

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. 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 Contract Document requirements. Quality of work shall be responsibility of the Contractor.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and control procedures that facilitate compliance with Contract Document requirements.
- C. See Division 02 through Division 49 sections for specific test and inspection requirements.

1.2 DEFINITIONS

- A. Field Quality Control Testing: Tests and inspections performed onsite for installation of work and for completed work.
- B. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of corresponding generic name.
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into work to verify performance or compliance with specified criteria.
- D. Product Testing: Tests and inspections performed by a Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or a testing agency qualified to conduct product testing, to establish product performance and compliance with industry standards.

- E. 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.
- F. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate actual products incorporated into the Work and completed construction comply with requirements.
- G. Source Quality Control Testing: Tests and inspections performed at the source, i.e., plant, mill, factory, or shop.
- H. Testing Agency or Laboratory: Entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.3 CONFLICTING REQUIREMENTS

- A. Reference Standards: If compliance with two or more standards is specified and standards establish different or conflicting requirements for minimum quality levels, comply with most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Contracting Officer before proceeding.
- B. Minimum Quality Levels: Quality level shown or specified shall be minimum provided or performed. Actual installation may comply exactly with minimum quality specified, or it may exceed minimum within reasonable limits. To comply with requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Contracting Officer before proceeding.

1.4 SUBMITTALS

- A. Quality Control Plan:
 - 1. After contract award and before Pre-Construction conference, submit a written Contractor Quality Control (CQC) plan.
 - 2. If plan requires revisions or corrections, Contractor shall resubmit plan within 10 days.
 - 3. Government reserves the right to require changes in plan during contract period as necessary to obtain the quality specified.
 - 4. No change in the approved plan may be made without written concurrence by Contracting Officer.
- B. Qualification Data: For testing agencies specified in Article Quality Assurance to demonstrate their capabilities and experience. Include proof of qualifications in form of a recent report on inspection of testing agency by a recognized authority.

- C. Contractor Quality Control (CQC) Daily Reports: Submit showing inspections and tests on first workday following date covered by report. Quality Control Supervisor shall utilize [DSC Forms](#).
 - 1. Review Construction Management Representative (CMR) Daily report if applicable and reconcile any differences prior to posting.
- D. Test Reports:
 - 1. Test reports shall be completed by person performing test.
 - 2. Submit Daily Test Information Sheets with Quality Control Daily Reports.
 - 3. Submit failing test results and proposed remedial actions within 4 hours of noted deficiency.
 - 4. Submit three copies of complete test results no later than 1 calendar day after test was performed.
- E. Accessibility Inspection Report:
 - 1. Fill out applicable sections of the Accessibility Inspection Report and attach to Contractor Quality Control Daily Report.
 - 2. Utilize attached Accessibility Inspection form to document compliance with Architectural Barriers Act Accessibility Standards (ABAAS).
 - 3. Inspect at various stages of construction as needed to ensure finished product meets standards.
 - 4. Submit report no later than 1 calendar day after inspection was performed.
- F. Offsite Inspection Reports: Submit prior to shipment.
- G. If Contractor Quality Control plan and Quality Control Daily Reports are not submitted as specified, Contracting Officer may retain payments until such time plan(s) is/are accepted and implemented, or may retain payments for work completed on days with no Quality Control Daily Reports.
- H. Permits, Licenses, and Certificates: For National Park Service (NPS) records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of Work.

1.5 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish minimum qualification levels required; individual specification sections specify additional requirements.

B. Contractors Quality Control Staff:

1. Contractor's Quality Control Supervisor may also perform other duties.
2. Contractor's Quality Control Supervisor shall be assigned no other duties.
3. Contractor's designated Quality Control Supervisor shall be on the Project Site whenever Contract Work is in progress.
4. Contractor's job supervisory staff may be used to assist Quality Control Supervisor supplemented, as necessary, by additional certified testing technicians.

C. Installer Qualifications: Firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent indicated for Project, whose work has resulted in construction with a record of successful in-service performance.

