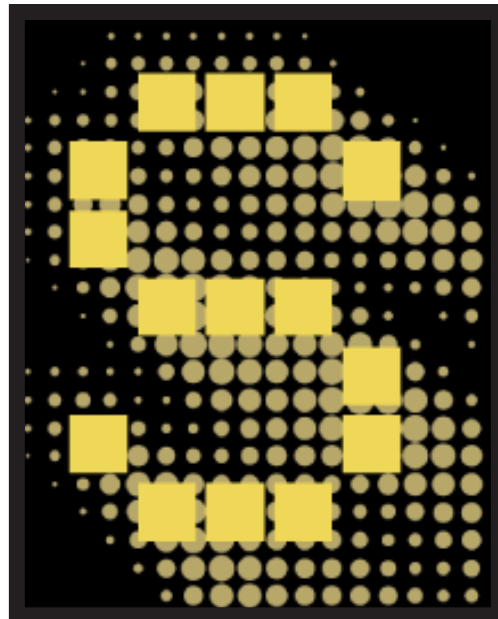


# Solar Technology, Inc.

## BUSINESS MANAGEMENT SYSTEM



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***Harness the Power of the Sun***

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This document presents a business management system employed by Solar Technology, Inc. to help insure that only the highest quality products are produced and delivered to our customers.

This system is subject to periodic revisions as required without notice.

P/N 550-000-100

Revision: 1.0 2011

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## **INTRODUCTION**

Solar Technology, Inc., commonly referred to as SolarTech, was established in 1990 and Incorporated in 1991. SolarTech is a family owned and operated business which designs, manufactures and markets worldwide a line of solar powered portable traffic control devices including advance warning arrow panels, changeable message signs and radar speed displays along with solar powered light towers and a comprehensive GPS/Telematics based equipment/asset tracking and management solution (SolarTrak). These devices are commonly used in highway work zones, although their usage has spread to various applications, both commercial and non-commercial construction, where it is desirable to display information to passing motorists and/or pedestrians as well as track and monitor construction assets. After many years of success in the industry, the President, Byron Zerphy, with the full support of his Management Team, decided to design and implement a formal documented Business Management System.

The primary objective of this endeavor was to establish, implement, maintain and continually improve a comprehensive Business (a.k.a. Quality) Management System with a process dependent methodology to ensure the effective and efficient operation of SolarTech. It was determined that the system should determine the inputs required and the outputs expected from these processes; determine the sequence and interaction of these processes; determine and apply the criteria and methods (including monitoring, measurements and related performance indicators) needed to ensure the effective operation and control of these processes; determine the resources needed for these processes and ensure their availability; assign the responsibility and authorities for these processes; address the risks and opportunities as determined to give assurance that the quality management system can achieve its intended results, enhance desirable effects, prevent, or reduce, undesirable effects and achieve improvements; evaluate these processes and implement any changes needed to ensure that these processes achieve their intended results; and continually improve the processes and the quality management system. In order to realize these objectives SolarTech has established and maintains a proprietary documented Business (a.k.a. Quality) Management System utilizing ANSI/ISO/ASQ Q9001:2015 requirements.

## **PURPOSE**

The purpose of this document is to define the policies established by SolarTech in response to the requirements of ISO 9001:2015. It is the policy of SolarTech to substitute the word "Business" for the word "Quality" as defined in the ISO Standard. This decision was made to ensure the understanding that the documented Business Management System relates to the entire Business and not just the Quality Assurance Department. Within the traditional definitions of the ISO Standard this document is referred to as the Quality Manual. As such, the reader will find that this manual has been structured based on the requirements of the ISO Standard. *It is the intent of this manual to not only meet the requirements of the ISO Standard but also to serve as a general point of reference to all SolarTech employees on how to operate the Business Management System such that SolarTech is operated in an effective and efficient manner, continually improves its Business Management System and fully complies with the ISO standard.*

## **SCOPE**

The Business Management System defined in this manual applies to the design, development, manufacture, distribution, sale, repair and service of: comprehensive traffic monitoring, management, control and safety solutions; electronic message centers; solar power systems; complete remote asset tracking, monitoring, and management solutions; cable assemblies and wire harnesses; printed circuit board assemblies; industrial control panels and controllers; electronic components and mechanical assemblies. This management system applies to the single facility of SolarTech located at 7620 Cetronia Road, Allentown, Pennsylvania 18106. SolarTech may be reached by phone 610-391-8600, by fax 610-391-8601, or through our web site presence [www.solartechtechnology.com](http://www.solartechtechnology.com).

## **DEFINITIONS**

Management Team: President, Vice Presidents and Senior Managers.

ISO Standard: ISO 9001:2015, defined as ANSI/ISO/ASQ Q9001:2015.

Quality: The degree to which SolarTech products and/or services provided to a customer meet or exceed the customer's requirements and/or expectations.

Product: Any finished good or service provided to a customer as a result of a process or a series of processes.

Employee: Any individual employed by SolarTech including management, supervisory and staff personnel.

Process Leader: An individual responsible for the 'management' of a given process (level II document). Additional description of a Process Leader's duties and responsibilities is maintained in the Process Leader Job Description.

## **REFERENCES**

ANSI/ISO/ASQ Q9001:2015

## **QUALITY MANAGEMENT SYSTEM**

### **General Requirements**

SolarTech has established, documented, and implemented a complete Business Management System. The effectiveness of this system is maintained and continually improved through the interaction, monitoring, and reporting of SolarTech employees operating within the constraints of the documented management system.

The Management Team has identified the processes needed to define the management system and their application throughout the company. The sequence and interaction of the individual processes has been determined and may be viewed in Attachment A.

The criteria and methods needed to ensure that the operation and control of these processes is effective have been defined in the process level documentation. To ensure the effectiveness of each process, SolarTech relies on the training of personnel and internal audits of the documents and the processes themselves, as well as the Process Leaders' responsibilities for ensuring the accuracy and effectiveness of the documentation.

In order to ensure that the necessary operation and monitoring resource support for the processes is available, the Process Leaders report any resource requirements during Management Reviews of the Business Management System. These reports are considered additions to the normal hiring and purchasing processes required to operate SolarTech.

It is the responsibility of the individual Process Leaders to define processes that can be monitored, measured and analyzed. Furthermore it is up to the individual Process Leaders to monitor, measure and analyze these processes and implement actions, as necessary, to achieve planned results and continually improve these processes. Additional review of these processes is performed as a function of the Management Reviews of the Business Management System.

The Business Management System is fully documented, implemented, managed and maintained in order to ISO 9001-2015

satisfy planned activities. The Document Control, Corrective Action and Preventive Action, and Management Review Procedures ensure continual improvement of the processes.

Whereas SolarTech utilizes external vendors for the processing of product, all products are received by SolarTech for internal final inspection prior to delivery to the customer. This process ensures full control over out-sourced processes. Furthermore, these external vendors are managed through the Vendor Selection, Evaluation and Re-evaluation Procedure.

### **Documentation Requirements**

The documented Business Management System includes the following types of documents:

- A Business Policy Statement with supporting Business Policy Objectives.
- This Business Management System Manual.
- Long-Term Strategic Operating, Short-Term Tactical Operating and Product Development Plans
- Documented Procedures (in flowchart format) as required by the ISO Standard.
- Work Instructions (flowcharts, diagrams, checklists, etc.) where necessary for effective and efficient operations.
- Records to support the Business Management System as required by the ISO Standard.

These documents have all been generated and are dynamically maintained to ensure the effective and efficient planning, operation and control of SolarTech. The level of knowledge of employees utilizing these documents and the level of control required for ensuring conformance of activities delineates the level of detail for each document.

A flowchart defining the planned arrangement of SolarTech and the interaction of all Documented Procedures may be found in Attachment A. An overall listing of Documented Procedures may be found in Attachment B.

SolarTech has Documented Procedures outlining how documents are approved, reviewed, revised and re-approved. Specifically these Documented Procedures include the Management System Document Control Procedure and the Engineering Document Control Procedure. This manual and all Documented Procedures receive final approval from the Process Leader and the ISO Management Representative. All documents contain a revision methodology ensuring that only the current revision is utilized. All appropriate documents are available to the user. All documents are identifiable by their name and are maintained in a manner ensuring they remain legible. All obsolete documents are removed from points of issue and, if retained for reference, are suitably identified to prevent use.

It is the responsibility of the Engineering Department to identify and control all documents of external origin and to control the distribution of these documents. Any personnel requiring any external documents shall only obtain such documents from the Engineering Department.

Records are maintained to provide evidence of the effective operation and conformity to the management system requirements. All records are legible, identifiable and retrievable. Each Documented Procedure identifies the supporting records to be maintained and defines storage, protection, retrieval, retention and disposition requirements.

## **MANAGEMENT RESPONSIBILITY**

### **Management Commitment**

The Management Team of SolarTech is committed to the development, implementation, and enhancement of the Business Management System and continually improving its effectiveness. This commitment is demonstrated by ensuring that all process requirements (both internal and external) are documented within the

Business Management System. This information is then provided to all employees through formal documented training and as a result of normal work flow processing (records). Additionally, from time to time, the President and/or the Senior Vice President will communicate to the organization the current status of SolarTech, future goals and objectives, and the importance of meeting customer as well as statutory and regulatory requirements, during official company activities such as Quarterly and Annual Award Ceremonies, Company Picnics, Christmas Parties, etc.

