

Questions? Call First Time Quality 410-451-8006

[CompanyName]

Fire Protection

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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Project-specific Quality Assurance/Quality Control Plan

Section 1

[CompanyName] Quality Manual

Section 2

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SIGNATURE SHEET

Plan Preparer

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

[QualityManagerName] / [Date]

[QualityManagerName], Quality Manager /Date

Approval by Company Officer

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

[SeniorManagerName] / [Date]

[SeniorManagerName] Senior Manager /Date

Plan Concurrence

[CompanyName] Project Quality Assurance/Quality Control Plan concurrence by:

[ProjectManagerName] / [Date]

[ProjectManagerName], Project Manager /Date

[SuperintendentName] / [Date]

[SuperintendentName], Superintendent /Date

PROJECT-SPECIFIC QUALITY PLAN

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A. PROJECT QUALITY COORDINATION AND COMMUNICATION

[CompanyName] has regular, planned communications with customers, subcontractors, and suppliers to coordinate quality expectations, priorities, activities, and improvements.

The process begins when we hold a Project Startup/Mutual Understanding Meeting where we discuss how quality of the project will be controlled and the quality responsibilities of key personnel. We also coordinate a schedule for weekly production meetings, monthly quality management meetings, and protocols for telephone and internet communications.

Throughout the project, [CompanyName] holds preparatory meetings prior to the start of upcoming milestones, tasks, or phases of work. These meetings are attended by key company, subcontractor personnel responsible for carrying out, supervising, or inspecting the work, and interested customer representatives. We review quality requirements, coordinate quality inspections and hold points. In the process, we listen to each stakeholder to understand their concerns for critical details. We add the critical details to inspection checklists. We also train production personnel on these details in weekly and toolbox talk meetings.

[CompanyName] weekly team meetings deploy findings of the preparatory meeting to field personnel. The venue is used to train personnel on technical requirements, reinforce critical details for heightened awareness, and institute improvements to work methods. It is also a forum for team communications and coordination.

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[CompanyName] Point of Contact List				
Project ID	Project Name	Preparer	Date	
[ProjectNumber]	[ProjectName]	[ProjectManagerName]		

Company	Name	Job Position(s)	Phone Contact Numbers	Email
[CompanyName]	[PresidentName]	President		
[CompanyName]	[SeniorManagerName]	Senior Manager		
[CompanyName]	[ProjectManagerName]	Project Manager		
[CompanyName]	[SuperintendentName]	Superintendent		
[CompanyName]	[QualityManagerName]	Quality Manager		
[CompanyName]	[SafetyManagerName]	Safety Manager		

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**[CompanyName]
Project Quality Communications Plan**

Project ID	Project Name	Preparer	Date
[ProjectNumber]	[ProjectName]		
Distribution of project organization chart and assigned responsibility and authority of the Project Manager, Quality Manager, and Superintendent:			
All personnel listed on contact list			
Points of contact list distribution:			
All personnel listed on contact list			
RFI response distribution:			
All personnel listed on contact list			
Project Startup/Mutual Understanding meeting participants, date, location:			
TBD			
Work task quality plan meeting participants, nominal location:			
TBD			
Weekly project communication meeting participants, and nominal day of week, time, and location:			
TBD			
Daily quality report distribution, frequency, and due date:			
Friday of every week for the previous 7 days			
Monthly project quality status report distribution and due date:			
Third day of every month			
Distribution of quality inspection and test records, and due date:			

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C. NAMES AND QUALIFICATIONS

Job qualifications for each person appointed to key project job positions are documented by their resumes. Personnel names and qualifications (in resume format) are included as exhibits in this subsection.

Table C-1 lists the positions, persons appointed, and their job qualifications documentation for all key project job positions.

