Supplier Quality Manual

Tennant Company

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1. PURPOSE

This document communicates the quality processes in use at Tennant Company to ensure that all members of the supply base meet and understand Tennant's basic supplier quality processes and expectations. This manual sets forth a basic list of requirements for the quality processes to be used by the suppliers, but is not all-inclusive. Other obligations and responsibilities also apply per contract or other agreements and this document in no way supersedes those agreements, but seeks to help support or better define those requirements.

1.1 Vision

Tennant's vision is for its products to be recognized as superior in performance and value. Suppliers' contribution to this vision is critical. Suppliers are expected to implement and maintain systems that ensure defect-free and on-time delivered products.

Tennant's suppliers will also conduct business with a high degree of integrity and in a socially and environmentally responsible manner in accordance with Tennant's Supplier Core Expectations.

1.2 Scope

This manual sets forth guidelines and requirements applicable to all existing and potential suppliers of parts, materials and assemblies for Tennant products. However, there may be cases where a supplier is required to provide materials or employ processes not specifically defined in this manual.

1.3 Proprietary Information

All information, drawings, materials, goods and equipment provided to suppliers by Tennant, or arising from work or services done for Tennant shall be treated by suppliers as confidential and proprietary. Suppliers shall not disclose or show to others without written approval from Tennant.

1.4 Supplier Responsibilities

1. Document-control of printed copies of the manual. Suppliers are responsible for always using the latest version published by Tennant on its Supplier website: www.tennantco.com/company/suppliers.

2. Understanding the content of this manual in its entirety and ensuring that all related departments or sub-suppliers are trained in regards to appropriate guidelines and requirements.

3. Ensuring the use of the forms provided in this manual.

2. QUALITY SYSTEM EXPECTATIONS

2.1 Quality System Requirements

Tennant Suppliers shall demonstrate a top-management commitment to continuous improvement of quality and delivery. This commitment should be evident in the Supplier's quality planning and quality controls. Suppliers' quality system should include the following as a minimum set of requirements:

- Quality manual
- Quality policy
- Specific quality-performance indicators/measures to track and react to trends
- Document control
- Systems to review engineering drawings and to control appropriate engineering configuration
- Procedure for incoming, in-process and final inspection
- System for test and measurement equipment control and calibration.
- Procedure for the control and disposition of non-conforming material
- Conformance to customer part approval process. Tennant uses a First Article Inspection (FAI) process. *See 2.7 Tennant First Article Inspection (FAI) Process.*
- Procedure for corrective action responses. Tennant uses a Supplier Corrective Action Request (SCAR) process. *See 2.11 Tennant Supplier Corrective Action (SCAR)*.
- Procedure for certifying/training operators according to specific processes and operations.
- Procedure for customer contract review.

✔ Tennant Regulatory Compliance

Some Tennant machines are listed with third-party regulatory agencies such as UL (Underwriter's Laboratories), or other NRTLs (Nationally Recognized Test Labs). A subsequent requirement is that select supplied parts are to have Certificates of Compliance/Certificates of Conformance, or Material Certification sent to Tennant with each shipment of affected part numbers. If a supplied part is applicable to this requirement, the Tennant drawing or Tennant purchase order will include the following annotation:

CERT[F]CATION OF COMPL[ANCE MUST BE SUPPLIED W]TH EVERY SH[PMENT.

Certificates of Compliance/Certificates of Conformance must be signed, titled and dated. Such certificates are to accompany the packing slip, on the product packaging, from the supplier.

Note: This requirement is in addition to the Certificate of Compliance/Certificate of Conformance or Material Certification requirements of the First Article Inspection (FAI) Process requirements found in section 2.10.

2.2 Management Responsibility

Supplier's management must notify Tennant immediately of any changes in ownership or significant changes in the Supplier's business climate (such as acquisitions, divestures, litigation or any other activity that may change the financial viability of the supplier's organization).

Suppliers' management is to take an active role in a quality management system. This commitment addresses the processes of quality planning, quality control, and quality improvement.

Quality Planning

- Develop and maintain Quality policies.
- Determine customers' unique needs.
- Develop and maintain short- and long-term goals and performance metrics.
- Support supplier development strategies.
- Support product-feature and manufacturing-process development.
- Develop and maintain training procedures.

Quality Control

- Ensure adequacy of systems and Quality manual creation and conformance.
- Create information feedback loops.
- Implement mistake-proofing techniques.
- Create an environment for quality and process control by individual workers through procedures and documentation of job instructions.
- Monitor cost-of-poor-quality.
- Develop and maintain Quality Plans and Control Plans.
- Develop and maintain gage calibration system.
- Develop and maintain change notification procedures.
- Adhere to problem containment and traceability procedures.
- Product-labeling error proofing.

