

	<b>Quality Assurance Instruction</b>
	<b>QAI-2009A</b>
	<b>Revision 16</b>
<b>Gables Engineering, Inc</b>	<b>Purchase Order Quality Requirements</b>

## 1 INTRODUCTION

### 1.1 Purpose

This document provides guidelines for flowing Gables quality requirements to suppliers.

### 1.2 Scope

This document applies to the procurement of materials, parts, and services used in Gables products.

### 1.3 Deleted

### 1.4 Deleted

## 2 GENERAL PROCEDURE

This document defines the quality procedures pertaining to purchase orders that Gables Engineering uses to assure purchased product conforms to specified requirements.

### 2.1 Standard Quality Clauses

Standard quality clauses are included in the general terms and conditions section (section 3 of this document) for standard Gables purchase orders.

### 2.2 Additional Supplier Requirements

Additional supplier requirements may originate from customer contract reviews (QAI-1003) or quality planning (QAI-1017). Engineering and/or Quality will notify Purchasing of any such requirements.

The date codes of the components must not be older than 15 years. However, exceptions can be made if the item is the last time buy. Anything over 15 years old must be approved by Engineering and Quality and must go through a comprehensive testing and solderability test with respect to MIL-STD 883 or IPC J-STD-002. Any components purchased from individual brokers must have an AS6081 certificate. Any components purchased from an authorized distributor must have an AS6496 certificate. Exceptions are subject to quality and engineering's approval.

#### PROPRIETARY NOTICE

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.

### 2.3 Quality or Other Special Requirements

Quality or other special requirements not referenced in this document may be included as line items in the purchase order. Special Quality requirements may also be flowed down to supplier through drawings and specifications.

### 2.4 Gables Quality Clauses

Gables quality clauses are assigned to procured materials to define:

#### 2.4.1 Control Over Subcontractors

The type and extent of control exercised by Gables over subcontractors when it is necessary to use customer approved special process sources.

#### 2.4.2 The Product Ordered

The product ordered including identification of requirements for approval of product, procedures, process equipment, and personnel; the quality system standard; acceptance requirements; right of access; notification of anomalies and changes; and flow down of requirements to sub tier suppliers.

#### 2.4.3 Verification of the Purchased Product

Verification of the purchased product includes objective evidence of product quality from subcontractors (e.g., accompanying documentation, certificate of conformity, test reports, statistical records, and process control).

## 3 TERMS AND CONDITIONS

The following quality clauses are standard and are listed in the purchase order terms and conditions:

### 3.1 Right of Entry

Regulatory agencies, Gables customers, and Gables Engineering are afforded the right of entry at the supplier's premises for surveillance or investigation in order to verify the quality of work, records and conformance of purchased product to specified requirements. Such verification by Gables will not be used as evidence of effective quality control by the supplier. Gables still assumes responsibility and the right of rejection for all procured products. Gables customers also retain the right of rejection in cases where product or quality control methods have been verified at the source.

#### PROPRIETARY NOTICE

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.

### 3.2 Identification of Limited Shelf Life Material

Supplier identifies each item, package, or container of limited shelf life material with its cure or manufacture date, expiration date, and special storage and handling conditions in addition to the standard identification requirements and Certificate of Conformance.

### 3.3 Certificate of Conformance

Each shipment must be accompanied by a Certificate of Conformance stating that all specified requirements have been met unless exempted on purchase order. The certificate, at minimum, identifies the purchase order number, part number, part quantity, lot number, serial number, and date codes.

Suppliers, whether manufacturers or distributors, shall approve, retain, and provide copies of Electrical, Electronic and Electromechanical (EEE) part manufacturer C of Cs as well as any test data for a minimum period of 10 years from the date of purchase order. In addition, Suppliers shall produce test data for components upon Gables Engineering's request.

Independent Distributors procedures shall meet the requirements of IDEA-STD-1010. The original manufacturer's C of C and all traceability documentation shall be included with each shipment of parts. Recorded evidence of all testing performed shall also be included with each shipment.

Supplier shall identify Country of melting source.

Supplier shall provide Country of Origin on the CoC

### 3.4 Notification

The supplier is required to immediately notify Gables Engineering Purchasing when it is indicated that nonconforming products have been supplied and/or of any changes that may have occurred in definition and approval of their processing.

