Quality

Management

System

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INTRODUCTION

The Lightning Electrical Services Quality Management System (hereafter known as the QMS) has been developed to comply with regulatory, industry, and customer quality requirements imposed by customers or regulatory agencies for items and services provided by Lightning Electrical Services. The QMS describes the Lightning Electrical Services commitments to the quality assurance requirements of AS/NZS 9001: 2011.

Lightning Electrical Services operates throughout the Territory. Lightning Electrical Services operations are made up of sections that are responsible for specific business areas. These operational organisations are responsible for marketing, procurement, installation, inspection, testing, and servicing and project management.

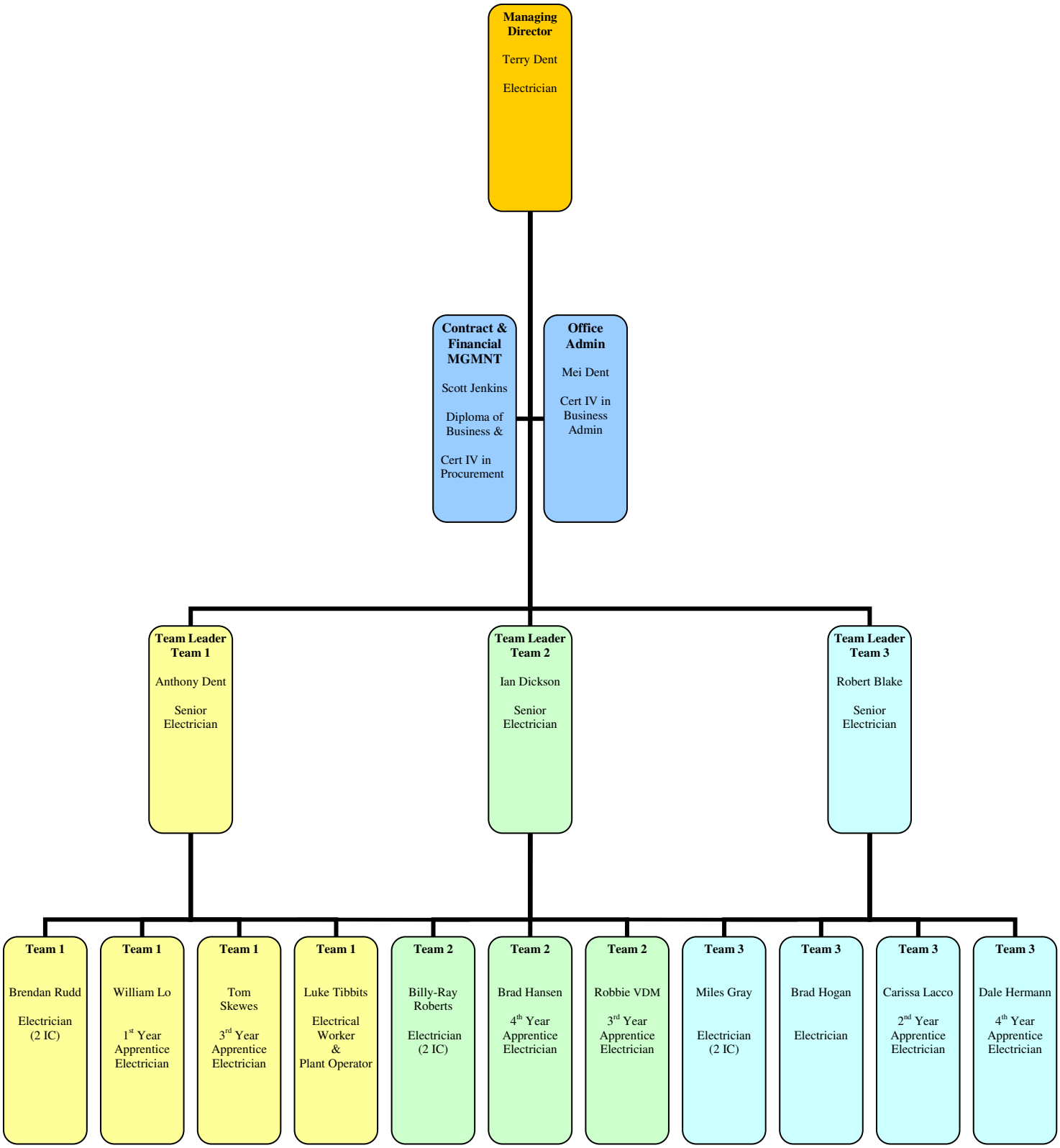
APPLICABILITY

The QMS applies to activities that affect the quality of items and services supplied by Lightning Electrical Services. It defines the basic requirements applicable to customer contracts and is a commitment to our customers. It serves as a directive for all functions in establishing necessary policies and procedures that comply with the requirements of AS/NZS 9001:2011 and in addition, as applicable for safety-related activities.

