PART 1 - GENERAL

1.1 SUMMARY

A. Defines SRP requirements for Contractor Quality Control and Owner Quality Assurance. As an Electric and Water Utility, SRP has many critical facilities. Because SRP builds, occupies, and maintains our facilities, SRP requires a service life of 50+ years for our facilities. This long service life drives the unique and stringent details and product requirements found in the drawings and specifications. Because our requirements exceed building codes, SRP has robust and demanding Quality Control requirements for Contractors and a comprehensive Quality Assurance program.

B. SRP requires that the Contractor be proactive and plan for quality construction rather than wait for SRP inspections to identify deviations from plans, specs, and acceptable workmanship.

C. SRP is the Code Inspector for all standard and special code compliance inspections. Special Inspections required by the building, mechanical, or plumbing codes are identified on the drawings or the SRP Inspection Planning Worksheet. Code and Special inspections are part of SRP’s Quality Assurance responsibilities and not a tool for the Contractor to use to replace Quality Control planning or inspections by the Contractor and Subcontractor of their work.

D. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

E. Related Sections:

1. Divisions 02 through 33 see Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Proactive Quality Measures: Activities or actions taken prior to the work commencing or being completed to plan for quality, safety, and productivity. Tailboard meetings are an example of pro-active safety measures. Pre-task planning that reviews details on drawings with the work crew or creating a mockup are examples of proactive quality measures.

B. Reactive Quality Measures: Activities or actions taken during or after the work to check for quality. An inspection is a reactive quality measure.

C. Quality Control (QC): The responsibility of the Contractor. Planning, procedures, tests, inspections, and related actions by the Contractor before, during, and after execution of the Work to insure that products and construction comply with all requirements.

D. Quality Assurance (QA): The responsibility of SRP and the Architect. Procedures, inspections, and activities performed by SRP during and after execution of the Work to guard against defects and deficiencies and substantiate that construction complies with all requirements. QA also insures the Contractor is effectively performing Quality Control. Commissioning is a Quality Assurance activity.
E. Mockups: Full size physical assemblies constructed on-site. Mockups are constructed to verify selections made from sample submittals; to demonstrate aesthetic effects; to demonstrate acceptable quality of construction; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Approved mockups establish the standard by which the Work is judged.

F. Product Testing: Tests and inspections by an NRTL or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Testing: Tests and inspections performed at the source, i.e., plant, mill, factory, or shop.


1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards results in conflicting requirements, then comply with the most stringent requirement or submit an RFI to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. Refer uncertainties to Architect via RFI for a decision before proceeding.

1.4 SUBMITTALS

A. Quality Control Plan (project specific) that identifies the trained personnel, planning, proactive procedures, and reactive procedures the Contractor will use to meet the contract requirements, drawings, and specifications.

B. Testing Agency Qualifications: Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.5 REPORTS AND DOCUMENTS

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

1. Date of issue.
2. Project title.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of weather conditions at time of sample taking, testing, and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
5. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For SRP records, submit copies of permits, licenses, certifications, inspection reports, receipts for fee payments, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

D. Deficiency Log: Create and maintain a log of all deficiencies identified with the work, regardless of source, until the deficiency is corrected. Similar to a Punch List but used throughout the project duration to identify and correct deficiencies earlier so that the Punch List is minimized. Deficiency Log to be maintained by the Project Superintendent, available to the SRP PM and Construction Inspector, and presented/discussed at OAC Meetings.

1.6 QUALIFICATIONS

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

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

C. Professional Engineer Qualifications: A professional engineer who is licensed in Arizona and experienced (5 yr min.) in providing engineering services of the kind indicated.

D. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products used in this Project. Normally, a sales representative of the distributor or local rep is not qualified to observe and inspect.

E. Mockups: Obtain Architect's approval of mockups before starting work, fabrication, or construction:

1. Build mockups in location and of size indicated.
2. Demonstrate the proposed range of aesthetic effects and workmanship.
3. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

1.7 QUALITY CONTROL

A. Plan and perform all quality-control activities required to verify that the Work complies with requirements. Tests and inspections not explicitly assigned to SRP are Contractor's responsibility.
Quality Requirements

1. Where testing-inspection services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these services. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Submit certified written reports for testing or inspection services indicated as Contractor's responsibility.

B. Develop and submit to the SRP PM for approval a Quality Control Plan that identifies the proactive and reactive steps the Contractor will take with Subcontractors to insure quality rather than rely on SRP and Code Inspections. Minimum content for the QC Plan is:
   1. Identify contractor and subcontractor personnel responsible for Quality
   2. List and explain proactive and pre-construction steps taken by project team to understand plans, specifications, RFIs, and changes.
   3. List and explain steps taken during construction to verify workmanship, dimensions, and that work is in accordance with the contract documents.
   4. List and explain steps taken during and after construction to verify work is ready for and will pass code or special inspection.

