

**COMPETENCY MODEL FOR
FIELD ENGINEERING AIDE
CLASS CODE 7228**

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

- 2. Mathematics
- 5. Learning Ability
- 6. Attention to Detail
- 8. Safety Focus
- 10. Physical Capability
- 12. Conscientiousness
- 20. Job Knowledge
- 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.

2. **MATHEMATICS** – Performs arithmetic or higher-level mathematical computations accurately.

Level of Competency Required by Job:

- Level 1: Perform arithmetic computations (add, subtract, multiply, divide, ratios, percentages).
- Level 2: **Use algebra (substitute numbers for letters in a formula), geometry (angles, distances, area), and/or descriptive statistics (mean/median/mode, standard deviation, range).**
- Level 3: Apply and interpret calculus, inferential statistics (t-tests, correlations, ANOVA, multiple regression) or other very high level mathematics.

Examples of Behavioral Indicators:

- Quickly and accurately performs arithmetic computations.
- Appropriately selects and applies formulas for stated purpose.
- Correctly identifies an appropriate analysis for a specific purpose and selects the appropriate computer program for computation.
- Accurately interprets and presents results of mathematical/statistical computations.

Performance Levels:

Satisfactory

Knows mathematical requirements of the job and performs them correctly. Verifies work to ensure accuracy.

Superior

Identifies additional opportunities for the application of mathematics in work. Answers questions/trains others to assist them in their use of mathematics.

Mathematics Areas

1. Knowledge of reading and converting decimal units, such as tenths, hundredths, and thousandths sufficient to accurately use survey devices, including chains, tapes, and rods to measure feet, meters, and miles.
2. Knowledge of mathematical computation methods such as algebra, geometry, and trigonometry, and basic arithmetic such as addition, subtraction, multiplication, and division sufficient to ensure the accuracy of numerical data, which may include survey notes, street crown profiles, or estimating material quantities and to determine angles, distances, and elevations from measured field data.
3. Knowledge of basic trigonometry, including Pythagorean Theorem, and transcendental functions including sine, cosine, tangent, cotangent, secant, and cosecant, in order to obtain triangle solutions.

5. LEARNING ABILITY – Readily acquires and applies new information.

Level of Competency Required by Job:

- Level 1: **Learn job-related information, rules, and procedures, and apply them correctly.**
- Level 2: Learn and apply extensive job-related information correctly. Make reasonable inferences when specific information needed in a given instance was not presented.
- Level 3: Access new job-related information via print or electronic media, in educational/training programs, and/or by speaking with others, and apply it correctly to the job.

Examples of Behavioral Indicators:

- Recalls information presented in educational/training programs.
- Recognizes how to apply newly acquired information to the job.
- Applies new information to the job in a way that increases productivity.
- Applies “lessons learned” from prior work experiences to current work.
- Answers questions/coaches others who received the same instruction.

Performance Levels:

Satisfactory

Learns new information and applies it appropriately to situations/issues.

Superior

Readily acquires new information, makes appropriate inferences based on it, and integrates it with prior learning and experience to maximize its use in a variety of situations or with respect to a variety of issues.

6. ATTENTION TO DETAIL – Extremely careful in addressing all aspects of each work assignment in order to produce “completed staff work” and/or avoid any negative outcomes.

Level of Competency Required by Job:

- Level 1: Ensure all aspects of work assignment are completed as directed.
- Level 2: **Verify that each aspect of work assignment is properly completed; make logical inference regarding additional activities that may need to be performed to produce “completed staff work.”**
- Level 3: Include evaluation of final work/work product in its accomplishment; make adjustments as possible to improve.

Examples of Behavioral Indicators:

- Carefully checks all aspects of work for completion and accuracy before submitting.
- Identifies errors (for example, typo’s, computations, measurements, application of laws/rules/policies) and corrects them prior to submitting.
- Cross-checks work against available resources.
- Sets up a means of checks and balances to ensure work accuracy.
- Considers changes in final work product to ensure usability by recipient.
- Completes all revisions upon request.

Performance Levels:

Satisfactory

Ensures that each task accomplished represents “completed staff work.” No remaining details/ inconsistencies for others to address.

Superior

All aspects of each task completed are verified to be correct. Identifies any foreseeable consequences of work that may need to be addressed and does so.

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 proper use of digging tools, such as shovels, augers, post-hole diggers, digging bars, picks, claw-hammers, and electric jack hammers sufficient to safely use the appropriate tools for digging tasks.
2. Knowledge of the proper use of cutting tools, such as brush hooks, machetes, hand-saws, weed wackers, pole saws, lopping shears, and shovels, sufficient to select and use the tools appropriately in order to complete a job efficiently and safely.
3. Knowledge of applicable Work Area Traffic Control Handbook (WATCH) guidelines when working in the field, such as operating survey trucks, in order to ensure compliance with the guidelines and ensure personal safety while performing work.
4. Knowledge of proper lifting techniques used in lifting heavy objects such as bending the legs instead of the back, keeping the back straight at all times, and using other equipment or persons when the load is too heavy.
5. Knowledge of the proper use of personal protective equipment, such as hard hats and reflective vests, sufficient to perform work tasks safely.