Table C-1

Job Position	Name
Quality Manager	[Quality ManagerName]
Superintendent	[SuperintendentName]
Project Manager	[ProjectManagerName]

The Senior Manager has approved each person listed on the Project QC Organization Chart as having the qualifications necessary to carry out their duties, responsibilities and authority of their appointed positions.

[CompanyName] ensures that only knowledgeable, capable employees carry out the planning, execution, and control of the project.

We train our employees on quality standards and procedures based on project requirements as well as their job positions. Then we validate their capabilities before they are assigned to carry out their quality job responsibilities on the project. Ongoing monitoring of performance continually validates qualifications of each employee.

The Quality Manager qualifies employee capabilities to ensure that they are capable of completely carrying out their assigned quality responsibilities including the following capabilities:

- Knowledge of Company quality standards
- Knowledge of job responsibilities and authority
- Demonstrated skills and knowledge
- Demonstrated ability
- Demonstrated results
- Required training
- Required experience

The Quality Manager also evaluates independent contractor personnel on the same standards that apply to employees.

PERSONNEL CERTIFICATION REQUIREMENTS

Personnel certifications are required for the following:

Certification or License Title	Reference Standard No.	Reference Standard Title
Welders to structural steel	AWS D1.1/D1.1M	Structural Welding Code - Reinforcing Steel
Plumbers	DOL	Department of Labor
Plumbers	NITC	National Inspection Testing Certification
Plumbers	ABPA	American Backflow Prevention Association
Plumbers	IAPMO	International Association of Plumbing and Mechanical Officials

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H. SUBMITTALS PROCEDURES

CONTRACT SUBMITTALS

The Quality Manager prepares submittals that provide additional details of how [CompanyName] plans to carry out quality-related aspects of the customer contract, contract technical specifications, and contract drawings and reporting of quality records to the customer.

The Quality Manager lists, schedules, and approves all quality-related submittals that are required by the project including submittals prepared by subcontractors and suppliers. The Quality Manager must review all submittals for compliance with the requirements of the [CompanyName] Quality Program. The Quality Manager must sign approval of each contract submittal.

[CompanyName] extends compliance to contract specifications to all customer approved submittals. All [CompanyName] activities comply with customer approved submittals.

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

[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 Program 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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I. CONSTRUCTION PROJECT QUALITY SPECIFICATIONS

[CompanyName] personnel and subcontractors and suppliers are accountable for compliance to standards-based written specifications.

To achieve expectations reliably and consistently, specifications are clearly spelled out, not only for results but also for processes. Specifications apply to materials, work steps, qualified personnel and subcontractors and suppliers, safe work rules, and environmental work conditions.

Standards ensure that results are specified rather than left to discretionary practices.

REGULATORY CODES

All [CompanyName] activities comply with the relevant regulations. The Quality Manager identifies regulatory requirements applicable to the jurisdictions served, including:

- Applicable Federal regulations
- Applicable State regulations
- Applicable building codes and local addenda to building codes
- Applicable Fire Code
- Additional regulations specified by the purchaser contract

The Quality Manager identifies regulatory requirements that apply to a specific project. The Superintendent had jobsite access to relevant codes and government regulations.

MATERIAL SPECIFICATIONS

The Quality Manager ensures that all types of materials and equipment that affect quality are identified and controlled.

The Quality Manager evaluates the expected use of materials and equipment and identifies types of materials and equipment that may affect project quality. For each item, the Quality Manager sets specifications for their intended use, including:

- Compliance to contract requirements
- Compliance to code and industry standards and listing requirements
- Structural integrity
- Performance
- Durability
- Appearance
- Product identification for traceability.

The Quality Manager identifies controlled material and equipment that apply to the project. Only approved materials are used in the construction process.

EQUIPMENT SPECIFICATIONS

The selection and use of equipment are controlled to assure the use of only correct and acceptable equipment on the project.

K. QUALITY TESTING PLAN AND LOG

The Quality Test Plan and Log lists the tests that will be performed on this project. The Quality Test Plan exhibit is included in this subsection.

