



Telecom QA/QC Plan Sample

Selected pages (not a complete plan)

Part 1: Project-Specific Quality Plan

Part 2: Quality Manual

Part 3: Submittal Forms

Part 4: Inspection Forms

Contact:

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PROJECT-SPECIFIC CONSTRUCTION QUALITY PLAN

TABLE OF CONTENTS

Background Information	7
Project Name	7
Project Number	7
Project Location.....	7
Project Description	7
Project Scope.....	7
A. [CompanyName] Quality Policy	8
B. Key Elements of the Construction Quality Plan	9
Project Quality Assurance/Quality Control Plan Overview	12
C. Project Quality Coordination and Communication	13
D. Project QC Personnel	17
Project QC Job Position Assignments	17
Project QC Organization Chart	18
E. Duties, Responsibilities, and Authority of QC Personnel	20
F. Personnel Qualifications and Technical Certifications	26
Personnel Certification Requirements	27
G. Qualification of Third Party Inspection/Testing Companies and Subcontractors And Suppliers	29
Construction Inspection/Testing Laboratory Qualification Requirements.....	29
Qualification	29
Purchase Order Approval	30
H. Quality Training	32
I. Construction Project Quality Specifications	35
Local Building Codes	35
Compliance with Industry Construction Standards	36
J. Design Control	39
Design Plan	39
Design Reviews	39
K. Material Inspection Traceability and Quality Controls	44
Identification of Lot Controlled Materials	44
Material Receiving and Inspection	44
L. Construction Inspection and Test Plan	48
Inspection and Testing Construction Standards.....	49
Control of Inspection, Measuring, and Test Equipment.....	50

M. Construction Work Task Quality Inspections.....	53
Identification of Quality Inspected Construction Work Tasks	53
Required Inspections For Each Construction Work Task.....	53
Daily Quality Control Report.....	54
N. Control of Corrections and Nonconformances	59
Marking of Nonconformances and Observations.....	59
Control the Continuation of Work.....	59
Recording of Nonconformances.....	59
Quality Manager Disposition of Nonconformance Reports	60
Corrective Actions	60
Nonconformance Preventive Actions.....	61
O. Project Completion Inspections.....	63
Punch-Out QC Inspection	63
Pre-Final Customer Inspection	63
Final Acceptance Customer Inspection	64
P. Project Quality Records and Documents	67
Q. Quality Assurance Surveillance.....	70
Project Quality Performance Surveillance.....	70
Project Quality Audits.....	70
Project Audit Plan.....	71
Project Audit Requirements	71
R. Additional Quality Control Requirements.....	73

Selected Pages

I. CONSTRUCTION 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 Director of Construction 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 materials, methods, and results are specified rather than left to discretionary practices.

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

LOCAL BUILDING CODES

Applicable building codes that apply to this project are listed on the Project Building Codes form. A Project Building Codes form exhibit is included in this subsection.

Additional detail on [CompanyName] policies and procedures related to local building codes appear in Quality Manual section **5 Project-Specific Quality Standards** and **5.2 Regulatory Codes**.

COMPLIANCE WITH INDUSTRY CONSTRUCTION STANDARDS

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

Regulatory Codes and Industry Standards			
Division	Description	Reference Standard No.	Reference Standard Title
03	Construction and placement of forms, shoring and scaffolding	ACI MCP-2	Manual of Concrete Practice Part 2
03	Reinforcement fabrication shapes and dimensions	ACI 318M	Building Code Requirements for Structural Concrete and Commentary
03	Reinforcement Placement	ACI 318M	Building Code Requirements for Structural Concrete and Commentary
03	Reinforcement Splices	ACI 318M	Building Code Requirements for Structural Concrete and Commentary
03	Reinforcement Splice Welds	AWS D1.4 D1.4M	Structural Welding Code - Reinforcing Steel
03	Fiber Reinforcement mixing	ASTM C 1116/C 1116M	Standard Specification for Fiber-Reinforced Concrete
03	Installation details of stressing tendons and accessories.	ACI SP-66 and ACI 318M ACI 318	ACI Detailing Manual and Building Code Requirements for Structural Concrete and Commentary
03	Cold weather requirements	ASTM C 494/C 494M	Standard Specification for Chemical Admixtures for Concrete

