

QUALITY ASSURANCE MANUAL

A customizable system of checks and
balances for mechanical contractors

MCAA

Mechanical Contractors Association of America



DEVELOPED BY:

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Instructions:

MCAA's Quality Assurance Manual provides a quality assurance document and process that can be customized to fit your company's needs. To use it:

- Make changes and modifications on a copy of this document.
- Pay particular attention to the items that are highlighted in yellow.
- Incorporate your company forms; samples of several forms can be found in the Appendix.
- Review your customized manual to verify compliance with actual practice.

Company Name
Company Address
Company Address 2

Quality Manual

Document Control

Control Number	
Job Number	
Job Name	
Issued To	

Revision Summary

Issue Number	Revision Number	Date

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Quality Manual Revision Procedure

All copies of this quality manual should be controlled to ensure that the company's quality control procedures are not compromised. By following the procedure outlined below, we ensure that the system remains current and valid.

1. A master copy of the manual will be maintained and available for review by all personnel.
2. Changes can be proposed by any employee but will require formal authorization of the quality manual administrator and/or management prior to being incorporated into the quality manual.
 - a. The quality manual administrator will ensure the proposed revisions are reviewed and approved in accordance with quality manual procedures.
 - b. Revisions will necessitate modification to the:
 - i. Manual cover sheet;
 - ii. Headers and footers;
 - iii. Formulation of a project-specific revision history record sheet; and
 - iv. Quality control project-specific release and control sheet applicable to hard copy and electronic distribution.
3. The quality manual administrator/representative will record all changes on the revision history.
 - a. Each controlled quality manual will be amended and the appropriate pages inserted, applying the date, issue number and revision number accordingly.
 - b. The new issue number and date will be recorded on the revision history of the quality manual along with a brief summary of the change. The quality manual administrator/representative will sign off the entry.
4. One hard copy of each superseded page will be filed in an archive file, for reference purposes, and marked as such with reference to the next issue number and date.
5. Copies of the quality manual may be issued to project-specific parties outside the company for reference purposes, and should be registered as a controlled distribution copy.
 - a. All requests for an uncontrolled copy will be passed to the quality manual administrator/representative for processing.
 - b. The front sheet of copies released to parties outside of the company will be marked as "Reference, Uncontrolled Copy" with the date of issue noted.

Company Introduction

Company Name was started in **City, State** in **Year** by **Founder/Owner Name**, who graduated from **Name of College or University** with a degree in **Name of Degree, if pertinent**. **Include additional information about the founder/owner's professional background and the company's start-up.**

Company Objectives:

- To provide efficient and cost-effective industrial construction solutions to clients by using the latest technology and industry practice.
- To provide an informal yet highly professional environment to our employees and clients.
- To nurture employees towards identifying the company goals as their personal achievements.
- To achieve excellence in every field of work.

Company Name is a growing company committed to providing reliable and cost-effective construction solutions statewide. With a strong emphasis on quality, world-class resources and leading-edge solutions drive our commitment. The company has **list the number and location of branch offices**. We are continually looking for additional sites and clients to improve our growth, and we strive to achieve the best service quality standards in the industry. Our successful track record of serving the most demanding customers best demonstrates our company's focus on quality and exceeding customer expectations.

Our impressive client list that ranges from local companies to leading international businesses in most commercial sectors. Sectors served include **chemical, manufacturing, pharmaceutical, government and more.**

Our staff of **Number of Employees** skilled and experienced professionals includes project engineers, detailers, managers, supervisors and technicians, each with remarkable expertise and influence in their field of specialization.

Our projects and clients include:

Use this space to identify specific project sectors or clients

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Message from the President

I fully endorse this quality manual and the procedures and policies explained within it.

Our quality construction approach encompasses everyone from the individual worker to the CEO.

We take quality very seriously at **Company Name** and work hard to ensure that each employee understands how to use the tools of their trade, and how to inspect their work as performed. Costly rework is thus eliminated at its foundation.

This manual represents the system we practice. Every employee is committed to quality and takes ownership of items in their immediate area of responsibility.

This manual is updated on a regular basis to keep up with changes in the organization and to incorporate improvements that have been identified through internal audits.

