Definition: Quality Certification Requirements (QCRs) are requirements of the supplier that are included in the RFO and Purchase Order and sent to suppliers. Suppliers must have the capability of satisfying a requirement if it is specified in a RFO or PO.

Below QCRs are mandatory:

NO SUBMISSION: Submission is not allowed for materials, part numbers, or processes without prior written approval from the Roush responsible Engineer and written authorization from the Roush buyer.

REVOLUTION OF SPECIFICATIONS: Suppliers shall work to the latest listed revision of all specifications. Verbal direction is not allowed without written authorization from Roush buyer.

NONCONFORMING MATERIAL: Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be repaired or returned to Roush. QCRs issued to Quality/Manager. Any NONCONFORMING MATERIAL. Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be repaired or returned to Roush. QCRs issued to Quality/Manager. Any NONCONFORMING MATERIAL. Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be repaired or returned to Roush. QCRs issued to Quality/Manager. Any NONCONFORMING MATERIAL. Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be repaired or returned to Roush. QCRs issued to Quality/Manager. Any NONCONFORMING MATERIAL. Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be repaired or returned to Roush. QCRs issued to Quality/Manager. Any NONCONFORMING MATERIAL. Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be repaired or returned to Roush. QCRs issued to Quality/Manager. Any NONCONFORMING MATERIAL. Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be repaired or returned to Roush. QCRs issued to Quality/Manager. Any NONCONFORMING MATERIAL. Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be repaired or returned to Roush. QCRs issued to Quality/Manager. Any NONCONFORMING MATERIAL.
Definitioin: Quality Capability Requirements (QCRs) are requirements of the supplier that are included in the RFD and Purchase Order sent to suppliers. Suppliers must demonstrate they have the capability of satisfying a requirement if it is specified in a RFD or on a PO.

480 Process Certification: Certification of processes as specified on the purchase order is required for each process listed. 
• Heat Treatment Process Certification must include (but is not limited to) the following:  
  • Time, Temperature  
  • Atmosphere  
  • Control Method
• Hardness results on 100 percent of heat treated components
• Udestructive testing (x-ray, dye penetrant, etc.) as required to verify conformance to the PO, drawings, and specifications.

490 Working Requirements: Welding must meet the applicable American Welding Society (AWS) Structural Welding Code or equivalent. This includes (but is not limited to) AWS D1.1, For Steel, AWS D3.1 for Sheet Steel, and AWS D1.4 for Stainless Steel. Requests for use codes other than the AWS codes should be approved in advance by Engineering or Quality Assurance.
• Welding Process Certification must include (but is not limited to) the following:
  • Welding Procedure Specification (WPS)
  • Welding Operator Qualification
  • Procedure Qualification Test Report (PQR) (Not required if procedure is prequalified in accordance with AWS D1.1 or D1.6)
  • Charts for shielding gas if specified in customer specific requirements
  • Welder, welding operator, or task welder qualification test record (i.e., welder’s certification). If there are multiple welders on a given part, a weld map identifying who welded what portion is required.
  • Certificate of post-weld heat treatment
  • Visual weld inspection report
  • Weld map – If there are multiple welders on a given part, a drawing layout showing the welds made by each welder is required.

500 Other specific requirements – Roush program manager will provide

510 SUPPLIER CHANGE AUTHORITY
• The buyer shall notify Roush, in writing, immediately of any changes to the characteristics or configuration of the product and/or processes used to manufacture the product.
• When required, suppliers shall obtain written approval of changes and/or rework methods from Roush purchasing authority or other authorized personnel.

515 SUPPLIER CORRECTIVE ACTION: Nonconforming material rejected by Roush and determined to be the responsibility of the supplier requires that the supplier take corrective action to prevent recurrence. Corrective action measures shall include, a determination of the root cause of the deficiency, determining and implementing corrective action measures and evaluation of the effectiveness of correction taken. Suppliers shall maintain records of corrective actions taken. Failure to respond to requests for corrective actions within the specified time frame may affect future procurement and/or supplier status/ approval.

