SECTION **01 40 00** - **QUALITY REQUIREMENTS**

**Content Requests:**

Revise this Section by deleting and inserting text to meet Project-specific requirements.

1. GENERAL
	* + 1. SUMMARY

Section includes administrative and procedural requirements for quality assurance and quality control.

* + - * 1. Testing and inspection 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.

Retain three subparagraphs below to clarify applicability of provisions in this Section. Revise to suit Project. Coordinate revisions with the General Conditions and other Division 01 Sections.

Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.

Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.

Requirements for Contractor to provide quality-assurance and quality-control services required by Government, Commissioning Authority, or authorities having jurisdiction are not limited by provisions of this Section.

Retain subparagraph below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

* + - 1. DEFINITIONS

Retain terms that remain after this Section has been edited for a project.

Revise the number of projects in "Experienced" Paragraph below to suit Project, office policy, and Government's requirements. Delete if experience requirements are included in individual Specification Sections or are prohibited by law.

Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of 5 previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

* + - * 1. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
				2. 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, assembly, and similar operations.

Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

Retain "Mockups" Paragraph below if Project requires mockups.

Mockups: Physical assemblies of portions of the Work constructed to establish the standard by which the Work will be judged. Mockups are not Samples.

Mockups are used for 1 or more of the following:

Verify selections made under Sample submittals.

Demonstrate aesthetic effects.

Demonstrate the qualities of products and workmanship.

Demonstrate successful installation of interfaces between components and systems.

Perform preconstruction testing to determine system performance.

Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.

In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.

Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

* + - * 1. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) in accordance with 29 CFR 1910.7, by a testing agency accredited in accordance with NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
				2. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).
				3. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."
				4. 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.
				5. 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. Contractor's quality-control services do not include contract administration activities performed by Government.
			1. DELEGATED DESIGN SERVICES

This article directly relates to AIA Document A201 requirement for Contractor to provide professional services where indicated by the Contract Documents. AIA Document A201 refers to "an appropriately licensed design professional," but no other qualifications are included. Definitions of qualifications of design professionals are indicated in "Quality Assurance" Article. Retain this article if required and if authorities having jurisdiction allow Contractor to perform these services.

Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Government.

Delegated Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

* + - 1. CONFLICTING REQUIREMENTS

"Conflicting Standards and Other Requirements" Paragraph below may resolve issues that sometimes arise when using referenced standards and other specific requirements due to conflicting requirements in the Contract Documents. Coordinate with Conditions of the Contract. Revise to suit Project, office policy, and Government's requirements.

Conflicting Standards and Other Requirements: If compliance with 2 or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Government regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Government for clarification before proceeding.

* + - * 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is 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. Refer uncertainties to Government for a decision before proceeding.

Insert an article on special compliance with a governing code only if necessary. Such provisions typically belong in the Supplementary Conditions.

Retain "Mockup Shop Drawings" Paragraph below if integrated exterior mockup complexity warrants preparation of Shop Drawings, or if Drawings or the Specifications do not adequately describe requirements.

* + - 1. INFORMATIONAL SUBMITTALS

Retain "Contractor's Quality-Control Plan" and "Qualification Data" paragraphs below if requiring written plan described in "Contractor's Quality-Control Plan" Article.

Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

* + - * 1. Qualification Data: For Contractor's quality-control personnel.

Retain "Contractor's Statement of Responsibility" Paragraph below when local code requirements stipulate submittal to authorities having jurisdiction of Contractor's statement of responsibility for seismic- or wind-force-resisting system construction and if an informational submittal is required. See requirements in the 2018 IBC, Sections 1704 and 1705.

* + - * 1. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.

Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

Retain "Schedule of Tests and Inspections" Paragraph below if retaining "Schedule of Tests and Inspections" Paragraph in "Quality Control" Article. Coordinate with the IBC requirement for the Statement of Special Inspections prepared by Government, if applicable to Project.

* + - * 1. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

Specification Section number and title.

Entity responsible for performing tests and inspections.

Description of test and inspection.

Identification of applicable standards.

Identification of test and inspection methods.

Number of tests and inspections required.

Time schedule or time span for tests and inspections.

Requirements for obtaining samples.

Unique characteristics of each quality-control service.

Reports: Prepare and submit certified written reports and documents as specified.

