

Preparing Activity: NAVFAC

Superseding
UFGS-01 45 00.00 10 (November 2016)
UFGS-01 45 00.00 20 (November 2011)
UFGS-01 45 00.05 20 (June 2015)
UFGS-01 45 00.10 20 (February 2010)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated October 2023

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 45 00

QUALITY CONTROL

08/23

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 PAYMENT
- 1.3 SUBMITTALS
- 1.4 GENERAL REQUIREMENTS
- 1.5 QUALITY CONTROL (QC) PROGRAM REQUIREMENTS
 - 1.5.1 Meetings
 - 1.5.1.1 Quality Control Plan Meeting
 - 1.5.1.2 Coordination and Mutual Understanding Meeting
 - 1.5.1.2.1 Purpose
 - 1.5.1.2.2 Coordination of Activities
 - 1.5.1.2.3 Attendees
 - 1.5.1.3 Quality Control (QC) Meetings
 - 1.5.2 Contractor Quality Control (CQC) Plan
 - 1.5.2.1 Content of Contractor Quality Control (CQC) Plan
 - 1.5.2.2 Additional Requirements for Design Quality Control (DQC) Plan
 - 1.5.3 Acceptance of the Quality Control (QC) and Design Quality Control (DQC) Plan
 - 1.5.4 Preliminary Construction Work Authorized Prior to Acceptance
 - 1.5.5 Notification of Changes
 - 1.5.6 Special Inspections
- 1.6 QUALITY CONTROL (QC) ORGANIZATION
 - 1.6.1 Personnel Requirements
 - 1.6.2 Quality Control (QC) Manager
 - 1.6.2.1 Duties
 - 1.6.2.2 Qualifications
 - 1.6.2.3 Construction Quality Management Training
 - 1.6.2.4 Quality Control Requirements for Multiple Work Sites

- 1.6.3 Organizational Changes
- 1.6.4 Design Quality Control (DQC) Manager
 - 1.6.4.1 Qualifications
 - 1.6.4.2 Responsibilities
- 1.6.5 Alternate Quality Control (QC) Manager Duties and Qualifications
- 1.6.6 Assistant Quality Control (QC) Manager Duties and Qualifications
- 1.6.7 Designer of Record (DOR) Qualifications
- 1.6.8 Commissioning
 - 1.6.8.1 Certificate of Readiness
- 1.6.9 Quality Control (QC) Specialists
 - 1.6.9.1 Underwater QC Team
 - 1.6.9.2 Fire Protection QC Specialist (FPQC)
 - 1.6.9.2.1 Qualifications
 - 1.6.9.2.2 Responsibilities
 - 1.6.9.2.3 Schedule of Fire Protection System Inspections
 - 1.6.9.3 Quality Control (QC) for [Secure Space] [Controlled Area] [Sound Rated] Perimeter Construction
 - 1.6.9.3.1 Periodic (Follow-Up Phase) Inspections
 - 1.6.9.3.2 Preliminary Inspection
 - 1.6.9.3.3 Acceptance Testing for Sound Attenuation
 - 1.6.9.3.4 Acceptance Testing for Electronic Security Systems
 - 1.6.9.3.5 Final Inspection
- 1.6.10 Special Inspector [and Special Inspector of Record]
- 1.6.11 Submittal Reviewer[s] Duties and Qualifications
- 1.7 SUBMITTAL AND DELIVERABLES REVIEW AND APPROVAL
- 1.8 THREE PHASES OF CONTROL
 - 1.8.1 Preparatory Phase
 - 1.8.2 Initial Phase
 - 1.8.3 Follow-Up Phase
 - 1.8.4 Additional Preparatory and Initial Phases
 - 1.8.5 Notification of Three Phases of Control for Off-Site Work
 - 1.8.6 Deficiency/Rework Items List
- 1.9 TESTING
 - 1.9.1 Accreditation Requirements
 - 1.9.2 Laboratory Accreditation Authorities
 - 1.9.3 Capability Check
 - 1.9.3.1 Capability Recheck
 - 1.9.3.2 Onsite Laboratory
 - 1.9.4 Test Results
 - 1.9.5 Test Reports and Monthly Summary Report of Tests
- 1.10 COMPLETION INSPECTIONS
 - 1.10.1 Punch-Out Inspection
 - 1.10.2 Pre-Final Inspection
 - 1.10.3 Final Acceptance Inspection
- 1.11 QUALITY CONTROL (QC) CERTIFICATIONS
 - 1.11.1 Contractor Quality Control (CQC) Report Certification
 - 1.11.2 Completion Certification
 - 1.11.3 Invoice Certification
- 1.12 DOCUMENTATION AND INFORMATION FOR THE CONTRACTING OFFICER
 - 1.12.1 Construction Documentation
 - 1.12.2 Quality Control Activities
 - 1.12.3 Verification Statement
 - 1.12.4 Reports from the Quality Control (QC) Specialist(s)
 - 1.12.5 Quality Control Validation
 - 1.12.6 Testing Plan and Log
 - 1.12.7 As-Built Drawings
- 1.13 NOTIFICATION ON NON-COMPLIANCE

1.14 DELIVERY, STORAGE, AND HANDLING

PART 2 PRODUCTS

PART 3 EXECUTION

-- End of Section Table of Contents --

Preparing Activity: NAVFAC

Superseding
UFGS-01 45 00.00 10 (November 2016)
UFGS-01 45 00.00 20 (November 2011)
UFGS-01 45 00.05 20 (June 2015)
UFGS-01 45 00.10 20 (February 2010)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated October 2023

SECTION 01 45 00

QUALITY CONTROL
08/23

NOTE: This guide specification covers the preparation and use of Design-Bid-Build (DBB) and Design-Build (DB) Quality Control. This section, as edited, must be reviewed and approved by the Administering Construction Office prior to the 100 percent design submission.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

NOTE: For Navy - When this specification is used, it will be in conjunction with Section 01 32 16.00 20 SMALL PROJECT CONSTRUCTION PROGRESS SCHEDULES, or 01 32 17.00 20 COST-LOADED NETWORK ANALYSIS SCHEDULES (NAS).

NOTE: Options to allow for the QC Manager to serve

as the Site Safety and Health Officer or the Project Superintendent or both have been incorporated into this guide specification. These options can include the use of QC Specialists responsible for performing QC for specific areas of work and for a specified frequency. Specify QC Specialists for those areas of work that are of sufficient complexity or size to justify the expense.

Consider:

- a. Design and complexity of project.
- b. Location of project.
- c. Cost and type of Contract.
- d. Characteristics of area construction labor market.
- e. Amount and type of off-site fabrication.
- f. Duration of project.

When requiring the use of a Registered Professional Engineer/Architect or a graduate Engineer/Architect for the QC Manager or QC Specialist(s), keep in mind the additional cost. The over-specifying of expertise for QC personnel should be avoided.

PART 1 GENERAL

NOTE: This section contains tailoring options for ARMY, NAVY, COMMISSIONING, INDOOR AIR QUALITY, DESIGN-BUILD, SPECIAL INSPECTIONS, DESIGN-BID-BUILD, and SECURE SPACE.

1.1 REFERENCES

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project

specification when you choose to reconcile
references in the publish print process.

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

- ASTM C1077 (2017) Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
- ASTM D3666 (2016) Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
- ASTM D3740 (2019) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
- ASTM E90 (2009; R2016) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- ASTM E329 (2021) Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
- ASTM E543 (2021) Standard Specification for Agencies Performing Non-Destructive Testing

U.S. ARMY CORPS OF ENGINEERS (USACE)

- EM 385-1-1 (2014) Safety -- Safety and Health Requirements Manual
- ER 1110-3-12 (2021) Military Engineering and Design Quality Management

1.2 PAYMENT

**NOTE: The following paragraph has tailoring for
DESIGN-BID-BUILD and DESIGN-BUILD.**

Separate payment will not be made for providing and maintaining an effective Quality Control program. Include all associated costs in the applicable Bid Pricing Schedule item.

1.3 SUBMITTALS

NOTE: Review Submittal Description (SD) definitions

in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G". Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy and Air Force projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy and Air Force projects, or choose the second bracketed item for Army projects.

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

SD-01 Preconstruction Submittals

NOTE: For projects in the NAVFAC PAC Area of Operation, and for the submittal(s) identified as SD-01 Preconstruction Submittals, select the "G" designation requiring Government approval for Contractor Quality Control (QC) Plan.

Contractor Quality Control (CQC) Plan; G[, [_____]]

Additional Requirements For Design Quality Control (DQC) Plan; G[, [_____]]

SD-05 Design Data

Design Quality Control

Discipline-Specific Checklists

Design Quality Control Documentation (DQCD)

SD-06 Test Reports

Verification Statement

SD-07 Certificates

Certificate Of Readiness; G[, [____]]

1.4 GENERAL REQUIREMENTS

NOTE: The following paragraph includes tailoring for DESIGN-BUILD.

Establish and maintain an effective quality control (QC) system that complies with FAR 52.246-12 Inspection of Construction. QC is comprised of plans, procedures, and organization necessary to produce an end product that complies with the Contract requirements. The QC system covers all design and construction operations, both onsite and offsite, and must be keyed to the proposed design and construction sequence. The Quality Control Manager, Superintendent, Site Safety and Health Officer (SSHO), and all on-site supervisors are responsible for the quality of work and are subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the Contract. The Quality Control Manager must maintain a physical presence at the work site at all times and is the primary individual responsible for all quality control.

1.5 QUALITY CONTROL (QC) PROGRAM REQUIREMENTS

NOTE: The following paragraph has tailoring for COMMISSIONING and SPECIAL INSPECTIONS.

Establish and maintain a QC program as described in this section. This QC program is a key element in meeting the objectives of the Commissioning Process (Cx). The QC program consists of a QC Organization, QC Plan, QC Plan Meeting(s), a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, QC certifications, independent Special Inspections in accordance with Section 01 45 35 SPECIAL INSPECTIONS, and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations that comply with the requirements of this Contract. The QC program must cover on-site and off-site work and be keyed to the work sequence. No construction work or testing may be performed unless the QC Manager is on the work site. The QC Manager must report to an officer of the firm and not be subordinate to the Project Superintendent or the Project Manager. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although the QC Manager is the primary individual responsible for quality control, all individuals will be held responsible for the quality of work on the job.