Insert the company president's signature

Title

Company Name

Quality Policy

The **executive management/management team** ensures that the quality policy:

1. is appropriate to the company objectives and goals;
2. includes a commitment to comply with requirements and to continually improve the effectiveness of the Quality Assurance Manual and the policies and procedures outlined within it;
3. provides the framework for establishing and reviewing quality objectives
4. is communicated and understood within the organization; and
5. is reviewed on a regular basis to ensure continued suitability.

Quality Policy Statement

Company Name is a leading-edge, results-oriented, and profitable mechanical contracting company focused on providing quality solutions and service support by exceeding our customers' expectations.

We strive to continuously improve our excellence by remaining abreast of industry trends and best practices and adopting those that make sense for our company and our customers.

Quality Manual System Management

General Requirements

Our company has an established quality system that includes processes and procedures that assist us in continually maintaining quality in the performance of our work.

The system outlined in this quality assurance manual identifies the:

1. Processes needed to support the system;
2. Sequence of interactions between processes;
3. Control of these processes to ensure effectiveness;
4. Metrics implemented to monitor and measure for effectiveness; and
5. Actions required to achieve the planned results and continual improvement of these processes.

These requirements are defined by various documents and forms which are under company revision control.

Documentation Requirements

We use procedures that are consistent with industry standards and with our company quality policy. The range and detail of the procedures that form this part of the quality system are dependent upon the complexity of the work, the methods used, and the skill and training needed by personnel involved in carrying out the activity as required.

The system is arranged in four levels composed of:

Level 1: The quality assurance manual, which represents a common quality system that is under revision control, which is maintained by the quality manual administrator.

Modified Level 1, Option: A location/site quality management handbook (supplemental document) or project-specific quality manual (owner provided) are maintained by the individual construction locations. This document may provide necessary details for site-specific application beyond or in conjunction with the company's quality system.

Level 2: Quality and operational procedures that are controlled and updated as required.

Level 3: Work instructions in the form of construction and layout drawings, specifications, codes, and, where applicable, company sketches, process sheets, inspection/examination checklists, forms, test records and other aids. Work instructions are to display a company-authorized approval signature and a release date as mandatory control information.

Level 4: Forms, which represent a method for monitoring and verifying the requirement for process controls. Completed forms are filed as records and maintained as specified by respective procedures.

1.0 Objective

This quality manual has been developed to provide an overview of procedures and guidelines with a uniform direction to ensure that **Company Name** is in conformance with contractual requirements, plans, specification, codes, standards, and industry practices.

2.0 Scope

Quality is a requirement for all employee levels, departments, materials, records and activities performed during each phase of bidding, design, fabrication, installation/erection, and acceptance testing of a product or system interpreted as the product determined by contract documents.

3.0 References

We maintain a library with the applicable reference materials, standards, codes, and other relevant publications readily accessible to the individuals who need them. The library is continually monitored to ensure that these references are current and meet industry and customer contract requirements.

4.0 Definitions

The company continually tries to mirror the definitions standard to our industry and codes that apply to our work activities. Any definitions that are unique to **Company Name** will be listed below as needed.

Insert definitions that are unique to your company.

5.0 Management Responsibility

Our executive management is responsible for developing a commitment to quality, directing the company to achieve that quality, providing personnel and resources as applicable, and overseeing the quality system in an effort to comply with its quality directives.

5.1 Commitment (Policy)

The company has established and implemented a company policy with respect to quality.

Policy Statement

Company Name policy is to achieve a degree of excellence and exceed client expectations, by being within budget and schedule, and to maintain a commitment to the satisfaction of customer requirements

This policy statement is disseminated to personnel affecting quality by displaying it throughout the company. The policy is to have individual employee ownership for the company's total commitment to quality.

5.2 Direction and Leadership

Company Name realizes that effective leadership starts with the executive management. Their commitment to superior quality standards is made evident to the people who report directly to them. These people in turn carry that leadership to the people reporting to them and so on all the way to the personnel performing individual tasks. This commitment to quality applies equally to all personnel, regardless of their position within the company.