10. **PHYSICAL CAPABILITY** – Strength, endurance, flexibility, and/or coordination.

Level of Competency Required by Job:

- Level 1: Sitting and/or standing for extended periods of time.
- Level 2: **Awkward body position and/or precise motions required; and/or repeated lifting, carrying, and/or manipulation of objects; and/or walking for extended periods of time.**
- Level 3: Continuous or extreme exertion of physical effort.

Examples of Behavioral Indicators:

- a. Sits and may occasionally stand or walk for entire workday (except breaks).
- b. Walks for the duration of the workday.
- c. Repetitive motion required to perform task.
- d. Repeatedly lifts and carries heavy objects.
- e. Exerts maximal effort for extended periods of time.

Performance Levels:

Satisfactory

Performs tasks requiring physical capability satisfactorily and without undue physical stress or harm.

Superior

Performs tasks requiring physical capability correctly with relative ease. May be asked to perform the most physically demanding tasks or be sought by co-workers for assistance.

12. **CONSCIENTIOUSNESS** – Dependable, reliable, diligent, and attends to all aspects of assignments (the “details”).

Level of Competency Required by Job:

Level 1: **Remain on-task and make every reasonable effort to complete work in time allotted. Note discrepancies and takes action or informs appropriate person when “things don’t seem right” in information or data.**

Level 2: Note when own work logically relates to the work of others and coordinate with them and when additional tasks must be performed to complete an assignment and perform/assign them. Recognize when, despite best efforts, work will not be done and notifies supervision.

Level 3: Attend to each area of responsibility, and if all are not being addressed, arrange for transfer or elimination of some of them. Ensure that all aspects of programs/projects are properly addressed to ensure success.

Examples of Behavioral Indicators:

- Seeks all necessary information to do the job well.
- Learns from experience so can recognize when things are not right.
- Maintains a high level of task-related behavior.
- Continues to work diligently in the absence of supervision.
- Fully attends to seemingly minor as well as major aspects of each work assignment.

Performance Levels:

Satisfactory

Fully attends to work at hand; notes details, errors, and discrepancies and follows-up as necessary. Reliably performs and completes work. Punctual; respectful of others’ time.

Superior

Notes relationship of own work to work of others to ensure all aspects are coordinated. Performs additional tasks and otherwise follows-up to ensure thoroughness.

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 is concrete, factual, and/or procedural and may be defined by the organization. Situations in which it is applied are quite consistent.**

Level 2: Knowledge is substantive and may be defined by an external trade, field, or profession. Situations in which it is applied vary and, as such, require breadth and depth of understanding.

Level 3: Knowledge is abstract, conceptual, and/or complex and may be supported by a well-defined academic discipline or authoritative sources (e.g., laws, ordinances, government guidelines/regulations/codes). Situations in which it is applied may vary greatly or be novel.

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 survey procedures and practices such as assembling prisms over tribachs, mounting tribachs to tripods, and leveling equipment over a point sufficient to set up tripods, tribachs, prisms, and GPS units correctly.
2. Knowledge of surveying rods, such as Philadelphia and Lenker, sufficient to understand their functions and ensure their proper use to properly and efficiently obtain vertical readings.
3. Knowledge of hand levels sufficient to obtain differences in elevation used to aid chaining sufficient to obtain differences in elevation and to produce horizontal lines of sight.
4. Knowledge of distance and level measuring tools such as plumb bobs, tapes, spring balance, and survey prisms sufficient to understand and use the tools properly and efficiently to measure horizontal distances.
5. Knowledge of surveying materials, supplies, tools, and equipment required for specific jobs such as hubs, spikes, nails, shovels, hammers, tripods, and tribachs in order to inventory and restock work vehicles appropriately.
6. Knowledge of numerical and/or descriptive terminology, such as differential levels, stationing and offsets, benchmark and point descriptions sufficient to accurately record and/or understand rough draft notes and/or written instructions.
7. Knowledge of radio protocol such as clarity, simplicity, brevity, and security, and survey hand signals when the radios are out of operation sufficient to ensure a safe and efficient working environment and convey instructions and/or directions to other survey personnel.
8. Knowledge of satellite survey systems and electronic/optical instruments such as total stations and Global Positioning System (GPS) sufficient to setting up and leveling tripods over a known position point and make field measurements.
9. Knowledge of reading survey instruments sufficient to obtain angles, distances, and elevations.

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.

