

SECTION 014516.13

CONTRACTOR QUALITY CONTROL (CQC)

PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS: Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2 RELATED REQUIREMENTS: Section 014516.20 "Quality Requirements" for additional administrative and procedural requirements for quality control.
- 1.3 **Quality Control (QC) is the responsibility of the Contractor.** The primary function of contractor quality control (CQC) is to ensure that the completed project meets all quality requirements of the contract.
- 1.4 **Quality Assurance (QA) is the responsibility of the Owner.** Quality assurance (QA) is the process by which the Owner assures that the Contractor's QC program is working effectively and that the end product complies with the quality established by the contract.
- 1.5 **Construction Quality Management (CQM)** is the performance of tasks, which ensure that construction is performed according to plans and specifications, on time, within Budget, easily maintained, and in a safe work environment. The purpose of CQM is the Owner's efforts; separate from, but in coordination and cooperation with the Contractor, to assure that the quality set by the plans and specifications for the overall Project is achieved.
- 1.6 References: American Society for testing and materials (ASTM), articles A-880; C-1077; D-3666; D-3740; E-329; E-543.
- 1.7 Payment: Separate payment will not be made for providing and maintaining an effective Quality Control Program and all costs associated shall be included in the contractor's bid.

PART 2 - SUBMITTALS

- 2.1 Submit the following in accordance with Section 001319.13 "Preconstruction Conference and Preconstruction Submittal".
 - A. Quality Control (QC) Plan. Submit a QC plan within 10 calendar days after receipt of Notice to proceed.
 - B. Components of the QC Plan:
 1. Provide, for approval, a QC plan submitted in a 3-ring binder with pages numbered sequentially that covers both on-site and off-site work and includes the following: (Note: QC plans submitted in any other manner than provided in this section will be rejected).
 - Contractor's QC Organization

- Names and qualifications
 - Duties, responsibility and authority of QC personnel.
 - Outside organizations
 - Appointment letters
 - Submittal procedures and sample register
 - Testing Laboratory Information
 - Testing Plan and log
 - Procedures for performing the three phases of control using a quality control checklist
 - Procedures to complete rework items
 - Documentation procedures
 - List of definable features of work
 - Personnel Matrix
 - Material Inspection form
 - Inspections Report form
 - Daily report form
 - RFI form
2. A chart showing the QC organizational structure.
 3. Names and qualifications, in resume format for each person in the QC organization.
 4. Duties, responsibilities and authorities of each person in the QC organization.
 5. A listing of outside organizations that will be providing services for the project under your direction, i.e. Consultants, materials, testing, design, equipment rentals, and a description of the services these firms will provide.
 6. Letters signed by an officer of the firm appointing the QC manager and alternate QC manager, stating that they are responsible for implementing and managing the QC program as described in the contract.
 7. Procedures for reviewing, approving and managing submittals. Provide the names of individuals responsible for submittal reviews. Provide the initial submittal of the submittal register to be used on the project.
 8. Testing and laboratory information required by the paragraphs entitled "Testing Requirements" and in Divisions 21, 22, 23, 26, and 27 as applicable.
 9. A testing plan and log that includes the tests required, referenced by the specification paragraph requiring it, the frequency and the person responsible for each test.
 10. Procedures to identify, record, track and complete re-work items.
 11. A quality control checklist. For each definable feature of work (DFOW), develop a list of quality control activities broken down by preparatory, initial and follow-up phases. Each list shall include a breakdown of quality checks that will be used when performing the quality control functions, inspections and test required by the contract documents. The quality control checklist should be developed with a view towards obtaining quality construction by planning ahead and identifying potential problems for each definable

feature of work.

12. Documentation Procedures, including proposed report formats.
13. Procedures for identifying and documenting the completion inspection process. Include in these procedures the responsible party for punch-out list inspections, pre-final and final inspections. Refer to Division 1, "Project Closeout" for additional information.

