Chapter 1 - General Information for Electrical Installations

Review

Note: Where applicable, responses should be written in complete sentences.

1. **What must be done before electrical work on existing electrical systems begins?**

   All energized conductors must be de-energized and locked out. See **Safety**.

2. **What is the voltage between two ungrounded conductors in a typical residential installation?**

   240 V. See **Safety**.

3. **What is the difference between a code and a standard?**

   a. Codes are standards that deal with life safety issues.
   b. Standards describe minimum performance levels.
   See **Codes and Standards**.

4. **What code sets standards for the installation of electrical equipment?**

   The *Canadian Electrical Code, Part I* sets the basic standard, with local and provincial codes as standards that also must be considered. See **Codes and Standards**.

5. **What authority enforces the standards set by the *CEC?***

   The provincial or local electricity inspection authority enforces the standards set by the *CEC*. See **Codes and Standards**.

6. **Does the *CEC* provide minimum or maximum standards?**

   The *CEC* standards are minimum standards but are expressed in both minimum and maximum terms; e.g., *Rule 2-308* is a minimum working space of 1 m around electrical equipment, while *Rule 8-104* is a maximum circuit loading. Both of these are minimum standards. See **Codes and Standards**.

7. **What do the letters CSA signify?**

   CSA signifies Canadian Standards Association. See **Testing and Accreditation | CSA Group**.

8. Does compliance with the *CEC* always result in an electrical installation that is adequate, safe, and efficient? Why?

Section 0 Object of the *CEC* states that "Compliance with the requirements of this Code and proper maintenance will ensure an essentially safe installation." However, if adequate provision is not made for future expansion, a hazardous condition could develop.
See **Codes and Standards.**

9. **What are the general sections of the *CEC?***

Under General arrangement in the Preface of the *CEC*, it states that the general sections are Sections 0 to 16, and 26.

10. Is the section of the *CEC* that deals with wiring methods a general section or an amending section?

The section of the *CEC* that deals with wiring methods is a general section.
See **Codes and Standards,** *CEC* Preface.

11. When is an electrical installation required to be inspected?

ALL work is required to be inspected. See **Electrical Inspection,** *CEC 2-004.*

12. What should you look for when trying to determine whether a piece of electrical equipment is approved for use in Canada?

You should look for the CSA logo or other approval mark on the equipment. See **Testing and Accreditation**.

13. If a piece of electrical equipment is not approved for use in Canada, what should you do?

Special inspection should be obtained for a piece of electrical equipment that is not approved for use in Canada. *Rule 2-024 references Appendix B, which cautions installers that field modifications may void the designated certification on a piece of equipment.* See **Testing and Accreditation**, *CEC 2-024.*

14. When the words "shall be" appear in a code reference, they mean that it <u>(must)</u> (may) (does not have to) be done. (Underline the correct answer.)
See **Codes and Standards | Some *Code* Terminology**, *CEC C11.1* in Appendix C.

15. Why is it important for standards organizations to exist?

Standards provide a framework of language, behaviour, and performance that match the expectations of consumers. Consumers can expect quantifiable, reliable performance from products and services that adhere to a reputable standard. In the absence of a standard, all

goods and services become subjective and thus will vary between manufacturers and practitioners. See **Testing and Accreditation**.

16. Which Red Seal skill requires you to identify sources of information relevant to planning job tasks, specifically creating and keeping to job schedules?

Task A-3.03. See Red Seal Occupational Standard.

Practical Application

1. Examine the following picture. Is the system fed from this disconnect safe to work on? How can we determine if it is safe to work on a circuit or a system?

The red handle indicates that this disconnect is in the "ON" position. This means that the circuits it feeds are all energized so, no, it is not safe to work on circuits fed by this disconnect. The use of a multimeter is advised. (Note: Test any voltage detector or voltage meter on a known, energized circuit before using it, to determine the safety of a circuit that you are about to work on.)

2. Examine the following picture. Is the system fed from this disconnect safe to work on? What can be done to ensure that a system is safe to work on?

The black portion of the handle indicates that this disconnect is in the "OFF" position. This means that the circuits it feeds are all de-energized so, yes, it is safe to work on circuits fed by this disconnect; however, a hasp and a lock should be applied to the handle to ensure that the switch is not activated while you are working on it. All employees and contractors need to adhere to their workplace "Lock-out Tag-out" procedures before commencing work. The use of a portable, pen sized, non-contact voltage detector is advised. (Note: Test any voltage detector or voltage meter on a known, energized circuit before using it to determine the safety of a circuit that you are about to work on.)