1185 Philippe-Paradis, Suite 120
Québec, Qc G1N 4E2

QUALITY CONTROL GUIDE

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1. OBJECTIVE

The objective of this manual is to present all of the processes that allow us to offer our customers a positive experience throughout their project and to ensure a product that meets and exceeds their quality standards.

2. NORMATIVE REFERENCE

CSA W47.1, CSA W59, CSA W186, CNESST, RBQ

3. TERMS AND DEFINITIONS

Corrective action: An action taken to eliminate the cause of a detected nonconformity or an undesirable situation.

Preventive action: An action to eliminate the cause of a potential nonconformity or other potentially unwanted situation.

Root cause: The initial and primary reason for an event to occur. In corrective action, this is the removable factor to eliminate any future noncompliance.

Defect: Failure to meet a requirement detected and corrected during the current process. For example, an improperly placed spacer detected during the assembly verification stage and returned to the assembly station for reinstallation may be considered a defect rather than a nonconformity.

Document: The information and related means used to define and/or establish quality requirements.

Quality control: Quality control includes the activities that determine the conformity of the results with the objective pursued. Results are measured and compared to the predetermined goal for that activity.

Noncompliance: Failure to meet a requirement

Quality objectives: A goal or an objective aimed at an improvement in the quality system.

Manufacturing plan: General drawings showing the main dimensions, the brands of the parts to be installed, the diameter, the length and the type of bolts, the finish, and all the other information necessary to the assembly of the elements so that they correspond to the predetermined objectives.

4. QUALITY SYSTEM REQUIREMENTS

4.1 General requirements

Metal 2000 inc. has a quality system that establishes the necessary processes to ensure the conformity of the finished products to the contractual specifications, following customer requirements.

If work is subcontracted, Metal 2000 inc. monitors all subcontractor activities as well as methods and quality systems, to ensure compliance with all standards and requirements.

4.2 Quality systems guide and work procedure

4.2.1 Quotation **(APPENDIX 2)**

Quotation requests are analyzed before being processed to ensure that Metal 2000 inc. can meet customer's demands and our quality standards.

A quote is then produced and sent to the client. The quote contains the following:

- Client, project name, and contact person;
- Description and quantity of items to be manufactured;
- Specifications;
- Delivery timeframe;
- Price.

4.2.2 Order confirmation

An order confirmation is systematically produced and sent to the client for approval, for each project, as soon as the latter's order form is received and contains the following elements:

- Project name and customer's purchase order number;
- Delivery date;
- Description and number of items to be manufactured;
- Quantity for each item;
- Price.

4.2.3 Manufacturing drawings **(APPENDIX 8)**

Always confirm with the customer that the documents available for the design of the manufacturing drawings are valid, that they comply with the standard processes of Métal 2000 inc. and to the applicable contractual requirements.

If manufacturing drawings are provided by the customer, ensure that the information indicated therein is clear and understood to leave no interpretation during the distribution for manufacturing.

The production drawings produced by Métal 2000 inc. are sent to an engineer for approval.

Once the engineering stage is complete, always have manufacturing drawings approved before manufacturing begins, unless otherwise specified in contract documents.

4.2.4 Material order form **(APPENDIX 3)**

The material order form is systematically produced for each project and given to the purchasing manager before the start of production.

4.2.5 Purchasing

The purchase orders are generated through the Acomba construction project management system by the purchasing manager.

4.2.6 Receiving

Materials received are verified to ensure they match the purchase order and the delivery receipt. The nonconformities identified at the receiving stage must be dealt with following article 8.1 "Control of conformity".

4.2.7 Work order **(APPENDIX 4)**

The work order is systematically produced for each project and given to the factory supervisor before the start of production and contains the following elements:

- Name and number of the project;
- Start date of the work;
- Product delivery date;
- Description and quantity of the material necessary for the project;
- Time allocated to carrying out the project;
- Any special instructions.

4.2.8 Quality control **(APPENDIX 5)**

The quality control form is systematically produced for each project and given to the factory supervisor before the start of manufacturing and contains the following elements:

- Name and number of the project;
- Description and number of items to be manufactured;
- Quantity for each item;
- Check table.

4.2.9 Delivery confirmation **(APPENDIX 7)**

A delivery confirmation slip is systematically produced and sent to the customer as soon as the order leaves the factory and contains the following elements:

- Project name and customer's purchase order number;
- Delivery date;
- Delivery address;
- Description and number of items delivered;
- Quantity for each item.

4.3 Documentation

Metal 2000 inc. maintains a database of documents and data necessary to ensure the proper functioning of the quality control system through three common shared tools: Acomba construction, the internal server, and Collabox.

The following documents are available:

- Contract, PO, purchase order ;
- Quotation, spreadsheet ;
- Plans and specifications;
- Manufacturing drawing ;
- Email log ;
- Quality control form and inspection plan ;
- Mill test (steel).

4.3.2 Manufacturing plan and shop drawings

4.3.2.1 Metal 2000 inc. shall prepare manufacturing drawings from construction certified contract documents. The preparation, use, and approval of these documents must comply with RBQ construction standards and the directives of provincial and territorial engineering associations, as the case may be.

4.3.2.2 Revised plans and data are reviewed in the same manner as the originals, or as agreed with the client. Revisions are clearly identified on the plans.

4.3.2.3 The latest versions of the relevant documents are available at all places of use. Arrangements are made to ensure that outdated plans or data are removed from all locations.

4.3.2.4 A system for controlling production drawings is maintained.

4.3.3 Manufacturing plan and Subcontracted workshop drawings

Metal 2000 inc. controls the documentation required for items obtained and subcontracted.

4.4 Document archiving control

4.4.1 Metal 2000 inc. maintains a document classification and storage system to be able to consult the results of the various quality systems at all times. The documents included in storage are:

- Contractual plans, estimates, and amendments;
- Good workmanship;
- Manufacturing drawings;
- Factory test reports;
- Purchase orders (Mill test);
- Inspection reports;
- Calibration report of the measuring and inspecting devices;
- Noncompliance reports, including the corrective and preventive actions;
- Certification of the inspector, the supervisor, and the welders.

4.4.2 All documents are accessible to the client or his representative for review (upon request).

4.4.3 Metal 2000 inc. retains all the documents based on the requirements of specific contracts and applicable laws.

5. MANAGEMENT RESPONSIBILITIES

5.1 Management commitment

The management is responsible for the following items:

- Metal 2000 inc. quality system is issued in the documented form and specifies the commitment and quality objectives. It is signed by all the leaders of the organization.
- All employees are fully aware of their power and their role in the quality system.
- A management representative is responsible for maintaining the quality system and reporting any problems.
- An internal audit of the quality system is carried out at least once a year by the manufacturer.
- Management reviews the quality system at least annually to maintain adequacy and effectiveness.
- Adequate resources are used to implement the quality system, including performance and work inspection.
- The employees who do the work are competent.

- Necessary changes are implemented to ensure product compliance and safety.

5.2 Organization chart (APPENDIX 1)

5.3 Responsibility and authority

5.3.1 Each employee is responsible for the quality of their work and the effectiveness of the quality system.

5.3.1.1 All employees are responsible for ensuring that their work conforms to the standard quality system of Metal 2000 Inc. and the applicable contractual requirements.

5.3.2 Management ensures that responsibilities and powers are defined for the implementation of the following items:

- Product quality is checked on an ongoing basis.
- Noncompliance issues are corrected and prescribed action is taken on an ongoing basis.
- Customer representatives responsible for the inspection are consulted.
- Work is performed following applicable codes and standards.
- Welding and welding inspection meet the latest requirements of CSA W47.1, W59, W186.
- Technical nonconformities are corrected following applicable codes and standards.
- Production staff understands the contractual requirements relevant to their jobs.
- Adequate arrangements are made for the inspection and sufficient time is allowed in advance.
- All contractual requirements, including revisions, are communicated to the appropriate departments and incorporated into shop drawings and other manufacturing data.
- All items are purchased by contractual requirements, including revisions, and required documentation is obtained.

6. RESOURCE MANAGEMENT

Metal 2000 inc. identifies the personnel and the level of training, skill, and experience required to ensure proper workmanship and product quality. Relevant documents are kept in each employee file and updated as needed.

6.1 Staff

6.1.1 Welders and the welding supervisor are qualified to the requirements of the latest edition of the CSA W47.1 standard.

6.1.2 Metal 2000 inc. retains the services of an engineer who meets CSA W47.1 standards.

6.1.3 Metal 2000 inc. employs a qualified person to carry out inspections according to the contract specifications and the CSA W178.2, level 1 standard.

6.2 Infrastructure and equipment

Metal 2000 inc. determines, supplies, and maintains the infrastructure and equipment necessary to ensure compliance with product requirements. The infrastructures include:

- Buildings, workspace, and associated common spaces.
- Process equipment (hardware and software).
- Support services (such as transportation).

6.2.2 Metal 2000 inc. has adequate facilities to carry out the manufacturing work in good conditions.

6.2.3 Metal 2000 has adequate equipment to meet customer requirements. This equipment includes, where applicable:

- Cutting and drilling equipment:
  - Machitech Diamond Cut 10'x 5'' HD plasma cutting table
  - Souco 10'' automatic band saw
  - Souco 24" manual band saw
  - Portable plasma cutting table
  - Hydraulic shear 10”¼" capacity
  - Column drills
  - Iron worker

- Bending equipment:
  - 85T bender

- Material handling equipment:
  - Merlo telescopic forklift (outside)
  - Forklift (inside)
  - Five overhead crane (inside)

- Finishing equipment:
  - Spray chamber (primer)
  - MDL 400 deburring barrel
- Welding equipment

6.3 Reference material

Metal 2000 inc. provides the most recent published edition of the following reference documents:

- CSA W47.1
- CSA W59
- CSA W186
- CSA W178
- Manual of Recommended Reinforcing Steel Standards
- RBQ
- Employee handbook

7. PROCESS MANAGEMENT

7.1. Quality control planning

7.1.1 Metal 2000 inc. has the procedures, documentation, and resources required to ensure a product that meets customer requirements.

7.1.2 Métal 2000 inc. uses the certified procedures for welding, as required by W47.1.

7.2 Contract review

7.2.1 Metal 2000 inc. implements a system ensuring that contractual requirements are reviewed and incorporated into the work, and then communicated to the staff responsible for production.

7.2.2 Metal 2000 ensures that factory expertise, staff, equipment, and resources are available to meet contract requirements.

7.2.3 Metal 2000 ensures that all supplements and revisions to contractual requirements are properly communicated to the appropriate personnel, and incorporated into the work.

7.3 Purchasing

7.3.1 Purchase orders clearly describe the products and services ordered.

7.3.2 In the case of subcontracted work, Metal 2000 inc. is responsible for ensuring that the final product meets its requirements and those of the customer.

7.4 Receiving

7.4.1 Materials received are verified to ensure they match purchase orders and the delivery receipts.

7.4.2 Nonconformities identified at the receiving stage are handled following Article 8.1 "Nonconformities control".

7.4.3 Materials should not be used or processed until inspection and approval.

7.5 Performance control

7.5.1 All employees are aware of their responsibilities for the quality of workmanship, following section 5.3.1 of this guide.

7.5.2 Workmanship and tolerances are in accordance with applicable sections of current editions of CSA W47.1, CSA W59, CAS W186, as applicable.

7.5.3 Metal 2000 inc. has, internally, a welding supervisor who is certified by the requirements of CSA W47.1 standards.

7.5.4 Metal 2000 inc. ensures that manufacturing operations are carried out under controlled conditions in the workshop. The workshop conditions include all the conditions having an impact on the quality of the product and on the satisfaction of the customer's requirements.

7.5.5 The tools and equipment used are suitable for the work being performed and are kept in good condition.

7.6 Product quality control

Métal 2000 inc. ensures compliance with contractual requirements.

7.6.1 Metal 2000 inc. defines inspection points and related requirements, to ensure compliance with contractual requirements including:

- Materials examination to verify dimensions, compliance with dimensional tolerances, condition, and surface defects.
- Assembly examination to verify dimensions and details location and orientation.
- Verification that welding operations are carried out, inspected, and conform to the company's standard techniques. This includes a visual examination of the completed assemblies.
- Examination of surface preparation and finishing.

7.6.2 All additional inspection-related requirements noted in the contract documents are identified and implemented.

7.6.3 Metal 2000 inc. provides access to and collaborates with client representatives for work inspection; if needed. Unless otherwise specified in the contract documents, the planned inspections must not hinder production.

7.6.4 Métal 2000 inc. ensures that all inspections are performed per the requirements of the contract and this guide.

7.6.5 The forms completed during the carried out inspections are kept, following Article 4.4.

7.6.6 Métal 2000 inc. ensures traceability relating to welds and the welders who performed them.

7.7 Product supplied by customer verification

7.7.1 Upon receiving, Metal 2000 inc. reviews all items to ensure they match the documentation provided by the customer and inspects for any nonconformities.

7.7.2 Métal 2000 inc. immediately notifies the customer of any damaged, incomplete or inadequate item.

7.7.3 Unless otherwise specified, the customer must ensure that the items supplied comply with contractual requirements.

7.8 Storage, loading, and delivery

7.8.1 Metal 2000 inc. maintains procedures to ensure that all items are prepared, handled and/or packaged to avoid damage during storage and delivery.

7.8.2 Métal 2000 inc. ensures that the items loaded correspond to the delivery slip.

7.9 Measuring devices control

7.9.1 Métal 2000 inc. maintains documented procedures to define the frequency and methods of inspecting, examining and/or calibrating measuring and inspecting devices following standards.

7.9.2 Métal 2000 inc. verifies that the equipment is suitable for the job and that the measurement accuracy meets prescribed tolerances.

7.9.3 Métal 2000 inc. ensures that the new equipment and the stored or repaired equipment are checked before use.

7.9.4 Métal 2000 inc. calibrates the used welding machines at four-month intervals and records the results of the calibration.

8. MEASURES, ANALYSIS, AND IMPROVEMENT

8.1 Nonconformities control

8.1.1 Métal 2000 inc. uses a written and documented procedure for dealing with nonconformities **(APPENDIX 6)** to ensure that only products that comply with contractual requirements are delivered. It is defined as follows:

- Problem description;
- Immediate corrective action;
- Investigation of the causes and extent of the noncompliance;
- Action plan;
- Preventive action;
- Efficiency monitoring

8.1.2 Métal 2000 inc. has the following options to rectify nonconformities:

- After consultation with the customer, the item may be deemed acceptable "as is" for its intended use.
- The item may be reworked or repaired using an approved procedure that complies with contractual requirements. In this case, the item should be re-examined before delivery.
- The item can be rejected and/or put back into stock for reuse as needed, or returned to the subcontractor/supplier, as appropriate.
- The item may be scrapped.