PREPARATION OF 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 including special inspections if applicable
- 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

INSPECTION AND TESTING FIRE PROTECTION STANDARDS

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

Description	Reference Standard No.	Reference Standard Title
Hydrostatic testing	NFPA 14	Standard for the Installation of Standpipes and Hose Systems
Plumbing pipe weldments	ASME B31.1	Power Piping
Plumbing system tests	ICC IPC	International Plumbing Code
Vertical pump tests	HI 2.6	Vertical Pump Tests
Testing of concrete pressure lines	AWWA M9	Manual: Concrete Pressure Pipe
Hydrostatic testing of DIP	AWWA C600	Installation of Ductile-Iron Water Mains and Their Appurtenances
Pressure & leakage testing of PVC	UBPPA UNI-B-3	Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Pressure Pipe (Nominal Diameters 4-36 Inch)
Hydrostatic testing of steel pressure lines	AWWA C600	Installation of Ductile-Iron Water Mains and Their Appurtenances
Low-pressure air tests for DIP pipelines	ASTM C 924M	Installation of Ductile-Iron Water Mains and Their Appurtenances
Low-pressure air tests for PVC pipelines	UBPPA UNI-B-6	Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe
Deflection testing for plastic pipe	ASTM D 2412	Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading

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.

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

Project Number	Project Name	
[ProjectNumber]	[ProjectName]	

Item	Spec Section Number	Spec Section Title	Applicable Standard	Inspections & Tests Description	# Of Tests Inspections Req'd.	Time Schedule/Frequency	Inspection/Test By <small>(All tests verified by Superintendent and/or Quality Manager)</small>	Sample Req'd. Yes/No	Unique characteristics of QC Service
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
16.									

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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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O. PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL

Three phases of control and a definable feature of work task completion inspection will be performed for each defined feature of work.

The controls and the forms that will be used to record control activities are included on table O-1.

Table O-1

Control	Form
Phase 1: Preparatory Phase	Preparatory Phase Checklist
Phase 2: Initial Phase	Initial Phase Checklist
Phase 3: Follow-up Phase	Contractor Quality Control Report
Definable Feature Completion Inspection	Definable Feature Inspection Form

Three Phases of Control and FOW Completion Inspection forms exhibits are included as an exhibit in this subsection.

PHASE 1: PREPARATORY PHASE

Phase 1 is the Preparatory Phase that plans quality for an upcoming definable feature of work task. It includes a requirements review, site inspection, and a preparatory meeting. Records of the preparatory phase of control are recorded on the Preparatory Phase Checklist included as exhibits in this subsection.

Procedures that will be used on this project to conduct the Phase I preparatory phase of control are as follows.

PREPARATORY DEFINABLE FEATURE OF WORK TASK QUALITY CONTROL PLANNING

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

- Objectives and acceptance criteria of the definable feature of work task
- Quality standards that apply to the definable feature of work task
- Work instructions, process steps, and product installation instructions that apply to the definable feature of 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 Program records and documents
- Personnel training

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 definable feature of work task to begin
- Identifies potential problems

DEFINABLE FEATURE OF WORK TASK PREPARATORY QUALITY PLANNING MEETINGS

Prior to the start of a definable feature of 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 definable feature of work task quality requirements and reinforces heightened awareness for critical requirements. Topics for a definable feature of 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 definable feature of 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
- Definable Feature of Work Tasks quality inspection form

PHASE 2: INITIAL PHASE

Phase 2 is the Initial Phase occurs when crews are ready to start work to ensure work begins only when it does not adversely impact quality results. Inspections are performed before work starts and after work starts.

Records of the initial phase inspection is maintained using the Initial Phase Checklist form appearing as an exhibit in this subsection.

Procedures that will be used on this project to conduct the Phase 2 initial phase of control are as follows.