PART 3 - EXECUTION

3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system as stated herein, and in compliance with the contract. The quality control system shall consist of plans, procedures and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations both on-site and off-site, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Owner for non-compliance with the quality requirements specified in the contract (see "Levels of Authority" in section 5.3). The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site superintendent shall maintain a physical presence at the site at all times during construction and shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL (QC) PLAN

The Contractor shall furnish for review by the Owner, not later than 10 days after receipt of the Notice to Proceed, the Contractor Quality Control (CQC) plan proposed to implement the requirements of the contract. The plan shall identify personnel, procedures, control, instructions, tests, records and forms to be used.

3.2.1 Contents of the CQC plan

The CQC plan shall include, as a minimum, the following to cover all construction operations, both on-site and off-site including work by sub-contractors, fabricators, suppliers and purchasing agents for sub-contractors, and any other parties working directly for the Contractor for the Project:

- A. A description of the quality control organization, including a chart showing lines of authority and acknowledgement that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the Contractor's Executive Manager.
- B. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- C. A copy of the letter to the CQC System Manager signed by an Owner or Authorized Officer of the Firm which describes the responsibilities and delegates sufficient authority to

adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract (or a safety related event). The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Owner.

- D. Procedures for scheduling, reviewing, certifying and managing submittals, including those of sub-contractors, off-site fabricators, suppliers and purchasing agents. These submittals shall be provided in accordance with Division 1, "SUBMITTAL PROCEDURES".
- E. Control, verification and acceptance testing and commissioning for each specific test shall include the test name, specification paragraph requiring the test, feature of work to be tested, test frequency and person responsible for each test.
- F. Procedures for tracking preparatory, initial and follow-up control phases, and control, verification, and acceptance tests including documentation.
- G. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- H. Reporting procedures, including proposed reporting format.
- I. A list of definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements and may be identified by different trades or disciplines or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of the CQC Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during construction. The Owner reserves the right to require the Contractor to make changes in the CQC plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC plan, the Contractor shall notify the Owner in writing of any proposed change. Proposed changes are subject to acceptance by the Owner.

3.3 COORDINATION MEETING

The Contractor shall meet with the Owner to discuss the Contractor's Quality Control system for the project following submission of the CQC plan. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the QC operations, control activities, testing, administration of the system for both onsite and offsite work and the interrelationship of Contractor's Management and control with the Owner's Quality Assurance. Minutes of the meeting shall be prepared by the Owner and signed by both the Contractor and the

Owner. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization.

The Contractor's QC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Owner.

The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization on-site. Complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Owner.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual who shall be responsible for overall management of CQC and have authority to act in all QC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of five (5) years construction experience on construction similar to the contract. Or the Contractor may select a construction person with at least a minimum of fifteen (15) years of construction field experience on related construction projects and similar to the contract.

This CQC System Manager shall be on-site at all times during critical construction activities and shall be employed by the Contractor. The CQC System Manager may not have duties as project superintendent. This person must meet the requirements established for the QC Manager and shall be Certified. The CQC System Manager shall attend progress meetings and report on quality issues and provide quality control updates.

An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the CQC System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 Removal of the CQC System Manager

If, at the discretion of the County Construction Manager, the CQC System Manager is not fulfilling their duties outlined herein, they shall be removed from their role as the CQC System Manager. The Contractor must immediately replace them with a qualified person as outlined

herein and submit that person and their qualifications to the County Construction Manager for approval. Until a replacement is approved, the alternate CQC System Manager shall act as the CQC System Manager. Such grounds for removal include, but are not limited to:

1. Inadequate management of the outside organizations that are providing services for the project.
2. Failure to maintain and update the testing plan and log.
3. Failure to maintain and update the quality control checklist and sufficiently perform the inspections necessary to adequately check each phase of each definable feature of work (DFOW).
4. Failure to identify, record, track, and complete re-work items.
5. Unsatisfactory review, approval, and management of submittals.
6. Unsatisfactory documentation and reporting.
7. Failure to be on site full time during critical construction activities.

3.4.4 Additional Requirements

In addition to the above experience and/or education requirements, the CQC System Manager and alternate CQC System Manager shall have a U.S Army Corps of Engineers certification for Construction Quality Control Management for Contractors or equivalent.

