

## QUALITY CONTROL

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### **1. GENERAL**

#### **1.1 Section Includes**

- .1 Quality assurance requirements
- .2 Inspection and testing, administrative and enforcement requirements.
- .3 Tests and mix designs.
- .4 Mock-ups.
- .5 Mill tests.
- .6 Equipment and system adjust and balance.

#### **1.2 Precedence**

- .1 Refer to GC:2.

#### **1.3 Related Sections (Not Used)**

#### **1.4 References**

- .1 Unless the edition number and/or date are specified, any reference to the Manufacturer's and published codes, standards and specifications shall mean the latest edition published by the issuing authority, and in effect three (3) Business Days before the Submission Deadline.
- .2 Referenced standards and specifications define minimum requirements. Work in quality exceeding these minimum requirements conforms to the Contract.
- .3 Any reference to a Manufacturer's direction, instruction, or specification shall be deemed to include full information on storing, handling, preparing, mixing, installing, erecting, applying, or other matters concerning the products pertinent to their use and their relationship to the products with which they are incorporated.
- .4 Any reference to regulatory authorities includes all authorities having jurisdiction.
- .5 Any reference to a Specification section includes all Drawings and Schedules related to the work of that section.

#### **1.5 Inspection**

- .1 Refer to GC:11.

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### **1.6 Independent Inspection Agencies**

- .1 Except where inspecting, testing and similar quality control services are specifically indicated to be the Contractor's responsibility, the City will engage Independent Inspection/Testing Agencies for the purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the City.
- .2 Where inspecting, testing and similar quality control services are specifically indicated in the Specification Sections as the Contractor's responsibility, the Contractor shall engage appropriate Independent Inspection/Testing Agencies. Cost of such services will be borne by the Contractor.
- .3 Where the City has engaged an Inspection/Testing Agency for testing and inspection of a part of the Work and the Contractor is also required to engage an Inspection/Testing Agency for the same or related part of the Work; the Contractor shall not employ the same agency engaged by the City without the prior written approval of the Contract Administrator.
- .4 Employment of Inspection/Testing Agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .5 If defects are revealed during inspection and/or testing, appointed agency may require additional inspection and/or testing to ascertain full degree of defect. Regardless of original responsibility, pay costs for additional inspection and testing, retesting, re-inspection.

### **1.7 Access to Work**

- .1 Refer to GC:11.

### **1.8 Procedures**

- .1 Refer to GC:11.
- .2 Submit for the Contract Administrator's approval a written Quality Assurance Plan prior to start of any on site activities. The plan shall include as a minimum:
  - .1 Contractor's approach and philosophy to QA/QC during construction.
  - .2 Contractor's method for identification and tracking of all control documents.
  - .3 Organization chart showing proposed personnel and key contacts for QA/QC.
  - .4 QC Representative and any subordinate experts. Submit resumes for the Contract Administrator's approval.
  - .5 QC Representative's on Site presence and participation in pre-installation, and Subcontractor meetings.

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- .6 Contractor's bi-weekly QC report, including results of contractor certifications, test results, corrective action and follow-up on any deficiencies in the Project's quality control.
- .7 A list of proposed Inspection/Testing Agencies and their qualifications.
- .3 The QC Representative shall be:
  - .1 Independent of the Contractor's Supervisor
  - .2 Qualified by experience and training to monitor construction quality.
  - .3 Responsible for the overall quality assurance of the Contractor's work and compliance with Contract.
  - .4 Responsible to observe and certify the performance of contractor tests and pre-inspections identified, and to attend meetings on site. The QC Representative may elect to use an alternate expert to observe/certify performance.
  - .5 Authorized to stop work at any time that quality problems necessitate. This authority shall be delineated in a letter of appointment from a Contractor, and shall be included in the QA Plan.
- .4 Notify appropriate agency and the Contract Administrator not less than forty eight (48) hours in advance of requirement for tests, in order that attendance arrangements can be made.
- .5 Submit samples and/or materials required for testing, as specified in Specification section. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .6 Provide labour and facilities to obtain and handle samples and materials on the Site.
- .7 Provide suitable facilities for the storage of specimens or samples at correct temperature, free from vibration or damage in accordance with the instruction of the Inspection/Testing Agency and the governing standard.

### **1.9 Rejected Work**

- .1 Refer to GC:11.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.

### **1.10 Reports**

- .1 For inspecting, testing and similar quality control services which are the Contractor's responsibility, submit four (4) copies of inspection and test reports to the Contract Administrator, unless specified otherwise.

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- .2 Each report shall include:
  - .1 Date of issue
  - .2 Contract name and number
  - .3 Name, address and telephone number of Inspection/Testing Agency
  - .4 Name and signature of inspector and tester
  - .5 Date of inspection or test
  - .6 Identification of the product and Specification section covering inspected or tested Work
  - .7 Location of the inspection or the location from which the tested product was derived
  - .8 Type of inspection or test
  - .9 Complete inspection or test data.
  - .10 Test results and an interpretation of test results.
  - .11 Ambient conditions at the time of sample taking and testing.
  - .12 The remarks and observations on compliance with the Contract Documents
  - .13 Recommendations on retesting or other corrective action where necessary
  - .14 Signature of a qualified and authorized representative of the Agency
- .3 Submit reports within forty eight (48) hours, and notify the Contract Administrator forthwith if the report indicates improper conditions or procedures.
- .4 Refer to Specification section for definitive requirements.

### **1.11 Tests and Mix Designs**

- .1 Furnish test results and mix designs as specified or reasonably required by the Contract Administrator.
- .2 Refer to Specification section for definitive requirements.

### **1.12 Mock-ups**

- .1 Prepare mock-ups as identified in Specification sections. Include for Work of all Sections required to provide mock-ups.

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- .2 Construct in locations as identified in Specification sections or as otherwise approved by the Contract Administrator.
- .3 Prepare mock-ups for the Contract Administrator's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

### **1.13 Mill Tests**

- .1 Submit mill test certificates as specified or reasonably required by the Contract Administrator.
- .2 Refer to Specification section for definitive requirements.

### **1.14 Equipment and Systems**

- .1 Submit adjustment and balancing reports for mechanical, electrical, and other equipment systems.
- .2 Refer to Specification section for definitive requirements.

**END OF SECTION**