To demonstrate the effectiveness of the quality system, executive management evaluates the established goals as outlined in the quality policy. These goals are evaluated according to a predetermined schedule, and will ascertain the current status versus the desired outcome. The information is then disseminated to employees. The disseminated information may take any form, such as a trend chart or picture diagrams, to be determined by the executive management.

The in-house quality system is reviewed annually by executive management to ensure that it is both adequate and effective. Revisions and/or modifications to the system are made when opportunities for improvement that will positively impact customers become apparent. Records of management reviews are maintained in a quality system review log, and include information such as: audit results, client feedback, and information from previous management reviews (outputs) including product conformity reports, improvement of product quality and resources needed.

5.3 Management Representative

The vice president of operations is responsible for ensuring that procedures are established, implemented and maintained in the quality system. These procedures are in accordance with the company's objectives and quality policy.

The vice president of operations submits an annual report to executive management detailing the performance of the quality system and recommending areas where the system could benefit from change or improvement. The report is reviewed by executive management, who determine if it is in the company's best interest to act on the recommendations. All improvements are implemented to reduce the occurrence of nonconformities and maintain client satisfaction.

5.4 Resources

Executive management and the management team provide the resources necessary to achieve compliance to contract specifications. Such resources include personnel, work space, appropriate utilities, tools and equipment, specifications and procedures. Various evaluations and internal audits are conducted to ensure that resources remain adequate for the production of quality product.

5.5 Personnel

Minimum qualifications exist for all personnel, including quality control personnel. The minimum qualifications for each position within the company are defined in specific job descriptions, which are maintained by the Human Resources department. The personnel responsible for the performance of work affecting quality, and their interrelationship with other employees within the company, are defined using organization charts that are also maintained by the Human Resources department. Personnel may be assigned to more than one function, provided they are qualified to perform each job.

Annual performance reviews are conducted to ensure that the qualifications of the personnel performing specific duties are match changing job requirements. Guidelines for these reviews are available from the Human Resources department.

On-the-job training is employed for those individuals whose job activities are enhanced, and to ensure that all employees have a thorough understanding of and ability to perform their specific job requirements.

5.6 Equipment

Adequate equipment is provided for the production of a quality product. Such equipment includes shop and field tools, machinery, and computers with the appropriate software to maintain sufficient records of equipment, products, processes, schedules and personnel.

Equipment is tested periodically as recommended by the manufacturer and repaired or updated when the need arises. Tools, equipment, machinery and computers are maintained to ensure conformance with the best standards available.

5.7 Internal Communication

The executive management/management team has established internal communications procedures to ensure that any and all information regarding the quality standards and processes reach all individuals within the company. Such communication may take the form of written policies and procedures, postings in relevant areas, e-mails, and/or verbal instructions.

5.8 General Documentation Requirements

The quality system consists of documentation conducive to the production of a quality product. Such documentation provides a written policy statement with stated goals and objectives, written procedures, and corresponding quality records.

5.9 The Quality Manual

Company Name's quality manual contains documentation outlining the requirements of the quality system. Such documentation includes, but is not limited to, a quality policy with stated goals and objectives, procedures and corresponding quality records, and any other documents needed to ensure the effective operation of the quality system.

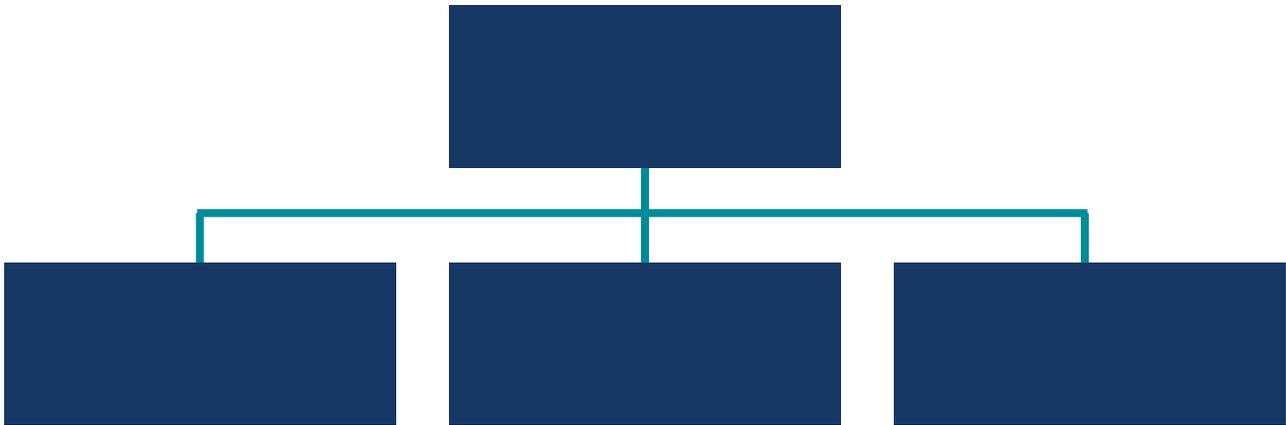
In conjunction with the quality manual, the company maintains other policies and procedures necessary to maintain an effective quality system. These additional documents ensure compliance with industry codes and standards and are located in the company library.

The quality manual also describes the communication processes that exist to effectively disseminate project specific information among departments in order to ensure that all personnel have the most current project requirements. Such effective transfer of information is necessary to reduce nonconformities due to the use of outdated information.

5.10 Organization

The quality manual contains an organizational chart of the company's key leadership. Human Resources maintains the files with job descriptions and personnel qualifications for each of these positions.

Insert your company's leadership organization chart.



6.0 Contract and Project Specification Review

Company Name has a procedure for contract and project specification review. All project specifications and contracts are reviewed when received in order to determine the resources necessary to fulfill the contract requirements. A contracts specification sheet is drawn up to provide a record of each contract received and reviewed, and the resources required to fill the order. Specific project requirements are recorded and distributed to the appropriate personnel for departmental review with input on the budget, start-up action plan, and project schedule.

Once it has been determined that the necessary resources and technology exist to complete the project, the contract (or purchase order) is executed by the **CEO/VPOPs or purchasing manager** and forwarded to the assigned project manager for implementation of the project plan and schedule.

Any changes or modifications to the original contract are sent through the **CEO/VPOPs** for approval. Next, they go to the Purchasing department, where they are reviewed and signed off on by the purchasing manager, who then forwards the changes to the project manager for his knowledge and implementation. Any considerations or changes to the contract specifications will take into consideration the activities of:

- Legal
- Detailing
- Purchasing
- Construction/Fabrication/Erection
- Quality Assurance
- Quality Control

All contracts that have been accepted for work are maintained in a contract review log maintained by the Purchasing department.

7.0 Engineering/Detailing

7.1 Estimate Preparation

Company Name has an engineering/detailing procedure for the review and preparation of bid estimates. This process is, in part, specification and plan review, material take-off, labor, and base project schedule. This data is compiled with other departments' bid information. The compiled bid information is retained for reference should the project be awarded.

The procedure also notes how information is tracked, and communication with the customer is maintained via RFIs (requests for information) and construction change documents.

Where required, calculations and deviation design approval are achieved by a registered professional engineer.

7.2 Shop/Field and Erection Drawings

All shop/field and erection drawings are checked by the engineering manager/detailing manager or his designee to ensure compliance with contract specifications and company guidelines. When required by contract, a registered professional engineer will review and approve the drawings and perform the required calculations and design deviation. The detailing manager signs off on the drawing, logs the information into the shop and fabrication drawing log, and releases the drawing for fabrication.

Any subcontracted detailing packages will be checked to ensure that:

- Print layouts comply with company requirements;
- A bill of materials is included;
- Drawings identify who drew the print and who checked it;
- A sampling (based on the project) of the prints will be given a cursory review of the dimensions and pictorial layout to ensure the prints make sense.

7.3 Client Approval of Drawings

Prior client approval is required for the release of drawings for fabrication/erection. All drawings will carry the written signature of the client or authorized representative approving the drawings before the drawing is logged into the approved drawing log book and released for fabrication. This procedure is to be followed regardless if the drawing is done in-house or by a subcontractor. If the client elects to waive approval of the drawings, a written client waiver will be requested and maintained in the drawing file.