* + - * 1. Permits, Licenses, and Certificates: For Government's record, 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 the Work.
			1. CONTRACTOR'S QUALITY-CONTROL PLAN

Retain this article for projects where the extent or complexity of Contractor's quality-assurance and quality-control requirements warrants preparation of a contractor's quality-control plan that incorporates the formal planning, management, and execution actions described. Delete this article when overall quality control is the responsibility of a construction manager.

Quality-Control Plan, General: Submit quality-control plan within 10 days of Notification of Award and not less than 5 days prior to preconstruction conference. Submit in format acceptable to Government. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Government's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.

* + - * 1. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

Project quality-control manager does not have other Project responsibilities.

Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

* + - * 1. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.

Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.

Government-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by Commissioning Authority.

Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.

* + - * 1. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Government has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.
			1. REPORTS AND DOCUMENTS

Revise "Test and Inspection Reports" Paragraph below to suit Project. In the case of multiple contracts, consider assigning responsibility for coordination of report submittals to one contract. See the Evaluations.

Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

Date of issue.

Project title and number.

Name, address, telephone number, and email address of testing agency.

Dates and locations of samples and tests or inspections.

Names of individuals making tests and inspections.

Description of the Work and test and inspection method.

Identification of product and Specification Section.

Complete test or inspection data.

Test and inspection results and an interpretation of test results.

Record of temperature and weather conditions at time of sample-taking and testing and inspection.

Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.

Name and signature of laboratory inspector.

Recommendations on retesting and reinspecting.

Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

Name, address, telephone number, and email address of technical representative making report.

Statement on condition of substrates and their acceptability for installation of product.

Statement that products at Project site comply with requirements.

Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

Results of operational and other tests and a statement of whether observed performance complies with requirements.

Statement of whether conditions, products, and installation will affect warranty.

Other required items indicated in individual Specification Sections.

Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

Name, address, telephone number, and email address of factory-authorized service representative making report.

Statement that equipment complies with requirements.

Results of operational and other tests and a statement of whether observed performance complies with requirements.

Statement of whether conditions, products, and installation will affect warranty.

Other required items indicated in individual Specification Sections.

* + - 1. QUALITY ASSURANCE

Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

* + - * 1. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
				2. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

If more detailed requirements are needed in "Installer Qualifications" Paragraph below, add this information to specific individual Specification Sections. Examples include Installer employing workers trained and approved by manufacturer, Installer being acceptable to manufacturer, and Installer being an authorized representative of manufacturer for both installation and maintenance.

* + - * 1. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

If other design professionals are indicated in Specification Sections, insert additional paragraphs describing qualifications.

* + - * 1. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

Retain "Specialists" Paragraph below if other Specification Sections assign certain items of Work to preselected subcontractors (specialists). Revise to suit Project. See the Evaluations for discussion on naming parties other than Government and Contractor in Specifications.

* + - * 1. Specialists: Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.

Requirements of authorities having jurisdiction supersede requirements for specialists.

Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

* + - * 1. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
				2. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

Retain "Preconstruction Testing" Paragraph below if preconstruction testing is required. Indicate in individual Specification Sections whether Government or Contractor engages testing agency.

* + - * 1. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

Contractor's Responsibilities:

Provide test specimens representative of proposed products and construction.

Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.

First subparagraph below attempts to ensure that tested assemblies will be representative of actual construction. This requirement may complicate testing and add cost.

Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.

When testing is complete, remove test specimens and test assemblies; do not reuse products on Project.

Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Government and Commissioning Authority, with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

Retain subparagraph below as the default requirement, and add specific requirements in individual Specification Sections if approved mockups may become part of the Work of those Sections.

Retain "Specialty Mockups" Paragraph below if detailed specifications are required for specialty mockups.

* + - 1. QUALITY CONTROL (QC)

QC Program Requirements:

Establish and maintain a QC program as described in this Section. The QC program consists of a QC Organization, a QC Plan, a Coordination and Mutual Understanding Meeting, QC meetings, 3 phases of control, submittal review and approval, and QC certifications and documentation. The program provides materials, equipment, workmanship, fabrication, construction, and operations which comply with the requirements of this contract. The QC program covers project construction operations on-site and off-site.

