

**SECTION 01 40 01 - QUALITY REQUIREMENTS / DISTRICT LABORATORY****PART 1 - GENERAL**

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control related to tests and inspections performed by District's Testing Agency.
- B. Testing and inspection services specified in this Section will be performed by a Testing Agency selected and employed by the District.
  - 1. Maximum travel distance for Testing Agency in-plant inspections will be anywhere in the United States. Mexico is not acceptable for plant locations.
- C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -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 tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by other Sections are not limited by provisions of this Section.
- D. Related Requirements:
  - 1. Section 01 40 02 "Quality Requirements / Contractor Laboratory."
  - 2. Section 01 73 00 "Execution."

## 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by District.
- C. Testing Agency: For this Section, an entity engaged by the District to perform specific tests, inspections, or both.

**1.4 CONFLICTING REQUIREMENTS**

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, District will comply with the most stringent requirement.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements.

**1.5 INFORMATIONAL SUBMITTALS**

- A. Schedule of Tests and Inspections: District will prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Description of test and inspection.
  - 3. Number of tests and inspections required.
  - 4. Time schedule or time span for tests and inspections.
  - 5. Requirements for obtaining samples.

**1.6 QUALITY ASSURANCE**

- A. Testing and inspections required by governing authorities will be performed by an independent testing laboratory selected and employed by the District and approved by the Division of the State Architect (DSA). Qualification of a testing agency or laboratory will be under the jurisdiction of the DSA Office of Regulations (ORS) Structural Safety Section (SSS) when applicable. Procedural and acceptance criteria are set forth in CBC Sections 110 and 1701A, and California Code of Regulations (CBC) Title 24 Part 1, Administrative Code, and the DSA Interpretation of Regulations.
- B. Testing and inspection services which are performed will be in accordance with requirements of CBC Title 24 Part 1, Administrative Code, and as specified herein.
- C. When specified, testing and inspections not required by governing authorities (NON-DSA) will also be performed by an independent Testing Agency selected and employed by the District.
- D. Testing and inspection services will verify that work meets the requirements of the Contract Documents.
- E. In general, tests and inspections for structural materials shall include all items enumerated on the Statement of Structural Tests and Special Inspections (DSA Form 103) for this project as prepared and distributed by the Architect.
- F. Testing Agency will submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, Construction Manager, and Project Inspector, with copy to Contractor. Testing Agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  - 1. Testing Agency will notify Architect, Construction Manager, Project Inspector and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

2. Testing Agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect, Construction Manager, and Project Inspector, with copy to Contractor and to authorities having jurisdiction.
  3. Testing Agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  4. Testing Agency will retest and reinspect corrected work.
  5. Testing Agency will not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
  6. Testing Agency will not perform any duties of the Contractor.
- G. Test reports will include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested will also be reported. Records of special sampling operations as required shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of CBC Title 24 Part 1 Administrative Code, Part 2 California Building Code, and with the DSA approved specifications. They will also state definitely whether or not the material or materials tested comply with requirements.
- H. Reporting Test Failures:
1. Immediately upon Testing Agency determination of a test failure, the Agency will notify Contractor and other interested parties.

#### 1.7 PAYMENTS

- A. Costs of initial testing and inspection, except as specifically modified herein, or specified otherwise in technical sections, will be paid by the District. Initial tests and inspections are defined as the first tests and inspections as herein specified.
- B. In the event a test or inspection indicates failure of a material or procedure to meet requirements of Contract Documents, costs for retesting and additional work related to failure will be paid by the District and backcharged to the Contractor.
- C. Additional tests and inspections, not herein specified but requested by District or Architect, will be paid by District unless results of such tests and inspections are found to be not in compliance with Contract Documents, in which case the District will pay all costs for initial testing as well as retesting, reinspection and additional work related to non-compliance. District will then backcharge the Contractor for these costs.
- D. Costs for additional tests or inspections required because Contractor changed materials or changed source or supply will be paid by District and backcharged to the Contractor.
- E. Costs for tests or inspections that are required to correct deficiencies will be paid by the District and backcharged to the Contractor.
- F. Extra Testing Agency expenses resulting from a failure to notify the Testing Agency will be paid by the District and backcharged to the Contractor.
- G. Charges due to insufficient advance notice of cancellations or time extension will be paid for by the District and backcharged to the Contractor.
- H. Cost of testing that is required solely for the convenience of Contractor in his scheduling and performance of work will be paid by the District and backcharged to the Contractor.

