

SECTION 01 45 00 – QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes procedural requirements for quality-control services.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this section relate to customized fabrication and installation procedures not production of standard products.
 - 1. Specific quality-control requirements for individual construction activities are specified in the sections that specify those activities. Requirements in those sections may also cover production of standard products.
 - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Consultant, Owner, or authorities having jurisdiction are not limited by provisions of this section.

1.2 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are to be included in the Contract Sum.
 - 1. Where individual sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are to be included in the Contract Sum.
 - 2. Where individual sections specifically indicate that certain inspections, tests, and other quality-control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services.
 - a. Where the Owner has engaged a testing agency for testing and inspecting part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless agreed to in writing by the Owner.
 - b. Employment of agency by Owner in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- B. Testing Agency Qualifications: Engage inspection and testing service agencies, including independent testing laboratories that are prequalified as complying with the American Council of Independent Laboratories "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and test to be performed.

1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
 2. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.
 3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.
- C. Retesting: The Contractor is responsible for retesting where results or inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Documents requirements.
- D. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:
1. Provide access to the Work.
 2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.
 3. Take adequate quantities of representative samples of material that require testing or assist the agency in taking samples.
 4. Provide facilities for storage and curing of test samples.
 5. Deliver samples to testing laboratories.
 6. Provide the agency with a preliminary design mix proposal for use for materials mixes that require control by the testing agency.
 7. Provide security and protection of samples and test equipment at the Project Site.
- E. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials, and construction specified in individual sections shall cooperate with the Consultant and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
1. The agency shall notify the Consultant, Owner, and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
 3. The agency shall not perform any duties of the Contractor.
- F. The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum delay. In addition the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.3 SUBMITTALS

- A. Test Reports: After each test/inspection, the testing agency shall promptly submit a digital report to the Contractor, Owner, and Consultant.
1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Conformance with Contract Documents.
 - k. When requested by Consultant, provide interpretation of results.
 2. Test report submittals are for Consultant's knowledge for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.
- B. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Consultant, in quantities specified for Product Data.
1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Consultant.
- C. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- D. Manufacturer's Field Reports: Submit reports for Consultant's benefit or for Owner.
1. Submit report in electronic form within 30 days of observation to Consultant for information.
 2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- E. Erection Drawings: Submit drawings for Consultant's benefit or for Owner.
1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
 2. Data including inappropriate or unacceptable Work may be subject to action by Consultant or Owner.

Part 2 – PRODUCTS – NOT USED

Part 3 – EXECUTION

3.1 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Consultant or Owner before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 MOCK-UPS

- A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.
- B. Accepted mock-ups establish the standard of quality the Consultant will use to judge the Work.
- C. The mock-ups will be inspected for adherence to the Contract Documents and for quality of workmanship. The approved mock-up will be issued as a standard to measure all other work. The mockup may be inspected in stages as the work progresses to include:
 - 1. Core drilling and other penetrations through structural and architectural elements.
 - 2. Rough-in and mechanical systems and other work that will be covered by finish work.
- D. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
- E. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- F. Accepted mock-ups shall be a comparison standard for the remaining Work.
- G. Work to be installed and inspected as part of mockup may include:
 - 1. Electrical Systems and routing.
 - 2. Fire alarm systems.
 - 3. Fire sprinkler systems.
 - 4. Mechanical Systems.

5. Telecom Systems.
6. Gypsum board assemblies.
7. Flooring, wall and ceiling finishes.
8. Resilient wall base.
9. Lighting systems and routing.
10. Doors, frames, and hardware.
11. Aluminum windows.
12. Architectural woodwork and accessories.
13. Tackboards.
14. Blocking for all accessories including those provided and/or furnished by Owner.

3.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Consultant before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.4 TESTING AND INSPECTION

- A. See individual specification sections for testing and inspection required.
- B. Testing Agency Duties:
 1. Test samples of mixes submitted by Contractor.
 2. Provide qualified personnel at site. Cooperate with Consultant and contractor in performance of services.
 3. Perform specified sampling and testing of products in accordance with specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Consultant, Contractor, and Owner of observed construction deficiencies, irregularities or non-conformance of Work or products.
 - a. Coordinate with Contractor in maintaining the Construction Deficiencies Log.
 6. Perform additional tests and inspections required by Consultant.
 7. Attend preconstruction meetings and progress meetings.
 8. Submit reports of all tests/inspections specified.
- C. Limits on Testing/Inspection Agency Authority:
 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Agency may not approve or accept any portion of the Work.
 3. Agency may not assume any duties of Contractor.
 4. Agency has no authority to stop the Work.

3.5 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

- B. Report to the Owner or Consultant observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.6 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of the Owner or Consultant, it is not practical to remove and replace the Work, Owner or Consultant will direct an appropriate remedy and/or adjust payment.

END OF SECTION 01 45 00

TEMPLATE