JOB-READY INSPECTION BEFORE WORK BEGINS

[CompanyName]

Quality Manual

Operating Policies of the [CompanyName] Quality Program

Management acceptance

This Quality Manual has been reviewed and accepted

Endorsed By: (Name / Title)	[PresidentName] President		
Signature:	<i>[PresidentName]</i>	Date:	[Date]
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QUALITY MANUAL

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5. PROJECT-SPECIFIC QUALITY STANDARDS

APPLICABLE REGULATIONS, INDUSTRY, and COMPANY STANDARDS

5.1. OVERVIEW

[CompanyName] personnel and subcontractors and suppliers are accountable for compliance to standards-based written specifications.

To achieve expectations reliably and consistently, specifications are clearly spelled out, not only for results but also for processes. Specifications apply to materials, work steps, qualified personnel and subcontractors and suppliers, safe work rules, and environmental work conditions.

Standards ensure that results are specified rather than left to discretionary practices.

5.2. REGULATORY CODES

All [CompanyName] construction activities comply with the relevant regulations. The Quality Manager identifies regulatory requirements applicable to the jurisdictions served, including:

- Applicable Federal regulations
- Applicable State regulations
- Applicable building codes and local addenda to building codes
- Applicable Fire Code
- Applicable Fuel and Gas Code
- Applicable Mechanical Code
- Applicable Plumbing Code
- Additional regulations specified by the customer contract

The Quality Manager identifies regulatory requirements that apply to a specific project on the Project Quality Assurance/Quality Control Plan.

The Superintendent had jobsite access to relevant codes and government regulations.

5.3. INDUSTRY QUALITY STANDARDS

All [CompanyName] construction activities comply with generally accepted good workmanship practices and industry standards.

The Quality Manager identifies supplemental requirements for industry standards that apply to a specific project on the Project Quality Assurance/Quality Control Plan when it is not otherwise specified by the contract, contract technical specifications, or approved drawings.

5.4. MATERIAL AND EQUIPMENT SPECIFICATIONS

The Quality Manager ensures that all types of materials and equipment that affect quality are identified and controlled.

The Quality Manager evaluates the expected use of materials and equipment and identifies types of materials and equipment that may affect project quality. For each item, the Quality Manager sets specifications for their intended use, including:

- Compliance to contract requirements
- Compliance to code and industry standards and listing requirements
- Structural integrity
- Performance
- Durability
- Appearance
- Product identification for traceability.

The Quality Manager identifies controlled material and equipment that apply to the project.

The Quality Manager ensures that purchase orders for listed materials and equipment include the relevant specifications as specified in section 6.7 Purchase Order Requirements.

Only approved materials are used in the construction process.

5.5. WORK PROCESS SPECIFICATIONS

The Quality Manager ensures that work processes are controlled to ensure that the specified requirements are met. When appropriate, the Quality Manager will specify project quality standards for work processes that may include:

- References to documented procedures such as manufacturer's installation instructions
- Procedures for carrying out process steps
- Methods to monitor and control processes and characteristics
- Acceptability criteria for workmanship
- Tools, techniques and methods to be used to achieve the specified requirements.

5.6. CONTROLLED MATERIAL IDENTIFICATION AND TRACEABILITY

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.

5.7. MEASURING DEVICE CONTROL AND CALIBRATION

The Quality Manager evaluates the project requirements and determines if there are measuring devices that require controls to assure quality results.

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 MUTUAL UNDERSTANDING 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 Program 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 on 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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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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8. INSPECTIONS AND TESTS

ASSURE COMPLIANCE

8.1. OVERVIEW

Inspections are necessary to verify that work processes and results conform to both contract requirements and [CompanyName] quality standards.

Qualified personnel inspect every project throughout the construction process. Additional reviews validate the accuracy of the field quality inspections and ensure that the quality standards apply uniformly.

An inspection and test plan defines the quality inspections and tests required for a specific project.

Personnel may only inspect work activities for which they have been qualified by the Quality Manager.

