

# Technical Standards and Safety Authority (TSSA) G2 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

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- 1. A thermostat serving a unit with separate heating and cooling control transformers and one stage of each is classified as a ... control.**
  - A. SPST**
  - B. SPDT**
  - C. DPST**
  - D. DPDT**
  
- 2. What is the recommended humidistat control setting during the summer?**
  - A. 0%**
  - B. 10%**
  - C. 20%**
  - D. 30%**
  
- 3. A pilotstat will de-energize after how many seconds?**
  - A. 0.8 seconds**
  - B. 10 seconds**
  - C. 90 seconds**
  - D. 4 seconds**
  
- 4. What is the primary function of a flue gas analyzer?**
  - A. To measure humidity levels**
  - B. To assess efficiency of combustion processes**
  - C. To detect air pressure in the system**
  - D. To monitor fuel levels**
  
- 5. Which refrigerant is commonly used in modern absorption refrigerators?**
  - A. R-12**
  - B. Ammonia**
  - C. Freon**
  - D. R-134a**

- 6. What is the function of a fixed draft hood?**
- A. Negative over fire draft**
  - B. Positive over fire draft**
  - C. Zero (neutral) over fire draft**
  - D. Variable over fire draft condition**
- 7. Aquastats respond to changes in:**
- A. Flue gas temperature**
  - B. Water temperature**
  - C. Stack temperature**
  - D. Air temperature.**
- 8. Where should vapor barriers be installed?**
- A. The inside of the insulation**
  - B. The outside of the insulation**
  - C. The cold side of the insulation**
  - D. The warm side of the insulation**
- 9. Considering 3 hot water boilers and heaters, what size should the grill be with 80% free air space?**
- A. 275 sq in**
  - B. 300 sq in**
  - C. 1200 sq in**
  - D. 240 sq in**
- 10. A one cubic foot test dial on an NG meter makes one revolution every 22 seconds. Approximately how many BTUH are being generated?**
- A. 164MBH**
  - B. 41MBH**
  - C. 75MBH**
  - D. 82MBH**

## Answers

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

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## **Explanations**

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**1. A thermostat serving a unit with separate heating and cooling control transformers and one stage of each is classified as a ... control.**

- A. SPST**
- B. SPDT**
- C. DPST**
- D. DPDT**

A thermostat serving a unit with separate heating and cooling control transformers and one stage of each is classified as a DPDT (Double Pole Double Throw) control. This classification indicates that the thermostat has two separate circuits, allowing it to control both heating and cooling functionalities. In a DPDT configuration, the device features two poles (which can control two independent circuits) and each pole can connect to one of two outputs, effectively providing the ability to switch between different states for both the heating and cooling systems. This is important because it allows a thermostat to switch between heating and cooling depending on the temperature setpoint, ensuring comfort and efficiency in various conditions. In contrast, options like SPST or SPDT would not adequately manage separate circuits for heating and cooling since they are single-pole configurations. An SPST (Single Pole Single Throw) operates only one circuit, while an SPDT (Single Pole Double Throw) can switch between two paths but cannot handle multiple independent systems like a heating and cooling setup effectively. The DPST, while it manages two circuits, lacks the capability of changing between multiple outputs as required in this situation. Thus, DPDT is the most appropriate classification for the given setup.

**2. What is the recommended humidistat control setting during the summer?**

- A. 0%**
- B. 10%**
- C. 20%**
- D. 30%**

The recommended humidistat control setting during the summer is typically at a level that effectively manages indoor humidity while maintaining comfort and energy efficiency. A setting of 30% is generally advised. At this level, it helps to prevent excessive humidity, which can lead to discomfort and potential growth of mold and mildew. Maintaining humidity around 30% allows for a comfortable indoor environment while also reducing the load on air conditioning systems, as high humidity can make it feel warmer than it actually is. This is particularly significant during the summer months when outdoor temperatures soar, and excessive indoor humidity can contribute to heat stress amidst already elevated temperatures. A setting lower than 30% may not be practical or necessary, as it could lead to excessively dry air, causing discomfort and potential health issues.

**3. A pilotstat will de-energize after how many seconds?**

- A. 0.8 seconds**
- B. 10 seconds**
- C. 90 seconds**
- D. 4 seconds**

The correct answer indicates that a pilotstat will de-energize after 90 seconds. This timing is important in the context of safety and control systems where pilotstat devices are commonly used. They serve to monitor and manage specific functions, particularly in environments where it's crucial to ensure that equipment does not remain energized unnecessarily. A pilotstat is designed to re-evaluate conditions at regular intervals. If the conditions remain as they should, it allows the device to stay energized. However, if conditions indicate a failure or unsafe state, the pilotstat will de-energize the system after a predetermined time — in this case, 90 seconds is used to ensure that sufficient time has passed to assess the system's status and take action if necessary. This feature helps prevent potential hazards, ensuring that equipment does not remain in operation when it is supposed to shut down, thereby enhancing safety for operators and the surrounding environment.

**4. What is the primary function of a flue gas analyzer?**

- A. To measure humidity levels**
- B. To assess efficiency of combustion processes**
- C. To detect air pressure in the system**
- D. To monitor fuel levels**

The primary function of a flue gas analyzer is to assess the efficiency of combustion processes. This tool measures various gases present in the flue gas, such as carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxygen (O<sub>2</sub>), and nitrogen oxides (NO<sub>x</sub>). By analyzing the proportions of these gases, the analyzer can determine how effectively the fuel is being burned and how much of it is being converted into useful energy, as well as how much is wasted. High combustion efficiency indicates that most of the fuel is being converted to energy, while poor efficiency can lead to increased emissions and wasted fuel. This focuses on assessing the overall performance of combustion appliances, ensuring they are operating within safe and efficient parameters. Understanding combustion efficiency is crucial for optimizing energy use and minimizing environmental impact, making the flue gas analyzer an essential tool in the maintenance and evaluation of heating systems.

**5. Which refrigerant is commonly used in modern absorption refrigerators?**

- A. R-12
- B. Ammonia**
- C. Freon
- D. R-134a

Ammonia is commonly used in modern absorption refrigerators due to its effective thermodynamic properties and its suitability for absorption refrigeration systems. In these systems, ammonia serves as the refrigerant that absorbs heat during the evaporation process, making it essential for cooling applications. Its high cooling capacity and efficiency in low-temperature operations contribute significantly to the effectiveness of absorption refrigeration. The use of ammonia is particularly prevalent in large-scale applications, such as commercial refrigeration and industrial processes, because of its efficiency and relatively low environmental impact compared to synthetic refrigerants. Additionally, ammonia is a natural refrigerant that does not deplete the ozone layer and has a low global warming potential, aligning with modern sustainability goals in refrigerant use. In contrast, the other refrigerants listed, such as R-12, Freon, and R-134a, are primarily found in compression refrigeration systems or have been phased out in many applications due to environmental concerns related to ozone depletion or greenhouse gas emissions. Therefore, recognizing ammonia's role in absorption refrigerators underscores the evolution of refrigerants in line with both efficiency and environmental regulations.

**6. What is the function of a fixed draft hood?**

- A. Negative over fire draft
- B. Positive over fire draft
- C. Zero (neutral) over fire draft**
- D. Variable over fire draft condition

The function of a fixed draft hood is to maintain a neutral or zero over fire draft condition. This is essential for ensuring that combustion air is properly supplied to the appliance while preventing excessive draft that could lead to unstable combustion or increased emissions. A fixed draft hood allows for the proper mixing of combustion gases with the surrounding air, which is important for optimizing the efficiency of the fuel-burning process. By maintaining a neutral draft, the hood helps to stabilize the performance of the appliance, ensuring that it operates safely and effectively under varying conditions of pressure in the flue and surrounding environment. The other options refer to different draft conditions that would not accurately represent the role of a fixed draft hood. Negative over fire draft implies a situation where the pressure is lower than the atmospheric pressure, which could cause reverse flow of combustion gases. Positive over fire draft indicates higher pressure, risking spillage of combustion products. Variable over fire draft conditions fluctuate and do not provide the consistent operation that is crucial for safety and efficiency, which is exactly what a fixed draft hood is designed to mitigate.

## 7. Aquastats respond to changes in:

- A. Flue gas temperature
- B. Water temperature**
- C. Stack temperature
- D. Air temperature.

Aquastats are devices specifically designed to monitor and respond to changes in water temperature within a heating system. Their primary function is to ensure that the water is maintained at an optimal temperature for efficient operation, often in hot water heating systems, such as boilers or hydronic heating systems. When the water temperature falls below a certain set point, the aquastat activates the heating element to raise the temperature, and conversely, it can shut off the heating element when the water temperature exceeds a specified limit. In contrast, flue gas temperature, stack temperature, and air temperature are not the primary functions of aquastats. These parameters may relate to the efficiency or safety of combustion processes but do not directly involve the operation of aquastats in regulating water temperature. Therefore, the focus of aquastats on monitoring and responding to water temperature is crucial for the effective management of heating systems.

## 8. Where should vapor barriers be installed?

- A. The inside of the insulation
- B. The outside of the insulation
- C. The cold side of the insulation
- D. The warm side of the insulation**

Vapor barriers are essential components in building construction, particularly in managing moisture and controlling condensation. They are installed on the warm side of the insulation, which is critical for effective moisture control. When warm, moist air comes into contact with cold surfaces, condensation can occur. By placing the vapor barrier on the warm side, it effectively prevents this warm air from reaching the cold surfaces where it could cause condensation to form. This helps protect the insulation and the structural integrity of the building by reducing the risk of mold growth and material degradation due to moisture intrusion. In climates where heating is predominant, it is especially important to keep warm, moisture-laden air from penetrating into colder walls or roof spaces, as this can result in significant moisture problems over time. Thus, the placement of the vapor barrier is a key consideration in building design to ensure long-term durability and safety.

**9. Considering 3 hot water boilers and heaters, what size should the grill be with 80% free air space?**

- A. 275 sq in**
- B. 300 sq in**
- C. 1200 sq in**
- D. 240 sq in**

To determine the appropriate grill size for ventilation with 80% free air space for three hot water boilers and heaters, it's essential to understand how the air intake requirements correlate with the size of the grill. The calculation involves determining the total BTU output capacity of all the units combined and then referencing the required amount of free air intake per BTU, considering that 80% of the grill must be free air space to ensure adequate airflow for combustion and efficient operation. Given the information provided, if the total required air space calculated based on the BTU input of the systems leads to a requirement of 275 square inches of grill area while accounting for the 80% free air space, then this is the correct size. The 80% free air consideration is vital because it allows sufficient airflow to facilitate proper combustion and keep the equipment running safely and efficiently. A grill size that is too small may restrict airflow, potentially leading to unsafe operating conditions, whereas a properly sized grill ensures that the boilers and heaters have the necessary air supply for optimal function. In summary, a grill size of 275 square inches, which meets the free air space standard, effectively supports the operational requirements of the hot water boilers and heaters while promoting safe and efficient operation

**10. A one cubic foot test dial on an NG meter makes one revolution every 22 seconds. Approximately how many BTUH are being generated?**

- A. 164MBH**
- B. 41MBH**
- C. 75MBH**
- D. 82MBH**

To determine how many BTUH (British Thermal Units per Hour) are being generated based on the meter's dial revolutions, we first need to understand the relationship between the dial's movement and the gas flow rate. Since the test dial shows one cubic foot per revolution and it takes 22 seconds for one revolution, we can calculate the flow rate in terms of cubic feet per hour. In one hour, there are 3,600 seconds. Therefore, the number of revolutions in one hour can be calculated as follows:  $\text{Revolutions per hour} = \frac{3600 \text{ seconds}}{22 \text{ seconds/revolution}} \approx 163.64 \text{ revolutions per hour}$  Since each revolution corresponds to one cubic foot of gas, this means about 163.64 cubic feet of gas are flowing per hour. Next, we need to convert the flow rate from cubic feet per hour to BTUH. Natural gas has a heat content that can vary slightly, but a common average is about 1,000 BTUs per cubic foot for natural gas. Therefore, to find the BTUH being generated, we multiply the flow rate in cubic feet per hour by the heat content

## 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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://tssag2.examzify.com>**

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

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