

[CompanyName]

Concrete Quality Assurance/Quality Control Plan

[ProjectName]
[ProjectNumber]

Management acceptance

This Construction Quality Assurance/Quality Control Plan has been reviewed and accepted.

| | | | |
|--------------------------------|---------------------------------------|-------|---------------|
| Endorsed By: (Name / Title) | [QualityManagerName], Quality Manager | | |
| Signature: | <i>[QualityManagerName]</i> | Date: | [Date] |
| Version | 1.0 | Notes | Initial Issue |

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SIGNATURE SHEET

Plan Preparer

This [CompanyName] Project Quality Control Plan was prepared in accordance with the contract specifications and requirements of the [CompanyName] quality system and approved by:

[QualityManagerName] / [Date]

[QualityManagerName], Quality Manager /Date

Approval by Company Officer

This [CompanyName] Project Quality Control Plan is approved by:

[SeniorManagerName] / [Date]

[SeniorManagerName] President /Date

Plan Concurrence

[CompanyName] Project Quality Control Plan concurrence by:

[ProjectManagerName] / [Date]

[ProjectManagerName], Project Manager /Date

[SuperintendentName] / [Date]

[SuperintendentName], Superintendent /Date

PROJECT-SPECIFIC HVAC QUALITY PLAN

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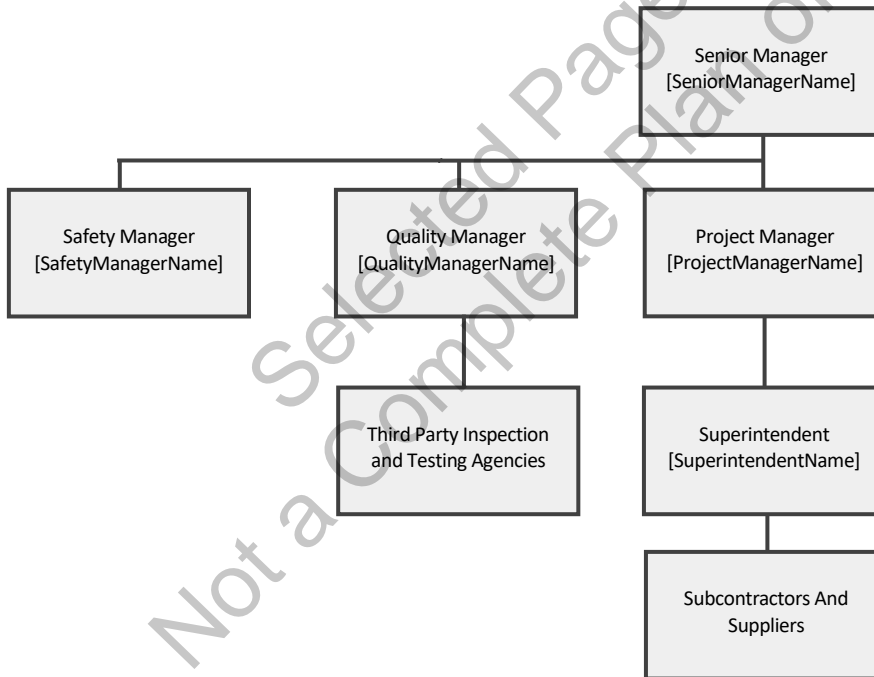
PROJECT QC ORGANIZATION CHART

The Project QC Organization Chart shows the QC organizational structure. The chart includes job positions along with the name of each person appointed to that position. Figure C-1 shows the QC Organization Chart for this project.

The Senior Manager defines the organization chart for the project. The organizational chart includes job titles, names of assigned personnel, and organizational and administrative interfaces with the customer. The organization chart defines lines of authority as indicated by solid connection; dotted lines indicate lines of communication. The lines of authority preserve independence of quality control personnel from the pressures of production.

The Senior Manager assesses the qualification requirements for each position on the project organization chart, qualifications of each person, and then appoints only qualified persons to the project organization.

Figure C-1



H. SUBMITTALS

SUBMITTALS

Lists of documents and records that will be submitted to the customer appear on the Submittal Schedule and Log form. The Submittal Schedule and Log Form exhibit is included in this subsection.

