

# Examination for Architects in Canada (ExAC) Section 1 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. What are the critical characteristics of expansion joints?**
  - A. Heavy and rigid for durability**
  - B. Highly decorative and aesthetic**
  - C. Flexible and weathertight for effectiveness**
  - D. Located away from high-stress areas**
  
- 2. Which estimate is characterized by a 10% accuracy rate?**
  - A. Class C Estimate**
  - B. Class B Estimate**
  - C. Class D Estimate**
  - D. Class A Estimate**
  
- 3. What is included in the documentation for obtaining client approval of the schematic design?**
  - A. Statement of probable construction costs**
  - B. Final construction documents**
  - C. Comprehensive project plan**
  - D. Design revisit documentation**
  
- 4. What type of system is typically required for spaces that necessitate simultaneous heating and cooling?**
  - A. A single pipe hydronic system**
  - B. A two-pipe system**
  - C. A 4-pipe system**
  - D. An induction system**
  
- 5. What should mechanical engineering services focus on in the DD phase?**
  - A. Types of air conditioning systems**
  - B. Material selection for windows**
  - C. Construction of the building envelope**
  - D. Landscaping requirements**

- 6. What heating medium is used in Hot-water heating systems?**
- A. Air heated by a furnace**
  - B. Water heated in a boiler**
  - C. Steam generated from electricity**
  - D. Natural gas combusted in a heater**
- 7. Which document details the operational needs for mechanical systems?**
- A. Schematic design**
  - B. Energy modeling report**
  - C. Preliminary code analysis**
  - D. System controls and energy management analysis**
- 8. What component of a mechanical system is primarily responsible for conditioning interior spaces?**
- A. Sewage disposal system**
  - B. HVAC system**
  - C. Fire suppression systems**
  - D. Vertical transportation systems**
- 9. What is a key element observed when preparing a functional program for a building?**
- A. The design aesthetics and finishes**
  - B. The users of the building and their work activities**
  - C. The local climate and weather patterns**
  - D. The architectural style and historical context**
- 10. What is a characteristic of a Class A estimate?**
- A. It is based on historic cost data.**
  - B. It is submitted at the conclusion of the design development phase.**
  - C. It is based on specified project systems and realistic construction schedules.**
  - D. It serves as a rough order of magnitude for treasury board approval.**

## Answers

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

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## **Explanations**

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## 1. What are the critical characteristics of expansion joints?

- A. Heavy and rigid for durability
- B. Highly decorative and aesthetic
- C. Flexible and weathertight for effectiveness**
- D. Located away from high-stress areas

Expansion joints are critical components in construction and engineering that allow for movement caused by temperature changes, settling, and other factors. The correct choice highlights that these joints need to be flexible and weathertight to perform their intended function effectively. Flexibility is essential as it enables the expansion joint to accommodate the movement of the building materials without causing structural damage or failure. This is particularly important in environments where temperature variations can cause materials to expand and contract. If the expansion joint were rigid, it would not absorb these movements effectively, leading to cracks or other structural issues. Being weathertight is also crucial, as expansion joints are exposed to the elements. Proper sealing helps prevent water infiltration, which can cause additional damage to both the joint itself and the surrounding materials. A weathertight seal ensures that moisture does not enter the building, preventing problems such as mold growth or corrosion. The other characteristics mentioned for expansion joints, such as being heavy and rigid, decorative, or located away from high-stress areas, do not address the fundamental purpose of expansion joints. The core emphasis should be on their functional requirements, which revolve around flexibility and the ability to maintain a barrier against weather conditions.

## 2. Which estimate is characterized by a 10% accuracy rate?

- A. Class C Estimate
- B. Class B Estimate**
- C. Class D Estimate
- D. Class A Estimate

A Class B Estimate is recognized for having a 10% accuracy rate. This level of estimate usually occurs during the design development phase, where more detailed information about the project is available compared to earlier phases. At this stage, quantities and costs can be more accurately assessed, leading to a tighter range of expected costs. Class B Estimates are typically based on preliminary designs, allowing architects and project managers to present a reasonable approximation of the project's financial requirements. This level of accuracy is particularly useful for budgeting purposes, as it helps stakeholders gauge financial feasibility around the time the design is being finalized but before construction documents are complete. In contrast, other classes of estimates, such as Class A or Class C, display different accuracy profiles, with Class A being highly refined usually closer to the actual costs, and Class C being much less accurate and generally used in the conceptual phase of a project. Thus, Class B's defining characteristic of a 10% accuracy makes it distinctive among the various types of estimates employed in architectural costing.

