Revision History

Revision No.	Date	Sections	Description	Prepared By	Concurred By	Approved By
00	11/17/15	Entire Document	Entirely new document that incorporates the latest Corporate Quality Plan revision and FTA Quality Management System Guidelines FTA-PA-27-5194-12.1 (2012 Update). Supersedes all previously issued Mechanical Department Quality Control Plan revisions and amendments.	M. Alimirah K. Chaudhari	M. Simos K. McCann	J. Derwinski

INTRODUCTION

Metra's Mechanical Department Quality Plan (MQP) incorporates the required sections of the fifteen elements of a quality program which are listed in the U.S. Department of Transportation Federal Transit Administration (FTA), Quality Assurance and Quality Control Guidelines, document, FTA-PA-27-5194-12.1, issued February 2012.

It is the responsibility of Metra's Mechanical Department personnel and Third Party Contractors to incorporate the applicable elements of a quality program listed in the Federal Transit Administration (FTA) Quality Management System (QMS) Guidelines, as well as the quality requirements listed in the Metra's Corporate Quality Plan (CQM), and industry standards, as applicable, into their project plans, procedures, etc., per contractual agreements as appropriate.

The MQP is meant to serve as a guideline for the steps that are taken when planning or executing a project in the Mechanical Department. This plan will serve to document Metra's Mechanical Department quality system, to instruct and guide employees whose actions affect product quality and reliability.

DEFINITIONS

Management:
Metra organization responsible for managing the project. In addition, the management group of any consultant under contract with Metra.

Designer:
The organization responsible for design. This could be the Metra itself, and/or a consultant or contractor providing engineering services.

Purchaser:
Metra or other organizations responsible for specifying, contracting, and accepting requirements for goods or services.

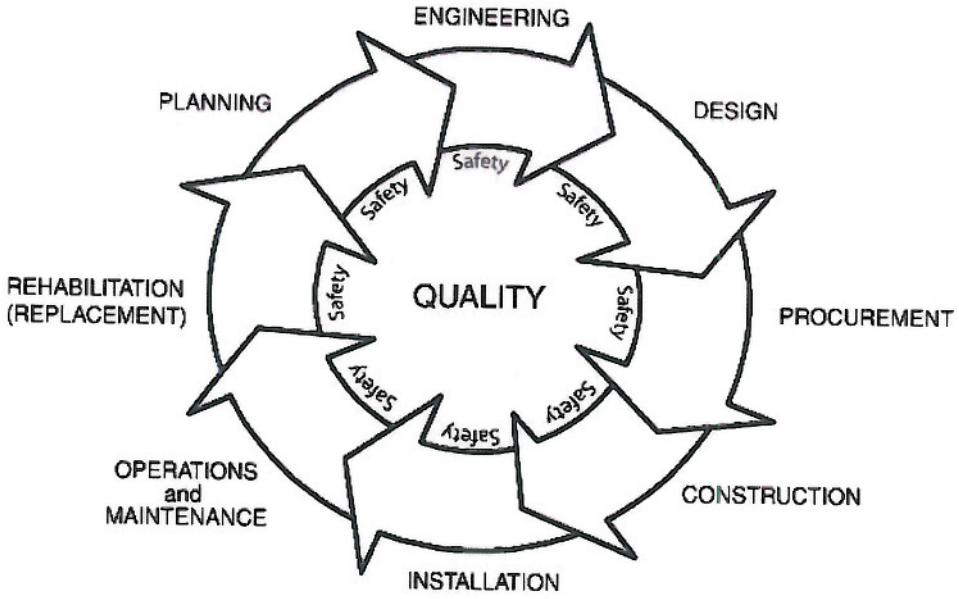
Supplier or Vendor:
Any organization providing services, products, or materials for Metra Mechanical Capital Projects. The supplier could be a product manufacturer, or a provider of raw materials or a village or a community.

Contractor or Consultant:
Any organization providing services or products to Metra Mechanical under direct contractual agreement. It could be Project Management Consultant, Project Administration Consultant, etc. The contractor could be part of Metra organization working on any projects/programs.

Sub-contractor or Sub-consultant:
Any organization supplying services or products under contract to a contractor or consultant. The sub-contractor/sub-consultant would not contract directly with Metra Mechanical, but with a contractor/consultant or another subcontractor/sub-consultant.

Third Party Contract or Third Party Contractor:
A common term used in MQP, which includes Designer, Purchaser, Supplier or Vendor, Contractor or Consultant. In some cases, the purchaser may be the Sub-contractor or Sub-consultant of the Designer, Supplier or Vendor. Material suppliers and services consultants would also fall under this definition.

QUALITY AND THE PROJECT LIFECYCLE



REFERENCES

1. Metra's Corporate Quality Manual (CQM) 01.
2. U.S. Department of Transportation, Federal Transit Administration Quality Management System Guidelines, FTA-PA-27-5194-12.1.

1.0 MANAGEMENT RESPONSIBILITY

1.1 SCOPE

1.1.1 This section is meant to provide an overview of Metra's Mechanical Department commitment to quality and the general layout of the organizational structure of the department and responsibilities, and levels of authority. The requirements of this section apply to the Mechanical Department personnel and Third Party Contracts per contractual agreements, performing work activities affecting quality.

1.1.2 It is the policy of the Mechanical Department that all capital projects be planned and completed with an effective quality management program with defined objectives and quality goals.

1.2 AUTHORITY/RESPONSIBILITIES

1.2.1 The Chief Mechanical Officer has the ultimate authority and responsibility to ensure that the Mechanical Department Quality Plan is issued, implemented, and maintained.

1.2.2 The Senior Director, Capital and Senior Director, Operations, have been given the responsibility and authority of quality oversight to ensure that MQP is understood, implemented, and maintained:

1.2.2.1 Have the functional day-to-day authority and responsibility for the implementation of the Metra Mechanical Department Quality Plan.

1.2.2.2 Develop and review Project Management Plans to assure that appropriate quality assurance and quality control measures are included in the scope of their projects by Metra and Third Party Contractors as applicable.

1.2.3 The Quality Manager is independent and reports to the Senior Director, Mechanical Capital Projects. The Quality Manager is responsible for, and has authority and independence to:

1.2.3.1 Verify the implementation of the MQP in accordance with approved procedures, instructions, and established requirements.

1.2.3.2 Develop/Review quality implementing procedures by usage of The Fifteen Elements of Quality Program checklist.

1.2.3.3 Manage quality control program and quality surveillances and inspections to ensure compliance to the MQP.

1.2.3.4 Coordinate, as necessary, the quality audits/reviews performed by the Metra Corporate Quality Assurance personnel.

1.2.3.5 Work with Metra Corporate Quality Assurance personnel and others, as necessary, in resolving and completing corrective action for non-conformance.

1.2.4 The Quality Control personnel have the responsibility to conduct quality control inspections, identify quality concerns, recommend solutions, and verify implementation of these solutions and are independent of those having direct responsibility for the work being performed.

1.2.5 Project Managers, Supervisors, and Project Support Personnel have the responsibility to implement the approved procedures and carry out inspections necessary to ensure that their projects and personnel comply with the requirements of the Mechanical Quality Plan.

1.2.6 It is the responsibility of all Metra's Mechanical Department personnel to incorporate this plan as part of their work and assignments as applicable.

1.2.7 The management of the Third Party Contractor performing activities or furnishing materials, equipment or services for Mechanical Department Capital Projects should also declare and document their commitment to quality and the implementation of the contractually required FTA QMS guidelines. Once the MQP or the requirements listed in the plan are invoked via contractual documents for Third Party Contractor it should be carried out for the life of the project. Alternately, on a case by case basis, the Mechanical Department may approve use of other recognized quality guidelines such as the quality assurance guidelines published by the Association of American Railroads.

1.3 ORGANIZATIONAL STRUCTURE

1.3.1 Metra's Mechanical Department organizational structure is illustrated in the tree diagram, Appendix A. Specific levels of authority and lines of communication are established for activities affecting quality that are fully described in applicable implementing procedures and/or instructions. Metra's Mechanical Department will ensure communication between its different levels and functions regarding the processes of the Quality Plan.

1.3.2 Communication tools will include memorandums, staff meetings, project reports, and emails. Communication with our third party contractors is on-going throughout design and implementation of a project and includes project kick-off meetings, progress meetings and periodic workshops.

1.3.3 Persons responsible for ensuring and verifying that activities affecting have been correctly performed, will have sufficient authority, access to work areas, and organizational freedom and independence to:

1.3.3.1 Identify quality problems.

1.3.3.2 Initiate, recommend, or provide solutions to quality concerns.

1.3.3.3 Verify implementation of solutions.

1.3.3.4 Ensure the further processing, testing, delivery, installation, or use is controlled until a nonconformance, deficiency, or unsatisfactory conditions has been rectified.

1.4.3 Quality personnel will be independent of the pressures of production and of cost and schedule considerations in quality decisions. Personnel will have direct access to responsible management at a level where appropriate actions are acknowledged.

1.4.4 The responsibility of project deliverables including the project records by the Third Party Contracts resides with the designated Project Manager for the project. The responsibilities for the management of the day-to-day technical work, interfaces, and quality assurance/quality control requirements should be identified in the applicable Project Management Plans.

2.0 DOCUMENTED QUALITY MANAGEMENT SYSTEM

2.1 SCOPE

2.1.1 This section identifies the documented quality program provisions and program application associated with the Mechanical Quality Plan. This section also covers the periodic review of the Mechanical Quality Plan. The requirements of this section apply to the Third Party Contractors per contractual agreement with Metra.

2.2 AUTHORITY / RESPONSIBILITIES

2.2.1 See Section 1.0

2.3 PROGRAM REQUIREMENTS

2.3.1 The Mechanical Quality Plan establishes the basic policies and specifies the objectives and the requirements for the procedures to be employed by Mechanical Department and the Third Party Contractors to:

2.3.1.1 Comply with the applicable requirements of the Federal Transit Administration Quality Management System Guidelines, FTA-PA-27-5194-12.1.

2.3.1.2 Comply with other regulatory and special contractual requirements imposed by Metra and its Mechanical Department.

2.3.2 The Mechanical Quality Plan provides that activities affecting quality be accomplished in accordance with the Quality Plan, and other detailed approved procedures or instructions, as necessary.

2.3.3 Procedures and/or instructions should be developed for the scoping, documented quality system; design analysis; document control; purchasing; product identification and traceability; control of measuring and test equipment; calibration and other special processes including inspection, testing, nondestructive examination, disposition of nonconforming conditions, corrective action, maintenance of quality records, quality audits and training, as applicable.

2.3.4 Quality Assurance includes quality control, which comprises the verification of those physical characteristics of material, structure, component, or equipment, which provide a means to control the quality of the material, structure, component, or equipment to pre-determined requirements.

2.3.5 Once the Mechanical Quality Plan and/or requirements are invoked for the Third Party Contractors, contractual agreement, it shall be carried out for the life of the contract.

2.4 PROGRAM IMPLEMENTATION

2.4.1 The Mechanical Quality Plan and the procedures shall apply to project activities affecting quality related to design, materials procurement, manufacturing, project management and other activities.

2.4.2 The procedures or instructions should generally include the following, as applicable:

2.4.2.1 Purpose / Objective and scope of the document

2.4.2.2 Responsibilities for performing specific activities.

2.4.2.3 Definitions and terms used in the document.

2.4.2.4 Step-by-step instructions to control attributes such as sequence of operations of specific methodology including the quantitative and qualitative criteria to insure that specified activities have been performed satisfactorily, identifying and acquiring any inspection equipment or skills, interfaces, reviews, approvals, or actions.

2.4.2.5 Interrelated procedures or instructions.

2.4.2.6 Reference documents or information necessary to perform the activities.

2.4.2.7 Quality Records requirements.

2.4.2.9 Appendix B provides guidelines for implementation of the requirements of the Mechanical Quality Plan for capital projects.

2.5 PROGRAM REVISIONS

2.5.1 Any employee of Metra may request for revision to the Mechanical Quality Plan. The revision requests shall be thoroughly evaluated prior to incorporation into the revised Mechanical Quality Plan.

2.5.2 The changes to the revised Mechanical Quality Plan should be processed and documented.

2.6 CONTROL, ISSUES, DISTRIBUTION, STORAGE, AND DISPOSITION OF MECHANICAL QUALITY PLAN

2.6.1 The controlled version of the Mechanical Quality Plan is the electronic version that resides in Metra Mechanical Departments' Controlled Network Drive and specifically designated controlled hard copies. All other copies of the Mechanical Quality Manual are to be considered "Uncontrolled Copies".

2.6.3 Historical copies of the revised Mechanical Quality Plan shall be maintained as 'Permanent' records.

2.7 MANAGEMENT REVIEW

2.7.1 The Metra Mechanical Department Quality Plan should be reviewed by the Mechanical Department management as necessary but at least once every three years. This review includes assessing opportunities for improvement and the need for changes to the quality management system including the quality policy and quality objectives.

3.0 DESIGN CONTROL

3.1 SCOPE

3.1.1 This section is meant to outline the design control activities and assign responsibilities to ensure design inputs are correctly identified and design outputs are documented and verified to ensure they meet the design input requirements. In addition, any changes to the drawings, specifications, and other documents are documented and processed appropriately. The requirements of this section also apply to the Third Party Contractors per contractual agreement and Metra, performing work activities affecting quality associated with capital projects.

3.2 AUTHORITY / RESPONSIBILITIES

3.2.1 See Section 1.0

3.3 PROGRAM REQUIREMENTS

3.3.1 The design process is a standardized, thorough, thought out and planned process. Design activities are identified and responsibilities for accomplishing these activities are assigned. The design inputs shall be identified, and the design output will be documented and verified to meet design input requirements. The final design will be reviewed and approved as a controlled document. The design control activities will also encompass the design changes and configuration management.

3.3.3 When, by the terms of the contract, the Third Party Contractor is responsible for all or any part of the design, a design control program should be developed and implemented by the Third Party Contractor on a timely basis.

3.3.5 Once the Mechanical Quality Plan and/or its requirements are invoked for third party contracts by contractual documents, it shall be carried out for the life of the contract.

3.4 PROGRAM IMPLEMENTATION

3.4.1 Design activities will be properly planned and controlled. Design input requirements will be determined and documented. These inputs will include functional, performance, applicable regulatory requirements, previous designs, and other necessary requirements. Requirements will be complete, unambiguous and not in conflict with each other.

3.4.2 Design outputs will meet the input requirements and provide necessary information for production and purchasing, detail acceptance criteria, and specify the characteristics that are essential for its safe and proper use.

3.4.3 Design reviews will be performed to evaluate the ability of the results of design to meet requirements, and to identify any problems and determine any necessary actions. Participants in such review will include representatives of functions concerned with the design and development stage(s) being reviewed.

3.4.4 Design verification and validation are performed to ensure that the design outputs meet the design input requirements. Design outputs will be provided in a form that enables verification against the design inputs and will be approved prior to release.

3.4.5 Design changes will be governed by the same measures as those applied to the original design. The changes will be reviewed, verified, validated, as appropriate, and approved before implementation.

3.4.6 All design output documents shall be reviewed and approved by the Mechanical Department before issuance. Design documents will be controlled and records maintained.

4.0 DOCUMENT CONTROL

4.1 SCOPE

4.1.1 Procedures shall be established and maintained for control of documents and data. Document control measures shall ensure that all relevant documents are current and available to all users needing them. Control of documents shall include the review of documents by authorized personnel, distribution and storage of those documents, archiving of obsolete documents, and control of changes to the documents. Whenever possible, changes to the same authorized personnel who reviewed and approved the original documents shall review controlled documents and data. Any superseded documents retained for record shall be clearly identified as such. The requirements of this section also apply to the Third Party Contractors per contractual agreement with Metra when performing work activities affecting quality associated with capital projects.

4.2 AUTHORITY / RESPONSIBILITIES

4.2.1 See Section 1.0

4.3 PROGRAM REQUIREMENTS

4.3.1 Documents shall be controlled to ensure that correct, current and applicable documents are available at the location where they are used.

4.3.2 Document control measures shall provide for the following:

4.3.2.1 Identification of documents to be controlled.

4.3.2.2 Identification of personnel, positions, or departments responsible for preparing, reviewing/providing concurrence, approving, and issuing documents.

4.3.2.3 Review of documents by authorized personnel for adequacy, completeness, and correctness prior to approval and issuance.

4.3.2.4 Approval prior to the commencement of the activity controlled by that document.

4.3.2.5 Distribution of latest applicable documents to personnel or areas of activity.

4.3.2.6 Development, revision, issuance, etc. of documents for maintaining consistency.

4.3.2.7 Maintaining the history of documents from the initial review/issue/submittal until final approval.

4.3.2.8 Document distribution and management shall be managed. Management and distribution through an electronic system is the preferred method.

4.3.2.9 Control of obsolete documents to prevent improper use.

4.3.3 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractor by contractual documents, it shall be carried out for the life of the project.

4.4 PROGRAM IMPLEMENTATION

4.4.1 The procedures or instructions shall generally include the following, as applicable:

4.4.1.1 Purpose and scope of the document.

4.4.1.2 Responsibilities for performing specific activities.

4.4.1.3 Definitions and terms used in the document.

4.4.1.4 Step-by-step instructions when required to control attributes such as sequence of operations or specific methodology including the quantitative and qualitative criteria to ensure that specified activities or actions have been performed satisfactorily.

4.4.1.5 Interrelated procedures or instructions.

4.4.1.6 Reference documents and/or information necessary to perform the activities.

4.4.1.7 Quality records requirements.

4.4.1.8 Attachments, exhibits, appendices, charts, manuals, etc.

4.4.2 Changes to documents shall be reviewed and approved by the same individuals who performed the original review and approval, if possible. The level of review should be appropriate to the types of revisions made.

4.4.3 The review times for all design and design change documents, including but not limited to drawings, specifications, documents requiring changes, shall be established with appropriate personnel.

4.4.4 Review and approval authorities shall have access to pertinent project related background data or information upon which to base their review and approval.

5.0 PURCHASING

5.1 SCOPE

5.1.1 This section establishes requirements and assigns responsibilities for the control of procured products and services to ensure conformance with the specified procurement requirements. In addition, the requirements of this section also apply to third party contracts per contractual agreements, performing work activities affecting quality associated with capital projects.

5.2 AUTHORITY / RESPONSIBILITIES

5.2.1 See Section 1.0

5.3 PROGRAM REQUIREMENTS

5.3.1 The procurement document control program shall include preparation, review, and approval of Mechanical Department controlled procurement documents and revisions to these documents, to ensure that the requirements to procure the products and/or services are properly and adequately specified.

The processing of procurement documents are performed by Metra's Procurement Department and not the Mechanical Department. These documents include: Invitations for Bids, Requests for Proposal, Purchase Orders, Blanket Purchase Orders, Task Orders, Master Agreements, Contracts, Contract Modifications, Change Orders, etc.

5.3.2 Once the Mechanical Quality Plan is invoked for the Third Party Contractors by contractual documents, it should be carried out for the life of the project.

5.4 PROGRAM IMPLEMENTATION

5.4.1 Procurement documents issued at all levels should include provisions for following, either by reference or including the actual document, as appropriate:

5.4.1.1 Quality Assurance Program - The quality assurance requirements and the elements of the program applicable to the products and/or services.

5.4.1.2 Basic Technical Requirements - Regulatory requirements, design criteria, drawings, specifications, Metra Standards, industrial standards, test and inspection requirements, etc.

5.4.1.3 Right of Access - Permission for authorized representatives of Metra to have access to the Third Party Contractor's facilities and records for the purposes of visitation, inspection, surveillance and/or quality assurance audits.

5.4.1.4 Documentation Requirements - Records to be prepared, submitted with the shipment, maintained and/or made available for information, review and/or approval; e.g., drawings, specifications, procedures, part list, inspection and test records, personnel and procedure qualifications, materials, chemical and physical test results, and Safety Data Sheets (SDS) should be identified, referenced. In addition, instructions on record retention and disposition shall be provided.

5.4.1.5 Sub-Contractor Procurement - Applicable requirements of the Mechanical Quality Plan and the Third Party Contractors shall be extended to the Sub-Contractors/Sub-Consultants.

5.4.1.6 Scope of Work - A definition of the scope of work should be included, where appropriate.

5.4.1.7 Installation Requirements - Information on manufacture/product requirements, parts list, maintenance requirements, operational inspection requirements, if any, shall be specified.

5.4.1.8 Identification - Provisions for adequate identification of parts, equipment and/or supplies should be included.

5.4.1.9 Handling Storage and Shipping - Adequate requirements for handling, storage, cleaning, packaging, and shipping shall be specified.

5.4.1.10 Delivery Location - Instructions as to where the products or services are required to be delivered/provided should be identified.

5.4.1.11 Special Instructions - The procurement documents should clearly identify any applicable special instructions, e.g. On-Site Inspection etc.

5.4.1.12 Provisions for Nonconformance - Methods for corrective actions and handling nonconforming parts, equipment, or processes as well as requirements for special inspections shall be included.

5.4.1.13 Project Deliverables – Physical, project records (electronic and/or hard copy), maintenance & operating manuals, warranties, guarantees, spare parts, training, inspection and test results, etc.

5.4.1.14 Communication – Appropriate timeline established for response time; e.g. delivery of product, inspection reports, corrective action report for nonconformance, information request, etc.

5.5 PROCUREMENT DOCUMENTS REVIEW

5.5.1 A review of the procurement documents and any changes to these documents shall be made to ensure that:

5.5.1.1 The correct quality assurance requirements and technical requirements are specified for the procurement of products and/or services.

5.5.1.2 The products and/or services are received as ordered.

5.6 MECHANICAL DEPARTMENT PROCUREMENT DOCUMENTS CHANGES

5.6.1 Procurement document changes shall be subjected to the same degree of control as that utilized in the preparation of the original procurement documents.

5.7 PROGRAM REQUIREMENTS – PROCURED PRODUCTS OR SERVICES

5.7.1 Measures shall be established to ensure that the products or services, whether purchased directly or through the Third Party Contractors, should conform to the procurement document requirements, e.g. Certificate of Conformance, Quality Verification Statement, etc.

5.7.2 Once the Mechanical Quality Plan and/or its requirements are invoked for outside organizations by contractual documents, it should be carried out for the life of the contract.

5.8 PROGRAM IMPLEMENTATION – PROCURED PRODUCTS OR SERVICES

5.8.1 The control of procured products or services per procurement documents is accomplished by controlling:

5.8.1.1 The Selection of responsible and responsive procurement sources within:

5.8.1.1.1 Metra's Procurement Department

5.8.1.1.2 Metra's Mechanical Department

5.8.1.2 The acceptance of products at the source and/or upon receipt at specified Metra locations.

5.8.2 Review and evaluation of procurement source's quality assurance program to meet the Mechanical Quality Plan requirements may be performed by:

5.8.2.1 Review and evaluation of supplier quality assurance program document description.

5.8.2.2 Supplier facility survey.

5.8.2.3 Evaluation of objective evidence of quality furnished by the supplier in the past.

5.8.2.4 Continued evaluations to verify compliance with the quality assurance requirements of the procurement documents, by Metra and/or its Third Party Contractors.

6.0 PRODUCT IDENTIFICATION AND TRACEABILITY

6.1 SCOPE

6.1.1 This section establishes requirements for identifying and controlling product to prevent the use of incorrect or defective material and assigns responsibilities to ensure that only correct and accepted materials, parts, and components are used or installed. The requirements of this section also apply to third party contracts per contractual agreements, performing work activities affecting quality associated with capital projects.

6.2 AUTHORITY / RESPONSIBILITIES

6.2.1 See Section 1.0

6.3 PROGRAM REQUIREMENTS

6.3.1 The program should ensure that materials, parts, and components are identified by appropriate means. The program shall ensure that only correct and accepted items, which meet the requirements, are used and installed during rehabilitation, repairs, and/or maintenance.

6.3.2 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractors by contractual documents, it shall be carried out for the life of the project.

6.4 PROGRAM IMPLEMENTATION

6.4.1 To the extent possible, the physical identification of items shall be accomplished by physical separation. Where physical separation is either impractical or insufficient, procedural controls; e.g., marking, tagging, labeling or other appropriate means, may be employed. Identification may be either on the item or on records traceable to the item. When identification marking is used, the marking should be clear, unambiguous, and applied in such a manner as not to affect the function of the item.

6.4.2 When items are subdivided, markings shall be transferred to each part of the item, if possible, and shall not be obliterated or hidden by surface treatments or coatings.

6.4.3 When required by design, standards, specifications, or etc., the items shall be traceable to specific documentation such as drawings, specifications, standards, physical and/or chemical material test reports, etc.

6.4.4 Items, which fail to possess the required identification or items for which record traceability has been lost or items that do not meet the requirements, shall be segregated, isolated, and controlled to prevent use and/or installation.

7.0 PROCESS CONTROL

7.1 SCOPE

7.1.1 This section establishes requirements and assigns responsibilities for the control of special processes that affect the quality of items during production and installation. The requirements of this section also apply to the Third Party Contractor per contractual agreements and Metra, performing work activities affecting quality associated with capital projects.

7.2 AUTHORITY / RESPONSIBILITIES

7.2.1 See Section 2.0

7.3 PROGRAM REQUIREMENTS

7.3.1 The program shall ensure that special processes are planned, implemented, controlled, and performed by qualified personnel, which complies with applicable codes, standards, regulatory, and contractual requirements, in monitoring the product characteristics during production and installation.

7.3.2 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractors by contractual agreement, be carried out for the life of the project.

7.4 PROGRAM IMPLEMENTATION

7.4.1 For the special processes, may include but are not limited to, welding, heat treatment, chemical cleaning, nondestructive examination, special coatings, manufacturing sequencing, etc.

7.4.2 Special processes, specifically where an inspection may not reveal deficiencies, should be controlled by procedures, instructions, drawings, checklists and/or other appropriate means using qualified personnel. These means shall ensure that the specified acceptance/rejection parameters are correctly sequenced, monitored, and controlled. This shall include personnel and equipment requirements, calibration requirements, if any, and acceptance criteria, as appropriate.

7.4.3 When a special process affecting quality is not addressed by an existing code, standard, or regulatory requirement, the necessary qualifications of personnel or procedures shall be identified, defined, and controlled.

7.4.4 The special process documentation should include prerequisite conditions, processing steps, conditions to be maintained during the steps of the process, inspections and test requirements, verification methods, personnel qualifications, and record requirements.

7.4.6 The special process requirements for the Third Party Contractors may be provided or identified by the procurement and/or design documents.

7.4.7 Appropriate quality records shall be maintained for personnel or special process qualifications as defined in implementing procedures and instructions.

8.0 INSPECTION AND TESTING

8.1 SCOPE

8.1.1 This section establishes requirements and assigns responsibilities for planning and performing inspections and testing of items and activities affecting quality during materials receipt, work in progress and final installation, to provide assurance that the final accepted item or activity conforms to specified requirements. The requirements of this section also apply to the Third Party Contractors per contractual agreements and Metra, performing work activities affecting quality associated with capital projects.

8.2 AUTHORITY / RESPONSIBILITIES

8.2.1 See Section 1.0

8.3 INSPECTION AND TESTING PROGRAM REQUIREMENTS

8.3.1 The items or activities affecting quality shall be inspected and tested in conformance with approved documents. The inspection and testing documents should contain the requirements and acceptance/rejection limits of the design documents, standards and/or regulatory requirements.

8.3.2 Once the Mechanical Quality Plan and/or its requirements are invoked for the Third Party Contractor per contractual documents, it shall be carried out for the life of the project.

8.4 INSPECTION PROGRAM IMPLEMENTATION

8.4.1 Inspections activities should be carried out using the approved inspection and test plans, inspection checklists, and/or drawings.

8.4.2 Characteristics of products/components to be inspected and/or tested by approved methods.

8.4.3 Results of inspection and/or test results shall be documented and the inspection results shall document whether they meet requirements, drawings, specifications, and/or standards, etc.

8.4.4 Personnel other than those who performed the work should perform the acceptance inspections.

8.4.5 Personnel and/or the Third Party Contractors performing inspections shall be qualified to perform the inspections.

8.4.6 To the extent possible, status indicators, such as markings, labels or other suitable means, shall be employed to maintain inspection and test status.

8.4.7 If contractually mandated inspection and/or test 'Hold Point' is required, the specific 'Hold Point' shall be indicated in appropriate documents. Work shall not proceed without the consent of the person who assigned the 'Hold Point' and/or a designated representative. Such consent should be documented prior to continuation of work beyond the designated 'Hold Point'.

8.4.8 Inspection of items in process shall be performed where necessary.

8.4.9 Final inspection should include a record review of results and resolution of nonconformance identified by prior inspections.

8.4.10 The final inspection report should provide the vendor name, facility location, inspection date, type of inspection, identification and signature of inspector, inspection results, conformance status, recommended actions, etc.

8.5 TESTING PROGRAM IMPLEMENTATION

8.5.1 Unless designated otherwise, the organization responsible for the design of the item that is being tested shall provide the testing requirements and acceptance/rejection criteria.

8.5.2 Attributes or properties to be tested as well as testing methods shall be specified and testing results shall be documented.

8.5.3 Each person who performs the testing for acceptance shall be qualified to perform the assigned testing tasks.

8.6 TESTING PROCEDURES

8.6.1 Written test procedures shall be developed to demonstrate design and performance characteristics as specified in design and operating requirements/specification. Test procedures shall include the following, as applicable:

8.6.1.1 Test objectives.

8.6.1.2 Provisions for assuring that established test prerequisites have met.

8.6.1.3 Required equipment and instrumentation.

8.6.1.4 Required inspection 'Witness' and/or 'Hold Points'.

8.6.1.5 Required environmental/surrounding conditions.

8.6.1.6 Safeguards to be taken in preparation and performance of test.

8.6.1.7 Personnel qualifications.

8.6.1.8 Requirements for data acquisition.

8.6.1.9 Recognized industry standard test methods, supplier manuals, maintenance instructions, and/or approved drawings may be used in place of specially prepared test procedures, as long as these documents include adequate instructions to ensure satisfactory performance of the test.

8.7 INSPECTION AND TESTING RESULTS

8.7.1 All inspection and test results shall be documented and evaluated by qualified personnel to assure that the test requirements satisfy requirements.

8.8 INSPECTION AND TESTING DOCUMENTATION

8.8.1 Inspection and test documentation of the inspected/tested item or activity should, generally, identify:

8.8.1.1 Item inspected/tested.

8.8.1.2 Date of the inspection/test.

8.8.1.3 Individual performing the inspection/test and/or recording the inspection/test data.

8.8.1.4 Testing requirements.

8.8.1.5 Type of test.

8.8.1.6 Type of inspection and/or inspection procedure.

8.8.1.7 Individuals(s) approving the test

8.8.1.7 Inspection/test results.

8.8.1.8 Acceptance/rejection criteria.

8.8.1.9 Recommended actions, if any.

8.8.1.10 Individuals(s) evaluating the test results.