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26	Splicing and general conductor installation	NFPA 70	National Electrical Code
26	Mounting height of wall-mounted outlet and switch boxes	ICC/ANSI A117.1	Accessible and Usable Buildings and Facilities
26	Install Control devices and protective devices	NFPA 70	National Electrical Code
26	Grounding and bonding	NFPA 70	National Electrical Code
26	Workmanship	NFPA 70	National Electrical Code
26	Telecommunications grounding	TIA-569	Commercial Building Standard for Telecommunications Pathways and Spaces
26	Telecommunications pathways	TIA J-STD-607	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
26	Warning Sign placement	NFPA 70E	Standard for Electrical Safety in the Workplace
26	Lightning Protection installation	NFPA 780	Standard for the Installation of Lightning Protection Systems
31	Bedding for buried piping	AWWA C600	Installation of Ductile-Iron Water Mains and Their Appurtenances
31	Welding lengths of pipe together for bore holes	AWS D1.1/D1.1M	Structural Welding Code - Steel
31	Geotextile storing and handling	ASTM D 4873	Identification, Storage, and Handling of Geosynthetic Rolls and Samples
31	Shoring installation	EM 385-1-1	Safety and Health Requirements Manual
31	Precast prestressed concrete pile installation	PCI JR-382	Recommended Practice for Design, Manufacture and Installation of Prestressed Concrete Piling
31	Drilled shaft foundation installation	ACI 336.1	Specification for the Construction of Drilled Piers

J. DESIGN CONTROL

Construction design controls are in place to assure the quality of construction designs for this project. A design plan is used to document the design control process. The Design Plan is included as an exhibit in this subsection.

The first control point will be of the review of design inputs. The Design Engineer will assure that all necessary information is available to perform the required design work. The Design Engineer will also assure that expectations for design outputs are well defined.

Intermediate reviews will be carried out as indicated on the design control plan. The last review is the design output review.

A record of all reviews will be recorded on the Design Review form. A Design Review form exhibit is included in this subsection.

The President has appointed [DesignEngineerName] as the Design Engineer. [DesignEngineerName] will control the design process with specific quality responsibilities, duties, and the authority to carry them out.

DESIGN PLAN

The Quality Manager prepares a project-specific plan that includes:

- A listing of key project personnel, specific design responsibilities, and authority
- Appointment and the qualification of key design personnel to perform assigned design responsibilities
- Who will verify and approve the design input specifications before design work begins
- A listing of company and customer stakeholders, reviews they will participate in, and how their input will be used to amended design requirements. The project organization chart Includes interfaces between various groups and personnel for producing and reviewing the design.
- Design output specifications, including required drawings, and engineering calculations
- Identification of who will perform design output verification activities and the criteria they will use.
- The sequence of design work tasks and schedule

The Quality Manager reviews the design process project plan with the customer and other interested parties. The customer approves the plan after any discrepancies are resolved and the plan is agreed upon. Design work may begin only after the customer approves the plan.

