

Consigli Supplemental Attachment D

January 2019



CONSIGLI
Est. 1905



CORPORATE QUALITY PLAN

CONTENTS:

- A. QUALITY MANAGEMENT INTRODUCTION**
- B. QUALITY MANAGEMENT TEAM**
- C. QUALITY ASSURANCE: PRE-CONSTRUCTION ACTIVITIES**
 - C.1 Constructability / Peer Reviews** *(required for \$15M+; recommended for others)*
 - C.2 Documenting Existing Conditions** *(as applicable)*
 - C.3 Submittal Requirements** *(required)*
 - C.4 Material Verification** *(required)*
 - C.5 Mock-ups** *(required)*
 - C.6 Pre-Operations Meetings + Schedule** *(required)*
- D. QUALITY CONTROL: CONSTRUCTION QUALITY ACTIVITIES**
 - D.1 3rd Party Inspection & Testing Log** *(required)*
 - D.2 Three Phases of Quality Control** *(required)*
 - D.3 Quality Walkthroughs & Lean** *(required)*
 - D.4 Deficiency Log** *(required)*
- E. APPENDIX**
 - D.1 Site-Specific 3rd Party Inspection & Testing Log** *(required)*
 - D.2 Site-Specific Mock-up Schedule** *(required)*
 - D.3 Site-Specific Pre-Operations Meeting Schedule** *(required)*

A. QUALITY MANAGEMENT INTRODUCTION

Quality is based on the customer's perception of the finished product and how well it matches the project's specified requirements, as well as aligning with expectations and intended use. Consigli Construction is committed to achieving the quality goals for all of our projects and strongly believes in delivering an excellent construction product with maximum project value effectively to our clients.

In order to ensure quality standards and project requirements are properly implemented during construction, we have developed a corporate-wide Quality Management Program that is modeled on the rigorous quality control measures of the U.S. Army Corps of Engineers, while also embracing the continuous improvement principles of Lean. This comprehensive program includes the development of a site-specific Contractor Quality Assurance / Quality Control (CQA/CQC) Plan that is reviewed, approved and monitored by Ken Amano, Consigli's Corporate Quality Manager, with additional guidance from Executive Management.

The CQA/CQC Plan outlines our processes and planning requirements for delivering on the project's quality goals, providing clear direction and assigning responsibilities to the project team, subcontractors, and suppliers to reduce risk and deliver quality construction. It is the intent of this plan to eliminate rework by identifying and resolving potential issues prior to the start of the related scope – ensuring that work is done right the first time whenever possible.

The CQA/CQC Plan is a living document that will be updated throughout the course of the project by the on-site Contractor Quality Control (CQC) Manager.

B. QUALITY MANAGEMENT TEAM

The on-site CQC Manager will report to the Project Executive regarding any quality-related issues and will be the project team member responsible for overall management of the CQC Program. The CQC Manager has the organizational authority to act in all CQC matters for Consigli, and will take any action necessary to ensure compliance with the contract documents. Additional oversight and assistance will be provided by Consigli's Corporate Quality Manager periodically and as needed.

In the event that the CQC Manager is absent from the construction site, the Project Superintendent shall also serve in that capacity during his absence.

The other members of Consigli's project team are also responsible for understanding and implementing the guidelines outlined in the CQA/CQC Plan; if the project is sufficiently large or complex, a distribution of responsibility (DOR) matrix will be developed to identify each member's specific role and tasks.

C. QUALITY ASSURANCE: PRE-CONSTRUCTION ACTIVITIES

Pre-construction activities include those generally taking place prior to commencing physical construction of the related project scope at the jobsite. These activities frequently involve information or decisions that will impact constructability, sequence, and quality performance. Consigli will coordinate its pre-construction services and management with the owner, design team, subcontractors, and other consultants.