### 3.5 Packing and Shipping

All goods shall be handled, stored and packaged in a manner that prevents damage or deterioration. Goods must also be packaged to secure lowest transportation rates and comply with carrier tariffs. ESD protective packaging must be used for electrostatic sensitive components per DOD-HDBK-263 for Static Dissipative Protective Materials. No charges will be

**PROPRIETARY NOTICE**

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.

---

paid by Gables Engineering, Inc., for preparation, packaging, crating, or cartage unless separately stated in the order.

### 3.6 Shipment and Delivery

Shipments or deliveries (as specified in the order) shall be strictly in accordance with the quantities and schedule specified in the Purchase Order. If at any time it appears Seller will not meet such schedule, Seller will promptly notify Gables Engineering, Inc. of reasons for and estimated duration of the delay and, if requested by Gables Engineering, Inc., cancel the balance of the Purchase Order at no further obligation of Gables Engineering Inc.

### 3.7 Invoice and Payment

A separate invoice shall be issued for each shipment. Unless otherwise specified in the Purchase Order, no invoice shall be issued prior to shipment of goods and no payment will be made prior to receipt of goods or date of receipt of correct invoice (whichever is later) to date Gables Engineering, Inc.'s check is mailed.

### 3.8 Warranties

Seller warrants that all goods delivered under a Purchase Order will conform to the requirements of the Purchase Order (including all applicable descriptions, specifications, and drawings), will be free from defects in material and workmanship and will, to the extent not manufactured pursuant to detailed designs furnished by Gables Engineering, Inc., be free from defects in design and fit for the intended purposes. Any inspection or acceptance of the goods by Gables Engineering, Inc. shall not be deemed to alter or affect the obligations of Seller or the rights of Gables Engineering, Inc. and its customers under the foregoing warranties.

### 3.9 Inspection

All goods are subject to final inspection and acceptance by Gables Engineering, Inc. at destination notwithstanding any payment or prior inspection at source.

### 3.10 Rejection

Gables Engineering, Inc. shall notify Seller if any goods delivered hereunder are rejected and, at Gables Engineering, Inc.'s election and Seller's risk and expenses, such goods shall be held by Buyer or returned to Seller. No replacement or correction of nonconforming goods shall be made by Seller unless agreed to in writing by Buyer.

#### PROPRIETARY NOTICE

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.

### 3.11 Changes

Gables Engineering, Inc.'s Material Representative may at any time, make changes within the general scope of the Purchase Order, on any one or more of the following:

- I. Drawings, designs, or specification.
- II. Method of shipment or packing.
- III. Place of inspection, delivery or acceptance
- IV. Reasonable increases in quantities.
- V. Reasonable changes in delivery schedules.

Unless otherwise specified by Gables, Seller shall use the most current revision of any Gables referenced documents, standards and/or specifications included on Gables drawings or Purchase Orders.

Seller shall proceed immediately to perform the Purchase Order as changed. If any such change causes an increase or decrease in the cost of or in the time required for the performance of any part of the work under the Purchase Order, whether changed or not changed by any such order, and equitable adjustment shall be made in the purchase price or delivery schedule, or both, and the Purchase Order shall be modified in writing accordingly.

### 3.12 Assignment

No assignment of any rights, including rights to moneys due or to become due, or delegations of any duties under a Purchase Order shall be binding upon Gables Engineering, Inc, until its written consent thereto has been obtained.

### 3.13 Termination/Cancellation

By written notice to Seller, Gables Engineering, Inc. may cancel the whole or any part of a Purchase Order in the event of suspension of Seller's business, insolvency of Seller, institution of bankruptcy, reorganization, arrangement or liquidation proceedings by or against Seller, appointment of a trustee or receiver for Seller's property or business, or any assignment by Seller for the benefit of creditors.

### 3.14 Suppliers of Electronic Components and Assemblies

Suppliers of electronic components must comply with requirements of the following standards for each category listed below (as applicable). Exceptions are allowed, if it's a single source.