D. Manufacturer Qualifications: Firm experienced in manufacturing products or systems similar to those indicated for Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Fabricator Qualifications: Firm experienced in producing products similar to those indicated for Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

F. Professional Engineer Qualifications: Professional engineer legally qualified to practice in jurisdiction where Project is located and is experienced in providing engineering services of kind indicated (including Structural Tests and Special Inspections (STSI)). Engineering services are defined as those performed for installations of system, assembly, or products similar to those indicated for Project in material, design, and extent.

G. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing Work.

H. Testing Agency Qualifications: A Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or an independent agency with experience and capability to conduct testing and inspecting indicated, according to ASTM E329; and with additional qualifications specified in individual sections; and where required by Contract, is acceptable to Contracting Officer.

1. Nationally Recognized Testing Laboratory (NRTL): Nationally recognized testing laboratory according to 29 CFR 1910.7 (Code of Federal Regulations).

2. National Voluntary Laboratory Accreditation Program (NVLAP): Testing agency accredited according to National Institute of Standards and Technology's (NIST) National Voluntary Laboratory Accreditation Program.
 3. Measuring devices, laboratory equipment, and instruments shall be calibrated at established intervals against certified standards in accordance with NIST requirements. Measuring and testing devices shall be made available for use by Government for verification tests.
- I. Factory-Authorized Service Representative Qualifications: Authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products similar in material, design, and extent to those indicated for Project.

1.6 QUALITY CONTROL

- A. Contractor is responsible for testing and inspections, including Structural Tests and Special Inspections (STSI), as identified in attached STSI. Inspect and test work as needed to ensure quality of materials, workmanship, construction, finish, and functional performance are in compliance with applicable specifications, drawings, and those required by the Building Code.
1. Engage qualified testing agency to perform quality-control services.
 2. Submit appropriate report for each quality-control service.
 3. Testing and inspecting requested by Contractor and not required by Contract Documents are Contractor's responsibility.
 4. Contracting Officer may designate test locations.
- B. Manufacturer's Field Services: Where indicated, engage factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- C. Re-testing/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction of replaced work that failed to comply with Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with NPS and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Contracting Officer and Contractor promptly of irregularities or deficiencies observed in work during performance of services.
 2. Determine location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections, State in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit three copies of certified written report of each test, inspection, and similar quality-control service through Contractor.

5. Do not release, revoke, alter, or increase Contract Document requirements or approve or accept any portion of Work.

E. Associated Services:

1. Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide:
 - a. Access to Work.
 - b. Incidental labor and facilities necessary to facilitate tests and inspections.
 - c. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - d. Facilities for storage and field curing of test samples.
 - e. Delivery of samples to testing agencies.
 - f. Preliminary design mix proposed for material mixes that require control by testing agency.
 - g. Security and protection for samples and testing and inspecting equipment at Project Site.

F. Coordination: Coordinate sequence of activities to accommodate required quality assurance and control services with minimum delay and to avoid removing and replacing construction to accommodate testing and inspecting.

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

G. PROFESSIONAL OBSERVATIONS

1. Geotechnical Observation: Visual observation of selected subgrade bearing surfaces and installation of deep foundation elements by a registered design professional for general conformance to Contract Documents.
2. Structural Observation: Visual observation of structural system(s) by a registered design professional for general conformance to Contract Documents in accordance with IBC Section 1704.6. Structural observation will include visual observation of the structural system at significant construction stages and at the completion of the structural system for each structure contained in the Work. The Contractor shall schedule and facilitate structural observation, including the elements described here in.
3. Code required Professional Observation is for benefit of the Contracting Officer and does not:
 - a. Relieve Contractor of responsibility for providing adequate quality control measures.
 - b. Relieve Contractor of responsibility for damage to or loss of material before acceptance.
 - c. Constitute or imply acceptance.

4. Onsite structural observation will be performed for each identified seismic force- or wind force-resisting system, including foundations and connections, as identified in the attached STSI.
5. Structural observation reports, noting any deficiencies in observed construction, will be delivered to the Contractor and Contracting Officer following each observation.
6. At the conclusion of construction, a written statement will be provided to verify that the structural observation site visits were made and whether there remain any structural deficiencies that have not been resolved.