3.4.5 Organizational changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the contractor shall revise the CQC plan to reflect the changes and submit the changes to the Owner.

3.5 SUBMITTALS AND DELIVERABLES

The QC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

When COMMISSIONING of systems is included in the contract, the submittals required by those sections shall be coordinated with TECHNICAL SUBMITTALS in Division 1 to ensure adequate time is allowed for each type of submittal required.

3.6 CONTROL

Contractor quality control is the means by which the contractor ensures that the construction, which includes that of sub-contractors and suppliers, complies with the requirements of the contract. At least three (3) phases of control shall be conducted by the Contractor's CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

This phase shall be 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 job site. This phase shall include:

- A review of each paragraph of the applicable specification section, reference codes and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by the Owner personnel until final acceptance of the work.
- A review of the contract documents.
- A check to assure that all materials and/or equipment have been tested submitted and approved.
- Review of provisions that have been made to provide required control inspection and testing.
- Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- A physical examination of required materials, equipment and sample work to assure that they are on hand, conform to approved shop drawings or submitted data and are properly stored.
- A review of the appropriate activity hazard analysis to assure safety requirements is met.
- Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- A check to ensure that the portion of the plan for the work to be performed has been accepted by the Owner.
- Discussion of the initial control phase.
- The Owner shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other QC personnel and the foreman responsible for the definable feature of work. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily QC report. The contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- A check of work to ensure that it is in full compliance with contract requirements. Review

minutes of the preparatory meeting.

- Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- Resolve all differences.
- Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- The Owner shall be notified at least 48 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily QC report. Exact location of initial phase shall be indicated for future reference and comparison with the follow-up phases.
- The initial phase should be repeated for each new crew who works on-site or any time acceptable specified quality standards are not being met.
- Failure to provide 48 hours notice of these meetings to the Owner will prevent the Contractor from starting any DFW. Owner attendance to these meetings is not mandatory, and once notice has been provided to the Owner and the meetings have taken place; the Contractor may start work. The Owner will however assure that such meetings have taken place and will review the minutes of the meeting made available by the QC System Manager.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the QC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The contractor shall not build nor conceal any non-conforming work.

3.6.4 Additional Preparatory and initial phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, on-site superintendent or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop, including but not limited to: forces beyond the control of the Owner or Contractor, damage to the site, etc.

3.7 TESTS

3.7.1 Testing Procedure

The contractor shall perform specified or required tests to verify that control measures are

adequate to provide a product which conforms to Contract requirements. Upon request, the contractor shall furnish to the Owner, duplicate samples of test specimens for possible testing by the Owner. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Loudoun County approved testing laboratory or as recommended by the contractor, or establish an approved testing laboratory at the project site. The contractor shall perform the following activities and record and provide the following data:

- Verify that testing procedures comply with contract requirements.
- Verify that facilities and testing equipment are available and comply with testing standards.
- Check test instrument calibration data against certified standards.
- Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken and the sequential control number identifying the test shall be given.
- If approved by the Owner, actual test reports may be submitted later with a reference to the tests number and date taken. An information copy of tests performed by off-site or commercial test facility shall be provided directly to the Owner. Failure to submit timely test reports as stated may result in non-payment for related work performed and disapproval of the test facility for this contract.

3.8 CERTIFIED TEST REPORTS

Certified test reports may be required for approval of materials and equipment. Testing shall have been performed in a laboratory, meeting the requirements specified herein. Test reports shall conform to paragraph 3.9, and shall be accompanied by certificates from the manufacturer certifying that the material and equipment proposed to be supplied under the contract is of the same type, quality, manufacturer and make, as that tested.

3.9 MANUFACTURER'S CERTIFICATES OF CONFORMANCE

3.9.1 Pre-printed certifications are not acceptable.

Certificates shall be original(s), no copies will be accepted. Certifications shall name the appropriate equipment or material, specification, standard, or other document specified as controlling the quality of that item and shall have attached thereto-certified copies of test data upon which the certifications are based. Certificates shall be signed by the manufacturer's official authorized to sign certificates of conformance or compliance.