SHOP DRAWING SUBMITTALS

The Project Manager or Purchasing and Estimating Manager prepare shop drawing submittals that supplement contract drawings. Shop drawings are required when additional details are necessary for fabrication or installation. The following information is included, as applicable:

- Dimensions established by field measurement
- Relationships to adjoining construction
- Identification of products and materials
- Fabrication and installation drawings
- Diagrams showing locations of field-installations
- Shop fabricated manufacturing instructions
- Templates and patterns
- Design calculations
- Compliance with specified standards
- Seal and signature of professional engineer if required
- Additional requirements as specified in the contract, contract technical requirements, or contract drawings.

[CompanyName] extends contract specifications to include customer approved shop drawings.

PRODUCT DATA SUBMITTALS

The Project Manager prepares product data submittals that consist of the manufacturer's product information. The information included in this submittal is:

- Manufacturer, trade name, model or type number
- Description
- Intended use
- Size and physical characteristics including drawings when applicable
- Finish and color characteristics
- Product manufacturer's installation instructions, when applicable
- Additional requirements as specified in the contract, contract technical requirements, or contract drawings.

ALLOWANCES AND UNIT PRICES SUBMITTALS

When customer contracts specify allowances and unit prices that the customer will select after the contract is awarded, the Project Manager prepares an allowance and unit price submittal for customer approval.

When a customer selects or approves an allowances and unit prices, the customer indicates the allowance and unit price selection on the signed submission return.

[CompanyName] extends compliance to contract specifications to customer approved allowances and unit prices.

REQUEST FOR INFORMATION (RFI) SUBMITTALS

The Project Manager submits a request for additional information to the customer when errors are found or when required information is not contained in the contract, contract technical specifications, or contract drawings.

Should any number of contract technical specifications or contract drawings result in conflicting requirements, the Quality Manager submits a request for information to the customer to select the standard that applies.

[CompanyName] extends compliance to contract specifications to customer requests for information.

CHANGE ORDER SUBMITTALS

Contract requirements or contract technical specifications may require a change after the contract is awarded. The Project Manager submits the change order to the customer for approval, including any contract price adjustments.

When a customer approves a change order, the customer signs the submission return.

[CompanyName] extends contract specifications to include customer approved change orders.

MOCK-UP SUBMITTALS

The Superintendent prepares mock-up submittals as required by contract. Additionally, the Quality Manager specifies mock-up requirements when they are necessary to ensure customer expectations are clearly identified.

The Quality Manager ensures that each mock-up demonstrates specific elements of form and/or function, and that they are specified in the submittal documents.

[CompanyName] extends contract specifications to include customer approved mock-up submittals.

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| [CompanyName] Project Submittal Form | | | |
|--|-----------------|--|------|
| Submittal ID# | Project ID | Project Name | Date |
| | [ProjectNumber] | [ProjectName] | |
| To: | | From: [CompanyName] Location: | |
| Type of Submittal: <input type="checkbox"/> Shop drawing <input type="checkbox"/> Product data <input type="checkbox"/> Request for information <input type="checkbox"/> Completed form or quality record <input type="checkbox"/> Quality system document <input type="checkbox"/> Other: | | Description of submittal: | |
| List of attachments: | | Remarks: | |
| Submittal Prepared by: [CompanyName] Name: Title: Signature / Date: | | Submittal Approved by [CompanyName] Quality Manager: Name: Title: Signature / Date: | |
| Customer Disposition: <input type="checkbox"/> Approved <input type="checkbox"/> Conditionally approved, resubmission not required (see comments) <input type="checkbox"/> Disapproved, resubmission required <input type="checkbox"/> Other: | | Customer Representative: Name: Title: Signature / Date: | |
| Comments: | | | |

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K. MATERIAL INSPECTION TRACEABILITY AND QUALITY CONTROLS

Products and materials are controlled to assure the use of only correct and acceptable items. Controls include identification of the inspection status. Materials that require lot control traceability and the method of traceability are listed on the Controlled Materials form included as an exhibit in this subsection.

IDENTIFICATION OF LOT CONTROLLED MATERIALS

The Quality Manager determines types of project materials that require quality controls.

For each type of quality-controlled material, the Quality Manager determines lot control traceability requirements, if any, and specifies the means of lot identification. Identification methods may include physical labels, tags, markings and/or attached certification documents.

When lot-controlled materials are received, the Superintendent verifies that materials have the specified lot identifications.

The Superintendent maintains lot identification at all production phases from receipt, through production, installation, or assembly, to final completion. Acceptable methods for preserving lot identification include physically preserving observable lot identifications, recording the lot identification on a work task quality inspection form or other work record, or collecting the physical lot identifier as a record along with supplemented with location.