Quality Improvement

- Formulate continuous improvement policy/program.
- Develop and periodically review an internal audit program.
- Integrate controls in problem solutions.
- Identify projects that resolve problems.
- Provide resources and training.
- Recognize and encourage proper behavior.

2.3 Document Control

Tennant uses drawings, Procurement Specifications and other controlled documentation to communicate requirements to its Suppliers. Procurement Specifications identify requirements for procured material beyond the scope of drawings, purchase orders and industry standards. Applicable Procurement Specifications are typically referenced on the drawings for the part numbers. Suppliers are required to have a procedure for controlling these documents and to route Tennant drawing and specification changes to all necessary departments. Suppliers must use the latest revision for purchasing, supplying and inspecting based on the purchase order requirements. All superseded documents must be discarded or marked **OBSOLETE**.

Quality records shall be kept for at least three years. These records should be stored in an environment that protects documents from deterioration and are readily accessible upon request by Tennant. It is also expected that sub-suppliers' records, pertaining to Tennant products, are retained in the same manner.

Examples of such records may include, but are not limited to:

- Measurement Data
- Measurement Systems Analysis
- Process Control Data
- Major Process Change Data
- Production Lot Control Data
- First Article Inspection Documents (kept for life of product plus obsolescence period)
- Corrective Action Requests and Responses
- Gage Calibration and Maintenance Records
- Employee Training Records (kept for term of employment)
- Testing Data
- Deviation Records
- Quality Plans or Control Plans for Parts and Assemblies (original and most recent)
- Design Review and Design Analysis documents

2.4 Contract Review

Suppliers must establish and maintain documented procedures for contract review and for the coordination of these activities. The requirements are to be adequately defined and documented by the supplier prior to processing each order.

Before acceptance of a contract, the supplier must review the purchase order or scheduling agreement to ensure that:

- A written statement of requirements is received for purchase orders or scheduling agreements.
- All engineering specifications, purchase order, or scheduling agreement requirements are agreed upon before acceptance.
- Any differences between the purchase order and scheduling agreement are resolved.
- The supplier has the capability to meet the purchase order or scheduling agreement requirements.
- Risk associated with new technology and/or short delivery timelines have been evaluated and addressed.

2.5 Purchase Orders

Tennant's Purchase Order (PO) documents are issued to suppliers and contain ordered products': Tennant part number, description, revision level, quantity, delivery date(s) and other information.

The supplier must review and approve Purchase Orders prior to release for production. Incomplete or conflicting requirements are to be resolved, in consultation with Tennant, prior to release.

When requested, the supplier confirms acceptance of the order to the issuer.

The supplier (to which the PO is issued) is responsible for:

- Delivering final product meeting all Tennant's standards and product requirements.
- Communicating Tennant product specifications to pertinent sub-suppliers.
- Product quality for subcontracted and finished product (includes verification of effective process and product controls in conformity with Tennant requirements).
- Establishing policies and responsibilities related to subcontracted products, both conforming and nonconforming.
- Maintaining copies of all subcontracted process certifications. Such processes include, but are not limited to: plating, annealing, cleaning, polishing, heat-treatment, testing and inspection.
- Any modifications to the above noted requirements or responsibilities shall be documented in the applicable contract or purchase order.

2.6 Engineering Drawing Review & Configuration Control

It is the suppliers' responsibility to carefully review all requirements/specifications on Tennant drawings to ensure understanding and capability. If clarification is needed, contact Tennant before submitting a quote or producing parts.

In no case shall drawings or specifications be superseded by informal agreements. All items that are not covered on the existing drawings shall be communicated through a revised drawing or written deviation request. *See 2.11 Tennant Deviation Process, pg. 13*.

The supplier must have a system that controls the engineering configuration of products. This system must ensure that any changes to the engineering definition of the product are submitted to Tennant Company for approval prior to changing.

Any change or circumstance which may affect agency approval (e.g., UL approval) must be submitted to Tennant Company, for approval, prior to implementation.

Tennant Material Drawing Review (MDR) Process

The Material Drawing Review (MDR) process is generally initiated by Tennant in cases of: new custom product, significant change of product, and movement of existing product manufacture to a new supplier or to a different manufacturing location of the incumbent supplier. The MDR is intended to be a cooperative process, between Tennant and the supplier, to ensure drawing requirements are complete, understood and obtainable with long-term process capability before the change or start of production begins.

If asked to participate, a Tennant representative will send the supplier the latest drawing revision along with the MDR Form. The supplier's responsibility is to respond objectively to the question "Can you (supplier) produce this part in conformance to all specifications on the engineering drawing?" If "no", the supplier must explain which specifications are not obtainable and any remedy recommendations. The supplier then returns the form to the Tennant issuer. The Tennant issuer has responsibility to coordinate (between Tennant Engineering and the supplier) resolution to any concerns.