3.9.2 If a material is called by a specific product manufacturer's name in the technical specifications, and the Contractor proposes that specific material for use in the work, the requirement for certificates of conformance may be waived by the Owner.

- 3.9.3 The requirement for "original" certificates of conformance may be waived by the Project Manager for standard builders products, if conformance with referenced specifications is clearly indicated on the manufacturer's product literature.

3.10 LABORATORY REPORTS:

- 3.10.1 Reports shall cite the contract requirements, the test or analysis procedures used, and the actual test results. For each report, the cover sheet shall be stamped in large red letters "CONFORMS" or "DOES NOT CONFORM". Reports shall be signed by a representative of the testing laboratory authorized to sign certified test reports.

- 3.10.2 Unless otherwise specified, certified tests should have been performed not earlier than one year prior to the contract award date.

3.11 PRODUCTS:

All products shall be manufactured by a company normally engaged in the product's production. Products shall have been in satisfactory commercial or industrial use a minimum of two years prior to award. Such application shall be similar to that as specified herein. Unless otherwise noted, provide the current model. Discontinued models are not acceptable.

3.12 WORKMANSHIP:

Comply with the industry standards and as specified in the technical sections.

3.13 MANUFACTURER'S INSTRUCTIONS:

Perform in compliance with the manufacturer's instructions. Should the instructions conflict with contract requirements, request clarification from the PM.

3.14 MANUFACTURER'S FIELD SERVICES:

As specified, provide qualified manufacturer's representatives to observe field conditions, installation and quality of workmanship.

3.15 TESTING, INSPECTION AND LABORATORY SERVICES

- 3.15.1 The County will employ and pay for services of an independent testing laboratory to perform specified services including the following:

- Foundation inspection
- Soils testing
- Concrete testing
- Structural steel inspection
- Bituminous paving

- 3.15.2 Employment of a testing laboratory shall in no way relieve the Contractor of the obligation to perform work according to the contract.

3.16 CONTRACTOR'S RESPONSIBILITIES: The Contractor shall:

- 3.16.1 Cooperate with laboratory personnel; provide access to work and to manufacturer's operations.
- 3.16.2 Provide to laboratory preliminary representative samples of materials to be tested in required quantities.
- 3.16.3 Furnish copies of mill test reports.
- 3.16.4 Notify the testing laboratory 24 hours prior to any inspection or testing which is required. Should the Contractor schedule an inspection/testing and the work is not ready for inspection/testing, the Contractor shall be responsible for all associated costs, including stand-by time, travel time and mileage.
- 3.16.5 Furnish labor and facilities:
 - To provide access to work to be tested.
 - To obtain and handle samples at the site.
 - To facilitate inspections and tests.
 - Provide for laboratory's exclusive use for storage and curing of test samples.
- 3.16.6 Provide the Owner with the results and reports when they become available. Record in the Contractor's Daily Construction Report all inspections and tests performed that date and their results. Maintain records of all on site inspections and tests, and make them available to the Owner. Submit test and inspection reports as required below and in the technical sections. Monitoring the inspection effort will be performed by the Contractor's Superintendent and the Owner.
- 3.16.7 Where required, the Contractor shall hire testing and inspection agencies that are separate and independent from the entities that perform the Work to be tested and inspected, including but not limited to a testing and balancing firm for the mechanical systems that is separate and independent from the subcontractor performing the mechanical work.
- 3.16.8 Contractor shall arrange and pay for the following testing and inspections:
 - Re-testing of Owner provided tests due to failure.
 - Testing allowed by the Owner for consideration of acceptance of work previously determined by the Owner as non-conforming.
 - Rebar locating for core drilling or cutting of concrete.
- 3.17 LABORATORY'S RESPONSIBILITIES AND LIMITATIONS: The testing laboratory shall:
 - 3.17.1 Cooperate with the Owner, the AE and the Contractor; provide qualified personnel promptly on notice, with no less than a 24 hour response time.