- ANSI EAI-STD-4899: Requirements for Electronic Management Plan
- AS5553: Counterfeit Electronic Parts
- AS6081: Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition - Distributors

**PROPRIETARY NOTICE**

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.

- AS6496- Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition - Authorized/Franchised Distribution
- SAE-GEIA-STD-005-1: Lead Free Control Plan
- SAE-STD-0016: Obsolescence Management Plan
- SAE-EIA-933: COTS Assembly Management Plan

For Suppliers of Electronic Assemblies, the following industry standards apply:

- J-STD-001, Requirements for Soldered Electrical and Electronic Assemblies
- IPC-610 - Acceptability of Electronic Assemblies - **Class 2**

For suppliers of piece parts and printed wiring boards, the following surface finishes are allowed:

- PWB: Tin/Lead (Sn/Pb) Hot Air Solder Leveled (HASL) – b0
  - Electro-less Nickel/Immersion Gold (ENG) – b4
- Lead Termination:
  - Tin/Lead (Sn/Pb) – e0
  - Tin (Sn) – e3
  - Nickel/Palladium/Gold (Ni/Pd/Au) – e4

Prior to shipping parts with finishes other than those listed above, please contact Gables for approval.

## 4 SPECIAL REQUIREMENTS

Engineering and/or Quality will notify Purchasing of any special quality requirements, or describe these special requirements in Gables' drawings and/or specifications. Where applicable, Purchasing will flow these requirements to the supplier as purchase order line items. These requirements may include but are not limited to the following:

### 4.1 Quality Standard

The title, number, and issue of the quality system standard as applied.

### 4.2 Acceptance Requirements

Design, test, examination, inspection and customer acceptance requirements and any related instructions and requirements.

### 4.3 Test Specimens

#### PROPRIETARY NOTICE

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.

Requirements for test specimens (product method, number, storage conditions, etc.) are for design approval, inspection, investigation or auditing.

#### 4.4 Key Characteristics

Key characteristics that the supplier will monitor using statistical process control (SPC). Key characteristics must be demonstrated to be in statistical control with a process capability (Cpk) > 1.33.

#### 4.5 Product Verification at the Subcontractor's Premises

Where Gables proposes to verify purchased product at the subcontractor's premises, the verification arrangements and the method of product release are specified in the purchasing documents.

#### 4.6 Application of Acceptance Authority Media (AAM)

Supplier shall comply with the AS/EN/JISQ 9100 requirements and 14CFR Part 21.2 regarding the application of the Acceptance Authority Media (AAM) requirements. Supplier shall, within its organization and its supply chain, ensure that the use of AAM is clearly defined within its Quality Management System (QMS). Supplier shall, upon Gables request, be able to demonstrate evidence of communication to its employees and to its supply chain; use of AAM must be considered as a personal warranty of compliance and conformity. Supplier shall maintain compliance to the AAM requirements by assessing its process and supply chain as part of its internal audit activities. The areas of focus of this assessment shall include but not limited to:

- Authority Media Application Errors (i.e. Omission, Typos, Legibility, etc.)
- Authority Media Application Untimely Use (i.e. Documentation is not completed as planned, "Stamp/Sign as you go", etc.)
- Authority Media Application Misrepresentation (i.e., uncertified personnel, Falsification of documentation, Work not performed as planned, etc.)
- Authority Media Application Training Deficiencies (i.e. Ethics, Culture awareness, Proper Use of authority media, etc.)

#### 4.7 Government Contracts

In an event the order is issued for material and/or work required by Buyer for the performance of a contract with a department or agency of the Federal Government or of a subcontract of any tier under such Government contract, QAI-2009B supplemental terms and conditions shall be applicable and will be flowed down by the Purchasing Department.

## 5 RECORDS

#### PROPRIETARY NOTICE

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.

Copies of Purchase Orders including any special quality requirements are kept on file electronically in the Gables Enterprise Resource Planning (ERP) system.