Other feedback such as ideas to make the part more cost-effective or improve part manufacturability is also invited and will be logged. Concerns with meeting drawing requirements are considered first priority for resolution.

2.7 Approval for Part or Process Change

Supplier Process, Material and Subcontractor Changes

The supplier shall obtain written authorization from Tennant Supplier Quality Engineering prior to incorporating any temporary or permanent product or process changes on any part supplied to Tennant.

The supplier shall give Tennant enough time to evaluate the request for approval prior to making a change. Suppliers will be notified of the status of the request and the need for additional information or samples.

Tennant defines Part and Process change as follows:

> *Part Change* – a request for part change shall be made when product does not conform to Tennant's existing purchase order requirements and/or drawing specifications (including any requirements included on the drawing).
>
> *Process Change* – a request for process change shall be made when a supplier's production process deviates significantly from the process that was most recently approved by Tennant. This includes changes to raw or processing materials; new tools, molds or fixtures; modified or refurbished tooling or equipment; new manufacturing location; and change of subcontractor for parts or services.

✔ Tennant First Article Inspection (FAI) Process

The First Article Inspection (FAI) process is intended to ensure that the production process can meet all material, performance and design requirements.

Prior to shipping the first production order for material, the supplier must submit samples and approval documentation per the FAI process.

Suppliers must submit FAI documentation to Tennant Quality based on the following situations:

- As requested by New Product Development with delivery of pre-production parts (generally identified with a part number followed by an Alphabetic-revision*).
  - Only Key Characteristic data is required.
- The first time this part number is provided at production-level (generally identified with a part number followed by a Numeric-revision*).
  - A full FAI is required.
- Part or Drawing revisions.
  - A partial or "delta" FAI is required for the revised features and/or characteristics.
- Process change. *See 2.7 Process Change definition above.*
  - A full FAI is required.

***Pre-production and Production part identification schema**
A portion of Tennant business uses the opposite strategy identifying pre-production parts vs. production parts. In these cases, the drawing will be identified with **ASI** (Applied Sweepers International) in the title block. ASI drawings use Numeric-revisions for pre-production parts and Alpha-revisions for production level parts while Tennant Drawings commonly use Alpha-revisions for pre-production parts and Numeric-revisions for production parts.

	***ASI** drawing*	*common Tennant standard*
pre-production parts	alphabetic-revision drawing	numeric-revision drawing
production parts	numeric-revision drawing	alphabetic-revision drawing

Unmodified catalog hardware and packaging products are excluded from FAI requirements. However, Tennant Company must be notified of any changes of material used or performance ratings.

Raw material FAIs require a Material Certification only.

The supplier shall keep a copy of FAI report submitted as a quality document. It shall be easily retrievable throughout the life of the Tennant product, and throughout the obsolescence period.

Full FAI Submission Requirements:

- FAI Samples – Five (5) pieces.
  - Except in the case of pre-production product, all FAI analysis and submissions must be constructed or assembled using production-intent equipment, tooling, processing, methods and other conditions.
  - The Five (5) pieces should be uniquely identified to correspond to the actual measurements recorded on the FAI report. All characteristics must be compliant with the Engineering Drawing unless a Deviation has been authorized by Tennant.
- First Article Inspection Report, 740-02-15
  - A Coordinate Measuring Machine (CMM) report is acceptable for dimensional data provided that the CMM software type is identified & attached to the FAI report. The purpose of this requirement is identification of all characteristics on the Engineering Drawing and to document the actual results (with variable data where possible).
  - All FAI documentation must be submitted in English.
- Engineering Drawing that is "Ballooned".
  - A "Ballooned" Drawing is an Engineering Drawing that has each characteristic and requirement clearly marked with a unique identifying number.
- Material Certificate.
- Performance Test Data (as required per the Engineering Drawing).
- Certificates of Compliance/Certificates of Conformance if applicable (3rd -party agency approvals such as UL and CE).
- Appearance Approval Report, 740-06-01 (AAR) if applicable.
  - An AAR is required for product that has appearance requirements on the Drawing.

FAI Submission Material Identification Requirements

- "FAI Enclosed" tag must be affixed on four sides, and the top, of the box/container containing the five samples and documents.
- Required documents must be placed inside the containers in an envelope clearly marked, "FAI Documents".

Key Characteristics

Key Characteristics may be identified by unique symbols (such as:♦) on Tennant drawings. Key Characteristics are not intended to relieve the supplier from the responsibility of ensuring that the other characteristics conform to Tennant specifications, but rather to highlight where additional submission elements, process controls and on-going evidence of conformance are needed.