### 3. What is included in the documentation for obtaining client approval of the schematic design?

- A. Statement of probable construction costs**
- B. Final construction documents**
- C. Comprehensive project plan**
- D. Design revisit documentation**

In the process of obtaining client approval for the schematic design, it's essential to provide a statement of probable construction costs. This document gives the client an understanding of the financial implications of the proposed design, which is critical in making informed decisions about the project. It allows the client to assess whether the design aligns with their budget and expectations before moving on to the more detailed phases of design development and construction documentation. By presenting a cost estimate at the schematic design stage, the architect facilitates transparent communication with the client, fostering trust and collaboration. When clients are aware of preliminary costs, they can approve the design or suggest necessary adjustments that align with their financial goals. This early engagement with cost considerations also aids in avoiding surprises later on when more detailed plans are developed. The other choices, such as final construction documents or a comprehensive project plan, typically appear later in the project lifecycle once the schematic design has been approved. Design revisit documentation is more focused on addressing specific feedback on the design rather than providing the necessary information for initial approval. Thus, the statement of probable construction costs is a key component that directly influences the client's decision-making during the schematic design phase.

### 4. What type of system is typically required for spaces that necessitate simultaneous heating and cooling?

- A. A single pipe hydronic system**
- B. A two-pipe system**
- C. A 4-pipe system**
- D. An induction system**

The appropriate choice for spaces that require simultaneous heating and cooling is a 4-pipe system. This system consists of two pairs of pipes: one pair carries hot water while the other carries chilled water. This configuration allows for the delivery of both heating and cooling to different zones or spaces as needed, making it ideal for environments where temperature control is essential throughout different areas simultaneously. In a 4-pipe system, when one space requires heating, hot water can be delivered directly to that area, while simultaneously, chilled water can be provided to another space requiring cooling. This flexibility ensures that the thermal comfort of various zones within a building can be effectively managed without conflict, providing a more efficient and responsive approach to climate control. Other systems, such as a single pipe hydronic system or a two-pipe system, do not provide the same level of temperature control. A single pipe system is limited to either heating or cooling at any given time, and a two-pipe system also typically cannot handle simultaneous heating and cooling effectively, as it usually only allows for one function to be active at a time. An induction system, while capable of cooling, does not inherently provide heating unless combined with other methods, making it less suited for simultaneous temperature management.

**5. What should mechanical engineering services focus on in the DD phase?**

- A. Types of air conditioning systems**
- B. Material selection for windows**
- C. Construction of the building envelope**
- D. Landscaping requirements**

In the Design Development (DD) phase, mechanical engineering services primarily focus on establishing the specifics of the building's heating, ventilation, and air conditioning systems, which are critical for providing comfort, air quality, and energy efficiency within the space. By concentrating on the types of air conditioning systems, mechanical engineers outline the necessary specifications, performance criteria, and integration with other systems, ensuring that the mechanical design meets the project's overall goals and regulatory requirements. This phase is essential for refining the initial design concepts, allowing for a more detailed understanding of how these systems will function within the building, which is crucial for later stages such as construction documentation and implementation. Establishing the air conditioning system also involves considerations of energy efficiency, which is integral in today's architectural practices, particularly in sustainable design. While material selection for windows, construction of the building envelope, and landscaping requirements are all important aspects of the overall building design, they fall more squarely under the umbrella of architectural and civil engineering considerations rather than the mechanical engineering focus. Therefore, emphasizing types of air conditioning systems is key in the DD phase to ensure that all aspects of the mechanical systems are addressed adequately.

**6. What heating medium is used in Hot-water heating systems?**

- A. Air heated by a furnace**
- B. Water heated in a boiler**
- C. Steam generated from electricity**
- D. Natural gas combusted in a heater**

In hot-water heating systems, the heating medium utilized is water heated in a boiler. This system works by circulating hot water through pipes to radiators or other heat emitters within a structure, providing effective and efficient heating. The boiler heats the water using various energy sources, including electricity, natural gas, propane, or oil. The heated water then flows through the heating distribution system, transferring heat to the living spaces. This method is advantageous due to its ability to maintain a consistent temperature and can be more energy-efficient compared to other heating methods. The efficiency and performance of hot-water systems rely heavily on the water as a medium, which has a high heat capacity and can retain heat well, making it a preferred choice for residential and commercial heating applications. This understanding is crucial for architects and engineers in designing comfortable and energy-efficient spaces.

