Structural Welding Code – Steel (D1.1) City Certification Practice Test (Sample)

Study Guide

BY EXAMZIFY

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. ER70 S-6 is classified as a general type of what?

A. Flux-cored electrode

B. General purpose electrode

C. High-strength electrode

D. Sheet metal electrode

2. Base metals are also known as what?

A. Parent metal

B. Weld filler

C. Alloy metal

D. Core metal

3. Which welding process is primarily used for thicker materials in structural applications?

A. MIG Welding

B. TIG Welding

C. Stick Welding

D. Plasma Cutting

4. What does the "8" in the designation E71T-8 indicate?

A. AC polarity and gas use

B. DC positive and gas use

C. DC negative and no gas

D. AC voltage and shield gas required

5. What is the significance of the number 70 in electrode designations like E70C-X?

A. Indicates a strength of 70 KSI

B. Indicates a minimum yield strength of 70 kN/m²

C. Indicates a size of 70 mm

D. Indicates 70% purity

6. Which type of manipulation should be used when welding with electrodes 6010 and 6011?

A. Dragging

B. Oscillating

C. Weaving

D. Circle motion

7. How long can a 7018 rod be out of a sealed can?

A. 4 hours

B. 2 hours

C. 1 hour

D. 6 hours

8. What is the term for the weld that extends around the joint?

A. Boxing or end return

B. Fillet weld

C. Butt weld

D. Groove weld

9. What does stick welding on DCRP indicate about the polarity of the electrode?

A. Negative

B. Positive

C. Alternating

D. Neutral

10. What type of welding does the acronym FCAW refer to?

A. Flux-cored arc welding

B. Gas tungsten arc welding

C. Shielded metal arc welding

D. Gas metal arc welding

Answers

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

Explanations

1. ER70 S-6 is classified as a general type of what?

A. Flux-cored electrode

B. General purpose electrode

C. High-strength electrode

D. Sheet metal electrode

ER70 S-6 is classified as a general purpose electrode, which means it is designed for a wide range of welding applications, particularly in the welding of mild steel and some higher-strength steels. This classification indicates its versatility and suitability for various welding positions and conditions. ER70 S-6 is characterized by its ability to provide good weld quality and high impact toughness, making it an ideal choice for applications that require a strong and reliable bond. The 'ER' in its designation signifies that it is an electrode that can be used with either gas-shielded or non-shielded processes, further contributing to its general purpose designation. While flux-cored electrodes, high-strength electrodes, and sheet metal electrodes have specific applications and limitations, the classification of ER70 S-6 as a general-purpose electrode reflects its broader applicability in a range of structural and construction projects, thus emphasizing its importance in the welding industry.

2. 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.

3. Which welding process is primarily used for thicker materials in structural applications?

A. MIG Welding

B. TIG Welding

C. Stick Welding

D. Plasma Cutting

Stick welding, also known as Shielded Metal Arc Welding (SMAW), is primarily used for thicker materials in structural applications due to its versatility and ability to produce welds with excellent penetration. This process utilizes an electrode coated with a flux that melts and forms a protective shield over the weld pool, which is particularly beneficial when working with ferrous metals and in outdoor environments with wind or unfavorable conditions. The higher heat input and penetration capabilities make stick welding suitable for joints requiring significant strength and durability. It accommodates a wide range of materials including carbon steels, low alloy steels, and, with the right electrodes, even stainless steels, which are typically utilized in structural applications. Other welding processes, such as MIG (Metal Inert Gas) and TIG (Tungsten Inert Gas), are commonly used for thinner materials or applications where a more precise finish is required but might not always provide the same depth of penetration as stick welding when working with thick sections. Plasma cutting, on the other hand, is a cutting process rather than a welding process, and therefore, is not applicable for joining materials in structural applications.

4. What does the "8" in the designation E71T-8 indicate?

A. AC polarity and gas use

B. DC positive and gas use

C. DC negative and no gas

D. AC voltage and shield gas required

The "8" in the designation E71T-8 signifies the type of shielding gas used and the current polarity suitable for the electrode. In this context, it denotes that the electrode is designed for use with a specific shielding gas, usually CO_2 or a mixture of gases, and that it generally operates with DC negative polarity. This indication is critical for ensuring proper welding characteristics, such as arc stability and penetration, which depend significantly on the polarity and gas mixture utilized. The number also suggests that electrodes with this designation are intended for all-position welding applications and can effectively handle various materials and joint configurations. The right shielding gas, along with the designated polarity, contributes to the overall performance and quality of the weld, making it essential for welders to understand this designation clearly.

5. What is the significance of the number 70 in electrode designations like E70C-X?

A. Indicates a strength of 70 KSI

B. Indicates a minimum yield strength of 70 kN/m²

C. Indicates a size of 70 mm

D. Indicates 70% purity

The number 70 in electrode designations such as E70C-X signifies a minimum tensile strength of 70,000 psi (pounds per square inch), which is equivalent to 70 KSI (kilopounds per square inch). This designation is crucial as it informs welders and engineers about the anticipated strength of the weld produced using that electrode. The tensile strength is a critical factor in ensuring that the welded joint can withstand the expected loads and stresses in its intended application, thus maintaining structural integrity. Understanding this designation helps professionals in making informed choices regarding the suitability of a particular electrode for specific welding tasks and material types. Electrode designations follow a specific format established by the American Welding Society (AWS), where the first letter indicates the form (E for electrode) and the following numbers indicate the strength rating. This system allows for standardized communication in the welding industry regarding the properties of welding electrodes.