520 TEST REPORTS: Each process list shall be accompanied by one (1) legible and reproducible copy of actual test results identified with test parameters and product submitted. These reports shall contain the Test/Inspection results of the individual performing the test, the signature and title of the inspector performing the test. 

525 MATERIAL IMPROVEMENTS: Any characteristic or nonconformance identified on drawings, purchase orders, or acceptance documentation shall be validated by the supplier. Variable data (actual measurements) of key characteristics and other characteristics specified by Roush shall be provided with each shipment. 

530 QUALITY MANAGEMENT SYSTEMS: The supplier shall establish and maintain a quality management system that complies with ISO 9001:2008, AS9100C or an equivalent system that provides inspection services adequate for providing certification that the product supplied is in full compliance with the purchase order requirements and all applicable specifications. Compliance with these requirements may be subject to audit by Roush. The supplier shall flow down to sub-suppliers any applicable requirements contained in the Roush purchasing document(s), specifications, including key characteristics where required.

540 GOVERNMENT SOURCE INSPECTION: Government Source Inspection (GSI) is required for items on this order. Upon receipt of this order, the supplier shall promptly notify the Government Representative who normally arrives to inspect that appropriate planning for Government inspection can be accomplished.

550 FOD: The supplier shall employ appropriate housekeeping practices to assure timely removal of FOD generated during manufacturing or other related operations. Suppliers shall identify areas that may have a high probability for the introduction of Foreign Objects and implement controls appropriate for the scope of work performed. The supplier shall implement FOD prevention awareness training programs appropriate for the processes required and/or products produced.

560 CONTROL OF SPECIAL PROCESS: A special manufacturing process is one that generates product characteristics that cannot be monitored and monitored using traditional inspection/ certification methods. Special process conformity is inferred through the use of known, validated methods supported by controlled process parameters. Examples of special processes include, but are not limited to: painting, anodizing, chemical films, plating, electropolishing, welding, brazing, and heat treating. The supplier shall demonstrate control over these processes to provide assurance of compliance to process specifications and requirements. Copies of special process procedures and certifications shall be made available to Roush upon request. Where the supplier uses facilities outside of their control, external facilities are subject to the same conditions as stated herein.

565 TRACIBILITY: The supplier shall maintain traceability for explosives, solder, gold and aluminium wire, etc. Records of traceability shall be made available to Roush upon request.

570 CALIBRATION INFORMATION: Supplier’s calibration system shall meet applicable requirements of AS9100, ISO 9001, ISO 17025, TS26609 and/or any other National Measurement Institute as applicable.

580 CERTIFICATION OF CALIBRATION: Certification of Calibration attesting to the accuracy of the items procured on this purchase order shall (if specifically requested) be supplied with each shipment. This certification must contain all the pertinent data necessary to demonstrate conformance to the standard and manufacturer specifications and shall be traceable to the International System of Units (SI) through NIST or other National Measurement Institute or equivalent.

590 QUALIFICATION OF PERSONNEL: The supplier’s Quality Management System shall assure all relevant specifications and standards are met and all applicable processes affecting the final quality of the product in the purchase order are properly released to qualified service personnel.

595 PROPRIETARY INFORMATION: Suppliers and/or Sub-Supplier upon receipt of Roush Proprietary Information shall at no-time allow Roush’s documents outside of their facility or released to another entity without written approval from Roush. Supplier’s shall comply with Customer Requirements at all times and shall have documented procedures. Upon completion or termination of this contract, Seller shall return to Roush all proprietary information, technical data (or destroy the aforementioned information at Roush’s representative request) furnished by Seller to Roush pursuant to this contract. At Roush’s determination, Roush may direct Seller to return or destroy the data and may require Seller to certify in writing that they have complied.

600 REVISIONS OF SPECIFICATIONS: Suppliers shall work to the latest version of each applicable specification, drawing, process requirements, inspection/verification instructions and other relevant technical data. Verbal direction is not permitted without written authorization from Roush buyer.

605 NONCONFORMING MATERIAL: Any parts found with a nonconformance or deviation to the Purchase Order requirements shall be reported with Rosh F-1 subscription nonconformance Material notification form. The supplier shall maintain the disposition of non-conformances pertaining to the purchase order. Request approval requires a written response necessary to determine sufficient root cause and corrective action taken to prevent recurrence of any non-conformances. Nonconforming product shall not be delivered to Roush without prior written approval of the Roush purchasing authority. The supplier shall promptly notify the Roush purchasing authority of any nonconforming product that may have been previously delivered. The supplier shall reference the original Roush notification documentation on the shipping document for any parts received that have been returned, replaced, or repaired.

610 RIGHT OF ACCESS/ENTRY: Roush, the customer’s and/or any regulatory or government entities, reserve the right to access the Supplier’s facility, the facilities of the Vendor’s sub-supplier and/or any member of the vendor’s supply chain that acts as a sub-supplier for Roush’s order, during the production of this Purchase Order. Reason for access may include, but are not limited to, the following: inspection of the item or status of items based on purchase order and review of quality records pertaining to this purchase order.

710 QUALITY CONTROL: The supplier shall certify that the product conforms to the specifications as identified in the Purchase Order, shall maintain records to verify conformance of the product to specifications and with all applicable requirements. Records shall be retained for 20 years.

715 QUALITY REVIEW: The supplier shall provide an annual review of the quality system and maintenance of the quality assurance program. Records shall be retained for 20 years.

720 QUALITY AUDITS: The customer shall certify when the purchase order has been received.

725 PROOF OF INSPECTION: The supplier shall certify in writing that the specified purchase order has been received and all applicable requirements have been met.

730 CONTROL OF RECORDS - 20 years. Records shall be established and maintained to provide evidence of conformance to the QPS and revision date as stated on the purchase order. Records shall remain legible, readily available, and complete. Procedures shall be established to define the control necessary for the storage, protection, retention periods and disposal of records. Records shall be retained for 20 years.

740 CONTROL OF RECORDS - 20 years. Records shall be established and maintained to provide evidence of conformance to the QPS and revision date as stated on the purchase order. Records shall remain legible, readily available, and complete. Procedures shall be established to define the control necessary for the storage, protection, retention periods and disposal of records. Records shall be retained for 20 years.

750 CONTROL OF RECORDS - 20 years. Records shall be established and maintained to provide evidence of conformance to the QPS and revision date as stated on the purchase order. Records shall remain legible, readily available, and complete. Procedures shall be established to define the control necessary for the storage, protection, retention periods and disposal of records. Records shall be retained for 30 years.

Below QCRs are added for the ENTERTAINMENT INDUSTRY.

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Post:  Roush Quality Capability / Procurement Requirements
Issue:  16
AUTHOR: William Smithy

APPENDIX A: LIST OF CRITICAL COMPONENTS

1. [Component List]

APPENDIX B: LIST OF SHOP DRAWINGS

1. [Drawing List]
Roush Quality Capability / Procurement Requirements

Introduction: This is a controlled document. The below list of quality capability/procurement requirements are published here in a public location so both Roush employees and its existing and prospective suppliers can use and refer to when requests for quotations are issued and Purchase Orders are released. Not all requirements apply to every program. The Roush program team is responsible for identifying those requirements that the supplier is required to comply with, and fulfilling. Suppliers are cautioned to read each requirement carefully to assure understanding and to ask for clarification from the Roush buyer if unsure. If a supplier is incapable of delivering an a requirement they are obliged to let their Roush buyer know in the quoting phase. 600 series QCRs are aimed primarily at the Aviation Industry. 800 series and above are for the ENTERTAINMENT INDUSTRY. Any program can select any of the QCRs beyond the mandatory seven. Also, this list of procurement requirements does not limit a program from creating program specific requirements. Creating other specific quality requirements is encouraged if needed.

### Definition:
Quality Capability Requirements (QCRs) are requirements of the supplier that are included in the RFQ and Purchase Order sent to suppliers. Suppliers must demonstrate they have the capability of satisfying a requirement if it is specified in a RFQ or on a PO.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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| G01 | G01 Part Identification: At a minimum, the Packing Slip and Packaging shall reference the ordered Part Number (i.e. WDD: Number or Part Number) and the Supplier/Manufacturer Part Number (if applicable) such as with commercial-off-the-shelf parts. Additional identification requirements may include physically marking manufactured parts with the Part Number and Revision as specified on the Drawing according to the methods listed below. If a different method is specified on the drawing, those requirements take precedence. Note: Part Numbers and Drawing Numbers should be the same except for tabulated drawings. Extended Marking Method Codes include the following:

G-01a SAE AS478-2 (Metal Stamp) – Drawing Number and Revision applied on each Part. Note: Engrave (powder) is an allowed alternative for Metal Stamp but not vice versa.

G-01b SAE AS478-16 (Electrochemical Etch) – Drawing Number and Revision applied on each Part.

G-01c SAE AS478-30 (Ink Stamp) – Drawing Number and Revision applied on each Part.

G-01d SAE AS478-350 (Bag and Tag) Note: SAE AS478-37 (Traffic) – Applying part identification on the packaging (i.e. box) or labeling the part will be considered an acceptable alternative to Bag and Tag.

G-01e SAE AS478-1 (Engrave) – Drawing Number and Revision applied on each Part.

G-01f SAE AS478-15 (Laser) – Drawing Number and Revision applied on each Part. |
Roush Quality Capability / Procurement Requirements

Introduction: This is a controlled document. The below list of quality capability / procurement requirements are published in a public location so both Roush employees and its existing and prospective suppliers can use and refer to when requests for quotations are issued and Purchase Orders are released. Not all requirements apply to every program. The Roush program team is responsible for identifying those requirements that apply to a specific program and have agreed to comply with. Suppliers are encouraged to review each requirement carefully to assure understanding and to ask for clarification from the Roush Buyer if unsure. If a supplier is incapable of delivering an item, they are required to let their Buyer know in the quoted phase. 600 series QCIs are aimed primarily at the Aviation industry. 830 and above are for the ENTERTAINMENT INDUSTRY. Any program can select any of the QCIs beyond the mandatory seven. Also, this list of procurement requirements does not limit a program from creating program specific requirements. Creating these requirements is the responsibility of the Buyer.

Definitions:

Quality Capability Requirements (QCRs) are requirements of the supplier that are included in the RFI and Purchase Order sent to suppliers. Suppliers must demonstrate they have the capability of satisfying an RFI if it is specified in an RFI or in a PO.

References:

G-04 Material Certification: Proof of certification of materials is required to verify conformance to the PO/drawing and specifications. Note: G-04 Material Certification can be satisfied by either a signed PO clause or an ISO 17025 or 17020 conformance certificate.

G-05 Physical and/or Chemical Certification: Certification of physical and/or chemical analysis for each material list shall be required to verify conformance to PO requirements, drawings, specifications, and standards.

G-38 Material Inspection: Processes shall be certified in accordance with ASME Section IX. Significant processes identified on the PO shall be certified within 30 days after receipt of purchase order. The PO shall include a list of required processes and the extent of certification (specific test methods, acceptance levels, etc.).

G-39 Critical Surface Inspections: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring less than one inch along any axis.

G-40 Procurement: This shall be packaged to protect critical surfaces from damage and corrosion. The code applies to parts measuring less than one inch along any axis.

G-41 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring greater than or equal to one inch along any axis.

G-43 Critical Surfaces (Large Parts): Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring less than one inch along any axis.

G-44 Packaging: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring greater than or equal to one inch along any axis.

G-56 Electrical Sensitivity: All electrical components, subassemblies, and printed circuit boards shall be individually packaged in Electrostatic Sensitive Device (ESD) shielding bags.

