

<b>HSQR</b>	<b>Harlow Aerostructures, LLC Supplier Quality Requirements</b>	<b>Revision</b>
<b>001</b>		<b>B</b>

Rev	Description	Date
N/C	New	2/23/09
A	Additions and/or changes are clearly marked with a hash mark to the left side of the revisions.	10/12/10
B	Additions and/or changes are clearly marked with a hash mark to the left side of the revisions.	4/13/11

**Approvals:***Signature on File*

Date: 4/13/11

*Quality Assurance Manager*

- 1.0 Purpose
- 2.0 Scope
- 3.0 Harlow Supplier Approval
- 4.0 Supplier Performance Approval
- 5.0 Manufacturers
- 6.0 Special Processors
- 7.0 Distributors
- 8.0 Harlow Furnished Tooling
- 9.0 Periodic Inspection of Tooling
- 10.0 Part Identification
- 11.0 Raw Materials
- 12.0 Military/Standard Specification Hardware
- 13.0 Right of Access
- 14.0 Quality Records
- 15.0 First Article Inspection
- 16.0 Nonconforming Material
- 16.1 Counterfeit Parts Prevention
- 17.0 Latent Defect Reporting
- 18.0 Quality Clauses
- 19.0 Delivery Documentation

**1.0 Purpose**

Harlow Aerostructures, LLC (HAC) Quality Policy is, "Meeting or exceeding our customer's requirements and expectations for product quality and performance through Teamwork, Continuous Improvement, Six Sigma, Lean Manufacturing and Product Excellence". The achievement of this policy requires a similar desire and commitment to excellence from our Harlow Aerostructures, LLC Supply Chain partners.

HAC Quality Assurance has created this Supplier Quality Requirements Document to clearly communicate our requirements and the Web-based communication tools that have been made available to achieve this end.

**2.0 Scope**

This document establishes Harlow Aerostructures, LLC quality requirements for suppliers. These requirements apply to Manufacturers, Distributors, and Special Processors providing parts or services for Harlow Aerostructures, LLC when this document is specified by inclusion on purchase order or contract issued by Harlow Aerostructures, LLC.

In the event that the purchase order or contract conflicts with the requirements of this document, the purchase order or contract requirement will supersede.

**3.0 Harlow Supplier Approval**

Suppliers’ quality systems shall comply with the latest revision of the appropriate quality systems standard along with the Harlow specific quality requirements within this document. Documented evidence of compliance to the appropriate quality management system (QMS) standard: e.g. ISO 9001, ISO 9002, (AS/EN/JISQ) 9003, (AS/EN/JISQ) 9100 or (AS/EN/JISQ) 9120.

Harlow approval is required for all Manufacturers, Distributors and Special Processors who supply aerospace parts or services. All written and oral communications with the supplier as well as the customer’s specifications, procedures and reports shall be in English.

Harlow sub-tier manufacture suppliers are limited from sub-contracting any manufacturing process without direct notification and approval from Harlow Aerostructures LLC.

Questions regarding quality approval shall be directed to Harlow Aerostructures Quality Department. [Quality@harlowair.com](mailto:Quality@harlowair.com).

**4.0 Supplier Performance Monitoring**

Harlow evaluates supplier performance in the areas of quality and delivery as applicable.

The supplier is responsible for complying with quality system requirements noted herein and for meeting performance expectations. Failure to comply with requirements or to achieve an acceptable performance level may result in an on-site audit and/or disapproval from Harlow Aerostructures approved supplier list. Harlow suppliers are required to maintain a Quality and Delivery rating of 98% or greater; failure to comply may result in the supplier presenting a corrective action recovery plan.

- Delivery ratings are determined on the occurrence of the following criteria only when it is determined to be the Supplier’s responsibility:
  - a. Late deliveries (Item(s) received after due date)
  - b. Early Shipment (Greater than 5 days)
  - c. On Time (Between 4 days early and 0 days late)
- Quality Ratings: This is monitored but not limited to a quarterly review through the NCR Reports.

RED
YELLOW
GREEN

RED	< 94.9
YELLOW	95.0 – 97.9
GREEN	98.0 - 100

**5.0 Manufacturers**

In addition to other requirements within this document, Harlow requires manufacturers of materials, parts and assemblies to have a quality management system that complies with the (AS/EN/JISQ) 9100 Quality Management Systems - Aviation Requirements, Space and Defense Organizations.

