Aluminum Shapes, Inc.

Quality Assurance Manual

4231 Liberty Blvd.
South Gate, CA 90280
Fax (323) 887-8898

www.aluminumshapesinc.com

(800) 834-5505
(562) 630-7000
(323) 887-8500

Revision: AS/h

Subject: Inspection Initials

Date: 06/22/11

Title: Quality Control Manager

Name: Bryan Bosveld

_____***BB***_____

Date: 06/22/11

Title: Receiving/Final Inspection

Name: Jose Nunez, Felipe de los Santos

__***JN***_____***FS***_____

Revision: AS/h

INTRODUCTION

The Aluminum Shapes, Inc. quality control procedures have been prepared to provide written descriptions of procedures used to implement all of the requirements of purchase orders and applicable specifications. They must meet the requirements of military specifications **MIL-I-45208A, MIL-STD-105** and other applicable government specifications or customer requirements.

These procedures will be kept current by page, date of issue and revision number. In the event revisions are not required, management will review and re-approve the manual at intervals not to exceed one year. Review date will be entered with proper endorsement on the Review Index page.

These procedures are to be upheld by every member of the company, in cooperation with representatives of our customers and government agencies inspection personnel.

QUALITY CONTROL RESPONSIBILITIES

The Quality Control Manager for Aluminum Shapes, Inc. is responsible for the establishment of quality control policies and the coordination and approval of procedures used throughout the company to assure that products meet acceptable standards of quality.

The basic responsibilities of the quality department are:

1. Prepare and revise the Quality Control Manual.
2. Control drawings and specifications.
3. Review Contracts/Purchase Orders for quality requirements.
4. Monitor materials/jobs throughout all phases for quality requirements.
5. Prepare and update inspection procedures and techniques as required.
6. Conduct Vendor surveys as necessary.
7. Perform in-process inspection.
8. Complete final inspections.
9. Maintain the Calibration Program.
10. Provide equipment, gauges and necessary items for inspection.
11. Control non-conforming materials.
12. Control Mill Test Reports for all stock items.

ORGANIZATION CHART

President

Vice President
(QCM)

Sales Purchasing Warehouse Manufacturing Quality Accounting
Control
Control

RECORDS

The Aluminum Shapes, Inc. quality control department will maintain records to adequately record and achieve the objective of inspections and tests being performed to all contract specifications, or other data referenced in Customer and/or Government contracts.

All quality control records will be available for review by properly authorized customer and government representatives.

All records shall be reviewed periodically for legibility, completeness and accuracy and to ensure that they are recorded in a permanent manner.

All records will be retained and filed in a job folder or an inspection record for a period of seven (7) years.

REVIEW INDEX

The Quality Control Manual shall be reviewed at least once a year and revised, as necessary, to incorporate any changes in requirements.

Activity	Date	Personnel
Written	1/6/95	Stan Reed
Reviewed and Revised	4/6/95	Stan Reed
		Linda Ellis
Reviewed	4/1/96	Stan Reed
		Linda Ellis
Reviewed and revised	3/21/97	Linda Ellis
		Manual Valles
Reviewed and revised	10/18/97	Roger Westfall
		Manual Valles
Reviewed and revised	10/16/98	John Lademan
		Roger Westfall
Reviewed	9/23/99	Stan Reed
Reviewed	9/15/00	Bryan Bosveld
Reviewed	9/01/01	Bryan Bosveld
Reviewed	7/12/02	Bryan Bosveld
Reviewed and revised	5/21/03	Bryan Bosveld
Reviewed	4/15/04	Bryan Bosveld
Reviewed	03/01/05	Bryan Bosveld
Reviewed	03/01/06	Bryan Bosveld
Reviewed and revised	03/31/07	Bryan Bosveld
Reviewed	03/31/08	Bryan Bosveld
Reviewed and revised	03/30/09	Bryan Bosveld
Reviewed	05/31/10	Bryan Bosveld
Reviewed	06/21/11	Bryan Bosveld

AUDIT OF SUPPLIERS QUALITY PROGRAM

Aluminum Shapes, Inc. shall have a program for the auditing of the adequacy of our quality program. The audits shall be performed on a regular scheduled basis and shall encompass quality program procedures, inspection, tests, process control, and certifications. The audits shall be performed by an independent audit group or by a team of quality assurance supervisors/engineers or other qualified personnel not having specific line responsibilities in the audit area. For production contracts, the audit shall include, but not be limited to, re-inspection of the work/material accepted by the inspector in the area audited. The results of the audit in each area shall be reported to appropriate management with appropriate recommendations for corrective action if necessary. Results of audit deficiencies shall be made available to the customers quality assurance representative for review upon request.

Section 1. Purchase Order Control

1.1 Quality control will review customer purchase orders to assure adherence to quality requirements for each contract as applicable.

1.2 When Government/Customer source inspection is a purchase order requirement, Quality Control will incorporate the requirement on the work order form.

1.3 Upon review and approval of the purchase order, a copy of the work order, together with the latest and correct drawings and all related data, specifications or other information transmitted by the customer will be provided to the shop. Manufacturing will activate the job and coordinate with the Quality Control department to insure sufficient inspection procedures.

1.4 Before issuing purchase orders, Purchasing shall coordinate with Quality Control, Manufacturing and the intended supplier to assure that the supplier is qualified to perform the services and at the standard of quality required by Aluminum Shapes. Quality Control shall approve all purchase orders prior to release.

1.5 Procurement sources shall be evaluated and approved by quality control by satisfying one of the following requirements:

1.5.1 The supplier shall have a previous history of acceptable items of the type being procured.

.2 The supplier shall satisfy a Quality Control Survey of its facilities as contractually required or as deemed necessary by the Quality Control Manager.

1.6 Purchase orders, before being issued shall be reviewed for the inclusion of quality requirements, statement of point of inspection, company source inspection where applicable and drawing and/or specification requirements, including revision levels.

Section 2. Drawing Change Control

1. Drawings and specifications received from a customer are marked with an Aluminum Shapes, Inc. manufacturing number and released to the manufacturing department. Originals are kept with the Quality Control Department for current information pertaining to existing contracts. The Quality Control Department maintains the master specifications file. This file is available for use by both the manufacturing and inspection departments.

2. Drawings Revisions and Change Orders:
   When a change order is received with a drawing revision, it is identified with an Aluminum Shapes Inc. Shop Traveler Number. Obsolete drawings are recalled and removed from the shop and/or subcontractor. The Quality Control Department also receives the originals and removes outdated drawings from use. Obsolete drawings are archived and/or destroyed or returned to the customer on request.

   1. A Change Order can only be acted upon by the Quality Control Manager.

   2. The Shop Traveler Orders will be reviewed to determine the status of the work being performed and the disposition to be made.

   3. Obsolete drawings and specifications will be marked “obsolete” or “superseded”.

Section 3. Receiving Inspection Control

3.1. Procedure for Receiving Inspectors
This procedure shall apply to all procurement items that will be delivered to the customer.

3.2. Review all documentation used by purchasing to procure deliverable items and incorporate quality requirements. Verify certifications on raw materials and any outside processing, e.g. heat treat, plating, nondestructive testing, etc. Inspection initials and Shop Traveler Number shall appear on all certifications of fabricated items.

3. Inspect all items for compliance to drawings, specifications and/or other documentation on Purchase Order.

4. Use only inspection measuring equipment that has evidence of current calibration.

5. The Quality Control Department will assure copies of all engineering drawings and specifications are available to receiving inspectors.

6. When materials or items are rejected, a Rejection Tag will be initiated listing all discrepancies, parts tagged, and when practical, moved to the Bond Area for disposition.

Section 4. First Article Inspection

1. Quality Control shall coordinate with manufacturing and engineering personnel to determine the points of the manufacturing cycle at which first article inspection will be performed. At each manufacturing operation the required inspection will be performed and will be indicated on the shop traveler.

2. The first part produced by each initial setup will be inspected, and the results entered in the appropriate column on the shop traveler. Further production will be contingent upon inspection acceptance.

3. A documented first article inspection of all dimensions shall be made on each detailed part or sub-assembly when contractually required and results recorded on the inspection report.

4.4. Tooling will be considered acceptable upon an approved first article inspection unless otherwise requested at the time of order by the customer. In such instances when customer requests tool inspection prior to first article inspection, the tool may be considered as a first article.

Section 5. In-Process and Line Inspection

1. Duties
   Quality Control is responsible for location of inspection stations and frequency of inspection to confirm that quality is being maintained.

2. Procedures
   Production shall request a First Part Inspection. Production will not be started until inspection has reported a satisfactory first piece on the Shop Traveler. Each operation will be checked regularly by examination of one or more parts by the operator and/or inspector. The results will be recorded on the Shop Traveler, which will remain at the workstation. When an operator or floor inspector finds a discrepancy, the cause will be found and rectified and all parts produced since the last inspection will be screened by production.

3. In-Process Control takes advantage of the fact that if each operation is done correctly, the parts produced by these operations will be correct and inspection can be adjusted accordingly.

4. In-Process Control will be obtained in two ways:
   .1 In-Process checks made by production personnel.

   2. Periodic inspections of the operation, by Aluminum Shapes Inc. inspection personnel. This inspection is recorded on the Shop Traveler by dating and initialing for accept or reject.

5. All In-Process Inspection shall be performed using Aluminum Shapes Inc. inspection personnel. These inspections shall be done by these instructions and using Aluminum Shapes Inc. inspection equipment or customer supplied and approved equipment.

Section 6. Final Inspection

6.1 Final inspection will assure that all items have been manufactured in compliance with the requirements stipulated in the purchase order and/or contract requirements or other specifications governing the items.

6.2 Final inspection shall evaluate the findings of in-process inspection. The inspector will evaluate the work to determine completion of work and that previous inspections were performed and recorded.

6.3 Final inspection shall make certain that all necessary documents and test reports accompany the completed parts.

6.4 Final inspection will consist of an examination of all items and/or assemblies in their completed state for conformance with drawings, purchase order, engineering orders and other applicable data.

6.5 The final inspection initials will appear on the Shop Traveler. Finished items which comply with Aluminum Shapes stated requirements will proceed to the shipping department, accompanied by the necessary documents.

6.6 Finished items which do not comply with stated requirements will be properly identified by rejection tag and held in bond for further disposition.

Section 7. Sample Inspection

7.1 Sample inspection is any acceptance sampling less than 100% inspection.

7.2 Should sampling inspection be required by the customer, Aluminum Shapes would perform such sampling in accordance with MIL-STD-105D.

7.3 Reduced/Tightening of the sampling plan shall be used as deemed necessary by the Quality Control Manager.

Section 8. Handling, Storage and Shipping

8.1 Material shall be controlled when necessary for fabrication or interim storage to prevent or minimize damage, deterioration, or corrosion.

8.2 It shall be the responsibility of the quality control department to assure that packaging and/or storage of completed items comply with generally accepted standards or to customer requirements if stated.

8.3 All pertinent papers, such as shippers, shop travelers, certifications, shipping instructions, etc., will be presented to inspection prior to packaging of items.

8.4. Inspection shall verify that final inspection has been accomplished by the presence of an Acceptance initials in the appropriate column of the shop traveler.

5. An inspection shall be conducted prior to the final sealing of the package or container, or on such sampling inspection as ordered by the Quality Control Manager.

8.6. Customer and/or government source inspection shall be notified for their acceptance, as may be required by contract, prior to the sealing of the package or container.

References: MIL-STD-1189
MIL-STD-130F
MIL-STD-1186A
MIL-STD-129J
MIL-STD-726G

8.7 Packaging will be to best commercial standards unless otherwise specified. If special packaging instructions are specified by the customer, they will be incorporated into the work order and made available prior to the time of packaging and inspection.

Section 9. Corrective Action

1. Corrective Action Instructions

2. Scope:
   Review of non-conforming items which depart from Engineering drawings or specifications. These items will receive a Corrective Action investigation of and when the discrepancy affects safety, excessive cost of repair and/or loss of material.

3. Policy:
   Corrective Action will be taken to prevent repetitive production of non-conforming items. The system described herein has been designed to remove random occurrences and occasional minor discrepancies form the field of Corrective Action. It will establish a corrective action effort in areas where effective action can and should be initiated to prevent the production of non-conforming items.

4. Responsibilities:
   The Quality Control Manager, President, or designated company representative will:

   4.1. Determine when Corrective Action is required from suppliers and/or plant personnel.

   4.2. Obtain a Corrective Action statement from source responsible.

   4.3. Review Corrective Action statements supplied by responsible personnel to determine if they are adequate and acceptable.

   4.4. Assure Corrective Action is accomplished or being initiated on all non-conforming items submitted for action.

   4.5. Assure expedient measures to furnish Customer Corrective Action within specified time limits.

5. Procedure:

A Rejection Report will be initiated by Inspection and forwarded to the Quality Control Manager for disposition when Corrective Action is deemed necessary. The Rejection Report will be forwarded to the responsible department for completion of a Cause and Corrective Action Statement. The CCAS will be completed following the instructions in this manual, Page 20, paragraph 9.6., lines 9.6.1, 9.6.2, 9.6.3., and paragraph 9.7.

6. Definition:

A complete and acceptable Corrective Action Statement shall consist of the following:

6.1. A description of the cause.

6.2. Action taken to prevent reoccurrence.

6.3. The quantity and identity of the affected pieces, either by serial number, lot number, shipping date or by a unique description.

7. Material Review Board

This board is composed of the President, Vice President, and the Quality Control Manager. The Material Review Board will determine if the job can be reworked or replaced. If a deviation is requested, they will notify the Customer. The Customer must approve all deviations. The Quality Control Manager will maintain a record of all rejections and their dispositions in the Job Folder.

Section 10. Calibration

10.1. A written log shall be kept to maintain a control of all measuring equipment and the establishment of a system assuring their conformance to contract requirements.

10.2. This control shall include all Aluminum Shapes owned and any qualified employee owned measuring equipment. Conformance to applicable traceable standards will be maintained by the Quality Control department.

3. A system of adequate, periodic checking of equipment, maintenance of such records, and responsibility of control, storage, maintenance, repair and any loaning of all instruments and gauges will be maintained.

4. Gauge Inspection

10.4.1. An individual record shall be maintained for every Company gauge or instrument, showing name, type, size, date of check, inspectors name and date of re-calibration.

10.4.2. Initial, and periodic inspection of gauges are to be in accordance with MIL-STD-45662 and will be entered on individual records listing values used and typical measuring standards.

3. New gauges may be accepted on the basis of suppliers certificate, although they are subject to verification to the extent necessary.

5. Gauge Inspection Masters

1.	Gauge Blocks	12 months maximum
2.	End Standards	12 months maximum
3.	Surface Table	12 months
4.	Thermometer/Hygrometer	6 months

6. All test and checks are traceable to the National Bureau of Standards. Calibration will be conducted in a temperature-controlled area, at a temperature between 68 and 72 degrees F. The calibration specifications and the intervals of calibration are listed in the preceding paragraphs. A condensed written procedure for calibration of the most common equipment is shown later in this section. Intervals of calibration will be based on stability and usage as well as the equipment's history and manufacturers recommendations. Obsolete, damaged or non-calibrated equipment will not be used on any job. The Quality Control Manager will review this procedure yearly and make updates as required.

7. Equipment found to have an error margin of more than 10% will cause a letter to be sent to the last customer whose parts were checked by that tooling notifying them of the possibility of out of tolerance condition of their parts.

8. The failed equipment shall be marked "NOT CERTIFIED" and a new calibrated piece of equipment will be issued. Under no circumstances shall "NOT CERTIFIED" or past due calibration equipment be used for certifying in process, receiving or final inspection.

9. Employee owned inspection tools used for inspection shall not be used for final acceptance inspection.

10. Calibration Procedures

Outside Micrometers – Accuracy .0005 Inch

1. Solvent clean and oil.

2. Check for wear on the micrometer lead screw by pushing the thimble to and fro in the direction of the screw axis. If there is any shake, the lead screw adjustment will be tightened. Care should be taken not to bind the lead screw. The thimble should revolve freely at all positions.

3. Check for parallelism and flatness using a precision ball at the center and edges of the anvil. If the locknut on the micrometer is used, be sure to tighten the nut without excessive force and to check the measurement again after the nut has been tightened.

4. Use three gage blocks in .008” increments that fall within the parameters of the tool being checked.

5. Record results and apply the proper calibration label.

Inside Micrometer – Accuracy .001 Inch

1. Solvent Clean.

2. Visually check the radius of the anvils where a flat is formed.

3. Set an outside micrometer to gage block standards and measure with inside micrometers. Use three settings, .008” increments.

4. Record results on gage sheet and apply proper calibration label.

Micrometer Depth Gage – Accuracy .001 Inch

1. Solvent clean.

2. When inserting different length rods in depth micrometer be sure to turn a couple of revolutions for seating purposes.

3. Caution must be used because a light pressure in advancing the thimble can raise the anvil away from the surface on which it is resting, thereby creating an error in the reading.

4. Place the gage over the two equal stacks of gage block combinations placed on the surface plate. This shall be done in 3 intervals in the range of the micrometer.

5. Record results on gage sheet and apply proper calibration label.

Vernier Calipers – Accuracy .001 Inch

1. Solvent clean.

2. Use gage blocks and/or micrometer standards over the full range of the tool being calibrated for O.D. measurements.

3. Check for wear on the jaws by visual and by measuring gage blocks in .001” increments. If more than .003” wear, a limited use label shall be applied.

4. Check the sliding head for looseness.

5. Check the Vernier depth gage.

6. Record results on gage sheet and apply calibration label.

Vernier Height Gage – Accuracy .001 Inch

1. Solvent clean.

2. Use gage blocks over 3 ranges of height gage being tested.
   Note: A thermometer shall be incorporated to ensure that 58 degrees to 75 degrees F. will be maintained on surface plate.

2. Set on surface plate and set to 0 (zero).

3. Check for wear on the jaw by using .001 increment gage blocks. Also check tightness of jaw assembly.

4. Record results on gage sheet and apply calibration label.

Dial Indicator Gages - Accuracy to the Individual Dial Graduations

1. Solvent clean.

2. check end of indicator with an eye loop for flatness. If there is evidence of wear to the point, the point shall be replaced.

3. Set the indicator solidly in the height gage, move the contact point with the fingers and note whether the indicator shows any tendency to stick.

4. Run gage blocks in increments of dial indicator the full travel of the dial. Check for misuse.

5. Record results in gage sheet and apply proper label.

Note: If any other gages will be calibrated, procedures shall be written using manufacturer or government recommendations.

References
MIL-STD-45662, MIL-STD-120, MIL-1-45208A, ISO 10012-12, ANSI-Z-540

Section 11. Indication of Inspection Status

1. Signature or initials will be used in lieu of identification stamps. However, under special instructions from the Quality Control Department, either or both may be required.

2. Samples of Inspection Initials:

First Article	Accept	Reject
SL	JN	FS

3. Control of Initials
The Quality Control Department maintains a record of the initials "in use". All "out of use " initials are maintained for a period of at least one year.

4. Control of Stamps
The Quality Control Department maintains a record of the stamps in use and all recalled stamps. Lost or misplaced stamps are recorded and will not be reissued for a period of at least one year.

Section 12. Control of Government/Customer Furnished Equipment or Material

12.1. When government or customer has furnished Aluminum Shapes with equipment or material, the quality control department will perform receiving inspection for proper type, quantities, damage and the accuracy and completeness of accompanying documents.

12.2. The quality control department will ensure proper segregation, storage, handling and use of all furnished equipment or materials to prevent damage, deterioration or misuse.

12.3. In the event of discrepancies, the quality control department will tag GFE/ CFE with a rejection tag and immediately report the discrepancies to the cognizant government/customer representative for initiation of appropriate corrective action.

APPENDIX A

Forms

ALUMINUM SHAPES

SHOP TRAVELER

DATE __/__/__

SHOP TRAVELER

CUSTOMER I.D.	
PROJECT NAME:	
DRAWING NUMBER	
DRAWING REV #	
PART NUMBER:	
ORDER QUANTITY:	
CUT LENGTH:	
MATERIAL:	

DIE #:	
SHOP COMPLETE DATE	
SHIP DATE:	
SHIP VIA:	

ITEM#_____ PCS_____

CUT FROM _____

RESTOCK/REM _____

EXTRA MAT'L: TO TRAVELER#_____ or STOCK

#	OPERATION:	QUANTITY	#INSPECT	#ACCEPTED	#REJECTED	INITIALS

SHIPPING INFORMATION

QUANTITY SHIPPED	DATE	NUMBER OF BOXES	WEIGHT	VIA:

ASI FIRST ARTICLE INSPECTION REPORT

Part Number _____ Rev. ____ Description _____ Date _____

Drawing No. _____ Rev. ____

Traveler No. _____ Vendor _____
Customer _____ P. O. No. _____
Inspector _____ Shipper No. _____

Comments

****
Inspection Type (circle one) Receiving In-Process Final
****

ITEM	Dimension	+ Tol	- Tol	Actual	IN Disposition	OUT Disposition	Remarks

DISPOSITION:

DATE _____ SIGNATURE _____

Aluminum Shapes, Inc.

Rejection Report

See page 20, paragraph 9.6, lines 9.6.1, 9.6.2. 9.6.3 and 9.6.7 of the Aluminum Shapes, Inc. Quality Control Manual

Traveler No. _____ Inspector _____

Part #_____ Drawing #_____ Rev. _____

Description _____

P.O.#_____ Shipper # _____

Description of Discrepancy (be specific, include marked-up drawing if necessary):

_____

_____

_____

_____

_____

Cause:

_____

_____

_____

_____

Corrective Action Statement:

_____

_____

_____

_____

Disposition:

_____

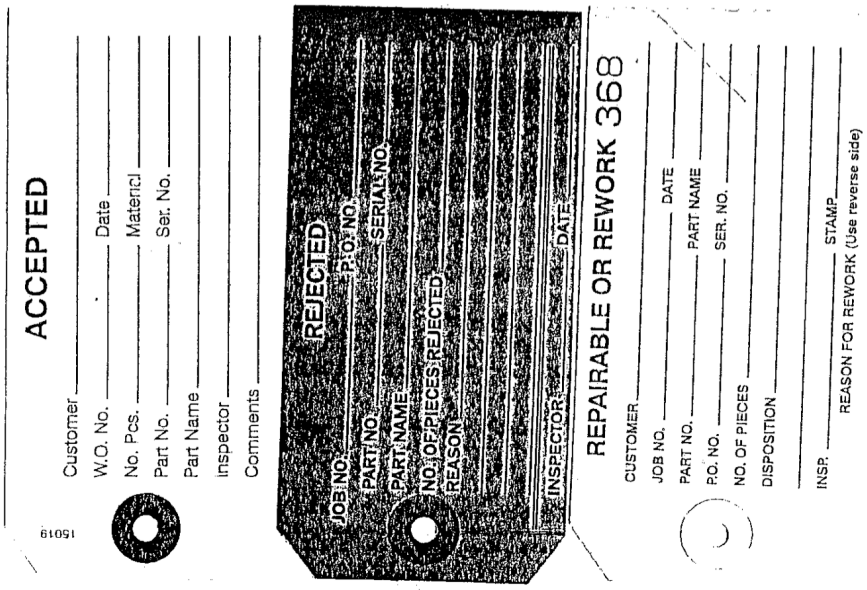
_____

_____

_____

_____

Date: _____ Title:_____ Signature:_____


ACCEPTED
Customer
W.O. No.
Date
No. Pcs.
Material
Part No.
Ser. No.
Part Name
Inspector
Comments
61019
REJECTED
JOB NO.
P.O. NO.
PART NO.
SERIAL NO.
PART NAME
NO. OF PIECES REJECTED
REASON
INSPECTOR
DATE
REPAIRABLE OR REWORK 368
CUSTOMER
JOB NO.
DATE
PART NO.
PART NAME
P.O. NO.
SER. NO.
NO. OF PIECES
DISPOSITION
INSP.
STAMP
REASON FOR REWORK (Use reverse side)

LUMINUM SHAPES, INC.
025 S. GREENWOOD AVE.
ONTEBELLO, CA 90640
[illegible]) 887-8500

PURCHASE ORDER #11355 1 12/17/1998
SALESPERSON:
SCOTT
SHIP BY:
12/17/1998

BUYER:
BRYAN

VEND ID:
PETTYCASH

SHIP TO:

ALUMINUM SHAPES PETTY CASH EXP
1025 SOUTH GREENWOOD AVENUE
MONTEBELLO, CALIFORNIA
GENERAL LEDGER EXP ACCT.

P	QTY	ITEM/DESCRIPTION	WIDTH	LENGTH	WEIGHT	COST	AMOUNT
	500.00 LBS	SPOLBAR SAMPLE PURCHASE ORDER		20'	500.000 LBS	0.0000/LBS	0.00

****
*
* CONFIRMATION OF PHONE ORDER *
*
****

PLEASE NOTE AREA CODE CHANGE FROM 213-887-8500 TO
323-887-8500 FAX 323-887-8598 EFFECTIVE JUNE 16

500.00 TOTAL LB ORDER TOTAL [END ORDER] 0.00

FREIGHT COST 0.0000/

EASE FURNISH TEST REPORTS WITH MATERIAL.
NFIRMING TO:
THERE ARE ANY DISCREPANCIES, PLEASE NOTIFY US IMMEDIATELY. THANKS.
RMS. C.O.D.

Fax: