

**COMPETENCY MODEL FOR
PIPEFITTER
CLASS CODE 3433**

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

1. Reading Comprehension
2. Mathematics
6. Attention to Detail
8. Safety Focus
20. Job Knowledge
31. Results Orientation
43. Follow Oral Directions
44. Follow Written Directions

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.

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.

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 safety procedures and practices as required by the California Occupational Safety and Health Administration (Cal/OSHA) when installing, maintaining and/or repairing various types of piping systems, including those related to fall protection, ladder and scaffold use, and/or working in confined spaces sufficient to ensure the safety of oneself and others.
2. Knowledge of proper hand signals used to direct crane operators moving heavy materials or equipment as required by California Occupational Safety and Health Administration (Cal/OSHA), such as boom up, boom down, swing (left or right), main hoist, and stop sufficient to communicate with crane operators and ensure a safe work environment.
3. Knowledge of proper rigging procedures used to move pipes and/or other equipment, such as selecting the appropriate type of sling based on the size, shape, and weight of the rigged equipment and conducting tests to determine the equipment's center of gravity sufficient to select the correct rigging for the job and locate the proper position on equipment for rigging.

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 various types of pipes and piping systems, such as steel, copper, PVC, fiberglass, and drains, and the methods used to install, maintain, and/or repair them including tightening appropriate couplings, following the proper pipe staggering method when tightening flange nuts and bolts, bending or replacing tubing or piping, visually inspecting gauges for correct calibration, and cleaning out tubing sufficient to join piping together, understand the specific type of pipe used according to the associated pressure and the type of product in the piping system, and ensure proper piping system installation.
2. Knowledge of various types of pipe fittings, such as tees, elbows, valves, mechanical joints, and unions, and the methods used to install them including screwing, gluing, welding, and grooving sufficient to ensure that the pipe is properly joined and ready for piping system installation.
3. Knowledge of hand and power tools and/or equipment used to install, maintain and/or repair piping systems, such as pipe threaders, pipe cutters, impact wrenches, hydraulic wrenches, high pressure grease guns, band saws, drill presses, roto-hammers, portabands, piping flange alignment tools, and tube benders sufficient to use such tools and equipment in a safe and proper manner when joining pipe, pumps, exchangers, tanks, compressors, and boilers.

31. RESULTS ORIENTATION – Maintains a focus on objectives to be achieved and acts accordingly to ensure their accomplishment.

Level of Competency Required by Job:

Level 1: Remain focused on the task at hand and its purpose. May alter activities if the same result will be achieved. Does not become distracted by extraneous information, events, or details.

Level 2: Remain focused on the objectives to be achieved and take all reasonable actions necessary to achieve them. If initial activities to achieve objectives are unsuccessful, tries other approaches.

Level 3: Remain focused on outcome and not process, when possible, in the monitoring and evaluation of staff work. Encourage staff to maintain focus on the objectives of their work and not to be overly affected by nuisances or frustration.

Examples of Behavioral Indicators:

- Clearly understands the purpose/objectives of work assignments.
- Recognizes that there are typically many ways to achieve the same objective.
- Makes multiple attempts to achieve objectives when necessary.
- Does not become distracted by unimportant or irrelevant issues.
- Ignores distracters in order to maintain pursuit of the desired outcome.

Performance Levels:

Satisfactory

Maintains a focus on desired outcomes and makes every reasonable attempt to achieve them. Always recognizes the purpose or objective of work activities.

Superior

Maintains a clear focus on desired results, and is persistent in attempts to achieve them. Insistent that all work activities lead to goal accomplishment; expresses dissatisfaction with activities that have no apparent impact.

43. FOLLOW ORAL DIRECTIONS – Performs work accurately as directed orally.

Level of Competency Required by Job:

Level 1: Receive specific, complete oral directions daily or by individual task assignment throughout the day.

Level 2: Receive general instructions orally that span across days or for entire assignments.

Level 3: Receive general instructions/assignments orally regarding long-term objectives/responsibilities.

Examples of Behavioral Indicators:

- Does work assigned orally properly and on time.
- Asks pertinent questions for clarification of assignments.
- Performs work correctly when instructions were given orally.
- Explains assignments to others who received the same instructions.
- Performs work in accordance with general outline provided orally.
- Correctly infers details of assignments given only in general terms.

Performance Levels:

Satisfactory

Properly performs work when concrete, specific instructions are given orally. Asks pertinent questions when parts of the instructions are unclear or omitted.

Superior

Properly performs work assigned orally. Answers questions or explains work to others. Correctly infers details or portions of instructions that were omitted.

44. FOLLOW WRITTEN DIRECTIONS – Performs work accurately as directed in writing.

Level of Competency Required by Job:

Level 1: Perform tasks assigned in writing.

Level 2: Perform work after reading instructional manual.

Level 3: Perform work after completion of training modules or programs presented in writing.

Examples of Behavioral Indicators:

- Correctly completes work assigned in writing.
- Answers questions and/or explains work to others who received the same instructions.
- Learns and applies information presented in writing (instruction manual; training program).
- Correctly infers details of work to be performed that were unclear or omitted as presented in writing.

Performance Levels:

Satisfactory

Correctly performs work assigned or for which training was provided in writing.

Superior

Understands instructions and training materials presented in writing to the extent that is able to answer questions or explain to others. Correctly infers unclear or omitted details as presented in writing.