1.5.1 Meetings

1.5.1.1 Quality Control Plan Meeting

Prior to submission of the QC Plan, the Contractor may request a meeting with the Contracting Officer to discuss the QC Plan requirements of this Contract.

The purpose of this meeting is to develop a mutual understanding of the QC Plan requirements prior to plan development and submission and to agree on the Contractor's list of Definable Feature of Work (DFOW).

1.5.1.2 Coordination and Mutual Understanding Meeting

NOTE: Tailored text in the following paragraph provides language for DESIGN-BID-BUILD and DESIGN-BUILD construction procurements.

After the *Preconstruction Conference, Post Award Conference*, before start of *design or* construction, and prior to acceptance by the Government of the CQC Plan, meet with the Contracting Officer and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details must be developed, including the forms for recording the CQC operations, *design activities*, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor, *the Architect/Engineer (A/E)*, and the Government. Provide a copy of the signed minutes to all attendees[and include in the QC Plan]. At a minimum the Coordination and Mutual Understanding Meeting must be repeated when a new QC Manager is appointed. There can be other occasions when subsequent conferences will be called by either party to reconfirm mutual understandings or address deficiencies in the CQC system or procedures which can require corrective action by the Contractor.

1.5.1.2.1 Purpose

NOTE: The following paragraph contains tailoring for COMMISSIONING and SPECIAL INSPECTIONS.

The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, design intent, *Cx in accordance with Section 01 91 00.15 BUILDING COMMISSIONING*, environmental requirements and procedures, coordination of activities to be performed, *Special Inspections*, and the coordination of the Contractor's management, production, and QC personnel. At the meeting, the Contractor must explain in detail how three phases of control will be implemented for each DFOW, as well as how each DFOW will be affected by each management plan or requirement as listed below:

- a. Waste Management Plan.
- b. Procedures for noise and acoustics management.

- c. Environmental Protection Plan.
- d. Environmental regulatory requirements.

NOTE: The following item is tailored for COMMISSIONING.

[e]. Cx Plan requirements in accordance with Section 01 91 00.15 BUILDING COMMISSIONING.

NOTE: The following item is tailored for SPECIAL INSPECTIONS.

[e][f]. Special Inspections.

NOTE: The following item is tailored for INDOOR AIR QUALITY.

[e][f][g]. Indoor Air Quality (IAQ) Management Plan.

1.5.1.2.2 Coordination of Activities

NOTE: The following paragraph contains tailoring for INDOOR AIR QUALITY and SPECIAL INSPECTIONS.

Coordinate activities included in various sections to assure efficient and orderly installation of each component. Coordinate operations included under different sections that are dependent on each other for proper installation and operation. Schedule construction operations with consideration for indoor air quality as specified in the IAQ Management Plan. Coordinate Special Inspections.

1.5.1.2.3 Attendees

NOTE: The following paragraph contains tailoring for SPECIAL INSPECTIONS and COMMISSIONING.

As a minimum, the Contractor's personnel required to attend include an officer of the firm, the Project Manager, Project Superintendent, QC Manager, Alternate QC Manager, [Assistant QC Manager,] [QC Specialists,] Special Inspector, [Special Inspector of Record,] Commissioning Provider (CxC), Environmental Manager, and subcontractor representatives. Each subcontractor who will be assigned QC responsibilities must have a principal of the firm at the meeting.

1.5.1.3 Quality Control (QC) Meetings

**NOTE: The following paragraph contains tailoring
for SPECIAL INSPECTIONS and COMMISSIONING.**

After the start of construction, conduct weekly QC meetings led by the QC Manager at the work site with the Project Superintendent, [the QC Specialists,] the Special Inspector, [the Special Inspector of Record,] CxC, and the other personnel as necessary. The QC Manager is to prepare the minutes of the meeting and provide a copy to the Contracting Officer within two working days after the meeting. The Contracting Officer may attend these meetings. As a minimum, accomplish the following at each meeting:

- a. Review the minutes of the previous meeting.
- b. Review the schedule and the status of work and deficiencies/rework. Review the most current approved schedule (in accordance with schedule specification) and the status of work and deficiencies/rework.
- c. Review the status of submittals and Request For Information (RFIs).

**NOTE: The following item contains tailoring for
NAVY and ARMY.**

- d. Review the work to be accomplished in the next three weeks as defined by the schedule section paragraph **THREE-WEEK LOOK AHEAD in Section 01 32 17.00 20 COST-LOADED NETWORK ANALYSIS SCHEDULES (NAS) WEEKLY PROGRESS MEETINGS in Section 01 32 01.00 10 PROJECT SCHEDULE** and all documentation required for that work.
- e. Review Testing Plan and Log including status of tests performed since last QC Meeting.
- f. Resolve QC and production problems. Discuss status of pending change orders.
- g. Address items that may require revising the QC Plan.
- h. Review Accident Prevention Plan (APP) and effectiveness of the safety program.
- i. Review environmental requirements and procedures.
- j. Review Environmental Management Plan.
- k. Review Waste Management Plan.
- l. Review the status of training completion.

**NOTE: The following item is tailored for
COMMISSIONING.**

- m. Review Cx Plan and progress. Review Issues Log and resolution.

NOTE: The following item is tailored for INDOOR AIR QUALITY.

[m][n]. Review IAQ Management Plan.

1.5.2 Contractor Quality Control (CQC) Plan

NOTE: The following paragraph contains tailoring for NAVY, ARMY, and DESIGN-BUILD.

Submit no later than [30] [_____] days after Contract Award after receipt of notice to proceed, the CQC Plan proposed to implement the requirements FAR 52.246-12 Inspection of Construction. The Government will consider an interim plan for the first [_____] days of operation. Design and Construction will be permitted to begin only after acceptance of the CQC Plan and other Contract requirements or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional work. Design work is not permitted to start prior to approval of a Design Quality Control Plan.

1.5.2.1 Content of Contractor Quality Control (CQC) Plan

Provide a CQC Plan, prior to start of construction that includes a table of contents, with major sections identified, pages numbered sequentially, and that documents the proposed methods and responsibilities for accomplishing quality control during the construction of the project. The CQC Plan must at a minimum include the following sections:

- a. A description of the quality control organization and acknowledgment that the CQC staff will implement the three phase control system for all aspects of the work specified.
- b. An organizational chart showing the quality control organization with individual names and job titles and lines of authority up to an executive of the company at the home office.
- c. NAMES AND QUALIFICATIONS: Names and qualifications, in resume format, (including position titles and durations for qualifying experiences) for each person in the QC organization. Include the Construction Quality Management (CQM) for Contractors course certifications for the QC personnel as required by the paragraph CONSTRUCTION QUALITY MANAGEMENT TRAINING.
- d. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL: Duties, responsibilities, and authorities of each person in the QC organization.
- e. OUTSIDE ORGANIZATIONS: A listing of outside organizations, such as architectural and consulting engineering firms, that will be employed by the Contractor and a description of the services these firms will provide.

NOTE: The following item contains tailoring for

DESIGN-BUILD and COMMISSIONING.

- f. APPOINTMENT LETTERS: Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager, *Design Quality Control Manager, CxC*, and stating that they are responsible for implementing and managing the QC program as described in this Contract. Include in this letter the responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of control, and their authority to stop work that is not in compliance with the Contract. Letters of direction are to be issued by the QC Manager to [the Assistant QC Manager and]all other QC Specialists or quality control representatives outlining their duties, authorities, and responsibilities. Include copies of the letters in the QC Plan.

NOTE: The following item contains tailoring for DESIGN-BUILD.

- g. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving, scheduling, and managing submittals, including those of subcontractors, *designers of record, consultants, architect-engineers (AE)*, offsite fabricators, suppliers, and purchasing agents. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in Section *01 33 00* SUBMITTAL PROCEDURES.
- h. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraph ACCREDITATION REQUIREMENTS, as applicable.
- i. TESTING PLAN AND LOG: A Testing Plan and Log that includes the tests required, associated feature of work required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.

NOTE: The following item contains tailoring for DESIGN-BUILD.

- j. Procedures to complete *design and* construction deficiencies from identification through acceptable corrective action. Establish verification procedures that identified deficiencies have been corrected. This phase is performed prior to beginning work on each definable feature of work, after all required plans, documents, materials are approved, and after copies are at the work site.
- k. Reporting procedures, including proposed reporting formats.
- l. Procedures for submitting and reviewing design changes/variations prior to submission to the Contracting Officer.

NOTE: The following item contains tailoring for DESIGN-BUILD.

- m. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task that is separate and distinct from other tasks and has control requirements and work crews unique to that task. A DFOW is identified by different trades or disciplines, or it is work by the same trade in a different environment. A DFOW is by definition any item or activity on the construction schedule, and the schedule specification provides direction regarding how the DFOWs are to be structured. Include in the list of DFOWs for all activities on the Construction Schedule. Provide separate DFOWs in the Network Analysis Schedule for each design development stage and submittal package. Although each section of the specifications can generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. Identify the specification section number and schedule activity ID for each DFOW listed. The DFOW list will be reviewed in coordination with the construction schedule and agreed upon during the Coordination of Mutual Understanding Meeting.
- n. PROCEDURES FOR PERFORMING AND TRACKING THE THREE PHASES OF CONTROL: Identify procedures used to ensure the three phases of control to manage the quality on this project. For each Definable Feature of Work (DFOW), a Preparatory and Initial phase checklist will be filled out during the Preparatory and Initial phase meetings. Conduct the Preparatory and Initial Phases and meetings with a view towards obtaining quality construction by planning ahead and identifying potential problems for each DFOW.

NOTE: The following is tailored for SPECIAL INSPECTIONS.

- o. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Special Inspections Project Manual. Where the applicable code issued by the International Code Council (ICC) calls for inspections by the Building Official, the Contractor must include the inspections in the Quality Control Plan and must perform the inspections required by the applicable ICC. The Contractor must perform these inspections using independent qualified inspectors. Include the Special Inspections Project Manual requirements in the QC Plan.

NOTE: Contact the Administering Construction Office to determine if the following three paragraphs are applicable to the project and edit.