6. Which type of manipulation should be used when welding with electrodes 6010 and 6011?

A. Dragging

B. Oscillating

C. Weaving

D. Circle motion

When welding with electrodes 6010 and 6011, dragging movement is the appropriate technique. These specific electrodes, often used for root passes in pipe welding, perform best when a straight dragging motion is applied. This technique helps to produce a deep penetration and maintains a consistent arc length, which is essential for achieving the desired weld quality. Dragging allows the welder to control the deposition of the filler material effectively, minimizing spatter and ensuring a strong bond between the base metals. It's particularly useful for these types of electrodes as they are designed to operate well with a more straightforward motion that matches their penetration capabilities. Using other manipulation techniques, such as oscillation or weaving, may lead to inconsistent welds and can negatively impact the integrity of the joint. Oscillation tends to spread the heat and filler more widely, while weaving can increase the risk of defects due to variable coverage and penetration depths. Therefore, the best practice is a simple dragging method for optimal results when using 6010 and 6011 electrodes.

7. How long can a 7018 rod be out of a sealed can?

A. 4 hours

B. 2 hours

C. 1 hour

D. 6 hours

The correct duration for how long a low-hydrogen electrode, such as a 7018 rod, can be out of a sealed container is critical for maintaining its welding performance. These electrodes are designed to minimize hydrogen-induced cracking in welds, and exposure to moisture in the air can lead to an increase in hydrogen content in the rod, which compromises its effectiveness. The code specifies that a 7018 rod can be safely out of a sealed can for a maximum of 4 hours, allowing welders some flexibility during their work without immediately compromising the quality of their welds. Keeping track of this time limit is essential to ensure that the electrodes maintain their intended mechanical properties and prevent defects in the welds due to hydrogen absorption. This understanding is vital for maintaining the integrity of welded structures and adhering to the requirements of the Structural Welding Code.

8. What is the term for the weld that extends around the joint?

A. Boxing or end return

B. Fillet weld

C. Butt weld

D. Groove weld

The term for the weld that extends around the joint is referred to as boxing or end return. This type of weld is typically used to create a fully enclosed weld around the joint, providing increased strength and structural integrity. The boxing weld typically involves a continuous weld that wraps around to join two surfaces together at the edges, often applied in situations where added reinforcement is necessary, such as in corners or laps. In structural welding, understanding the terminology and definitions of different weld types is crucial. For instance, a fillet weld is used to join two surfaces at an angle and does not wrap around the joint. A butt weld is employed to join two pieces of metal along their edges, aligning them in the same plane rather than around a joint. Meanwhile, a groove weld is formed in a prepared groove and is commonly used for thicker materials or when deeper penetration is required. Each of these welding techniques has its specific applications and characteristics that distinguish them from boxing or end return welds.

9. What does stick welding on DCRP indicate about the polarity of the electrode?

A. Negative

B. Positive

C. Alternating

D. Neutral

In the context of stick welding using Direct Current Reverse Polarity (DCRP), the electrode is designated as positive. When using DCRP, the electrode (or cathode) is electrically positive, while the workpiece (or anode) is negative. This polarity configuration is crucial because it affects the welding process, including heat distribution and penetration. One of the primary benefits of DCRP in stick welding is that it allows for deeper penetration into the base metal, which is advantageous when working with thicker materials. The positive electrode also aids in stabilizing the arc and improving the transfer of metal from the electrode to the workpiece. Understanding the role of polarity is essential for welders, as it influences many aspects of the welding operation, including the characteristics of the weld bead, the amount of spatter produced, and the overall quality of the weld. Therefore, recognizing that stick welding on DCRP indicates a positive polarity for the electrode is important for anyone involved in or studying the structural welding code.

10. What type of welding does the acronym FCAW refer to?

A. Flux-cored arc welding

B. Gas tungsten arc welding

C. Shielded metal arc welding

D. Gas metal arc welding

The acronym FCAW stands for Flux-Cored Arc Welding, which is a process that uses a tubular wire filled with flux to produce a weld. This method has distinct advantages, including the ability to weld in various positions and with good penetration and speed. The flux inside the tubular wire creates a shielding gas when heated, protecting the weld area from atmospheric contamination. This feature enhances the quality of the weld and allows for effective welding in outdoor environments where wind could affect the shielding. Flux-Cored Arc Welding is especially popular for heavy steel sections and is widely used in construction and manufacturing industries due to its efficiency and versatility. The other welding processes mentioned, such as gas tungsten arc welding, shielded metal arc welding, and gas metal arc welding, each have their unique characteristics and applications, but they do not correspond to the acronym FCAW.

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!