*Copies of the AS standards can be purchased from SAE International at [www.sae.org](http://www.sae.org) or IHS-ASTM Book of Standards - [http://global.ihs.com/industry\\_stds.cfm](http://global.ihs.com/industry_stds.cfm).*

**6.0 Special Processors**

Special Processors must have a quality management system that is compliant to (AS/EN/JISQ) 9100 Quality Management Systems / Aerospace / Requirements.

Approval by Harlow Quality may involve an on-site audit of the supplier's QMS and the applicable special processes. The QMS audit may be waived for suppliers accredited to (AS/EN/JISQ) 9100 or ISO 17025. The ISO 17025 scope of accreditation must cover the NADCAP scope of accreditation and be from an approved NACLA / ILAC accreditation body.

NADCAP/NUCAP accreditation is required in the following disciplines:

- Non-Destruction Testing (RT, UT, PT, and MT)
- Chemical Processing (painting, plating, anodize, etch and various other wet processing)
- Heat Treating (including furnace brazing)
- Welding and Brazing
- Surface Enhancement - shot peen only
- Materials Testing Laboratories (raw material testing)

Information regarding the NADCAP/NUCAP accreditation process can be found at [www.prinetwork.org/Nadcap/](http://www.prinetwork.org/Nadcap/). It is the supplier's responsibility to ensure that Harlow's Quality department is notified regarding any change of NADCAP/NUCAP certification status.

## **7.0 Distributors**

A distributor is defined as a supplier that procures parts, materials or assemblies and sells these products to a customer without affecting product characteristics or conformity. Distributors must employ a documented quality system that is compliant to (AS/EN/JISQ) 9120 Aerospace Requirements for Stock-list Distributors or (AS/EN/JISQ) 9100 Quality Management Systems / Aerospace / Requirements.

*Copies of the AS standards can be purchased from SAE International at [www.sae.org](http://www.sae.org) or IHS-ASTM Book of Standards - [http://global.ihs.com/industry\\_stds.cfm](http://global.ihs.com/industry_stds.cfm).*

## **8.0 Harlow Furnished Tooling**

Harlow Tool Control will notify the supplier when periodic inspections are due. The notification will be transmitted by e-mail, facsimile or mail and consist of a list of the tools and the dates the inspections are due. The supplier's authorized quality representative will date, stamp and sign the letter certifying the periodic inspections are complete and return the letter to Harlow Tool Control by e-mail, facsimile or by mail. The supplier's quality representative will facilitate having the tooling and tooling log inspection stamped to note the completion of the periodic inspection.

## **9.0 Periodic Inspection of Tooling**

The supplier shall ensure that tooling which controls or checks the final configuration of controlled parts and assemblies are inspected to ensure compliance to tool design, master control tools at a minimum annually.

## **10.0 Part Identification**

Parts that are not design controlled shall have the supplier part number applied. Part marking shall be accomplished by permanent ink stamping of the parts when the identification method is not specifically regulated by the drawings, specifications or other documents. Parts that are too small to be surface marked legibly shall be tagged either individually or by the bundle.

## **11.0 Raw Materials**

Where the supplier supplies raw material (e.g., bar, castings, extrusion, forging, plate, sheet, etc.) either directly to Harlow Aerostructures LLC or purchases the material for use in manufacturer of machined or sheet metal products for Harlow Aerostructures LLC (standard hardware items are specifically excluded from this paragraph), the supplier shall assure that the material is manufactured and distributed by sources approved by Harlow's customer.

Harlow's Quality Assurance must approve any substitution of material, size and/or shape.

All items delivered to Harlow Aerostructures LLC must maintain Job/Lot traceability.

Where our customer does not specifically require approval of the manufacturer and/or distributor of the raw material then:

Where the material is for use on commercial aircraft the supplier shall assure that the material is manufactured in the United States of America or in a country with which the United States of America has ratified a Bi-Lateral Airworthiness Treaty. For a list of countries with bi-lateral agreements consult FAA AC 21-18 and AC 21-23.

