

**COMPETENCY MODEL FOR
SENIOR ELECTRICAL TEST TECHNICIAN
CLASS CODE 7515**

The following competencies have been identified as those that best separate superior from satisfactory job performance in the class of **SENIOR ELECTRICAL TEST TECHNICIAN**. (Numbers refers to the order of competencies in the Competency Bank.)

1. Reading Comprehension
4. Analytical Ability
8. Safety Focus
20. Job Knowledge
21. Technology Application
26. Electrical Understanding
33. Interpersonal Skills
45. Oral Communication

On the following pages are descriptions of each competency, including a definition, the level of the competency required for the class (*italicized, bolded, and underlined*), examples of behavioral indicators, and satisfactory and superior performance levels.

1. READING COMPREHENSION – Comprehends and correctly applies information presented in written form. Makes correct inferences; draws accurate conclusions.

Level of Competency Required by Job:

Level 1: Concrete, specific job-related information (work orders; instructions; material/equipment labels)

Level 2: General information related to field of work and assignments; (articles in trade publications; technical/instructional manuals; memos; letters; e-mails; reports)

Level 3: Abstract/complex information (highly technical articles/ reports in specialized area; legal or other regulatory material)

Examples of Behavioral Indicators:

- Follows written instructions correctly.
- Learns information presented in writing.
- Identifies relevant written information.
- Interprets written legal regulatory material accurately.

Performance Levels:

Satisfactory

Reads instructions correctly. Learns from manual and other printed material.

Superior

Learns from manual and may answer others' questions. Explains information presented in written form to others.

4. ANALYTICAL ABILITY – Identifies, obtains, and evaluates relevant information to establish relationships or patterns, cite causes, and reach logical conclusions.

Level of Competency Required by Job:

Level 1: Recognize similarities/differences in current situation to those previously encountered and is guided accordingly. Apply existing policies correctly. Ask pertinent questions or otherwise seek additional information to formulate appropriate response.

Level 2: Consider multiple, varied factors when evaluating a situation or issue. Seek additional information to provide further insight. Reach conclusions that logically follow from the information obtained.

Level 3: Consider a multitude of diverse factors, their interrelationships, the perspectives of others, alternative courses of action and their likely ramifications when evaluating information to reach a conclusion.

Examples of Behavioral Indicators:

- Obtains the necessary amount of relevant information.
- Recognizes the impact of each type of information on conclusions.
- Evaluates the quality/source of information when considering it.
- States the shortcomings of the information and, therefore, the analysis.

Performance Levels:

Satisfactory

Recognizes available relevant information, seeks additional information to consider, and reaches a conclusion. Provides sound, convincing justification for conclusions, citing relevant data and facts.

Superior

Uses a great deal of existing and obtained information and data to develop and evaluate alternatives and arrive at a final conclusion. Provides compelling arguments in support of conclusions.

8. SAFETY FOCUS – Performs work in a way that minimizes risk of injury to self or others.

Level of Competency Required by Job:

Level 1: Maintain awareness of unsafe conditions and actions to avoid injury.

Level 2: Follow safety rules/procedures; avoid known hazards in the work environment.

Level 3: Carefully follow safety rules and procedures and consistently use all necessary safety equipment.

Examples of Behavioral Indicators:

- Wears seat belt.
- Ensures safe physical work environment by taking actions such as eliminating unstable stacks of materials, closing drawers so filing cabinets will not tip over, and keeping pathways clear of tripping hazards.
- Reviews safety procedures before beginning each job with known hazards.
- Follows safety procedures while performing work even when it takes more time.
- Uses safety equipment such as goggles, gloves, and earplugs as required or warranted.
- Frequently checks safety equipment for proper condition and operation.

Performance Levels:

Satisfactory

Maintains awareness of personal safety to avoid injury or property damage during all work activities.

Superior

“Safety first.” Places avoidance of injury or property damage above all other job requirements. Mentions the need to follow safe work practices to co-workers. Actively seeks ways to avoid injury.

Safety Focus Areas

1. Knowledge of the Department of Water and Power Operating Orders and Cal-OSHA safety rules and procedures required when lifting equipment, materials, tools and supplies, working with or around high and low voltage equipment, and while climbing electrical equipment including large power transformers, power circuit breakers, and power station racks such as, the approach and distance considered safe to work around electrical equipment, use of personal protective equipment such as insulated rubber gloves, face shield, safety glasses, goggles, hard hat, hard-toed shoes, safety vest, and fire retardant clothing, obtaining clearances to remove equipment from service for testing purposes or to conduct tests on energized equipment, use of proper form when lifting such as bending at the knees with feet shoulder width apart and lifting with one's legs and fall protection policies including wearing a fall protection harness sufficient to ensure safety of oneself and others.

