

**PART 1 - GENERAL**

- 1.1 MEASUREMENT FOR PAYMENT .1 No measurement for payment will be made under this section. Include costs in items where required.
- 1.2 ADMINISTRATIVE REQUIREMENTS .1 Pre-warranty Meeting:
- .1 Convene meeting one week prior to contract completion with contractor's representative and Departmental Representative, in accordance with Section 013119 - Project Meetings to:
    - .1 Confirm Project requirements.
    - .2 Review manufacturer's installation instructions and warranty requirements.
  - .2 Departmental Representative to establish communication procedures for:
    - .1 Notifying 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.
  - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.
- 1.3 ACTION AND INFORMATIONAL SUBMITTALS .1 Provide submittals in accordance with Section 013300 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English and French.
  - .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
  - .4 Provide evidence, if requested, for type, source and quality of products supplied.
- 1.4 FORMAT .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
  - .3 When multiple binders are used correlate data into related consistent groupings.
    - .1 Identify contents of each binder on spine.
  - .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
  - .5 Arrange content by systems under Section numbers and sequence of Table of Contents.

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- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
  - .7 Text: manufacturer's printed data, or typewritten data.
  - .8 Drawings: provide with reinforced punched binder tab.
    - .1 Bind in with text; fold larger drawings to size of text pages.
  - .9 Provide scaled CAD files in dwg format on CD.
- 1.5 CONTENTS – PROJECT RECORD DOCUMENTS
- .1 Table of Contents for Each Volume:
    - .1 Provide title of project;
    - .2 Date of submission; names.
    - .3 Addresses, and telephone numbers of Departmental Representative and Contractor with name of responsible parties.
    - .4 Schedule of products and systems, indexed to content of 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.
  - .3 Product Data: mark each sheet to 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 Typewritten Text: as required to supplement product data.
    - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 014500 - Quality Assurance.
- 1.6 AS-BUILT DOCUMENTS AND SAMPLES
- .1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:
    - .1 Contract Drawings.
    - .2 Specifications.
    - .3 Addenda.
    - .4 Change Orders and other modifications to 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.
    - .1 Provide files, racks, and secure storage.

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- .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 Departmental Representative.
- 1.7 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS
- .1 Record information on set of red lined drawings, provided by Departmental Representative.
  - .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
  - .3 Record information concurrently with construction progress.
    - .1 Do not conceal Work until required information is recorded.
  - .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
    - .1 Measured depths of elements of foundation in relation to finish first floor datum.
    - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
    - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
    - .4 Field changes of dimension and detail.
    - .5 Changes made by change orders.
    - .6 Details not on original Contract Drawings.
    - .7 References to related shop drawings and modifications.
  - .5 Specifications: mark each item to record actual construction, including:
    - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
    - .2 Changes made by Addenda and change orders.
  - .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
  - .7 Provide digital photos, if requested, for site records.
- 1.8 FINAL SURVEY
- .1 Submit final site survey certificate in accordance with Section 017100 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.9 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 Include manufacturer's printed operation and maintenance instructions.
- .7 Include sequence of operation by controls manufacturer.
- .8 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .9 Provide installed control diagrams by controls manufacturer.
- .10 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .11 Include test and balancing reports.

1.10 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, 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 recommended schedule for cleaning and maintenance.

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- .4 Additional requirements: as specified in individual specifications sections.
- 1.11 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 location as directed; place and store.
- .4 Receive and catalogue items.
- .1 Submit inventory listing to Departmental Representative.
- .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to 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 location as directed; place and store.
- .4 Receive and catalogue items.
- .1 Submit inventory listing to Departmental Representative.
- .2 Include approved listings in Maintenance Manual.
- .3 Obtain receipt for delivered products and submit prior 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 location as directed; place and store.
- .4 Receive and catalogue items.
- .1 Submit inventory listing to Departmental Representative.
- .2 Include approved listings in Maintenance Manual.
- 1.12 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 for review by Departmental Representative.

1.13 WARRANTIES

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative 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 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
  - .1 Separate each warranty with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
  - .4 Confirm that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties until time specified for submittal.
- .7 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 1 year warranty inspection, measured from time of acceptance, by Departmental Representative.
- .9 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
  - .2 Provide list for each warranted equipment, item, feature of construction or system indicating:
    - .1 Name of item.
    - .2 Model and serial numbers.
    - .3 Location where installed.
    - .4 Name and phone numbers of manufacturers or suppliers.

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- .5 Names, addresses and telephone numbers of sources of spare parts.
  - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
  - .7 Cross-reference to warranty certificates as applicable.
  - .8 Starting point and duration of warranty period.
  - .9 Summary of maintenance procedures required to continue warranty in force.
  - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
  - .11 Organization, names and phone numbers of persons to call for warranty service.
  - .12 Typical response time and repair time expected for various warranted equipment.
  - .4 Contractor's plans for attendance at 4 and 9 month post-construction warranty inspections.
  - .5 Procedure and status of tagging of equipment covered by extended warranties.
  - .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
  - .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
  - .11 Written verification to follow oral instructions.
    - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.
- 1.14 WARRANTY TAGS
- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.
  - .2 Attach tags with copper wire and spray with waterproof silicone coating.
  - .3 Leave date of acceptance until project is accepted for occupancy.
  - .4 Indicate following information on tag:
    - .1 Type of product/material.
    - .2 Model number.
    - .3 Serial number.
    - .4 Contract number.
    - .5 Warranty period.
    - .6 Inspector's signature.
    - .7 Construction Contractor.

**PART 2 - PRODUCTS**

NOT USED

**PART 3 - EXECUTION**

NOT USED

**\*\*\* END OF SECTION \*\*\***