3.17.2 Perform specified inspections, sampling and testing of materials and methods of construction;

- Comply with specified standards; ASTM, the recognized authorities, and as specified.
- Ascertain compliance with requirements of the Contract.
- Promptly notify the Owner and the Contractor of irregularities or deficiencies of work which are observed during performance of services.
- Promptly submit reports of inspections and tests to the PM, the Contractor and the AE per REPORTS below.

3.17.3 The testing laboratory is not authorized to:

- Release, revoke, alter or enlarge on requirements of the Contract Documents.
- Approve or accept any portion of work.
- Perform any duties of the Contractor.

3.18 CERTIFICATION OF NEC COMPLIANCES:

All (120 VAC and higher) mechanical and electrical devices including but not limited to equipment, motors, components, lighting panels, control panels, motor control centers, and switch gear shall be manufactured, assembled and installed in accordance with the National Electric Code (NEC) and all ICC 2003 Codes. In order to certify said NEC compliance, the Contractor and each subcontractor shall furnish only those items which are labeled/listed by Underwriters Laboratories, Inc. Canadian Standards Association and/or Factory Mutual, may also be obtained as appropriate, for the service and conditions which are intended. Field assembled and wired equipment such as switchgear; lighting and motor control panels/centers shall be inspected and tested by the Contractor prior to turn-over to the Owner.

Manufacturer's Representatives shall be authorized, in writing, to act in the specified capacity by the product manufacturer's home office. Welders, welding operations, and completed welds shall be inspected by an AWS Certified Welding Inspector as specified in the technical sections.

3.18.1 Do not cover or conceal work until required test and inspection results indicate the work conforms to contract requirements.

3.19 REPORTS:

After each inspection or test, provide the Owner and A/E with a report to include:

- Date of report
- Project title and Contract number,
- Name of inspector

- Date and time of test, sampling or inspection,
- Product identification and applicable specification section and paragraph,
- Location of inspection or test, type of inspection or test,
- Results of inspection or test, and
- Conformance or nonconformance with Contract requirements

3.20 OWNER PERFORMED FIELD INSPECTIONS AND TESTS:

Owner performed field inspections as well as test will be made in accordance with the Department of Transportation and Capital Infrastructure's internal Quality Assurance (QA) Plan and in accordance with the provisions of the Contract Documents. Owner's personnel will be on-site throughout the duration of the Project to assure compliance with all quality standards, through repeated inspections, tests, photographs and reports.

PART 4 - COMPLETION INSPECTIONS

4.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Project schedule and/or required by the specifications, the CQC System Manager shall conduct an inspection of the work.

A punch list of items that do not conform to the contract documents and specifications shall be prepared and included in the CQC documentation. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. A copy of this list shall be provided to the Owner.

The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Owner that the building or facility is ready for the Pre-final inspection.

4.2 Pre-Final Inspection

The Owner will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. An Owner Pre-final punch list may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Owner.

Any items noted on the Pre-final inspection shall be corrected a timely manner as defined in the approved Project Schedule. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work (where the project is divided into increments by separate completion dates).

4.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary

management person, and the Owner shall be in attendance at the final acceptance inspection. The final acceptance inspection will be formally scheduled by the Owner, based upon results of the Pre-final inspection. Notice shall be given to the Owner at least fourteen (14) days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final inspection. Failure of the Contractor to have all contract work complete for this inspection shall result in a written notification of non-compliance. Where the Contractor fails to complete the deficiencies after the completion date assigned by the schedule, the Owner may elect to complete the work as necessary by hiring another Contractor. All associated costs incurred by the Owner as a result of such work (or re-work) shall be paid for by the original Contractor.

PART 5 - DOCUMENTATION

5.1 The CQC System Manager shall maintain all project records on site (especially those that are directly related to the work being performed) that are current and provide factual evidence that the required quality control activities and/or tests have been performed. These records shall include, at a minimum, the following:

- Daily Reports
- RFI Log
- A complete set of the County Approved permit drawings
- Updated, and current As-built drawings
- Copies of all PCO, CO's, Submittals & Safety Logs.
- Off-site activities from suppliers, vendors, and fabricators.
- All test procedures and test results.
- Complete copy of the Project Specifications.
- Copies of AHA's and Safety plans.
- Contractor's Re-work items List

At Substantial Completion all forms and documentation, As-builts, O & M Manuals, Training material, Final Punch-out Inspection reports, Daily Reports, etc. shall be turned over to the Owner. Refer to Division 1, "Project Close-out" for the number of copies required.