DESIGN REVIEWS

DESIGN INPUT REQUIREMENTS REVIEW



INSPECTION AND TESTING CONSTRUCTION STANDARDS

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

Inspection and Testing Standards			
Division	Description	Reference Standard No.	Reference Standard Title
03	Subgrade compaction	ASTM D 1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
03	Make concrete slump test specimen	ASTM C 143 C 143M	Standard Test Method for Slump of Hydraulic-Cement Concrete
03	Concrete strength specimens	ASTM C 31/C 31M	Standard Practice for Making and Curing Concrete Test Specimens in the Field
03	Vacuum Testing	ASTM C 1244/ASTM C 1244M	Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill
03	Test air content for air-entrained concrete	ASTM C 231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
03	temperature of concrete at time of placement	ASTM C 1064/C 1064M	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
05	Ultrasonic weld inspecting techniques	ASNT SNT-TC-1A Q&A Bk C	Ultrasonic Testing Method
05	Test frequency for ferrous materials	AWS D1.1/D1.1M	Structural Welding Code – Steel
05	Visual inspection of welds	AWS D1.1/D1.1M	Structural Welding Code – Steel
05	Liquid Penetrant Inspection	ASTM E 165	Standard Practice for Liquid Penetrant Examination for General Industry
05	Magnetic Particle Inspection	ASTM E 709	Standard Guide for Magnetic Particle Testing
05	Ultrasonic Inspection	ASTM E 164	Standard Practice for Contact Ultrasonic Testing of Weldments
05	Radiographic Inspection	ASTM E 94.D	Standard Guide for Radiographic Examination
26	Direct-current high-potential test for conductors	IEEE 400.2	Guide for Field Testing of Shielded Power Cable Systems Using Very Low Frequency (VLF)

M. CONSTRUCTION WORK TASK QUALITY INSPECTIONS

[CompanyName] identifies a list of work tasks, phases of production, which will be quality controlled. Each work task is subject to a series of inspections; before, during, and after the work is complete. Each inspection verifies compliance with full scope of the relevant specifications; not limited to checkpoints for heightened awareness.

The initial task-ready inspection occurs when crews are ready to start work and ensures that work begins only when it does not adversely impact quality results.

Incoming material inspections verify that materials are as specified and meet all requirements necessary to assure quality results.

Work-in-process inspections continuously verify that work conforms to project specifications and workmanship expectations. Work continues only when it does not adversely impact quality results.

At completion of the work task an inspection verifies that work, materials, and tests have been completed in accordance with project quality requirements. When appropriate, functional tests are performed.

Inspection results are recoded and maintained as part of the project files.

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.


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.

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

IDENTIFICATION OF QUALITY INSPECTED CONSTRUCTION WORK TASKS

A listing of project work tasks is included on the Quality Control work task List and included as an exhibit in this subsection.



[CompanyName]
Work Task Inspection Form

Version October 17, 2012

Work Task :

Project: Id#
[ProjectNumber]

Project Name:
[ProjectName]

Subcontractor And Supplier Company
ID/Name:

Location/Area:

Reference drawing version #:

Crew ID/Name

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 work task completion inspection requirements
- Compliance with inspection and test plan

Heightened Awareness Checkpoints

- [Insert items identified at project startup and preparatory meetings]
-
-
-
-

Production Notes:

Reported Nonconformances:

Verification of Work Task Completion (sign and date)

Subcontractor And Supplier Sign and date*:
Work task verified complete to specifications (sign and date)

Project Construction Supervisor Sign and date*:
Work task verified complete to specifications (sign and date)

Project Construction Supervisor score
subcontractor/crew performance and feedback notes

Quality: 5 4 3 2 1
Safety: 5 4 3 2 1
Delivery: 5 4 3 2 1

Quality Manager Sign and date*:
Work task verified complete to specifications (sign and date)

Quality Manager score quality performance and
feedback notes

Quality: 5 4 3 2 1

* On behalf of the contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

LIST OF INCLUDED INSPECTION FORMS

CONCRETE

- Cast Decks and Underlayment
- Concrete Finishing
- Concrete Forming
- Concrete Reinforcing
- Grouting
- Precast Concrete
- Structural Concrete

EARTHWORK

- Bored Piles
- Caissons
- Clearing and Grubbing
- Driven Piles
- Excavating and Fill
- Grading

