[CompanyName]

[CompanyAddress]
[CompanyPhone]

Electrical Construction

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:	*[QualityManagerName]*	Date:	[Date]
Version	1.0	Notes	Initial Issue

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 system 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 ELECTRICAL QUALITY PLAN

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C. PROJECT QUALITY ASSURANCE/QUALITY CONTROL PLAN 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.

D. 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 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.

[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		

[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 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:

Friday of every week for the previous 7 days
Nonconformance report distribution and customer approval authority:
Immediately
Location of project quality records storage and point of contact for records access:
In the job office trailer. Superintendent is point of contact

G. Personnel Qualifications and Technical Certifications

[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
Electrical testing technician	NETA	International Electrical Testing Association / National Institute for Certification in Engineering Technologies
Telecom. Installers	CWTA	Society of Cable Telecommunications Engineers
Telecom. Installers	CWTA	Telecommunications Industry Association
Telecom. Installers	CWTA	International Association for Radio, Telecommunications and Eletromagnetics, Inc.
Electricians	CEA	Associated Builders and Contractors
Electricians	EITI	Electrical Training Institute
Electricians	IEEE Canada	International Brotherhood of Electrical Workers
Electricians	CECA	Independent Electrical Contractors Association
Electricians	CECA	National Electrical Contractors Association

Project Personnel Resumes

Insert Resumes Here

J. ELECTRICAL 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 ELECTRICAL STANDARDS

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

Description	Reference Standard No.	Reference Standard Title
Telecommunication system grounding and bonding	CAN/CSA T527-94	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
Preparation of record drawings including documentation on cables and termination hardware	ANSI/TIA/EIA-606-A	Administration Standard for the Telecommunications Infrastructure
Termination of UTP cables	ANSI/TIA/EIA-606-A	Commercial Building Telecommunications Cabling Standard
Telecommunication system labeling	BETS	Administration Standard for the Telecommunications Infrastructure
Installation of fire alarm and signaling systems	C22.2 NO. 208-03 (R2013	National Fire Alarm and Signaling Code
Installation of telecommunications cabling and pathway systems	CAN/CSA T529-95	Commercial Building Telecommunications Cabling Standard
Location of manual fire alarm stations	CAN/CSA-ISO/IEC 10181-7-00 (R2013)	Life Safety Code
Modification of an existing fire alarm system	CAN/ULC-S537 CAN/ULC-S536	Standard for Safeguarding Construction, Alteration, and Demolition Operations
Telecommunications pathways	CEC	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
Mounting height of wall-mounted outlet and switch boxes	CEC IEC 60364 ·	Accessible and Usable Buildings and Facilities
Lightning Protection installation	CSA C22	Standard for the Installation of Lightning Protection Systems

Grounding of systems	CSA C22	Recommended Practice for Grounding of Industrial and Commercial Power Systems
System electrical installation	CSA C22.1	National Electrical Code
Cables not installed in conduit or wireways	CSA C22.1	National Electrical Code
Installation of signal and control circuits	CSA C22.1	National Electrical Code
Conduit installation	CSA C22.1	National Electrical Code
Cable tray installation	CSA C22.2 No. 126.1-09	Cable Tray Installation Guidelines
Warning Sign placement	CSA Z462	Standard for Electrical Safety in the Workplace
Telecommunications grounding	EIA	Commercial Building Standard for Telecommunications Pathways and Spaces
Installation of equipment support frames	EIA	Commercial Building Standard for Telecommunications Pathways and Spaces
Installation of control panel	EN 54	Standard for Control Units and Accessories for Fire Alarm Systems
Underground fiber optic cabling installation	TIA-968-B/CS-03	Standard for Physical Location and Protection of Below Ground Fiber Optic Cable Plant
Splicing and general conductor installation	Z 462	National Electrical Code
Install Control devices and protective devices	Z 462	National Electrical Code
Grounding and bonding requirements	Z 462	National Electrical Code
Workmanship	Z 462	National Electrical Code

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 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 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.

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).

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

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.

