

**COMPETENCY MODEL FOR
CIVIL ENGINEERING ASSOCIATE
CLASS CODE 7246**

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

- 3. JUDGMENT AND DECISION MAKING
- 4. ANALYTICAL ABILITY
- 20. JOB KNOWLEDGE
- 28. SUPERVISION*
- 33. INTERPERSONAL SKILLS
- 35. TEAMWORK
- 45. ORAL COMMUNICATION
- 46. LISTENING
- 49. PROJECT MANAGEMENT

**Employees at the Civil Engineering Associate III level may supervise, or may serve as a lead over a small group of employees.*

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.

3. JUDGMENT AND DECISION MAKING – Accurately assesses situations, seeks new information if necessary, and applies all available information to reach sound conclusions/formulate effective response.

Level of Competency Required by Job:

Level 1: Training and guidelines needed to respond to immediate situations within very specific function are provided (or supervisor available to assist).

Level 2: **General information and guidance to assist in responding to a variety of situations across a range of circumstances are provided.**

Level 3: Little guidance available for responding to a wide range of complex situations with far-reaching and/or enduring consequences.

Examples of Behavioral Indicators:

- Effectively responds to atypical situations.
- Asks questions or otherwise obtains additional relevant information to make a decision.
- Formulates a decision and necessary actions based on available facts.
- Correctly infers appropriate response based on information provided and existing policies, personal experience, and/or consultation with others.
- Discusses conclusions/possible responses with others before taking action as necessary.
- Considers impact of decisions on all affected parties.

Performance Levels:

Satisfactory

Correctly assesses routine and unusual situations and reaches appropriate conclusions for actions needed. Obtains additional information and/or consults with others as necessary.

Superior

Evaluates new situations accurately to establish an appropriate response or plan of action. Recognizes the impact on all affected parties, as well as the possible ramifications and/or repercussions of setting a precedent.

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.

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 civil engineering concepts and fundamental principles and practices sufficient to assist with the construction and maintenance of building and infrastructure projects.
2. Knowledge of structural design principles (including statistics, determinate and indeterminate structures, reinforced concrete design, seismic and wind factors, finite element analysis, storm drain design, timber construction, and masonry) sufficient to assist in performing plan checks, designs, and the inspection of structures.
3. Knowledge of factors to be considered for site development, such as calculating earthwork quantities, establishing grades, evaluating slope stability, and understanding code requirements sufficient to assist in, personally complete, or conduct geological surveys, determine the hazards of geological factors normally encountered in engineering projects, and developing appropriate facilities.
4. Knowledge of hydraulics (including open channel flow, pressure flows, hydroelectric machinery, pumps, weirs, flumes, aqueducts, and model studies) as applied to the flow of water through transmission and distribution systems sufficient to assist in, personally complete, or conduct hydraulic analyses and prepare appropriate reports, specifications, designs, and plans on various facilities and structures.
5. Knowledge of the principles and practices of hydrology as applied to estimating water supply, hydroelectric development, storm drain design, groundwater development, and flood forecasting sufficient to assist in, personally complete or prepare appropriate specifications, designs, and plans on various facilities and structures.
6. Knowledge of soil mechanics and properties (including general soil recognition, stress strength, consolidation strength, bearing capacity, foundation design, pile foundation, determination of dynamic stiffness and damping properties) sufficient to assist in, personally complete, or ensure the suitability of soil for use in engineering projects.
7. Knowledge of surveying principles (including, but not limited to, traverses, field notes, field investigations and measurements, use of electronic measuring and data collection systems, and topographic mapping) sufficient to assist in, personally complete, or use survey data to identify pipeline alignments and prepare site maps and as-built drawings.
8. Knowledge of computation and triangulation systems adjustments related to right-of-way, easement, and property acquisition to assist in, personally complete, or support real estate personnel's development of legal descriptions.