Verification Test Results

Some products may require testing and analysis beyond dimensional properties. Examples include: chemical analysis, mechanical testing, x-ray testing, etc. The supplier may use outside accredited lab/test facilities to perform required tests.

Re-qualification FAI for extended part inactivity

Tennant may require suppliers to submit an FAI when a part has been inactive for more than a year. "**Inactive**" generally means no receipts of a specific part number in the last 12 months or longer. The objective is to counter inherent increased risk of process degradation.

This illustration is for reference only, for the latest revision of the FAI Report, please refer to www.tennantco.com/company/suppliers.

TENNANT®

First Article Inspection Report
(Form # 740-02-15 Rev 3)

PO #:
Quantity:
Weight of 1 pc:

Part Number :
Part Description:
Revision:
Page:
Supplier:
Supplier code#:
Agency approved file # (U/L etc, if applicable):

Select One:
☐ Prototype Parts (Alpha Rev.) [FAI for Key Characteristics only]
☐ New Part (Numeric Rev.) [Rev00 - Full FAI / all dimensions]
☐ Rev. Change (Numeric Rev.) [Delta FAI / affected dimensions]
☐ Other: Process, Tooling, Material, etc. [Full FAI / all dimensions]

Documents Required along with FAI Samples:
1. FAI Form 740-02-15
2. Raw Material Certificate (For Full FAI only)
3. Engineering Drawing (Ballooned)
4. Certificate of Conformity (For Full FAI only)
5. Performance/Func. test results (if applicable)
6. Special Process Cert. (if applicable)
7. AAR Report (If applicable)

Item #	Dimension	Tolerance	Inspection Instrument Used	Supplier Inspection Results Part 1	Part 2	Part 3	Part 4	Part 5	In Spec. Yes	No	Tennant Accept	Reject
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

Sample

Shipping Instruction: FAI Box should be taped with "FAI Enclosed" Tag on all four sides and on the top of the box. For Tag - please see **NEXT TAB**

Comments:
Inspected By: | Signature: | Email: | Date:

TENNANT Company Use Only

☐ First Article Approved
☐ Inspection Approved for alpha rev.
☐ Approved with Deviation
Deviation Number: _____
☐ Rejected
QN # (if rejected): _____

Comments:
Tennant QC: | Signature: | Email: | Date:

Figure 1

2.8 Test and Measurement Equipment

Suppliers are responsible for meeting all product specifications and requirements. Suppliers may use test and measurement equipment they deem necessary.

Inspection gages and test equipment shall be controlled and the periodic calibration cycle shall be sufficient to ensure accurate measurements. Additionally, suppliers shall treat all test and measurement equipment with care to prevent loss, damage or inaccuracy.

In some cases, Tennant may provide test and/or measurement equipment to suppliers. The supplier is responsible at all times for the care, maintenance, safekeeping and proper use of Tennant-owned items. Suppliers must promptly report any loss or damage of gages and test equipment. This does not include normal wear. Tennant and the supplier will determine who has responsibility for calibration of Tennant-owned equipment. If Tennant assumes responsibility for calibration, the supplier shall make the test and measurement equipment accessible to Tennant or return it within the timeframe requested.

2.9 Tennant-Owned Tooling & Fixtures

Tennant often pays for tooling that is uniquely-required for the production of Tennant products (does not include perishable tooling). Examples of unique tooling include molding tools and machining fixtures. The determination of which tooling is "unique" will be the responsibility of Tennant Procurement and the supplier. Such tooling is the property of Tennant and must be identified accordingly. Such tooling will not be scrapped, altered or relocated without prior written approval from Tennant. Tennant reserves the right to take possession of the tooling at any time. Original tool designs are considered the property of Tennant and the supplier shall provide copies of the designs upon request.

Tooling Approval

Tennant generally evaluates First Article samples, but it is the supplier's responsibility to ensure the tool design and tools will ultimately produce consistently acceptable parts or assemblies. A dimensional check of the tool will not be performed by Tennant.

Tools shall not be used for normal production parts or assemblies prior to approval.

Storage and Maintenance

The supplier is responsible for the care, maintenance, safekeeping and proper use of Tennant-owned tooling and fixtures in its possession. This includes the prompt reporting of any loss of or damage to tooling. Subject to the terms of the purchasing documents, the supplier may be liable when tooling deficiencies are identified.

Suppliers shall maintain tool and maintenance logs and provide to Tennant upon request.

2.10 Process Monitoring & Control

Suppliers are responsible for ensuring all parts meet Tennant's drawing requirements (this includes processes, characteristics or components that are controlled by sub-suppliers). To prevent defective product from being delivered to Tennant, the supplier shall establish and document process standards and control for all aspects of its manufacturing operations. Tennant may request documents related to correct and consistent processes and inspection.

