

This specification outlines the procedural requirements for submittal of maintenance and record documents, operation data, and warranties and bonds specified in individual specification sections.

PART 1 REFERENCES

1.1 NOT APPLICABLE

PART 2 GENERAL

2.1 QUALITY ASSURANCE

- .1 Prepare instructions and data by personnel experienced in maintenance and operation of described products.

2.2 SUBMISSION

- .1 Collect reviewed submittals and assemble documents executed by Subcontractors, suppliers and manufacturers.
- .2 Submit material prior to final Application for Payment.
- .3 Submit operation and maintenance data, and record (as-built) drawings.
- .4 Execute Performance, Labour and Materials Payment Bond to warranty period requirements.
- .5 Owner will issue a final change order reflecting approved adjustments to Contract Price not previously made.
- .6 Commissioning Manuals.
- .7 Submit copy of completed volumes in draft form 15 business days prior to issuing of substantial performance.
- .8 Copy will be returned after final inspection, with the Owner's comments.
- .9 Revise content of documents as required prior to final submittal.
- .10 Submit revised files in final form within ten (10) business days after final inspection.
- .11 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .12 If requested, furnish evidence as to type, source and quality of products provided.
- .13 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

- .14 Pay costs of transportation.

2.3 FORMAT

- .1 Organize data in the form of an instructional manual.
- .2 Documents are to be in PDF format submitted by email to the Owner and MI.
- .3 Correlate data into related consistent groupings.
- .4 Identify each with the following title format "Project Record Documents"; list title of Project, MI Project Number, Owner, and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide CAD files in DWG format and PDF format.

2.4 CONTENTS OF EACH VOLUME

- .1 Table of Contents: provide title of project, MI project number, Owner, names, addresses, and telephone numbers of consultant and Contractor with name of responsible parties, schedule of products and systems, indexed to content of the volume.
- .2 For Each Product or System:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
 - .2 List manufacturer's name, model number, serial number and contractor's purchase order number.
- .3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Type Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01600.
- .6 Training: provide records of required training.

2.5 AS-BUILTS AND SAMPLES

- .1 In addition to requirements in General Conditions, maintain at the site for Owner one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Amendments.
 - .4 Change Orders and other modifications to the Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Owner.

2.6 RECORDING AS-BUILT CONDITIONS

- .1 For projects where water and sewer systems or roads are the main components, the Contractor shall provide all horizontal and vertical data related to the layout of the Work before the Certificate of Substantial Performance is issued. Drawings shall show all differences, design changes, and deviations from the original Contract Drawings in red with references to the Contractor's survey and quality control inspection records beside each entry. Contractor shall pay costs for uncovering and making good Work that is covered before required as-built information is recorded.
- .2 In projects where a building or building systems is ~~the~~ a component, the Contractor shall provide the mechanical, electrical, and other related as-built information to the Owner's Representative before Substantial Performance issued. The information may be provided on marked up contract drawings.

- .3 Do not conceal Work until required information is recorded. Contractor shall pay costs for uncovering and making good Work that is covered before required as-built information is recorded.
 - .4 Shop Drawings: legibly mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each item actually installed, particularly optional items and substitute items.
 - .2 Changes made by Amendments and change orders.
 - .5 Other Documents: submit manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.
 - .6 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
 - .7 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .2 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .3 Field changes of dimension and detail.
 - .4 Changes made by change orders.
 - .5 Details not on original Contract Drawings.
 - .6 References to related shop drawings and modifications.
 - .8 At completion of project, provide all recorded information on print drawings. Transfer recorded information to AutoCAD files in DWG format. Submit DWG files, also with electronic files in PDF format as part of the Closeout Submittals.
- 2.7 FINAL SURVEY
- .1 Submit final site survey certificate certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.
- 2.8 EQUIPMENT AND SYSTEMS
- .1 For each item of Equipment and each System: include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics, and limiting conditions.

- .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
 - .2 Panel board Circuit Directories: provide electrical service characteristics, controls, and communications.
 - .3 Include installed colour coded wiring diagrams.
 - .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
 - .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .6 Provide servicing and lubrication schedule, and list of lubricants required.
 - .7 Include manufacturer's printed operation and maintenance instructions.
 - .8 Include sequence of operation by controls manufacturer.
 - .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - .10 Provide installed control diagrams by controls manufacturer.
 - .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
 - .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .14 Include test and balancing reports as specified in Section 01400 and 01600.
 - .15 Additional Requirements: As specified in individual specification sections.
- 2.9 MATERIALS AND FINISHES
- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 Provide information for re-ordering custom manufactured products.

- .2 Instructions for cleaning agents and methods complete with WHMIS sheets, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommend schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

2.10 MAINTENANCE MATERIALS

- .1 Spare Parts:
 - .1 Provide spare parts, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Deliver to site or location as directed; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to the Owner.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit before final payment.
- .2 Extra Stock Materials:
 - .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Deliver to site or location as directed; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to the Owner.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit before to final payment.
- .3 Special Tools:
 - .1 Provide special tools, in quantities specified in individual specification Section.
 - .2 Provide items with tags identifying their associated function and equipment.
 - .3 Deliver to site or location as directed; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to the Owner.

- .2 Include approved listings in Maintenance Manual.

2.11 DELIVERY, STORAGE, AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to the satisfaction of the Owner.

2.12 PRE-WARRANTY MEETING

- .1 Convene meeting with contractor's representative, Owner, Owner's Representative and Departmental Representative, in accordance with Section 01200. Schedule meeting in conjunction with request for Substantial Performance or with review of deficiencies to:
 - .1 Verify Project requirements.
 - .2 Review manufacturer's installation instructions and warranty requirements.
- .2 Owner to establish communication procedures for:
 - .1 Notifying of construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
- .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.

2.13 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan 10 business days before planned pre-warranty meeting, to the Owner for approval.
- .3 Warranty management plan to include required actions and documents to assure that the Owner receives warranties to which it is entitled.

- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Assemble approved information and submit upon acceptance of work, organized as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to the List of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) business days after completion of the applicable item of Work.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittal when required.
 - .6 Retain warranties and bonds until time specified for submittal.
- .6 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.

PART 3 PRODUCTS

3.1 NOT APPLICABLE

PART 4 EXECUTION

4.1 NOT APPLICABLE

PART 5 PAYMENT

5.1 MEASUREMENT FOR PAYMENT

- .1 Not Applicable

5.2 BASIS OF PAYMENT

- .1 No separate or direct payment will be made for Work as outlined in this specification. Costs of all Work specified are deemed to be included in the lump sum and unit prices quoted in the MERX Schedule of Quantities and Prices.