

# [CompanyName]

[CompanyAddress]

[CompanyPhone]

## 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 PLAN

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## J. PROJECT QUALITY SPECIFICATIONS

Fulfilling customer contract expectations is a primary objective of the [CompanyName] Quality System. To ensure that customer expectations will be fulfilled, [CompanyName] clearly defines the requirements for each contract before it is approved.

The Project Manager ensures that the information in customer contracts clearly defines customer expectations and that the necessary details are provided to set requirements for construction.

[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.

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

### COMPLIANCE WITH INDUSTRY STANDARDS

Codes that may apply to this project include those listed below.

HVAC Regulatory Codes and Industry Standards			
Division	Description	Reference Standard No.	Reference Standard Title
23	Color coding of all piping systems	B51-09	Scheme for the Identification of Piping Systems
23	Installation of metal ductwork	ASHRAE	HVAC Duct Construction Standards Metal and Flexible
23	Installation of duct supports for sheet metal ductwork	ASHRAE	HVAC Duct Construction Standards Metal and Flexible
23	Installation of underground ductwork	ASHRAE	Installation Techniques for Perimeter Heating & Cooling
23	Installation of radon ductwork	ASHRAE	Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings
23	Ductwork cleaning	ASHRAE	Ventilation for Acceptable Indoor Air Quality
23	Field welded joints	CAN3 Z299	Process Piping
23	Brazed joints	CAN3 Z299	Specification for Brazing Procedure and Performance Qualification
23	Soldered joints	CAN3 Z299	Refrigeration Piping and Heat Transfer Components
23	Installation of air terminal units	ASHRAE	Standard for the Installation of Air Conditioning and Ventilating Systems

23	Fuel oil system installation	B139-09	Standard for the Installation of Oil-Burning Equipment
23	Radiant floor heating system installation	NPC 2010	Radiant Floor Heating

## Electrical Regulatory Codes and Industry Standards

Division	Description	Reference Standard No.	Reference Standard Title
27	Telecommunication system grounding and bonding	CAN/CSA T527-94	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
27	Preparation of record drawings including documentation on cables and termination hardware	ANSI/TIA/EIA-606-A	Administration Standard for the Telecommunications Infrastructure
27	Termination of UTP cables	ANSI/TIA/EIA-606-A	Commercial Building Telecommunications Cabling Standard
27	Telecommunication system labeling	BETS	Administration Standard for the Telecommunications Infrastructure
28	Installation of fire alarm and signaling systems	C22.2 NO. 208-03 (R2013)	National Fire Alarm and Signaling Code
27	Installation of telecommunications cabling and pathway systems	CAN/CSA T529-95	Commercial Building Telecommunications Cabling Standard
28	Location of manual fire alarm stations	CAN/CSA-ISO/IEC 10181-7-00 (R2013)	Life Safety Code
28	Modification of an existing fire alarm system	CAN/ULC-S537 CAN/ULC-S536	Standard for Safeguarding Construction, Alteration, and Demolition Operations
27	Telecommunications pathways	CEC	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
26	Mounting height of wall-mounted outlet and switch boxes	CEC IEC 60364	Accessible and Usable Buildings and Facilities
26	Lightning Protection installation	CSA C22	Standard for the Installation of Lightning Protection Systems
26	Grounding of systems	CSA C22	Recommended Practice for Grounding of Industrial and Commercial Power Systems
26	System electrical installation	CSA C22.1	National Electrical Code
26	Cables not installed in conduit or wireways	CSA C22.1	National Electrical Code
26	Installation of signal and control circuits	CSA C22.1	National Electrical Code
26	Conduit installation	CSA C22.1	National Electrical Code
26	Cable tray installation	CSA C22.2 No. 126.1-09	Cable Tray Installation Guidelines
26	Warning Sign placement	CSA Z462	Standard for Electrical Safety in the Workplace
27	Telecommunications grounding	EIA	Commercial Building Standard for Telecommunications Pathways and Spaces
27	Installation of equipment support frames	EIA	Commercial Building Standard for Telecommunications Pathways and Spaces