* + - * 1. QC Organization:

QC Manager (QCM):

Duties: Provide a QC organization and on-site manager at the work site to manage and implement the QC program. Restrict the duties and responsibilities of the QC Manager to managing and implementing the QC program only. Require the QC Manager to attend the Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the 3 phases of control, and perform submittal review and approval. Submittal review and approval includes those designated for Government approval. The QC Manager shall review all submittals for conformance with the contract documents and sign off on the review. Perform required testing and prepare QC certifications and documentation required in this contract. The QC manager shall be on site all times work is being performed. The QC Manager is solely responsible for quality of work and ensuring all work is performed in compliance with the contract documents. The QC Manager shall have authority to require corrective action on work site. The QC Manager shall report directly to an officer or other top-level official of the firm. The QC Manager shall not be the same individual as, nor be subordinate to, the project superintendent, the Project Manager, or any other on-site personnel.

Qualifications:

Projects Under 5 million Dollars: The on-site QC manager from this firm must have a minimum of 5 years’ experience as engineer, QC Manager, Project Manager, or architect on similar size and type construction contracts.

Projects Over 5 million Dollars: The on-site QC manager shall be from an independent firm that specializes in construction quality control over-site and must have as a minimum of 5 years’ experience as QC Manager on commercial construction projects of similar size and type construction contracts.

Provide resume. Submit to Government for approval, at least 2 weeks prior to placing the QC on site.

Alternate QC Manager Duties and Qualifications: Designate an alternate for the QC Manager at the work site to serve in the event of the designated QC Manager's absence. The QC Manager’s period of absence may not exceed 2 weeks at any 1 time, and not more than 30 workdays during a calendar year. The qualification requirements for the alternate QC Manager are the same as for the QC Manager.

Submit resume to Government for approval. Indicate qualifications, experience in area of responsibility, and frequency as alternate QC Manager.

* + - * 1. Quality Control Plan:

Requirements: Within 10 from Notice to Proceed, provide for approval by the Government, a QC plan that covers both on-site and off-site work and includes the following:

A chart showing the QC organizational structure and its relationship to the production side of the organization. Names and qualifications, in resume format, for each person in QC organization.

Names and qualifications, in resume format, for each person in QC organization.

Duties, responsibilities, and authorities of each person in the QC organization.

A listing of outside organizations such as, architectural, consulting engineering, and testing lab firms employed by the contractor and a description of the services these firms will provide.

A letter signed by an officer of the firm appointing the QC Manager and Alternate Manager and stating that he/she is responsible for managing and implementing the QC program as described in this contract. Include in this letter the QC Managers' authority to direct the removal and replacement of non-conforming work.

Procedures for reviewing, approving, and managing submittals. Provide name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval.

Testing laboratory information required by paragraph entitled "Accredited Laboratories" or "Testing Laboratory Requirements," as applicable.

A Testing Plan and Log that includes the tests required, referenced by the specifications paragraph number requiring the test, the frequency, and the person responsible for each test.

Procedures to identify, record, track, and complete rework items.

Documentation procedures, including proposed report formats.

A list of the definable features of work. A definable feature of work is a task that is separate and distinct from other tasks and requires separate control requirements. As a minimum, if approved by the Government, consider each section of the specifications as a definable feature of work. However, at times, there may be more than 1 definable feature of work in each section of the specifications.

Preliminary Work Authorized Prior to Approval: The only work authorized to proceed prior to the approval of the QC Plan is mobilization of storage and office trailers and surveying subject to Division 01 Section Temporary Facilities and Controls.

Approval: Obtain approval of the QC Plan prior to the start of construction. The Government reserves the right to require changes in the QC Plan and operations as necessary to ensure the specified quality of work. The Government reserves the right to interview any member of the QC organization at any time to verify his/her submitted qualifications.

Notification of Changes: Notify the Government, in writing, of any proposed changes, including changes in the QC organization personnel, a minimum of 7 calendar days prior to a proposed change. The Government must approve proposed changes and reserves the right to deny the proposed change.

* + - * 1. Construction Management Plan:

Participate in the development of a Construction Management Plan, which will aid project participants by detailing the communication and administrative procedures used to implement Contract.

The plan will include forms and formats to be used and appropriate instructions, specific addresses for mailing and delivery, and identification of expected decision points in the project. Nothing in the plan will replace the Contract.

At the Preconstruction Conference, the Government will furnish a draft of the plan to the Contractor for his review, markup, and comment. The Contractor and the Government Authorized Technical Representative will meet to review suggested revisions.