2. Knowledge of the equipment used to test for and ventilate gases and dead air in manholes and vaults such as a gas detector and air blower sufficient to ensure oxygen and gas levels are in accordance with the range prescribed by Cal-OSHA for safety of oneself and others.

20. JOB KNOWLEDGE – Knows information required to perform a specific job. Includes both widely available courses of study (for example, chemistry, human resources management, graphic arts) and City-specific information (parking regulation and ticketing practices; purchasing procedures; provisions of the City Charter).

Level of Competency Required by Job:

Level 1: Knowledge acquired after hire in a brief orientation, short training program, or through on-the-job training.

Level 2: Knowledge acquired through an apprenticeship or extensive training program, or long duration of job performance.

Level 3: Knowledge acquired through a prolonged external course of study and/or extensive training and experience within the City.

Examples of Behavioral Indicators:

- Performs work correctly/avoids technical (job content related) errors.
- Answers technical questions about work accurately.
- Asks few technical questions about the performance of routine work activities.
- Offers advice (“coaching”) to new employees regarding their work.
- Develops training programs for other employees.
- Sought out as a source of information by others.

Performance Levels:

Satisfactory

Sufficient job knowledge to perform work correctly independently. Answers technical questions about work correctly.

Superior

Expertise in technical job information sufficient to serve as a resource to others. May develop training manuals/programs and/or give internal and/or external presentations related to work.

Job Knowledge Areas

1. Knowledge of hand and power tools such as nut drivers, wire strippers, terminal crimpers, adjustable wrenches, side cutters, screw drivers, and impact drivers sufficient to use them in a safe and proper manner when installing, calibrating, and repairing electrical equipment, systems, and devices used in underground and overhead electric transmission and distribution systems, customer and industrial stations, receiving and generating stations, smart-grid systems, and other conventional and renewable generation resources.
2. Knowledge of the distinguishing features of electrical and electronic equipment and their operation such as watt-hour meters, meter test accessories, relay protective circuits, solid state components, current and potential transformers, distribution transformer configurations, protective and control devices, indicating and recorder devices, step voltage regulators, remote terminal units, circuit breakers, sequence of events recorders, temperature chart recorders, and digital fault recorders sufficient to identify the equipment and select the appropriate method for its testing, installation, calibration, adjustment and repair.
3. Knowledge of the methods and equipment used to troubleshoot and/or test the functionality of electrical equipment, systems, and devices such as AC/DC Hipot test sets, Doble Power Factor test sets, resistance bridge test sets, dielectric-withstand tests, acceptance tests, phase angle tests, efficiency ratio tests, ammeters, voltmeters, meggers, frequency meters, oscilloscopes, and multimeters sufficient to use the proper device to measure conductivity, resistance, correction factors, ratio and polarity of windings, insulation capacity, core loss, copper loss, stray loss, and impedance to determine if the electrical equipment is in good operating condition or in need of repair or calibration.
4. Knowledge of the tools used to measure the temperature of various types of electrical equipment such as an infrared camera sufficient to determine if the electrical equipment is in good operating condition or is in need of repair.
5. Knowledge of Cathodic Protection theory and practices as applied to corrosion mitigation of underground transmission and distribution power cables, lead cable sheaths, new distribution facilities, fuel oil/gas pipe lines, sub-structures, and infrastructures at generating facilities sufficient to maintain equipment integrity.
6. Knowledge of professional standards related to electrical and electronic testing such as the National Electrical Code, Institute of Electrical and Electronics Engineers (IEEE), and American National Standards Institute (ANSI) sufficient to perform tests on electrical equipment in accordance with codes and standards.
7. Knowledge of sources commonly associated with causing trouble to electric meters and other electrical and electronic equipment such as faulted, overloaded, or short circuited circuitry sufficient to locate and determine the cause of the issue and recommend an appropriate solution for its repair.

21. TECHNOLOGY APPLICATION – Correctly applies technology as required on the job; conceptualizes improvements in work through introducing and/or enhancing use of technology.

Level of Competency Required by Job:

Level 1: Expert in the use of technology required for own job. May identify additional applications for currently used technology to enhance own work and/or work of others.

Level 2: Identify additional technology to be applied to improve own work and/or work of others and/or enhanced use of current technology to improve the operations of an entire function or department.

