

ICC Residential Electrical Inspector Level 1 (E1) Practice Test (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. In a raceway with feeder supply conductors protected by 125-amp fuses, what size aluminum EGC is required?**
 - A. 2 AWG**
 - B. 6 AWG**
 - C. 1/0 AWG**
 - D. 4 AWG**

- 2. Lighting track is prohibited in all locations except which one?**
 - A. In ceilings**
 - B. In closets**
 - C. Extending through walls**
 - D. In wet locations**

- 3. The 90°C rating can be used for ampacity adjustments for NM cable provided that the final ampacity does not exceed the ampacity of which temperature rating?**
 - A. 30°C**
 - B. 60°C**
 - C. 75°C**
 - D. 90°C**

- 4. Which item counts toward NEC box-fill as a clamp when inside a box?**
 - A. Grounding screw**
 - B. Device yoke**
 - C. Cable insulation**
 - D. Internal clamp**

- 5. Which table is used to determine the minimum size copper service conductors for a 200 A service?**
 - A. NEC Table 310.12**
 - B. NEC Table 250.94**
 - C. NEC Table 230.70**
 - D. NEC Table 300.5**

- 6. Three fixed appliances: Dishwasher 1800 VA, Water heater 6000 VA, Room C 1600 VA. What is the minimum calculated demand load for all appliances?**
- A. 4.4 kVA**
 - B. 11.6 kVA**
 - C. 9.4 kVA**
 - D. 6.4 kVA**
- 7. On a 20-amp branch circuit that serves two or more receptacle outlets, which statement is true about receptacle device ratings?**
- A. 10 A devices are always required**
 - B. 20 A devices are not allowed**
 - C. 25 A devices are preferred**
 - D. 15 A devices are the minimum permitted**
- 8. For kitchen countertop receptacles, the minimum number of 20-amp branch circuits required is:**
- A. One**
 - B. Two**
 - C. Three**
 - D. Four**
- 9. What is the maximum length for a built-in dishwasher?**
- A. 72 inches**
 - B. 78 inches**
 - C. 84 inches**
 - D. 90 inches**
- 10. What is the sum, in VA, of the three fixed appliances in the example: Dishwasher 1800 VA, Water heater 6000 VA, Room C 1600 VA?**
- A. 1,400 VA**
 - B. 9,400 VA**
 - C. 6,600 VA**
 - D. 8,800 VA**

Answers

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

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Explanations

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1. In a raceway with feeder supply conductors protected by 125-amp fuses, what size aluminum EGC is required?

- A. 2 AWG**
- B. 6 AWG**
- C. 1/0 AWG**
- D. 4 AWG**

Equipment grounding conductors are sized based on the rating of the overcurrent device protecting the circuit. The EGC must be large enough to carry fault current back to the source long enough for the protection to trip. For aluminum conductors used as the EGC with a circuit protected by 125-amp fuses, the table specifies 4 AWG aluminum. This size provides the necessary fault-current path while considering aluminum's lower conductivity compared to copper. So in a raceway carrying feeder supply conductors protected at 125 A, the required aluminum EGC is 4 AWG. Smaller sizes would not meet the rule, while larger sizes would be more than necessary.

2. Lighting track is prohibited in all locations except which one?

- A. In ceilings**
- B. In closets**
- C. Extending through walls**
- D. In wet locations**

Track lighting placement is limited by what the fixture and track are listed to be used for. The NEC requires luminaires to be installed only in locations that the listing permits, and many track systems are not approved for damp or wet areas or for use inside closets. Extending the track through a wall can be permitted because, when installed as a listed through-wall assembly, the fixture remains in a dry interior space and the wall opening is handled in accordance with the listing and fire-stopping requirements. This makes through-wall installation the only option among the choices that can be allowed without violating typical track-lighting restrictions. Always verify the specific product listing to confirm permitted locations and installation methods.

3. The 90°C rating can be used for ampacity adjustments for NM cable provided that the final ampacity does not exceed the ampacity of which temperature rating?

- A. 30°C
- B. 60°C**
- C. 75°C
- D. 90°C

Ampacity calculations are tied to both the insulation rating and the termination rating of the equipment you're using. NM cable may have insulation rated at 90°C, but the actual allowable current is limited by the temperature rating of the terminations and the conductors' listing for typical residential equipment. In practice, the final ampacity for NM cable is restricted to the 60°C column. So even if the insulation is 90°C, you size or adjust the current not to exceed what the 60°C rating would allow. This keeps the current within what terminals, lugs, and protection devices in standard installations are designed to handle safely. For example, a 12 AWG NM-B conductor has a 60°C ampacity of about 20 A, and you wouldn't increase that limit based on the 90°C insulation unless all terminations are explicitly rated for 90°C and the calculation permits using the higher column.