9. Knowledge of capabilities and applications of computers for data management and solving engineering problems sufficient to assist in, personally complete, or efficiently utilize various computer programs to review plans and develop specifications, reports, and presentations for engineering projects.
10. Knowledge of engineering economics (such as cost-benefit ratios, present worth, annual cost (capital recovery)) sufficient to assist in, personally complete, or provide accurate cost estimates, reports, and recommendations on the fiscal aspects of engineering projects.
11. Knowledge of principles and practices of physics as they apply to mechanics, motion, energy, and fluid flow sufficient to understand and describe the engineering properties of structures and facilities.
12. Knowledge of physical and financial models sufficient to understand the limits of a model's applicability and properly develop or assist in creating accurate models.
13. Knowledge of seismic hazards sufficient to accurately predict and assess the impact of seismic events on structures and mitigate damages to structures during seismic events.
14. Knowledge of industry-wide standards used in preparing manuals and standard plans sufficient to assist in, personally complete, or provide clear and appropriate information for the planning, design, construction, operation, and maintenance of facilities.
15. Knowledge of testing construction materials and their properties sufficient to assist in, personally complete, or test, analyze, and select the appropriate materials to be used in facilities and structures and ensure compliance with facilities' specifications.
16. Knowledge of inspection procedures and quality assurance documentation sufficient to ensure that projects are constructed according to pertinent City and industry standards.
17. Knowledge of industry standards, laws, and regulations sufficient to interpret, prepare, check and review plans and specifications for engineering projects to ensure compliance and resolve conflicts.
18. Knowledge of cost estimates and feasibility studies for engineering projects to assist in, personally complete, or provide project recommendations and accurate estimates of the materials, equipment, and labor needed for the construction, alteration, repair, and maintenance of structures and facilities.
19. Knowledge of regulations and legislation related to City operations sufficient to analyze their impact, ensure individual and departmental compliance, and provide appropriate recommendations for improvement.

20. Knowledge of environmental laws and regulations related to the field of civil engineering sufficient to prepare and process environmental documents, and ensure individual and departmental compliance.
21. Knowledge of authorizing actions, such as types of permits and approvals needed to ensure that engineering projects receive the appropriate authorizations.
22. Knowledge of various land use actions, such as the State Subdivision Map Act, City ordinances, and other regulations sufficient to review and approve privately submitted subdivision maps.
23. Knowledge of investigation methods utilized in engineering projects, including preparing reports on soils, foundations, and seismic evaluations sufficient to assist in, personally complete, or conduct geological surveys to determine geological hazards and develop appropriate facilities.
24. Knowledge of shop drawings sufficient to ensure conformance to pertinent engineering/design industry standards.
25. Knowledge of investigation procedures to ensure they are conducted safely, comprehensively, and appropriately.

***28. SUPERVISION** – Ability to assume direct responsibility for all aspects of the performance of a work group, which requires knowledge and/or ability in the areas of:

- Planning and goal setting
- Creating a safe and positive work environment
- Establishing standards and training employees
- Motivating employees and teambuilding
- Performance Management (assigning, monitoring, facilitating, reviewing and evaluating work, and providing feedback)
- Supporting and developing employees through delegation and participation
- Taking disciplinary action including progressive discipline
- Provisions of employees' MOU's and handling grievances
- Legal requirements including EEO, ADA, FLSA, FMLA, and Workers' Compensation provisions
- Civil Service Commission Rules and Policies related to the management of employees
- Administrative Code provisions related to the management of employees
- Budget processes sufficient to request and justify expenditures in a correct and timely manner.

Level of Competency Required by Job:

Level 1: **Supervises small workgroup of employees performing the same or highly related work.**

Level 2: Supervises a larger workgroup of employees performing various types of work.

Level 3: Supervises employees including provision of coaching and advice to subordinate supervisors.

Examples of Behavioral Indicators:

- Plans, assigns, and monitors work progress.
- Trains employees to do work.
- Evaluates work and gives positive and negative feedback.
- Displays knowledge of legal requirements including applicable Federal and State laws, Administrative Code provisions, Civil Service Commission Rules and Policies, and MOU provisions.