Level 3: Identify new technology application to improve/enhance work of an entire function, department, or organization.

Examples of Behavioral Indicators:

- Demonstrates mastery of technical applications required for current work.
- Suggests additional applications of existing technology that improve productivity.
- Identifies new technology that can be applied to improve existing operations.
- Provides convincing justification for investment in new technology versus anticipated benefits.
- Presents compelling arguments to justify purchase of existing software (with or without modification) versus in-house development.

Performance Levels:

Satisfactory

Knows and correctly applies current technology as required on the job. Extends use of current technology to improve efficiency of accomplishing additional tasks.

Superior

Recognizes opportunities to apply technology to improve work processes in a function, department, or the entire organization. Identifies and justifies specific technology for specific uses.

26. ELECTRICAL UNDERSTANDING – Comprehends the concept and the operation of flow of electrical current.

Level of Competency Required by Job:

Level 1: Know the properties of electricity relevant to the work environment and work to be performed in order to correctly perform work and recognize hazards that will be created by the failure to do so.

Level 2: Sufficient understanding of electricity to recognize problems and determine repair needed to prevent disaster/restore operation.

Level 3: *In-depth understanding of electrical principles and phenomena sufficient to design and/or oversee the installation of complex electrical systems.*

Examples of Behavioral Indicators:

- Ensures safe physical work environment by taking actions such as eliminating exposed electrical wire, faulty connections, empty sockets, and overloaded circuits.
- Recognizes the danger of fire from faulty electrical installations.
- Uses tools, equipment, and instruments properly to accomplish electrical work correctly and safely.
- Systems designed and/or for which installation is overseen perform as intended upon completion.

Performance Levels:

Satisfactory

Understands the operation of electricity sufficient to readily learn and perform electrical work.

Superior

Displays exceptional insight into the operation of electrical systems, and makes correct inferences regarding them. Promptly and accurately troubleshoots problem.

Electrical Understanding Area

1. Knowledge of electrical principles and terminology such as direct current (DC), Ohm's Law, Kirchhoff's Law, alternating current (AC), inductance, power factor, impedance, capacitance, current and voltage phase relationships, and grounded, shorted, and open circuit sufficient to test, install, calibrate, and repair electrical equipment, systems, and devices.

33. INTERPERSONAL SKILLS – Interacts effectively and courteously with others.

Level of Competency Required by Job:

Level 1: Interact with members of the workgroup, supervision, and/or the public in a cordial, service-oriented manner.

Level 2: Interact across department lines and with appointed City officials, and/or members of the public, at times under adversarial circumstances, in a cordial, respectful manner.

Level 3: Interact with appointed and elected City officials, department heads, representatives of external organizations, and/or the media in a cordial, effective manner.

Examples of Behavioral Indicators:

- Works well with others toward mutual objectives.
- Does not arouse hostility in others.
- “Disagrees without being disagreeable.”
- Elicits acceptance/cooperation from others.
- Affords all individuals respect, regardless of their role or status.
- Effectively addresses concerns of politicians or others who may have their “own agenda.”

Performance Levels:

Satisfactory

Behaves in a courteous, respectful, cooperative manner toward co-workers, other City employees, and members of the public.

Superior

Facilitates positive interpersonal relations within/among workgroups and toward members of the public. Adept at finding similarities and grounds for cooperation/mutual benefit.

45. ORAL COMMUNICATION – Communicates orally in a clear, concise, and effective manner.

Level of Competency Required by Job:

Level 1: Exchange specific, job-related information orally with others in the immediate work environment or via telephone and/or radio.

Level 2: Obtain/provide/present general and/or job-specific information orally to a variety of others in various situations.

Level 3: Obtain/provide/present a diverse array of information orally at varying levels of complexity to a wide range of others across many different situations and circumstances.

Examples of Behavioral Indicators:

- Audience clearly understands the intended message.
- Rarely must repeat information in response to questions.
- Refrains from use of unnecessary words, phrases, or jargon.
- Provides a level of detail appropriate to the situation (avoids too much or too little detail).
- Speaks at a level appropriate to the audience in terms of terminology, sentence structure, and simplicity/complexity of ideas expressed.
- Uses words with precision (vocabulary) to convey exact information.

Performance Levels:

Satisfactory

Speaks clearly and audibly, providing the appropriate information and level of detail. Typically conveys the message on the first attempt. Answers questions accurately and directly.

Superior

Speech is direct and to the point. Speaks convincingly and with authority when appropriate. Maintains sensitivity to the audience while providing thorough information with the appropriate level of detail through the use of precise language.