The Government will furnish 1 copy of the final approved plan for Contractor's use.

* + - * 1. Coordination and Mutual Understanding Meeting:

After submission of the QC Plan, but prior to the start of construction, meet with the Government to discuss the QC program required by this contract. The purpose of this meeting is to develop a mutual understanding of the QC details. This includes forms used for documentation, administration for on-site and off-site work, and the coordination of the contractor's management, production, and QC personnel with the Government. As a minimum, the contractor's personnel required to attend include the Project Manager, Project Superintendent, QC Manager, Assistant QC Manager, and QC Specialist. The QC Manager prepares the minutes of the meeting, and both the Contractor and the Government signs this document.

* + - * 1. QC Meetings:

After the start of construction, the QC Manager conducts weekly QC meetings at the work site with the project superintendent. The QC Manager prepares minutes of the meeting. Provide a copy to the Government within 2 working days after the meeting. The Government or Government Authorized Technical Representative may attend these meetings. Notify the Government at least 48 hours before each meeting. This meeting requirement is solely for quality control and is in addition to the weekly construction meeting held by the Government Authorized Technical Representative or Government and the QC manager’s preparatory meetings. As a minimum, accomplish the following at each meeting:

Review the minutes of the previous meeting.

Review the schedule and the status of work.

Work or testing accomplished since last meeting.

Rework items identified since last meeting.

Rework items completed since last meeting.

Review the status of submittals:

Submittals reviewed and approved since last meeting.

Submittals required in the near future.

Review the work scheduled in the next week and documentation required. Schedule the 3 phases of control and testing:

Preparatory phases required.

Initial phases required.

Follow-up phases required.

Testing required.

Status of off-site work or testing.

Documentation required.

Establish completion dates for rework items.

Resolve QC and production problems.

Address items that may require revising the QC Plan.

Changes in QC organization personnel.

Changes in procedures.

* + - * 1. Three Phases of Control: The QC Manager performs the 3 phases of control to plan and schedule QC work and to ensure that work complies with Contract requirements during the life of the Project. The 3 phases of control cover both on-site and off-site work and include the following for each definable feature of work:

Preparatory Phase: The preparatory phase applies to pre-construction activities performed before any physical work begins. Notify the Government at least 2 workdays before each preparatory phase meeting. Conduct the meeting with the Government Authorized Technical Representative, QC specialist, the Superintendent, the foreman responsible for the definable feature of work, and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials. The Government or Government Authorized Technical Representative may attend. The QC Manager shall coordinate with the Safety officer and ensure all associated Activity Hazard Analysis are prepared for approval and reviewed prior to the meeting. The QC Manager shall ensure all necessary submittals and items are procured and ready for this associated definable feature of work. The QC Manager prepares minutes of the meeting. Provide a copy to the Government within 2 working days after the meeting. This meeting requirement is solely for quality control and is in addition to other quality meetings. Perform the following prior to beginning work on each definable feature of work:

Review the progress of other construction activities and preparations for the particular activity under consideration at each meeting, including requirements for the following:

Contract documents.

Options.

Related changes to the contract.

Interface requirements.

Sequences.

Status of submittals.

Off-site fabrication issues.

Housekeeping.

Status of RFI’s.

Purchases.

Deliveries.

Shop drawings, product data, and quality-control samples.

Possible conflicts.

Compatibility problems.

Time schedules.

Approved construction schedules

Weather limitations.

Manufacturer's recommendations.

Warranty requirements.

Compatibility of materials.

Acceptability of substrates.

Temporary facilities.

Space and access limitations.

Governing regulations.

Inspecting and testing requirements.

Required performance results.

Recording requirements.

Protection.

Review each paragraph of the applicable Specification Sections.

Review the Contract Drawings.

Submittal and approval of appropriate shop drawings and submittals for materials and equipment. Verify receipt of approved factory test results, when required.

Review the testing plan and provide the required QC testing.

Examine the work area to ensure the completion of the required preliminary work.

Examine the required materials, equipment, and sample work to ensure that they are on hand and conform to the approved samples, shop drawings and submitted data.

Review the safety plan and appropriate activity hazard analysis to ensure the compliance of applicable safety requirements and the submittal of required Material Safety Data Sheets (MSDS).

Discuss construction methods.