When changes or improvements to process monitoring or controls are made, the Quality Plan/Control Plan must be updated. Please contact Tennant Supplier Quality with any questions.

Process Control method category examples:

Mistake Proofing

The goal of Mistake Proofing (also referred to as poka-yoke) is zero defects achieved by preventing issue-occurrence rather than relying on detection. Mistake Proofing is typically used when: human errors result in mistakes or defects; there is a hand-off step in a process; an error in the process can cause significant problems downstream. If mistake proofing is not feasible, statistical methods should be used to improve defect-detection occurrences and recognition.

Statistical Methods

Problem-solving techniques and statistical methods used to monitor and improve processes include: Pareto analysis, Cause and Effect diagrams, Design of Experiments, Run Charting and Statistical Process Control. Statistical Process Control (SPC) is a methodology for charting the process and quickly identifying when a process is "out of control". It provides a feedback loop by which we can compare the process performance against a calculated set of control limits and decide an appropriate set of actions.

Inspection Sampling

Suppliers are encouraged to inspect parts to MIL-STD-1916, GB2828-2008 or equivalent. Samples are to be population-representative and taken randomly.

2.11 Control of Nonconforming Material

Suppliers must begin to resolve issues associated with discrepant parts immediately upon internal discovery or notification from Tennant.

A supplier must immediately notify Tennant Supplier Quality Engineering or Tennant Procurement upon realization that nonconforming material may have been shipped to a Tennant facility. Immediate notification should be made by telephone followed by written documentation of the problem, lot size, shipment dates, lot identification, etc.

Tennant will typically notify suppliers of nonconforming material and request a Return Material Authorization (RMA). Suppliers are expected to grant this request. The supplier and Tennant will make the determination as to whether the parts should be returned for further analysis, or if the issue is understood and physical return of material is not necessary. If after 10 calendar days there is no response to the RMA request, Tennant may scrap the parts at the supplier's expense.

If any portion of product from a supplier's delivery is rejected, Tennant may choose to reject the entire lot. The supplier is responsible for sorting, inspection and other issue-related costs incurred by Tennant due to the nonconformance.

In all cases, the supplier shall inspect 100% of the suspect material until corrective action(s) have been completely implemented. Containers shall be clearly marked "100% inspected".

✔ Tennant Supplier Corrective Action (SCAR)

Suppliers may be asked to utilize, document and submit the Supplier Corrective Action Report SCAR, 740-02-20. The SCAR follows the *Eight Disciplines* (8D) corrective action methodology and is intended to be both a problem-solving tool and communication tool. Suppliers may use their company's similar problem-solving and communication document with approval from the Tennant requestor.

SCAR Guidelines

D1 – Cross Cross-Functional Team: Identification of team-members that can successfully resolve the problem. Tennant also expects the supplier to identify a "champion" for the SCAR process. The champion is responsible for following-up on activities, ensuring time commitments are met, and updating the Tennant issuer with continuously updated documents.

D2 – Problem Description: Identification of all facts, data and information that describe and quantify the problem in detail.

D3 – Short-Term Action: Immediate actions to prevent further escape. The supplier is expected to take all actions necessary to quarantine/return/replace/certify suspect material at all locations through-out the logistic stream.

> The supplier must describe and document how and when the clean-point will be identified. The supplier shall inspect 100% of all suspect material until corrective action(s) have been implemented. Containers shall be clearly marked "100% inspected".

D4 – Root Cause: In-depth analysis of the problem to determine the true underlying cause(s) and/or reason for the non-conformance. Generally there are failures in regards to both the occurrence and the detection that must be identified for correction. If a cause is unknown the supplier is to identify the specific steps that will determine root-cause(s) along with the person responsible and due dates.

> **Occurrence Cause:** Answers the question: "Why did the problem occur?"
> **Detection Cause:** Answers the question: "Why did the problem escape detection?"
>
> There may be multiple answers to either, or both, types of causes.

D5 – Corrective Action Plan: Actions eliminating the problem and the possibility of reoccurrence. Each identified cause, for both occurrence and escape from detection, requires corrective actions. Methods may include: mistake-proofing systems, training, process changes, tool changes, etc. The supplier shall include, for each action, a primary owner and the target/completion date.

D6 – Corrective Action Verification: Quantitative results confirming that the corrective actions will resolve the issue.

D7 – Preventative System Improvements: Corrective action(s) throughout the quality system where applicable, as well as for like-products or like-processes.

D8 – Approval Sign-Off: The issue is not considered closed until both the supplier and the Tennant issuer are satisfied with identified and implemented actions.

