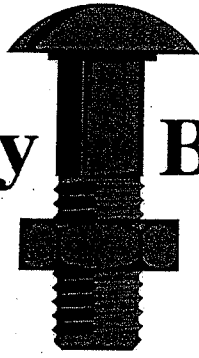


# Steel City Bolt & Screw, LLC



## Quality Assurance Manual

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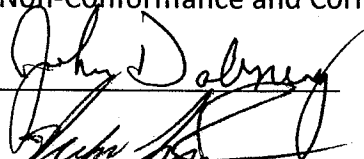
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Approved By: \_\_\_\_\_



Q. A. Manager

4/15/2009

Approved By: \_\_\_\_\_



President

4/15/2009

Date: 04/15/2009

Revision #009

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# Quality Assurance Manual

## 1. Introduction

### 1.1 Purpose of Steel City Bolt & Screw Inc. (SCB)

The purpose and policy of Steel City Bolt and Screw is to manufacture, sell and deliver it's fastener products on schedule, meeting quality standards and at competitive prices. Also, we will furnish other hardware (nuts, washers, etc.) that we do not manufacture, but stock and deliver as required by our customers. All products are to be delivered in such condition as will conform to specified standards of performance and quality as outlined by the SCB Q.A. Manual.

### 1.2 Purpose of the Quality Assurance Program

The purpose of the SCB Quality Assurance Program is to assure that adequate control of quality is maintained throughout the entire process of manufacturing, including, but not limited to, procurement, receiving, forming, forging, machining, and fabrication, inspection, packing and shipping. This Q.A. Program and its application shall be based upon the nature and scope of the work to be performed and the level of quality required by the stated specification (i.e. ASTM — ANSI — SAS — EEI — IFI).

### 1.3 Purpose of the Quality Assurance Manual

This document contains the requirements for the maintenance of a Quality Assurance Program for SCB and to assure that materials and service meet the quality standards required by our customers. The purpose of the Q.A. Manual is to serve as the standard operating procedure for quality control and inspection. In addition, it is to provide definite guidelines and requirements pertaining to dimensional limitations, physical specifications, chemical composition (when required) and quality standards as outlined by customer drawing or applicable industry specifications. Records will be maintained by the Quality Assurance Manager on all distributed copies of the Q.A. manual.

### 1.4 Quality Assurance Manual Management

The Quality Assurance Management shall regularly review the status and adequacy of the program and its revisions, with the Quality Review Board. A review of the document shall be made annually or whenever deemed necessary. Additions or deletions will be made as required and documented. The authority and responsibility of those in charge of the Q.A. Program shall be clearly established (see charts — sections #2.2 & 2.2.1). Personnel performing quality assurance functions shall have sufficient and well defined responsibility and the

authority and organizational freedom to: (1) identify quality assurance problems, (2) initiate action which results in solutions, (3) verify implementation of solutions to those problems and (4) to prevent recurrence or further deterioration.

## **2.0 Quality System Organization**

### **2.1 Personnel Job Description**

#### **2.1.1 President**

Acts as Chief Executive Officer and manages the business so as to meet the corporate objectives as established by the Board of Directors.

Approves the organizational structure and has overall direction and administration of plans, programs, and services.

Develops, implements, and monitors policies and procedures appropriate to the day to day operations.

Is responsible for development of the annual budget and establishes or approves company wide policies and employees benefit program.

Acts to maintain a high level of morale and effort among the key leadership positions and to provide a system of control which identifies deviations from the plan to assure the periodic comparisons of objectives and results. Directs and presides over The Quality Review Board.

The President reports to the Board of Directors. Reporting to the president are the Vice Pres. Sales, Controller/Office Manager, Operations Manager, Purchasing Manager, Quality Assurance Manager and the Warehouse Manager.

#### **2.1.2 Vice—President Sales**

Responsible for all facets of sales. This would include forecasting sales, devising and implementing sales strategies, advertising, and printing of sales material and development of new products.

Other duties would include hiring and supervising the inside sales manager and the inside sales force in his absence. Hires and develops business relations with outside independent sales agents, maintains control of sales expenses in line with budget and maintains files of in house and competitive programs.

Directs the entire sales force to get full and proper information on products to be manufactured to reduce the possibility of errors. Is responsible for written policies and

procedures for sales department operations Is a member of The Quality Review Board.

### **2.1.3 Controller/Office Manager**

Plans, organizes, directs and controls accounting and control functions, reports operational results and provides chronological systems.

Coordinates control plans for the sales forecasts, profit plans, expense budgets, accounts receivable/payable, cost standards, inventory monitoring, capital investing, together with the necessary controls and procedures to effectuate the plan.

Compares performances with operating plans and standards. Provides reports and interprets the results of operation to all levels of management. This includes the formulation of accounting policies, the preparation of financial statements and operating data and special reports as required.

Forecasts short range and long range cash requirements as a basis for maintaining adequate funds. Ensures protection for assets through internal control/auditing and proper insurance coverage. Monitors credit and collection applications.

Also, supervises the management of the office functions and equipment and maintains all business files, including those relating to quality management.

### **2.1.4 Operations Manager (Plant)**

Directs the activities of the manufacturing plant in an efficient manner for the desired quality and quantity of work.

Supervises the activities of the assigned department supervisors with respect to production volume, cost, quality and meeting production schedules and customer delivery dates. Selects and maintains qualified personnel and confers with the supervisors to establish working schedules for all production workers. Coordinates and follows up to assure completion of the production schedule and approves overtime as required.

Assures that machinery, equipment and facilities are properly maintained for efficient production and quality.

Maintains adherence to company policies, safety standards, good housekeeping practices, good employee relations and takes proper and judicious disciplinary measures when required.

Arranges to have appropriate production records prepared to assure efficient and economical utilization of materials, improvements of methods and elimination of wasteful practices within the manufacturing area.

### **2.1.5 Purchasing Manager**

Is responsible for the management of the procurement functions of the company. Negotiates for price and delivery, selects vendors and assesses their capabilities, develops alternate sources and evaluates performance.

Assures that purchases are followed up and expedited when required. Reviews purchase request forms for accuracy and completeness. Writes or reviews specifications for supplies and services to determine if they meet the requirements of the SCB Quality Assurance Manual. Reviews bids to insure adherence to procedures and policies. Compiles and records narrative and numerical data for evaluation.

Maintains optimum inventory levels of raw material and other products to insure on time deliveries to meet customer requirements.

### **2.1.6 Quality Assurance Manager**

The Quality Assurance Manager shall report directly to the President on any quality problems or matters.

This position must review each customer purchase order/contract and Q. A. requirements. Verify that all technical specifications and drawings called for by the order/contract are available prior to the preparation of the production order. Review SCB material and service purchase orders for quality provisions. Examine customer purchase order drawings and engineering specifications to determine testing requirements and that all special gauges or inspection instruments that may be required are available. Plan for adequate inspection procedures to insure compliance with quality requirements.

Approves material for shipment. In conjunction with the purchasing manager, performs audits on vendors. Maintains files for quality audits, test records, non-conforming material reports and calibration.

Maintains a corrective action program to identify defective products, determine the cause and initiate action, with written records.

Complete authority and responsibility for performance to industry standards of quality necessary to deliver acceptable products are vested in Quality Assurance Manager.

### **2.1.7 Quality Assurance Inspector**

The Q.A. Inspector shall be responsible for the ongoing and final inspection for all production and purchased items and reports directly to the Quality Assurance Manager in all quality matters.

This position has the authority to stop production and/or shipping if the product is not in compliance.

The Q.A. department will receive a copy of all raw material purchases and the inspector will make immediate inspection, in accordance with the S.C.B. Q.A. manual section 7.2, upon receipt.

Inspectors shall perform continual audits to assure that all operations are yielding quality products and shall inspect each production item, in accordance with the applicable specification (i.e. ANSI — SAE — EEI — IFI — ASTM etc.) and document its acceptance. Where no minimum inspection quantity is specified, the Q.A. Manager will make the determination.

This inspection will verify compliance of, but not limited to, the following operations: shearing, sawing, heading, threading, pointing, bending, welding, drilling, tapping, assembling, packing, tagging, etc.

#### **2.1.8 Warehouse Manager**

Responsible for the organization, scheduling of manpower and directing of the warehouse on a day to day basis. Adjusts schedules as necessary in both shipping and receiving areas.

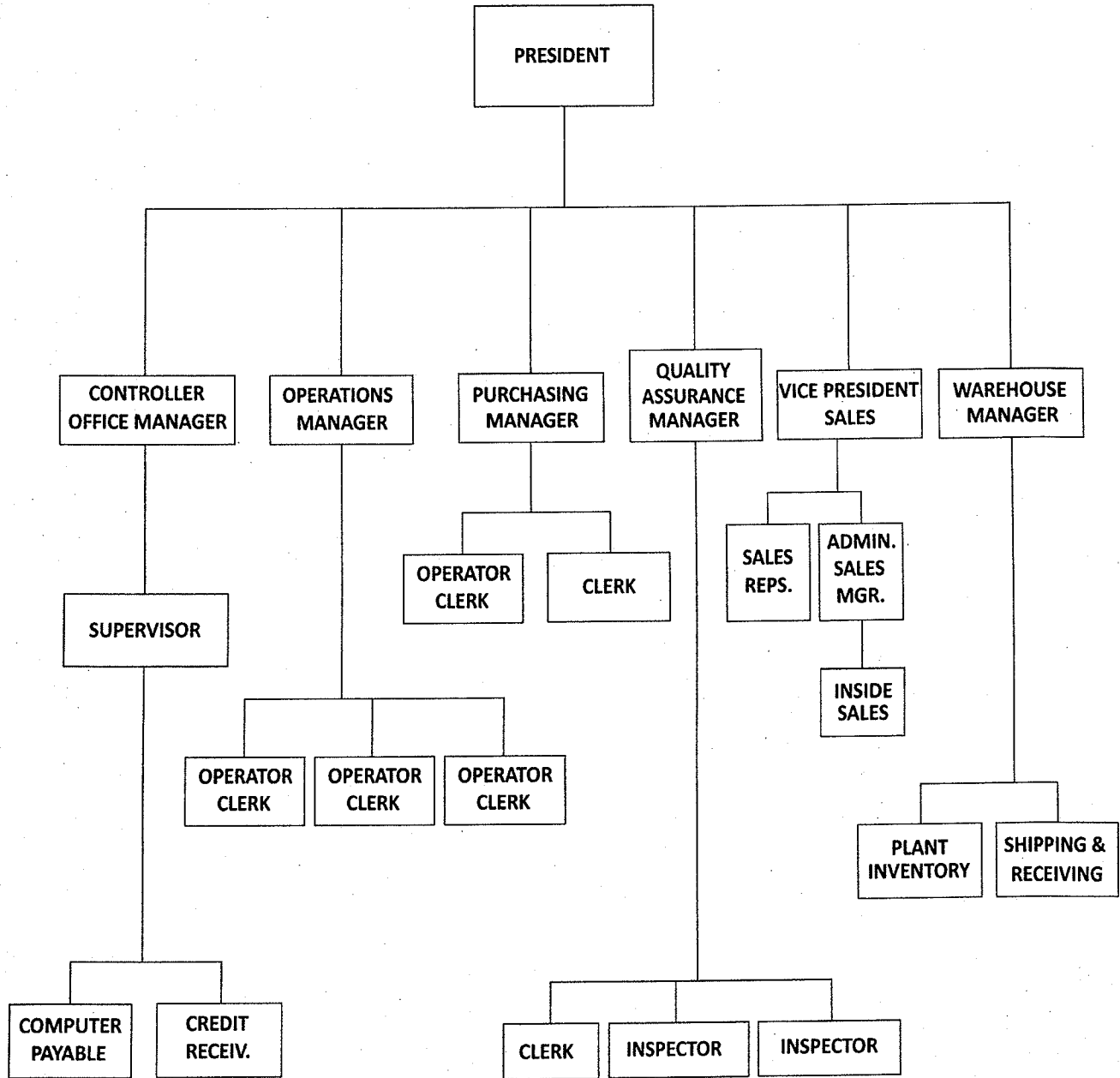
Is responsible for the order accuracy, productivity levels and facility maintenance. Duties include advising of stock outs, receiving errors and placement of product in the rack bins.

Also, responsible for maintenance of warehouse equipment, providing both prevention maintenance and repair. Insures that the warehouse/shipping personnel have safe and efficient tools and supplies.

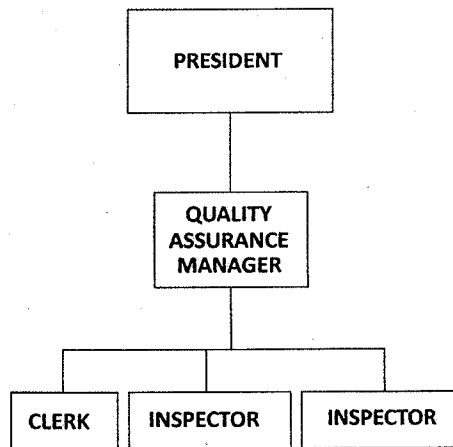
Designs and implements work methods and procedures to increase productivity and improve service and safety. Coordinates with other departments to facilitate efficient warehouse operations.

# ORGANIZATION CHART

## 2.2



# ORGANIZATION CHART 2.2



### **3.0 Quality Assurance Audits**

#### **3.1 Vendor & Supplier Quality Systems Audits**

Formal audits will be performed to determine source capability to furnish conforming materials or services. Evaluations will be used based on surveys, audits and quality history and will be conducted on an ongoing basis.

When the SCB purchase order and quality requirements are met by a vendor, the vendor's name will be added to a list of acceptable vendors from which SCB may purchase. When a non-conforming item is discovered, a corrective action request will be made to the vendor, so they will adhere to the quality standards of SCB. Any vendor that does not perform to these standards shall be subject to removal as supplier. This list will be maintained by the Purchasing Department Manager.

#### **3.2 Internal Quality System Audit**

Quality: System Audits are performed annually or as necessary to evaluate the implementation, process, adequacy and compliance of the quality program.

The Q. A. Manager shall be responsible for the scheduling of periodic audits and these audits shall be conducted to defined process and/or check list, by suitably instructed personnel who do not have responsibility or involvement in the areas being audited.

The results of such audits shall be documented and reviewed by the President and the Quality Review Board. Areas of non-conformance or deficiency shall be re-audited until the problem is resolved.

### **4.0 Quality System Records**

#### **4.1 Quality System Record Contents**

Permanent records shall be maintained for a period of ten years. Records will show type of fastener, size of fastener, procurement specifications, date of manufacture or receipt and lot identification.

Records to be retained would include, but not limited to, customer purchase order, sales order, invoices, work order, material arrives, and truck may not be unloaded. The invoice will be held until all reports have been completed and are acceptable.

## **4.2 Protection**

Records that furnish documentary evidence of conformance and traceability, including, but not limited to, raw material check lists, manufacturing data, plating, heat treating, testing and any outside service shall be prepared and maintained

Records shall be legible, identifiable and retrievable. These files shall be stored in the records storage room and will be protected against damage, alteration, deterioration or loss. The records room will be locked when not being used by authorized personnel. Duplicate copies will be maintained in the Quality Assurance Office.

## **4.3 Record Requirements and Responsibilities**

The requirements and responsibilities for transmittal, distribution, retention, maintenance and disposition of all Q. A. records will be with the Quality Assurance Manager or his/her designated agent.

## **5.0 Document Control**

### **5.1 Contract Change Documentation**

Upon acceptance of customer's purchase order Steel City Bolt shall proceed with their obligation to fulfill the provisions, as agreed.

Acceptance of any changes, requested by the customer, would require written authorization. The customer's purchase order change notice or written amendment to the original purchase order in effect shall suffice. Telephone changes are acceptable when confirmed by mail or fax. Upon receipt of the necessary document the company will proceed on the basis of the change.

Changes initiated by Steel City Bolt shall require the same procedures.

### **5.2 Responsible Personnel**

Any changes pertaining to customer orders or drawings will be reviewed with the Purchasing Manager, Quality Assurance Manager and Operations Manager.

The inside sales/customer service department shall be responsible for issuance of customer drawings or changes to be reviewed.

The Quality Assurance Department and Production Department must approve any change before acceptance.

### **5.3 Q.A. Involvement**

The Quality Assurance Department is to assure all approved drawings supplied by customers and those applicable to specified standards are being utilized and kept up to date for manufacturing and inspection.

## **6.0 Test Equipment (Measuring Devices, Gauges. Etc.)**

### **6.1 Identification of Test Equipment**

In house inspecting and measuring devices will consist of, but not limited to, ring gauges, plug gauges, micrometers, calipers, and mikrotester for hot galvanized material. These devices will be marked or scribed with a distinct identification number, issued by Q. A. Manager and a file will be maintained showing full description.

Other testing equipment and detailed or in depth testing (hardness, tensile, chemical analysis) will be located and conducted at an outside, registered and certified testing laboratory, which will be subject to a periodic audit to determine adherence to industry standards.

### **6.2 Calibration of Test Equipment**

Inspecting and measuring devices shall be evaluated and recertified on an annual cycle, unless there is reason to suspect the validity of the equipment or the equipment has been damaged, in which case it will be certified as soon as possible. All certification will be done by a reputable laboratory to industry accepted procedures and standards traceable to the National Bureau of Standards.

### **6.3 Calibration Records and Traceability**

There will be written records identifying and showing calibration intervals and due dates for all tools and gauges. The device will be marked if large enough to accommodate the information or a sticker showing this information will be placed inside the box lid holding the device.

### **6.4 Corrective Action—Recall System for Test Equipment**

When inspecting and measuring equipment are found to be out of calibration they shall be removed from service and tagged "DO NOT USE" until properly calibrated and certified. If

the device has been damaged and cannot be repaired and recertified, it shall be destroyed. A record shall be made showing permanent removal from service.

## **7.0 Purchased Raw Material Control and Traceability**

### **7.1 Purchasing Requirements**

The selection of a raw material supplier will be based upon location (delivery), price and past quality experience or reputation.

All purchase orders will include a formal purchase order number, part number, reference to the material specification, requests for mill test reports or other needed certifications, size, type, quantity and condition.

Other special instructions may be included to assure the correct material will be processed and shipped. Also, there may be special verbal standing order requests that do not appear on the purchase order, but will be followed and confirmed on the vendor shipping papers and/or order acknowledgment form.

### **7.2 Incoming Inspection**

This procedure applies to all raw material received for customer orders or stock. "Raw" material is material received in the form of bars, plates, wire, castings, forgings etc.

Material shall be inspected upon receipt for conformance to purchase order requirements. All raw materials will be checked for proper dimensions, workmanship and appearance. The material checklist will verify straightness, roundness, tolerances, types of steel and the absence of rust, seams, etc.

Steel bars shall be placed in a designated area and in a specified and numbered rack or bin. This material will be color coded (see section # 7.5) and tagged on the ends facing the isles.

### **7.3 Mill Test Reports**

As required by each purchase order, all raw materials shall have certified mill test reports with the shipment and with the invoice. The test report shall contain the manufacturer's name and location, customer's name and order number, description of the item, applicable specification, test values and dates.

### **7.4 Random Sampling and Testing**

Random chemical and physical tests will be made to confirm mill test Results.

Each material supplier will be monitored by the Q. A. Manager or his/her designated agent and each will have their product randomly sampled and tested at least once per year or more often if deemed necessary.

## 7.5 Color Coding

All standard raw materials will be SCB color-coded and/or tagged with proper designations. The code will be placed in the appropriate area in the Warehouse.

Other materials may be purchased for immediate use. These materials (i.e. C-1018/1020-C1045 C. R.) will also, be given color codes, as established by the Quality Assurance Manager. When new color codes are created they will be posted in the stock area alongside the standard color codes.

### STANDARD RAW MATERIAL

BROWN	_____	A36
YELLOW	_____	F1554-55
WHITE	_____	C 1045 (HOT ROLLED)
RED	_____	4140 (HEAT TREATED ALLOY)
BLUE	_____	A588 (WEATHERING STEEL)
BLACK	_____	M1012
GREEN	_____	A242 (CORTEN)

## 8.0 In Process Control

### 8.1 Insurance of Lot Numbers (Work Order Number)

Lot numbers will be issued for each manufactured order and will be identical to work order numbers. Orders with more than one item will be assigned sequential line item numbers and referenced to the work order/lot numbers.

These numbers will appear on all paper-work, including the traveling shop order, as shown in section 8.2.

### 8.2 Traveling Shop Order

The manufacturing process is controlled by a traveling shop order. This form will be prepared by the Quality Assurance Department.

These traveling shop orders will be numbered in sequence and will be signed at each manufacturing station, which will indicate the status, acceptance or rejection at any point in process. This traveling shop order will identify the item in process by work order/lot number and heat numbers.

This shop order will also show any special instructions and will remain with the item during manufacturing from the raw material stage to packing and shipping.

Stock items will show work order/lot numbers or other identification as outlined in sections 9.3 and 11.1.

## **9.0 Finished Product—Lot Control, Identification and Packaging**

### **9.1 General**

Packaging and packing requirements will be furnished to the Warehouse/Shipping Manager from the Inside Sales/Customer Service Department by way of the work order set. All products shall be packed and/or stored to prevent damage during storage or shipment.

Most inventory is stocked in wire bound wooden pallet crates. Other miscellaneous items may be in metal drums, metal cans, plastic pails or corrugated containers. All standard sized items are electronically weighed / recorded and can be shipped in any of the above containers. Items too large for standard packing will be counted and strapped to wooden pallets.

### **9.2 Labeling**

Computer generated labels are used on all shipping containers. Each container label will show complete shipping address, purchase order number, full description, size, quantity, weight and any mark or tag number that may be required.

### **9.3 Inventory System**

A computer controlled inventory is stocked in alpha-numeric order (EXAMPLE B68). The letter indicates the isle/section and the number is the bin/rack location in the warehouse.

All finished product can be accounted for by type, quantity, location, lot/wrk order number and heat number, which appear on the inventory card attached to the pallet crate or container.

Traceability and lot identity shall be maintained throughout manufacturing, storage, packing, and shipping to prohibit commingling.

## **10.0 Non-Conforming Material Control and Corrective Action**

## **10.1 Location**

These procedures are established to assure control of nonconformance involving material, manufacturing or services that could affect quality or are not within industry standards or to customer requirements.

When discovered, material that is deemed to be non-conforming shall be positively identified, segregated and tagged to prevent its use until disposition has been determined.

The Non-Conforming Holding Area is a special rejection area set aside from the regular warehouse area and clearly marked. The Q.A. Manager is the only person with the authority to add to or remove any material from this area.

## **10.2 Documentation**

All personnel involved in quality activities are responsible for issuing non-conforming reports on any deficiencies or discrepancies to the Q.A. Manager. The report shall explain in detail the nature of the defect and the work station or location where the problem was discovered.

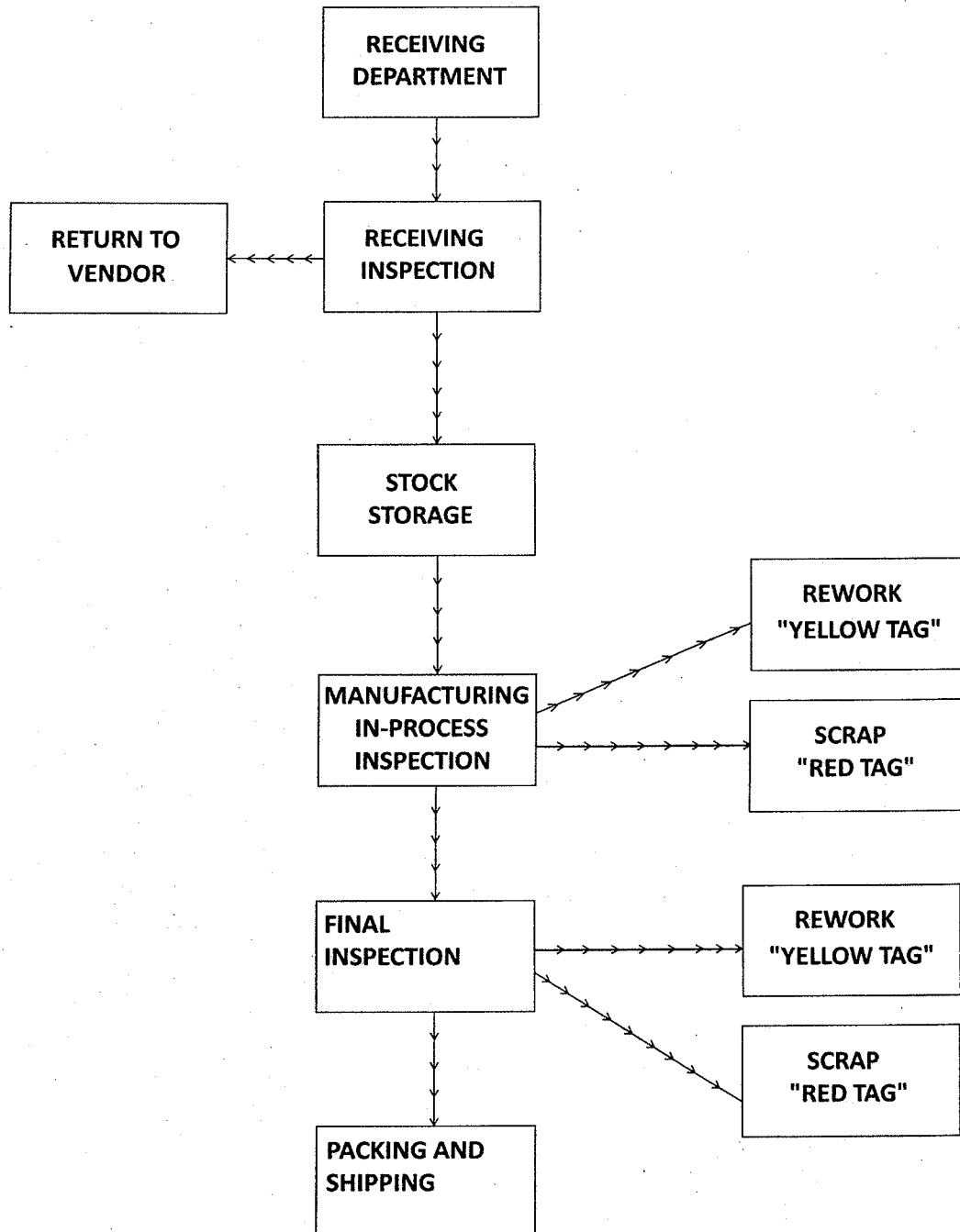
The Q. A. Manager shall make the decision concerning the disposition. His/Her evaluation will determine if the non-conforming material is to be reworked or scrapped. Yellow tags for review and possibly reworked and red tags for scrap (see chart section 10.2.1). Questionable items and/or appeals may be referred to the Quality Review Board.

If the non-conformity does not affect form, fit, strength or function the customer may be contacted by the inside sales/customer service department for possible acceptance of the material with the deviation.

Reworked material will be re-inspected and accepted by the original standards or specification. Records of re-work inspection will be maintained.

# Q.A. Process Flow Chart

10.2.1



### **10.3 Corrective Action and Follow—Up**

It shall be the responsibility of the Q.A. Manager, Operations Manager, Department Supervisor and the Inspector to determine the cause of the non-conformance, what steps shall be taken to prevent a reoccurrence of the problem and implement corrective action.

Corrective action shall be requested for any quality problems that cannot be solved immediately upon discovery. A request for such action will be initiated by the Q.A. Manager with a non-Conformance and Corrective Action Request Form.

Copies of this form will be distributed to the Operations Manager and to the responsible department supervisor. One copy will be retained by the Quality Assurance Department for follow-up. The person responsible for taking corrective action shall give a complete description of the action taken to correct the problem and return the completed form to the Q.A. Manager.

Defective goods received from outside suppliers will require similar corrective action. Quality Assurance will monitor these vendors and will have the option of disapproving any supplier whose statements on corrective action are not satisfactory or are not returned on a timely basis.

The Quality Assurance Department will review non-conforming reports and corrective action forms to determine the reason for rejection.

The Q.A. Manager will meet with the Quality Review board at least twice a year or when a significant problem occurs, to review causes for non-conformance.

Follow—up action shall be taken to verify implementation of any corrective action. The Quality Review Board shall consist of the President, Vice-Pres. Sales, Purchasing Manager, Operations Manager and Quality Assurance Manager.

#### **10.4- Receiving Control of Returned Parts.**

When non-conforming parts are returned from customer, the shipping and receiving department must match the returned goods RMA # with the RMA# supplied by the appropriate sales person. Product weight and piece count must be verified. Quality Inspector shall be notified of receipt of returned goods. Quality Inspector shall inspect returned goods and either deem them for rework (yellow tag) or scrap (red tag). If scrap, then entire return shall be recorded and immediately placed in the scrap bin. If rework, then Quality Inspector shall yellow tag the product and note what specific rework is to be performed to the Production Supervisor. Yellow tag is to remain with the product until rework has been completed and Quality Inspector has approved product for reshipment.

### **11.0 Fastener Verification and Traceability**

### **11.1 Receiving Inspection Of Purchased Finished Fasteners**

Steel City Bolt & Screw will buy only from approved sources (see section 3.1) that are capable of manufacturing fastener products or related items, or providing services that conform to prescribed specifications set forth on purchase orders. These sources must be able to furnish, where required, certifications, mill test reports or heat numbers on any material or services purchased by S.C.B.

This would include finished goods, such as bolts, nuts, washers, accessories, etc. Also, included would be packaging material and the outside services, such as heat treating, electroplating, hot dipped galvanizing and testing.

All parts and material are received in the Receiving Department. A copy of the receiving report, packing list, purchase order, and the material are forwarded to the inspectors. The inspector will perform the required inspection and record the results on the inspection sheet and forward all forms to the purchasing department.

Approved items will so marked on the containers and will be sent to the shipping department. Items for stock will be placed in the stock racks with a bin card showing the material has been inspected.

Bolts, nuts, washers, etc. may be inspected for appearance, dimensional requirements and threaded parts will be checked for proper internal and external thread engagement. Hot galvanized items will be inspected for appearance, quality and thickness.

Random chemical and physical tests will be made on products from major suppliers at least once per year or as needed if there are any questions concerning quality.

Product from unapproved vendors would be subject to a physical test on each shipment, until they are placed on the approved list.

If material is found to be non-conforming the inspection report will show rejection and cause and a copy will be sent to the purchasing department. The Purchasing Manager will contact the supplier for corrective action.

### **11.2 Manufactured Fasteners**

The first piece of a new set up shall be inspected to assure it is being produced to drawing or industry standards. The machine operator shall submit the first usable piece manufactured to the department supervisor for checking against industry standards or drawings.

Written documentation of product conformation shall be provided and kept with order throughout manufacturing process. The documentation shall be kept with shop work order at all times.

In process inspection shall be performed by the Quality Assurance Inspector at adequate intervals to provide for early discovery of any department or machine producing non-conforming parts. Inspections shall be performed no less than five times per hour.

The necessary gauges or measuring devices will be available to check items in process. Areas of concern would include, but not limited to, shearing, sawing, heading, threading, pointing, bending, drilling, tapping and welding.

Inspections will be recorded on the traveling shop order and initialed. Any machine found producing non-conforming parts would be stopped and the parts red tagged. See section 10.0 Non-Conforming Material Control and Corrective Action.

Routine tests will be performed in accordance with industry standards or customer requirements to the recognized specifications (i.e. ASTM-ANSI-IFI-EEI-SAE). Records will be maintained as per section 4.0 Quality Systems Records 4. 1 , 4.2 and 4.3.

## **12.0 Training and Education**

### **12.1 Periodic Quality System Meetings, Documentation & Certification**

It shall be the responsibility of the Quality Assurance Manager to assure that personnel are indoctrinated and trained to perform quality assurance functions as outlined in the S.C.B. Quality Assurance Manual.

Training shall consist of supervised "on the job" instruction as to subject, material, etc. Training sessions will consist of a review of the Q. A. Manual procedures, past problems, specifications and will be documented with date and attendance.

## **14.0 Exhibits**

### **14.1 Sales Work Order**

### **14.2 Shop Work Order and Cost Sheet**

### **14.3 Traveling Shop Order**

### **14.4 Raw Material Approval Log**

### **14.5 Raw Material Mill Test Certificate**

### **14.6 Certification of Material**

### **14.7 Certification of Galvanizing**

**14.8 Laboratory Test Report Form**

**14.9 Finished Goods Inspection Sheet**

**14.10 Non-Conformance and Corrective Action Report**

NON-CONFORMING PRODUCT REPORT

VENDOR # \_\_\_\_\_

DATE ISSUED: \_\_\_\_\_

VENDOR/DEPT NAME: \_\_\_\_\_

RECEIVING REPORT# \_\_\_\_\_

PART NO.                      ORDER NO.                      DRAWING NO.                      DESCRIPTION OF PART

DESCRIPTION OF  
NONCONFORMITY \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TOTAL QUANTITY: \_\_\_\_\_                      NONCONFORMING QTY: \_\_\_\_\_

DISPOSITION:    REWORK \_\_\_\_\_                      REJECT/SCRAP \_\_\_\_\_

RETURN TO VENDOR: \_\_\_\_\_

REQUESTED BY: \_\_\_\_\_    DATE: \_\_\_\_\_    AUTHORIZED BY \_\_\_\_\_    DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_    DATE: \_\_\_\_\_    APPROVED BY: \_\_\_\_\_    DATE: \_\_\_\_\_

DEFINITION OF  
PROBLEM: \_\_\_\_\_  
\_\_\_\_\_

INTERIM  
ACTION: \_\_\_\_\_  
\_\_\_\_\_

ROOT  
CAUSE: \_\_\_\_\_  
\_\_\_\_\_

CORRECTIVE  
ACTION: \_\_\_\_\_  
\_\_\_\_\_

ACTION TAKEN BY: \_\_\_\_\_                      DATE: \_\_\_\_\_

VERIFIED BY: \_\_\_\_\_                      DATE: \_\_\_\_\_



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

MATERIALS TECHNOLOGY, INC.  
213 Lyon Lane  
Birmingham, AL 35211  
Rodney Shaw Phone: 205 940 9480

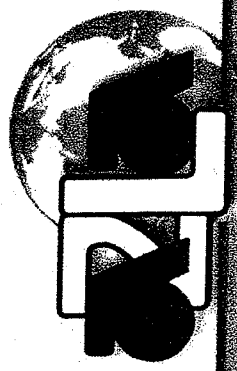
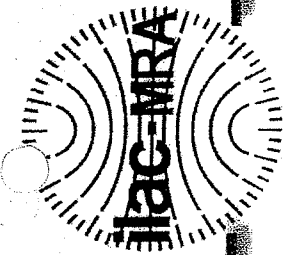
CHEMICAL

Valid To: March 31, 2012

Certificate Number: 0878.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on metals and alloys:

<u>Test</u>	<u>Test Methods</u>
Spectroscopy Optical Emission (Tool, & Stainless Steels, Al Base, Cast Iron)	ASTM E415, E1086, E1251
Analysis by Combustion (C & S)	ASTM E1019



The American Association for Laboratory Accreditation

World Class Accreditation

# Accredited Laboratory

A2LA has accredited

## MATERIALS TECHNOLOGY, INC.

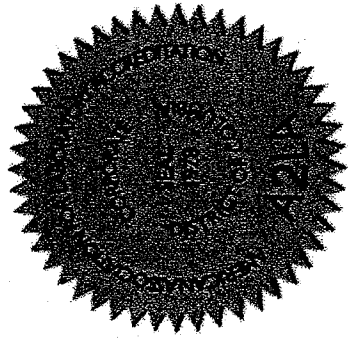
Birmingham, AL

for technical competence in the field of

Chemical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF *Communiqué* dated 8 January 2009).

Presented this 30th day of April 2010.



*Peter Abner*

President & CEO  
For the Accreditation Council  
Certificate Number 0878.02  
Valid to March 31, 2012

*For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Chemical Scope of Accreditation.*



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

MATERIALS TECHNOLOGY, INC.  
213 Lyon Lane  
Birmingham, AL 35211  
Rodney Shaw Phone: 205 940 9480

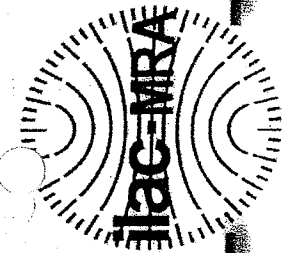
MECHANICAL

Valid To: March 31, 2012

Certificate Number: 0878.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on metals and alloys:

<u>Test</u>	<u>Test Methods</u>
Rockwell Hardness (B, C, 15N, 30N, 15T, 30T Scales)	ASTM E18, F606/F606M
Brinell Hardness	ASTM E10
Microhardness (Knoop & Vickers)	ASTM E384
Tensile (Machined, Axial, Wedge)	ASTM A370, B557, E8/FM8, F606/F606M; SAE J429, J995
Proof (Internal & External Threads, Fasteners)	ASTM F606/F606M; SAE J429, J995
Discontinuities	ASTM F788/F788M, F812/F812M; SAE J122, J123
Shear	ASTM F606/F606M; NASM 1312-13, 1312-20
Impact	ASTM A370, E23
Permeability	ASTM A342/A342M; MIL-I-17214
Bend Test (Weldments)	ANSI/AWS D1.1 thru D1.5; API-5L; ASME Sect. IX
<u>Metallographic Evaluation</u>	
Grain Size	ASTM E112
Decarburization	ASTM E1077; AMS 6875; SAE J419
Macroetch	ASTM E340
Intergranular Attack	ASTM A262, Practice A; AMS 6875
Case Depth	SAE J423
<u>Sample Preparation</u>	
Metallographic	ASTM E3
Bend Test	JIS Z2204 (96)
Tensile Test	JIS Z2201



World Class Accreditation

The American Association for Laboratory Accreditation

# Accredited Laboratory

A2LA has accredited

## MATERIALS TECHNOLOGY, INC.

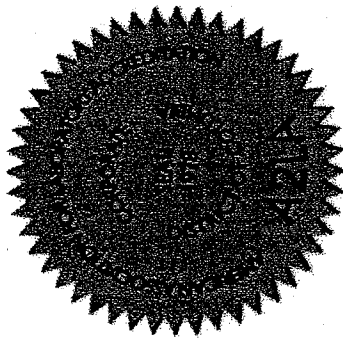
*Birmingham, AL*

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 30th day of April 2010.



*Peter Almyer*

President & CEO  
For the Accreditation Council  
Certificate Number 0878.01  
Valid to March 31, 2012

*For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.*

## FINAL INSPECTION

DATE:	_____	CUSTOMER	_____		
WO#	_____	DESCRIPTION	_____		
LENGTH:	_____	THRD LENGTH	_____	NUT FIT	_____
QUANTITY:	_____	WEIGHT	_____	INSP	_____

## FINAL INSPECTION

DATE:	_____	CUSTOMER	_____		
WO#	_____	DESCRIPTION	_____		
LENGTH:	_____	THRD LENGTH	_____	NUT FIT	_____
QUANTITY:	_____	WEIGHT	_____	INSP	_____

14.3

QUALITY CONTROL

PROGRAM

TRAVELING SHOP  
ORDER

CUSTOMER \_\_\_\_\_ QUANTITY \_\_\_\_\_  
 P. O. # \_\_\_\_\_ SPECIFICATION \_\_\_\_\_  
 ITEM # \_\_\_\_\_ DRAWING/PRINT \_\_\_\_\_  
 WORKORDER/LOT # \_\_\_\_\_ DATE ENTERED \_\_\_\_\_  
 HEAT # \_\_\_\_\_ DATE OUT OF SHOP \_\_\_\_\_  
 SIZE AND FULL DESCRIPTION: \_\_\_\_\_  
 \_\_\_\_\_  
 DEVELOPED LENGTH: \_\_\_\_\_

OPERATION	REMARKS	ACCEPT	REJECT	DATE	OPERATOR	INSPECTED
SELECT	1ST PIECE					
SAW /						
SHEAR	IN PROCESS					
	1ST PIECE					
HEAD	IN PROCESS					
	1ST PIECE					
THREAD	IN PROCESS					
RT/CT						
	1ST PIECE					
POINT	IN PROCESS					
	1ST PIECE					
END	IN PROCESS					
	1ST PIECE					
RILL /	IN PROCESS					
UNCH						
	1ST PIECE					
AP	IN PROCESS					
	1ST PIECE					
ELD	IN PROCESS					
	1ST PIECE					
ER	IN PROCESS					

# MANUFACTURING

## COST AND QUOTATION

## SHOP WORK ORDER

DATE: \_\_\_\_\_ DATE TO SHIP FROM SHOP \_\_\_\_\_

ACCOUNT NO: \_\_\_\_\_ SHIP TO: \_\_\_\_\_

CUSTOMER P.O. NO: \_\_\_\_\_

OUR WORK ORDER: \_\_\_\_\_

CUSTOMER NAME: \_\_\_\_\_ SHIP DATE: \_\_\_\_\_

BUYER: \_\_\_\_\_

F.O.B.: \_\_\_\_\_ PHONE NO. \_\_\_\_\_

SALESPERSON: \_\_\_\_\_ SHIP VIA: \_\_\_\_\_

NO. OF CONTAINERS \_\_\_\_\_ TOTAL WT. \_\_\_\_\_

ITEM NO.	QTY.	DESCRIPTION	THRD LGTH	THRD TYPE	THRD SERIES	MATL. GRD.	FINISH	OTHER SERVICE	SELLING PRICE
1									
2									
3									
4									
5									

SPECIAL INSTRUCTIONS:

**I**  
DEV. Lgt. \_\_\_\_\_  
Heat No. \_\_\_\_\_

**II**  
DEV. Lgt. \_\_\_\_\_  
Heat No. \_\_\_\_\_

**III**  
DEV. Lgt. \_\_\_\_\_  
Heat No. \_\_\_\_\_

**IV**  
DEV. Lgt. \_\_\_\_\_  
Heat No. \_\_\_\_\_

**V**  
DEV. Lgt. \_\_\_\_\_  
Heat No. \_\_\_\_\_

**VI**  
DEV. Lgt. \_\_\_\_\_  
Heat No. \_\_\_\_\_

**VII**  
DEV. Lgt. \_\_\_\_\_  
Heat No. \_\_\_\_\_

**VIII**  
DEV. Lgt. \_\_\_\_\_  
Heat No. \_\_\_\_\_