28	Installation of control panel	EN 54	Standard for Control Units and Accessories for Fire Alarm Systems
27	Underground fiber optic cabling installation	TIA-968-B/CS-03	Standard for Physical Location and Protection of Below Ground Fiber Optic Cable Plant
26	Splicing and general conductor installation	Z 462	National Electrical Code
26	Install Control devices and protective devices	Z 462	National Electrical Code
26	Grounding and bonding requirements	Z 462	National Electrical Code
26	Workmanship	Z 462	National Electrical Code

## Plumbing Regulatory Codes and Industry Standards

Division	Description	Reference Standard No.	Reference Standard Title
22	National Building Code (NBC).	ULC S101	ULC-S101 Standard Methods for Fire Endurance Tests of Building Construction and Materials
22	Power Engineer Certificate Classes 1 to 4	CSA B51	Brazing Procedure and Performance Qualification
22	Power Engineer Certificate Classes 1 to 4	B52	CSA B52, Mechanical Refrigeration Code.
22	Class A or B gas fitter certificate	NACE SP 0169 CSA Z245.20M	External Coating System Characteristics Relative to Environmental Conditions
22	Class A or B gas fitter certificate	CAN/CSA-Z662	Pipe Hangers and Supports - Materials, Design and Manufacture, Selection, Application, and Installation
22	The Canadian Welding Association	G40.20-13/G40.21-13	Beveling, alignment, heat treatment, and inspection of weld
22, 33	Class A or B gas fitter certificate	CSA B149.1	Natural gas and propane installation code
22	Technical Standards and Safety Authority (TSSA)	CSA. B139-04	Fuel-Burning Equipment

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	Sewage Disposal Systems Regulation		
33	Environmental Protection Act Updated 2014 Sewage Disposal Systems Regulations Sewage Disposal Systems Regulations	CSA A60.3- 1976 M1976(R1992)	Vitrified Clay Pipe
33	Environmental Protection Act Updated 2014 Sewage Disposal Systems Regulations Sewage Disposal Systems Regulations	A798/A798M-01	Standard Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications
33	Environmental Protection Act Updated 2014 Sewage Disposal Systems Regulations Sewage Disposal Systems Regulations	OPSS 410	OPSS 410 - Construction Specification for Pipe Sewer Installation in Open Cut
33	American Water Works Association	AWWA C600	AWWA C600-10 Installation of Ductile Iron Water Mains and Their Appurtenances
33	American Water Works Association	AWWA C105/A21.5	AWWA C600-10 Installation of Ductile Iron Water Mains and Their Appurtenances
33	Environmental Protection Act Updated 2014 Sewage Disposal Systems Regulations Sewage Disposal Systems Regulations	CAN/CSA-B181.3	CAN/CSA-B1800-02 Plastic Nonpressure Pipe Compendium
33	American Water Works Association	AWWA M23	CAN/CSA-B1800-02 Plastic Nonpressure Pipe Compendium
33	American Water Works Association	CAN/CSA-B137.0-02	CAN/CSA-B137.0-02 Plastic pressure Pipe Compendium
33	American Water Works Association	CAN/CSA-B1800-11	CAN/CSA-B1800-02 Plastic Nonpressure Pipe Compendium
33	American Water Works Association	CSA B137.4	CAN/CSA-B1800-02 Plastic Nonpressure Pipe Compendium
33	American Water Works Association	AWWA M11	Manual: Steel Water Pipe: A Guide for Design and Installation
33	American Water Works Association	AWWA C206	Field Welding of Steel Water Pipe

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33	Industry Training Authority (ITA) Canada	A798/A798M-01	Structural plate installation
33	American Water Works Association	AWWA D100	Welded Steel Tanks for Water Storage
33	Canadian Electrical Code, Part III	CAN/CSA-C22.3 NO. 7-10	CSA C22.3 No. 7, Underground systems
33	Canadian Wireless Telecommunications Association	CSA T530	Commercial Building Standards for Telecommunications P pathways and Space
33	Canadian Electrical Code, Part III	CSA C22.3	Section 33 71 16.01 – Electrical Pole Lines and Hardware
33	Canadian Electrical Code, Part III	CAN/CSA-015	Section 33 71 16.01 – Electrical Pole Lines and Hardware

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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.

