

Technical Standards and Safety Authority (TSSA) G3 Practice Exam (Sample)

Study Guide



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. What type of gas is commonly used in rural areas?**
 - A. Natural gas**
 - B. Propane**
 - C. Butane**
 - D. Hydrogen**

- 2. A steam boiler must conform to the requirements of which agency or organization?**
 - A. The Technical Standards and Safety Authority**
 - B. The Heating, Refrigeration and Air Conditioning Institute of Canada**
 - C. The American Society of Mechanical Engineers, Technical Standards Division**
 - D. The Interprovincial Gas Advisory Council**

- 3. What are the major constituents of flue gases after the proper combustion of natural gas in air?**
 - A. CO, H₂O, N₂, excess air, and heat**
 - B. H₂O, N₂, primary air, and heat**
 - C. CO₂, H₂O, N₂, O₂, and heat**
 - D. O₂, CO, N₂, H₂O, and heat**

- 4. What is the total volume calculation for a room that is 16' long, 12' wide, and 7' tall?**
 - A. 192 cubic feet**
 - B. 1344 cubic feet**
 - C. 84 square feet**
 - D. 16,128 cubic feet**

- 5. What describes the configuration of a "Hi Boy" forced air gas furnace?**
 - A. Supply air exiting at the top and return air entering at the top**
 - B. Return air entering at the top and supply air exiting at the bottom**
 - C. Supply air entering at the bottom and return air exiting at the top**
 - D. Supply air exiting at the top and return air entering at the bottom**

- 6. What role does the B149 code play in gas fitting?**
- A. It regulates gas prices**
 - B. It provides installation and safety requirements for gas appliances and piping systems in Canada**
 - C. It describes the history of gas appliances**
 - D. It sets standards for customer service in gas fitting**
- 7. What does spillage of flue gases at the appliance draft diverter indicate?**
- A. An updraft condition in the appliance venting system**
 - B. Under firing**
 - C. Normal operation**
 - D. A restriction in the venting system**
- 8. What is meant by "drain line" in gas appliance terminology?**
- A. A pipe that carries gas to the appliance**
 - B. A pipe that removes gas from a tank**
 - C. A pipe that carries condensate away from an appliance**
 - D. A pipe that supplies water to the appliance**
- 9. What does "safety shut-off" mean in relation to gas appliances?**
- A. A manual switch operated by the user**
 - B. A mechanism that completely replaces gas lines**
 - C. A feature that automatically stops gas flow during a malfunction**
 - D. A warning system that alerts users of gas leaks**
- 10. Which phrase is true regarding the reporting of hazards?**
- A. The natural gas and propane installation code requires reporting hazardous installations within three working days**
 - B. The OSHA requires that hazards be reported within 72 hours**
 - C. The industry does not demand that hazards be reported for correction**
 - D. The hazard is the responsibility of the person who is aware of it**

Answers

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

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Explanations

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1. What type of gas is commonly used in rural areas?

A. Natural gas

B. Propane

C. Butane

D. Hydrogen

Propane is commonly used in rural areas for several reasons. One primary factor is its portability and versatility; propane can be stored in tanks and is delivered to locations that may not have access to piped natural gas infrastructure. This makes it an excellent choice for areas where natural gas may not be readily available. Additionally, propane is an efficient fuel that can be used for various applications, including heating, cooking, and even powering certain types of vehicles. In rural settings where electric infrastructure may be less developed, propane serves as a reliable energy source for residential and agricultural needs. Natural gas, while popular in urban environments where pipeline infrastructure exists, may not be feasible in remote rural locations. Butane also has limitations in cold weather and is often used in smaller applications, such as portable heaters and lighters, rather than as a primary heating fuel. Hydrogen, although it is gaining attention as a clean energy source, is not yet widely adopted for heating in rural areas due to availability and storage challenges. Overall, propane's combination of availability, efficiency, and adaptability makes it the preferred gas type in many rural settings.

2. A steam boiler must conform to the requirements of which agency or organization?

A. The Technical Standards and Safety Authority

B. The Heating, Refrigeration and Air Conditioning Institute of Canada

C. The American Society of Mechanical Engineers, Technical Standards Division

D. The Interprovincial Gas Advisory Council

A steam boiler is required to conform to the standards set by the Technical Standards and Safety Authority (TSSA) because this organization is responsible for regulating and promoting safety in various sectors, including boilers and pressure vessels in Ontario, Canada. The TSSA establishes safety standards, conducts inspections, and enforces compliance with regulations to ensure that boilers operate safely and efficiently. While other organizations listed may play a role in broader safety standards or specific equipment, they do not have the regulatory authority over steam boilers in the jurisdiction covered by the TSSA. The focus of the TSSA is specifically on safety and regulatory compliance in boilers and similar technologies, making it the authoritative body in this context.