Record significant discussions, agreements, and disagreements of each meeting. Promptly distribute the record of the meeting to everyone concerned, including the Government.

Proceed with the installation only after successfully concluding the meeting. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the meeting at the earliest feasible date.

Initial Phase: The initial phase involves inspections to occur when representative portions of each definable feature are installed in order to minimize the impact of replacing unacceptable work. Notify the Government at least 2 workdays before each initial phase. When construction crews are ready to start work on a definable feature of work, conduct the initial phase with the Government Authorized Technical Representative, QC specialist, the superintendent, and the foreman responsible for that definable feature of work. Observe the initial segment of the definable feature of work to ensure that the work complies with contract requirements. Document the results of the initial phase in the daily Contractor Quality Control Report. Repeat the initial phase for each new crew to work on site, or when executed quality is below acceptable levels. Perform the following for each definable feature of work:

Establish the quality of workmanship required.

Resolve conflicts.

Review the Safety Plan and the appropriate activity hazard analysis and ensure compliance to applicable safety requirements.

Ensure that the approved laboratory performs the required tests.

Follow-up Phase: The purpose of Follow-up Phase is to conduct the day-day inspection necessary to ensure overall contract compliance. Perform the following for on-going work daily, or more frequently as necessary until the completion of each definable feature of work and document in the daily Contractor Quality Control Report:

Ensure the work is in compliance with contract requirements.

Maintain the quality of workmanship required.

Ensure that the approved laboratory performs the required testing. Notify the Government or Government Authorized Technical Representative within 48 hours prior to performance of the test.

Ensure that rework items are being corrected.

Additional tests directed by the Government to establish materials and installation comply with the contract documents.

Notification of 3 phases of control for off-site work: Notify the Government at least 2 weeks before the start of the preparatory and initial phases.

* + - * 1. Deficiencies:

QC Manager shall ensure new features of work are not built on deficient work. Deficient work shall be corrected prior to a deficiency being covered up.

All deficiencies, including failed tests or inspections, shall have a correction date proposed and tracked by the QC Manager. The corrective date shall be as soon as reasonably possible.

On Phase transitions or final inspections, the QC Manager shall generate a punch list and enforce corrective action and track progress down to a minimal punch list with only minor items remaining prior to requesting Government acceptance of the phase of work or Substantial Completion.

Issue Elevation Process:

Coordinate with field on deficiency or unresolved issue or non-compliance issue and document in daily and request correction through deficiency log

QC reviews and advises on correction as soon as possible.

If issue is not resolved within a reasonable amount of time, CO may reserve right to direct contractor to correct or withhold 10 percent of payment or full amount of the pay associated pay activity.

* + - * 1. Testing:

Except as stated otherwise in the specification sections, perform sampling and testing required under this contract.

Testing Laboratory Requirements: Provide an independent testing laboratory or establish a laboratory qualified to perform sampling and tests required by this contract. When the proposed testing laboratory lacks accreditation by an acceptable accreditation program, as described by the paragraph entitled "Accredited Laboratories," submit recommended testing agency to the Government for approval. Provide certified statements signed by an official of the testing laboratory attesting that the proposed laboratory meets or conforms to the following requirements:

Perform sampling and testing under the technical direction of a Registered Professional Engineer (P.E.) with at least 5 years of experience in construction material testing.

Laboratories engaged in testing of concrete and concrete aggregates meet the requirements of ASTM C 1077.

Laboratories engaged in testing of bituminous paving materials meet the requirements of ASTM D 3666.

Laboratories engaged in testing of soil and rock, as used in engineering design and construction, meet the requirements of ASTM D 3740.

Government will evaluate laboratories engaged in inspection and testing of steel, stainless steel, and related alloys according to ASTM A 880. Laboratories shall meet the requirements of ASTM E 329.

Laboratories engaged in nondestructive testing (NDT) meet the requirements of OSHA and EPA.

Accredited Laboratories: Acceptable accreditation programs are the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP), the American Association of State Highway and Transportation Officials (AASHTO) program and the American Association for Laboratory Accreditation (A2LA) program. Furnish to the Government, a copy of the Certificate of Accreditation, Scope of Accreditation, and latest directory of the accrediting organization for accredited laboratories. The scope of the laboratory's accreditation must include the test methods required by the contract.