METALS

- Metal Decking
- Metal Railings
- Metal Stairs
- Structural Steel Framing

ELECTRICAL

- Conduit for Electrical Systems
- Electrical and Cathodic Protection
- Enclosed Bus Assemblies
- Exterior Lighting
- Grounding and Bonding for Electrical Systems
- Identification for Electrical Systems
- Interior Lighting
- Low-Voltage Circuit Protective Devices
- Low-Voltage Controllers
- Low-Voltage Electrical Power Conductors and Cables (<600V)
- Low-Voltage Electrical Service Entrance
- Low-Voltage Switchgear
- Low-Voltage Transformers
- Raceway and Boxes for Electrical Systems
- Switchboards and Panelboards

Project:	Phase:	Contract#:	Organization: 9101 Field Operations	Crew:
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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:

FTQ 2TQ Heightened Awareness Checkpoints

- Construction benchmark placement is stable and protected **1050**
- Underground Facilities located and marked to prevent damage from placement equipment **1051**
- Overhead Utility Crossings located and marked in work area and along travel routes **1052**
- Decking forms adequately braced and supported **1053**
- Reinforcing adequately supported to ensure proper final location in placed concrete **1054**
- Long dimension of wire reinforcement is perpendicular to form corrugations **1055**
- Concrete Toppings adequately bonded to substrate **1056**
- Finished surfaces are level/even sloped and sloped to drains **1057**
- Openings sealed and appurtenances protected before Cement Underlayment placement **1058**
- Cement Underlayment material curing temperature maintained as per manufacturer's recommendation **1059**

FTQ Scores and Completion Sign-off

Field Mgmt.-Superintendent Inspection 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.

Field Mgmt.-QA Inspection 91.45.02

Quality 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 problems	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

Project:	Phase:	Contract#:	Organization: 9101 Field Operations	Crew:
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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:

FTQ 2TQ Heightened Awareness Checkpoints

- Shop applied primer and galvanizing intact and without blemishes **2580**
- Drainage holes installed to prevent water traps with unobstructed openings **2581**
- Bearing base plates fully and evenly supported **2582**
- Connecting bolts, washers, and nuts tight and clean of dirt/rust **2583**
- Welded connections continuous, even, clean, and free of blow holes or other irregularities **2584**
- Connecting hardware and welds primed with paint of the same quality as the shop coat **2585**
- Openings in structural members approved by ENGINEER **2586**
- Spray-on fireproofing evenly applied and without gaps **2587**
- Framing members free of twist, bow, buckle, or other directional irregularity **2588**
- Framing members installed plumb, level, and true to line **2589**

FTQ Scores and Completion Sign-off

Field Mgmt.-Superintendent Inspection 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:*

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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:

FTQ 2TQ Heightened Awareness Checkpoints

- Cuts for Conduits in structural members approved by ENGINEER **1652**
- Firestops installed at penetrations through fire partitions// fire walls// smoke partitions// or floors **1653**
- Penetrations through floor// exterior wall and roof sealed and made watertight **1654**
- Excess wiring// insulation// ties// etc. removed from Conduits **1655**
- Conduits secured to prevent movement and chafe **1656**
- Remaining snake lines labeled at both ends **1657**
- Conduit bends do not exceed minimum for size of Conduit used and are even **1658**
- Metal Conduits bonded and grounded **1659**
- Conduits are mechanically continuous **1660**
- Flexible connections to equipment subject to vibrations **1661**

FTQ Scores and Completion Sign-off

Field Mgmt.-Superintendent Inspection 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:*

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

Field Mgmt.-QA Inspection 91.45.02

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- 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:

FTQ 2TQ Heightened Awareness Checkpoints

- Locate and mark Overhead Utility Crossings in work area and along travel routes **2240**
- Locate and mark Underground Facilities **2241**
- Prevent damage to Underground Facilities in equipment traffic areas **2242**
- Properly support and do not excessively stack stored piles / caissons / piers **2243**
- Same equipment is utilized for placement of test and production piles **2244**
- Do not place concrete near active pile placement to prevent aggregate segregation **2245**
- Limit concrete placement rate and properly vibrate fill to prevent void formation **2246**
- Prevent "flashes" caused by ignition of volatile gas buildup within hollow piles **2247**
- Verify placement / stability / protection of construction benchmark **2248**
- Observe adjacent ground / structures for heave during pressure-injection operations **2249**

FTQ Scores and Completion Sign-off

Field Mgmt.-Superintendent Inspection 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.

