

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01400 - QUALITY CONTROL SERVICES

I. GENERAL

A. STIPULATIONS

The "Special Requirements" and General Conditions" to the contract form a part of this section by this reference thereto and shall have the same force and effect as if printed herewith in full.

B. RELATED DOCUMENTS

The Contract Drawings and the Standard Form of Agreement apply to this Section.

C. SUMMARY

1. This Section specifies administrative and procedural requirements for quality control services.
2. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include Contract enforcement activities performed by the Professional or the System.
3. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.
4. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - a. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
 - b. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.
 - c. Requirements for the Contractor to provide quality control services required by the Professional, System, or authorities having jurisdiction are not limited by provisions of this Section.
 - d. Reference schedule of inspections and tests specified as the Professional's responsibility included in section "Submittals".

D. RESPONSIBILITIES

1. Contractor Responsibilities: The General Contractor shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and required by governing authorities, except where they are specifically indicated to be the System's responsibility, or are provided by another identified entity or prime contractor; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the Contract Sum.

- a. The Contractor shall employ and pay an independent agency, to perform specified quality control services.
- b. The System will engage and pay for the services of an independent agency to perform inspections and tests specified as the Professional's responsibility.
- c. Where the System has engaged a testing agency or other entity for testing and inspection of a 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 System, unless otherwise agreed in writing with the System.
- d. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.

Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

- e. Associated Services: The Contractor shall 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:
 - (1) Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
 - (2) Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 - (3) Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.
 - (4) Providing the agency with a preliminary design mix proposed

for use for materials mixes that require control by the testing agency.

- (5) Security and protection of samples and test equipment at the Project site.
2. Professional Responsibilities: The Professional will provide inspections, tests and similar quality control services specified to be performed by independent agencies and not by the Contractor, except where they are specifically indicated as the Contractor's responsibility or are provided by another identified entity. Costs for these services are not included in the Contract Sum.

The System will employ and pay for the services of an independent agency, testing laboratory or other qualified firm to perform services which are the Professional's responsibility.

3. Coordination: The General 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 of delay. In addition the General Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests. The General Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

E. SUBMITTALS

1. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Professional, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate.
 - a. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
 - b. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:
 - (1) Date of issue
 - (2) Project title and number
 - (3) Name, address and telephone number of testing agency
 - (4) Dates and locations of samples and tests or inspections
 - (5) Names of individuals making the inspection or test
 - (6) Designation of the Work and test method
 - (7) Identification of product and Specification Section
 - (8) Complete inspection or test data
 - (9) Test results and an interpretations of test results
 - (10) Ambient conditions at the time of sample-taking and testing
 - (11) Comments or professional opinion as to whether

inspected or tested Work complies with Contract Document requirements

- (12) Name and signature of laboratory inspector
- (13) Recommendations on retesting

2. Tests listed herein shall be performed by an independent testing agency engaged by the System without expense to Contractor. The responsibilities and obligations of the Contractor and the Quality Control Agency are as described herein, in relevant specification sections, and General Provisions. The System reserves the right to change this list at any time. The testing results will be available to the contractor for his use. Testing paid for by the System is for the sole benefit of the System. If Contractor desires additional testing for his own quality control and monitoring to that deemed adequate by the System and the System, the Contractor will pay for these additional testing services.

A. GENERAL CONSTRUCTION

No. of Tests Requested	Material to be Tested	Type or Method of Test Required
1. CONCRETE - PLAIN AND REINFORCED		
(Specify)	Cement	ASTM C150 Physical Test Only, Mill Certification for chemical analysis.
	Fine Aggregate	Type "A" P.D.H. gradation & deleterious tests ASTM C33.
	Lightweight Aggregates	Test for unit weight and deleterious substances. Concrete making properties ASTM C330.
	Water	See Specifications.
	Mix verification tests concrete cylinders tests 7 & 28-day compressive; four cylinders per test.	ASTM C192 ASTM C39
	Air Entrainment Project Site Concrete.	ASTM C231 Normal Weight ASTM C173 Lightweight
	Field-made concrete cylinder tests (7 & 28 days) four cylinders per test.	ASTM C39 Strength Test ASTM C31 Test Specimen
	Concrete @ Project Site, 2 tests per ea. type of concrete.	Yield ASTM C138

No. of Tests Requested	Material to be Tested	Type or Method of Test Required
2.	STEEL (Hours listed are actual inspection time. Incidental costs such as travel, shall be included in the hourly rates).	

	Reinforcing (2 each bar size 3 thru	Physical Tests ASTM Steel A615 Grade 60 Provide certification for chemical test 1.
	Structural Steel Connections Field Welds	Visual & Ultrasonic ASTM E164.
	Field Bolted Connections	Calibrated/Wrench Tightening.
	34 Str. Bolts ASTM A325	ASTM F606 Product Hardness (Rockwell).
	from shop 34 Str. Bolts from field ASTM 325	ASTM F606 Proof of Load Method 2 (yield strength)

3. MASONRY

	Masonry Mortar	Compressive Strength ASTM C270 Type M,S,N,
	Portland Cement	ASTM C150-Type I,III Physical Test Only, Mill Certification for Chemical Analysis.
	Aggregates	ASTM C144 No soundness test if from PDM approved source.
	Lime	ASTM C110 Type S.
	Face Brick	ASTM C67 -Grade SW -Efflorescence -Compression 8000 PSI -Absorption

	Hollow Concrete Masonry Units	ASTM C90, ASTM C140 Grade N, Type I
No. of Tests Requested	Material to be Tested	Type or Method of Test Required

4. SITE WORK

	Borrow Material & Backfill	(a) Classification of Soils ASTM D2487 GW, GP, GM, SM, SW. (b) Moisture Content ASTM D2216.
	Field Density Test for each lift of fill.	ASTM D1556 Sand Core Method or ASTM D2167 Rubber Ballon Method or ASTM D2922 Nuclear Method
	Optimum moisture maximum density for each type of soil encountered.	ASTM D1557 (modified proctor)

5. SPRAYED-ON FIREPROOFING

	Thickness & Density	ASTM E605
	Cohesion & Adhesion	ASTM E736

6. JOINT SEALERS

	Elastomeric Sealants	ASTM C920, ASTM C719
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F. QUALITY ASSURANCE

- 1. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.**

- a. **Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.**

II. PRODUCTS (Not Applicable).

III. EXECUTION

A. REPAIR AND PROTECTION

1. **General: Upon completion of inspection, testing, sample-taking and similar services, the General Contractor repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."**
2. **Protect construction exposed by or for quality control service activities, and protect repaired construction.**
3. **Repair and protection is the General Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.**