Lightning Electrical Services implements all applicable requirements of the QMS for all safety-related items and services. Lightning Electrical Services implements those requirements of the QMS consistent with AS/NZS 9001: 2011 for items and services that are not safety-related, as a minimum. Safety-related items, services and activities are those that may impact systems and components that are relied upon to remain functional to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the applicable guideline exposures set by the governing regulatory agency, if applicable. In addition, safety-related items, services and activities may be those defined by a governing regulatory agency or contract.

Project Quality Plans may be developed to supplement the requirements of the QMS and provide for specific contractual requirements and alternate quality assurance standards when necessary.

ORGANISATIONAL CHART



1. QUALITY MANAGEMENT SYSTEM

The Lightning Electrical Services Quality Management System (QMS) incorporates quality planning, provides a framework for managing the activities that enable the company to create items and services which consistently satisfy the customer and regulatory requirements, and is a tool for achieving enhanced customer satisfaction. The QMS also provides for the continual improvement of the quality management system by monitoring processes based on their significance, measuring their effectiveness against objectives, and management selection of processes for improvement.

1.1. Quality System

Activities affecting quality are documented in accordance with written manuals, procedures, instructions, specifications, and drawings that contain appropriate criteria for determining whether prescribed activities have been satisfactorily accomplished. The documentation is established in the following three distinct levels that integrate the policies, procedures, and working documents:

Level 1: QMS

Level 2: Lightning Electrical Services organisation policies and procedures

Level 3: Functional/Department/Plant procedures and work instructions

1.2. Quality Management System (Level 1)

The QMS is structured around interlinked processes that provide the necessary implementation controls to ensure customer and regulatory requirements are met and continual process improvement. It provides the basis for policies and procedures that implement a comprehensive quality management system. These processes are those that define activities that are directly necessary to create the item or service, and those that provide the supporting infrastructure to enable the direct processes to operate under the required controls, and continually improve.

The QMS includes commitments to address quality standards and regulatory requirements as indicated in the Applicability section. For safety-related activities affecting quality, the QMS provides for compliance with applicable quality assurance requirements imposed by the governing regulatory agency.

The QMS and changes thereto are reviewed and approved by Lightning Electrical Services management. The control of the QMS is the responsibility of the Management Representative.

1.3. Lightning Electrical Services Policies and Procedures (Level 2)

1.3.1. Policies and Procedures

Any activity that impacts on customers' contractual or regulatory commitment is responsible for establishing procedures that comply with the requirements of the QMS. They are responsible for ensuring that lower-tier procedures are established as necessary to implement applicable requirements.

The Level 2 procedures governing quality-related activities are contained in a Lightning Electrical Services Policy/Procedures Manual. These procedures address regulatory requirements and QMS policies, as applicable. These procedures are reviewed and approved by Management.

1.3.2. Project Quality Plans

The quality requirements contained in the QMS may not address all quality system requirements invoked by customer contracts, or required by a governing regulatory agency, for each Lightning Electrical Services project. To define and implement an alternate quality system for specific projects, it may be necessary to create a Project Quality Plan (PQP) to specify supplemental quality requirements, identify supplemental/revised procedures, or provide recognition and compliance with alternative quality standards. When a PQP is necessary to address these needs, or to provide more detailed information required for specific customer or market acceptance, the PQP may take the form of a complete quality assurance program manual based on the commitments of this document. For the project to which it is applicable, a PQP, in the language it is written, is the definitive quality system description and applies to activities that affect the quality of items and services supplied by Lightning Electrical Services.

A PQP is developed, issued, revised and controlled in accordance with established procedures; it is reviewed and approved by the responsible project manager with Quality concurrence.

1.3.3. Graded Quality

Requirements are applied as necessary to achieve the level of quality specified. Procedures identify control requirements for items and services based on the complexity of the work and safety-related function of the item or service. To ensure consistency the classification process, including safety classes, is documented in procedures. The safety class of items is documented and approved by responsible management.

1.4. Functional Procedures and Work Instructions (Level 3)

Procedures are established to implement local responsibilities in accordance with Level 2 policies and procedures for the QMS. Responsible managers ensure the preparation, approval, distribution, and revision of these procedures.

1.4.1. Work Instructions

Work instructions provide detailed steps to conduct specific work activities. Work instructions are prepared as needed to supplement procedure requirements and to ensure that critical work scopes are carried out in a consistent manner. Managers are responsible for determining where work instructions are required in their areas of responsibility and for establishing systems for the generation, review, distribution, revision, and control of work instructions.

1.4.2. Document and Data Control

Managers are responsible for ensuring that all activities affecting the quality of items and services are accomplished in accordance with controlled documents such as quality system manuals, procedures, work instructions, and controlled data such as customer order requirements. These documents contain appropriate criteria for determining whether prescribed activities have been completed satisfactorily.

Procedures are established which provide for document review, approval, issue, and changes to ensure inclusion of customer technical and quality requirements prior to implementation. All personnel are responsible for ensuring that the correct revisions of applicable industry codes and standards are used, in accordance with customer requirements.

1.4.3. Document Approval and Issue

Each manager with lead responsibility for a document or document series is responsible for establishing controls that define responsibility, authority, issue, use, and revision and control of the document or document series. Document control procedures identify (as applicable):

• Format and content guidelines;

• Requirements to ensure that documents are complete, correct, current, and in compliance with all applicable technical, quality, and administrative requirements; Individuals or organisations responsible for review and approval of documents, and revisions thereto;

• Requirements for the release and issue of approved documents to ensure that responsible personnel are promptly provided with current document revisions at the location where the document is used;

• Requirements for document effective and/or issue dates;

• Requirements for identifying what have been revised;

• Requirements for maintaining document master lists and controlled distribution list;

And

• Provisions for reissuing drawings after a practical number of changes have been Identified and approved for inclusion.

During the document preparation and review cycle, designated personnel review documents to ensure that the requirements can be met within a timely manner once the document is formally issued.

Change to procedures, instructions, and drawings are approved and documented prior to implementation and are made available at the location where the activity will be performed prior to commencing work.

1.4.4. Quality Management System Document Control

All levels of management are responsible for assigning responsibilities to ensure that documents and data are controlled in accordance with established procedures and resolving issues pertaining to policy and procedure content, application, and use.

1.4.5. Computer Software Control

Documented procedures are established to control changes to the approved configuration of computer software used on product-related applications. The development and maintenance of computer software include documentation describing computer software requirements, computer software design, verification and validation (testing), configuration control, and error reporting and resolution. Personnel developing or supplying computer software are required to use policies and procedures that comply with the applicable requirements of the QMS.

1.4.6. Translation of Documents

Translations of documents from, or to, a language other than English, which could have an effect on safety-related items or services, will be translated by a qualified translator. These translations will be verified and certified in accordance with established procedures.

1.4.7. Specifications and Drawings

Specifications and drawings are prepared to define design and process characteristics of items and services. The manager responsible for the design or process is responsible for determining the specification and drawings necessary to ensure compliance with customer and regulatory requirements. The manager that initiates specifications or drawings is responsible for ensuring that these documents are maintained and controlled.

1.4.8. Control of Quality Records

Quality records are completed documents that furnish evidence of the quality of items, services, and/or activities affecting quality and compliance with the QMS. Quality records may also include articles such as materials or test specimens when required. Quality records are retained, reviewed, and provided to the customer in accordance with applicable contractual and regulatory requirements.

These quality records will be controlled in accordance with established procedures. These procedures identify the requirements and responsibilities for records classification, legibility, identification, collection, filing, indexing, storage, distribution, retention, retrieval, and disposition. Documents are considered valid records when they are validated by stamp, initialled, or signed and dated, by authorized personnel. Handwritten signatures are not required if the document is clearly certified or otherwise authenticated as a statement by the reporting individual. Correction of quality records is in accordance with established procedures.

Records of requirements for suppliers of items and services are specified in procurement documents, as required. Suppliers' records systems are verified and monitored during surveillance and audits.

Quality records are protected against deterioration, damage, and/or loss in accordance with established procedures, and safety-related records requiring long-term storage are maintained either at an approved single storage facility or by storage of duplicate copies at separate geographical locations.

1.4.9. Lifetime Records

Quality records are classified as lifetime if they meet one or more of the following:

• Records that would be of significant value in demonstrating capability for safe operation.
• Records that would be of significant value in maintaining, reworking, repairing, replacing, or modifying a safety-related item.
• Records that would be of significant value in determining the cause of an accident or malfunction of a safety-related item.

1.4.10. Non-permanent Records

Quality records are classified as non-permanent when they show evidence that an activity was performed in accordance with applicable requirements, but do not meet any of the criteria for lifetime records.

2. MANAGEMENT RESPONSIBILITY

2.1. Quality Policy

The Lightning Electrical Services Quality Policy is:

To provide products and services that fully satisfies customer and regulatory requirements.

Management is responsible for ensuring that this policy is communicated, understood, and implemented at all levels of the organisation. All employees are expected to perform their responsibilities in accordance with applicable quality requirements, and to strive for customer satisfaction and continual improvement. Maintaining an atmosphere of integrity and responsiveness is one of the most important attributes of the work environment. All employees are encouraged to openly express all concerns for the safety and quality of Lightning Electrical Services items and services.

2.2. Lightning Electrical Services Management

The Lightning Electrical Services Management defines the overall quality policy and promotes a culture of conformance to requirements, customer satisfaction and continual improvement. The Lightning Electrical Services Management authorizes and endorses the QMS, and appoints and supports a Management Representative to coordinate development, implementation, and maintenance of the QMS.

2.3. Operational Organisation

Organisations reporting to the Lightning Electrical Services Management are assigned responsibilities to ensure contractual requirements are identified and met, a focal point for assuring customer satisfaction, and the quality of items and services. These organisations include functions such as Manufacturing, Project Management, Quality, Marketing, and Purchasing.

The organisation chart shows a typical operational reporting structure designed to satisfy the commitments of the QMS. Specific organisational details, including authority, responsibilities and interfaces are established. Achievement of quality is the responsibility of each individual performing work. Verification of the achievement of quality is accomplished by individuals or groups not directly responsible for performing the work.

The management is responsible for the quality program activities described throughout this document and ensuring that appropriate systems, processes, procedures, and work instructions are implemented. Management is also responsible for ensuring that instances of non-compliances and opportunities for improvement are addressed in a timely manner and that personnel are indoctrinated and trained in the applicable quality system requirements.

2.4. Quality

The responsibility for documenting the quality program is assigned to a Quality Manager(s) (or similar title). The Quality Manager is sufficiently free from direct pressure for cost/schedule and has the authority to stop work and delivery or installation of nonconforming items and services.

The Quality Manager is responsible for providing quality assurance program management and support, monitoring QMS performance, and coordinating quality assurance activities.

2.5. Project Management

For accomplishment of a specific project or task, management may assign an individual to be responsible for all aspects of the job and to manage the efforts of personnel working on the project. The title of such an individual may be Project Manager, Task Manager, Site Manager, Project Coordinator, Task Leader, Job Superintendent, or other similar titles.

The organisational structure for a project may vary depending upon the nature, scale and complexity of the work, and assigned personnel may be located at a headquarters location, regional facility, supplier facility or remote site location, wherever the work is to be performed.

2.6. Support

Support functions such as procurement and marketing are integrated into the operational organisations and provide support in accordance with the requirements of this QMS.

Purchasing is responsible for all procurement services and serves as the primary interface with suppliers. Marketing is responsible for the preparation of offers and for managing customer communications.

2.7. Interfaces

Lightning Electrical Services organisational interface agreements are implemented, as necessary, to reflect agreed upon responsibilities. They are documented and controlled in accordance with approved procedures.

2.8. Management Review

Management and staff are responsible for reviewing the implementation of the requirements set forth in the QMS. This review is conducted at defined intervals to communicate the continuing process effectiveness and suitability in satisfying the applicable quality and regulatory standards, continual improvement by attaining specific, measurable quality objectives, and assessment of potential opportunities for improvement.

Review input includes information on audit performance, customer satisfaction, performance of selected processes, delivered item and service conformance, the status of corrective and preventive actions, supplier performance, prior review's action items, known changes that may significantly affect the QMS, and any substantial recommendations for improvement.

Review output includes any decisions and actions related to improving quality management system and process effectiveness, significant product improvements to address customer requirements, and resource needs.

Records of the management review are maintained.

2.9. Management Representative

The Quality Manager designated as the Management Representative has direct access to the Lightning Electrical Services Management for all appropriate quality issues. This Quality Manager has responsibility for 1) the Quality Management System, including quality policy, assessment of QMS effectiveness, and supplier quality, and 2) monitoring the overall QMS performance, and assuring that the QMS provides for awareness of customer requirements.

This role is also established as a focal point for any employee to report issues concerning the QMS and for coordinating action for changes and improvements.

2.10. Resource Management

Necessary resources are provided to implement, maintain, and continually improve the effectiveness of the quality management system, and to satisfy customer and regulatory requirements. Competent, properly trained and/or qualified personnel are provided to accomplish work activities. Personnel are aware how their activities support achievement of their organisation's quality objectives. Adequate facilities, equipment, services, information and work environment are provided and managed to support the delivery of items and services in compliance with customer and regulatory requirements.

Managers of activities affecting quality are responsible for 1) determining the personnel competencies necessary for the assigned activities and assessing associated needs, 2) ensuring necessary actions (e.g., training) are taken to satisfy these needs and 3) evaluating these actions to confirm that personnel are adequately trained, competent and qualified to manage and perform assigned work activities.

These actions include indoctrination to and familiarization with applicable quality assurance program and procedure requirements, and any special skills training required for the performance of job activities. The extent of such actions is commensurate with the scope, nature, and complexity of the activity, as well as the education, experience, and proficiency of the individual. Historical records of personnel education and experience may serve as documentation of competency, when supplemented by applicable training records. Actions to build or maintain necessary competencies are documented, and records are maintained in accordance with applicable records procedures.

Personnel performing inspection, test, and audit activities are qualified in accordance with applicable requirements, including specific provisions for education and experience. Qualification programs include documentation of capability through either written tests or physical demonstrations of skill, as well as evidence of maintenance of proficiency based on retraining or continued satisfactory performance. Documentation in the form of certificates of qualification, or other similar records, specifies activities for which the individual is qualified, the basis for certification, and the period for which the certification is valid.

3. PRODUCT REALISATION

3.1. Contract Review

The contract administrator is responsible for coordinating negotiation and contract review activities.

3.2. Negotiation

The Contract Administrator distributes copies of customer specifications and subsequent changes regarding technical, administrative, and quality requirements to appropriate functional groups for review and comment prior to proposal submittal.

This review is performed to ensure that customer requirements are adequately defined and understood, and that the capability exists to meet these requirements. During the review the contract administrator coordinates all communication with the customer. A record of the review is maintained.

3.3. Contract Review

All customer orders and amendments received are formally reviewed by the contract administrator. This review is performed to enhance customer satisfaction by ensuring that 1) all stated customer requirements are adequately defined and documented, 2) that other requirements necessary for the application (e.g. regulatory) are determined and considered, and 3) that the capability exists to meet all customer requirements. Requirements that differ from those in the final proposal are communicated to the customer and resolved.

Documentation of this review is maintained in accordance with established procedures.

3.4. Technical Information

3.4.1. Instruction Manuals

Instruction manuals that are used for proper and safe installation, operation, maintenance or repair of original safety-related items are provided as specified.
Computer Software

Computer software developed as a deliverable safety-related product or used in the design, analysis, or operation of safety-related components, structures, and systems, is developed, controlled, and maintained in accordance with procedures and instructions that comply with guidelines described in AS/NZS 9000-3. These procedures include provisions for the validation and acceptance of software obtained from external sources.

Computer software developed for other than safety-related applications will be processed in accordance with procedures that meet specific contract and other requirements, including AS/NZS 9000-3, as appropriate.

3.5. Computer Software Testing

Computer software is tested for all intended applications. The degree of testing is dependent on the importance of the computer software to safety, complexity of the program, and prior documented performance. Acceptance criteria may be based on hand calculations, documented results from other validated computer programs, empirical data, published data in technical literature, or performance standards established through use. Testing is conducted in accordance with written procedures, and the results are documented.

3.6. Computer Hardware Systems

In-use test problems will be run whenever the computer program is installed on a different computer, or when significant hardware or operating system configuration changes are made.

Periodic in-use manual or automatic self-check routines will be prescribed and performed for those applications where computer failures or drift can affect required performance. Procedures will be established that identify the controls for hardware systems based on specific customer and other requirements.

4. PROCUREMENT

4.1. General

Controls of purchased items and services are established to ensure that applicable technical and quality requirements are met. Procurement activities are controlled through documented procedures and instructions that include requirements for bid evaluation, selection of suppliers, communication of requirements to suppliers, evaluation of supplier performance, and resolution of non-conformances.

Commitments to resolve unacceptable conditions are obtained from the supplier prior to contract award. Spare or replacement parts are procured to requirements which are equivalent to or exceed the original requirements.

Suppliers of safety-related items and services are evaluated and approved by Quality prior to their designation as a qualified supplier, or placement of a purchase order.

4.2. Supplier Selection

The purchasing area is responsible for placing orders only with suppliers that have been found acceptable in accordance with established procedures. Documentation of the acceptability of suppliers is maintained and identifies the items and/or services to be supplied.
This documentation is maintained and is available to organisations as defined in established procedures.
Suppliers are evaluated and selected considering the historical quality performance data and audit/survey reports to the extent applicable to the item or service being procured. Procedures describe requirements for the evaluation and selection of suppliers, as well as monitoring of supplier performance, in accordance with quality requirements. Procedures are established to describe methods for evaluating supplier performance and for initiating corrective action.

Failure of suppliers to correct problems contributing to unacceptable performance constitutes a basis for disqualification.

4.3. Procurement Documents

Procurement documents (for example, purchase requisitions, purchase orders, supplier quality requirements, engineering drawings, and specifications) are controlled to ensure that applicable technical and quality requirements are communicated to suppliers.

Quality requirements are incorporated into procurement documents in accordance with the QMS, regulatory, and customer contractual requirements. Managers responsible for original requirements documentation submitted to Purchasing are also responsible for processing changes to that information, submitting the changes to Purchasing and revising standard documents, as appropriate, to incorporate the changes.

4.4. Customer Access to Suppliers

Customers may require access to suppliers' locations for audit, and/or verification purposes. Such requirements specified in customer contracts are identified during the contract review process and communicated to the applicable quality and purchasing organisations for coordination with the customer and supplier. Records of customer involvement are maintained in accordance with established procedures.

4.5. Document Submittal

When suppliers are required to submit documents such as drawings, specifications, and procedures for review, approval, or other informational purposes, these requirements are specified in procurement documents.

4.6. Computer Software Procurement

Lightning Electrical Services responsible for supplying software, or providing software services, utilise established policies and procedures that meet the applicable requirements of the QMS. Procured software that has not been developed in accordance with the requirements of the QMS shall be controlled, evaluated, and tested prior to use, as described in documented procedures.

4.7. Documentation

Supplier submittals of documents are evaluated against approved acceptance criteria for technical correctness, adequacy of inspection methods, and completeness of test data. Items with contingent conditions that require additional action after delivery are documented and monitored until resolution is complete and documented.

5. ACCEPTANCE

5.1. Receiving Inspection and Testing

Procedures are established to ensure:

• Incoming items are not used or processed until they have been accepted for use, except in those cases in which a subsequent test or inspection will verify acceptability. Methods of acceptance include source verification, receiving inspection, and review of source documents attesting to acceptability.

• Acceptance is performed in accordance with written checklists, plans, or procedures.

• Items released for urgent production purposes are identified, documented, and controlled to permit recall until acceptance is completed.

5.2. Post-Installation Testing

When post-installation testing is required for acceptance of safety-related components, the responsible organisation and the applicant/licensee or agent will mutually establish the test requirements and acceptance documentation.

5.3. Statement of Conformance

A statement of conformance is documented for items and services in accordance with customer requirements and applicable procedures. These documents are authenticated by designated personnel based on documented acceptance records. Examples of these include Certificate of Compliance certificates.

5.4. Control of Customer-Supplied Product

When customer items and materials are supplied in accordance with contractual requirements, the applicable marketing and/or contract administrator communicates the appropriate customer requirements to the responsible area.

Procedures provide for the identification, inspection, and protection of customer supplied items and materials and for the application of such material in the manufactured item or service. Any customer-supplied item or material that is lost, damaged, or otherwise unsuitable for use is documented and reported to the customer.

5.5. Product Identification and Traceability

Procedures are established to specify the methods and extent of identification and traceability of items to ensure that only correct and acceptable items are installed or used in items and services.

5.6. Identification of Items

Identification of items is maintained, as necessary, to provide confidence that the correct items are used. Suppliers are required to identify all supplied items in accordance with the requirements of procurement documents.

6. PROCESS CONTROL

6.1. General

Manufacturing, service, and installation activities are planned and performed under controlled conditions that ensure conformance to customer requirements, quality system requirements, and applicable standards and regulations. Management is responsible for ensuring that only properly trained and/or qualified personnel are assigned to accomplish work activities and that they are provided adequate facilities, equipment, tools, and information to perform their work in compliance with requirements.

Processes affecting the quality of items and services are controlled by instructions, procedures, drawings, checklists, process control documents, computer software, and/or other appropriate methods. When required, process parameters and environmental conditions are specified and maintained. Typical elements of process control include but are not limited to:

- Work instructions
- Quality workmanship standards
- Acceptance criteria
- Process monitoring
- Process and equipment approval as appropriate
- Checklists
- Process control documents
- Validation and control of computer software used for process control
- Maintenance of equipment

6.2. Control of Inspection, Measuring, and Test Equipment

Inspection, measuring, and test equipment are calibrated and controlled in accordance with established procedures to ensure the accuracy of measurements. Each device is properly controlled, calibrated, and adjusted at specified intervals to maintain its accuracy within the necessary limits. Jigs, fixtures, templates, inspection software, and test software are also controlled to ensure accuracy. Inspection and test software is validated prior to use. Process controllers, microprocessors, and software, when used as an integral part of the measuring and test equipment system, are not interchanged without recalibration of the test system. Personnel using measuring and test equipment are responsible for ensuring that the equipment is calibrated.

Procedures have been established for control of inspection, measuring, and test equipment, including tools, as appropriate, to ensure that such devices fit the purpose and are of the proper type, range, accuracy, and tolerance to accomplish the

function of determining conformance to specified requirements. Selection of equipment type takes into account factors that may affect the known measurement uncertainty, including equipment accuracy, environmental effects, skills of personnel using the equipment, and condition of the item being verified. Handling and storage of measuring and test equipment are controlled to ensure that the accuracy of the equipment is maintained.

Inspection, measuring, and test equipment utilisation is controlled. A record system, including a description of the device, the unique device identifier, calibration intervals, next due date, the calibration standard used, and results of the calibration, is maintained. Calibration is performed at specified intervals in accordance with written procedures using standards traceable to national recognized standards. Calibration standards have a higher accuracy level than the equipment being calibrated. Where no national standards exist, the basis used for calibration shall be documented. Each inspection, measuring, and test device is given a calibration status indicator based upon the latest calibration records. Out-of-calibration devices are tagged or segregated until repaired and recalibrated, or replaced. Systems and practices provide for the safeguarding of inspection, measuring, and test equipment from adjustments that would invalidate the calibration settings.
Documentation is maintained to support an evaluation of the validity of previous measurements when measuring and test equipment is found to be out of calibration.

7. HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY

7.1. General

Systems are established to ensure that parts and material are received, handled, stored, packaged, and delivered in accordance with codes, standards, regulations, designs, and customer requirements. Procedures require that items shipped from suppliers, items processed internally, and items shipped directly to customers are received in acceptable condition.

Procedures also provide for:

- Storage requirements, such as shelf life and environmental control;
- Special material handling requirements; and
- Standard and non-standard shipping requirements.

7.2. Handling

All employees are responsible for specifications and procedures for the use of handling equipment. Periodic equipment examinations verify conformance to required codes and/or standards. Procedures also provide for the handling of items to prevent damage or deterioration.

7.3. Storage

All stored items are properly identified and located in areas that provide adequate control of access. When necessary, special coverings, equipment, and protective environments are specified for storage by management.

Purchasing organisations are responsible for transmitting storage requirements to suppliers and determining their capability to meet them.

Storage areas are monitored at planned frequencies to ensure adequacy of the storage system and the status of stored items.

7.4. Delivery

Each manager is responsible for defining transportation requirements to ensure integrity of items during delivery to their destination and for monitoring conformance to established methods. Purchasing is responsible for transmitting shipping requirements to suppliers and determining their capability to meet them.

7.5. Shipment of Hazardous Goods

Assigned organisations are responsible to ensure that the packaging and shipment of hazardous goods and materials are performed according to national and international regulations, and contractual requirements, as applicable.

7.6. Performing Services

Services (including repair services) are performed by each team in a controlled manner that ensures conformance to the organisations' procedures, and customer and regulatory requirements. Procedures and work instructions are used to ensure that the servicing work is performed under a degree of control consistent with the original manufacture and/or installation of the systems and items.

8. MEASUREMENT, ANALYSIS AND IMPROVEMENT

The quality management system provides control over a system of interlinked individual processes. These processes are monitored and the resulting data is used to demonstrate conformance to specified requirements, and support corrective, preventive or continual improvement actions. The management review process identifies the significant processes that were targeted for improvement and the associated quality objectives. This monitoring, measuring and analysis is used to support the management review process in which management participates.

8.1. Inspection and Testing

Inspection and testing are performed on both purchased and manufactured items, as applicable, to verify compliance with acceptance criteria. Tests for safety-related items may include proof tests before installation, post-modification tests, prototype qualification tests, production tests, construction tests, and pre-operational tests.

Sources of criteria include drawings, specifications, industry codes and standards, and contractual requirements that are provided or approved by the organisation responsible for the design.

Inspections and tests are performed by personnel checking their own work or by qualified inspection and test personnel other than those performing the work, when required by contractual or regulatory requirements. For safety-related items and services, inspections or tests will be performed by qualified personnel who are independent of those performing the work.

Inspections are performed in accordance with written procedures or inspection plans. These may include checklists, forms, steps integrated into other process control documents, or work instructions. If hold points are required, they are identified in applicable documents. This authorisation is documented. Inspection procedures/plans include, as a minimum:

- Manager performing the inspection
- Characteristics being inspected
- Specification of inspection method on safety-related items
- Acceptance criteria
- Sampling plans, if applicable
- Records to be maintained

Tests are performed in accordance with written procedures or instructions which include, as a minimum:

- Identification of item being tested
- Prerequisites
- Acceptance criteria
- Calibration requirements
- Mandatory hold points
- Test conditions
- Test equipment
- Test personnel requirements

• Requirements for recording test data
• Records to be maintained

Procedures provide for identifying nonconforming items and for identifying, documenting, and controlling unverified items to permit recall and replacement in the event of a non-conformance to specified requirements.

8.2. Final Inspection and Testing

Procedures are established to ensure that required final inspections and tests, including associated documentation, have been completed and results accepted before items are released. Final inspection and testing include the resolution of any non-conformances.

8.3. Inspection and Test Records

Procedures establish provisions for generation of quality records of planned inspection and test activities, as appropriate, to document that items satisfy established criteria.

Inspection and test records for safety-related items shall, as a minimum, identify: item, date, inspector/tester or data recorder, type of observation, results and acceptability, action taken for deviations noted, and person(s) evaluating test results.

8.4. Inspection and Test Status

The Manager responsible for a work scope ensures that the status of inspections, tests, and operations can be determined at any point throughout the process. Altering the sequence of tests, inspections or other operations requires the authorisation of personnel responsible for the function being altered. Status indicators are used on items or in documents traceable to the item to ensure that required inspections, tests, and operations have been performed before release in accordance with established procedures and instructions. Procedures are established to ensure that an item has satisfactorily passed required inspection and tests, and to prevent the use of defective material in production.

Some examples of status indicators include:

• Colour-coded markings
• Tags
• Authorized inspection stamps
• Non-conformance reports/tags
• Labels
• Routings
• Bar codes on worksheet routings
• Inspection records
• Test records
• Physical location
• Labelling of software

Authorized personnel are responsible for ensuring that only items conforming to specified requirements are released for shipment.

8.5. Control of Nonconforming Product

Nonconforming items and services are controlled to ensure proper disposition. A non-conformance is defined as a deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate.

All personnel are responsible for reporting non-conformances in accordance with established procedures.

Procedures are established for the identification, documentation, evaluation, segregation (if practical), review, corrective action, and notification to affected organisations. Disposition may include rework, accept as-is, repair, or reject and scrap. Repaired and reworked items are reverified in accordance with the original criteria or as specified in the disposition. In the disposition of a safety-related item, technical justification for the acceptability of a nonconforming item that is to be repaired or used as-is will be documented. Non-conformances of these items will be subject to control measures commensurate with those applied to the original design. When required by contract, customer approval of the final disposition is obtained.

9. CORRECTIVE AND PREVENTIVE ACTION

9.1. General

Conditions adverse to the quality of items and services are identified, documented, analysed, and corrected in accordance with established procedures. For significant conditions adverse to quality, these procedures provide for identification; assignment of responsibility for corrective action; documentation of the cause and corrective action taken; implementation, evaluation, and verification of corrective action to prevent recurrence; and reporting to the appropriate levels of management.

9.2. Corrective Action

The need for corrective action is identified through sources such as non-conformances, failures, malfunctions, audits, inspections, surveillance, and customer complaints. Organisations performing quality/product assurance functions participate in evaluating and verifying corrective action implementation. They have the authority to stop work or ensure adequate controls are in place until effective corrective action has been taken and any applicable changes have been incorporated in procedures and communicated to appropriate personnel.

Provisions are contained in procedures to ensure that corrective actions are reviewed and not inadvertently nullified by subsequent actions. For significant conditions adverse to quality, the causes are determined and documented and the impact on items and services is evaluated.

Reports, including actions to prevent recurrence, are provided to the appropriate level of management.

9.3. Preventive Action

Quality data is analysed for trends in items, services, processes, and systems that may require action to eliminate causes of potential conditions adverse to quality. The results of these analyses are provided to management to determine the preventive action required to prevent occurrence. When necessary, this action will include the application of controls to ensure that it is effective.

Action to prevent adverse impact on customer satisfaction is based on information that comes from direct customer discussions, survey feedback on delivered items and services, and information captured in non-conformance tracking systems.

10. INTERNAL QUALITY AUDITS

10.1. Internal Audits

The Administration Manager is responsible for implementing and maintaining an internal audit program to examine and evaluate objective evidence for compliance with the QMS and evaluating the effectiveness of implementation. Internal audits of activities affecting the quality of items and services are scheduled, planned, and conducted in accordance with established procedures.

Audit frequency is based on the status and importance of an activity, results of external audits, and internal quality performance monitoring and indicators. Schedules are updated as necessary to ensure that adequate oversight is maintained.

Supplemental audits are performed when necessary to verify specific activities, processes, and/or implementation of corrective actions.

Audits are performed by qualified personnel, independent of the activity being assessed, using written procedures and/or checklists, as appropriate. Reports documenting results are prepared upon completion of the audit and distributed to appropriate management. Audit reports are required to provide a response within a specified time period to identify planned corrective actions and a schedule for completion thereof, when applicable.

Quality is responsible for evaluating, following, and verifying corrective action implementation.

Reported conditions that become overdue are escalated to higher management for resolution as necessary.

Auditors are trained on quality standards, regulatory requirements, and internal practices. Lead auditors are qualified in accordance with applicable standards.

10.2. Audits at Field Locations

Field services audits are conducted and controlled in accordance with specific contractual requirements. Audits will be conducted on service activities at customer sites when specifically identified in the contractual agreements and will be scheduled with the following considerations, when contractually required:

- As early in the life of the activity as practical
- At intervals consistent with the schedule for accomplishing the activity
- Commensurate with the status and importance of the activity

10.3. Self-Assessments

Procedures for implementing the self-assessment process are developed in detail commensurate with the complexity of the activity and importance to safety. Results of self-assessments are communicated to responsible management.