Field Mgmt.-QA Inspection 91.45.02

Quality 5 4 3 2 1 Notes:

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Industry-Specific Information Available by Division		
03 Concrete	08 Openings	27 Communications
04 Masonry	09 Finishes	28 Electronic Safety and Security
05 Metals	21 Fire Suppression	31 Earthwork
06 Wood Plastic Composite	22 Plumbing	32 Exterior Improvements
07 Thermal and Moisture Protection	23 HVAC	33 Utilities
	26 Electrical	

Quality Manual

Operating Policies of the [CompanyName] Quality System

Version Date: October 17, 2012

The documents provided by [CompanyName] disclose proprietary company information that is copyright registered. Please hold these quality documents in confidence and do not share them with other organizations, even if you do not charge a fee.

QUALITY MANUAL

TABLE OF CONTENTS

1. Quality System Management and Responsibilities	6
1.1. Overview.....	6
1.2. [CompanyName] Quality Policy.....	6
1.3. Quality Duties, Responsibilities, and Authority.....	6
1.4. Quality System Performance Measures.....	9
1.5. Customer Satisfaction Performance Measures.....	9
1.6. Exceptions.....	9
2. Project Quality Assurance/Quality Control Plan	10
2.1. Overview.....	10
2.2. [CompanyName] Project License and Qualification Requirements.....	10
2.3. Project Personnel and Qualifications.....	10
2.4. Project Quality Assurance/Quality Control Plan.....	11
2.5. Identification of Quality Controlled Work Tasks.....	12
2.6. Project Quality Inspection and Test Plan.....	12
2.7. Project Quality Communications Plan.....	12
2.8. Project Quality Training Plan.....	12
2.9. Customer Training On Operation And Maintenance.....	12
2.10. Project Records and Documentation Plan.....	12
2.11. Project Audit Plan.....	13
3. Contract Specifications	14
3.1. Overview.....	14
3.2. Contract Technical Specifications.....	14
3.3. Contract Drawings.....	14
3.4. Contract Submittals.....	14
3.5. Customer Submittal Approval.....	16
3.6. Contract Warranty.....	17
3.7. Contract Review and Approval.....	17
4. Design Control	18
4.1. Overview.....	18
4.2. Design Input Review.....	18
4.3. Project Design Quality Assurance/Quality Control Plan.....	18
4.4. Design Progress Reviews.....	19
4.5. Design Output Verification and Approval.....	19
5. Project-Specific Quality Standards	20
5.1. Overview.....	20
5.2. Regulatory Codes.....	20