- [[o][p]. PROCEDURES FOR COMPLETION INSPECTION: Procedures for identifying and documenting the completion inspection process. Include in these procedures the responsible party for punch out inspection, pre-final inspection, and final acceptance inspection.
-] [[p][q]. TRAINING PROCEDURES AND TRAINING LOG: Procedures for coordinating and documenting the training of personnel required by the Contract.
-] [[q][r]. ORGANIZATION AND PERSONNEL CERTIFICATIONS LOG: Procedures for coordinating, tracking and documenting all certifications required for entities such as subcontractors, testing laboratories, suppliers, and

personnel. The QC Manager will ensure that certifications are current, appropriate for the work being performed, and will not lapse during any period of the Contract that the work is being performed.

1.5.2.2 Additional Requirements for Design Quality Control (DQC) Plan

NOTE: This paragraph is tailored for DESIGN-BUILD and contains additional tailoring for ARMY and NAVY. Use this paragraph for Design-Build projects only.

For Army projects, use term Agency Technical Review (ATR) for technical reviews on Civil Works projects as defined by ER 1165-2-217. Use term Independent Technical Review (ITR) for technical reviews on Military Engineering Design projects as defined by ER 1110-3-0201.

For Navy projects, Design Quality Control Reviews are defined by FC 1-300-09N.

The following additional requirements apply to the DQC Plan:

- a. Submit and maintain a DQC Plan as an effective quality control program which assures that all services required by this Contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, all documents must be technically reviewed by competent, independent reviewers identified in the DQC Plan. The same element that produced the product may not perform the [Independent Technical Review (ITR)] [Agency Technical Review (ATR)] Design Quality Control Review. Correct errors and deficiencies in the design documents prior to submitting them to the Government.
- b. Include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific Contract period. Schedule must include sufficient detail to identify all major design tasks, including those that control the flow of work. Include review and correction periods associated with each item. Schedule must be a forward planning as well as a project monitoring tool. The schedule reflects calendar days and not dates for each activity. If the schedule is changed, submit a revised schedule reflecting the change within 7 calendar days.
- c. Include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. Submit at each design phase as part of the project documentation these completed discipline-specific checklists. ER 1110-3-12 provides some useful information in developing checklists.
- d. Implement the DQC Plan by a Design Quality Control Manager who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated and who coordinates work with and reports to the Contracting Officer via the QC Manager. Notify the Contracting Officer, in writing, of the name of the individual and the name of an alternate person assigned to the position.

- e. Provide Quality Control Documentation procedures such as QC review sets and QC comments to demonstrate that cross checking of all engineering discipline's design drawings and specifications has taken place. The QC review documentation must exhibit a checking process of the design documents for completeness, accuracy, and constructability.

NOTE: The following items are tailored for NAVY.

- f. Names of the individuals, including their respective firm names, who will be serving as the Designer of Record (DOR) in their respective design discipline.
- g. Submit a formal Communication Plan that indicates the frequency of design meetings and what information is covered in those meetings, key design decision points tied to the Network Analysis Schedule and how the DOR plans to include the Government in those decisions, peer review procedures, interdisciplinary coordination, design review procedures, and comment resolution.

The Communication Plan must emphasize key decisions and possible problems the Contractor and Government may encounter during the design phase of the project. Provide a plan to discuss design alternatives and design coordination with the stakeholders at the key decision points as they arise on the project. Identify individual stakeholders and suggested communication methods that will be employed to expedite and facilitate each anticipated critical decision. Communication methods may include: Concept Design Workshop, over-the-shoulder review meetings, presentation at client's office, lifecycle cost analysis presentation, technical phone conversation, and formal review meeting. The design portion of the Communication Plan must be written by the DQC Manager and confirmed during the Post Award Kick-off Partnering. Update the Communication Plan at every Partnering meeting.

- h. A statement of Life Safety and Fire Protection Features Inspections and Testing must be prepared by the Fire Protection DOR. Examples of life safety and fire protection features include, but are not limited to, water distribution systems including fire pumps and fire hydrants, fire resistive assemblies such as fire rated walls/partitions, through-penetration firestop systems, spray-applied fireproofing of structural components, fire alarm and detection systems, fire suppression and standpipe systems, means of egress components, emergency and exit lighting fixtures. The plan must include a listing of the individuals, approved agencies or firms that will be retained for conducting the required inspections and tests accompanied by a description of individual inspector's experience, and a copy of all required certifications. Additional copies of this plan must be submitted to the NAVFAC Fire Protection Engineer and the Installation Fire Chief. This plan must include the following:
 - (1) Comprehensive list of systems, components or features to be inspected and tested.
 - (2) Description of performance verification testing activities for each system or component.
 - (3) Procedures and schedules for functional performance tests of all

systems requiring functional testing.

- i. Procedures for ensuring the design documents are submitted in accordance with FC 1-300-09N, Navy and Marine Corps Design Procedures and other procedures to ensure disciplines have been properly coordinated to eliminate conflicts.

1.5.3 Acceptance of the Quality Control (QC) and Design Quality Control (DQC) Plan

NOTE: The following paragraph contains tailoring for ARMY and DESIGN-BUILD.

The Contracting Officer's acceptance of the Contractor QC Plan, or interim plan applicable to the particular feature of work to be started, and Design Quality Control Plan is required prior to the start of design and construction. The Government will consider an interim plan for the first [____] days of operation. Work outside of the accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional work. The Contracting Officer reserves the right to require changes in the QC and DQC Plan and operations as necessary, including removal or addition of personnel, to ensure the specified quality of work. The Contracting Officer reserves the right to interview any member of the QC and DQC organization at any time to verify the submitted qualifications. All QC and DQC organization personnel are subject to acceptance by the Contracting Officer. The Contracting Officer may require the removal of any individual for non-compliance with quality requirements specified in the Contract.

1.5.4 Preliminary Construction Work Authorized Prior to Acceptance

NOTE: This paragraph is tailored for NAVY.

The only construction work that is authorized to proceed prior to the acceptance of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying with specific prior approval of the Contracting Officer.

1.5.5 Notification of Changes

Notify the Contracting Officer, in writing, of any proposed changes in the QC Plan or changes to the QC organization personnel. Proposed changes are subject to acceptance by the Contracting Officer.

1.5.6 Special Inspections

NOTE: This paragraph is tailored for SPECIAL INSPECTIONS.

Special Inspections are required for all projects except the following per IBC:

- 1. Construction of a minor nature as determined by the designer of record. Where renovation

construction does not alter existing gravity or lateral load resisting system, would constitute construction that is minor in nature.

2. Utility and miscellaneous Group U occupancies that are accessories to a residential occupancy.

3. Portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211 of IBC or the conventional light-frame construction provisions of Section 2308 of IBC.

Perform all required Special Inspections per Section 01 45 35 SPECIAL INSPECTIONS, the statement of Special Inspections and the Schedule of Special Inspections.

1.6 QUALITY CONTROL (QC) ORGANIZATION

NOTE: Consult with Administering Construction Office for qualifications of the QC organization members.

1.6.1 Personnel Requirements

NOTE: This paragraph is tailored for ARMY.

NOTE: Selection of Design-Build construction text required.

The requirements for the CQC organization are a Site Safety and Health Officer (SSHO), QC Manager, a Design Quality Manager, and enough qualified personnel to ensure safety and Contract compliance. The SSHO reports directly to a senior project (or corporate) official independent from the QC Manager. The SSHO will also serve as a member of the CQC Staff Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly. The CQC staff always maintains a presence at the site during progress of the work and have complete authority and responsibility to take any action necessary to ensure Contract compliance. The CQC staff will be subject to acceptance by the Contracting Officer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly complete and furnish all letters, material submittals, shop drawing submittals, schedules, and all other project documentation to the CQC organization. The CQC organization is responsible for always maintaining these documents and records at the site, except as otherwise acceptable to the Contracting Officer.

1.6.2 Quality Control (QC) Manager

1.6.2.1 Duties

NOTE: Consult with Administering Construction Office to determine if QC Manager may serve as SSHO or Project Superintendent or both based on complexity of project. Select the second bracketed item allowing Project Superintendent duties for routine projects. Select the third bracketed item allowing no other duties for large or complex projects.

Remove the bracketed phrases referring to QC Specialists when none are specified.

Use the tailoring for the QC manager to be responsible for coordinating the Special Inspection Activities when a Special Inspector of Record is not required for the project.

Coordinate the last bracketed sentence with paragraph QUALITY CONTROL (QC) FOR [SECURE SPACE] [CONTROLLED AREA] [SOUND RATED] PERIMETER CONSTRUCTION of this specification.

NOTE: The following paragraph contains tailoring for ARMY, NAVY, SPECIAL INSPECTIONS, and SECURE SPACE.

Provide a QC Manager at the work site to implement and manage the QC program[, and to serve as the Site Safety and Health Officer (SSHO) as detailed in Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS]. The QC Manager must be employed by the Prime Contractor. [In addition to implementing and managing the QC program, the QC Manager may perform the duties of Project Superintendent.][The only duties and responsibilities of the QC Manager are to manage and implement the QC program on this Contract.]The QC Manager must attend the partnering meetings, QC Plan Meetings, Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control[except for those phases of control designated to be performed by QC Specialists], perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this Contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by[the QC Specialists,] testing laboratory personnel and any other inspection and testing personnel required by this Contract. The QC Manager is the manager of all QC activities. The QC manager is responsible for notifying the Special Inspector [and Special Inspector of Record] of activities which require their review. The QC manager is responsible for coordinating the Special Inspection activities, see paragraph CONTRACTOR'S QUALITY CONTROL (QC) MANAGER, in Section 01 45 35 SPECIAL INSPECTIONS. The QC manager is responsible for the quality control for[Secure Space][Controlled Area][Sound Rated] perimeter construction.

1.6.2.2 Qualifications

NOTE: Designer of Record, Specification Writer, or Project Manager or both must consult with the executing Construction Office to ensure proper qualifications for the QC Manager are defined. Do not specify qualifications here without first consulting with the Administering Construction Office.

Select and edit first bracketed paragraph for projects NOT requiring the QC Manager to have a degree in engineering or architecture.

Select and edit second bracketed paragraph for projects requiring the QC Manager to have a four-year degree in engineering or architecture. Select the bracketed option within the second paragraph for a professionally licensed engineer or registered architect.