- I. Overtime costs for testing and inspections performed outside the regular work day hours, including weekends and holidays, due to fault of Contractor will be paid for by the District and backcharged to the Contractor. Such costs include overtime costs for the District's personnel.
- J. Should it be considered necessary or advisable by the District at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the completed work, the Contractor shall on request promptly furnish necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of the Contractor or his subcontractor, Contractor shall be responsible for all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and material necessarily involved in the examination and replacement shall be reimbursed to the Contractor.

## 1.8 QUALITY CONTROL

### A. Contractor Responsibilities:

- 1. Notify Testing Agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
- 2. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
- 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor and the Contract Sum will be adjusted by Change Order.

### B. Contractor Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify Testing Agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

- 1. Access to the Work.
- 2. Incidental labor and facilities necessary to facilitate tests and inspections.
- 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
- 4. Facilities for storage and field-curing of test samples.
- 5. Preliminary design mix proposed for use for material mixes that require control by Testing Agency.
- 6. Security and protection for samples and for testing and inspecting equipment at Project site.
- 7. Selection of the material required to be tested will be by the Testing Agency or the District and not by the Contractor.

### C. Contractor shall notify the Testing Agency a minimum of 3 working days in advance of the manufacture of material to be supplied by him under the Contract Documents, which must by terms of the Contract be tested, in order that the Agency may arrange for the testing of such material at the source of supply.

- 1. Material shipped by the Contractor from the source of supply before having satisfactorily passed such testing and inspection or before the receipt of notice from the District that such testing and inspection will not be required, shall not be incorporated in the Project.

### D. Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

**1.9 PROJECT INSPECTOR**

- A. An Inspector employed by the District in accordance with the requirements of CBC Title 24 Part 1, Administrative Code, will be assigned to the work. His duties are specifically defined in CBC Title 24 Part 1, Sec. 4-342.
- B. The Contractor shall notify the Inspector a minimum of two working days in advance of execution of all work that requires inspection.
- C. The work of construction in all stages of progress shall be subject to the personal continuous observation of the Inspector. Inspector shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to be fully informed respecting the progress and manner of the work and the character of the materials. Inspection of the work shall not relieve the Contractor from any obligation to comply with the Contract requirements.

**PART 2 - PRODUCTS (Not Used)****PART 3 - EXECUTION****3.1 DSA TESTS AND INSPECTIONS**

- A. Test and inspections for the following will be performed in conformance with the California Building Code, Title 24, Part 2, of the California Code of Regulations, and the DSA Interpretations of Regulations (IR) Manual.
- B. Structural tests and inspections will be performed in accordance with CBC Chapter 17A.
- C. Soils (CBC Chapter 18A).
  1. General: CBC Table 1705A.6.
    - a. Verification of site preparation
  2. Compacted Fills: CBC Table 1705A.6.
    - a. Qualification of fill materials.
    - b. Inspect placement.
  3. Driven Deep Foundations (Piles): CBC Table 1705A.7.
    - a. Verify materials, sizes, lengths.
    - b. Load tests.
    - c. Inspect driving operations.
    - d. Verify locations, plumbness, penetrations.
  4. Cast-In-Place Deep Foundations (Piers): CBC Table 1705A.7.
    - a. Inspect drilling operations.

- b. Verify locations.
  - c. Confirm diameters, plumbness, embedment.
  - d. Confirm bearing capacity.
5. Retaining Walls:
- a. Backfill: CBC Table 1705A.6.1
- D. Concrete (CBC Chapter 19A).
1. Cast-In-Place Concrete: CBC Table 1705A.3.
- a. Material Verification and Testing:
    - 1) Design Mix: verification.
    - 2) Reinforcing Steel: CBC Section 1913A.2; ASTM A370; DSA IR 17-10.
    - 3) Slump, Temperature, Air Content: ASTM C172; ASTM C31.
    - 4) Compression: ACI 318 Section 5.6; CBC Section 1905A.1.2; ASTM C39.
  - b. Inspection:
    - 1) Batch Plant Inspection: CBC Section 1705A.3.2.
    - 2) Batch Plant Inspection: CBC Section 1705A.3.3.
    - 3) Placement of formwork, reinforcing steel, embedded items.
    - 4) Verify concrete strength prior to removal of forms.
2. Post-Installed Anchors:
- a. Inspect installation: CBC Table 1705A.3.
  - b. Test post-installed anchors: CBC Section 1913A.7.
- E. Masonry (CBC Chapter 21A and TMS 402-11/ACI 530-11/ASCE 5-11 Table 1.19.3).
1. Not used
- F. Steel (CBC Chapter 22A and CBC Table 1705A.2.1).
1. Structural Steel and Cold-Formed Steel Used for Structural Purposes:
- a. Material Verification:
    - 1) Verify markings, mill certificates, sizes, types, and grades.
    - 2) Test unidentified materials: CBC Section 2203A.1; ASTM A370.
    - 3) Examine seam welds of structural tubes and pipes: DSA IR 17-3.
  - b. Inspection:
    - 1) Verify member locations and details constructed in field.
    - 2) Verify stiffener locations and details fabricated in shop.
2. High-Strength Bolts:
- a. Material Verification:
    - 1) Verify markings and certificates of compliance: DSA IR 17-9.