Inspection of Testing Laboratories: Prior to approval of non-accredited laboratories, the proposed testing laboratory facilities and records may be subject to inspection by the Government. Records subject to inspection include equipment inventory, equipment calibration dates and procedures, library of test procedures, audit and inspection reports by agencies conducting laboratory evaluations and certifications, testing and management personnel qualifications, test report forms, and the internal QC procedures.

Capability Check: The Government retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing.

Test Results: Cite applicable contract requirements, tests, or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. The independent testing laboratory shall provide an electronic copy to the Government Authorized Technical Representative, on all test reports as well as the QC Manager. A testing laboratory representative authorized to sign certified test reports must sign test results. Furnish the signed reports, certifications, and other documentation to the Government via the QC Manager. Furnish a summary report of field tests at the end of each month. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month. Track failed tests until reworked and passed or accepted by the designer of record. Ensure corrections are performed in a timely reasonable manner.

* + - * 1. Special Inspections:

Retain third-party quality assurance agencies to conduct the special inspections required by the Project Building Code indicated in Division 01 Section Summary of Work. The inspecting agency shall provide reports of the special inspections directly to the Government. These inspections are in addition to the inspections specified elsewhere in the Contract Documents.

The quality assurance agencies shall supervise qualified personnel that are Registered Professional Engineers and demonstrate competence, to the satisfaction of the Government, for inspection of the particular type of construction or operation requiring special inspection. Quality assurance agencies and professional engineers are subject to written approval of the Government.

Quality assurance agencies shall conduct special inspections indicated in Statement of Special Inspections as indicated on Drawings or attached schedule and formsand, in individual Specification Sections, and as follows:

Verify that manufacturer maintains detailed fabrication and quality-control procedures and review the completeness and adequacy of those procedures to perform the Work.

Notify Government and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

Submit a certified written report of each special inspection and similar quality-control service to Government with copy to Contractor.

Submit a final report of special inspections at Substantial Completion, which includes a list of unresolved deficiencies.

Interpret inspections and state in each report whether inspected work complies with or deviates from the Contract Documents.

Re-inspect corrected work.

* + - * 1. QC Certifications:

Contractor Quality Control Report Certification: Each Contractor Quality Control Report must contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used, and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report."

Invoice Certification: Furnish a certificate to the Government with each payment request, signed by the QC Manager, attesting that as-built drawings are current and attesting that the work for which Contractor requests payment, including stored material, is in compliance with contract requirements.

Completion Certification: Upon completion of work under this contract, furnish a certificate to the Government signed by the QC Manager attesting that "Contractor has completed, inspected, tested the work and is in compliance with the contract."

Each Contractor submittal must contain the following statement: "On behalf of the Contractor, I certify that this submittal is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report."

* + - * 1. Documentation:

Contractor Quality Control Report: Provide reports for each day of work and for every 7 consecutive calendar days of no-work and on the last day of a no-work period. Submit to the Government Authorized Technical Representative by 10 AM (local) the first workday following the date of the report. Account for each calendar day throughout the life of the contract. Report the work using terminology consistent with the construction schedule. QC Manager must prepare, sign, and date Contractor Quality Control Reports and include the following information:

Identify the control phase and the definable feature of work.

Results of the Preparatory Phase meetings held including the location of the definable feature of work and a list of personnel present at the meeting. Indicate in the report for this definable feature of work the topics listed in the paragraphs and subparagraphs titled "Three Phases of Control.”

Results of the Initial Phase meetings held including the location of the definable feature of work and a list of personnel present at the meeting. Indicate in the report for this definable feature of work Indicate in the report for this definable feature of work the topics listed in the paragraphs and subparagraphs titled "Three Phases of Control."

Results of the Follow-up Phase inspections held including the location of the definable feature of work. Indicate in the report for this definable feature of work that the work complies with the contract as approved in the Initial Phase and Contractor performed required testing. Include a list of who performed the tests.

Results of the 3 phases of control for off-site work, if applicable, including actions taken.

List the rework items identified, but not corrected by close of business.

List the rework items corrected from the rework items list along with the corrective action taken.

Include a "remarks" section in this report to document pertinent information including directions received, quality control problem areas, deviations from the QC plan, construction deficiencies encountered, QC meetings held, acknowledgment of as-built drawing updates, corrective directions given by the QC Organization, and corrective actions taken. Notify the Government or Government Authorized Technical Representative of any construction deficiencies immediately upon discovery.