----- End of Procedure -----

### Document Revision Record

Rev	Date Entered	Description / Justification	By
00	11/01/91	First release	
01	06/01/92	Paragraphs 4.1, 4.2, 4.3, 4.4. Deleted section 5.0, other sections moved up. Reworded Quality Code 1. Quality Code 5 becomes 4, Quality Code 5 left blank. Added Quality Codes 25, 28, 29 and 30.	
02	06/28/93	Added QA requirements numbers 5 and 31 to meet Boeing D1-9000 requirements and FAA Draft AC 21-ACSEP	
03	11/18/97	Changed Purpose and Scope. Added section 4 defining sign-off authority. Changed section 5 (General) to define methods for identifying new requirements. Changed clauses 2-4 to reflect ISO equivalents to MIL quality systems. Corrected numbering error on clause 21. Updated clause 30 to include right of entry for customer.	TE
04	11/28/00	Major Rewrite. This version obsoletes QAI-2011	NL
05	03/21/01	Minor revisions per Boeing Quality Management System Requirements for Suppliers, D6-8247 Rev A and Aerospace Standard AS9100, to clarify some of Gables general and specific quality requirements.	NL
06	02/17/09	Incorporated Purchase Order Terms and Conditions into Sec 3. General Terms and Conditions. Renamed Sec 3. to Terms and Conditions.	RLM
07	11/04/14	Sec 3.3 added "Suppliers, whether manufacturers or distributors, shall maintain records of the manufacturer's C of Cs for a period of time as set forth by the requirements of AS9100C or ISO 9001."	RLM
08	1/23/2015	Added paragraph 3.14 – Counterfeit Part Avoidance	
09	1/26/16	Deleted 1.3, 1.4 and table of contents. Updated Sec 3.3 "Suppliers, whether manufacturers or distributors, shall approve, retain, and provide copies of Electrical, Electronic and Electromechanical (EEE) part manufacturer C of Cs as well as any test data for a minimum period of 10 years. In addition, Suppliers shall produce test data for components upon Gables Engineering's request.  Independent Distributors procedures shall meet the intent of the requirements of IDEA-STD-1010. The original manufacturer's C of C and traceability documentation shall be included with each	RLM

**PROPRIETARY NOTICE**

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.



Rev	Date Entered	Description / Justification	By
		shipment of parts. Recorded evidence of all testing performed shall also be included with each shipment.”	
10	8/11/2017	Revised to new format. Revised paragraph 3.14. Added paragraph 4.6.	JDW
11	10/25/2017	Corrected document number no all headers.	JDW
12	2/26/2018	Added “from the date of purchase order” to 3.3, second paragraph. Added “Unless otherwise specified by Gables, Seller shall use the most current revision of any Gables referenced documents, standards and/or specifications included on Gables drawings or Purchase Orders.” to paragraph 3.11 (per CPAR-372)	JDW
13	9/8/2020	Revised 3.14 to include “assemblies”. Added soldering standard and inspection requirements.	JDW
14	6/21/2022	Added: 4.7 Government Contracts changed title to QAI-2009A	JT
15	3/9/2023	1. Added: Supplier compliance requirement to AS6081 and AS6496. 2. Deleted: The typo “Customer” and added Supplier in Section 4; Purchasing will flow these requirements to the <b>supplier</b> as purchase order line items	JT
16	2/6/2024	Added the following in section 2.2:  The date codes of the components must not be older than 15 years. However, exceptions can be made if the item is the last time buy. Anything over 15 years old must be approved by Engineering and Quality and must go through a comprehensive testing and solderability test with respect to MIL-STD 883 or IPC J-STD-002. Any components purchased from individual brokers must have an AS6081 certificate. Any components purchased from an authorized distributor must have an AS6496 certificate. Exceptions are subject to quality and engineering’s approval.  Added the following to 3.3:  Supplier shall identify Country of melting source.  Supplier shall provide Country of Origin on the CoC	JT

**PROPRIETARY NOTICE**

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.

X

---

Andrew R. Ingle  
Director, Quality Assurance

**PROPRIETARY NOTICE**

THIS DOCUMENT AND THE INFORMATION DISCLOSED HEREIN ARE PROPRIETARY DATA OF GABLES ENGINEERING, INC. NEITHER THIS DOCUMENT NOR THE INFORMATION CONTAINED HEREIN SHALL BE REPRODUCED, USED, OR DISCLOSED TO OTHERS WITHOUT THE WRITTEN AUTHORIZATION OF GABLES ENGINEERING INC.