For Navy projects, requiring the QC Manager to have a degree in engineering or architecture with or without professional licensing or registration should be the exception and only reserved for the most complex projects where the contractor will likely employ a QC staff with QC Assistants as opposed to a lone QC Manager.

Selection choices for technical/professional qualifications and experience levels should be commensurate with the project complexity, location, and execution considerations to assure the execution of the QC process is reasonably within the capacities of an individual meeting the selected qualifications. If specific State or Territory registration is not specifically required for contract execution edit using the "in a US State or Territory" bracketed selection.

[The QC Manager must be an individual with a minimum of [5] [10] [_____] years combined experience in the following positions: Project Superintendent, QC Manager, Project Manager, Project Engineer or Construction Manager on similar size and type construction Contracts which included the major trades that are part of this Contract. The individual must have at least [2] [4] [_____] years experience as a QC Manager. The individual must be familiar with the requirements of EM 385-1-1 and have experience in the areas of hazard identification, safety compliance, and sustainability.

NOTE: The following paragraph contains tailoring options for ARMY.

][The QC Manager must be a graduate engineer, graduate architect, or a graduate of construction management, with [a current professional engineer

registration [in the state of [_____] [in a US State or Territory]] or a current licensed architect [in the state of [_____] [in a US State or Territory]] and] a minimum of [10] [_____] years construction experience as a Project Superintendent, QC Manager, Project Manager, Project Engineer or Construction Manager on similar size and type construction Contracts which included the major trades that are part of this Contract. The individual must have at least [2] [4] [_____] years experience as a QC Manager. The individual must be familiar with the requirements of EM 385-1-1 and have experience in the areas of hazard identification, safety compliance, and sustainability.

] The QC Manager and all members of the QC organization must be capable of reading, writing, and conversing fluently in the English language.

1.6.2.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager and all members of the QC team must have completed the CQM for Contractors course. If the QC Manager does not have a current certification, obtain the CQM for Contractors course certification within 90 days of award. This course is periodically offered by the Naval Facilities Engineering Systems Command and the Army Corps of Engineers. Contact the Contracting Officer for information on the next scheduled class.

The Construction Quality Management Training certificate expires after 5 years. If the QC Manager's certificate has expired, retake the course to remain current.

[1.6.2.4 Quality Control Requirements for Multiple Work Sites

NOTE: Insert this paragraph when a contract has more than one work site that requires a separate full-time QC Manager. Fill in the work site locations below that require a full-time QC Manager when a project has more than one work site that requires a dedicated full-time QC Manager.

Just because a project has more than one work site doesn't automatically mean additional full-time QC Manager(s) are required. Only consider specifying additional full-time QC Managers when the contract includes separate projects and each project is uniquely different from one another usually having separate plans and specifications. This is very rare and should only be specified after careful consideration and consultation with the administering construction office.

Provide separate full-time QC Managers at the work sites listed below. Provide a separate full-time QC Manager at the following work sites:

- a. [INDICATE WORK SITE LOCATION]
- b. [INDICATE WORK SITE LOCATION]

[c. [INDICATE WORK SITE LOCATION]

] The QC Managers for the work sites listed above are each responsible for implementing and managing the QC Program at the designated work site. They must perform the three phases of control, perform submittal review, ensure testing is performed, and prepare QC certifications and documentation required by this Contract. The qualification requirements for the QC Managers at each site are listed in the paragraph QUALIFICATIONS.

1.6.3 Organizational Changes

Maintain the QC staff with personnel as required by the specification section at all times. When it is necessary to make changes to the QC staff, revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

1.6.4 Design Quality Control (DQC) Manager

NOTE: This paragraph and subparagraphs are tailored for DESIGN-BUILD.

Selection of design-build construction text required.

The following paragraph contains tailoring option for COMMISSIONING.

For Navy projects, the designer should review specification 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES to ensure proper coordination with SI submittals.

The DQC Manager must be a member of the QC organization, must coordinate actions with the QC Manager, and must not be subordinate to the Project Superintendent or the Project Manager. The DQC Manager may also act as the CxC if all CxC qualifications are met.

1.6.4.1 Qualifications

NOTE: The following items are tailored for NAVY.

- a. A minimum of [5] [_____] years experience as a design Architect or Engineer on similar size and type designs / or design-build Contracts. Provide education, experience, and management capabilities on similar size and type Contracts.
- b. Be a registered professional engineer or architect with an active registration. Provide proof of registration as part of the resume submittal package.
- c. Complete the US Army Corps of Engineers (USACE) course entitled "Construction Quality Management (CQM) for Contractors."

NOTE: The following item is tailored for ARMY.

- a. Must be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect.

1.6.4.2 Responsibilities

- a. Be responsible for the design integrity, professional design standards, and all design services required.

NOTE: The following items are tailored for NAVY.

- b. Be a member of the DOR firm but may not be the DOR or the person stamping and approving final construction drawings or approving submittals.
- c. Be responsible for development of the design portion of the QC Plan, incorporation and maintenance of the approved Design Schedule, and the preparation of DQC Reports and minutes of all design meetings.
- d. Participate in the Post Award Kick-Off, all design planning meetings, design presentations, partnering, and QC meetings.
- e. Implement the DQC Plan and must remain on staff involved with the project until completion of the project.
- f. Be cognizant of and assure that all design documents on the project have been developed in accordance with the Contract.
- g. Provide **Design Quality Control Documentation (DQCD)** which indicates design coordination of the engineering disciplines. Submit DQCD with the pre-final and final design submittals as required in Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES.
- h. Develop the submittal register. Coordinate with each DOR to determine what items need to be submitted, and who needs to approve.
- i. Provide QC certification for design compliance.
- j. Certify and sign statement on each invoice that all work to be paid to the DOR under the invoice has been completed in accordance with the Contract requirements.
- k. Prepare weekly DQC Reports that document the work the design team accomplished that week.
- l. Coordinate all training requirements with the QC and in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

1.6.5 Alternate Quality Control (QC) Manager Duties and Qualifications

NOTE: The following paragraph contains tailoring for NAVY.

Designate an alternate for the QC Manager at the work site to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager must be the same as for the QC Manager.

[1.6.6 Assistant Quality Control (QC) Manager Duties and Qualifications

NOTE: This option will rarely be used. Select either the first or second bracketed paragraph. Consider specifying an Assistant QC Manager only if this is a labor intensive project, a very complex project, a project with multiple work sites, or a project where shifts are worked. Select the first bracketed paragraph in most cases. Select and edit the second paragraph when the project involves shift work. Select the qualifications from the QC Manager paragraphs.

Delete the words "Assistant QC Manager" throughout this section when this paragraph is not used.

Fill in the qualification requirements based on the nature and complexity of job. Consult with the Administering Construction Office to determine if an Assistant QC Manager is required and what the qualifications should be.

[Provide a full-time assistant to the QC Manager at the work site to perform the three phases of control, perform submittal review, ensure testing is performed, and prepare QC certifications and documentation required by this Contract. The qualification requirements for the Assistant QC Manager must be [_____]. The individual must be familiar with the requirements of EM 385-1-1 and have experience in the areas of hazard identification and safety compliance.

][Provide a full-time assistant to the QC Manager at the work site to perform the three phases of control, perform submittal review, ensure testing is performed, and prepare QC certifications and documentation required by this Contract. The Assistant QC Manager must be on the work site during supplemental work shifts [beyond the regular shift] and perform the duties of the QC Manager during such supplemental shift work. The qualification requirements for the Assistant QC Manager must be [FILL IN BASED ON NATURE AND COMPLEXITY OF JOB]. The individual must be familiar with the requirements of EM 385-1-1 and have experience in the areas of hazard identification and safety compliance.

] The Assistant QC Manager must be capable of reading, writing, and conversing fluently in the English language.

]1.6.7 Designer of Record (DOR) Qualifications

NOTE: This paragraph is tailored for NAVY and DESIGN-BUILD.

The DOR must be a registered design professional, retained by the Prime Contractor, responsible for the overall design and review of submittal documents prepared by others. The DOR is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws in the state in which the design professional works. The DOR cannot serve as the DQC Manager.

1.6.8 Commissioning

NOTE: This paragraph is tailored for COMMISSIONING.

Coordinate with Section 01 91 00.15 BUILDING COMMISSIONING.

Commissioning (Cx) is a systematic, quality-focused process for delivery of a project focusing on verifying and documenting all commissioned systems and assemblies are installed, tested, and operating as they were planned and designed to meet the project requirements. The Quality Control requirements outlined in this specification section are key in supporting the objectives of the Cx process, specifically coordinating testing, documenting, and verifying proper system operation. Properly executed the Quality Control support of Cx ensures timely execution of necessary tasks to deliver the fully commissioned and operating systems in coordination with the overall construction and project schedule.

Provide Cx in addition to the quality control requirements of this section and not as a substitute for quality control requirements. The QC Manager is responsible for carrying out the three phases of control while ensuring the functional performance and integrated systems tests are coordinated with the Cx provider as required for each system to be commissioned.

1.6.8.1 Certificate of Readiness

The QC Manager must issue a Certificate of Readiness for Government approval for each system to be commissioned. Schedule Functional Performance Tests for each system only after the Certificate of Readiness has been approved by the Government for the system. The Certificate of Readiness certifies that all required inspections have been completed and deficiencies that were identified through any prior review, inspection, or test activity have been corrected before the start of Functional Performance Tests. Refer to Cx requirements in Section 01 91 00.15 BUILDING COMMISSIONING for a list of systems to be commissioned and detailed requirements for the Cx provider.

1.6.9 Quality Control (QC) Specialists

NOTE: Only specify QC Specialists for those areas of work of sufficient complexity or size where a specialist is required to supplement the QC Manager. In the Experience Matrix insert the number of years based on project scope and complexity of the project. The requirement for a QC Specialist must be included in Part 3 of the technical section of the specification where a QC Specialist is needed.

For Navy projects, the use of Registered Professional Engineers or Architects for QC

Specialists may be allowed in special cases, but only after consultation with and approval by the Administering Construction Office. Indicate the specific time and frequency when the QC Specialist must be on the site.

TAB personnel must be specified when the Contract specifications contain Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC. Select options accordingly.

Delete the words "QC Specialists" throughout this section when this paragraph is not used.

This paragraph has tailoring for DESIGN-BUILD and ARMY.

Provide a separate QC Specialist at the work site for each of the areas as listed in the Matrix listed below, who must assist and report to the QC Manager and who [may perform production related duties but must be allowed sufficient time to perform] [must have no duties other than] their assigned quality control duties. These individuals or specialized technical companies [are directly employed by the Prime Contractor and cannot be employed by a supplier or subcontractor on this project] [are employees of the Prime or subcontractor including Designer of Record (DOR)]. A single person can cover more than one area provided that the single person is qualified to perform quality control activities in each designated and that workload allows. QC Specialists must be physically present at the work site with frequency as indicated in the Experience Matrix below, to participate in the QC Meetings, perform the three phases of control, including participation in Preparatory and Initial Phase meetings, and to perform and document Follow-up inspections as an extension of the QC Manager for each definable feature of work in their area of responsibility. QC Specialist must assist and be present for training events, and Critical System Acceptance inspections by the Government. Qualification, experience, Area of Responsibility, and frequency of QC surveillance are provided in Matrix listed herein.

Experience Matrix		
1. Area	2-1. Qualification 2-2. Experience	3-1. Area of Responsibility 3-2. Frequency
[Civil]	[2-1. Graduate Civil Engineer or Construction Manager with [a professional engineer registration [in the state of [____]], and] 2-2. 2 years experience in the type of work being performed on this project or technician with 5 years related experience]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]

[Mechanical]	[2-1. Graduate Mechanical Engineer with [a professional engineer registration [in the state of [____]], and] 2-2. 2 years experience or person with 5 years of experience supervising mechanical features of work in the field with a construction company]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]
[Electrical]	[2-1. Graduate Electrical Engineer with [a professional engineer registration [in the state of [____]], and] 2-2. 2 years related experience or person 5 years of experience supervising electrical features of work in the field with a construction company]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]
[Structural]	[2-1. Graduate Civil Engineer (with Structural Track or Focus) or Construction Manager with [a professional engineer registration [in the state of [____]], and] 2-2. 2 years experience or person 5 years of experience supervising structural features of work in the field with a construction company]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]
[Architectural]	[2-1. Graduate Architect with [a registered architect [in the state of [____]], and] 2-2. 2 years experience or person with 5 years related experience]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]
[Environmental]	[2-1. Graduate Environmental Engineer with [a professional engineer registration [in the state of [____]], and] 2-2. 3 years experience]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]

[Submittals]	[2-1. Submittal Clerk 2-2. 1 year experience]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]
[Occupied Family Housing]	[2-1. Person, customer relations type, 2-2. Coordinator experience]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]
[Concrete, Pavements and Soils]	[2-1. Materials Technician 2-2. 2 years experience for the appropriate area]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]
[Testing, Adjusting and Balancing (TAB) Personnel]	[2-1. TAB Team Field Leader must be a member of AABC or an experienced technician of the firm certified by the NEBB 2-2. 3 years experience immediately preceding this Contract]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [____] during installation and including final inspection.]
[Roofing Manufacturer's Technical Representative]	[2-1. Installation and testing of roofing systems, Section 07 53 23 ETHYLENE-PROPYLENE-DIENE-MONOMER ROOFING 2-2. 5 years experience minimum]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [Full-time] during installation and including final inspection.]
[Mechanical Inspector, International Code Council (ICC) Certified]	[2-1. Installation and testing of boilers, Section 23 52 49.00 20 STEAM BOILERS AND EQUIPMENT (500,000 - 18,000,000 BTU/HR) 2-2. 5 years experience minimum]	[3-1. Area of Responsibility: [____] 3-2. Frequency of QC surveillance and inspection will be [Minimum three times a week during installation and full-time during testing] during installation and including final inspection.]

[Geotechnical]	[2-1. [_____]] 2-2. [_____] years of experience]	[3-1. Area of Responsibility: [_____]] 3-2. Frequency of QC surveillance and inspection will be [_____] during installation and including final inspection.]
[Telecommunications]	[2-1. [_____]] 2-2. [_____] years of experience]	[3-1. Area of Responsibility: [_____]] 3-2. Frequency of QC surveillance and inspection will be [_____] during installation and including final inspection.]
[Low-Voltage Specialties/ESS]	[2-1. [_____]] 2-2. [_____] years of experience]	[3-1. Area of Responsibility: [_____]] 3-2. Frequency of QC surveillance and inspection will be [_____] during installation and including final inspection.]
[Underwater QC Team]	[Note: See paragraph UNDERWATER QC TEAM]	[Note: See paragraph UNDERWATER QC TEAM]
[Fire Protection QC Specialist (FPQC)]	[Note: See paragraph FIRE PROTECTION QC SPECIALIST (FPQC)]	[Note: See paragraph FIRE PROTECTION QC SPECIALIST (FPQC)]
[Building Envelope QC Specialist]	[2-1. Roofing Manufacturer's Technical Representative 2-2. 5 years minimum with roofing system used]	[3-1. Area of Responsibility: Installation and testing of roofing. 3-2. Frequency of QC surveillance and inspection will be once a week during installation, once a week during flashing installation and full-time during roof testing.]
[_____]]	[_____]]	[_____]]

[1.6.9.1 Underwater QC Team

NOTE: This paragraph to be used only when the inspection of underwater work is required.

Provide Underwater QC (UWQC) Team at the work site to perform underwater

surveillance and inspection for the Contractor. The UWQC Team divers must have current commercial diver's license, with a minimum of five (5) years experience with underwater inspection. The personnel make-up of the UWQC team must comply with EM 385-1-1, OSHA, and local requirements for Contract diving operations. Comply with all the applicable safety requirements of EM 385-1-1, OSHA, and local requirements for Contract diving operations. The UWQC lead diver must be thoroughly familiar with the design plans and specifications to sufficiently understand the engineering aspects of the underwater construction and to be able to recognize and document potential problem areas, such as improperly constructed or defective areas. Provide all necessary equipment to conduct surveillance and inspection services, including diver's equipment, dive boat, communication equipment, and photographic or video equipment or both. Diver(s) must be equipped to maintain two-way communication with QC personnel during diving operations. Prepare and submit a report including photographs or videos or both with the QC report after each dive. Frequency of underwater surveillance and inspection will be [_____] during installation and including final inspection. The UWQC Team must be an independent third party hired directly by the Prime Contractor, and must not be involved with the design, preparation of Contract, or installation of work.

][1.6.9.2 Fire Protection QC Specialist (FPQC)

NOTE: Insert the requirement for an FPQC when the project involves the installation or modification of fire protection or life safety systems.

A Schedule of Fire Protection System Inspections prepared by the DOR FPE must be included at the end of this specification section whenever a FPQC is specified. A template for the Schedule of Fire Protection System Inspections can be found on the Whole Building Design Guide (WBDG) website at www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-01-45-00. The DOR FPE must edit the template to indicate the inspections and observations required by the FPQC that pertain to the scope of this project.

Provide a Fire Protection Quality Control Specialist (FPQC) within the QC organization to perform quality control related activities as specified herein on fire protection and life safety systems installed under this Contract.

1.6.9.2.1 Qualifications

The FPQC must have the following qualifications:

- a. Be a registered Professional Engineer (P.E.) licensed by a Licensing Board in the United States, the District of Columbia, Guam or Puerto Rico, having passed the National Council of Examiners for Engineering and Surveying (NCEES) examination specifically in the discipline of Fire Protection Engineering.
- b. Have a minimum of five years of Fire Protection Engineering experience on projects of similar relevance and complexity to the fire protection

work specified under this Contract.

- c. Other than the contractual obligations with the Prime Contractor, the FPQC must have no other business relationship (i.e., employee, owner, partner, operating officer, distributor, salesman, technical representative, family relationship, or financial investment) with the Prime Contractor or subcontractors.

**NOTE: The following item includes tailoring for
 DESIGN-BUILD projects.**

- d. Be employed by an independent engineering firm or company **or be the Fire Protection Engineer on the Prime Contractor's Design-Build team.** The firm may identify multiple, to a maximum of five, licensed Fire Protection Engineers for the performance of the duties under this Contract but must submit the names and qualifications for Government approval for all individuals identified prior to them performing any work under this Contract. These individuals may not be substituted without prior approval from the Contracting Officer.

1.6.9.2.2 Responsibilities

FPQC duties and responsibilities:

- a. Assist in the development of the QC Plan including the Testing Plan and Log and executing the three phases of control for work involving the installation and testing of fire protection and life safety systems as an extension of the QC Manager.
- b. Participate in project QC Meetings. Participate in Preparatory and Initial Phase meetings and perform and Follow-up inspections for work involving the installation and testing of fire protection and life safety systems.

**NOTE: The following item includes tailoring for
 DESIGN-BUILD and DESIGN-BID-BUILD projects.**

- c. Review and certify that all submittals pertaining to fire protection and life safety systems are complete and accurate prior to submission to the Government for **surveillance approval. Forward each submittal reviewed by the FPQC to the Government for surveillance within ten working days of FPQC certification.** The FPQC Specialist is responsible for ensuring submittals are complete and accurate and all corrections have been made prior to submission to the Government. The Government reserves the right to reject any submittal that has not first been reviewed and certified by the FPQC and so marked, in writing, attesting to such review and completeness of the submittal.
- d. The Government reserves the right to reject any submittal or construction that is not in compliance to Contract. Government reviews do not relieve the Contractor responsibility for providing adequate quality control measures and do not constitute or imply acceptance of Contract variation.
- e. Perform construction surveillance in accordance with the Schedule of

Fire Protection System Inspections. Construction surveillance includes but is not limited to performing periodic on-site inspections during construction at specified milestones, performing a pre-final inspection of installed systems and witnessing functional testing; and participating and documenting in an on-site final acceptance inspection of fire protection and life safety systems with the Government FPE.

NOTE: Select remote inspections only if prior approval is received by the DFPE. Select video/photographic documentation of inspections when directed to include by the DFPE.

- f. Document inspection results on a FPQC report prepared each day inspections are performed. The report must include a description of the visual inspection or observation performed, a written summary of findings, a conclusion on compliance with the Contract documents, and signature of the FPQC Specialist. [In person inspection][and] [Remote inspections] must be documented via [video (.mp4)][or][photo (.jpeg)][or both]. Video/photographic documentation must include before and after conditions and physical measurements.] Forward the FPQC daily report to the QC Manager who must include the report with the submission of their daily QC Report to the Government each day. Every site visit by the FPQC must be documented on a FPQC daily report.

1.6.9.2.3 Schedule of Fire Protection System Inspections

A schedule, prepared by the Fire Protection DOR, which lists each of the required visual inspections and observations required by the FPQC. The schedule is included at the end of this UFGS section.

]1.6.9.3 Quality Control (QC) for [Secure Space] [Controlled Area] [Sound Rated] Perimeter Construction

NOTE: This paragraph and subparagraphs are tailored for SECURE SPACE.

Use this paragraph for wall, ceiling, floor, door, window and other utility penetrations required to comply with acoustic separation requirements. Coordinate specifications to provide an acoustically isolated enclosed assembly around the perimeter of the space indicated. Refer to DoD Unified Facilities Criteria (UFC), and "IC Tech Spec - for ICD/ICS 705".

Choose the name of the space in the brackets and coordinate with the drawings; typically use either "Secure Space" or "Controlled Area." Use "sound rated" for spaces that do not have to meet "IC Tech Spec - for ICD/ICS 705". Do not identify spaces as a SCIF or SAPF on Contract documents.

Choose the bracketed option to coordinate inspections with appointed Site Security Manager (SSM) when assemblies are required to meet "IC Tech

Spec - for ICD/ICS 705".

Coordinate all specification sections providing a consistent acoustically isolated enclosed assembly meeting the Sound Transmission Class (STC) factory testing requirements specified. Consider coordination with the following sections: Sections 08 31 00 ACCESS DOORS AND PANELS, 08 34 73 SOUND CONTROL DOOR ASSEMBLIES, 08 81 00 GLAZING, 09 29 00 GYPSUM BOARD, as well as any fenestration systems not covered under the preceding sections.

Include options for electronic security systems, man-bar installation, inspection ports, and TEMPEST countermeasures when these elements are included in the project.

1.6.9.3.1 Periodic (Follow-Up Phase) Inspections

Once construction begins, perform periodic inspections of[Secure Space][Controlled Area][Sound Rated Area] identified in the Contract drawings at least once every two weeks. Increase frequency to weekly inspections within 30 days of planned acceptance testing.[Coordinate periodic inspections with the appointed Government Site Security Manager (SSM) responsible for ensuring the assembly meets the requirements for accreditation.] Inspections must verify that construction and materials comply with the Contract documents, the description of the assembly in the ASTM E90 Factory Report for acoustical testing, and the approved submittals. Focus inspections on the construction of the sound rated assemblies, perimeter penetrations, perimeter doors,[electronic security system,][man-bar installation,][inspection ports,][and TEMPEST countermeasures]. Document periodic inspections in Daily QC Reports.

1.6.9.3.2 Preliminary Inspection

The Government and QC Manager will perform a joint preliminary inspection of the[Secure Space][Controlled Area][Sound Rated Area] after construction of the assembly is complete to verify compliance with the design requirements and other Contract documents. The Contracting Officer[and the appointed Government SSM] will participate in the preliminary inspection. Provide the Contracting Officer a minimum [14] [_____] calendar days notification in advance of the preliminary inspection.

As a result of the preliminary inspection, prepare a[Secure Space][Controlled Area][Sound Rated Area] punch list with deficiencies identified. Include with the punch list the estimated date by which the deficiencies will be corrected. Document the preliminary inspection in the Daily QC Report and attach the punch list. Notify the Contracting Officer when deficiencies are corrected. Deficiencies from the Preliminary Inspection must be corrected prior to scheduling the Final Acceptance Inspection.

1.6.9.3.3 Acceptance Testing for Sound Attenuation

NOTE: Coordinate requirements in this paragraph with Section 09 29 00 GYPSUM BOARD and Section

08 34 73 SOUND CONTROL DOOR ASSEMBLIES.

Perform acceptance testing for sound transmission loss of sound rated door assemblies as required in Section 08 34 73 SOUND CONTROL DOOR ASSEMBLIES and Section 09 29 00 GYPSUM BOARD for sound rated assemblies. Acceptance testing must be performed during the preliminary inspection. The Contracting Officer[and the appointed Government SSM] must witness acceptance testing. Deficiencies identified during acceptance testing must be included in the[Secure Space][Controlled Area][Sound Rated Area] punch list and corrected prior to the final acceptance inspection.

1.6.9.3.4 Acceptance Testing for Electronic Security Systems

NOTE: Coordinate requirements in this paragraph with Section 09 29 00 GYPSUM BOARD, Section 08 34 73 SOUND CONTROL DOOR ASSEMBLIES, Section 28 08 10 ELECTRONIC SECURITY SYSTEM ACCEPTANCE TESTING, and Section 28 10 05 ELECTRONIC SECURITY SYSTEMS (ESS).

Perform acceptance testing for Electronic Security Systems in accordance with Section 28 08 10 ELECTRONIC SECURITY SYSTEM ACCEPTANCE TESTING. Acceptance testing must be performed during the preliminary inspection. The Contracting Officer[and the appointed Government SSM] must witness acceptance testing. Deficiencies identified during acceptance testing must be included in the[Secure Space][Controlled Area][Sound Rated Area] punch list and corrected prior to the Final Inspection.

1.6.9.3.5 Final Inspection

Perform a final inspection of the[Secure Space][Controlled Area][Sound Rated Area] after required testing has been successfully completed as part of the preliminary inspection and all punch list items corrected. Testing is not permitted during the final inspection. QC Manager and Superintendent must attend the final inspection and Government attendees will include the Contracting Officer[and appointed Government SSM]. Request a final inspection by the Contracting Officer a minimum of 14 calendar days in advance.

1.6.10 Special Inspector [and Special Inspector of Record]

NOTE: This paragraph is tailored for SPECIAL INSPECTIONS.

This paragraph is required if project involves structural or fire protection.

The Special Inspector of Record is required for the following project conditions:

- 1) Seismic Design Category D, E or F; and assigned to Risk Cat III, IV or V.**
- 2) Seismic Design Category D, E or F; and with a height greater than 22860 mm 75 feet.**

3) Seismic Design Category E, assigned to Risk Category I or II and the building is greater than two stories above grade plane.

4) Nominal design wind speed in excess of 49 m/sec 110 mph; and assigned to Risk Cat III, IV or V.

5) Nominal design wind speed in excess of 49 m/sec 110 mph; and with a height greater than 22860 mm 75 ft.

The Special Inspector (SI)[and Special Inspector of Record (SIOR)] must be an independent third party hired directly by the Prime Contractor. The SI [and SIOR] must not be a company employee of the Contractor or any subcontractor performing the work to be inspected. The qualifications of the SI[and SIOR] are defined in Section 01 45 35 SPECIAL INSPECTION.

[1.6.11 Submittal Reviewer[s] Duties and Qualifications

NOTE: Edit as appropriate. Select this paragraph along with one of the three options available when submittal reviewers are desired to assist the QC Manager. Consult with the Administering Construction Office on which option to use.

The following paragraph contains tailoring for COMMISSIONING.

Provide[a] Submittal Reviewer[s], other than the QC Manager or CxC, qualified in the discipline[s] being reviewed, to review and certify that the submittals meet the requirements of this Contract prior to certification or approval by the QC Manager.

NOTE: Select this bracketed phrase for routine projects.

[Each submittal must be reviewed by an individual with 10 years of construction experience.

]

NOTE: Select this bracketed phrase for large or complex projects.

[Each submittal must be reviewed by a registered architect or professional engineer.

]

NOTE: Select and edit this bracketed group of phrases and table for projects where[a] submittal reviewer[s] of specific discipline for certain specification sections or submittals are needed.

NOTE: The following are examples of Submittal Reviewer qualification, duties and experience.

Qualification / Experience in Submittal Discipline	Submittals to be reviewed:	
	<u>Spec Section No</u>	<u>Submittal</u>
Registered Mechanical Engineer	Division 22 & 23	All
Registered Structural Fabrication Engineer, (P.E.)	Section 05 12 00 STRUCTURAL STEEL	Drawings Erection Plan
Certified Industrial Hygienist (CIH)/ Comprehensive practice with five years experience in asbestos	Section 02 82 00 ASBESTOS REMEDIATION	Asbestos Hazard Abatement Plan

[Each of the following submittals must be reviewed by[an] individual[s] meeting the qualifications/experience specified below:

Qualification / Experience in Submittal Discipline	Submittals to be reviewed:	
	<u>Section No</u>	<u>Submittal</u>
[_____]	[_____]	[_____]

]]1.7 SUBMITTAL AND DELIVERABLES REVIEW AND APPROVAL

NOTE: The following paragraph contains tailoring for COMMISSIONING.

Procedures for submission, review and approval of submittals are described in Section 01 33 00 SUBMITTAL PROCEDURES. Procedures must include field verification of relevant dimensions and component characteristics by the QC organization prior to submittal being sent to the Contracting Officer. The CQC organization is responsible for certifying that all submittals and deliverables are in compliance with the Contract. When Section 01 91 00.15 BUILDING COMMISSIONING are included in the Contract, the submittals required by those sections have to be coordinated with Section 01 33 00 SUBMITTAL PROCEDURES to ensure adequate time is allowed for each type of submittal required.

1.8 THREE PHASES OF CONTROL

CQC enables the Contractor to ensure that the construction, including that of subcontractors and suppliers, complies with the requirements of the Contract. At least three phases of control must be conducted by the QC Manager to adequately cover both on-site and off-site work for each definable feature of the construction work as follows:

1.8.1 Preparatory Phase

NOTE: The second paragraph below has tailoring options for COMMISSIONING and SPECIAL INSPECTIONS.

Document the results of the preparatory phase actions by separate minutes prepared by the QC Manager and attach to the daily CQC report. Instruct applicable workers as to the acceptable level of workmanship required to meet Contract specifications.

Notify the Contracting Officer at least two business days in advance of each preparatory phase meeting. The meeting will be conducted by the QC Manager and attended by [the QC Specialists,]the Project Superintendent, the CxC, the Special Inspector, [the Special Inspector of Record,]and the foreman responsible for the DFOW. When the DFOW will be accomplished by a subcontractor, that subcontractor's foreman must attend the preparatory phase meeting. This phase is performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. Perform the following prior to beginning work on each DFOW:

- a. Review each paragraph of the applicable specification sections, reference codes, and standards. Make available during the preparatory inspection a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field. Maintain and make available in the field for use by Government personnel until final acceptance of the work.
- b. Review the Contract drawings.
- c. Verify that field measurements are as indicated on construction or shop drawings or both before confirming product orders, to minimize waste due to excessive materials.
- d. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required.
- e. Review the testing plan and ensure that provisions have been made to provide the required QC testing.
- f. Examine the work area to ensure that the required preliminary work has been completed and complies with the Contract and ensure any deficiencies/rework items in the preliminary work have been corrected and confirmed by the Contracting Officer.
- g. Review coordination of product/material delivery to designated prepared areas to execute the work.

- h. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data and are properly stored.
- i. Check to assure that all materials and equipment have been tested, submitted, and approved.
- j. Discuss specific controls to be used, construction methods, construction tolerances, workmanship standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOW. Ensure any portion of the plan requiring separate Contracting Officer acceptance has been approved.
- k. Review the APP and appropriate Activity Hazard Analysis (AHA) to ensure that applicable safety requirements are met, and that required Safety Data Sheets (SDS) are submitted.

NOTE: The following item is tailored for COMMISSIONING.

- l. Review the Cx requirements in accordance with Section 01 91 00.15 BUILDING COMMISSIONING and ensure all preliminary work items have been completed and documented.

NOTE: The following items are tailored for ARMY.

[1][m]. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

[m][n]. Discuss schedule and execution of the initial control phase and confirmation or construction quality compliance.

NOTE: The following item is tailored for SPECIAL INSPECTIONS.

[1][m][n][o]. Review Special Inspections required by Section 01 45 35 SPECIAL INSPECTION, the Statement of Special Inspections and the Schedule of Special Inspections.

1.8.2 Initial Phase

NOTE: The following paragraph contains tailoring options for SPECIAL INSPECTIONS.

Notify the Contracting Officer at least two business days in advance of each initial phase. When construction crews are ready to start work on a DFOW, conduct the initial phase with [the QC Specialists,]the Project Superintendent, the Special Inspector, [the Special Inspector of Record,] and the foreman responsible for that DFOW. Observe the initial segment of

the DFOW to ensure that the work complies with Contract requirements. Document the results of the initial phase in the [daily CQC Report and in the]Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site when acceptable levels of specified quality are not being met. Indicate the exact location of initial phase for definable feature of work for future reference and comparison with follow-up phases. Perform the following for each DFOW:

- a. Check work to ensure that it is in full compliance with Contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full Contract compliance. Verify required control inspection and testing comply with the Contract.
- c. Establish level of workmanship and verify that it meets the minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve any workmanship issues.
- e. Ensure that testing is performed by the approved laboratory.
- f. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.

NOTE: The following item contains tailoring for COMMISSIONING.

- g. Review project specific work plans (i.e., Cx, HAZMAT Abatement, Stormwater Management) to ensure all preparatory work items have been completed and documented.

NOTE: The following item is tailored for SPECIAL INSPECTIONS.

- h. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Schedule of Special Inspections.

1.8.3 Follow-Up Phase

NOTE: Include tailored Cx line item when Commissioning Provider is a subcontractor to the Construction Contractor.

Perform the following for on-going DFOW daily, or more frequently as necessary, until the completion of each DFOW. The Final Follow-Up for any DFOW will clearly note in the daily report the DFOW is completed, and all deficiencies/rework items have been completed in accordance with the paragraph DEFICIENCY/REWORK ITEMS LIST. Each DFOW that has completed the Initial Phase and has not completed the Final Follow-up must be included on each daily report. If no work was performed on that DFOW for the

period of that daily report, it must be so noted. Document all Follow-Up activities for DFOWs in the daily CQC Report:

- a. Ensure the work including control testing complies with Contract requirements until completion of that particular work feature. Record checks in the CQC documentation.
- b. Maintain the quality of workmanship required.
- c. Ensure that testing is performed by the approved laboratory.
- d. Ensure that deficiencies/rework items are being corrected. Conduct final follow-up checks and correct all deficiencies prior to the start of additional features of work which may be affected by the deficient work.
- e. Do not build upon nor conceal non-conforming work.
- f. Assure manufacturers' representatives have performed necessary inspections if required and perform safety inspections.

NOTE: The following item is tailored for COMMISSIONING.

- g. Review the Cx requirements in accordance with Section 01 91 00.15 BUILDING COMMISSIONING.

NOTE: The following item is tailored for SPECIAL INSPECTIONS.

- [g][h]. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Schedule of Special Inspections.

1.8.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same DFOW if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFOW has not started within 45 days of the initial preparatory meeting or has resumed after 45 days of inactivity, or if other problems develop.

1.8.5 Notification of Three Phases of Control for Off-Site Work

Notify the Contracting Officer at least two weeks prior to the start of the preparatory and initial phases.

1.8.6 Deficiency/Rework Items List

The QC Manager must maintain a list of work that does not comply with the Contract, identifying what items need to be corrected, the activity ID number associated with the item, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected.

The list shall be reviewed at each weekly QC Meeting:

- a. There is no requirement to report a deficiency/rework item that is corrected the same day it is discovered.
- b. No successor task may be advanced beyond the preparatory phase meeting until all deficiencies/rework items have been cleared by the QC Manager and concurred with by the Contracting Officer. This must be confirmed as part of the Preparatory Phase activities.
- c. Attach a copy of the "Deficiency/Rework Items List" to the last daily CQC Report of each month.
- d. The Contractor is responsible for including those items identified by the Contracting Officer.
- e. All deficiencies/rework items must be confirmed as corrected by the QC Manager, and concurred by the Contracting Officer, prior to commencement of any completion inspections per paragraph COMPLETION INSPECTIONS unless specifically exempted by the Contracting Officer.

**NOTE: The following item has tailoring for
DESIGN-BUILD.**

- f. Non-Compliance with these requirements shall be grounds for removal in accordance with paragraph ACCEPTANCE OF THE QUALITY CONTROL (QC) AND DESIGN QUALITY CONTROL (DQC) PLAN.
- g. All delays, concurrent or related to failure to manage, monitor, control, and correct deficiencies/rework items are entirely the responsibility of the Contractor and shall not be made the subject, or any component of any request for additional time or compensation.

1.9 TESTING

NOTE: For Navy projects, a check must be made to ensure that all required field and factory tests are listed in each technical section. Use of accredited laboratories overseas, when available, will be implemented at the discretion of the Contracting Officer. Edit the following paragraphs accordingly.

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to Contract requirements. Upon request, furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and acceptance tests when specified. Procure the services of an U.S. Army Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site or within [_____] miles. Perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with Contract requirements.
- b. Verify that facilities and testing equipment are available and comply

with testing standards.

- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all test documentation requirements, have been prepared.
- e. Record results of all tests taken, both passing and failing on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Contracting Officer, actual test reports are submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Contracting Officer. Failure to submit timely test reports as stated results in nonpayment for related work performed and disapproval of the test facility for this Contract.

1.9.1 Accreditation Requirements

NOTE: This paragraph is tailored for NAVY.

Construction materials testing laboratories must be accredited by a laboratory accreditation authority and must submit a copy of the Certificate of Accreditation and Scope of Accreditation. The laboratory's scope of accreditation must include the appropriate ASTM standards (**ASTM E329, ASTM C1077, ASTM D3666, ASTM D3740, ASTM E543**) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing must meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the Corporate Office.

1.9.2 Laboratory Accreditation Authorities

NOTE: The following paragraph is tailored for ARMY.

All testing laboratories must be validated by the USACE Material Testing Center (MTC) for the tests to be performed. Information on the USACE MTC with web-links to both a list of validated testing laboratories and for the laboratory inspection request for can be found at:
<https://mtc.erdcdren.mil>

NOTE: Request for listing additional laboratory accreditation programs must be submitted to NAVFACENCOM EOC/OCR through the Design Manager (DM) of the project.

The following paragraph is tailored for NAVY.

 Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology at <https://www.nist.gov/nvlap>, the American Association of State Highway and Transportation Officials

(AASHTO) Accreditation Program at <http://www.aashtoresource.org/aap/overview>, International Accreditation Services, Inc. (IAS) at <https://www.iasonline.org/>, U.S. Army Corps of Engineers Materials Testing Center (MTC) at <https://www.erd.c.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/476661/materials-testing-center/>, the American Association for Laboratory Accreditation (A2LA) program at <https://a2la.org/>, the Washington Association of Building Officials (WABO) at <https://www.wabo.org/> (Approval authority for WABO is limited to projects within Washington State), and the Washington Area Council of Engineering Laboratories (WACEL) at <https://www.wacel.org/lab-accreditation-and-inspection-agency-audit-programs/laboratory-accreditation-program/> (Approval authority by WACEL is limited to projects within Facilities Engineering Command (FEC) Washington geographical area).

1.9.3 Capability Check

The Contracting Officer 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, for compliance with the standards set forth in this Contract. Laboratories utilized for testing soils, concrete, asphalt, and steel must meet criteria detailed in [ASTM D3740](#) and [ASTM E329](#).

1.9.3.1 Capability Recheck

NOTE: The following paragraph is tailored for ARMY.

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of [____] to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the Contract amount due the Contractor.

1.9.3.2 Onsite Laboratory

NOTE: The following paragraph is tailored for ARMY.

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

1.9.4 Test Results

NOTE: The following paragraph has tailoring for NAVY.

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. If the item fails to conform, notify the Contracting Officer immediately.

Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results must be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the Contracting Officer via the QC Manager. Furnish a summary report of field tests at the end of each month, in accordance with paragraph DOCUMENTATION AND INFORMATION FOR THE CONTRACTING OFFICER.

1.9.5 Test Reports and Monthly Summary Report of Tests

NOTE: The following paragraph is tailored for NAVY.

Furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the Contracting Officer. Attach a copy of the summary report to the last daily CQC Report of each month. [Provide a copy of the signed test reports and certifications to the Operation and Maintenance Support Information (OMSI) preparer for inclusion into the OMSI documentation, in accordance with Sections 01 78 23 OPERATION AND MAINTENANCE DATA and 01 78 24.00 20 FACILITY DATA WORKBOOK (FDW).]