7.4 References (Company Library)

Company Name maintains a reference library that is used to educate company personnel about the applicable codes and specifications required for the work to be performed. The company reference library contains codes, standards, practices, pamphlets, bulletins, and white papers specific to our industry and activities. The following nationally recognized organizations comprise a large section of the library:

Insert any additional references your company maintains.

- AMCA (Air Movement and Control Association)
- ANSI (American National Standards Institute)
- ASME (American Society of Mechanical Engineers)
- ARI (American Refrigeration Institute)
- ASHRAE (American Society of Heating, Refrigerating, Air Conditioning Engineers)
- ASTM (American Society for Testing and Materials)
- AWS (American Welding Society)
- EPA (U.S. Environmental Protection Agency)
- NEMA (National Electrical Manufacturers Association)
- NFPA (National Fire Protection Association)
- NIST (National Institute of Standards and Technology)

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- OSHA (Occupational Safety and Health Act)
- SMACNA (Sheet Metal and Air Conditioning Contractors National Association)
- UL (Underwriters Laboratories)

7.5 Engineering/Detailing Management

The engineering/detailing manager oversees the generation of drawings necessary to produce the intended product. This responsibility includes coordinating drawing production schedules, transmitting to contract requirements, maintaining detailing standards and procedures, and coordinating and incorporating drawings with fabrication/construction requirements.

To fulfill these noted requirements, the manager has extensive training and experience in the area of fabrication, to include detailing and reviewing shop and erection drawings, **type of industry, sample; steel/piping**-typical design criteria, and dealing with client requirements for a variety of structures and services that the company provides.

7.6 Detailing Activities

Detailers responsible for generating and checking shop and erection drawings have experience and/or training in the company's typical project drawings. They report to the **engineering/detailing manager** who, in turn, reports to the **vice president of operations/project manager**. All drawings are checked for compliance with company and client contract requirements.

7.7 Client-Supplied Drawings

Company Name has implemented a transmittals procedure for maintaining the receipt, revision, and control of client-supplied drawings. Drawings received from the client are entered into the detail drawing log maintained in the Engineering/Detailing department. Such information includes the client name and the date the drawing was received, along with the latest approval, revisions and dispositions.

8.0 Document and Electronic Data Control

Company Name has a procedure for the control of documents and electronic data pertinent to the quality system and company operations. Such documents and electronic data include the quality manual, contract documents, drawings, and procedures.

8.1 Review and Approval

The quality manual administrator or designee reviews and approves documents affecting quality. revisions to the quality manual. Other procedure documents are reviewed annually by the quality manual administrator and quality manager, whose recommendations must be approved by executive management, prior to implementation.

8.2 Review and Approval

The company has developed a procedure for the project manager to receive and document customer requirements and contract changes as they occur throughout the project process. This procedure includes maintaining a detailed transmittal log that shows the receipt, approval, and

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distribution of original and revised documents or drawings to the appropriate departments and personnel within the company, subcontractors, and/or suppliers.

8.3 Revision Control

The quality manual administrator ensures that all documents within the quality manual include a cover page that contains the document's date of origin, a current revision date, and an approval signature. The quality manual administrator maintains a master list of all revisions, in both electronic and hard copy formats, to ensure that each copy of the document includes the most recent revisions. This list is distributed to all quality personnel, managers and supervisors, to ensure that only the most recent revisions are being used. All up-to-date documents, including contract revisions and job specifications, are readily accessible within all work locations to avoid the use of obsolete procedures in the fabrication, assembly, and erection process.

8.4 Document Access

The quality manual administrator/designee ensures that the most current and up-to-date policies, procedures, and contract revisions are disseminated to the appropriate personnel within each department. Managers and supervisors guarantee that all documents relevant to specific areas of operation are accessible to all personnel.

8.5 Revisions and Transmittal

The quality manual administrator maintains a master list showing the most current revisions to the quality manual and other quality management system documents. The project manager maintains a master list of the most current revisions to contract or job specifications and drawings. All controlled documents under their care and control are monitored to ensure that obsolete documents are marked, segregated, and archived or destroyed to prevent their inadvertent use within the fabrication process.

All projects have procedures and drawings issued to fabrication, which varies according to the complexity of the project requirements. The number of sets issued to the shop/field for each project is recorded in a log maintained by the **project manager/quality manual administrator**.

Once a procedure or drawing is considered obsolete, all copies are collected and compared to the number written in the log to ensure that all obsolete copies have been collected.

When transferring quality documents between the company and outside parties (i.e., the client, contractors, other trades, subcontractors, etc.), a transmittal will always accompany the documents. A copy of the transmittal will be placed in the project's transmittal file.

8.6 Control of Records

Company Name has a procedure for the identification, collection, storage, maintenance, retention and disposition of records. All project records are stored in a way that prevents damage, deterioration or loss. They are labeled so that records can be easily identified and retrieved. Retention times are established and recorded for records retained for any purpose. The retention

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periods will be at least long enough to permit evaluation of the records during the course of the project construction and warranty period. Archives will be retained up to **five (5)** years.

A master list of all job records is maintained by project name and job number. It includes the general name of the contained documents, the date of issuance, the retention period and the date of destruction (if applicable). This list is reviewed and updated annually.

9.0 Purchasing

The company has implemented a procedure to ensure that purchased products, subcontractors, materials, and services conform to company and project requirements. Purchase orders, records of the qualification of subcontractors and suppliers, and records of supplier evaluation are maintained within the Purchasing, Engineering, and Quality Control departments.

9.1 Purchasing Data

Purchase order documents clearly describe the subcontracted work and purchased products, materials and services ordered in purchasing documents. Purchasing documents contain the following information:

- Type of service, material, class, grade and other unique identification;
- Specifications, drawings, process requirements and inspection instructions that may apply;
- Delivery instructions and date;
- Certificate of compliance/conformance, mill test reports and/or NDT reports as requirements;
- Compliance with standards and codes as appropriate; and
- Special instructions or any other information important to the product ordered.

9.2 Selection of Subcontractors

Subcontractors are evaluated by conducting an audit/survey or through documented past experience. The **project manager/purchasing manager** selects subcontractors on the basis of their ability to meet subcontract requirements, the company's quality requirements, project requirements and any specific inspection requirements. The subcontractor shall have the required level of national certification on projects that require such certification. Use of a non-certified subcontractor on such projects must be approved in writing by the client or engineer of record.

9.3 Verification of Purchased Product and Services

The **project manager /quality control** checks all incoming product and material to ensure that it conforms to the purchase order, and project requirements. Test reports, certificates of compliance and other evidence of quality control exercised on each project are kept on file in the **Quality Control/Project Purchasing departments**.

9.4 Client Verification

The client sometimes requests the right to verify the product's conformance to the project requirements. This verification may or may not be noted in the contract documents. This verification may take the form of hands-on involvement, observation, or audit. The company cooperates fully with the customer in this regard.

9.5 Client Verification

If materials are supplied by the client, the project manager and quality control are responsible for ensuring that the material is stored, identified and maintained properly to prevent loss, damage or misuse of the material. All client-supplied material is inspected to ensure that the material is appropriate for the intended project and meets the quality acceptance requirements. Any nonconformance or loss, damage or misuse of the material is recorded and reported to the client.

9.6 Client Verification

The company's procedure for identification of material adheres to industry practice guidelines, contract documents, and to the specific requirements of the company procedure. This procedure provides a method for material traceability when initiated by contract. At a minimum, material identification is maintained until the first fabrication operation when the project drawing system takes over.

The company retains test reports, manufacturers' test reports, and certificates of conformance for materials for **five (5)** years after project completion. Our procedure provides the ability to connect a report to our purchase order and job numbers. In addition, we can obtain reports from our suppliers. As vendor reports may be representative, we require our suppliers to commit that the report represents the materials supplied. Our quality procedure describes a method to provide full, specific traceability when invoked by contract. The purchasing and quality manager is responsible for activating the appropriate level of control for each order for each project.

10.0 Fabrication Process Control

Procedures are in place to ensure that all finished products have a quality level that meets the requirements of the codes and specifications set forth in the project documents. This includes any special procedures that may be performed during the fabrication process. **At a minimum, effective execution of the following procedures is required. Identify the appropriate procedures and provide your list here.**

10.1 Welding

See Welding Procedure, Project-Specific, which describes Welding Procedure Specifications (WPS), types of weld processes to be used and the qualification of welders, method of examination.

10.2 Bolt installation

See Bolt Installation Procedure, Project-Specific, which includes required inspection and testing to verify that the product quality meets the appropriate requirements.

10.3 Material Preparation for Application of Coatings

See Material Preparation for Application of Coatings Procedure, Project-Specific, which includes examination of material used in the application of coatings to ensure it meets the necessary requirements.

10.4 Coating Application

See Coating Application Procedure, Project-Specific, which describes how coating material is applied to the product in accordance with quality requirements.

10.5 Equipment Maintenance

See Equipment Maintenance Procedure, Project-Specific and OEM Manuals, a documented preventative maintenance program for equipment critical to product quality and delivery requirements, at a minimum.

10.6 Special Handling and Care

See Special Handling and Care Procedure, Project-Specific, which describes the method for special handling and care to meet contract requirements.

11.0 Purchasing

Company Name has established procedures of inspection/examination and testing of material and services to ensure that the product quality meets the project requirements. the **quality control and project manager** conducts examinations at various intervals during the fabrication process, depending on the complexity of the project. The level and frequency of inspections/examinations may be increased at any time when the required level of quality is below identified standards. The inspection/examination procedure includes incoming materials, in-process and final inspection of all products furnished to a project. Records of such inspections/examinations are compiled and maintained in the project file and a QC file.

11.1 Assignment of QC Examinations and Monitoring

Qualification standards and certifications granted by recognized industry organizations related to the company product can be used to establish a basis for the assignment of quality control examiners.

Quality control examiners are trained in proper examination methods and acceptance criteria for the intended processes assigned. They are aware of their responsibilities and are given time to perform their examination responsibilities. Their examinations are monitored by qualified QC personnel. Examiners do not inspect their own work.

11.2 Examination Procedure

The examination procedure includes but is not limited to provisions for the following.

11.3 Material Receipt Examination

Materials received are compared to the purchase order requirements. The person receiving the incoming material checks the material against the packing slip by line item for type, grade, and quantity and verifies that there are no visible signs of shipping damage.

11.4 In-Process Examination

In-process examinations are conducted to ensure that project processes are compliant with specified requirements and acceptance criteria. Materials are examined for specification and grade, workmanship and tolerance using appropriate codes and standards, with a documented plan before production begins. Compliance with documented joining procedures and craft qualifications are monitored. Production personnel check each product or subassembly before sending it to the next station in the production process. Hold points may require additional examination by quality control or the clients' inspector.

11.5 Final Examination

Quality control performs the final examination of products after all assembly operations are complete, and prior to shipment of the product. These examiners are specifically trained to perform these examinations. Any nonconformities discovered during the final examination process are documented and handled according to the nonconformance procedure.

11.6 Client Inspection

The client or his inspector is to be granted free access during all phases of fabrication and installation. Access may be limited to areas of fabrication, testing, material storage and where specific project activities are being performed.

11.7 Examination Records

All examination records, whether incoming, in-process, or final, are maintained in a log book in the Quality Control office. Examinations by production personnel are verified by the final examination of the product.

12.0 Calibration of Examination, Measuring and Test Equipment

Company procedures require the calibration and maintenance of examination, measuring and test equipment used to determine the conformance of product to the specified tolerance and requirements. Such calibration is done through the use of equipment certified to a nationally recognized standard. Where such standards do not exist, the basis used for calibration is always documented.

Calibration of examination, measuring and test equipment is performed annually or to the manufacturers' recommendations to ensure reliability and conformance to company standards. The quality manager is responsible for maintaining calibration records. Such records will include a description of the equipment, manufacturer, and serial number, date of calibration, date when next calibration is due, the test equipment used, and the inspector's name.

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Examination, measuring and test equipment is stored in a controlled area, free from environmental or other influences which may affect the accuracy or fitness for use.

Calibrated equipment is identified with a calibration tag that lists the date of the last calibration and due date of the next calibration. This prevents the inadvertent use of equipment that is not calibrated. Any equipment that is out of calibration, damaged, or not functioning properly is immediately removed from service. Equipment removed from service is investigated for cause and effect. Should there be an impact related to the investigation results, a corrective action is documented on a nonconformance report maintained in the quality manager's equipment file and nonconformance file. The malfunctioning equipment is tagged with an "out of calibration" sticker to prevent its accidental use.

13.0 Control of Nonconformance

The company has a procedure that prevents use of a product/item that does not conform to the specified requirements. When a nonconforming product/item is identified, it is immediately segregated, documented and tagged as nonconforming by NCR (nonconformance report) to prevent its accidental use. The product/item is then inspected and evaluated to determine disposition (rework, repair, return to vendor, or dispose).

In some cases, after additional inspection and testing, the product/item can be used as is, depending on the nature of the nonconformance. If the nonconformance directly impacts the client, the client is informed and may assist in determining whether the product/item should be approved for use. If the nonconforming product is approved for use by the client, such approval is documented in writing and a record kept is maintained in the project file and in the NCR file with the specific NCR.

All nonconformance records are maintained in a file by the Quality Control department. These records include the nature of the nonconformance; what, if any, follow-up examination and testing is conducted; and the resulting disposition of the product.

14.0 Corrective Action

The company has a procedure for the initiation of a corrective action. A corrective action report (CAR) is defined as any action taken to eliminate the causes of nonconformance. The determination of whether to issue a corrective action depends upon the degree to which a nonconformance jeopardizes quality.

A corrective action is issued after periodic review of records or internal and external quality audit reports determine critical nonconformity to quality standards. Once a corrective action report is generated, quality control and management determine and implement a course of action to correct the noted nonconformity. Periodic reviews are then conducted to ensure the corrective action is being performed and is effective.

CARs are documented and maintained in a corrective action report log located in the quality control file.

15.0 Handling, Storage and Delivery of Product and Materials

The company has developed a method of handling, storing and delivering products and materials. Material is stored, handled and shipped in such a way as to avoid damage and deterioration. Material is also labeled for easy identification on shipping documents and traceability.

If a shipping agreement exists between the company, the client or the subcontractor, material is shipped in compliance with the agreement. This may include sequencing that complies with erection needs. Shipments by subcontractors are coordinated and monitored for compliance with shipping instructions.

16.0 Training

The company has developed training to ensure that personnel responsible for the quality of products and services receive initial and periodic training for their specific jobs. Periodic training may occur whenever there is a change in their work activities or a procedure change in a particular job. This training ensures that the individual has the understanding necessary to perform the activities of their job efficiently. Training for these personnel are documented and reviewed on a periodic basis to ensure compliance to job qualification specifications.

Personnel receive additional training when changes to the requirements of their assigned job activity occur. Such training is documented and maintained in their individual personnel files located in the Human Resources and Quality Control departments.

17.0 Internal Audit

The company's executive management conducts an internal audit of the quality system once annually to verify compliance and effectiveness. The audit is performed by a management representative or qualified individual who is independent of the activity being audited. The results of the audit are reviewed with the management personnel responsible for the efficient operation of that particular activity. A written result of the audit is maintained in the audit log book maintained by the quality manual administrator.

Any nonconformity noted during the audit is brought to the attention of the quality manager and quality manual administrator for their information and correction. A corrective action report may be initiated depending upon the severity of the nonconformity. When a corrective action report is generated, a follow-up audit is conducted to verify that corrective actions have been implemented in a timely manner to ensure the continuous improvement of the quality management system.

Appendix

This appendix contains the following forms that can be easily customized for your company's needs. Simply click on a title to link directly to the document.

- [Bid, Planning and Pre-Construction Checklist](#)
- [Corrective Action Report](#)
- [Corrective Action Report Log](#)
- [Daily Equipment Calibration Log](#)
- [Employee Training Sign-in Log](#)
- [Project Non-Conformance Report](#)
- [Quality Control Transmittal Log](#)

Quality Assurance Manual