5.2 Notification of Non-Compliance

The Owner will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice when delivered to the Contractor at the work Site shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly (within 24 hours), the Owner 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 shall be made the subject of claim for extension of time or for excess costs or damages incurred by the Contractor against the Owner.

5.3 LEVELS OF AUTHORITY

- 5.3.1 The Owner reserves the right to remove any member of the Contractor's team off the job at any time for lack of performance, poor or uncooperative work attitude/ethic or other negative behavior or performance of work that is contrary to the quality established in the contract documents. Also, see Notification of Non-Compliance in section 5.2 above. Refer to item 5.3.3 below.
- 5.3.2 The Contractor shall notify the Owner of any situation which may negatively impact the construction project including personnel and/or Sub-Contractor issues, material delivery, damage, theft or any safety incident or violation, within 24 hours.
- 5.3.3 The Owner shall provide written notice to the Contractor requesting the removal of any member of the Contractor's personnel and will provide notice for the time frame for the team member replacement as agreed to by the Contractor but not to exceed 14 days. Interim replacement personnel shall be provided by the Contractor at no additional cost to the Owner.

PART 6 - COMMISSIONING (Cx)

- 6.1 The Owner shall provide a third party independent Commissioning Agent to provide Commissioning of all MEP systems as specified. Systems to be commissioned shall be noted in the Commissioning plan provided by the Cx Agent, along with all checklists, FPT's and systems to be commissioned shall include, but are not limited to the following:
 - 1. Electrical distribution system-switchboard and distribution boards.
 - 2. Generator
 - 3. UPS system
 - 4. Fire Alarm system
 - 5. Security system
 - 6. Lighting control systems-local offices and building wide control systems.
 - 7. Grounding system
 - 8. All HVAC system equipment- AHU's, Fans, Cooling Towers, etc.
 - 9. HVAC control systems
 - 10. Air Balancing system
 - 11. All Plumbing system equipment
 - 12. All Valves

13. Maintenance accessibility for all equipment

- 6.2 The Contractor shall comply with all other sections regarding testing, reports and re-tests as contained in this section including submittal of performance test reports, submittals, and laboratory reports.
- 6.3 Performance tests shall be prepared and constructed from the Project Specifications and submitted for approval by the Owner prior to acceptance and the start of testing. The Contractor shall submit three (3) copies of the FPT's to the Owner two weeks in advance of any testing. Once the Owner has accepted the FPT's, the Contractor shall provide the Owner at least 24 hours notice prior to the start of any test.
- 6.4 Payment: The Contractor shall include all third party Commissioning activities in the original bid price. Dependent on Project budget and schedule, the Owner may elect to withdraw this element of the Contract and sub-contract it directly. Therefore, the Contractor shall submit this scope and budget as a line item in the bid price.

Where the Owner elects to provide Commissioning, the Contractor shall cooperate and coordinate all Commissioning activities with the Owner's Commissioning Agent.

PART 7 - SALVAGED PARTS AND EQUIPMENT

The Owner maintains an inventory of re-useable equipment and parts from most construction projects. The Owner will reserve the right to request the return of equipment and parts from the job-site as needed, prior to demolition. The Contractor shall provide the Owner with a list of material to be returned during the demolition phase of the project.

This list shall include, but is not be limited to the following:

1. Mechanical equipment- AHU's, Fans, chillers, CT's, compressors
2. Lighting fixtures, ballasts and lamps.
3. Copper piping and fittings.
4. Doors, hardware and locksets.
5. Glass-windows, doors and/or decorative elements.
6. Generators, fuel tanks and ATS switches.
7. Fire Alarm devices, FACP and annunciator(s).
8. Pumps.
9. Security system components.
10. Data/Telecom equipment, racks, components and devices.

PART 8 - FORMS

Please refer to the attached CQC forms to be used for the Project.

END OF SECTION 014516.13