4. Which item counts toward NEC box-fill as a clamp when inside a box?

- A. Grounding screw
- B. Device yoke
- C. Cable insulation
- D. Internal clamp**

Box-fill is based on counting every conductor that occupies the box plus certain hardware inside the box. An internal clamp, which secures cables inside the box, is considered part of that occupying hardware and is counted as one conductor toward the box-fill calculation. That's why it's the correct choice. Grounding screws aren't counted as separate conductors; all equipment grounding conductors are tallied together as one conductor for box-fill. Cable insulation isn't counted separately because it's part of the conductor itself. A device yoke isn't a clamp, though it can affect box-fill as a separate conductor in some cases; this question specifically asks about clamps, so the internal clamp is the item that counts.

5. Which table is used to determine the minimum size copper service conductors for a 200 A service?

- A. NEC Table 310.12**
- B. NEC Table 250.94**
- C. NEC Table 230.70**
- D. NEC Table 300.5**

Sizing copper service conductors hinges on matching the conductor's ampacity to the service rating using the appropriate ampacity table. For a 200 A service, you look up copper conductor ampacities in NEC Table 310.12, which lists conductor sizes and their allowable current-carrying capacities based on insulation temperature ratings (60°C/75°C/90°C). By selecting the insulation rating that applies to the conductors and terminations, you identify the smallest conductor size whose ampacity meets or exceeds 200 A. The other tables referenced in the choices pertain to different topics (such as grounding electrode conductors, service equipment requirements, or raceway fill) and aren't used to determine the minimum size of service conductors.

6. Three fixed appliances: Dishwasher 1800 VA, Water heater 6000 VA, Room C 1600 VA. What is the minimum calculated demand load for all appliances?

- A. 4.4 kVA**
- B. 11.6 kVA**
- C. 9.4 kVA**
- D. 6.4 kVA**

When calculating the minimum calculated demand load, fixed appliances are added by their rated VA because there's no factor applied unless otherwise specified. So you simply sum the VA of each fixed appliance: $1,800 + 6,000 + 1,600 = 9,400$ VA, which is 9.4 kVA. This makes 9.4 kVA the minimum calculated demand load for all the appliances. The other numbers would require applying a demand factor or different assumptions not provided here.

7. On a 20-amp branch circuit that serves two or more receptacle outlets, which statement is true about receptacle device ratings?

- A. 10 A devices are always required**
- B. 20 A devices are not allowed**
- C. 25 A devices are preferred**
- D. 15 A devices are the minimum permitted**

On a 20-amp branch circuit that serves two or more receptacles, the outlets must be rated to handle at least 15 amps. You can use 15-amp or 20-amp receptacles, but you cannot use undersized 10-amp devices or nonstandard 25-amp devices. Therefore, 15-amp receptacles are the minimum permitted, which is why that statement is correct.

8. For kitchen countertop receptacles, the minimum number of 20-amp branch circuits required is:

- A. One
- B. Two**
- C. Three
- D. Four

The key idea is that kitchens require dedicated small-appliance circuits to feed countertop receptacles. This setup prevents overloading a single circuit when multiple countertop appliances are used at once and keeps lighting on separate circuits. The minimum number of 20-amp circuits specified for these countertop outlets is two. These circuits must supply only receptacle outlets located along the kitchen countertop surfaces (including islands and peninsulas) and are intended to handle typical small-appliance loads like toasters, blenders, and coffee makers. You can have more than two circuits, but two is the required minimum. Also, in kitchens, these receptacles must be GFCI protected.

9. What is the maximum length for a built-in dishwasher?

- A. 72 inches
- B. 78 inches**
- C. 84 inches
- D. 90 inches

Built-in appliances have to fit inside a cabinet opening with enough room for installation, leveling, ventilation, and trim. The space available vertically for a dishwasher is determined by the height from the finished floor up to the bottom of the upper cabinets (or to the ceiling, depending on the layout). In many standard kitchen configurations, that vertical opening is around 78 inches, which is why 78 inches is considered the maximum length for a built-in dishwasher. Choosing a smaller opening (like 72 inches) can make room for the appliance but leave insufficient clearance for trimming and adjustment, while larger openings (84 or 90 inches) would require nonstandard cabinetry or ceilings and may not be practical in typical homes. Always verify with the appliance's installation specs and the cabinet dimensions for your specific setup.

10. What is the sum, in VA, of the three fixed appliances in the example: Dishwasher 1800 VA, Water heater 6000 VA, Room C 1600 VA?

- A. 1,400 VA
- B. 9,400 VA**
- C. 6,600 VA
- D. 8,800 VA

To find the total VA of fixed appliances, sum their individual VA ratings: $1800 \text{ VA} + 6000 \text{ VA} + 1600 \text{ VA}$. Adding 1800 and 6000 gives 7800, and adding 1600 brings it to 9400 VA. So the total is 9,400 VA. This matches the option listing 9,400 VA. The other numbers don't fit because they don't equal the sum of all three ratings. A quick check: $6000 + 1800 = 7800$, plus $1600 = 9400$.

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://iccreselecinspectore1.examzify.com>

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