G-57 Special Handling: The part shall be handled and stored in accordance with the manufacturer's handling and storage instructions. The part shall not be exposed to clean rooms or air handling systems.

G-60 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring less than one inch along any axis.

G-613 Welding Requirements: Welding shall meet the applicable standards and requirements for parts provided to the following organizations:

- Aroux SEK
- Standard: American Welding Society (AWS) Structural Welding Code. This includes (but is not limited to) AWS-D1.1 for Steel, AWS-D1.2 for Aluminum, AWS-D1.3 for Sheet Steel, and AWS-D1.4 for Stainless Steel.
- The supplier shall furnish documented evidence of conformance to the welding code. Certification includes (but is not limited to):
  - Completed G-13 Welding Process Inspection Checklist (Roush Form ENGR-160-PM).
  - Procedure Qualification Record (PQR) as required by the AWS.
  - Applicable Welder certifications such as Welding Performance Qualification Records (WPQR).
  - A copy of the applicable welding standard and quality requirements compliance.
  - Class 1 Special Part Certification: For parts designated as “Class 1” on the drawing, the Supplier shall furnish documented evidence of conformance to the welding code and welding shall be reviewed by a current AWS Certified Welding Inspector (CWI) prior to fabrication and during critical phases of the welding process. Certification includes (but is not limited to):
    - Completed G-13 Welding Process Inspection Checklist (Roush Form ENGR-160-PM).
    - Procedure Qualification Record (PQR) as required by the AWS.
    - Applicable Welder certifications such as Welding Performance Qualification Records (WPQR).
    - Material Test Reports in accordance with G-5 & G-10 Quality Requirements Codes. Fill-up inspection (first piece).
    - In-process weld inspection (first piece). Final weld inspection (100% of all welds on part).
    - Verification that all applicable Non-Destructive Testing (NDT) was performed and acceptable.
- Note: Items marked with an asterisk (*) shall be reviewed by the CWI and then approved by Roush Quality Assurance prior to any welding.

G-62 Supplier Quality: This shall be packaged to protect critical surfaces from damage and corrosion. The code applies to parts measuring less than one inch along any axis.

G-63 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring greater than or equal to one inch along any axis.

G-64 Packaging: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring greater than or equal to one inch along any axis.

G-66 Electrical: All electrical components, subassemblies, and printed circuit boards shall be individually packaged in Electrostatic Sensitive Device (ESD) shielding bags.

G-68 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring less than one inch along any axis.

G-70 Packaging for Long-Term Storage: Package shall protect exposed surfaces from damage and corrosion for long-term storage. Note: Shelves shall be specified and contractual, by the Supplier.

G-74 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring greater than or equal to one inch along any axis.

G-75 Special Handling: The part shall be handled and stored in accordance with the manufacturer's handling and storage instructions. The part shall not be exposed to clean rooms or air handling systems.

G-79 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring less than one inch along any axis.

G-80 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring greater than or equal to one inch along any axis.

G-81 Critical Surfaces (Large Parts): Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring less than one inch along any axis.

G-84 Quality Management System Audit: The Supplier shall conduct an audit of its Supplier's Quality Management System to determine its adequacy before execution of the contract.

G-85 Welding Inspection: All welding performed on contract is subject to inspection by Roush. Buyer shall be contacted prior to performing any welding or contract so that the appropriate inspection process can be planned at the Supplier's facility.

G-86 Warranty: This code is reserved for future use by Roush.

G-87 Quality Management System Audit: The Supplier shall conduct an audit of its Supplier's Quality Management System to determine its adequacy before execution of the contract.

G-90 Welding Inspection: All welding performed on contract is subject to inspection by Roush. Buyer shall be contacted prior to performing any welding or contract so that the appropriate inspection process can be planned at the Supplier's facility.

G-92 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring less than one inch along any axis.

G-93 Critical Surfaces: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring greater than or equal to one inch along any axis.

G-94 Packaging: Critical surfaces shall be protected from damage and corrosion. This code applies to parts measuring greater than or equal to one inch along any axis.