The pre-construction activities listed below are often part of Consigli's CQA/CQC Plan, although some may not apply to all projects:

C.1 Constructability / Peer Reviews *(required on all projects over \$15M; recommended on others)*

Early and continuous involvement by the project team is critical to identifying and managing risk throughout the course of each project. As determined by the Project Executive, General Superintendent, and Corporate Quality Manager, constructability / peer reviews will be performed during the beginning of each project, around the time of the Kick-off Meeting. It is particularly important to review constructability for high-risk, one-of-a-kind or unusual design elements – especially if part of the exterior building enclosure. Teams will evaluate top risks for discussion and action items will be established following the review, which will include at least one Project Manager and one Superintendent with experience on similar issues or projects. Specific milestones related to the top risks will also be determined and incorporated into the project schedule for tracking (e.g. exterior enclosure summits, etc.).

C.2 Documenting Existing Conditions *(as applicable)*

Depending on the particular scope of work, documentation and verification of existing conditions may be required to establish a photographic or video record of site conditions prior to construction, or to confirm critical information needed to complete coordination of the project design.

C.3 Submittal Requirements *(required)*

The CQC Manager, along with assistance from other members of the project team, will review, stamp and approve all construction submittals prior to forwarding them to the owner and design team. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements, including coordination with related or adjacent scope. Especially complex submittals may require multiple internal reviewers and could involve the use of resources outside of the team.

A submittal log will be established by the CQC Manager to identify all items requiring submittal, and will actively track review progress, due dates, and possible revisions. Submittals will be issued as outlined in the construction schedule and will take into account the submittal review and approval process – including possible revisions and re-submittals, along with sufficient time for fabrication, transportation and delivery to the jobsite. Submittal samples will demonstrate the level of quality that is required per contract documents and is acceptable to both the owner and responsible design professional.

The CQC Manager will ensure that all submittals strictly comply with contract requirements. No materials, equipment, or supplies requiring submittal review shall be procured or delivered until submittals have been approved by the owner and design team. Variations or substitutions will not be allowed without a letter from Consigli Construction to the owner as to the benefit of the proposed change; all variations or substitutions must be approved by the owner in accordance with contract requirements.

Submittal Process



C.4 Material Verification *(required)*

It is the entire project team's responsibility to review and verify that the items delivered to the jobsite and in the field are those specified and in strict conformance with approved submittals. Any materials found onsite that are not approved or are found to be visibly damaged or defective will not be accepted and should be marked and removed. Any outstanding material non-conformance issues must immediately be added to the Deficiency Log.

For critical, time-sensitive materials, additional photographic evidence or in-person inspections at fabrication locations may also be required by the CQC Manager to ensure timely delivery of approved materials to the jobsite.

C.5 Mock-ups *(required)*

As part of the pre-construction planning process, the CQC Manager will review and confirm the contractual requirements for in-situ or freestanding mock-ups with the owner and design team. In addition to these contractually defined mock-ups, the CQC Manager will coordinate with the Project Executive, General Superintendent, and Corporate Quality Manager to identify other high-risk construction assemblies that may benefit as candidates for additional in-situ mock-ups or early inspections of initial work.

Aesthetic and performance mock-ups are to be used to confirm constructability and level of quality, and are required to physically exhibit the sequencing and standards of materials, finishes, and workmanship that are specified in the contract documents. All mock-ups will be identified within a schedule that will track approval progress and target completion dates, along with referencing applicable specification sections.

C.6 Pre-Operations Meetings + Schedule *(required)*

Part of the 3 Phases of Quality Control outlined by the U.S. Army Corps of Engineers, a pre-operations meeting will be held for ALL subcontractors upon execution of their contract and before they mobilize on site with manpower or materials. Also known as the Preparatory Phase, the primary goal of the pre-operations meeting is to focus the quality efforts of both Consigli and the subcontractor on preventing deficiencies and identifying potential constraints to implementing the work as scheduled. Each element of the building or construction activity is designated as a Definable Feature of Work (DFW) – some subcontractors may own more than one DFW, and it is at the discretion of the CQC Manager to schedule separate meetings if advisable (e.g. long periods of time between scope).

It is recommended to hold the pre-operations meeting after the majority or all of the submittals have been approved; however, it may also be occasionally used as a working session with the design team to help resolve submittal issues and expedite approvals. The highlights of the agenda for these meetings should be reviewed by the collective team, and either the project superintendent or project manager is required to attend or provide direct input on the questions and items to be discussed. A pre-operations meeting schedule will be developed by the CQC Manager to actively track progress and should be included with the weekly OAC meeting minutes, as well as for monthly internal cost meetings. The owner and appropriate design professional should also be invited to pre-operations meetings that would benefit from their input and feedback, along with third-party consultants or manufacturer's representatives, if applicable. Whenever possible, the foreman who will be directing the work on site must attend the meeting, in addition to the subcontractor's project manager. Meeting minutes are to be taken and distributed to all applicable parties – outstanding items can be also addressed through use of the Constraint Log.

The following criteria is required to be addressed during the pre-operations meeting:

- Review Subcontract, Contract Drawings & Specifications – specifically discuss any changes that have been made either through document revisions or RFIs that are applicable to the subcontractor’s field of work. Ensure that both the subcontractor’s project manager and on-site foreman have received and reviewed all changes
- Review Shop Drawings, Samples and Submittals – confirm any substitutions, if applicable
- Review Site Logistics Plan, including site storage requirements and confirm delivery dates
- Review Site Safety Plan – this may be covered during a separate meeting
- Review Project Schedule – confirm any changes due to pull plan, if applicable
- Review Consigli Quality Program – ensure both the subcontractor foreman and project manager understand the requirements of the CQA/CQC Plan; request copy of subcontractor’s quality plan
- Review 3rd Party Testing & Inspection Log, Mock-up Requirements, including review of initial work
- Review Quality Expectations – CCC team to reinforce the quality expectations and standards that are required for the project. Should include, but not be limited to, the following:
 - Precedents – in addition to mockups, review any like projects or points of reference
 - Level of Finish – review any applicable industry standards, such as AWI for millwork
 - Tolerances – levelness, plumbness, minimum and/or maximum allowable dimensions
 - Inspection / Acceptance of Work – include discussion on how to minimize punch list
 - Possible use of Pre-fabrication / Innovation – explore any opportunities to improve
- Review Potential Pitfalls – CCC team to engage subcontractor in discussion on how to achieve quality expectations. Should include, but not be limited to, the following:
 - Manpower & Sequence of Work – if pull planning has not been implemented for DFW(s) being discussed, review how scope is dependent on sequencing of other subs and work
 - Warranty Concerns – review any design details that may not conform to manufacturer’s capabilities or tested systems; are any manufacturer represented inspections needed during the course of installation?
 - Material Lead Time / Delivery Status
 - Temporary Protection and Temporary Heat / Humidity Requirements

D. QUALITY CONTROL: CONSTRUCTION QUALITY ACTIVITIES

Construction quality activities include those generally taking place following the start of physical construction of the related project scope at the jobsite. These activities frequently involve testing, inspections, and corrective actions that aim to maintain and continuously improve quality on the project. Consigli will coordinate its construction quality activities with the owner, design team, subcontractors, and other consultants / agencies.

The construction quality activities listed below are often part of Consigli’s CQA/CQC Plan, although some may not apply to all projects:

D.1 3rd Party Inspection & Testing Log *(required)*

As part of the site-specific quality plan, the CQC Manager will prepare an Inspection and Testing Log delineating all inspections and tests required by the contract documents, as well as those recommended by Consigli for quality control. Information within the Inspection and Testing Log will include, at a minimum:

- DFW, related CSI specification section, and reference paragraph(s)
- Description of the test or inspection
- Responsible Party that will perform the test or inspection
- Parameters and Applicable Standards of the test or inspection
- Date that the test was conducted – track if test is repeated or occurs multiple times

All window, curtain wall, and façade testing must be coordinated in advance with the Corporate Quality Manager. The CQC Manager should also identify which tests will require the involvement of the owner, design team, local inspection authorities, or third-party consultants and will be responsible to coordinate accordingly. All testing reports will be forwarded to appropriate parties and a digital copy kept in a categorized project folder that is easily accessible to the project team. Schedule of testing is to coincide with implementation of the 3 Phases of Quality Control.

D.2 The 3 Phases of Quality Control *(required)*

Construction quality depends on effective planning, coordination, communication, supervision, and testing. During the course of installing each Definable Feature of Work (DFW), the CQC Manager and the rest of the Consigli project team will implement the following quality control processes:

- Preparatory Phase – as a follow-up to the required Pre-Operations Meeting, the CQC Manager will confirm immediately prior to the start of each DFW by a subcontractor that all related approvals and materials are in place for installation to commence.
- Initial Phase – once a subcontractor begins installation of scope, the CQC Manager will work in concert with the Project Superintendent(s) to ensure that the initial quality of construction and workmanship meets all design and regulatory requirements. Depending on whether inspections by the client, design team, manufacturer’s representatives, or other consultants are needed, the CQC Manager will schedule a meeting and coordinate both written and photographic documentation of the group’s findings. Any unacceptable work will be added to the Deficiency Log and corrected immediately; the initial phase is also an opportunity to explore improvements moving forward.
- Follow-up Phase – as work continues to proceed, the CQC Manager will work with the project team to monitor that the level of quality remains in conformance. Specific events or milestones such as wall / ceiling closure inspections or exterior envelope testing are to be identified and photographed for internal record. Project Quality Walkthroughs, Daily Foreman Stand-up Meetings, and QC Checklists also contribute to the continuous inspection of workmanship.

Each project has its own specific requirements, with some municipal and federal projects involving additional documentation or inspections for each phase – it is the responsibility of the CQC Manager to ensure that all conditions outlined in the contract are being fulfilled and to modify the Quality Plan accordingly.

D.3 Quality Walkthroughs & Lean *(required)*

Construction quality is a team effort that requires 100% buy-in from both our subcontractors and other project partners, including the owner and design team. Every effort is to be made by the project team to encourage participation by all parties and develop an on-site culture that Quality, like Safety, is everyone's responsibility.

The CQC Manager will coordinate and schedule weekly or bi-weekly Quality Walkthroughs with the rest of the Consigli team, to be led by the project Superintendent. These site walkthroughs are to help identify any non-conforming work that may need to be included on the Deficiency Log, and are critical to the Follow-up Phase of Quality Control. It is also important that the entire team participate if possible, as each team member brings his or her own perspective and project expertise to the collective discussion. In addition, previously noted non-conforming work should be checked and confirmed by the team as corrected.

It is strongly recommended that at least (1) Quality Walkthrough each month also include the Owner and Architect, so that they participate in evaluating and understanding the level of Quality as the project progresses. This collaborative and shared approach throughout the project will help alleviate misconceptions and facilitate a more productive punch-list process at closeout. An executive summary of findings from these collective walkthroughs should be included in each team's Monthly Project Reports.

As part of Consigli's goal to continuously improve and provide our clients with maximum value, all projects will include Lean practices and subcontractors will participate in the Last Planner System, including short Daily Foreman Stand-up Meetings and other scheduling / planning activities.

D.4 Deficiency Log *(required)*

Any materials, equipment, installations or workmanship that are determined by either a member of the project team or the Owner / Architect to not comply with the requirements of the Contract Documents will be considered non-conforming or deficient. Any such item will be recorded in the Deficiency Log and tracked so that it can be repaired or replaced as quickly as possible, unless the subcontractor involved is able and willing to immediately correct the non-conforming issue.

The Deficiency Log is to be continuously updated by the project team and will be distributed at least once weekly – subcontractors are expected to address items within (14) calendar days or provide a written memo to the CQC Manager outlining why the corrective action cannot be expedited within that timeframe. The log will identify outstanding deficiencies, provide additional information and include photos, note the date discovered, the date for proposed completion by the subcontractor, and the date corrected.

The Deficiency Log will be reviewed and discussed at the weekly subcontractor meeting, and any constraints to other work should be noted and resolved. If deficiencies are not addressed in a timely fashion, payment will be withheld from subcontractors who have not completed or responded to non-conforming items.

Items identified by the design team, Owner, or other consultants and documented separately in field reports or memos will be incorporated in the Deficiency Log by the CQC Manager. If damaged materials arrive on site and are identified prior to installation, only those that may then cause a delay will be included on the Deficiency Log.