3. What are the major constituents of flue gases after the proper combustion of natural gas in air?

- A. CO, H₂O, N₂, excess air, and heat
- B. H₂O, N₂, primary air, and heat
- C. CO₂, H₂O, N₂, O₂, and heat**
- D. O₂, CO, N₂, H₂O, and heat

The major constituents of flue gases after the proper combustion of natural gas in air primarily include carbon dioxide (CO₂), water vapor (H₂O), nitrogen (N₂), oxygen (O₂), and heat. During the combustion process of natural gas, which is primarily composed of methane (CH₄), the hydrocarbons react with oxygen from the air to produce carbon dioxide and water, generating heat as a byproduct. Under ideal combustion conditions, the reaction can be expressed as follows: $\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O} + \text{heat}$. In this ideal scenario, nitrogen is also present in the air and doesn't react but is carried along in the flue gas. Excess oxygen could also be present depending on the efficiency of the combustion process, but typically it is in smaller amounts compared to the main products. This composition—primarily CO₂ and H₂O, along with nitrogen and residual oxygen—correctly represents the expected constituents of flue gases after complete and proper combustion of natural gas. The inclusion of heat indicates that the combustion reaction is exothermic, which is why it is generated as a product. Understanding this process is crucial for optimizing combustion efficiency and controlling emissions in heating systems.

4. What is the total volume calculation for a room that is 16' long, 12' wide, and 7' tall?

- A. 192 cubic feet
- B. 1344 cubic feet**
- C. 84 square feet
- D. 16,128 cubic feet

To calculate the total volume of a room, the formula used is: $\text{Volume} = \text{Length} \times \text{Width} \times \text{Height}$. In this case, the room dimensions are 16 feet in length, 12 feet in width, and 7 feet in height. Plugging these values into the formula gives: $\text{Volume} = 16 \text{ feet} \times 12 \text{ feet} \times 7 \text{ feet}$. Carrying out the calculations: First, calculate the area of the base: $16 \text{ feet} \times 12 \text{ feet} = 192 \text{ square feet}$. Next, multiply the area by the height: $192 \text{ square feet} \times 7 \text{ feet} = 1344 \text{ cubic feet}$. Thus, the total volume of the room is 1344 cubic feet. This calculation demonstrates the process of finding volume using the standard dimensions provided, and affirming that volume is indeed expressed in cubic units, suitable for three-dimensional space.

5. What describes the configuration of a "Hi Boy" forced air gas furnace?

- A. Supply air exiting at the top and return air entering at the top**
- B. Return air entering at the top and supply air exiting at the bottom**
- C. Supply air entering at the bottom and return air exiting at the top**
- D. Supply air exiting at the top and return air entering at the bottom**

The correct description of a "Hi Boy" forced air gas furnace is that supply air exits at the top and return air enters at the bottom. This configuration allows for effective circulation of air throughout the space being heated. With the supply air coming out from the top, it efficiently rises into the living areas, promoting even distribution of warm air. The design facilitates a natural flow where the cooler air is drawn back into the furnace from the lower part of the space, maintaining a continuous cycle of heating. This operational principle is important in ensuring that the furnace performs effectively, making it a common choice in residential heating systems. The layout also allows for optimal efficiency and comfort, as heat rises and cooler air is properly managed.

6. What role does the B149 code play in gas fitting?

- A. It regulates gas prices**
- B. It provides installation and safety requirements for gas appliances and piping systems in Canada**
- C. It describes the history of gas appliances**
- D. It sets standards for customer service in gas fitting**

The B149 code is a crucial aspect of gas fitting as it provides comprehensive installation and safety requirements for gas appliances and piping systems in Canada. This code ensures that gas installations are performed safely and in compliance with established technical standards, thus minimizing risks associated with gas use, such as leaks, explosions, and other hazards. By defining clear guidelines for installation practices, material specifications, and safety protocols, the B149 code helps protect both consumers and technicians working in the gas fitting industry. It covers a variety of elements, including proper venting, connection procedures, and maintenance standards, making it an essential reference for anyone involved in the gas fitting process. Although other options suggest important concepts related to gas fitting, they do not accurately reflect the primary function of the B149 code. It is specifically focused on the technical and safety aspects of installations, rather than pricing, historical context, or customer service standards.