Contractor Quality Control Report certification.

Provide in the project website, electronically signed by the Contractor’s QA representative and the Government Authorized Technical Representative. Refer to Division 01 Section Project Web Site for other requirements.

Testing Plan and Log: As Contractor performs tests, record on the "Testing Plan and Log" the date the test results sent to the Government. Include remarks and acknowledgment of use of an accredited or approved testing laboratory. Attach a copy of the updated "Testing Plan and Log" to the last daily Contractor Quality Control Report of each month.

Rework Items List: Maintain a list of work that does not comply with the contract, identifying what items Contractor needs to rework, the date the item discovered, and the date Contractor corrected the item. There is no requirement to report a rework item corrected on the same day of discovery. Attach a copy of the "Contractor Rework Items List" to the last daily Contractor Quality Control Report of each month. Take responsibility for items on this list needing rework including those identified by the Government.

Record ("As-Built") Drawings: The QC Manager shall review the as-built drawings as required by Division 01 Section Closeout Procedures. Ensure as-built drawings are kept current on a daily basis and marked to show deviations made from the contract drawings. Initial each deviation and each revision. Upon completion of work, furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Government.

Sample Report Forms:

Contractor Quality Control Report.

Contractor Quality Control Report Continuation Sheet.

Government Quality Assurance Report.

Testing Plan and Log.

Retain "Government Responsibilities" Paragraph below if some Specification Sections designate Government as responsible for tests and inspections.

Retain first subparagraph below where cost of quality-control services must be included in the Contract Sum and where Government wants to retain control of these services over certain construction operations.

Usually, retain "Contractor Responsibilities" Paragraph below to address testing and inspection and other quality-control activities not explicitly assigned to Government. See the Evaluations.

Retain "Retesting/Reinspecting" Paragraph below, which is not covered in the General Conditions, and insert special Project requirements. Additional requirements might include Government's or Construction Manager's right to require use of a different laboratory for retesting and reinspecting.

Retain "Testing Agency Responsibilities" Paragraph below if Contractor engages testing agency.

Retain "Schedule of Tests and Inspections" Paragraph below if quality-control services by testing agencies are extensive and job progress might be hindered if services are not carefully managed. Include option when retaining "Contractor's Quality-Control Plan" Article. Schedule below is not the statement of special tests and inspections required by some model codes and jurisdictions as a condition for obtaining a building permit. Coordinate Contractor requirements below with responsibilities of Commissioning Authority in Section 01 91 13 "General Commissioning Requirements." See the Evaluations.

* + - 1. SPECIAL TESTS AND INSPECTIONS

Many model codes require both periodic and continuous special inspections for certain types of construction and require Government or design professional to engage testing agency. The "special inspector" option is consistent with the IBC; change this term to match that used to identify the entity as defined by authorities having jurisdiction. Verify requirements with authorities having jurisdiction. Some areas may allow Construction Manager or Contractor to engage special inspectors; if this applies to Project, revise "Special Tests and Inspections" Paragraph below and add requirements in "Informational Submittals" Article for Contractor to submit qualifications of special inspectors. Statement of Special Inspections is an IBC requirement that may be enforced by jurisdiction; see the Evaluations.

Special Tests and Inspections: Government will engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Government, and as follows:

Retain first subparagraph only when retaining "special inspector" option in "Special Tests and Inspections" Paragraph above.

Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.

Notifying Government, Commissioning Authority, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

Submitting a certified written report of each test, inspection, and similar quality-control service to Government and Commissioning Authority with copy to Contractor and to authorities having jurisdiction.

Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

Interpreting tests and inspections and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

Retesting and reinspecting corrected Work.

1. PRODUCTS (Not Used)
2. EXECUTION
	* + 1. TEST AND INSPECTION LOG

Coordinate requirements in "Test and Inspection Log" Paragraph below with requirements of authorities having jurisdiction.

Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

Date test or inspection was conducted.

Description of the Work tested or inspected.

Date test or inspection results were transmitted to Government.

Identification of testing agency or special inspector conducting test or inspection.

Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Government's, Commissioning Authority's, and authorities' having jurisdiction reference during normal working hours.

Submit log at Project closeout as part of Project Record Documents.

* + - 1. REPAIR AND PROTECTION

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

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."

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

* + - * 1. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION