

PROJECT-SPECIFIC HVAC QUALITY PLAN

TABLE OF CONTENTS

Background Information	7
Customer	7
Project Name.....	7
Project Number	7
Project Location.....	7
Overall Project Description.....	7
[CompanyName] Scope of Work	7
A. [CompanyName] Quality Policy	8
B. Key Elements of the HVAC 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	19
F. Personnel Qualifications and Technical Certifications	25
Personnel Certification Requirements	26
G. Qualification of Third Party Inspection/Testing Companies and Subcontractors and Suppliers	28
HVAC Inspection/Testing Laboratory Qualification Requirements	28
Qualification	28
Purchase Order Approval	29
H. Quality Training	31
I. HVAC Project Quality Specifications	34
Local construction Codes.....	34
Compliance with Industry HVAC Standards.....	35
J. Material Inspection Traceability and Quality Controls	37
Identification of Lot Controlled Materials	37
Material Receiving and Inspection	37
K. HVAC Inspection and Test Plan	41
Inspection and Testing HVAC Standards	42
Calibration of Inspection, Measuring, and Test Equipment	43
L. Work Task Quality Inspections	46
Identification of Quality Inspected Work Tasks.....	46
Required Inspections For Each Work Task	46

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Daily Quality Control Report.....	47
M. Control of Corrections and Nonconformances.....	51
Marking of Nonconformances and Observations.....	51
Control the Continuation of Work.....	51
Recording of Nonconformances.....	51
Quality Manager Disposition of Nonconformance Reports	52
Corrective Actions	52
Nonconformance Preventive Actions.....	53
N. Project Completion Inspections.....	55
Punch-Out QC Inspection	55
Pre-Final Customer Inspection	55
Final Acceptance Customer Inspection	56
O. Project Quality Records and Documents.....	59
P. Quality Assurance Surveillance	62
Project Quality Performance Surveillance.....	62
Project Quality Audits.....	62
Project Audit Plan.....	63
Project Audit Requirements	63
Q. Additional Quality Control Requirements.....	65

Selected Pages

I. HVAC 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.

Selected Pages

COMPLIANCE WITH INDUSTRY HVAC 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
23	Color coding of all piping systems	ASME A13.1	Scheme for the Identification of Piping Systems
23	Installation of metal ductwork	SMACNA 1966	HVAC Duct Construction Standards Metal and Flexible
23	Installation of duct supports for sheet metal ductwork	SMACNA 1966	HVAC Duct Construction Standards Metal and Flexible
23	Installation of underground ductwork	ACCA Manual 4	Installation Techniques for Perimeter Heating & Cooling
23	Installation of radon ductwork	ASTM D 2855	Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings
23	Ductwork cleaning	ASHRAE 62.1	Ventilation for Acceptable Indoor Air Quality
23	Field welded joints	ASME B31.3	Process Piping
23	Brazed joints	AWS B2.2/B2.2M	Specification for Brazing Procedure and Performance Qualification

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[CompanyName][CompanySuffix] Quality Inspection and Test Plan												
Project ID			Project Name						CONTRACTOR			
[ProjectNumber]			[ProjectName]						[CompanyName]			
SPECIFICATION SECTION AND PARAGRAPH NUMBER	SCHEDULE ACTIVITY ID	TEST REQUIRED	ACCREDITED/ APPROVED LAB YES /NO		SAMPLED BY	TESTED BY	LOCATION OF TEST ON/OFF SITE/SITE		DATE COMPLETED	DATE FORWARDED TO CUSTOMER	REMARKS	

Selected Pages

L. WORK TASK QUALITY INSPECTIONS

[CompanyName] identifies a list of work tasks which will be quality controlled. Each work task is subject to a series of inspections; before, during, and after completion.

Each inspection verifies compliance with full scope of the relevant specifications; not limited to inspection form checkpoints.