8.2. REQUIRED WORK TASK QUALITY INSPECTIONS AND TESTS

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

Tasks are divided into two categories:

- Discrete Tasks are standard type of work where a completion inspection is performed one time at the completion of a phase of work.
- Process Tasks are tasks where completion inspections are performed continuously. Continuous inspections are required when there is a limited window of time to perform a completion inspection before the next task begins. Process tasks may also be characterized by independent monitoring of a work process, such as welding, where the observer verifies conformance to work procedures.

Process tasks undergo additional quality controls that continuously monitor compliance to specifications.

Independent quality audits are conducted to verify that the task quality controls are operating effectively.

Construction projects may execute a work task multiple times in a project, in which case a series of quality inspections are required for each work task.

8.3. MATERIAL INSPECTIONS AND TESTS

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.

8.3.1.1. SOURCE INSPECTIONS

9. NONCONFORMANCES AND CORRECTIVE ACTIONS

9.1. OVERVIEW

Should a nonconformance be identified by an inspection there is a systematic method to control the item, correct it, and ensure that project quality is not adversely impacted by the event.

A nonconformance is any item that does not meet project specifications or [CompanyName] Quality Program requirements.

9.2. NONCONFORMANCES

9.2.1. 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.

9.2.2. CONTROL THE CONTINUATION OF WORK

After the item is marked, the Superintendent determines if work can continue in the affected area:

CONTINUE WORK: When continuing work does not adversely affect quality or hide the defect, work may continue in the affected area while the disposition of the item is resolved. The Superintendent may place limitations on the continuation of work.

STOP WORK ORDER: When continuing work can adversely affect quality or hide the defect, work must stop in the affected area until the disposition of the item resolved. The Superintendent identifies the limits of the affected area. The Superintendent quickly and clearly identifies the boundaries of the stop work area.

9.2.3. NONCONFORMANCE REPORT

9.2.3.1. RECORDING OF NONCONFORMANCES

If nonconformances or observed items exist by the work task completion inspection, the Superintendent or inspector records the nonconformances on a nonconformance report.

The Superintendent sends the nonconformance report to the Quality Manager.

9.2.3.2. QUALITY MANAGER DISPOSITION OF NONCONFORMANCE REPORTS

When the Quality Manager receives a Nonconformance Report, he or she assesses the affect the reported nonconformance has on form, fit, and function. The Quality Manager may assign a disposition of either:

REPLACE: The nonconformance can be brought into conformance with the original specification requirements by replacing the nonconforming item with a conforming item.

REPAIR: The nonconformance can be brought into conformance with the original requirements through completion of required repair operations.

REWORK: The nonconformance can be made acceptable for its intended use, even though it is not restored to a condition that meets all specification requirements. The Quality Manager may specify

standards that apply to the completion of rework. Rework nonconformances must be approved by the customer.

USE AS-IS: When the nonconforming item is satisfactory for its intended use. Any use as-is items that do not meet all specification requirements must be approved by the customer.

9.2.4. CORRECTION OF NONCONFORMANCES

The Superintendent verifies that corrective actions eliminate the nonconformance to the requirements of the original specifications or as instructed by the disposition of the nonconformance report, and then removes, obliterates, or covers the nonconformance marker.

Furthermore, the Superintendent ensures that previously completed work is reinspected for similar nonconformances and corrective actions are taken to avert future occurrences (see section 9.3 Corrective Actions).

9.3. CORRECTIVE ACTIONS

9.3.1. CONTROL OF CORRECTIVE ACTIONS

When a nonconformance is found, the Superintendent ensures that:

- Previously completed work is reinspected for similar nonconformances
- Corrective actions are taken to avert future occurrences

The Quality Manager identifies requirements for corrective actions with respect to frequency, severity, and detectability of quality nonconformances items found during and after completion of work activities.