SCAR Response and Update Timing Expectations:

The supplier is required to document, track and update SCAR statuses, to the Tennant issuer, continuously until closure of the issue. Guidelines:

- **24 Hours:** Response with actions completed through D3 – Short-Term Action.
- **3 days**: Response with actions completed (or plan identified) through D5 – Corrective Action Plan.
- **3 weeks**: Response with all actions completed (or plan identified), and continuously until implementation of all actions.

✔ Tennant Deviation Process

If a supplier desires to ship a product not meeting any specified requirement the Tennant Deviation process must be followed and the Deviation approved before delivering such product.

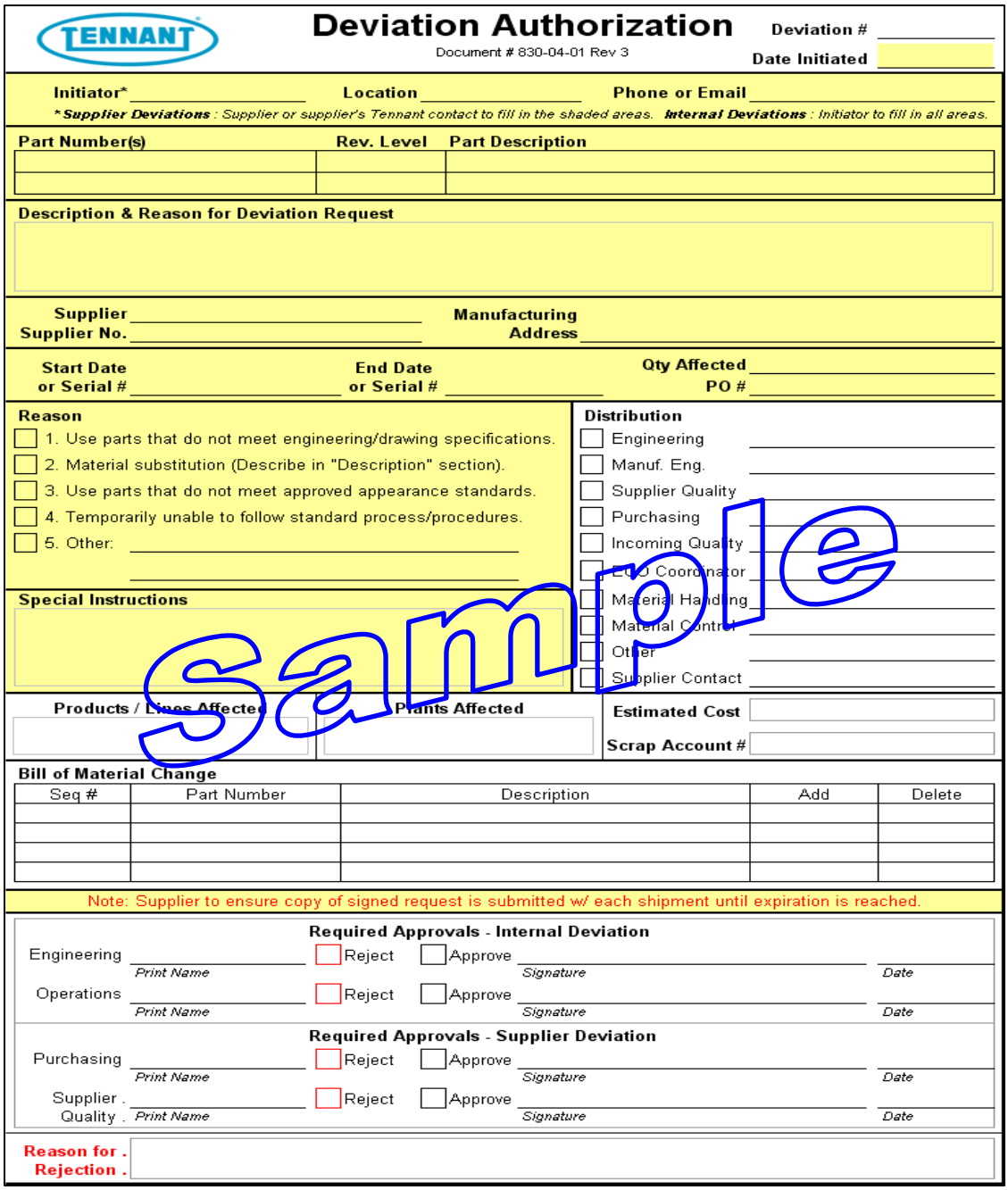
The supplier shall notify Tennant and request approval for the deviation using the Deviation Authorization, 830-04-01. Supplier (or representing initiator) fills in all shaded areas of the form.

No "red-line" drawings, e-mails, verbal instructions, etc. which are intended to allow deviations from Tennant Company drawings are acceptable except when accompanying the Tennant Deviation Authorization form. Requests for deviation will be considered only for unusual circumstances and will not be accepted on a routine basis.

The supplier is to maintain a record of the expiration date and quantity authorized. The supplier must also ensure compliance with the original or superseding specifications and requirements when the authorization expires.

A copy of the signed deviation must accompany each shipment affected by the deviation, taped on the outside of a box/carton.

This illustration is for reference only, for the latest version of this document, please refer to www.tennantco.com/company/suppliers.



TENNANT

Deviation Authorization

Document # 830-04-01 Rev 3

Deviation # _____

Date Initiated _____

Initiator* _____ Location _____ Phone or Email _____

**Supplier Deviations* : Supplier or supplier's Tennant contact to fill in the shaded areas. *Internal Deviations* : Initiator to fill in all areas.

Part Number(s)	Rev. Level	Part Description

Description & Reason for Deviation Request

Supplier _____ Manufacturing Address _____

Supplier No. _____

Start Date or Serial # _____ End Date or Serial # _____ Qty Affected _____ PO # _____

Reason

- ☐ 1. Use parts that do not meet engineering/drawing specifications.
- ☐ 2. Material substitution (Describe in "Description" section).
- ☐ 3. Use parts that do not meet approved appearance standards.
- ☐ 4. Temporarily unable to follow standard process/procedures.
- ☐ 5. Other: _____

Special Instructions

Distribution

- ☐ Engineering _____
- ☐ Manuf. Eng. _____
- ☐ Supplier Quality _____
- ☐ Purchasing _____
- ☐ Incoming Quality _____
- ☐ ECO Coordinator _____
- ☐ Material Handling _____
- ☐ Material Control _____
- ☐ Other _____
- ☐ Supplier Contact _____

Sample

Products / Lines Affected | Plants Affected | Estimated Cost _____ | Scrap Account # _____

Bill of Material Change

Seq #	Part Number	Description	Add	Delete

Note: Supplier to ensure copy of signed request is submitted w/ each shipment until expiration is reached.

Required Approvals - Internal Deviation

Engineering _____ (Print Name) ☐ Reject ☐ Approve _____ (Signature) _____ (Date)

Operations _____ (Print Name) ☐ Reject ☐ Approve _____ (Signature) _____ (Date)

Required Approvals - Supplier Deviation

Purchasing _____ (Print Name) ☐ Reject ☐ Approve _____ (Signature) _____ (Date)

Supplier Quality _____ (Print Name) ☐ Reject ☐ Approve _____ (Signature) _____ (Date)

Reason for Rejection

Figure 2

2.12 Material Identification & Packaging

Tennant is dependent on suppliers' correct material identification and robust and consistent packaging. Material Identification (labeling) and Packaging requirements are introduced in this section. The complete requirements can be found at www.tennantco.com/company/suppliers or at the links listed below.

✔ Tennant Material Identification Requirements

Suppliers are required to establish and maintain documented procedures for identifying the product during all stages of production and delivery to Tennant.

Suppliers' correct and complete material identification (labeling) requirements are required on two types of labels: a purchase order label and an item label. Each box/carton/etc. containing parts should be identified with an appropriate label.

Tennant's complete labeling requirements can be found at: Material Identification, External Suppliers, 740-02-22, or contact the responsible Tennant Purchasing representative.

✔ Tennant Packaging Requirements

Suppliers must provide packaging that will protect product throughout the complete distribution chain. All products/shipments must be clean, undamaged and functional when they reach Tennant.

Primary shipping cartons must be able to withstand the small-parcel shipping environment. Larger, bulkier items must be able to withstand the rigors of less-than truckload (LTL) shipping and multiple handlings. Shipments that travel internationally must also be packaged to withstand the hazards of inland and ocean transportation as well as below-deck stowage. Special consideration must be given to the packing to ensure that damage and theft are avoided, rust and corrosion are inhibited, and water intrusion is prevented.

When packaging does not conform to requirements, the product will be returned to the supplier using Tennant's return process.

Tennant's complete labeling requirements can be found at: Packaging Specifications, External Suppliers, or contact the responsible Tennant Purchasing representative.

2.13 Continuous Improvement

A continuous improvement philosophy should characterize suppliers' processes, systems and products. To be effective, an improvement strategy must have a tactical element, and a strategic element. The tactical element must be specific and measurable, i.e., performance requirements, goals, targets and results needed, including identifying where and when it will used. The strategic element must be long-range, sustained and focused on those key processes which provide value-added substance to the company's objectives, including customer satisfaction.

