with GMAW techniques. Single-phase AC is associated more with different welding processes where the benefits of constant current and stability are not as critical. DC negative is primarily used in TIG welding rather than GMAW. Thus, the use of DCEP and DCRP effectively aligns with GMAW's operational requirements and advantages.

7. What does proper welder training primarily ensure?

- A. Reduced costs
- B. High productivity
- C. Quality and safety in welds**
- D. Quick project completion

Proper welder training primarily ensures quality and safety in welds. This encompasses the skills and knowledge necessary for welders to understand materials, welding techniques, and the importance of adhering to specific codes and standards, such as the Los Angeles City Structural Welding Code (D1.1). Trained welders are adept at producing strong, reliable welds that meet structural requirements, which is crucial for ensuring the safety and integrity of the constructed assemblies. Quality in welding not only relates to the visual appearance of the weld but also to its mechanical properties and ability to withstand required loads and stresses. Safety is paramount in welding operations, as improper techniques or inadequate knowledge can lead to defects in welds, which may result in structural failures, accidents, or injuries. While proper training can also positively impact costs, productivity, and project timelines, these aspects are secondary outcomes of achieving quality and safety standards. When welders are well-trained, it reduces the likelihood of mistakes that could lead to rework or failures that extend project completion times or increase costs.

8. Which electrode designation is typically associated with clean steel applications?

- A. ER70S-3**
- B. ER70S-6
- C. ER90S-6
- D. ER50S-6

The electrode designation commonly associated with clean steel applications is ER70S-3. This designation indicates that the electrode is typically used with mild or low alloy steel and has a specific level of weld metal strength and toughness. The 'ER' stands for "electrode filler rod," and the '70' denotes a minimum tensile strength of 70,000 psi. The 'S' indicates that the electrode is a solid type for use in welding, while the '-3' refers to the specific chemical composition and the intended application, which is generally suited for clean steel. In environments where the steel surfaces are clean and free of contaminants like oil, grease, and rust, the ER70S-3 electrode provides excellent arc stability and weld quality. It is designed for welding in a variety of positions and is commonly used in applications such as general fabrication and maintenance of structural steel. The other designations, while also suitable for specific applications, often contain alloying elements or specifications that make them less optimal for the clean steel context defined in the question. For example, ER70S-6 has higher deoxidizers, making it more suited for less clean conditions. Similarly, ER90S-6 and ER50S-6 are intended for higher strength

9. What is a common term for the zone of material adjacent to a weld that experiences changes due to heat?

- A. Weld zone
- B. Heat Affected Zone**
- C. Fusion zone
- D. Hardened zone

The term "Heat Affected Zone" refers to the area of base material that is affected by the heat generated during the welding process. This zone is crucial to understand because the thermal cycles associated with welding can lead to changes in the material's microstructure, mechanical properties, and overall performance. In the Heat Affected Zone, the temperature can rise sufficiently to alter the material properties near the weld, but not to the extent of melting the material as happens at the weld itself. Typically, the characteristics of this zone include changes in hardness, ductility, and tensile properties, which can pose challenges in the integrity of the weldment. Understanding the Heat Affected Zone is essential for predicting the performance of welded components and for selecting proper welding parameters to minimize detrimental effects. Recognizing the importance of this zone helps welders and engineers ensure that welded structures meet safety and performance standards, ultimately leading to more reliable and effective engineering solutions.

10. What does the term "porosity" refer to in welding?

- A. Excessive Heat Damage
- B. Gas Pockets or Voids Trapped in the Welds**
- C. Incomplete Fusion Between Base Materials
- D. Excessive Spatter

The term "porosity" in welding specifically refers to gas pockets or voids that become trapped within the weld metal during the solidification process. This phenomenon occurs when gases that are released during the melting of the base materials or from the filler material are unable to escape the molten weld pool before it solidifies. The presence of these voids can significantly impair the mechanical properties and integrity of the weld, leading to weaknesses that may result in failures under applied loads. Porosity is a crucial defect to recognize and control within the welding process, as it can affect not only the strength but also the appearance of the weld. The detection of porosity is typically carried out through visual inspections or non-destructive testing methods, which help ensure the quality and reliability of the welded joints in various applications. In contrast, other options such as excessive heat damage, incomplete fusion, and excessive spatter refer to different types of welding issues that can arise but do not accurately define porosity. Each of these other concerns has its own implications and corrective measures, thus highlighting the distinct nature of porosity as it pertains specifically to gas entrapment in welds.

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://losangelesd11.examzify.com>

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

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