C. Maintain the Deficiency Log and manage the resolution of the deficiencies.

D. SRP Specifications exceed Building, Mechanical, and Plumbing codes. Review these specifications prior to starting work to prevent rework. SRP drawings contain many non-standard details. Review these details prior to ordering materials to prevent rework.

E. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.

F. Manufacturer's Installation and Startup Documents: Provide a completed manufacturer's installation and startup checklist for each individual piece of equipment and gear. These are also known as pre-functional checklists. See Section 019113 Commissioning for further details.

G. Coordination: Coordinate project schedule and sequence of activities to accommodate required quality-control and -assurance services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

H. Pre-Task Planning: Critical activities (such as communications cable replacement) or work at critical facilities may require an SRP lead Pre-Task Planning Meeting with the working foremen performing each activity or element of the work. The SRP PM will specify those activities for which a Pre-Task Planning Meeting must occur. The agenda worksheet is available from the PM.

I. Recording Inspections: Use the SRP issued yellow “Inspection Record” to record all Final Inspections. Some Special Inspectors may submit a separate inspection report, but should sign the Inspection Record. Turn all these over to the SRP PM at the end of the job, to support the issue of the Certificate of Final Completion.

J. Retesting/Reinspecting: Work that fails to comply with the Contract Documents shall be retested at Contractors expense, regardless of whether original tests or inspections were Contractor's or SRPs’ responsibility.

1.8 QUALITY ASSURANCE

A. SRP Responsibilities:
1. Where testing-inspection services are SRP’s responsibility, SRP will engage a qualified internal organization or a qualified testing agency to perform these services.

2. SRP will furnish Contractor with:
   a. Inspection Planning Worksheet that identifies all code and special inspections and the inspecting agency.
   b. Names, addresses, and telephone numbers of testing agencies engaged.
   c. Observe the Contractor’s QC program and provide feedback
   d. Yellow Inspection Record form to record inspections and final inspections to be displayed on the jobsite.

B. Assistance to the Contractor: SRP recognizes that the specifications are stringent and above those found in commercial building. With advance notice by the Contractor, SRP will assist the Contractor by conducting reviews of plans and specifications with subcontractors.

C. Testing Agency Responsibilities: Cooperate with the SRP PM and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
   1. Notify SRP PM, and Contractor promptly of irregularities or deficiencies observed in the Work.
   2. Determine the location for test samples.
   3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
   4. Submit a certified written report of each test and inspection to the SRP PM.
   5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
   6. Do not perform any duties of Contractor.

D. Engineer Observations: The SRP PM schedules the Architect and Engineers to conduct periodic inspection of the work in place and work in progress. These observations will not satisfy any requirement for a code inspection. These observations are set up in the form of an allowance for a set number of visits to observe the work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARING FOR INSPECTIONS

A. Subcontractors and Contractor’s Superintendent shall:
   1. Review and inspect work for compliance with contract documents and standard workmanship prior to the SRP inspection.
   2. Provide access to the Work.
   3. Provide incidental labor and facilities necessary to facilitate tests and inspections.
   4. Insure adequate quantities of representative samples of materials to be tested.
   5. Assist in obtaining samples for testing.
   6. Provide satisfactory area for storage and field curing of test samples.
3.2 SCHEDULING INSPECTIONS

A. Use 3-week look ahead schedule to project dates for all inspections and observations.

B. Through the SRP PM, arrange code and special inspections 48 hrs in advance with 2 hr window.

C. Inspections are during normal working hours from 7am to 3pm.

D. After Project Working Hours or Weekend Inspections: If Contractor voluntarily arranges a pre-task planning meeting for a subcontractor’s work and invites SRP to witness, Inspections can be scheduled for that subcontractor’s work after the project’s normal working hours or weekends as an incentive to conduct pre-task planning.

E. The person who performed or supervised the work must be present and accompany all scheduled inspectors.

3.3 DOCUMENTING INSPECTIONS

A. SRP Inspectors will provide the Contractor with written inspection results. For deviations from the specifications or code the Inspector shall provide both pictures and specific references to the specification or code.

B. The Contractor is responsible for maintaining the yellow Inspection Record

C. For larger jobs where there will be more than one occurrence of an inspection, Contractor shall provide a ½ size set of drawings for all Inspectors to record the results of individual inspections.

3.4 REPAIR AND PROTECTION

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

END OF SECTION