Where the material is for use on military aircraft and the material is considered a specialty metal (as defined in DFARS 252.225-7014), then the supplier shall assure that the materials are melted in the United States of America, its possession, or Puerto Rico unless supplier gains prior written approval through Harlow Aerostructures LLC from our customer for use of other sources.

Raw material test reports and/or notarized reports, in accordance with all applicable specifications, must be kept on file and traceable to end item products delivered to Harlow Aerostructures LLC.

Certificate of compliance with actual results of physical and chemical test reports must accompany each shipment where supplier furnishes the raw material. Material must be identified by heat lot and/or heat treat load, (if applicable). Test reports must be traceable to the material lots supplied.

Supplier should contact Harlow's Quality Assurance for assistance in assuring the source of raw material supply is acceptable to Harlow's customers.

## **12.0 Military/Standard Specification Hardware**

Suppliers shall deliver military/standard specification hardware (AN, MS, NAS, etc.) compliant with the latest document revision. Supplier shall provide a certificate of supplier's source of supply where the product is controlled by a qualified producer's list (QPL) when the supplier is not on the QPL.

Where the supplier supplies hardware items (e.g., Bolts, Nuts, Nutplates, Rivets, Loc Bolts, Hi-Locs, Collars, etc.) of standard design (whether industry or Harlow's customer standard) and the hardware is controlled by a qualified producer's list (QPL) the supplier shall provide a certificate of source of supply when the direct Harlow's supplier is not on the QPL.

Where Harlow's customer requires the distributor to be approved, then the supplier shall only use and or supply hardware from Harlow's customer approved distributor.

Supplier should contact Harlow's Quality Assurance for assistance in assuring the source of standard hardware items is acceptable to Harlow's customers.

## **13.0 Right of Access**

The supplier guarantees the right of access to their facilities and quality related data to Harlow Aerostructures, LLC / Customer and/or Regulatory authorities. This right of access is extended to all sub-tier and raw material suppliers.

## **14.0 Quality Records**

The supplier shall establish a system to retain records for a minimum of seven years after product shipment. Suppliers of serialized assemblies under Harlow's customers design control shall retain assembly inspection records and delivery records, including all bonded assembly inspection records, for the duration of the contract/7years.

Quality records include but are not limited to:

First Article Inspection Results	Purchase Order	Rework and/or Repair Logs
Final Inspection Criteria	Test Results	Raw Material Certification
Final Inspection Results	Shipping Documentation	Special Process Certification
Nonconforming Part/Material Documentation	Any Waivers Granted	Shop Traveler / Router

## 15.0 First Article Inspection

The supplier shall perform a first article inspection, on a part from each first lot shipment of parts, to verify all engineering characteristics. Variable gauging shall be used when possible. Suppliers shall comply with AS9102 for all first article inspections. The FAIR (First Article Inspection Report) shall be retained as a quality record at the supplier's facility and a copy be submitted to Harlow Aerostructures, LLC along with the first lot shipment. If applicable, a Harlow source inspector may verify FAIR at the supplier's facility. FAI requirements also include;

- A complete dimensional bubble drawing of the detail and/or assembly FAI part.
- Material Certifications (if applicable)
- Special Processing (If applicable)
- First Article Part shall be clearly marked/tagged FAI.
- Delta FAIR; First production lot after engineering changes and/or changes to manufacturing processes that may affect conformance to design, (Fit, Form or Function).
- Changes in manufacturing source(s), process(es), inspection method(s), location of manufacture, tooling or materials, numerical control program or translation to another media that can potentially affect fit, form or function. . In most cases, the First Article Inspection Report (Delta) need only record those features that may have changed. In most cases, the First Article Inspection Report (Delta) need only record those features changed, using an AS9102 form.
- A lapse in production for two years warrants a new FAIR.

## 16.0 Nonconforming Material

Supplier shall submit all nonconforming material to Harlow's Quality Assurance for approval prior to shipping of the product. The supplier may use documents or supplier's documents to identify discrepant material.