The Management Team has established a Business Policy Statement along with supporting Business Policy Objectives. On a regular basis, the Management Team conducts reviews of the Business Management System and ensures the required resources are in place for maintaining the system. This is accomplished through the Management Review Procedure.

### **Customer Focus**

Utilizing the documented Business Management System, the Management Team ensures that customer requirements are determined and that enhancing customer satisfaction is the underlying aim of all processes. This is accomplished through the use of the Sales Order Process Procedure, Customer Service Procedure, and the Customer Satisfaction Procedure. Additionally, SolarTech Sales, Service and Management personnel, from time to time, directly interact with and interview customers to assess their needs, requirements and overall satisfaction with SolarTech and its products. This information is fed back to the Management Team during periodic Management Team meetings.

### **Business Policy**

The Management Team of SolarTech has established a Business Policy Statement, which has been determined to be suitable for the organization. The Business Policy Statement and supporting Business Policy Objectives are the basis for the Business Management System. Their very nature guides SolarTech to comply with requirements and continually improve the effectiveness of the Business Management System. This Business Policy Statement is communicated, posted and understood throughout SolarTech. Management Reviews of the Business Management System result in reviewing and re-establishing the Business Policy Statement and Business Policy Objectives to ensure they continue to be suitable for providing the basis for the entire Business Management System. A copy of the Business Policy Statement and Business Policy Objectives may be found in Attachment C of this document.

### **Planning**

The Management Team has ensured that Business Policy Objectives have been established and are maintained within the organization. The use of measurable objectives, which are consistent with the Business Policy Statement are reviewed by the Management Team along with the Business Policy Statement as stated above.

### **Business Management System Planning**

During Management Reviews, the Management Team takes into consideration the results of internal and external audits along with planned future goals and objectives and any upcoming/pending major changes to SolarTech as a business entity that might require changes to the Business Management System. The Management Team then evaluates the need for changes to the Business Management System and subsequently plans for the implementation of required changes such that the Business Management System integrity is maintained, the requirements of the ISO Standard remain satisfied and the Business Policy Statement and Business Policy Objectives continue to be supported by the Business Management System.

### **Responsibility, Authority and Communication**

The Management Team has defined the responsibilities and authorities within SolarTech through the use of Organizational Charts (Attachment D) and formal job descriptions. All employees are trained on their appropriate job description(s) and organizational charts, and these documents are available for use as necessary.



The President of SolarTech, Eric J. Zerphy, is the ISO Management Representative who has the additional responsibilities the authority to:

- Ensure that all required processes are established, implemented and maintained.
- Reports to the Management Team during reviews of the Business Management System on the performance and any needed improvements of the system.
- Ensures the documented management system promotes the awareness of customer requirements.
- Acts as a liaison with external sources on issues relating to the management system.

## **Management Review**

The Management Team reviews the Business Management System at planned intervals to insure its continuing suitability, adequacy and effectiveness. All Process Leaders conduct an assessment of their processes prior to this meeting. These assessments, in addition to the agenda, include all the requirements of the ISO standard (results of audits from the Internal Audit Procedure and Formal External Audits, customer feedback from the Customer Satisfaction Procedure, process performance as reported by the Process Leaders, product conformity from the Nonconformity Control Procedure, status of preventive and corrective actions from the Corrective Action and Preventive Action (CAPA) Procedure, follow-up actions from previous Management Reviews, potential changes within SolarTech that could affect the Business Management System and recommendations for improvement to the Business Management System). Additional agenda items include review of the Business Policy Statement and Business Policy Objectives, performance of vendors, and an evaluation of the current business environment and strategies on how to adapt and succeed within the current business environment (i.e. risk and opportunity assessments). Management Reviews are conducted per the Management Review Procedure. Any additional Management Reviews conducted throughout the year may not require a complete assessment of all agenda items. The ISO Management Representative makes this determination based on the reason(s) for the additional meeting. The intent of conducting these reviews is to identify action items that will improve the effectiveness of the management system and its processes, the operations of SolarTech, the products as related to customer requirements, and resource requirement issues along with tactical and strategic business planning.

## **RESOURCE MANAGEMENT**

### **Provision of Resources**

SolarTech determines and provides the resources needed (both equipment and personnel) to implement and maintain the Business Management System, continually improve its effectiveness and enhance customer satisfaction by meeting customer requirements. This provision includes the purchase of equipment, supplies and materials and/or the hiring of personnel based on projected business volume or other activities such as working overtime as needed to meet delivery requirements. SolarTech's supervisory level personnel make these resource evaluations and provisions dynamically and requests submitted by supervisors for additional resources are evaluated and processed by management as expeditiously as possible. If a supervisor feels that he/she is not provided with adequate resources to implement and maintain the Business Management System, continually improve its effectiveness and enhance customer satisfaction by meeting customer requirements then he/she shall report the situation to the ISO Management Representative for evaluation and subsequent action. These activities do not require a Management Review as described above but are included in summary to the meetings.

### **Human Resources**



SolarTech employs a well rounded hiring and training program that ensures all employees have the competencies needed to perform their assigned duties and responsibilities. The Training Procedure identifies the use of job descriptions to define the necessary competence for each position. This procedure also defines the process employed for providing training, evaluating performance based on training objectives and the records maintained within the training program. It is the ongoing policy of management to ensure that all employees understand how they fit into the overall organization and how their performance effects the operation of the business.

### **Infrastructure and Work Environment**

SolarTech determines, provides and maintains an infrastructure and work environment that ensures the needs of the business and employees are met along with ensuring that product conformity requirements are satisfied based upon the standards that supervisory personnel submit to management. The infrastructure includes the physical location and building, work space, utilities, processing equipment, transport, communication and other needed support services. Work environment includes soft skills such as motivation and personal satisfaction of employees. Work environment also includes safety, physical comfort of work facility and ergonomics. These infrastructure and work environment items are periodically reviewed to assure adequacy as a part of the Management Reviews.

SolarTech recognizes that information is a critical resource and the Management Team continually strives to:

- Identify its information needs.
- Identify and access internal and external sources of information.
- Convert information to knowledge for use by the organization.
- Use data, information and knowledge to set and meet its strategies and objectives.
- Ensure appropriate security and confidentiality of information.
- Evaluate the benefits derived from use of information in order to improve managing information and knowledge.

The President continually stresses the importance of obtaining, evaluating, protecting and utilizing information to Management Team personnel during routine management meetings and during his performance reviews of Management Team personnel.

SolarTech works closely with its vendors (suppliers) to establish relationships that promote and facilitate communication with the aim of mutually improving the effectiveness and efficiency of processes that create value. This is especially true of contract manufacturers and vendors that supply custom/unique parts.

Financial resources are also considered a vital part of the overall infrastructure. The Management Team routinely assesses the financial health and performance of the organization, takes actions as necessary to insure that adequate financial resources are available to support operations and includes financial planning in the overall planning of SolarTech operations. This is accomplished through the development of annual operating plans, assessment of periodic financial statements including comparing these statements to annual operating plans, and planning for and acquiring financing for operations, growth and expansion when deemed necessary. SolarTech views institutions that provide financial resources as critical vendors and treats them as such.

### **PRODUCT REALIZATION**

## Planning of Product Realization

The overall plan for the realization of product has been defined in Attachment A of this manual. This plan identifies all process needed to ensure all product requirements are met. The planning requirements for these individual processes are described in their associated procedures.

The Product Design and Development Procedure and the Production Procedure provide the processes and required documentation for ensuring that the quality objectives and requirements for products are determined; processes, documents and resources specific to products are identified and generated or acquired; verification, validation, monitoring, inspection and test activities specific to products and the criteria for product acceptance are identified and implemented; and the records needed to provide evidence that the realization process and resulting products meet all established requirements.

If a particular development project cannot be fulfilled by the existing procedures, new procedures are created to ensure that the specific requirements are met. These plans are consistent with all other requirements of the Business Management System. Considerations are given to the resources and skills required to meet requirements whenever there is a significant change to an existing product, process, test, inspection, verification and/or measurement.

## Customer-Related Processes

SolarTech has determined the requirements relating to the product including delivery, post delivery product training and support, and any recall or warranty repair activities required. Customer defined requirements are documented. SolarTech's Sales Department has predetermined specific product needs that are taken into consideration with each order based on the customer's intended use of the product. All units are designed taking appropriate statutory and regulatory requirements into consideration.

The Sales Order Process Procedure is in place to define the process for conducting the review and approval of orders. These procedures also define the process for changing an existing order. As a result, customer requirements and contract scope are adequately defined and documented. All terms and conditions of sale are clearly defined and documented. Any contract or accepted order requirements differing from those in the quotation tender are resolved, documented, and acknowledged by the customer. SolarTech confirms that both SolarTech and the customer have the capability to meet the contract or accepted order requirements prior to order acceptance. Proprietary information is adequately protected. Adequate definition of the responsibilities of both SolarTech and the purchaser including specification, acceptance, and related support activities are ensured. Where the customer provides no documented statement of requirements, the customer requirements are confirmed by SolarTech prior to order acceptance. Records of orders, reviews, proposals, changes and terms and conditions of all sales are maintained in customer files.

SolarTech has determined the need for and implemented effective arrangements for communicating with customers in relation to: product information; enquiries; contracts or order handling, including changes; customer feedback, including customer complaints. This is accomplished through the Sales Order Process Procedure, Customer Service Procedure, Customer Satisfaction Procedure and direct interactions with the customer by SolarTech Sales, Service and Management personnel whether in person or via phone, fax or email.

## Design and Development

The Product Design and Development Procedure is used to plan and control the design and development of new products to ensure that all requirements are met. The design and development process is executed in several phases, which are controlled by an overall Design Plan.

Each phase has a checkpoint to ensure that all required elements for the specific phase have been completed. Management reviews each phase to ensure that organizational and technical interfaces, which provide input into the design process, are defined and satisfied. This is controlled by the Design Plan. Necessary information is documented, communicated, and regularly reviewed. This is accomplished by planned formal Design Reviews as dictated by the Design Plan.

Design and development activities are planned using the Design Plan. Development planning takes into consideration:

- The scope of the project.
- The organization and resources of the project team.
- Development phases and milestones.
- Project scheduling.
- Development tools and methods.
- Testing plans.
- Activities are assigned to qualified personnel who have adequate resources, responsibility and authority for their implementation.
- Plans are updated as the design evolves.

Design input requirements relating to the product are identified, documented, and reviewed for adequacy. Design input requirements are controlled by the Design Plan and include:

- Functional and performance requirements.
- Applicable statutory and regulatory requirements.
- Where applicable, information derived from previous similar designs.
- Other requirements essential for design and development.

The Management Team reviews design input requirements for adequacy and resolves incomplete, ambiguous, or conflicting requirements.

Design outputs are provided in a form that enables verification against design inputs and are approved prior to release by the Management Team. Design outputs are controlled by the Design Plan and include:

- Demonstration that input requirements have been met.
- Appropriate information for purchasing, production and for service provision.
- Product acceptance criteria.
- Characteristics essential for the safe and proper use of the product.

The Product Design and Development Procedure provides, at suitable stages, for the conduction of systematic design and development reviews. Participants in such reviews include representatives of functions (departments) concerned with the design and development stage(s) being reviewed. The Design Plan insures that the appropriate personnel conduct these reviews and that records are maintained. These reviews at a minimum:

- Evaluate the ability of the design to meet the requirements.
- Identify any deficiencies and propose necessary actions.

Design and development verification is performed in accordance with planned arrangements to ensure that design outputs comply with design input requirements. Records of the results of design verification, and any necessary actions, are maintained. The Design Plan controls design verification.

Design and development validation is performed in accordance with planned arrangements to ensure that the design is capable of meeting the requirements for the specified application or intended use, where known. Where practical, validation is performed prior to the delivery of the product. Records of the design validation, and any necessary actions, are maintained. The Design Plan controls design validation.

The Engineering Document Control Procedure and the Product Design and Development Procedure delineate how design changes and modifications are identified, documented, reviewed, and approved by authorized personnel prior to implementation. Review of design changes includes an assessment of the validity of changes and their impact on related products and processes. Records of the results of the review of design changes, and any necessary actions, are maintained.

## Purchasing

The Purchasing Procedure, Vendor Selection Evaluation and Re-evaluation Procedure and Receiving and Receipt Inspection Procedure are established and maintained to ensure that services and materials acquired for the production of SolarTech products, which contribute to the quality of the product, conform to specified requirements.

The above listed procedures ensure that vendors (suppliers) and contracted services, which impact product quality (directly or indirectly), are assessed and selected based on their ability to meet SolarTech specified requirements. These assessments are documented. The procedure for evaluation of vendors (suppliers) includes monitoring of delivery, quality, and any other items required on purchase orders. The Nonconformity Control Procedure includes a method that requires vendors (suppliers) to perform a root cause analysis and provide documented corrective actions taken when a delivered product or service fails to conform to specified requirements.

Vendors (Suppliers) are approved based on one or more of the following:

- Site visit and evaluation.
- Product evaluation or functional test.
- Satisfactory fulfillment of an initial "trial" order.
- Documented experience of technical and quality performance.
- Past performance meeting SolarTech requirements for quality, cost and delivery.

Purchasing documents clearly and completely describe ordered products. Purchasing documents clearly define, where appropriate:

- Material requirements (including: requirements for approval of product, procedures, processes and equipment) and may include reference to applicable drawings, inspection instructions, relevant technical data and quality system standards.
- Requirements for qualification of personnel.
- Business management system requirements.

The Purchasing Manager ensures that all purchase orders are reviewed and approved for adequacy and completeness prior to release to vendors (suppliers).

All materials, which impact product quality (directly or indirectly), are inspected and verified to meet documented established requirements prior to use in the production process or delivery to a customer.

When SolarTech verification of purchased product occurs at the vendor's (supplier's) premises (source inspection), purchasing documents define the verification arrangements and the method of product release.

If specified in the contract, SolarTech customers have the right to verify at the vendor (supplier) facilities that the product conforms to specified requirements. Customer verification will not preclude subsequent rejection by the customer. Even if verified by the customer all materials received by SolarTech will still undergo standard receiving procedures and inspections.

### **Production and Service Provision**

SolarTech has established the Production Procedure, Maintenance of Equipment Procedure, Monitoring and Measuring Equipment Procedure, Nonconformity Control Procedure, Packaging and Delivery Procedure and Customer Service Procedure along with other required documentation to enable the planning and carrying out of production of products and provision of services under controlled conditions, which include, as applicable:

- Availability of information that describes the characteristics of the products (Product Literature, Specifications, Manuals, Website and Engineering Documentation).
- Availability of work instructions, where the absence would adversely affect product quality.
- Use of suitable equipment.
- Availability and use of monitoring and measuring equipment.
- Implementation of monitoring and measurement.
- Implementation of suitable release, delivery and post-delivery activities.

SolarTech validates processes where the outcome of the process cannot be readily verified by inspection. This includes processes where deficiencies would only become apparent after delivery. Specifically this includes SolarTech's soldering, welding and painting processes. Validation of these processes demonstrates the ability of the product to meet requirements. Process validation includes, as applicable:

- Defined criteria for review and approval of the processes.
- Approval of equipment and materials used.
- Qualification of personnel.
- Use of specific methods, processes and procedures.
- Requirements for necessary records.
- Revalidation requirements.

The Identification and Traceability Procedure describes how raw material, in-process items, and finished goods are uniquely identified and how traceability is maintained where required.

Inspection and test status for all products is identified by suitable means as defined in the Production Procedure and associated work instructions. The status identified indicates the conformance or nonconformance of the product with regard to inspection and tests performed.

All products provided by SolarTech customers for incorporation into their products, or for activities connected with their product are controlled according to the Customer Supplied Material Procedure. Any such product that is lost, damaged, or is otherwise unsuitable for use shall be recorded, records maintained and reported to the customer as delineated in the Customer Supplied Material Procedure. Verification of the customer property by SolarTech does not absolve the customer of the responsibility to provide acceptable products nor shall it preclude subsequent rejection.

SolarTech maintains general common-knowledge practices to ensure that all materials and products are protected from damage or deterioration throughout their life cycle at the company. All employees take necessary and adequate measures to protect all materials and products from damage and ensure that conformity is maintained during all phases to include receipt inspection, routine handling, storage, processing, packaging, and shipping. All materials and products are suitably identifiable through all phases as well. In those cases where materials used in production processes have a shelf life or an expiration date, it is standard practice for the user of such materials to check the expiration date (or compare date received to current date to shelf life) and verify that the material has not expired prior to use. Additionally every effort is

made by the Purchasing Manager to ensure that the quantity of such products in stores and in WIP (Work In Process) will be consumed on a FIFO (First-In, First-Out) basis and that all such materials are consumed well before their expiration date (i.e. the rate of consumption compared to the quantity available ensures that the materials do not expire prior to use).

### **Control of Monitoring and Measuring Devices**

The Monitoring and Measurement Equipment Procedure controls, verifies, and maintains inspection, measuring, and test equipment used to demonstrate the conformance of product to specified requirements. The Production Procedure, Production Quality Records and associated Work Instructions delineate the monitoring and measurement to be undertaken and what monitoring and measuring equipment are needed to provide evidence of conformity of product to determined requirements.

Inspection, measurement and test equipment is used in a manner that ensures measurement uncertainty is known and is consistent with required measurement capability. Test software, and software used in automated processes during production, is included in the scope of these procedures. When the technical data pertaining to the measurement equipment is a customer-specified requirement, such data shall be made available for verification that the measuring equipment is functionally adequate.

For all test equipment used for product verification, SolarTech:

- Selects the device based upon the measurements to be made and the accuracy and precision required.
- Documents the basis used for calibration in situations where no standard exists for calibration.
- Identifies, verifies, and labels the device prior to use and re-verifies the device at prescribed intervals making adjustments as necessary.
- Provides instructions for calibration method and frequency.
- Assesses the validity of previous test results when test equipment is found to be unacceptable during testing or re-verification activities.
- Safeguards all test equipment against misuse, environmental changes that could affect calibration accuracy, unintended access or changes that would invalidate the verification status of the systems.
- Equipment is calibrated using standards having a known valid relationship to recognized standards (NIST).
- Equipment is handled, stored and preserved in a manner such that the accuracy and fitness for use are maintained.

Records of all calibration activities for inspection, measurement and test equipment are maintained in accordance with the Monitoring and Measurement Equipment Procedure.

## **MEASUREMENT, ANALYSIS AND IMPROVEMENT**

### **General**

SolarTech plans and implements monitoring, measuring, analysis and improvement processes necessary to demonstrate conformity of the product, and the Business Management System to established standards and to continually improve the effectiveness of the Business Management System.

### **Monitoring and Measurement**

SolarTech is intent on meeting all customer expectations and requirements, and as such has implemented and maintains a Customer Satisfaction Procedure, which seeks out and documents customer opinions as to the quality of SolarTech's products and services. The Management Team uses the information obtained from this procedure as one method of evaluating if SolarTech is meeting all customer expectations and requirements. Additional informal methods of obtaining customer satisfaction with SolarTech products and services are employed as well.



## **Internal Audit**

An Internal Audit Procedure has been established, documented, implemented and is maintained to plan and conduct internal audits at planned intervals to determine whether the Business Management System conforms to the planned arrangements, the requirements of the ISO Standard and the requirements of the Business Management System and if the management system is effectively implemented and maintained. This procedure also defines the responsibilities and requirements for planning and conducting audits, and for reporting results and maintaining records.

Internal audits are scheduled on the basis of the status and importance of the activity to be audited along with the results of previous audits and are carried out by personnel independent of those having direct responsibility for the activity being audited. Audit criteria, scope, frequency and methods are all defined within the Internal Audit Procedure and Internal Audit Records. Housekeeping and work environment conditions are included in the audits.

The results of the audits are recorded and brought to the attention of the personnel having responsibility in the area audited. The management personnel responsible for the area takes timely action to correct deficiencies found during audits.

Follow-up audit activities verify and record implementation of corrective actions. The results of internal audits form an integral part of the input to the Management Reviews.

Auditors are qualified and maintain qualification based on defined requirements within the Internal Auditor Job Description.

## **Monitoring and Measurement of Processes**

All SolarTech employees are responsible for monitoring and evaluating the results (outputs) of all processes within the Business Management System for which they are involved. They are trained on these processes and the expected results (outputs) of these processes. Whenever planned results (outputs) from a process are not achieved, corrective action will be initiated through the Corrective Action and Preventive Action Procedure and/or the Nonconformity Control Procedure. Additionally, the Management System Document Control Procedure provides all employees with the tools necessary to request changes to management system documentation whenever it is apparent that a change is necessary to insure that a process is functioning properly and in accordance with the documented procedures. The actions taken will ensure the conformity of the product to all established requirements and conformity of the Business Management System to the ISO Standard.

## **Monitoring and Measurement of Product**

All SolarTech products are inspected and/or tested in order to verify that specified requirements for the products are satisfied. These inspections and/or tests are performed prior to delivery of the product to the customer. Products, which do not conform to all established requirements, are not delivered to the customer unless the customer specifically requests products that do not conform to all specified requirements. Required inspection and/or testing, and the records to be established are detailed in the procedures that comprise the Business Management System including but not limited to the Receiving and Receipt Inspection Procedure, Product Design and Development Procedure, Production Procedure (and all associated work instruction and quality records) and the Packaging and Delivery Procedure.

## **Receiving Inspection and Testing**

Purchased and customer supplied products and services are prevented from use until the required verifications are conducted and the product or service is verified as conforming to specified requirements. Incoming product is inspected prior to release to production. This is documented in the Receiving and Receipt Inspection Procedure.



Verification of the specified requirements is in accordance with documented procedures. The amount and nature of verification activity is dependent on the level of control exercised at the vendor's (supplier's) site and the recorded evidence of conformance provided. SolarTech does not permit the early release of incoming material for urgent production purposes prior to verification.

### **In-Process Inspection and Testing**

In-process inspection and testing is performed as required by the applicable work instructions and/or quality records that support the Production Procedure. SolarTech procedures ensure that in-process inspection and testing is carried out, and defines the criteria for holding of products until these inspection and tests activities have been completed and necessary reports have been verified.

### **Final Inspection and Testing**

Final testing is conducted in accordance with documented procedures to complete the evidence of conformance of the finished product to the specified requirements. These procedures include the Production Procedure and all associated work instructions and quality records.

The documented procedures require that:

- Product is held until all the required testing has been carried out and the results meet specified requirements.
- Final inspection may include accumulation of in-process inspection results, or specific final testing as appropriate.
- Final inspection and testing includes the verification that all previous inspection and testing activities, including those specified at receipt of products or in-process, have been carried out with results meeting the specified requirements.

All inspection and testing is recorded and signed-off by personnel performing inspections and/or testing to provide evidence the product has been inspected and/or tested. These records show clearly whether the product has passed or failed the inspections and/or tests according to defined acceptance criteria and that traceability exists between the test records and the product tested. Where the product fails to pass any inspection and/or test, the Nonconformity Control Procedure shall apply.

### **Control of Nonconforming Product**

Product that does not conform to specified requirements is prevented from unintended use or delivery to the customer. Controls are provided for identification, documentation, evaluation, segregation and disposition of nonconforming product, and for notification of the product provider. This is documented in the Nonconformity Control Procedure.

The responsibility for review and authority for the disposition of nonconforming product is defined. Nonconforming product is reviewed in accordance with documented procedures.

Nonconforming product is dealt with in one or more of the following ways:

- Taking action to eliminate the nonconformity.
- Authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer.
- Taking action to preclude its original intended use or application.
- Taking actions appropriate to the effects, or potential effects, of the nonconformity when nonconforming product is detected after delivery or use has started.

Repaired and/or reworked product is re-inspected in accordance with documented procedures.

Records of nonconformities and any subsequent actions taken, including concessions obtained, are maintained.

When nonconforming product is detected after delivery or the use of nonconforming product has been identified SolarTech will take action appropriate to the effects, or potential effects of the nonconformity through the use of the Nonconformity Control Procedure, Customer Service Procedure, Identification and Traceability Procedure, and/or the Corrective Action and Preventive Action Procedure. Quality Records will be utilized in conjunction with the previously listed procedures to track down and eliminate nonconformities as appropriate.

### **Analysis of Data**

SolarTech determines, collects and analyzes appropriate data to demonstrate the suitability and effectiveness of the Business Management System, and to evaluate its continual improvement.

The data include input from:

- The Corrective Action and Preventative Action Procedure (CAPA).
- The Customer Satisfaction Procedure.
- The Nonconformity Control Procedure.
- The Vendor Selection, Evaluation, and Re-Evaluation Procedure.
- The Internal Audit Procedure.

Trends are analyzed and compared to overall business goals and objectives as a means for identifying opportunities for preventive action and continual improvement. Process Leaders perform these analyses in preparation for and during the Management Reviews.

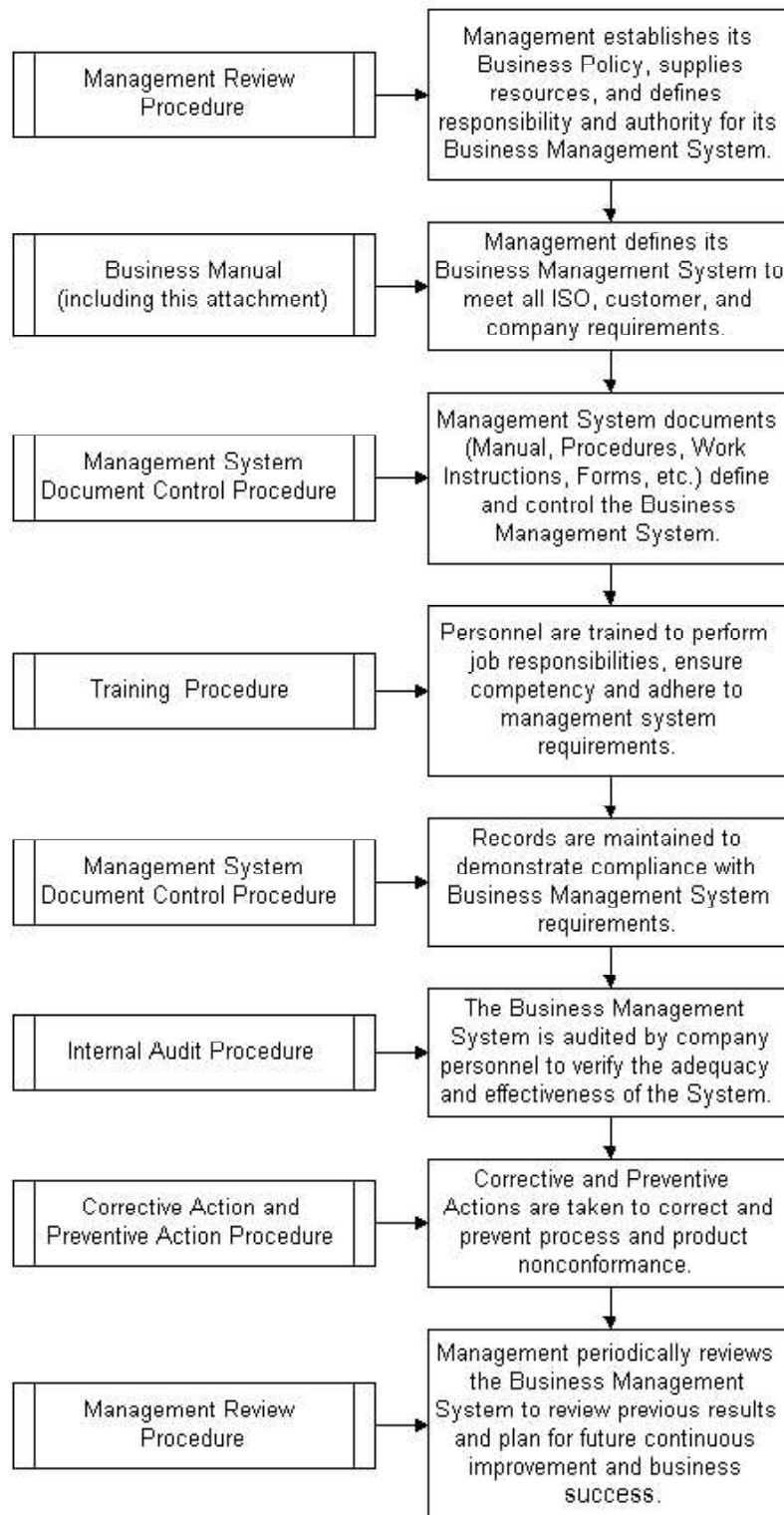
### **Improvement**

The Business Management System promotes continual improvement through the use of the Business Policy Statement and Business Policy Objectives, Audit Results, Analysis of Data, Corrective Actions and Preventive Actions and Management Reviews.

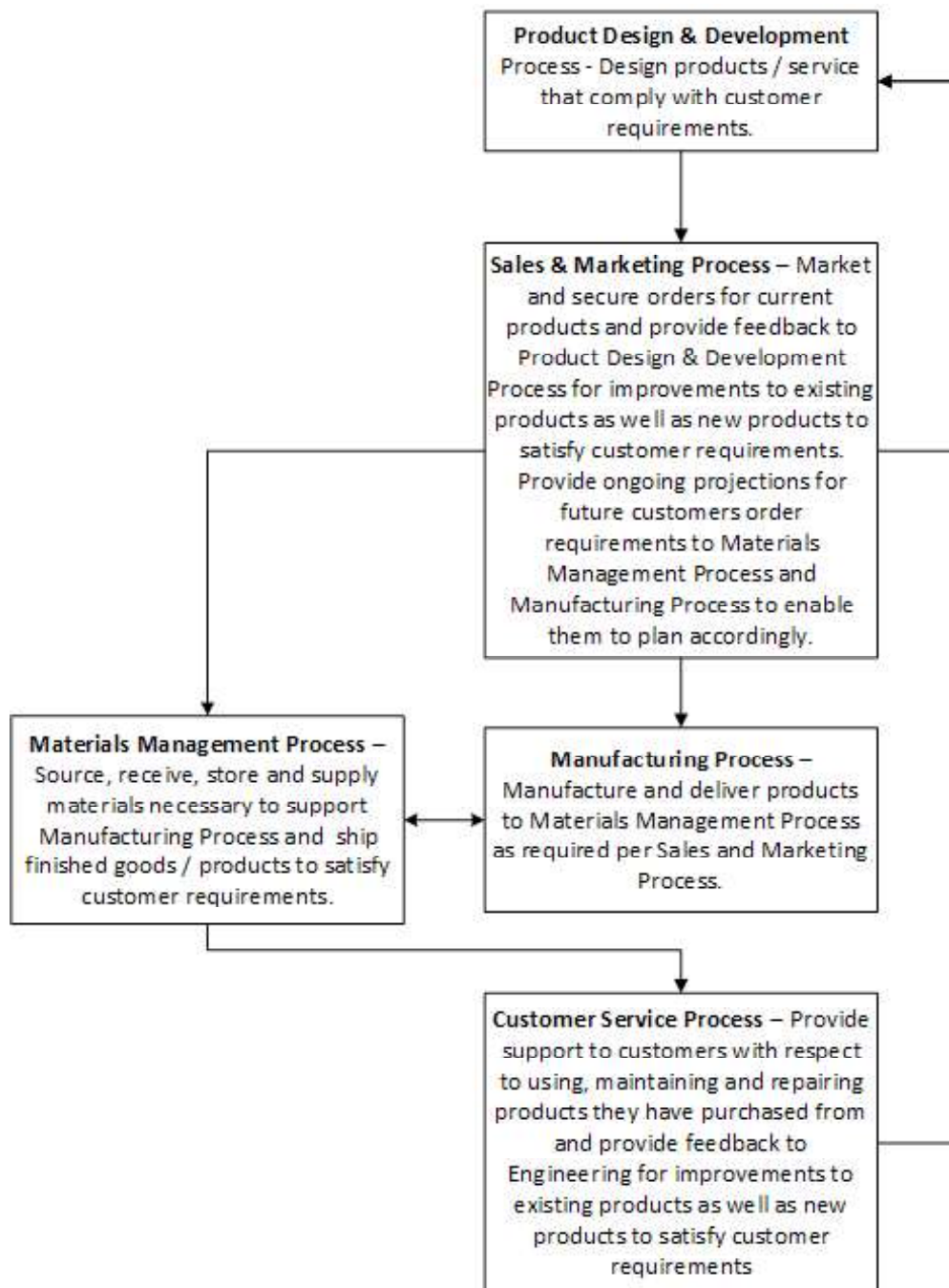
- Each activity within the company pursues continual improvement in all aspects of performance, with emphasis on customer-perceived quality, cost, and delivery factors.
- Management monitors selected objective indicators of performance.
- Long-term performance history is periodically evaluated and trends are analyzed.
- Targets are established based on performance. Priority is given to indicators that do not attain satisfactory customer performance levels.
- Performance is monitored against planned targets. Formal corrective action is initiated when planned targets are repeatedly missed.

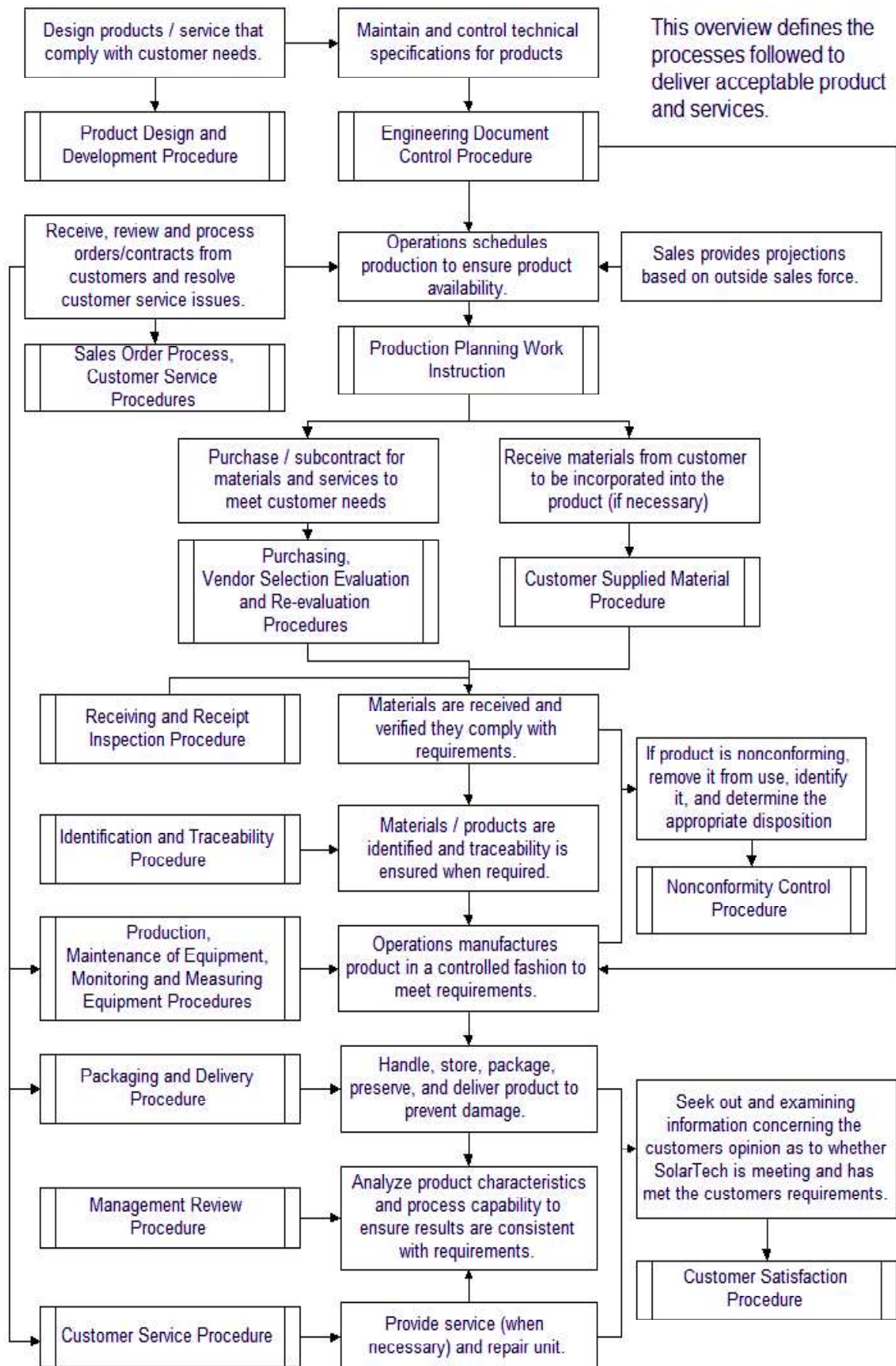
**Business Management System Process Plan**

This overview defines the structure in place to direct and support production related processes.



## Solar Technology, Inc. Process Map





## Corrective Action

A procedure is documented and maintained to eliminate the cause of nonconformities in order to prevent their recurrence. Employees, customers and suppliers are encouraged to propose corrective actions to eliminate actual or potential nonconformities and continually improve processes and products. The Corrective Action and Preventive Action Procedure documents this process.

Corrective action taken to eliminate the causes of nonconformities is to a degree appropriate to the magnitude of problems and commensurate with the risks encountered.

The Corrective Action and Preventive Action Procedure includes consideration of the following:

- Effective handling of customer complaints and reports of product nonconformance (reviewing nonconformities).
- Investigation of the cause of nonconformities relating to product, process, and management system, and recording the results of the investigation.
- Determination of the corrective action needed to eliminate the cause of nonconformities.
- Application of controls to ensure that corrective action is taken and that the action is effective.
- Confirmation that relevant information on actions taken is submitted for management review.
- Records of the results of corrective actions are maintained.

The typical corrective action will consider the following disciplined problem solving steps:

- Problem statement and description.
- Containment (action required to address the immediate problem).
- Root cause analysis.
- Long-term solution.
- Preventive action.
- Monitoring status.

## Preventive Action

A procedure is documented and maintained to eliminate the causes of potential nonconformities in order to prevent their occurrence. Employees, customers and suppliers are encouraged to propose preventive actions to eliminate potential nonconformities and to continually improve processes and products. The Corrective Action and Preventive Action Procedure documents this process.

Preventive action taken to eliminate the causes of potential nonconformities is to a degree appropriate to the magnitude of problems and commensurate with the risks encountered.

The Corrective Action and Preventive Action Procedure includes consideration of the following:

- Use of appropriate sources of information such as design processes and work operations which affect product quality, concessions, audit results, quality records, service reports, root cause analysis, and customer and employee complaints to detect, analyze and eliminate potential causes of nonconformities.
- Determination of the steps needed to deal with any problems requiring preventive action.
- Application of controls to ensure that preventative action is taken and that the action is effective.
- Confirmation that relevant information on actions taken is submitted for management review.
- Records of the results of preventive action are maintained.



**Attachment B: Procedure Listing**

Corrective Action and Preventive Action Procedure  
Customer Satisfaction Procedure  
Customer Service Procedure  
Customer Supplied Material Procedure  
Engineering Document Control Procedure  
Identification and Traceability Procedure  
Internal Audit Procedure  
Maintenance of Equipment Procedure  
Management System Document Control Procedure  
Management Review Procedure  
Monitoring and Measuring Equipment Procedure  
Nonconformity Control Procedure  
Packaging and Delivery Procedure  
Product Design and Development Procedure  
Production Procedure  
Purchasing Procedure  
Receiving and Receipt Inspection Procedure  
Sales Order Process Procedure  
Training Procedure  
Vendor Selection, Evaluation and Re-evaluation Procedure



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## Business Policy Statement

We will endeavor to identify, secure, develop and retain the best customers, employees and suppliers to build an organization that makes a positive contribution to our local, national and global economies and has a positive impact on the environment in such a manner as to improve the lives of all individuals with whom we interact by complying with the requirements, and continually improving the effectiveness, of the quality management system.

## Business Policy Objectives

### 1. Customers:

- a. We will acquire the best customers.
- b. We will develop (improve) our best customers.
- c. We will retain our best customers.

### 2. Employees:

- a. We will acquire the best employees.
- b. We will develop (improve) our best employees.
- c. We will retain our best employees.

### 3. Suppliers:

- a. We will acquire the best suppliers.
- b. We will develop (improve) our best suppliers.
- c. We will retain our best suppliers.

### 4. Economic Performance:

- a. We will introduce new products that satisfy our customers' needs.
- b. We will improve our existing products such that they better satisfy our customers' needs.
- c. We will improve our operational efficiency.

### 5. Environmental Performance:

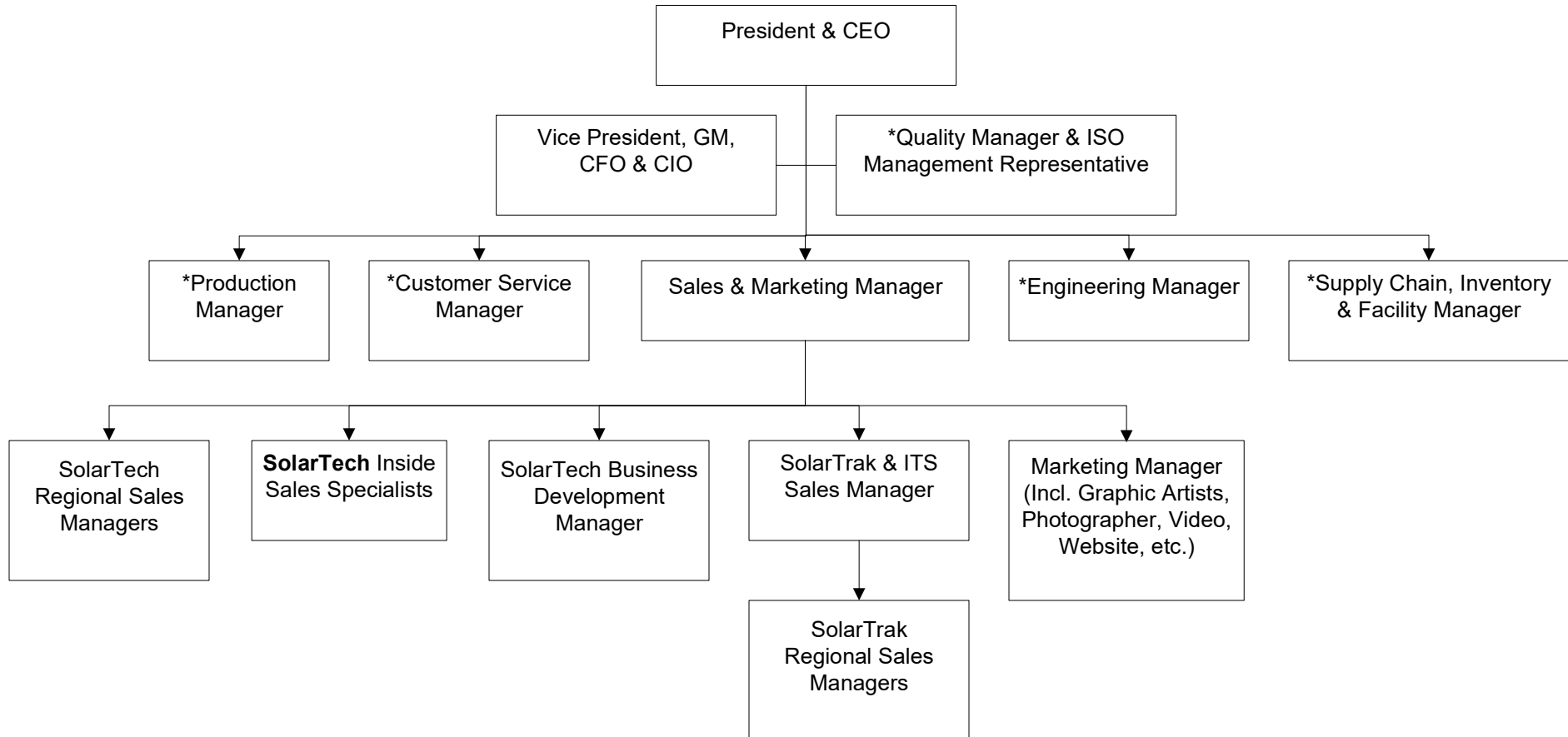
- a. We will introduce new products that have a positive impact on the environment.
- b. We will introduce product improvements and enhancements to our existing products to create a positive impact on the environment.

**Note:** c. Operational Efficiencies – We will improve our operational efficiency in a manner as to have a positive impact on the environment.

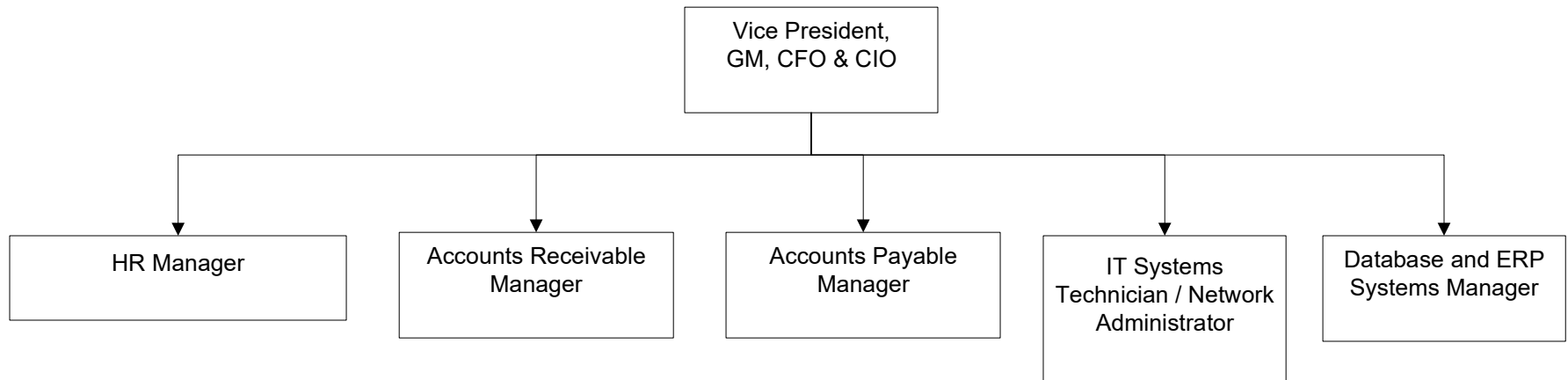
Following a comprehensive review of the organization and the business management system, appropriate metrics with associated targets/goals for each of the above objectives are selected at each annual management review. Appropriate metrics and associated targets/goals are selected based upon the state of the organization and business environment for the upcoming year. Metrics and associated targets/goals are selected, established and promulgated in order to enable the management team to provide appropriate guidance to the entire organization such that all members of the organization can work towards achieving the goals set by the management team which will ultimately ensure that the objectives are met and the business policy statement is upheld. Periodic feedback on how the organization is performing with respect to the selected metrics and associated targets/goals is provided to the organization throughout the year. Overall organizational performance with respect to the selected metrics and associated targets/goals is assessed at the following management review and results are factored into the selection of new metrics and associated targets/goals for the upcoming year.

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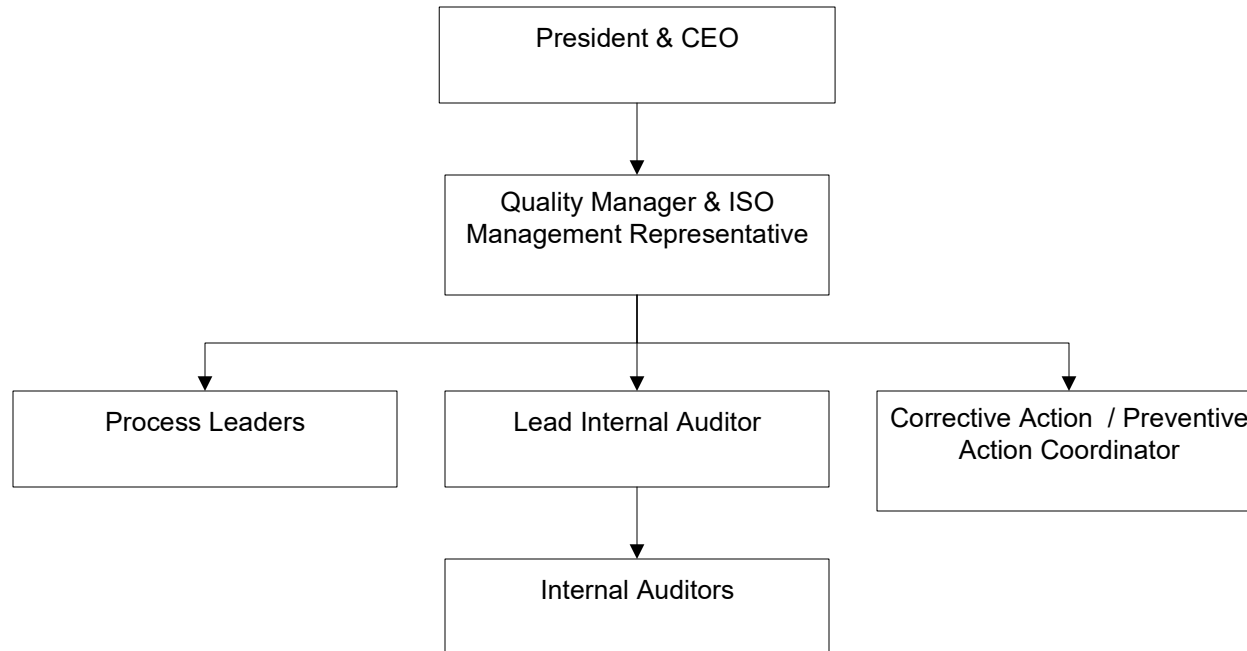
## Corporate Executive /Administrative Overview



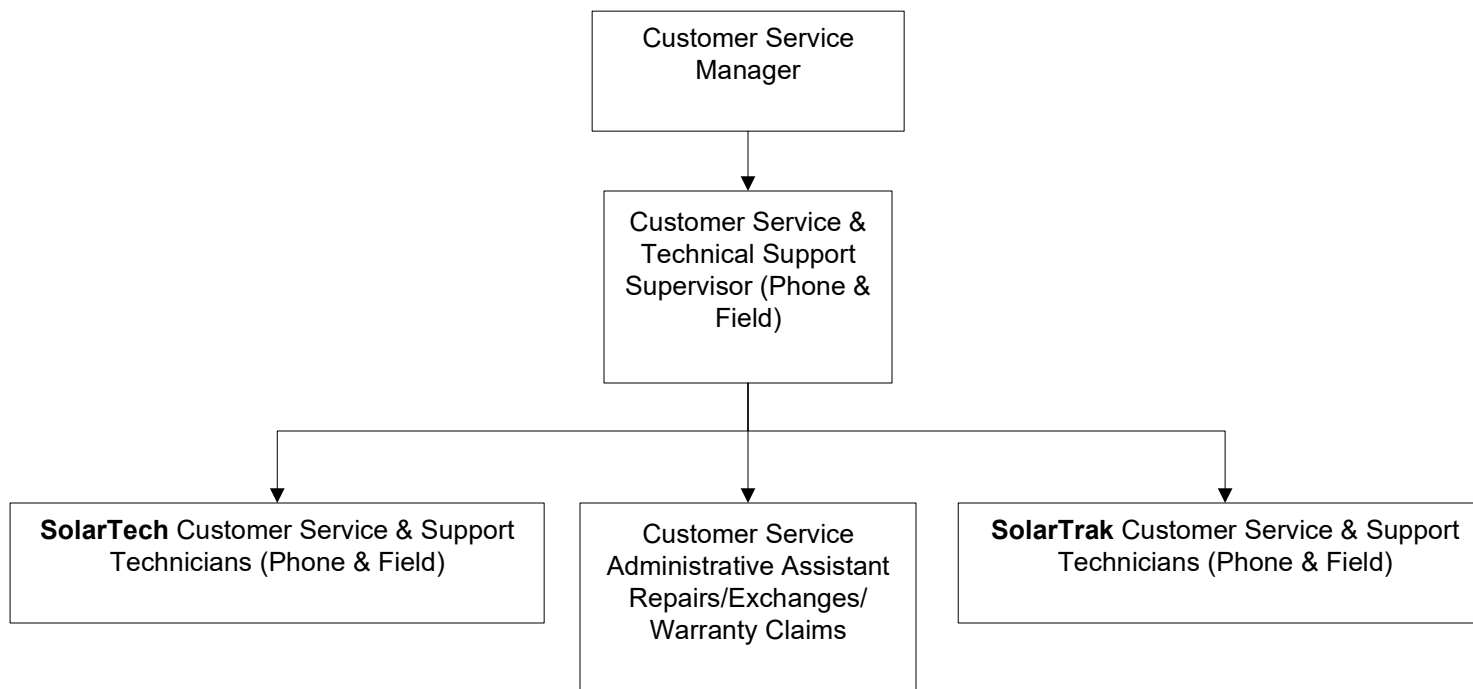
## General Management, Finance & Accounting Department



## ISO/Management Improvement Organization Overview

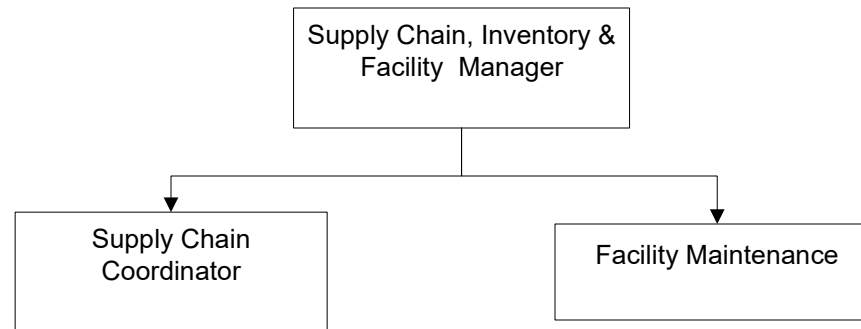


## Customer Service Department

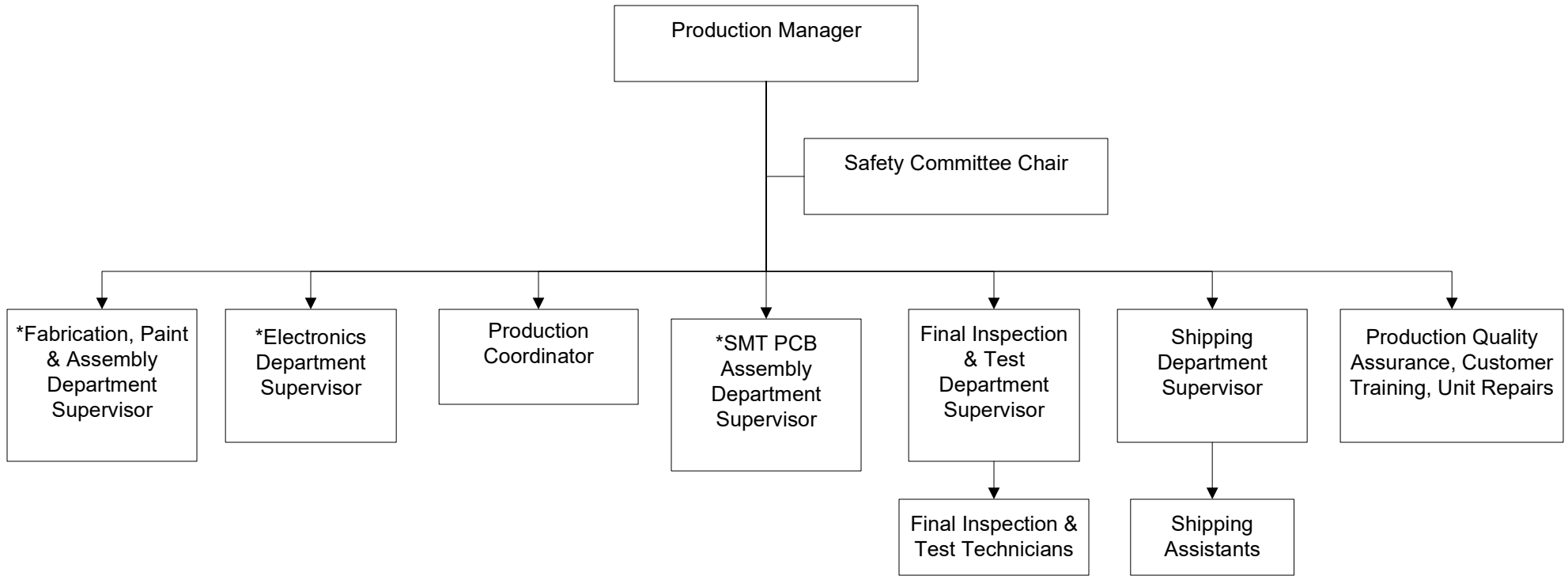




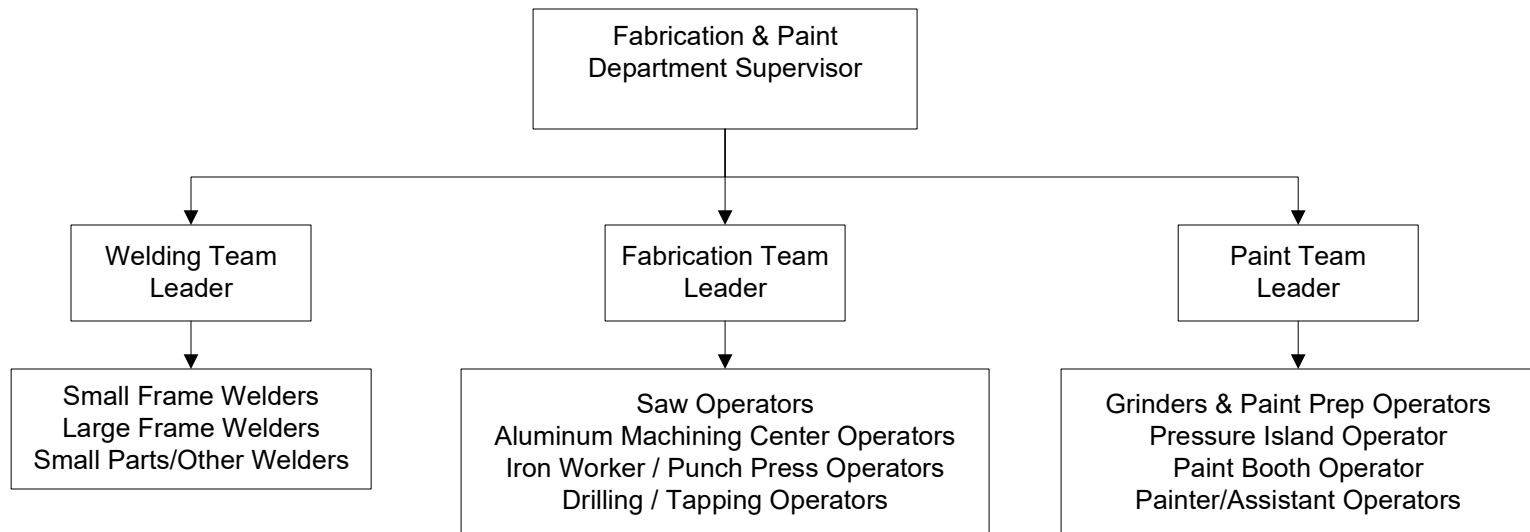
## Supply Chain/Inventory Management & Production Planning Department



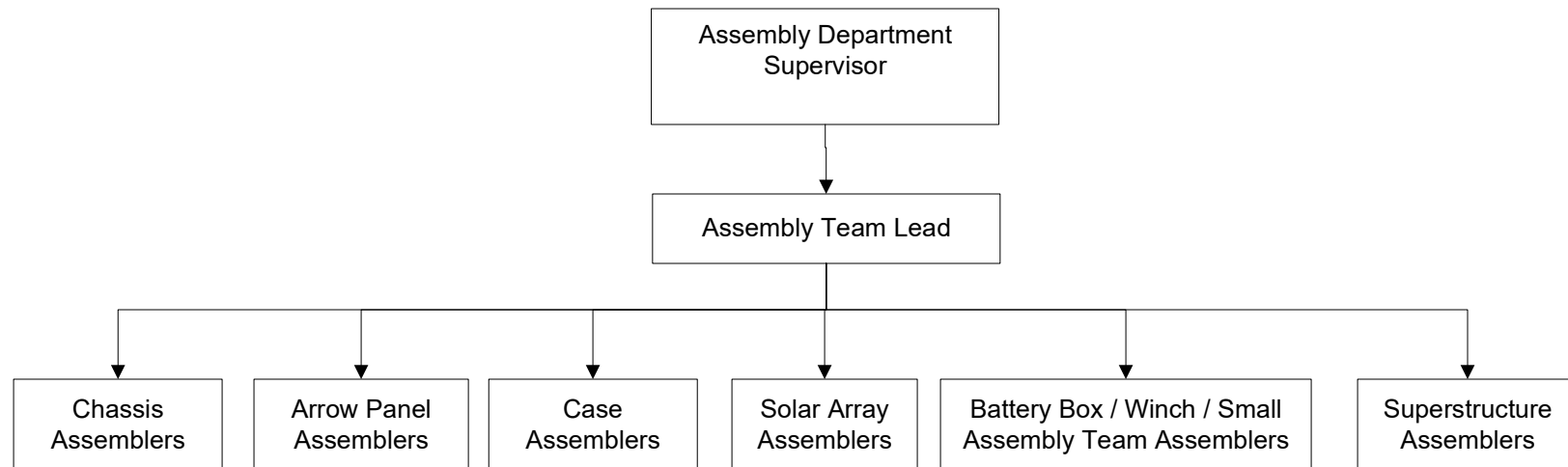
## Production Department



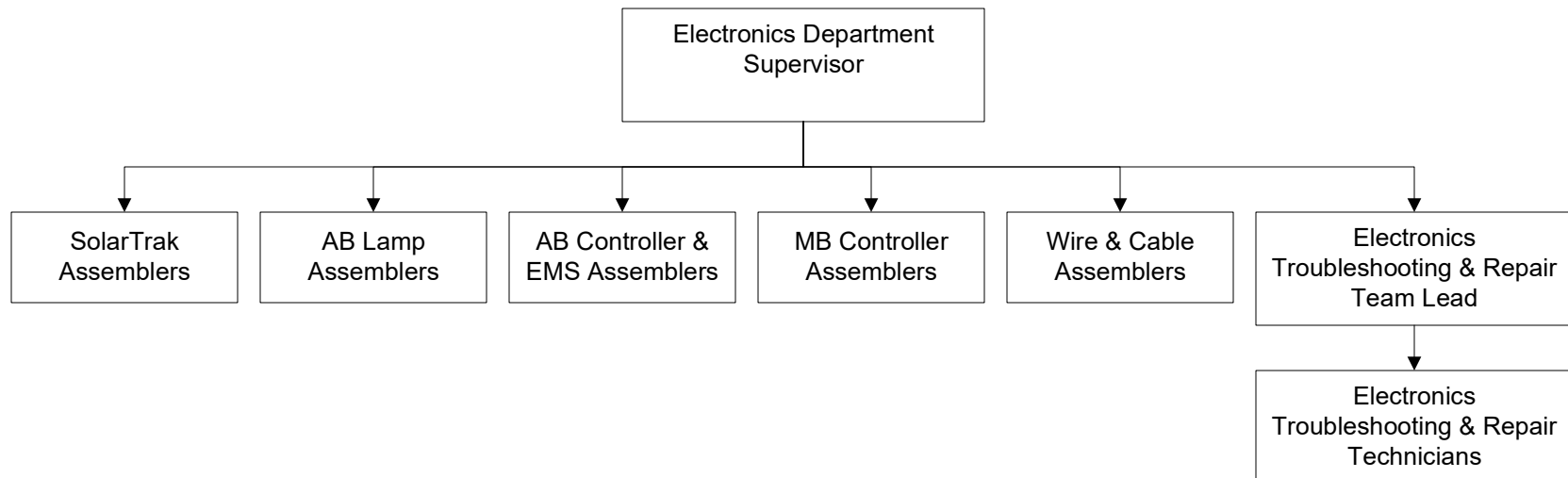
## Fabrication & Paint Departments



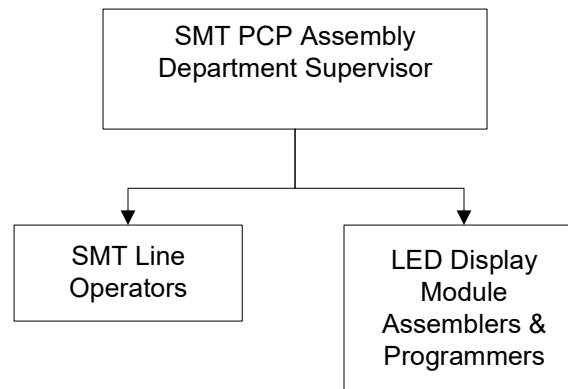
## Assembly Department



## Electronics Department



## SMT PCB Assembly Department



## Engineering & Product Development Department

