

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 79 00 – Demonstration and Training.

1.2 PROJECT RECORD DOCUMENTS

- .1 Maintain at construction site, two sets of white prints for record drawing purposes. Mark one set “FIELD DRAWINGS” and use to record initial data when field measurements are made. Mark other set “RECORD DRAWINGS”.
- .2 Store record drawings in field office apart from other documents used for construction. Maintain record drawings in clean, dry and legible condition. Do not use record drawings for construction purposes.
- .3 Record “as-built” information in red ink, accurately and concurrently with construction progress. Do not conceal work until required information is recorded.
- .4 Legibly mark each item to record actual construction, including:
 - .1 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .2 Changes made by Addendum, Change Order or Field Instruction.
 - .3 Details not on original Contract Drawings.
 - .4 References to related shop drawings and modifications.
- .5 At completion of project and prior to final inspection, neatly transfer “as-built” notations to second set of white prints and submit to Contract Administrator along with field drawings. In addition, submit AutoCAD disks of project with all changes incorporated to reflect “as-built” conditions. Drawings must be generated in most current AutoCAD version, and consistent with Bid Documents prepared in AutoCAD 2010.

1.3 SPARE PARTS, MAINTENANCE, MATERIALS AND SPECIAL TOOLS

- .1 Provide spare parts, maintenance and extra materials, in quantities specified in individual specification Sections.
- .2 Provide items of same manufacture and quality as items in work, and of same production run and dye lot as installed materials.
- .3 Provide special tools in quantities specified in individual specification Sections. Provide items with tags identifying their associated function and equipment.

- .4 Keys and Maintenance Tools for Hardware and Specialties.
 - .1 Turn over to Contract Administrator all keys and special tools required for maintenance of all finish hardware, cabinet hardware, equipment, etc. (including electrical and mechanical products) such as lock wrenches, door closer wrenches, dogging keys, etc.
 - .2 Properly tag all keys and tools, giving names of equipment, hardware, or item to which they are used.
- .5 Deliver all items to site or location as directed by Contract Administrator.
- .6 Receive and catalogue all items, and submit inventory listing to Contract Administrator. Include copy of inventory listing in Operation and Maintenance Manuals.
- .7 Obtain receipt of delivered spare parts, maintenance and extra materials from Contract Administrator and submit with request for final payment.

1.4 STORAGE, HANDLING AND PROTECTION

- .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 paints and freezable materials in heated and ventilated room.
- .4 Remove and replace damaged products at own expense and to satisfaction of Contract Administrator.

1.5 OPERATION AND MAINTENANCE MANUALS

- .1 Submit one (1) copy of draft Operation and Maintenance Manual to Contract Administrator for review and comments. Submissions of individual data will not be accepted.
- .2 Make changes as required.
- .3 Prepare three (3) Final hard copies and one (1) Digital copy of Operation and Maintenance Manuals for each Architectural, Mechanical and Electrical component of project.
- .4 Format.
 - .1 Organize data in form of an instructional manual.
 - .2 Binders: vinyl, hard covered, 3 "D" ring, loose leaf spine and fact pockets.
 - .3 When multiple binders are used, correlate data into related consistent groupings and identify contents of each binder on spine.
 - .4 Cover: identify each binder with printed title "Operation and Maintenance Manual". List title of project and identify subject matter of contents.

- .5 Arrange content under Section numbers and sequence of Table of Contents.
 - .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. Bind in with text; fold larger drawings to size of text pages.
- .5 Contents (each volume).
- .1 Table of Contents: provide title of project; date of submission; names, addresses, and telephone numbers of Contract Administrator and Contractor with name of responsible parties; schedule of products and systems, indexed to content of volume.
 - .2 For each product of system, 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 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 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified.
- .6 Equipment and Systems.
- .1 Panel Board Circuit Directories: provide electrical service characteristics, controls, and communications.
 - .2 Include installed colour coded wiring diagrams.
 - .3 Operating Procedures: include complete list of equipment and parts list. Indicate nameplate information such as make, size, capacity, serial number. Provide written explanation of operation of each system with instructions for troubleshooting of operational failures. Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
 - .4 Maintenance Requirements: include routine procedures and guide for troubleshooting, disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .5 Provide servicing and lubrication schedule, and list of lubricants required.
 - .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 Contractor's coordination drawings, with installed colour coded piping diagrams.

- .11 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .12 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .13 Include test and balancing reports as specified.
 - .14 Include one complete set of final reviewed and stamped shop drawings, copy of hardware and paint schedules, requirements specified in individual specification Sections.
- .7 Materials and Finishes.
- .1 Building Products, Applied Materials and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products as applicable.
 - .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
 - .3 Additional Requirements: as specified in individual specification Sections.
- .8 At completion of project and prior to final inspection, submit to Contract Administrator, three (3) copies of Architectural, Mechanical and Electrical Operation and Maintenance Manuals.

1.6 WARRANTIES AND BONDS

- .1 Provide warranties and bonds as specified.
- .2 Assemble warranties and bonds, executed by each of respective manufacturers, suppliers, and subcontractors.
- .3 Provide Table of Contents neatly typed, in orderly sequence. Provide complete information for each item:
 - .1 Product or work item.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Date of beginning of warranty or bond.
 - .4 Duration of warranty or bond.
 - .5 Proper procedure in case of failure.
 - .6 Instances which might affect validity of warranty or bond.
- .4 Except for items put into use with Contract Administrator's permission, leave date of beginning of time of warranty until Date of Total Performance is determined.
- .5 Verify that documents are in proper form, contain full information, and are notarized.

- .6 Co-execute submittals when required.
- .7 Retain warranties and bonds until time specified for submittal.
- .8 Submit with Contractor's Application for Certificate of Total Performance, warranties and bonds as required, executed in duplicate by subcontractors, suppliers, and manufacturers.
- .9 For items of work, where acceptance is delayed materially beyond Date of Total Performance, provide updated submittal within 10 calendar days after acceptance, listing date of acceptance as start of warranty period.

Part 2 Products

Part 3 Execution

END OF SECTION