✔ Tennant Supplier Assessment

Tennant's process of adding an approved supplier generally includes a Supplier Assessment audit. Assessments take place at the supplier's production facility with representatives of the supplier and Tennant Purchasing/Supplier Quality. The objective of an Assessment is to understand the supplier's quality system and manufacturing process in order to determine the risk of a supplier not being able to consistently supply defect-free and on-time-delivered product. This is also an opportunity for the supplier to better understand Tennant requirements.

An Assessment based on overall supplier performance or on the need for verification/validity of corrective actions may also be requested of current-production suppliers.

As a result of the Assessment, there may be recommendations for improvement identified. These recommendations will be reviewed with the supplier and may require resolution through action-plans by the supplier. The timing for action-plan completion should be decided upon by the supplier and Tennant representatives.

✔ Tennant Supplier Performance Measures

Tennant monitors performance measures for all aspects of its business. Performance measures serve as the foundation for decision-making and improvement plans. In regards to supplier performance, Tennant continually looks for total value and monitors suppliers' quality and delivery performance along with cost, responsiveness and risk. The primary supplier quality performance measure is defective parts per million and the key delivery performance measure is on-time delivery percentage

Defective Parts Per Million (PPM)
Calculation = (Total defect quantity / Total quantity received) * 1,000,000

The ultimate goal is 0 PPM. Tennant's current objective is for all suppliers to be <1000 PPM. All suppliers (regardless of PPM) are to implement improvement goals and plans to achieve the goals.

On-Time Delivery Percentage (OTD%)
Calculation = [Total quantity received – (Total quantity received late + Total quantity received early)] / Total quantity received.

The ultimate goal is 100% OTD. Tennant's current objective is for all suppliers to be >95% OTD. All suppliers are expected to implement aggressive plans to achieve 100% OTD.

Supplier Performance Feedback

Tennant periodically provides a quality and delivery performance report to suppliers. If objectives are not being met Tennant may request an improvement plan specific to overall quality and/or delivery performance.

2.14 Warranty

The supplier shall refer to Tennant purchasing contracts for warranty agreements. Defective product returned through warranty is expected to have root-cause analysis performed and a written response, or Supplier Corrective Action, 740-02-20 Report (SCAR), returned to the Tennant issuer.

Date Revision	Section	Revisions
Dec, 2011 Revision 4.2	2.1	Tennant Regulatory Compliance – changed to include Tennant purchase order & Certificates of Compliance/Certificates of Conformance must be signed, titled and dated.
Oct, 2010 Revision 4	General	Changed the order and consolidated topics and clarified details of such requirements as Regulatory Compliance, FAI, Deviation and MDR.
	1	Added Vision, refined scope and supplier responsibilities.
	1.1	Added link to Tennant's "Supplier Core Expectations"
	2.1	Consolidated quality system requirements from bullet-point plus paragraph locations to a bullet-point list only. Clarified requirements. Added verbiage on regulatory compliance obligations.
	2.2	Added Management Responsibility section.
	2.3	Clarified requirements and added examples
	2.4	"Contract Review" information was part of prior version's 2.1 Quality System. Made contract review expectations a separate section.
	2.5	Changed section title from "Supplier Purchasing". Clarified.
	2.6	Changed section title from "Print & Process Review". Added sub-section describing the "Tennant Material Drawing Review (MDR) Process".
	2.7	Combined prior version's "2.13 Approval for Part or Process Change", "2.18 Supplier Re-Qualification", "3.2 First Article Inspection Process" and "4.2 Verification Test Results". Many wording and order changes to improve clarity and reduce redundancy. Clarified the difference between a pre-production-level FAI and production-level FAI. Added note explaining alpha-revision vs. numeric-revision strategy difference between legacy Tennant and legacy ASI. Added sample illustration of FAI Form.
	2.8	Consolidated prior version's "2.5 Test and Measurement Equipment" and "4.2 Verification Test Results".
	2.10	Combined prior version's "2.7 Process Control" and "4.1 Process Monitoring and Improvement". Changed inspection sampling recommendation from ANSI/ASQC Z1.4.
	2.11	Combined prior version's "2.14 Control of Nonconforming Products", "2.16 Supplier Charge backs" and "3.3 Supplier Corrective Action". Added paragraph explaining Tennant RMA process. Expanded expectation explanations for SCAR sections. Clarified standard SCAR response timing expectations. Moved subsection "Tennant Deviation Process" from prior version's section "2.13 Approval for Part or Process Change". Added sample illustration of Deviation Form.
	2.12	Changed section title from "4.3 Labeling and Packaging". Kept links to full requirements and added introductory overview statements for emphasis.
	2.13	Combined prior version's "3.1 Supplier Assessment", "3.4 Supplier Performance Criteria", "3.5 Supplier Performance Feedback" and "3.6 Continuous Improvement Process". Expanded PPM and OTD performance metric explanations and expectations.