The initial work task-ready inspection occurs when work is ready to start 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 quality expectations. Work continues only when it does not adversely impact quality results.

At completion of the work task an inspection verifies that work has been completed in accordance with project quality requirements.

Inspection results are recorded 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 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.

REQUIRED INSPECTIONS FOR EACH WORK TASK

Each work task is subject to a series of inspections before, during, and at completion as described below. Results of inspections are recorded.

PREPARATORY SITE INSPECTION

The Superintendent 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 task to begin
- Identifies potential problems

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TASK-READY INSPECTIONS

For each work task, the Superintendent or a qualified inspector performs job-ready quality inspections to ensure that work activities begin only when they should begin. Job-ready quality inspections verify that conditions conform to the project quality requirements.

WORK IN PROCESS QUALITY INSPECTIONS

For each work task, the Superintendent or a qualified inspector performs an initial work in process inspection when the first representative portion of a work activity is completed.

Selected Pages

QUALITY MANUAL

TABLE OF CONTENTS

1. Quality System Management and Responsibilities	6
1.1. Overview.....	6
1.2. [CompanyName][CompanySuffix] 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	11
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.....	13
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.....	16
3.7. Contract Review and Approval	17
4. Design Review and 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

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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.....	21
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	27
7.1. Overview.....	27
7.2. Project Startup and Quality Control Coordination Meeting.....	27
7.3. Preparatory Project Quality Assurance/Quality Control Plan Planning.....	27
7.4. Weekly Quality Planning and Coordination Meetings.....	28
7.5. Process Control Standards.....	28
7.6. Daily Quality Control Report.....	30
7.7. Monthly Quality Control Report.....	30
8. Inspections and Tests.....	31
8.1. Overview.....	31
8.2. Required Work Task Quality Inspections and Tests.....	31
8.3. Material Inspections and Tests.....	31
8.4. Work in Process Inspections.....	32
8.5. Work Task Completion Inspections	32
8.6. Inspection of Special Processes	33
8.7. Independent Measurement and Tests	33
8.8. Commissioning Functional Acceptance Tests.....	33
8.9. Hold Points for Customer Inspection.....	33
8.10. Quality Inspection and Test Specifications.....	33
8.11. Inspection and Test Acceptance Criteria	33
8.12. Inspection and Test Status.....	34
8.13. Independent Quality Assurance Inspections	34
8.14. Inspection and Test Records.....	34
8.15. Project Completion and Closeout Inspection	35
9. Nonconformances and Corrective Actions.....	37
9.1. Overview.....	37

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9.2. Nonconformances	37
9.3. Corrective Actions	38
10. Preventive Actions.....	40
10.1. Overview.....	40
10.2. Identify Preventive Actions for Improvement	40
10.3. Train Preventive Actions for Improvement	40
11. Quality System Audits.....	42
11.1. Overview.....	42
11.2. Project Quality System Audit.....	42
11.3. Company-wide Quality System Audit	42
12. Record and Document Controls.....	43
12.1. Overview.....	43
12.2. Quality System Documents	43
12.3. Document Controls.....	43
12.4. Record Controls	44
13. Appendix	45
13.1. Definitions of Terms	45

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 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

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7.3.2. PREPARATORY SITE INSPECTION

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

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

7.3.3. WORK TASK PREPARATORY QUALITY PLANNING MEETINGS

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

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

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

7.4. WEEKLY QUALITY PLANNING AND COORDINATION MEETINGS

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

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

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

9. NONCONFORMANCES AND CORRECTIVE ACTIONS

9.1. OVERVIEW

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

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

9.2. NONCONFORMANCES

9.2.1. MARKING OF NONCONFORMANCES AND OBSERVATIONS

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

9.2.2. CONTROL THE CONTINUATION OF WORK

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

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

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

9.2.3. NONCONFORMANCE REPORT

9.2.3.1. RECORDING OF NONCONFORMANCES

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

The Superintendent sends the nonconformance report to the Quality Manager.