- 2) Test bolts, nuts, washers: CBC Section 2213A.1; ASTM F606; ASTM A370; DSA IR 17-8.
- b. Inspection
  - 1) Bearing-type connections: DSA IR 17-9.
  - 2) Slip-critical connections: DSA IR 17-9.
3. Welding: DSA IR 17-3; AWS D1.1; AWS D1.8.
  - a. Verification
    - 1) Verify weld filler identification markings.
    - 2) Verify weld filler material manufacturer's certificate of compliance.
    - 3) Verify WPS, welder qualifications, and equipment: DSA IR 17-3.
  - b. Shop Welding
    - 1) Inspect groove, multi-pass, and fillet welds  $>5/16"$ : AISC 360; DSA IR 17-3.
    - 2) Inspect single pass fillet welds  $\leq 5/16"$ : AISC 360; DSA IR 17-3.
    - 3) Inspect welding of stairs and railings: CBC Section 1705A.2.2.1; AISC 360; DSA IR 17-3.
    - 4) Verification of reinforcing steel weldability: CBC Section 1705A.3.1; DSA IR 17-3.
    - 5) Inspect welding of reinforcing steel: CBC Sections 1705A.2.2.1.2 and 1705A.2.2.5; CBC Table 1705A.2.1 Item 5b; AWS D1.4; DSA IR 17-3.
  - c. Field Welding:
    - 1) Inspect groove, multi-pass, and fillet welds  $>5/16"$ : AISC 360; DSA IR 17-3.
    - 2) Inspect single pass fillet welds  $\leq 5/16"$ : AISC 360; DSA IR 17-3.
    - 3) Inspect floor and roof deck welds: AISC 360; DSA IR 17-3.
    - 4) Inspect welding of structural cold-formed steel: CBC Sections 1705A.2.2.1.1 and 1705A.2.2.5; DSA IR 17-3.
    - 5) Inspect welding of stairs and railings: CBC Sections 1705A.2.2.1.1 and 1705A.2.2.5; DSA IR 17-3.
    - 6) Verification of reinforcing steel weldability: CBC Section 1705A.3.1.
    - 7) Inspect welding of reinforcing steel: CBC Sections 1705A.2.2.1.2 and 1705A.2.2.5; CBC Table 1705A.2.1 Item 5b; AWS D1.4.
4. Non-Destructive Testing:
  - a. Ultrasonic: AISC 341, App. Q 5.2. AWS D1.1, D1.8.- ANSI/ASNT CP-189, SNT-TC-1A. - ASTM E543, E1444, E164 - DSA IR 17-2.
  - b. Magnetic Particle: AISC 341, App. Q 5.2. AWS D1.1, D1.8.- ANSI/ASNT CP-189, SNT-TC-1A. - ASTM E543, E1444, E164 - DSA IR 17-2.
  - c. <insert requirements>
5. Steel Joists and Trusses:
  - a. Verify size, type, and grade of all members, connectors, weld filler materials: CBC Section 1705A.2.2.3 and DS AIR 22-3 for steel joists only; CBC Section 1705A.2.2.4 for steel trusse.
6. Other Steel:

a. High-Strength Threaded Rods: CBC Section 2212A.1.

G. Wood (CBC Chapter 23)

1. Not used

H. Other

1. Grounding: CEC Section 25 0. 56.

**3.2 NON-DSA TESTS AND INSPECTIONS**

A. Not used

**3.3 REPAIR AND PROTECTION**

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION 01 40 01**

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