If lot-controlled materials are without lot identification, the Superintendent deems the materials as nonconforming and segregates them and/or clearly marks them to prevent inadvertent use. The Superintendent treats the material according to the company policy for nonconformances. Only the Quality Manager can re-identify or re-certify the materials.

CONCRETE PLACEMENT TRACEABILITY

For each concrete cylinder sample the delivery ticket number and location of placement will be recoded on the sample record or otherwise marked on the sample specimen.

MATERIAL RECEIVING AND INSPECTION

When lot-controlled materials are received, the Operations Manager inspects the materials and verifies that materials have the specified lot identifications. Received materials are listed on the Material Receiving and Inspection Report form or Metals Materials Receiving and Inspection form included as an exhibit in this subsection.

Material quality inspections and tests ensure that purchased materials meet purchase contract quantity and quality requirements. The Superintendent inspects or ensures that a qualified inspector inspects materials prior to use for conformance to project quality requirements.

The Superintendent ensures that each work task that uses the source inspected materials proceed only after the material has been accepted by the material quality inspection or test.

EQUIPMENT INSPECTIONS

All equipment is inspected and maintained daily or prior to use based on manufacturer's instructions. This includes all equipment whether in use or not while on the jobsite.

The Superintendent ensures that each work task that uses equipment proceed only after the equipment has been accepted by the equipment quality inspection or test.

The equipment inspection includes a verification of the following:

- Equipment is in good working condition and that there is no need for repair
- Equipment maintenance has been performed to meet manufacturer's specifications
- Equipment is safe to use

PRESERVATION AND PROTECTION OF MATERIALS AND COMPLETED WORK

[CompanyName] will preserve and protect work in process, completed work, component parts, materials, and when applicable, delivery to the destination to maintain compliance with project requirements and standards. This includes handling, storage, protection from natural elements, and reducing risks of damage.

Completed work is protected from damage as specified by government regulations, contract technical specifications, industry standards, or product installation instructions.

The Quality Manager identifies supplemental protection requirements that apply to a specific project when they are necessary to assure quality results.

MATERIAL AND EQUIPMENT STORAGE

The Superintendent ensures all materials and equipment will be delivered, stored, handled and maintained in a manner that protects them from damage, moisture, dirt and intrusion of foreign materials.

Delivery of materials and equipment will be planned according to the work progress to minimize storage on site, where there are higher possibilities of damages and deterioration of materials.

Preventive maintenance based on the manufacturer's recommendations will be performed on all stored materials and equipment if required.

If preventive maintenance is required:

- The Superintendent or qualified receiving inspector will record the item(s) on the Material and Equipment Receiving Inspection form and note that preventive maintenance is required
- Tag or label the material / equipment
- Record, on the tag or label, the type of preventive maintenance required, how often preventive maintenance is to be performed, and the date it was performed

Stored materials will be segregated to prevent cross contamination and limit losses should a delivery be rejected.

The Superintendent surveys stored materials and equipment during daily jobsite reviews to verify preventive maintenance requirements are being performed as required, and to identify if any material

| [CompanyName] Material Inspection and Receiving Report | | | | | | | | |
|--|----------------|--------------------|-------------------|-----------|---------|--------------------------|--------------------------|--------------------------|
| Contract ID | Contract Name | Purchase Order No. | Supplier | | | Bill of Lading No. | Date | |
| [ProjectNumber] | [ProjectName] | | | | | | | |
| Item No. | Stock/Part No. | Description | Quantity Received | Condition | Marking | Accept | Conditional Use | Reject |
| | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Receiving Quality Control | | | | | | | | |
| <p>ACCEPTANCE</p> <p>Listed items have been accepted by me or under my supervision</p> <p><input type="checkbox"/> Conform to contract specifications EXCEPT as noted herein or on supporting documents.</p> <p><input type="checkbox"/> Received in apparent good condition EXCEPT as noted</p> <p>Signature of authorized person and date: _____</p> | | | | | | | | |
| <p>EXCEPTIONS:</p> | | | | | | | | |

L. CONCRETE INSPECTION AND TEST PLAN

The Quality Manager prepares quality inspection and test plans for a project that identifies:

- Each required quality inspection and/or test
- Inspection and test specifications for each required quality inspection or test
- Hold points for purchaser quality inspection
- Specification requirements for each quality inspection and test

The Quality Inspection and Test Plan form lists inspections and tests (other than work task inspections) that will be performed on this project.

Results of inspections and tests will be recorded on the Inspection and Test Form. An Inspection and Test Plan and Log form exhibit is included as an exhibit in this subsection.

INDEPENDENT MEASUREMENT AND TESTS

The Quality Manager ensures that quality tests that apply to a specific project are clearly identified. Tests for a project include:

- Purchaser required quality tests as specified by the contract, contract technical specifications, contract drawings, and approved submittals.
- Additional quality tests necessary to assure quality results.

HOLD POINTS FOR PURCHASER INSPECTION

The Superintendent stops work when reaching a hold point specified on the inspection and test plan. The Superintendent ensures that work proceeds only with purchaser approval.

INSPECTION AND TESTING CONCRETE STANDARDS

Inspection and testing standards that may apply to this project include those listed below.

| Description | Reference Standard No. | Reference Standard Title |
|--|--------------------------|---|
| Subgrade compaction | ASTM D 1557 | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort |
| Make concrete slump test specimen | ASTM C 143 C 143M | Standard Test Method for Slump of Hydraulic-Cement Concrete |
| Concrete strength specimens | ASTM C 31/C 31M | Standard Practice for Making and Curing Concrete Test Specimens in the Field |
| Vacuum Testing | ASTM C 1244/ASTM C 1244M | Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill |
| Test air content for air-entrained concrete | ASTM C 231 | Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method |
| temperature of concrete at time of placement | ASTM C 1064/C 1064M | Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete |

**[CompanyName]
Inspection and Test Plan and Log**

| | | |
|-----------------------|---------------------|--|
| Project Number | Project Name | |
| [ProjectNumber] | [ProjectName] | (All tests verified by Superintendent and/or QC Manager) |

| Item | Spec Section Number and Title | Applicable Standard | Inspections & Tests Description | Test and Inspection Methods | Number required | Time Schedule/Frequency | Inspection/ Test By | Sample Req'd. Yes/No | Unique characteristics of QC Service |
|------|-------------------------------|---------------------|---------------------------------|-----------------------------|-----------------|-------------------------|---------------------|----------------------|--------------------------------------|
| 1. | | | | | | | | | |
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| 15. | | | | | | | | | |

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| [CompanyName][CompanySuffix] Testing & Inspection Results Log | | | | | |
|--|---|--------------------|-----------------|-----------------|--------------------------------------|
| Project ID | Project Name | Preparer | | Date | |
| [ProjectNumber] | [ProjectName] | | | | |
| Report ID /Date of Issue | Description of Inspection / Test | Report Date | Results | | Type of Corrective Action |
| | | | Approved | Rejected | |
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**[CompanyName]
Daily Production Report**

| Project ID | Project Name | Preparer*/Date |
|---|--|----------------|
| [ProjectNumber] | [ProjectName] | |
| * 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. | | |
| | Description | |
| Job-ready and WIP Inspections (Active work tasks) | | |
| Work Tasks Completion Inspections | | |
| Sampling/Tests Performed | | |
| Nonconformance Reports | | |
| Problems encountered, actions taken, problems, and delays | | |
| On Site Subcontractors and Suppliers, Company Crews, and Visitors | | |
| Meetings held and decisions made | | |
| General Remarks and improvement ideas | | |
| Weather conditions | Temperature: Low: _____ F High: _____ F Precipitation: <input type="checkbox"/> No <input type="checkbox"/> Yes, type and amount: _____ | |

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N. CONTROL OF CORRECTIONS AND NONCONFORMANCES

Should a problem occur in the quality of work, we systematically contain the issue and quickly make corrections. Our first action is to clearly mark the item by tape, tag, or other easily observable signal to prevent inadvertent cover-up.

Then we expedite a corrective action that brings the workmanship or material issue into conformance by repair, replacement, or rework. Previously completed work is reinspected for similar nonconformances. If we cannot correct the item to meet contract specifications, the customer will be notified, and customer approval of corrective actions is required before proceeding.

Fixing problems found is not sufficient. [CompanyName] systematically prevents recurrences to improve quality. First enhanced controls and management monitoring are put into place to assure work proceeds without incident. Then using a structured problem-solving process, [CompanyName] identifies root causes and initiates solutions. Solutions may involve a combination of enhanced process controls, training, upgrading of personnel qualifications, improved processes, and/or the use of higher-grade materials. Follow-up ensures that a problem is completely resolved. If problems remain, the process is repeated.