STRUCTURAL OBSERVATION TABLE				
	SYSTEM	STAGE	ITEMS	COMMENTS
1.	FOUNDATION SLAB OF STRUCTURE	PRIOR TO FIRST CONCRETE PLACEMENT OF FIRST SECTION WHEN ITEMS CAN STILL BE REVISED	REINFORCING STEEL, CONCRETE AND MASONRY WALL DOWELS, WATERSTOPS, EMBEDS, AND SIMILAR ITEMS	NOTE 1
2.	CONCRETE WALLS OF STRUCTURE	PRIOR TO FIRST CONCRETE PLACEMENT OF FIRST SECTION WHEN ITEMS CAN STILL BE REVISED	REINFORCING STEEL, WALL DOWELS, WATERSTOPS, EMBEDS, AND SIMILAR ITEMS	NOTE 1
3.	WALL TO FOUNDATION CONNECTIONS PRIOR TO FORM CLOSURE	PRIOR TO FIRST CONCRETE PLACEMENT OF FIRST SECTION WHEN ITEMS CAN STILL BE REVISED		NOTE 1
4.	ELEVATED CONCRETE SLABS AND BEAMS PRIOR TO CONCRETE PLACEMENT	PRIOR TO FIRST CONCRETE PLACEMENT OF FIRST SECTION WHEN ITEMS CAN STILL BE REVISED	REINFORCING STEEL, WALL DOWELS, WATERSTOPS, EMBEDS, AND SIMILAR ITEMS	NOTE 1
5.	CONCRETE STRUCTURES	PRIOR TO FIRST CONCRETE PLACEMENT ON FIRST LIQUID HOLDING STRUCTURE WHEN ITEMS CAN STILL BE REVISED	REINFORCING STEEL, WALL DOWELS, WATERSTOPS, EMBEDS, AND SIMILAR ITEMS	NOTE 1
6.	CONCRETE STRUCTURES	AT COMPLETION OF PLACEMENT OF ALL CONCRETE COMPONENTS FOR THE FIRST LIQUID HOLDING STRUCTURE	CONCRETE TOLERANCES, FINISHING, LIQUID TIGHTNESS, AND SIMILAR ITEMS	NOTE 1
7.	SYSTEM CONNECTION EMBEDS	PRIOR TO GROUT OR CONCRETE PLACEMENT		NOTE 1
8.	CONCRETE WALL TO FLOOR AND ROOF CONNECTIONS	PRIOR TO FORM CLOSURE [OR CLADDING INSTALLATION] OR OTHER COVER		NOTE 1

STRUCTURAL OBSERVATION TABLE				
	SYSTEM	STAGE	ITEMS	COMMENTS
9.	STRUCTURAL STEEL FRAMING	DURING INITIAL CONSTRUCTION OF STEEL FRAMING AT FIRST STEEL FRAMED BUILDING PRIOR TO ENCLOSURE OF FRAMING BEHIND FINAL FINISHES	MEMBER LOCATIONS AND CONFIGURATIONS, BOLTED AND WELDED CONNECTIONS, AND SIMILAR ITEMS	NOTE 1
10	AT ADDITIONAL TIMES DURING CONSTRUCTION AT WHICH THE ENGINEER OF RECORD OR CONTRACTING OFFICER DEEM THE NEED FOR ADDITIONAL STRUCTURAL OBSERVATION			NOTE 1
11.	AT SUBSTANTIAL COMPLETION OF PRIMARY STRUCTURAL SYSTEM FOR DETERMINATION OF FINAL CONDITION OF STRUCTURE			NOTE 1
NOTE: 1. STRUCTURAL OBSERVER TO DISCUSS ITEMS AND SITE SPECIFIC CONDITIONS WITH SPECIAL INSPECTOR AND FIELD INSPECTION STAFF DURING OBSERVATION.				