When a solution requires changes to [CompanyName] quality standards, the Quality Manager makes modifications as necessary by making changes to:

- Material specifications
- Personnel qualifications
- Subcontractor and Supplier qualifications
- Company standards
- Inspection processes

9.3.2. CORRECTIVE ACTION TRAINING

The Superintendent initiates corrective action training to address quality nonconformances. Personnel and subcontractors and suppliers performing or inspecting work participate in the training.

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

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

The Superintendent 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.

11. QUALITY PROGRAM AUDITS

AUDITS and IMPROVEMENT

11.1. OVERVIEW

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

11.2. PROJECT QUALITY PROGRAM AUDIT

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

- Quality Program framework
- Quality Program 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 Program 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 PROGRAM AUDIT

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

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 Program

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

INSPECTION CHECKLIST

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Fire Suppression - Facility Fire-Suppression Water-Service Piping 21.11.00

Fire Suppression - Fire Pumps 21.30.00

Fire Suppression - Fire-Suppression Sprinkler Systems 21.13.00

Fire Suppression - Fire-Suppression Standpipes 21.12.00

Fire Suppression - Fire-Suppression Water Storage 21.40.00

Plumbing - Plumbing Insulation 22.07.00

Plumbing - Facility Water Distribution 22.11.00

Utilities - Water Utility Distribution Equipment 33.12.00

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Fire Suppression - Facility Fire-Suppression Water-Service Piping 21.11.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:
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<p><u>Compliance Verification</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Compliance with initial job-ready requirements <input type="checkbox"/> Compliance with material inspection and tests <input type="checkbox"/> Compliance with work in process first article inspection requirements <input type="checkbox"/> Compliance with work in process inspection requirements <input type="checkbox"/> Compliance with Task completion inspection requirements <input type="checkbox"/> Compliance with inspection and test plan <input type="checkbox"/> Compliance with safety policies and procedures <p>Reported Nonconformances and incomplete items:</p>	<p><u>FTQ 2TQ Heightened Awareness Checkpoints</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> Piping pitched to allow complete drainage <input type="checkbox"/> <input type="checkbox"/> Piping not placed above electrical panels or switchgear <input type="checkbox"/> <input type="checkbox"/> Firestops installed at penetrations through fire partitions// fire walls// smoke partitions// or floors <input type="checkbox"/> <input type="checkbox"/> Penetrations through floor// exterior wall and roof sealed and made watertight <input type="checkbox"/> <input type="checkbox"/> Piping secured to prevent movement and chafe <input type="checkbox"/> <input type="checkbox"/> Piping bends and fittings restrained <input type="checkbox"/> <input type="checkbox"/> System pressure tested and without leaks <input type="checkbox"/> <input type="checkbox"/> Valves provided with tamper-proof seals <input type="checkbox"/> <input type="checkbox"/> Wet piping not exposed to freezing conditions <input type="checkbox"/> <input type="checkbox"/> Fire department connection type verified with Local Fire Department prior to product ordering and installation
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FTQ Scores and Completion Sign-off

Field Mgmt.-91.45.01

Quality 5 4 3 2 1 *Notes:*

On-Time 5 4 3 2 1 *Notes:*

Safety 5 4 3 2 1 *Notes:*

Sign and date*: Cell # / ID #: _____ Signed: _____ Date: _____

Task has been verified complete and in compliance with contract drawings and specifications except for non-conformances and incomplete items reported above.

<u>Quality Score</u>	5 = 100% NO problems	4 = 1 minor problem	3 = Hotspot or 2-3 minor	2 = 6+ or major problems	1 = Excessive problems
<u>On-Time Score</u>	5 = On Time	4 = Late	3 = Late by 1 day	2 = Late by 2 days	1 = Late more than 2 days
<u>Safety Score</u>	5 = 100% NO problems	4 = 1 minor problem	3 = Hotspot or 2-3 minor	2 = 4+ or major problem	1 = Injury

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