1.10 COMPLETION INSPECTIONS

1.10.1 Punch-Out Inspection

Near the completion of all work or any increment thereof, established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager must conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings, specifications, and Contract. Include in the punch list any remaining items on the "Deficiency/Rework Items List", that were not corrected prior to the Punch-Out Inspection as approved by the Contracting Officer in accordance with the paragraph DEFICIENCY/REWORK ITEMS LIST. Include within the punch list the estimated date by which the deficiencies will be corrected. Provide a copy of the punch list to the Contracting Officer.

The QC Manager, or staff, must make follow-on inspections to ascertain that all deficiencies have been corrected. All punch list items must be confirmed as corrected by the QC Manager and concurred by the Contracting Officer. Once this is accomplished, notify the Government that the facility is ready for the Government "Pre-Final Inspection".

1.10.2 Pre-Final Inspection

The Government and QC Manager will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" will be documented by the QC Manager as a result of this inspection. The QC Manager will ensure that all items on this list are corrected and concurred by the Contracting Officer prior to notifying the Government that a "Final" inspection with the Client can be scheduled. All items noted on the "Pre-Final" inspection must be corrected and concurred by the Contracting Officer in a timely manner and be accomplished before the Contract completion date for the work, or any increment thereof, if the project is divided into increments by separate

completion dates unless exceptions are directed by the Contracting Officer.

1.10.3 Final Acceptance Inspection

Notify the Contracting Officer at least 14 calendar days prior to the date a final acceptance inspection can be held. State within the notice that all items previously identified on the pre-final punch list will be corrected and acceptable, along with any other unfinished Contract work, by the date of the final acceptance inspection. The Contractor must be represented by the QC Manager, the Project Superintendent, and others deemed necessary. Attendees for the Government will include the Contracting Officer, other Government QA personnel, and personnel representing the Client. Failure of the Contractor to have all Contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause entitled "Inspection of Construction."

1.11 QUALITY CONTROL (QC) CERTIFICATIONS

1.11.1 Contractor Quality Control (CQC) Report Certification

Contain the following statement within the CQC Report: "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."

1.11.2 Completion Certification

Upon completion of work under this Contract, the QC Manager must furnish a certificate to the Contracting Officer attesting that "the work has been completed, inspected, tested and is in compliance with the Contract." Provide a copy of this final QC Certification for completion to the preparer of the Operation & Maintenance (O&M) documentation.

1.11.3 Invoice Certification

NOTE: The following paragraph is tailored for NAVY.

Furnish a certificate to the Contracting Officer with each payment request, signed by the QC Manager, attesting that as-built drawings are current, coordinated and attesting that the work for which payment is requested, including stored material, complies with Contract requirements.

1.12 DOCUMENTATION AND INFORMATION FOR THE CONTRACTING OFFICER

NOTE: The following paragraphs are tailored for ARMY.

Maintain current and complete records of on-site and off-site QC program operations and activities.

NOTE: List enclosed forms. Sample forms are not a

part of this guide specification and should be provided by the specifier.

Contact the Contracting Officer for sample forms or print from RMS-QCS as needed. Prior to commencing work on construction, the Contractor must obtain a copy set of the current report forms. The report forms will consist of the Contractor Quality Control (CQC) Report, CQC Report (Continuation Sheet), Contractor Production Report, Contractor Production Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Testing Plan and Log, and Rework Items List. Unless otherwise provided by the Contracting Officer, Contractor may use the forms provided as related material located at <https://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-01-45-00>.

1.12.1 Construction Documentation

Reports are required for each day that work is performed and must be attached to the Contractor Quality Control Report prepared for the same day. Maintain current and complete records of on-site and off-site QC program operations and activities. Reports are required for each day work is performed. Account for each calendar day throughout the life of the Contract.

The Project Superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The reporting of work must be identified by terminology consistent with the construction schedule. In the "Remarks" sections of the reports, enter pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered, a record of visitors to the work site, quality control problem areas, deviations from the QC Plan, construction deficiencies encountered, and meetings held. For each entry in the report(s), identify the Schedule Activity No. that is associated with the entered remark.

1.12.2 Quality Control Activities

CQC and Contractor Production reports will be prepared daily to maintain current records providing factual evidence that required quality control activities and tests have been performed. Include in these records the work of subcontractors and suppliers on an acceptable form that includes, as a minimum, the following information:

- a. The name and area of responsibility of the Contractors and any subcontractors.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When a Network Analysis Schedule (NAS) is used, identify each item of work performed each day by NAS activity number.
- d. Control phase activities performed. Preparatory, and Initial phase Checklists associated with the DFOW referenced to the construction schedule. Follow-up phase activities identified to the DFOW. If

testing or specific QC Specialist activities are associated with the Follow-up phase activities for a specific DFOW note this and include those reports.

- e. Test and control activities performed with results and references to specifications and drawings requirements. Identify the control phase (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action in accordance with the paragraph DEFICIENCY/REWORK ITEMS LIST.
- f. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications and drawings requirements.
- g. Submittals and deliverables reviewed, with Contract reference, by whom, and action taken.
- h. Offsite surveillance activities, including actions taken.
- i. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- j. Instructions given/received and conflicts in plans and specifications.

**NOTE: The following item is tailored for
DESIGN-BUILD and has tailoring options for ARMY and
NAVY.**

- k. Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identification of the[Independent Technical Review (ITR)][Agency Technical Review (ATR)]Design Quality Control Review team and their review comments, responses and the record of resolution of the comments.

1.12.3 Verification Statement

Indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. Cover both conforming and deficient features and include a statement that equipment and materials incorporated in the work and workmanship comply with the Contract.

Furnish the original and one copy of these records in report form to the Government by 10:00 AM the next working day after the date covered by the report. As a minimum, prepare and submit one report for every seven days of no work and on the last day of a no work period. All calendar days need to be accounted for throughout the life of the Contract. The first report following a day of no work will be for that day only. Reports need to be signed and dated by the QC Manager. Include copies of test reports and copies of reports prepared by all subordinate quality control personnel within the QC Manager Report.

[1.12.4 Reports from the Quality Control (QC) Specialist(s)

**NOTE: Delete the requirement for the QC Specialist
when QC Specialists are not specified.**

Document inspection results on a QC specialist report prepared each day work is performed in their area of responsibility. The report must include a description of the visual inspection or observation performed, a written summary of findings, a conclusion on compliance with the Contract documents, and signature of the QC Specialist. In person inspections must be documented with Video/photographs. Video/photographic documentation of deficiencies must include before and after conditions and physical measurements, as necessary. Forward the QC daily report to the QC Manager who must include the report with the submission of their daily QC Report to the Government each day. Every site visit by the QC Specialist must be documented on a QC Specialist daily report.

11.12.5 Quality Control Validation

Establish and maintain the following in an electronic folder. Divide folder into a series of tabbed sections as shown below. Ensure folder is updated at each required progress meeting.

- a. CQC Meeting minutes in accordance with paragraph QUALITY CONTROL (QC) MEETINGS.
- b. All completed Preparatory and Initial Phase Checklists, arranged by specification section, further sorted by DFOW referenced to the construction schedule. Submit each individual Phase Checklist the day the phase event occurs as part of the CQC daily report.
- c. All milestone inspections, arranged by Activity Number referenced to the construction schedule.

NOTE: The following item has tailoring options for NAVY.

- d. An up-to-date copy of the Testing Plan and Log with supporting field test reports, arranged by specification section referenced to the DFOW to which individual reports results are associated. Individual field test reports will be submitted within two working days after the test is performed in accordance with the paragraph QUALITY CONTROL ACTIVITIES. Monthly Summary Report of Tests:[Submit the report as an electronic attachment to the CQC Report at the end of each month.][Mail or hand-carry the original attached to the last QC Report of the month.]
- e. Copies of all Contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.
- f. An up-to-date copy of the paragraph DEFICIENCY/REWORK ITEMS LIST.

NOTE: The following item is tailored for COMMISSIONING.

- g. Cx documentation in accordance with Section 01 91 00.15 BUILDING COMMISSIONING.

NOTE: The following item is tailored for SPECIAL INSPECTIONS.

[g][h]. Special Inspection reports.

[g][h][i]. Upon commencement of Completion Inspections of the entire project or any defined portion, maintain up-to-date copies of all punch lists issued by the QC staff to the Contractor and subcontractors and all punch lists issued by the Government in accordance with the paragraph COMPLETION INSPECTIONS.

1.12.6 Testing Plan and Log

NOTE: The following paragraph has tailoring for COMMISSIONING.

As tests are performed, the CxC and the QC Manager will record on the "Testing Plan and Log" the date the test was performed and the date the test results were forwarded to the Contracting Officer. Attach a copy of the updated "Testing Plan and Log" to the last daily CQC Report of each month. Provide a copy of the final "Testing Plan and Log" to the preparer of the Operation & Maintenance (O&M) documentation.

1.12.7 As-Built Drawings

The QC Manager must ensure the as-built drawings, required by Section 01 78 00 CLOSEOUT SUBMITTALS are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. The as-built drawings document shall commence with the QC Manager ensuring all amendments, or changes to the Contract prior to Contract award are accurately noted in the initial document set creating the accurate baseline of the Contract prior to any work starting. Ensure each deviation has been identified with the appropriate modifying documentation (e.g., PC No., Modification No., Request for Information No.). The QC Manager [or QC Specialist assigned to an area of responsibility]must initial each revision. Upon completion of work, the QC Manager will furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Contracting Officer.

1.13 NOTIFICATION ON NON-COMPLIANCE

The Contracting Officer will notify the Contractor of any detected non-compliance with the Contract. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, is deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of a claim for extension of time for excess costs or damages by the Contractor.

1.14 DELIVERY, STORAGE, AND HANDLING

Designate receiving/storage areas for incoming material to be delivered according to installation schedule and to be placed convenient to work

area in order to minimize waste due to excessive materials handling and misapplication. Store and handle materials in a manner as to prevent loss from weather and other damage. Keep materials, products, and accessories covered and off the ground, and store in a dry, secure area. Prevent contact with material that may cause corrosion, discoloration, or staining. Protect all materials and installations from damage by the activities of other trades.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --