



PUBLIC INFRASTRUCTURE INSPECTOR CERTIFICATION EXAMINATION

CONTENT OUTLINE

- I. TESTING, MEASUREMENT, and INSPECTION: 75 items (Recall: 28, Application: 42, Analysis: 5)***
 - A. Underground Construction: 20 items (Recall: 8, Application: 12, Analysis: 0)***
 1. Inspect and ensure compliance with plans and specifications, and best construction methods for:
 - a. utility systems.
 - b. storm sewers.
 - c. water systems.
 - d. sanitary sewers.
 2. Perform inspections on the following job site materials:
 - a. pipe.
 - b. shoring systems.
 - c. trench backfill.
 3. Conduct right-of-way permit inspections for:
 - a. utility installation.
 - b. sewer caps for demolition.
 - c. utility taps.
 - d. trench backfill.
 4. Observe and document results of the following tests on new sewer lines and manholes:
 - a. mandrel test.
 - b. air test.
 - c. vacuum test.
 - d. video inspection.
 - e. infiltration/exfiltration.
 5. Monitor hydro-static pressure testing on sewer and water lines.
 6. Obtain samples for laboratory testing of water systems for chlorine residual and bacteria.
 7. Verify ties to valves.
 8. Exercise proper safety procedures while entering confined spaces or dangerous areas.

B. At-Grade Construction: 22 items (Recall: 9, Application: 13, Analysis: 0)

1. Inspect and ensure compliance with plans and specifications, and best construction methods for:
 - a. curb and gutter construction.
 - b. paving.
 - c. sidewalk and driveway approach construction.
 - d. restoration work (e.g., fine grading, sod, or seedbed preparation work).
 - e. traffic striping.
 - f. traffic signal installations.
 - g. construction traffic control devices.
 - h. erosion and siltation control installations.
2. Perform inspections on job site materials - asphalt.
3. Conduct right-of-way permit inspections for:
 - a. driveways.
 - b. sidewalks.
 - c. curb and gutter.
 - d. alley construction.
 - e. street repair.
 - f. ADA ramps.
 - g. sign installation.
 - h,. traffic control.
 - i. site development.
 - j. erosion and sediment control.
4. Inspect asphalt paving projects.
5. Inspect concrete paving projects.
6. Make minor field modifications of line and grade to:
 - a. match existing topographic features.
 - b. achieve positive drainage.
7. Verify ties to survey monuments.
8. Inspect traffic maintenance operations through construction zones.

C. Structural Construction: 8 items (Recall: 1, Application: 2, Analysis: 5)

1. Inspect and ensure compliance with plans and specifications, and best construction methods for:
 - a. bridges.
 - b. forming systems.
 - c. reinforcing steel.
 - d. reinforced concrete structures.

D. General Construction: 25 items (Recall: 10, Application: 15, Analysis: 0)

1. Inspect and ensure compliance with plans and specifications, and best construction methods for:
 - a. lines and grades.
 - b. construction materials.
 - c. construction safety precautions.
2. Perform inspections utilizing the following equipment:
 - a. survey instruments.
 - b. measuring devices.

- c. calculator.
 - d. straight edge.
 - e. computers and programs.
 - f. safety devices.
3. Perform inspections on the following job site materials:
 - a. concrete.
 - b. soil retention systems.
 - c. aggregates.
 - d. soil.
 4. Maintain inspection and testing equipment.
 5. Perform mathematical calculations through geometry, algebra, and trigonometry (e.g., proportions, percentages, area circumference, volume):
 - a. percent of grade.
 - b. invert elevations.
 - c. cross slopes.
 - d. super elevations.
 - e. volume.
 - f. area.
 - g. stationing.
 - h. density.
 - i. conversions.
 - j. feet in inches vs. feet in tenths.
 6. Verify that delivered materials meets mix designs.
 7. Verify minimum requirements for compaction, moisture content, and stabilization quantity when accepting/rejecting soils.
 8. Review geotechnical reports.

II. PROJECT PLANNING and MANAGEMENT: 37 items (Recall: 15, Application: 22, Analysis: 0)

A. Planning: 13 items (Recall: 5, Application: 8, Analysis: 0)

1. Review plans and specifications.
2. Review shop drawings and submittals.
3. Verify contractor licenses and permits.
4. Estimate quantities of construction materials.
5. Disseminate right-of-way activities to various agencies.
6. Coordinate with inspection office regarding joint agency projects.
7. Inform management of variances in schedule or of any other problems.
8. Review consultant field check plans (constructability review) and specifications.
9. Participate in value-engineering sessions.
10. Participate in the evaluation of new materials and construction methods.
11. Conduct wage rate interviews with contractor's employees to ensure compliance with federal wage rates.

B. Management: 24 items (Recall: 10, Application: 14, Analysis: 0)

1. Review concrete placement schedule with contractor.
2. Recommend the acceptance of projects through the use of:
 - a. punch list items.
 - b. final walk-through inspections.
 - c. warranty inspections.
3. Recommend change orders.
4. Prepare change orders.
5. Negotiate change orders.
6. Compile as-built plans.
7. Review as-built plans.
8. Utilize various software programs for documentation (e.g., Access, Excel, Outlook, WORD).
9. Communicate clearly with contractors.
10. Recommend field modifications.
11. Assess current progress and adherence to schedule and duration limits.
12. Investigate and respond to contractor claims for additional payment extensions, and changed conditions.
13. Review and approve contractor's final invoices.
14. Compute monthly estimates of work completed, and approve payment for contractors.
15. Investigate and respond to citizen concerns.
16. Notify the community of construction schedule.
17. Attend inspection training seminars.
18. Adhere to professional standards of conduct.
19. Enforce ethical conduct for all employees.

III. PROJECT COMPLIANCE and DOCUMENTATION: 38 items (Recall: 10, Application: 23, Analysis: 5)

A. Compliance: 22 items (Recall: 4, Application: 13, Analysis: 5)

1. Inspect and ensure compliance with plans and specifications, and best construction methods for ADA compliance.
2. Maintain knowledge of codes and specifications.
3. Review results from field tests.
4. Ensure compliance with documents regarding:
 - a. standards for construction.
 - b. regulatory agency permits.
 - c. quality assurance program for material sampling and testing.
5. Ensure compliance with agency contract documents regarding:
 - a. standards for construction.
 - b. regulatory agency permits.
 - c. measurement and payment.
 - d. quality assurance program for material sampling and testing.

6. Ensure compliance with OSHA regarding construction safety standards.
7. Ensure that prevention of damage to surrounding work areas and restoration of right-of-way.
8. Ensure the implementation of dust control measures.
9. Review materials testing reports.
10. Issue violation/non-compliance notices.
11. Issue stop-work orders.

B. Documentation: 16 items (*Recall: 6, Application: 10, Analysis: 0*)

1. Verify quantities of construction materials.
2. Write daily project diaries/reports covering at a minimum:
 - a. manpower.
 - b. equipment use.
 - c. type of work performed.
 - d. on-site discussions with contractor's staff.
 - e. weather.
3. Maintain a photographic record of each project.
4. Record activities on job sites by name, action, location, and performance in daily logs, and weekly summary reports.
5. Maintain a log regarding change orders.
6. Document field changes to the construction plans.
7. Record quantities of materials received or used during specified periods.
8. Maintain material testing log.
9. Maintain project information on construction materials on hand.
10. Interpret plans and specifications.
11. Verify the accuracy of dimensions of installations and layouts.
12. Prepare sketches of construction installations that deviate from plans.