Nonconformances and their resolution are recorded on a Nonconformance Report form. A Nonconformance Report form exhibit is included in this subsection.

MARKING OF NONCONFORMANCES AND OBSERVATIONS

When the Quality Manager, Superintendent, inspector, or customer identifies a nonconformance or an observation, the item is quickly and clearly marked by tape, tag, or other easily observable signal to prevent inadvertent cover-up.

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| [CompanyName] Nonconformance Report | | |
|---|---|--|
| Nonconformance Report Control ID | Project ID | Project Name |
| | [ProjectNumber] | [ProjectName] |
| Preparer Signature/ Submit Date | | Quality Manager Signature / Disposition Date |
| | | |
| Description of the requirement or specification | | |
| Description of the nonconformance, location, affected area, and marking | | |
| Disposition | <input type="checkbox"/> Replace <input type="checkbox"/> Repair <input type="checkbox"/> Rework <input type="checkbox"/> Use As-is | |
| | Approval of disposition required by customer representative? Yes <input type="checkbox"/> No <input type="checkbox"/> | |
| | Customer approval signature /date: _____ | |
| Corrective Actions | <input type="checkbox"/> Corrective actions completed Name/Date: _____ | |
| | Customer acceptance of corrective actions required? Yes <input type="checkbox"/> No <input type="checkbox"/> | |
| | Name/Date: _____ | |
| Preventive Actions | | |
| | <input type="checkbox"/> Preventive actions completed Name/Date: _____ | |

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| [CompanyName] Nonconformance Report Control Log | | | | | |
|--|-------------------------------|-------------|---------------------------|------------------------------|------|
| Project ID | Project Name | Preparer | Date | | |
| [ProjectNumber] | [ProjectName] | | | | |
| | | | | | |
| Nonconformance Report ID # | Description of Nonconformance | Report Date | Disposition Decision Date | Corrective Action Completion | |
| | | | | Initial | Date |
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[CompanyName]

Concrete

Quality Manual

Operating Policies of the [CompanyName] Quality System

Management acceptance

This Quality Manual has been reviewed and accepted

| | | | |
|--------------------------------|----------------------------|-------|---------------|
| Endorsed By: (Name / Title) | [PresidentName], President | | |
| Signature: | <i>[PresidentName]</i> | Date: | [Date] |
| Version | 1.0 | Notes | Initial Issue |

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2. PROJECT QUALITY ASSURANCE/QUALITY CONTROL PLAN

2.1. OVERVIEW

After [CompanyName] is awarded a contract to carry out a construction project, the Senior Manager forms a team consisting of a Quality Manager, Project Manager, and Superintendent.

First, the Quality Manager develops a set of project specifications that align project requirements with customer specifications and requirements, regulations, industry standards, product instructions, and [CompanyName] quality standards.

The Quality Manager evaluates personnel, subcontractors and suppliers, materials, and suppliers, and ensures that only those that are capable and qualified are included on the project. Training is provided to ensure that all personnel involved in the project understand their quality responsibilities and authorities.

The Quality Manager then details how the quality is controlled throughout the construction process through a quality inspection and test plan that specifies requirements and pass/fail criteria for quality inspections and tests. [CompanyName] operating policies assure compliance to the project specifications.

As the project proceeds and prior to starting each construction task, the Superintendent coordinates detailed requirements and resources, site conditions, and communicates them through a meeting with all interested parties. The Superintendent amends inspection specific checklists with items for heightened awareness based on the concerns of all parties.

The subcontractors and suppliers and Superintendent use the quality inspection forms to monitor execution of the construction process through a series of quality inspections before, during, and at the completion of each construction task. Laboratory and functional tests are performed to assure performance results.

Should nonconformances occur, they are systematically controlled and corrected. Improvements are made to prevent recurrences.

Throughout the project there are standard operating procedures and forms for creating, maintaining, and controlling quality documents and records.

Throughout the project, the Quality Manager performs on-site quality audits to ensure that the [CompanyName] Quality System is operating effectively.

2.2. [COMPANYNAME] PROJECT LICENSE AND QUALIFICATION REQUIREMENTS

The Quality Manager identifies the company license and qualification credentials required by contract specifications and government regulators. The Quality Manager obtains records, certificates, and license records that provide verification of [CompanyName] credentials.

2.2.1.1. REQUIRED COMPANY LICENSES AND CERTIFICATIONS

The Quality Manager defines quality-related company credentials for each project work task that affects quality.

2.3. PROJECT PERSONNEL AND QUALIFICATIONS

2.3.1. PROJECT ORGANIZATION CHART

The Senior Manager defines the organization chart for the project. The organizational chart includes job titles, names of assigned personnel, and organizational and administrative interfaces with the customer. The organization chart defines lines of authority as indicated by solid connection; dotted lines indicate lines of communication. The lines of authority preserve independence of quality control personnel from the pressures of production.

The Senior Manager assesses the qualification requirements for each position on the project organization chart, qualifications of each person, and then appoints only qualified persons to the project organization.

2.3.2. APPOINTMENT OF KEY PROJECT PERSONNEL

The Senior Manager forms a project management team consisting of:

- A Quality Manager
- A Project Manager
- A Superintendent
- A Quality Manager (if required)

The Senior Manager appoints qualified persons to each project management job position with specific quality responsibilities and authorities. The Senior Manager assesses the qualifications of each person before the appointment is made.

The Senior Manager keeps a record of the appointment and signs the document. The person accepts the appointment by signing a declaration as a competent person.

Work steps for maintaining appointment of key project personnel are specified in Standard Operating Procedure 2.3.2 Appointment of Key Project Personnel.

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- A schedule consisting of a sequence of each work task and activities required to complete a project
- The customer contract (Section 3 Contract Specifications) including contract technical specifications and contract drawings
- Required quality inspections and tests (Section 8.2 Required Work Task Quality Inspections and Tests) and the project Quality Inspection and Test Plan when required
- The Contract Submittal Schedule (Section 3.4.1 Contract Submittal Schedule)

2.5. IDENTIFICATION OF QUALITY CONTROLLED WORK TASKS

The Quality Manager identifies each phase of construction work task that requires separate quality controls. Each work task triggers a set of requirements for quality control inspections before, during and after work tasks.

2.6. PROJECT QUALITY INSPECTION AND TEST PLAN

The Quality Manager prepares quality inspection and test plans for a project that identifies:

- Each required quality inspection and/or test
- Inspection and test specifications for each required quality inspection or test
- Hold points for customer quality inspection
- Specification requirements for each quality inspection and test

2.7. PROJECT QUALITY COMMUNICATIONS PLAN

After [CompanyName] is awarded a contract, the Project Manager plans the methods of communications among the customer, subcontractors, and suppliers and [CompanyName].

2.8. PROJECT QUALITY TRAINING PLAN

The Quality Manager ensures that all employees receive training relevant to their quality responsibilities.

The Quality Manager ensures that all subcontractors and suppliers receive training on relevant elements of the [CompanyName] Quality System, Project Quality Assurance/Quality Control Plan, and quality standards.

The Quality Manger identifies the training needs of all personnel performing activities that affect quality. Training topics may include:

- The [CompanyName] Quality System
- The [CompanyName] Quality Policy
- Operating policies identified in the Quality Manual
- Quality standards cited in the Quality Manual, or project documents, or records
- Relevant quality standard operating procedures

2.9. CUSTOMER TRAINING ON OPERATION AND MAINTENANCE

During the project closeout phase, the Quality Manager trains customers on the operation and maintenance of the completed project, including as applicable:

- A review of as-built drawings
- Installed product identification and warranty requirements
- A review of documentation regarding start-up, operation, and shutdown
- Normal adjustments and maintenance requirements

- Limitations on use

2.10. PROJECT RECORDS AND DOCUMENTATION PLAN

The Quality Manager identifies the quality records that will be maintained during the planning and execution of the project. Considerations include:

- Contract requirements for maintaining records
- The size of the project
- Types of activities
- The complexity of processes and their interactions
- The competence of personnel
- The duration of the project
- The need to demonstrate completion of work
- The need to demonstrate due diligence for quality system related activities
- Balancing the cost and benefits of maintaining the record

2.11. PROJECT AUDIT PLAN

The Quality Manager identifies the frequency of project quality audit that will be conducted during the project and the job position that will conduct the audits. Considerations include:

- The size of the project
- The complexity of processes and their interactions
- The duration of the project

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7. PROCESS CONTROLS

HOW WORK IS CARRIED OUT

7.1. OVERVIEW

The construction process plan defines how project work is to be done and approved for the overall project. The construction process plan is communicated to all key personnel, subcontractors, and suppliers in a startup meeting. As the project proceeds, work task plans provide additional details of how each individual work task is carried out. Work tasks planning meetings are used to communicate expectations of the work task plan to key personnel responsible for carrying out the work task.

7.2. PROJECT STARTUP AND QUALITY CONTROL COORDINATION MEETING

Prior to the commencement of work, the Project Manager holds a meeting to discuss and coordinate how project work will be performed and controlled. Key personnel from [CompanyName], subcontractors and suppliers meet to review expectations for project quality results as well as quality assurance and quality control policies and procedures including:

- Key requirements of the project
- The Project Quality Assurance/Quality Control Plan
- Required quality inspections and tests
- The project submittal schedule
- Quality policies and heightened awareness of critical quality requirements
- Project organization chart and job responsibilities
- Methods of communication and contact information
- Location of project documents and records

7.3. PREPARATORY PROJECT QUALITY ASSURANCE/QUALITY CONTROL PLAN PLANNING

7.3.1. WORK TASK REQUIREMENTS REVIEW

In preparation for the start of an upcoming work task, the Superintendent reviews an integrated and coordinated set of documents that collectively define quality requirements for the work task including:

- Objectives and acceptance criteria of the work task
- Quality standards that apply to the work task
- Work instructions, process steps, and product installation instructions that apply to the work task
- Shop drawings
- Submittals
- Tools and equipment necessary to perform the work
- License, certification, or other qualification requirements of personnel assigned to work
- Required records of the process and resulting product
- The subcontractor contracted to perform the work, if applicable
- Customer contract requirements
- Required quality inspections and tests
- Method for clearly marking nonconformances to prevent inadvertent use
- Location of quality system records and documents
- Personnel training

7.3.2. PREPARATORY SITE INSPECTION

The Superintendent also performs a quality inspection of the work area and:

- Assesses completion of required prior work
- Verifies field measurements
- Assures availability and receiving quality inspection status of required materials
- Identifies any nonconformances to the requirements for the work task to begin
- Identifies potential problems

7.3.3. WORK TASK PREPARATORY QUALITY PLANNING MEETINGS

Prior to the start of a work task, the Superintendent conducts a meeting with key company, subcontractor personnel responsible for carrying out, supervising, or inspecting the work, and interested customer representatives.

During the meeting, the Superintendent communicates the work task quality requirements and reinforces heightened awareness for critical requirements. Topics for a work task quality plan meeting include:

- Conflicts that need resolution
- Required quality documents and a verification of availability to personnel carrying out, supervising, or inspecting the work task
- Record keeping requirements and the availability of necessary forms
- Review methods and sequences of installation
- Special details and conditions
- Standards of workmanship
- Heightened awareness of critical quality requirements
- Quality risks
- Work tasks quality inspection form

7.4. WEEKLY QUALITY PLANNING AND COORDINATION MEETINGS

The Superintendent conducts a meeting with key company, subcontractor, and supplier personnel responsible for carrying out, supervising, or inspecting the work, and interested customer representatives.

The meeting is held on a nominal weekly schedule. During the meeting, the Superintendent facilitates coordination among the participants, communication among the participants, and reinforces heightened awareness for critical requirements.

The Superintendent maintains a record of the meeting event in the Daily Quality Control Report.

7.5. PROCESS CONTROL STANDARDS

7.5.1. JOB-READY START WORK STANDARDS

Work on a work task starts only when conditions do not adversely impact quality, comply with government regulations, contract technical specifications, industry standards, or product installation instructions.

The Quality Manager identifies supplemental start-work requirements that apply to a specific project when they are necessary to assure quality results.

7.5.2. WORK IN PROCESS STANDARDS

Work is conducted only when conditions do not adversely impact quality, comply with government regulations, contract technical specifications, industry standards, or product installation instructions.

The Quality Manager identifies supplemental work in process requirements that apply to a specific project when they are necessary to assure quality results.

7.5.3. PROTECTION OF COMPLETED WORK STANDARDS

Completed work is protected from damage as specified by government regulations, contract technical specifications, industry standards, or product installation instructions.

The Quality Manager identifies supplemental protection requirements that apply to a specific project when they are necessary to assure quality results.

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When subcontractor-supplied materials are damaged or otherwise found unsuitable for use, the Superintendent reports such findings to the subcontractor.

The Superintendent ensures that construction uses only materials specified in the contract technical specifications, contract drawings, and approved submittals. Substitutions are made only by agreement of the customer and documented by a change order (see section 2.1.3.6).

7.5.5.1. CONTROLLED PRODUCT USE AND INSTALLATION

[CompanyName] construction activities conform to manufacturers' product use and installation instructions that apply to the construction process.

When installing a product, the Superintendent has access to all applicable product installation instructions.

7.6. DAILY QUALITY CONTROL REPORT

The Superintendent records a summary of daily work activities. The report will include:

- Schedule Activities Completed
- General description of work activities in progress.
- Problems encountered, actions taken, problems, and delays
- Meetings held, participants, and decisions made
- Subcontractor and Supplier and Company Crews on site
- Visitors and purpose
- General Remarks
- Improvement Ideas
- Weather conditions

7.7. MONTHLY QUALITY CONTROL REPORT

When a monthly quality control report is required by the Project Quality Plan, the Superintendent records a monthly status report. The report includes:

- A summary of work completed and work in progress
- Outstanding issues
- Issues resolved during the reporting period
- Outstanding potential change orders
- Project status with current project costs and estimated completion date
- A cost analysis summarizing actual costs to date and estimated future costs
- Project pictures as appropriate

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10. PREVENTIVE ACTIONS

PREVENT NONCONFORMANCES

10.1. OVERVIEW

Fixing problems found during quality inspections is not sufficient. Systematic prevention of recurrences is essential for improving quality.

[CompanyName] makes changes to solve the problem. Solutions may involve a combination of enhanced process controls, training, upgrade personnel qualifications, improved processes, or use of higher-grade materials.

Follow-up ensures that a problem is completely resolved. If problems remain, the process is repeated.

10.2. IDENTIFY PREVENTIVE ACTIONS FOR IMPROVEMENT

The Quality Manager identifies preventive action improvement priorities with respect to frequency, severity, and detectability of quality correction items found during and after completion of work activities. The Quality Manager also reviews company quality performance and customer feedback.

More specifically, the Quality Manager assesses:

- Customer corrective items
- Superintendent quality inspection results
- Code official inspection results
- Post-construction service
- Management field reviews
- Annual system review
- Customer satisfaction surveys

The Quality Manager documents quality items requiring preventive action improvement.

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10.3. TRAIN PREVENTIVE ACTIONS FOR IMPROVEMENT

The Quality Manager initiates preventive action training to address quality improvement items. Personnel and subcontractors and suppliers performing or inspecting work participate in the training.

Heightened awareness during quality inspections verifies and documents compliance with the preventive action improvement items. A qualified Superintendent inspects hotspot during regular quality inspections and records observations on the quality inspection form.

The Quality Manager notifies affected subcontractors and suppliers of selected preventive action training requirements.

The Quality Manager evaluates the effectiveness of the improvements. The Quality Manager reviews improvement results recorded on quality inspection records and monthly field reviews. When the Quality Manager determines that the improvement actions are effective, the item is no longer treated as a preventive action.

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11. QUALITY SYSTEM AUDITS

AUDITS and IMPROVEMENT

11.1. OVERVIEW

Audits ensure that the elements of the [CompanyName] Quality System are functioning as intended.

11.2. PROJECT QUALITY SYSTEM AUDIT

The Quality Manager conducts monthly Project Quality System audits that verify proper operation of the Quality System on a project. At least monthly, the Quality Manager audits:

- Quality system framework
- Quality system management and responsibilities
- Customer contract specifications
- Design control
- Project-specific quality standards
- Project purchasing
- Process control plans
- Inspections and tests
- Nonconformances and corrective actions
- Preventive actions
- Quality records and documents

The Quality Manager takes corrective actions to ensure compliance with Quality System requirements. The effectiveness of changes is then evaluated and documented.

Requirements for managing audit nonconformances are addressed in section 9.2 Nonconformances.

11.3. COMPANY-WIDE QUALITY SYSTEM AUDIT

At least annually, the Quality Manager audits the suitability and effectiveness of the [CompanyName] Quality System.

The audit assesses:

- [CompanyName] quality improvement activities
- Customer performance evaluations and satisfaction measurement results
- Quality performance measures
- Monthly field reviews
- Internal and external Quality Audit results
- Process performance and product conformance results
- Preventive and corrective action status
- Follow up on actions from previous Management Reviews
- Other changes (i.e., business climate, scope of work changes, etc.) that could affect the Quality System

Changes are initiated to improve Quality System performance. The Quality Manager documents Quality System changes in the [CompanyName] Quality Assurance Manual, initiates needed improvements, and assesses their effectiveness.