### **CUSTOMER SUPPLIED MATERIALS**

Care will be exercised for customer property used by or under [CompanyName] control. [CompanyName] will identify, inspect, verify, control, and protect customer property with the procedures that apply to company purchased materials. If any customer property is lost, damaged, or otherwise found to be unsuitable for use [CompanyName] will report this to the customer.

### **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 proceeds only after the material has been accepted by the material quality inspection or test.

## **PRESERVATION 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 so that 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.

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**[CompanyName]  
Controlled Materials Form**

Contract ID	Contract Name	Preparer	Date	
[ProjectNumber]	[ProjectName]			

Contract Section/ Activity ID	Material	Intended Use (If description is necessary)	Lot Traceability Requirements	Method for identification of Approved Inspection Status

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[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"/>
<b>Receiving Quality Control</b>								
<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>								
EXCEPTIONS:								

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## **O. 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 the 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.

### **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.

### **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.

## QUALITY MANAGER DISPOSITION OF NONCONFORMANCE REPORTS

When the Quality Manager receives a Nonconformance Report, he or she assesses the effect 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.

## CORRECTIVE ACTIONS

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).

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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.

## **NONCONFORMANCE PREVENTIVE ACTIONS**

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.

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<b>[CompanyName] Nonconformance Report</b>		
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]

## 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

# QUALITY MANUAL

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## 3. CONTRACT SPECIFICATIONS

### *DEFINE CUSTOMER QUALITY EXPECTATIONS*

#### **3.1. OVERVIEW**

Fulfilling customer contract expectations is a primary objective of the [CompanyName] Quality System. To ensure that customer expectations will be fulfilled, [CompanyName] clearly defines the requirements for each contract before it is approved.

The Project Manager ensures that the information in customer contracts clearly defines customer expectations and that the necessary details are provided to set requirements for construction.

#### **3.2. CONTRACT TECHNICAL SPECIFICATIONS**

The Project Manager obtains contract technical specifications from the customer.

For each specific contract, The Senior Manager identifies supplemental technical specifications on the Project Quality Assurance/Quality Control Plan when they are not otherwise specified by the contract or the approved drawings. Superintendents have jobsite access to contract technical specifications for the construction activities they supervise.

All [CompanyName] activities comply with the contract technical specifications.

#### **3.3. CONTRACT DRAWINGS**

The Project Manager obtains customer supplied drawings that have been approved by local government regulators. Superintendents have jobsite access to approved architectural drawings for the construction they supervise.

All [CompanyName] activities comply with the drawing details and specifications cited in the drawings.

##### **3.3.1.1. AS-BUILT RED-LINE DRAWINGS**

As the project progresses, the Superintendent will mark the original design drawings to indicate as-built conditions including changes to specified materials, dimensions, locations, or other features.

#### **3.4. 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 System. 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.

#### 3.4.1. CONTRACT SUBMITTAL SCHEDULE

The Project Manager identifies submittals that apply to a specific contract and when they should be submitted, including:

- Contract requirement reference (if applicable)
- Submittal type: Shop drawing, product data, quality inspection and test plan, request for information, or allowances and unit prices
- Description
- Due date for submission to customer by [CompanyName]
- Due date for approval by the customer. Due dates may be a number of days after a project plan milestone.
- Approval date

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#### 3.4.3. 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.