9.2.3.2. QUALITY MANAGER DISPOSITION OF NONCONFORMANCE REPORTS

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

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List of Included Forms

Standard Forms:

- Point Of Contact List
- Project Organization Chart
- Project Quality Communications Plan
- Quality Manager Appointment Letter
- Project Manager Appointment Letter
- Superintendent Appointment Letter
- Personnel Certifications and Licenses
- Project Personnel Resumes
- Project Subcontractor and Supplier List
- Training Plan
- Training Log
- Regulatory Codes and Industry Standards
- Project Regulatory Building Codes
- Controlled Materials Form
- Metals Material Receiving Inspection Report
- Material Inspection and Receiving Report
- Inspection and Testing Standards
- Quality Inspection and Test Plan
- Test Equipment Calibration Plan and Log
- Quality Controlled Work Task List
- Daily Production Report
- Work Task Inspection Form
- Nonconformance Report
- Punch List
- Project Completion Inspection Form
- System Document Control Form
- Project Records Control Form
- Project Quality System Audit Form

[CompanyName][CompanySuffix] Nonconformance Report <small>Version 20131125</small>		
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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LIST OF INCLUDED INSPECTION FORMS FOR HVAC

- Air Outlets and Inlets
- Air Terminal Units
- Breechings//Chimneys// and Stacks
- Central Cooling Equipment
- Commissioning ofHVAC
- Cooling Towers
- Facility Fuel-Oil Piping
- Facility Fuel-Storage Tanks
- Facility Natural-Gas Piping
- Furnaces
- Heating Boilers
- HVAC Air Cleaning Devices
- HVAC Ducts and Casings
- HVAC Fans
- HVAC Insulation
- HVAC Piping and Pumps
- HVAC Water Treatment
- Indoor Central-Station Air-Handling Units
- Instrumentation and Control for HVAC
- Refrigerant Piping
- Testing// Adjusting// and Balancing for HVAC

Heating// Ventilating// and Air Conditioning (HVAC) - Cooling Towers 23.65.00

Project:	Phase:	Contract#:	Subcontractor:	Crew:
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<p><u>Compliance Verification</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Compliance with initial job-ready requirements <input type="checkbox"/> Compliance with material inspection and tests <input type="checkbox"/> Compliance with work in process first article inspection requirements <input type="checkbox"/> Compliance with work in process inspection requirements <input type="checkbox"/> Compliance with Task completion inspection requirements <input type="checkbox"/> Compliance with inspection and test plan <input type="checkbox"/> Compliance with safety policies and procedures <p>Reported Nonconformances and incomplete items:</p>	<p><u>FTQ 2TQ Heightened Awareness Checkpoints</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> No restrictions to air flow into evaporative area <input type="checkbox"/> <input type="checkbox"/> Motors and fans balanced and free of excessive vibration/noise <input type="checkbox"/> <input type="checkbox"/> Valve operational positions (open vs. closed) clearly indicated <input type="checkbox"/> <input type="checkbox"/> Relief valves discharge to approved areas <input type="checkbox"/> <input type="checkbox"/> Fan and belt guards in place <input type="checkbox"/> <input type="checkbox"/> Water treatment chemicals added <input type="checkbox"/> <input type="checkbox"/> Equipment installed with clearance for inspection and maintenance <input type="checkbox"/> <input type="checkbox"/> Readouts and indicators clearly visible <input type="checkbox"/> <input type="checkbox"/> Operational set points noted in Operation and Maintenance Manuals <input type="checkbox"/> <input type="checkbox"/> Operation and Maintenance Manuals supplied to Owner
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FTQ Scores and Completion Sign-off

Field Mgmt.-91.45.01

Quality 5 4 3 2 1 *Notes:*

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

Safety 5 4 3 2 1 *Notes:*

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

Task has been 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 problems	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

**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	



**For More Information:
Contact: FirstTimeQuality**

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