

**COMPETENCY MODEL FOR
STEAM PLANT ASSISTANT
CLASS CODE 5622**

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

- 2. MATHEMATICS
- 4. ANALYTICAL ABILITY
- 10. PHYSICAL CAPABILITY
- 20. JOB KNOWLEDGE
- 24. MECHANICAL APTITUDE
- 26. ELECTRICAL UNDERSTANDING
- 44. FOLLOW WRITTEN DIRECTIONS
- 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.

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.

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:

- Sits and may occasionally stand or walk for entire workday (except breaks).
- Walks for the duration of the workday.
- Repetitive motion required to perform task.
- Repeatedly lifts and carries heavy objects.
- 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.

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 operation of equipment, material presented in the 9-day evaluation course, and steam plant procedures in order to effectively and efficiently perform the duties of a Steam Plant Assistant.
2. Knowledge of chemistry sufficient to understand symbols such as pH, SiO₂, conduct pH tests, and identify chemicals containing toxic or contaminating properties.
3. Knowledge of the procedures used when testing water chemistry in order to prevent damage of pumps, metals, boiler tubes, and turbine blades.
4. Knowledge of hazardous materials such as asbestos, mercury, and ammonia in order to recognize hazard and safely respond.
5. Knowledge of working techniques used when working in high, tight, confined, and enclosed spaces in order to properly work inside boilers, condensers, and on stacks.
6. Knowledge of methods used for rigging and scaffolding in order to safely perform the duties of a Steam Plant Assistant.
7. Knowledge of electrical transformers sufficient to understand control room indications and perform inspections.
8. Knowledge of simple symbols and diagrams sufficient to interpret, understand and/or properly document and/or draw job-related information.
9. Knowledge of the different insulation and refrigeration techniques and materials in order to properly handle and install pipes, boiler casings, and furnace linings.
10. Knowledge of the functions of tools, such as electrical, hand and power meters and measuring instruments, first aid, and firefighting equipment in order to effectively and efficiently perform the duties of a Steam Plant Assistant.
11. Knowledge of elementary principles of heat transfer in order to operate boiler and turbine systems efficiently.

24. MECHANICAL APTITUDE – Accurately predicts the impact of forces on objects and assesses the behavior of other physical phenomena (e.g., volume, weight, velocity). Readily learns work involving the application of mechanical principles.

Level of Competency Required by Job:

Level 1: Maintain a safe work environment by ensuring objects in it are stable, tools and equipment are properly used.

Level 2: **Know the physical properties of objects in the work environment and correctly anticipate the action of forces upon them; performs work accordingly (correctly and safely).**

Level 3: In-depth understanding of mechanical and physical phenomena sufficient to design and/or oversee the construction of systems.

Examples of Behavioral Indicators:

- Recognizes the impact of an earthquake on objects in the work environment and re-arranges them as possible to avoid possible damage or destruction and potential to cause injury.
- Uses tools properly to accomplish work correctly and safely.
- Recognizes the effects of various actions on objects and performs only those actions that will accomplish intended result and will not cause property damage or injury.
- Systems designed and/or for which construction is overseen operate as intended upon completion.

Performance Levels:

Satisfactory

Recognizes the operation of mechanical/physical phenomena sufficient to readily learn and perform work of a mechanical nature.

Superior

Displays exceptional insight into the operation of mechanical phenomena, and makes correct inferences regarding it. Promptly and accurately troubleshoots problems.

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 Areas

1. Knowledge of the effects of electrical grounding procedures to ensure safe working conditions.
2. Knowledge of the effect of electricity on the body, e.g., to be aware of safety hazards when working with electrical systems, and knowledge of the properties of stored power.

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.

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.