5.3. Industry Quality Standards	20
5.4. Material and Equipment Specifications.....	20
5.5. Work Process Specifications.....	21
5.6. Controlled Material Identification and Traceability	21
5.7. Measuring Device Control and Calibration.....	22
5.8. [CompanyName] Quality Standards	22
5.9. Application of Multiple Sources of Specifications	22
6. Project Purchasing	23
6.1. Overview.....	23
6.2. Qualification of Outside Organizations and Company Departments	23
6.3. Quality Responsibilities of Key Subcontractor And Supplier Personnel	24
6.4. Requirements for Subcontractor QC Plan	25
6.5. Subcontractor And Supplier Quality Policy.....	25
6.6. Project Subcontractor And Supplier List.....	26
6.7. Purchase Order Requirements	26
6.8. Project Purchase Order Approvals.....	26
7. Process Controls.....	28
7.1. Overview.....	28
7.2. Project Startup and Quality Control Coordination Meeting	28
7.3. Preparatory Project Quality Assurance/Quality Control Plan Planning.....	28
7.4. Weekly Quality Planning and Coordination Meetings.....	29
7.5. Process Control Standards.....	29
7.6. Daily Quality Control Report.....	31
7.7. Monthly Quality Control Report.....	31
8. Inspections and Tests	32
8.1. Overview.....	32
8.2. Required Work Task Quality Inspections and Tests.....	32
8.3. Material Inspections and Tests.....	32
8.4. Additional Inspection Requirements for Process Tasks.....	33
8.5. Inspection of Special Processes	34
8.6. Independent Measurement and Tests	34
8.7. Commissioning Functional Acceptance Tests.....	34
8.8. Hold Points for Customer Inspection.....	34
8.9. Quality Inspection and Test Specifications	34
8.10. Inspection And Test Acceptance Criteria.....	34
8.11. Inspection and Test Status.....	35
8.12. Independent Quality Assurance Inspections	35
8.13. Inspection and Test Records.....	35
8.14. Project Completion and Closeout Inspection	36
9. Nonconformances and Corrective Actions	38
9.1. Overview.....	38
9.2. Nonconformances	38

9.3. Corrective Actions	39
10. Preventive Actions	41
10.1. Overview.....	41
10.2. Identify Preventive Actions for Improvement	41
10.3. Train Preventive Actions for Improvement	41
11. Quality System Audits	43
11.1. Overview.....	43
11.2. Project Quality System Audit.....	43
11.3. Company-wide Quality System Audit	43
12. Record and Document Controls.....	44
12.1. Overview.....	44
12.2. Quality System Documents	44
12.3. Document Controls.....	44
12.4. Record Controls	45
13. Appendix.....	47
13.1. Definitions of Terms	47

Selected Pages

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 Director of Construction 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 Construction Supervisor 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 Construction Supervisor 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 Construction Supervisor 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 Construction Supervisor communicates the work task quality requirements and reinforces heightened awareness for critical requirements. Topics for a work task quality plan meeting include:


- Work tasks quality requirements as identified in section 7.3.1
- Findings of the work task preparatory quality inspection in section 7.3.2
- 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 Construction Supervisor 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 Construction Supervisor facilitates coordination among the participants, communication among the participants, and reinforces heightened awareness for critical requirements.

The Construction Supervisor maintains a record of the meeting event on the Daily Quality Control Report.



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Military Forms:

- Preparatory Phase Checklist
- Initial Phase Checklist Form
- Contractor Production Report
- Contractor Quality Control Report
- Testing Plan and Log

Standard Forms:

- Project Organization Chart Form
- Quality Manager Appointment Form
- Project Manager Appointment Form
- Project Superintendent Appointment Form
- Project Design Manager Appointment Form
- Project Personnel Qualification Form
- Personnel Certifications and Licenses Form
- Quality Controlled Task List Form
- Quality Inspection and Test Plan Form
- Project Quality Communications Plan Form
- Point Of Contact List Form
- Project Quality Training Plan Form
- Task Training Plan and Log Form
- Project Quality Records Plan Form
- Project Submittal Form
- Change Order Form
- Project Design Process Plan Form
- Design Review Meeting Participant Form
- Design Review Form
- Project Regulatory Building Codes Form
- Test Equipment Calibration Form
- Lot Controlled Materials Form
- Project Subcontractor or Supplier Qualification Form
- Subcontractor and Supplier Certifications and Licenses Form
- Source of Supply Form
- Preconstruction Meeting Form
- Task Project Quality Control Plan Form
- Task Project Quality Control Planning Meeting Form

- Daily Quality Control Report Form
- Monthly Quality Control Report Form
- Task Inspection Form
- Project Completion Inspection Form
- Inspection and Test Report Form
- Nonconformance Report Form
- Nonconformance Report Control Log Form
- Training Record Form
- Project Quality System Audit Form
- Quality System Audit Form
- Project Document Control Form