#### 3.4.4. 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 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.

#### **3.4.5. 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.

#### **3.4.6. 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.

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### **3.6. CONTRACT WARRANTY**

The Project Manager ensures that customer contracts clearly specify warranty coverage including:

- Scope
- Starting date
- Duration



The Project Manager ensures that customer contracts also clearly specify owner responsibility for:

- Restrictions of use
- Maintenance requirements
- Exclusions for customer supplied materials or equipment
- Timely notification of problems

### **3.7. CONTRACT REVIEW AND APPROVAL**

The Senior Manager conducts customer contract reviews to ensure that:

- Customer requirements and specifications are complete
- Customer requirements and specifications are compatible with the relevant regulations, [CompanyName] quality standards, and Quality System requirements
- [CompanyName] has the capability to deliver the completed project in the time allotted

Before construction begins, the Senior Manager makes sure that all contract requirements are clearly understood, all discrepancies are resolved, and all requirements are agreed upon. Once these requirements are met, the Senior Manager signs the contract.

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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

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### 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.

#### **7.5.4. MATERIAL STORAGE**

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

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

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

The Superintendent surveys stored materials during daily jobsite reviews and identifies any material that has incurred damage or otherwise become defective and therefore unfit for use.

#### **7.5.5. CONTROLLED USE OF MATERIALS**

The Project Manager ensures that contracts and purchase orders are awarded only to outside organizations qualified to perform the work task and/or supply materials as required for the specific project.

Only approved materials are used in the construction process. Only approved materials are specified in purchase and/or subcontracts.

Materials that are defective, deteriorated, damaged, or not approved are not used. The Superintendent clearly marks such materials for non-use or otherwise holds them aside.

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

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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# HVAC/MECHANICAL, ELECTRICAL & PLUMBING INSPECTION CHECKLISTS

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# Communications - Communications Backbone Cabling 27.13.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:
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<u>Compliance Verification</u>	<u>YES NO Heightened Awareness Checkpoints</u>
<input type="checkbox"/> Compliance with initial job-ready requirements	<input type="checkbox"/> <input type="checkbox"/> Conduits// Cable Trays// and Pull Boxes are properly and securely mounted prior to pulling operations
<input type="checkbox"/> Compliance with material inspection and tests	<input type="checkbox"/> <input type="checkbox"/> Reeled Cable tested prior to pulling operations
<input type="checkbox"/> Compliance with work in process first article inspection requirements	<input type="checkbox"/> <input type="checkbox"/> Cable pull tension is not exceeded
<input type="checkbox"/> Compliance with work in process inspection requirements	<input type="checkbox"/> <input type="checkbox"/> Cabling bends do not exceed minimum for size of cable used
<input type="checkbox"/> Compliance with Task completion inspection requirements	<input type="checkbox"/> <input type="checkbox"/> Splices and connections occur within junction boxes and panels or within sealed splice kits
<input type="checkbox"/> Compliance with inspection and test plan	<input type="checkbox"/> <input type="checkbox"/> Each pair or strand of Cabling tested after installation
<input type="checkbox"/> Compliance with safety policies and procedures	<input type="checkbox"/> <input type="checkbox"/> Conduits// Boxes// and Splice Kits grounded and bonded
Reported Nonconformances and incomplete items:	<input type="checkbox"/> <input type="checkbox"/> Cabling secured to prevent movement and chafe
	<input type="checkbox"/> <input type="checkbox"/> Cables neatly routed// bundled// and labeled
	<input type="checkbox"/> <input type="checkbox"/> Wiring schematics supplied to the OWNER

## Scores and Completion Sign-off

**Field Mgmt.**

**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







Communications - Communications Backbone Cabling 27.13.00

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**Compliance Verification**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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**Heightened Awareness Checkpoints**

YES	NO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Scores and Completion Sign -off

Field Mgmt.

Quality      5   4   3   2   1  

On-Time      5   4   3   2   1  

Safety      5   4   3   2   1  

Quality Score	5000h	4- 50h	300	-3m	2000h	100h
On-Time Score	500h	40	300h	-3m	200h	100h
Safety Score	500h	400h	300	-3m	200h	50