7. What does spillage of flue gases at the appliance draft diverter indicate?

- A. An updraft condition in the appliance venting system**
- B. Under firing**
- C. Normal operation**
- D. A restriction in the venting system**

The spillage of flue gases at the appliance draft diverter indicates a restriction in the venting system. When flue gases do not efficiently exit the appliance through the venting system, it can result in their release around the draft diverter, which is designed to safely redirect flue gases. This spillage is a sign that there may be an obstruction or restriction present, such as a blockage in the chimney or flue, which prevents the proper drafting of exhaust gases. Proper venting is critical for ensuring that flue gases are removed from the appliance safely and efficiently to maintain good combustion and indoor air quality. Other conditions such as an updraft, under firing, or normal operation do not typically result in spillage at the draft diverter. An updraft suggests that gases are moving properly upward as expected, while under firing might lead to incomplete combustion rather than a spillage issue. Normal operation would not produce flue gas spillage as the venting system would be functioning effectively.

8. What is meant by “drain line” in gas appliance terminology?

- A. A pipe that carries gas to the appliance**
- B. A pipe that removes gas from a tank**
- C. A pipe that carries condensate away from an appliance**
- D. A pipe that supplies water to the appliance**

In gas appliance terminology, a "drain line" specifically refers to a pipe designed to carry condensate away from an appliance. This is particularly important in appliances that produce water as a byproduct of combustion, such as high-efficiency condensing boilers or water heaters. These appliances generate condensate when the combustion gases cool and moisture forms, which needs to be drained safely to prevent water damage or other hazards. Understanding the function of a drain line is essential for proper installation and maintenance of gas appliances. It ensures that condensate is effectively removed from the appliance and does not accumulate, which could lead to operational issues or potential safety concerns. The other options describe different types of pipes that do not closely align with the specific function of removing condensate from a gas appliance, which clarifies why option C is the most accurate description of a drain line in this context.

9. What does "safety shut-off" mean in relation to gas appliances?

- A. A manual switch operated by the user**
- B. A mechanism that completely replaces gas lines**
- C. A feature that automatically stops gas flow during a malfunction**
- D. A warning system that alerts users of gas leaks**

The term "safety shut-off" refers to a crucial feature in gas appliances designed to enhance user safety by automatically stopping the flow of gas in the event of a malfunction. This mechanism acts as a protective measure to prevent dangerous situations, such as gas leaks or potential explosions, which can occur if gas continues to flow when an appliance is not operating correctly. This automatic response is vital in ensuring that gas is only delivered to the appliance under safe conditions, thereby significantly reducing the risk of accidents related to gas supply issues. In contrast, a manual switch operated by the user would require action from the operator to stop the gas flow, which may not help in emergency situations where immediate response is necessary. Replacing gas lines entirely does not inherently provide a safety mechanism for shutting-off gas flow during a malfunction. Finally, a warning system that alerts users of gas leaks serves a different purpose; while it plays an important role in safety by informing users of potential hazards, it does not actively prevent gas from flowing, as a safety shut-off system does. Therefore, the automatic functionality of the safety shut-off is what distinguishes it as a vital safety feature in gas appliances.

10. Which phrase is true regarding the reporting of hazards?

- A. The natural gas and propane installation code requires reporting hazardous installations within three working days**
- B. The OSHA requires that hazards be reported within 72 hours**
- C. The industry does not demand that hazards be reported for correction**
- D. The hazard is the responsibility of the person who is aware of it**

The phrase that indicates the responsibility of the individual aware of a hazard is true and reflects an important aspect of workplace safety and accountability. When a person encounters a hazard, it is their duty to report it to ensure that appropriate actions are taken to mitigate any risks associated with it. This principle emphasizes personal responsibility for safety and the role that each individual plays in maintaining a safe environment. The concept of personal accountability in reporting hazards has significant implications for safety culture within organizations. It fosters an atmosphere where individuals are empowered to speak up about potential dangers, ultimately leading to proactive measures being taken to address those risks. While other choices involve specific regulations and timelines for reporting, they do not capture the foundational idea of personal responsibility like the correct answer does.

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://tssa-g3.examzify.com>

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