Supplier shall investigate the cause of each nonconformance, whether identified by supplier or by Harlow Aerostructures LLC. The supplier shall establish corrective action to preclude the recurrence of the nonconformance. The supplier shall provide a statement of the cause and the corrective action to Harlow's Quality Assurance whenever the supplier is submitting a nonconformance for Harlow's approval. The supplier shall provide a statement of the cause and the corrective action to Harlow's Quality Assurance within ten days whenever Harlow has identified a nonconformance to the supplier.

### 16.1 Counterfeit Parts Prevention

a. For purposes of this section, work consists of those parts delivered under this Contract that are the lowest level of separately identifiable items (e.g., articles, components, goods, and assemblies). "Counterfeit Work" means Work that is or contains items misrepresented as having been designed and/or produced under an approved system or other acceptable method. The term also includes approved Work that has reached a design life limit or has been damaged beyond possible repair, but is altered and misrepresented as acceptable.

b. SELLER agrees and shall ensure that Counterfeit Work is not delivered to HARLOW AEROSTRUCTURES.

c. SELLER shall only purchase products to be delivered or incorporated as Work to HARLOW AEROSTRUCTURES directly from the Original Component Manufacturer (OCM)/Original Equipment Manufacturer (OEM), or through an OCM/OEM authorized distributor chain. Work shall not be acquired from independent distributors or brokers unless approved in advance in writing by HARLOW AEROSTRUCTURES.

d. SELLER shall immediately notify HARLOW AEROSTRUCTURES with the pertinent facts if SELLER becomes aware or suspects that it has furnished Counterfeit Work. When requested by HARLOW AEROSTRUCTURES, SELLER shall provide OCM/OEM documentation that authenticates traceability of the affected items to the applicable OCM/OEM.

e. In the event that Work delivered under this Contract constitutes or includes Counterfeit Work, SELLER shall, at its expense, promptly replace such Counterfeit Work with genuine Work conforming to the requirements of this Contract. Notwithstanding any other provision in this Contract, SELLER shall be liable for all costs relating to the removal and replacement of Counterfeit Work, including without limitation HARLOW AEROSTRUCTURES costs

of removing Counterfeit Work, of reinserting replacement Work and of any testing necessitated by the reinstallation of Work after Counterfeit Work has been exchanged. The remedies contained in this paragraph are in addition to any remedies HARLOW AEROSTRUCTURES may have at law, equity or under other provisions of this Contract.

f. This procedure applies in addition to any quality provision, specification, statement of work or other provision included in this Contract addressing the authenticity of Work. To the extent such provisions conflict with this clause, this clause prevails.

g. SELLER shall include paragraphs (a) through (d) of this clause or equivalent provisions in lower tier subcontracts for the delivery of items that will be included in or furnished as Work to HARLOW AEROSTRUCTURES.

### **17.0 Latent Defect Reporting**

In the event a condition is discovered that affects previously delivered product, Harlow shall be notified of the condition in a timely manner. Notification shall be in the form of a letter addressed to the attention of the Harlow's Quality Department. The letter must include all pertinent information concerning the condition (i.e. part numbers, serial number, quantities, time frame, description of condition, etc.) and the corrective action taken to prevent recurrence.

### **18.0 Quality Clauses**

Assurance that the requirements of all purchase order notes or quality clauses are understood and implemented throughout supplier planning and clearly communicated to sub-tier suppliers for inclusion in their planning.

Suppliers shall obtain and comply with the latest released revision of Harlow Supplier Quality Clauses (HQA-01) referenced on Harlow Aerostructures, LLC Purchase Orders, available at [www.harlowair.com](http://www.harlowair.com).

### **19.0 Delivery Documentation**

The supplier shall provide delivery documentation for each item delivered in accordance with the purchase order/contract. The contents shall include:

- A company Certifications of Conformance statement denoting acceptance of the product
- Identity of actual manufacturer (manufacture of origin) on the packing sheet if the end item manufacturer is a company other than themselves
- When performed, name and location of all special process suppliers including all sub-tier special processor(s), ref 6.0 Special Processors (Certifications Required)
- Part serial numbers, when applicable
- First article inspection reports / Delta when performed
- Any other documentation required by purchase order or contract

Material certifications are required to be submitted with all part shipments if the material was purchased and furnished by the supplier. Suppliers are required to maintain a copy of the material certification records traceable to the product shipped to Harlow, ref 14.0 Quality Records.