**7. Which document details the operational needs for mechanical systems?**

- A. Schematic design**
- B. Energy modeling report**
- C. Preliminary code analysis**
- D. System controls and energy management analysis**

The document that details the operational needs for mechanical systems is one focused on system controls and energy management analysis. This analysis provides critical insights into how various mechanical systems will function, interact, and be controlled within the context of a facility. It encompasses specifics such as the requirements for heating, ventilation, air conditioning (HVAC), and other mechanical systems, detailing how energy consumption is managed and optimized for efficiency. The content of this document is vital as it ensures that the mechanical systems not only meet the design intent but also function effectively within the constraints of operational needs and energy performance goals. It guides architects and engineers in making informed decisions about equipment selection, control strategies, and system integration, leading to a more sustainable and functional building design. The other documents mentioned, such as schematic design, energy modeling report, and preliminary code analysis, serve different purposes. Schematic design focuses on the overall form and layout of the project rather than the specifics of mechanical operations. Energy modeling reports analyze potential energy usage but may not delve into the operational details of mechanical systems in the same comprehensive manner as system controls and energy management analysis. Preliminary code analysis addresses compliance with building codes and regulations, which is important but not directly about the operational needs of the mechanical systems themselves.

**8. What component of a mechanical system is primarily responsible for conditioning interior spaces?**

- A. Sewage disposal system**
- B. HVAC system**
- C. Fire suppression systems**
- D. Vertical transportation systems**

The solution to the question pointed towards the HVAC system, which stands for Heating, Ventilation, and Air Conditioning. This system plays a critical role in maintaining indoor environmental quality by regulating temperature, humidity, and air quality in interior spaces. The HVAC system ensures that spaces are comfortable for occupants by providing temperature control and fresh air circulation, which is essential for maintaining health and comfort. While other systems, such as sewage disposal, fire suppression, and vertical transportation, serve important functions in a building, they are not primarily focused on the conditioning of interior spaces. The sewage disposal system manages wastewater and sanitation; fire suppression systems are designed to prevent, control, and extinguish fires; and vertical transportation systems facilitate the movement of people or goods between different floor levels. Therefore, these components do not directly influence the thermal and atmospheric conditions that the HVAC system is designed to control.

**9. What is a key element observed when preparing a functional program for a building?**

- A. The design aesthetics and finishes**
- B. The users of the building and their work activities**
- C. The local climate and weather patterns**
- D. The architectural style and historical context**

When preparing a functional program for a building, a key element is understanding the users of the building and their work activities. A functional program serves as a foundational document that outlines the requirements and needs of the users who will interact with the space. It details how these users will use the building, including their daily tasks, interactions, and the types of spaces that will facilitate their functions effectively. A clear understanding of the users and their activities ensures that the design responds adequately to their operational needs. It assists in determining space requirements, adjacencies, and the overall organization of the building, which are crucial for creating a functional and efficient environment. This focus on user requirements transforms abstract needs into tangible design considerations that ultimately enhance the overall usability and effectiveness of the space. While design aesthetics, local climate, and architectural style are important aspects of building design, they primarily address visual and contextual considerations rather than the fundamental functional needs of the users. Therefore, understanding the specific needs and activities of the building's users remains central when developing a functional program.

**10. What is a characteristic of a Class A estimate?**

- A. It is based on historic cost data.**
- B. It is submitted at the conclusion of the design development phase.**
- C. It is based on specified project systems and realistic construction schedules.**
- D. It serves as a rough order of magnitude for treasury board approval.**

A Class A estimate is characterized by its reliance on detailed project information, which includes specified project systems and realistic construction schedules. This type of estimate is typically developed during the later stages of design, allowing for a more accurate projection of costs based on specific parameters. This level of detail makes it suitable for decision-making processes, project funding, and establishing budgets. The use of specified project systems means that the estimate takes into account particular design elements, materials, and methods that will be used in the construction of the project. Coupling this with realistic construction schedules ensures that the estimate reflects not just the costs of materials and labor, but also the timing of when these costs will be incurred. This combination of specificity and realism is critical for stakeholders to make informed decisions regarding the viability and financing of a project. While historical cost data may play a role in some estimates, it is not the defining characteristic of a Class A estimate. Similarly, estimates submitted at different phases, such as design development, focus on various levels of detail and are not exclusive to Class A. Lastly, rough order of magnitude estimates typically relate to earlier project phases and serve different purposes, such as quick assessments rather than the comprehensive insights provided by a Class A estimate.

## 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://exacsec1.examzify.com>**

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

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