[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	☐Replace ☐ Repair ☐ Rework ☐ Use As-is	
	Approval of disposition required by customer representative? Yes ☐ No ☐ Customer approval signature /date: _____	
Corrective Actions	☐Corrective actions completed Name/Date:_____ Customer acceptance of corrective actions required? Yes ☐ No ☐ Name/Date:_____	
Preventive Actions		
	☐Preventive actions completed Name/Date:_____	

ELECTRICAL INSPECTION CHECKLIST

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Electrical - Conduit for Electrical Systems 26.05.33.13

Project:	Phase:	Contract#:	Subcontractor:	Crew:

Compliance Verification

- ☐ Compliance with initial job-ready requirements
- ☐ Compliance with material inspection and tests
- ☐ Compliance with work in process first article inspection requirements
- ☐ Compliance with work in process inspection requirements
- ☐ Compliance with Task completion inspection requirements
- ☐ Compliance with inspection and test plan
- ☐ Compliance with safety policies and procedures

Reported Nonconformances and incomplete items:

YES	NO	***Heightened Awareness Checkpoints***
☐	☐	Cuts for Conduits in structural members approved by ENGINEER
☐	☐	Firestops installed at penetrations through fire partitions// fire walls// smoke partitions// or floors
☐	☐	Penetrations through floor// exterior wall and roof sealed and made watertight
☐	☐	Excess wiring// insulation// ties// etc. removed from Conduits
☐	☐	Conduits secured to prevent movement and chafe
☐	☐	Remaining snake lines labeled at both ends
☐	☐	Conduit bends do not exceed minimum for size of Conduit used and are even
☐	☐	Metal Conduits bonded and grounded
☐	☐	Conduits are mechanically continuous
☐	☐	Flexible connections to equipment subject to vibrations

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.

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

Electrical - Electrical and Cathodic Protection 26.40.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:

Compliance Verification

- ☐ Compliance with initial job-ready requirements
- ☐ Compliance with material inspection and tests
- ☐ Compliance with work in process first article inspection requirements
- ☐ Compliance with work in process inspection requirements
- ☐ Compliance with Task completion inspection requirements
- ☐ Compliance with inspection and test plan
- ☐ Compliance with safety policies and procedures

Reported Nonconformances and incomplete items:

YES	NO	*Heightened Awareness Checkpoints*
☐	☐	Anti-oxidant paste applied to connections of dissimilar metals
☐	☐	Connections tight and free of corrosion// paint// and other non-conductive materials
☐	☐	Ground rods / plates not located in rock or stone fill
☐	☐	Conductors secured to prevent movement and chafe
☐	☐	Multi-strand wire or strap connectors utilized on movable connections
☐	☐	System tested for continuity
☐	☐	Grounding conductors routed in most direct path possible
☐	☐	No sharp bends or turns in conductors
☐	☐	Underground and submerged splices made waterproof
☐	☐	Anodes not supported by lead wiring
☐	☐	Anodes not located in rock or stone fill

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.

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

Electrical - Enclosed Bus Assemblies 26.25.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:

Compliance Verification

- ☐ Compliance with initial job-ready requirements
- ☐ Compliance with material inspection and tests
- ☐ Compliance with work in process first article inspection requirements
- ☐ Compliance with work in process inspection requirements
- ☐ Compliance with Task completion inspection requirements
- ☐ Compliance with inspection and test plan
- ☐ Compliance with safety policies and procedures

Reported Nonconformances and incomplete items:

YES	NO	*Heightened Awareness Checkpoints*
☐	☐	All sections of metal Busway grounded and bonded
☐	☐	Busway expansion joints installed where building expansion joints are traversed
☐	☐	Firestops installed at penetrations through fire partitions// fire walls// smoke partitions// or floors
☐	☐	Penetrations through exterior wall and roof sealed and made watertight
☐	☐	Busway run level and plumb
☐	☐	Busway mounted securely to structural members and free of sway / rotation
☐	☐	Busway sections// joint covers// bends// transitions// plug-ins// end caps// etc. securely connected
☐	☐	All joints accessible (not within wall or floor penetrations)
☐	☐	Minimum clearances observed
☐	☐	Busway megger tested prior to energizing

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.

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

Electrical - Identification for Electrical Systems 26.05.53

Project:	Phase:	Contract#:	Subcontractor:	Crew:

Compliance Verification

- ☐ Compliance with initial job-ready requirements
- ☐ Compliance with material inspection and tests
- ☐ Compliance with work in process first article inspection requirements
- ☐ Compliance with work in process inspection requirements
- ☐ Compliance with Task completion inspection requirements
- ☐ Compliance with inspection and test plan
- ☐ Compliance with safety policies and procedures

Reported Nonconformances and incomplete items:

YES	NO	*Heightened Awareness Checkpoints*
☐	☐	Labels and markers are permanent
☐	☐	Labels are securely mounted or attached
☐	☐	Cabling and wiring labeled on both ends
☐	☐	Label material compatible with operational environment
☐	☐	Names of rooms approved by OWNER before labels are purchased or mounted
☐	☐	Instruction and warning signs are clearly located
☐	☐	Panel circuit schedules complete and accurate
☐	☐	Wiring schematics supplied to the OWNER

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.

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

For More Information:

Visit our Online Store at:

www.firsttimequalityplans.com

or

Contact: First Time Quality

410-451-8006

edc@firsttimequality.com