PART 2 PRODUCTS

2.1 QUALITY CONTROL PLAN

A. Quality Control Plan shall include:

1. List of personnel responsible for quality control and assigned duties. Include each person's qualifications. Include alternate(s) and qualifications.
2. Copy of letter of direction to Contractor's Quality Control Supervisor(s) outlining assigned duties and authorities designated by principal or owner.
3. Names, qualifications / accreditations, and descriptions of laboratories to perform sampling and testing, and samples of proposed report forms from laboratories.
4. Methods of performing, documenting, and enforcing quality control of work including Contractor report forms and acknowledgment of NPS forms.
5. Methods of monitoring and controlling environmental pollution and contamination as required by regulations and laws.

6. Specific discussion regarding mockups, offsite visits, receiving inspections, manufacturers representation, startup requirements, and other aspects of performance specific to Project.
7. Provisions for substantial completion(s) and final inspection(s) per Contract.

PART 3 EXECUTION

3.1 OFFSITE CONTROL

- A. Items fabricated or assembled offsite shall be inspected for quality control at place of fabrication.

3.2 ONSITE CONTROL

A. Notification:

1. Notify Contracting Officer at least 48 hours in advance of preparatory phase meeting.
2. Notify Contracting Officer at least 24 hours in advance of initial and follow-up phases.

B. Preparatory Phase: Perform before beginning each feature of Work.

1. Review control submittal requirements with personnel directly responsible for quality assurance and quantity control of the Work. As a minimum, Contractor's Quality Control Supervisor and foreman responsible for feature of work shall be in attendance.
2. Review applicable specifications sections and drawings related to feature of work.
3. Ensure copies of referenced standards related to sampling, testing, and execution for feature of work are available onsite.
4. Ensure provisions have been made for field control testing.
5. Examine work area to ensure preliminary work has been completed.
6. Verify field dimensions and advise Contracting Officer of discrepancies with contract documents.
7. Ensure necessary equipment and materials are at Project Site and they comply with approved Shop Drawings and submittals.
8. Document preparatory phase activities and discussions on Contractor's Quality Control Daily Report.

C. Initial Phase:

1. As soon as work begins, inspect and test representative portion of particular feature of work for quality of workmanship.
2. Review control testing procedures to ensure compliance with contract requirements.

3. Document initial phase activities and discussions on Contractor's Quality Control Daily Report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- D. Follow-Up Phase: Inspect and test as work progresses to ensure compliance with contract requirements until completion of Work.
- E. Additional Preparatory and Initial Phases:
 1. Additional preparatory and initial phases may be required on same feature of work for following reasons:
 - a. Quality of on-going work is unacceptable.
 - b. Changes in quality control staff, onsite production supervision, or work crew.
 - c. Work on particular feature of work is resumed after substantial period of inactivity.

3.3 DOCUMENTATION

- A. Maintain Quality Control Daily Reports, Daily Test Report Information Sheets, and Accessibility Inspection Reports of quality control activities and tests. (Download from DSC Workflows website > Forms/Templates/Samples/Guidelines page > [Construction Forms](#) section.)
- B. Quality Control Daily Reports shall not be substituted for other written reports required under clauses of contract, such as Disputes, Differing Site Conditions, or Changes.
- C. Quality Control Daily Reports shall accurately portray all work and materials. The materials shall match the materials as approved from the Construction Documents (CD) requirements. Combustible/flammable materials shall be documented as well.

3.4 ENFORCEMENT

- A. Contractor shall stop work on any item or feature pending satisfactory correction of deficiency noted by quality control staff or Contracting Officer.

3.5 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. Restore patched areas and extend restoration into adjoining areas with durable seams as invisible as possible.

2. Comply with Contract Document requirements for Section 01 73 29, Cutting and Patching.
- 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.

3.6 SUPPLEMENTS

- A. The supplements listed below, following "End of Section," are a part of this specification:
 1. Statement of Structural Tests and Special Inspections.
 2. Accessibility Inspection Report – Buildings & Facilities.

END OF SECTION