Performance Levels:

<u>Satisfactory</u>	<u>Superior</u>
Proficiency in supervision sufficient to supervise a workgroup in terms of task orientation, interpersonal concerns, and personnel administration.	Proficiency in supervision sufficient to serve as a resource to others and/or represent department position in a public forum.

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.

35. TEAMWORK – Interacts effectively with others to achieve mutual objectives;
readily offers assistance to others to facilitate their goal accomplishment.

Level of Competency Required by Job:

Level 1: Work effectively as a member of a work unit or project team. Readily offer assistance to others when they have too much work or have too little.

Level 2: **Work effectively as a team member in which different people have different roles/responsibilities and perspectives. Identify points for collaboration with co-workers; readily offer and request assistance.**

Level 3: Work effectively as a part of an interdependent team (your work gets done only if the work of the whole team is done; evaluation of team performance is more relevant than individual performance).

Examples of Behavioral Indicators:

- Discusses work-related matters with co-workers.
- Offers and requests assistance readily.
- Offers and is receptive to suggestions.
- Identifies problems with workflow that will prevent team from accomplishing its goals.
- Provides constructive criticism and feedback to team members to improve overall functioning of team.
- Assigns credit to team for accomplishments.

Performance Levels:

Satisfactory

Cooperates with co-workers and fulfills responsibilities as a member of a project team. Maintains a focus on common objectives and offers and requests assistance readily.

Superior

Sees the team as a whole; acknowledges that performance of the team is what in reality is evaluated by others. If anyone fails, everyone on the team fails.

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.

46. LISTENING – Hears and acknowledges what others say.

Level of Competency Required by Job:

Level 1: Attentive to others speaking in interpersonal interactions.

Level 2: **Comprehend information from others one-on-one, in group settings, and from oral presentations.**

Level 3: Comprehend information provided/questions asked by others in public forums or other stressful circumstances.

Examples of Behavioral Indicators:

- Demonstrates correct understanding of issue as expressed by customer.
- Recalls details of information provided by a speaker.
- Expresses subtleties/nuances in information conveyed by others.
- “Answers the question asked.”
- Conveys correct information based on information obtained from a speaker.

Performance Levels:

Satisfactory

Comprehends the message conveyed by the speaker. Rephrases information clearly and accurately; recalls information and details, and answers questions about the information correctly..

Superior

Recalls specific terminology used by a speaker when important. Accurately understands subtleties and nuances in spoken language. Answers questions completely, demonstrating clear and complete comprehension of the questioners' full inquiry.

49. PROJECT MANAGEMENT – Anticipates and plans for all aspects of a multi-faceted, discrete endeavor to ensure resources are available and actions are taken at proper times for successful completion.

Level of Competency Required by Job:

Level 1: **Plan, coordinate, and oversee accomplishment of multi-step projects involving other employees.**

Level 2: Design, plan, coordinate, and manage large, multi-faceted projects involving employees from various segments of the organization representing different perspectives.

Level 3: Design, plan, secure approval and resources, and manages large-scale, complex projects involving many employees representing a large number of diverse segments of the organization and perspectives, which may at times be in conflict.

Examples of Behavioral Indicators:

- Establishes project plans that gain management acceptance.
- Establishes realistic timeline and estimates of resources needed.
- Assembles appropriate team with complementary skills to efficiently execute all portions of a project.
- Secures necessary resources for successful project completion.
- Clearly designates roles/responsibilities/accountability.
- Addresses failure to perform or other problems in a timely and effective manner to minimize negative impact.

Performance Levels:

Satisfactory

Establishes acceptable project plan; assembles team with required skills; establishes personal responsibility/accountability. Ensures the necessary time and resources are available.

Superior

Designs efficient project plan to maximize benefits and minimize use of resources. Designates precise mix of people to best accomplish the project. Completes on time, with resources allocated.