

PART 1 - GENERAL

**1.1 Operating and
Maintenance Manuals**

- .1 Other specification sections indicate O&M information, training and record drawings that are to be provided in hard copy and pdf format. Incorporate all O&M data, training information and record drawings as requested into one overall submission. Provide index of entire submission.
- .2 Prior to substantial completion of project, submit to the Contract Administrator 2 final copies of Operations Data and Maintenance manual in English. Substantial Performance will not be considered until final manuals have been completed to the satisfaction of the Contract Administrator.
 - .1 Provide three (3) final hard copies and three (3) DVD-ROM versions of the final approved O&M submission.
- .3 At least 5 days prior to the anticipated date for substantial performance submit to the Contract Administrator for review one draft copy of the operating and maintenance manuals.
- .4 Submission to be made up as follows:
 - .1 Bind data in vinyl hard covered, 3 ring loose leaf binder for 215 x 280 mm size paper. Do not "overfill" binder, fill binders to a maximum of 85% of its intended capacity.
 - .1 Acceptable binder is Cardinal FreeStand EasyOpen D-Ring ClearVue presentation binder, normal non-locking or alternate binders (such as Avery) not acceptable.
 - .2 When multiple binders are used, correlate data into related consistent groupings.
 - .3 Assign a number and letter to each section in the manual. The number is to correspond to the specification numbering system and items shall be provided in the order that they appear in the specifications.
 - .4 Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of project; identify subject matter of contents.
 - .5 Prepare a table of contents for each volume, with each product or system description identified, in three parts as follows:
 - .1 Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
 - .2 Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section for each category, identify names, addresses, and telephone numbers of subcontractors and suppliers.
 - .1 Significant design criteria.
 - .2 Operating instructions.
 - .3 List of equipment and parts list for each component.

- .4 Maintenance instructions for equipment and systems.
- .5 Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents - where applicable.
- .3 Part 3: Project documents and certificates, including the following:
 - .1 Shop drawings and product data.
 - .2 Certificates and originals of warranties.
- .6 Contents of each volume.
 - .1 Provide a table of contents with title of project; names, addresses, and telephone numbers of Contract Administrator and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
 - .2 For each product or system list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
 - .3 For product data, mark each sheet to clearly identify specific products and component parts, data applicable to installation, and delete inapplicable information.
 - .4 Provide drawings to supplement product data to illustrate relations of component parts of equipment and systems and to show control and flow diagrams.
 - .5 Warranties: bind in copy of each as specified.
- .5 Manuals for Equipment and Systems.
 - .1 For each item of equipment and each system include description of unit or system, and component parts identifying function, normal operating characteristics, and limiting conditions.
 - .1 Include performance curves, with engineering data and tests and complete nomenclature and model number of replaceable parts.
 - .2 Operating procedures include:
 - .1 Startup, break-in, and routine normal operating instructions and sequences for the splash pad operation for both the flow to drain and re-circulation (using the splash pad pump) configurations. Provide instructions on the use of the removable spool piece, valve positions and operating procedures to switch from the re-circulation to flow to drain configuration and vice versa.
 - .2 Regulation, control, stopping, shut-down, and emergency instructions under each operating configuration (flow to drain and re-circulation).
 - .3 Summer, winter (winterizing), and any special operating instructions.
 - .3 Maintenance Requirements include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .4 Include manufacturer's printed operation and maintenance instructions.

- .5 Include sequence of operation by controls manufacturer for both splash pad operating configurations.
- .6 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .7 Provide control diagrams by controls manufacturer as installed.
- .8 Provide Contractor's coordination drawings, with color-coded piping diagrams as installed.
- .9 Provide chart of valve tag numbers, with location, function, and position of each valve, keyed to flow and control diagrams.
- .10 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .11 Additional requirements as specified in individual product specification sections.
- .12 Provide a listing in table of contents for design data, with tabbed dividers and space for insertion of data.
- .13 Neatly type list and notes. Use clear drawings, diagrams or manufacturer's literature. Bind in copies of all guarantees.
- .14 Utilize a separate pouch for drawings larger than 210 mm x 431 mm, one pouch per drawing.
- .6 Include following information plus data specified:
 - .1 Description, operation and maintenance instructions for equipment and parts list. Indicate nameplate information such as make, size, capacity, serial number.
 - .2 Additional material used in project listed under various sections showing name of manufacturer and source of supply.
 - .3 List of suppliers' names and addresses for each piece of equipment.
 - .4 Bind in copies of all guarantees.
 - .5 Refer to Mechanical and Electrical Divisions for specific details of Mechanical and Electrical data.
 - .6 Detailed operating instructions for all mechanical and electrical equipment.
 - .7 Service manuals outlining complete maintenance procedures and safety measures for all equipment.
 - .8 Illustrated parts list for all equipment, with local suppliers' names and addresses. In all cases the closest local distributor or authorized repair depot must be listed regardless of the initial purchase outlet.
 - .9 Final corrected installation drawings for all equipment and equipment operation curves.
 - .10 Start-up test reports.
 - .11 Listing of maintenance material including stand by equipment.
- .7 Organize contents into applicable sections of Work to parallel project specification breakdown. Mark each section by colored labeled tabs protected with celluloid covers fastened to hard paper dividing sheets.

- .8 Group contents and sections according to equipment function (i.e. pump, valves, controls, etc.) complete with related components.
- .9 Include with each copy of Operations data and maintenance manual, a complete set of final shop drawings (bound separately) indicating corrections and changes made during fabrication and installation.
- .10 Update manuals as required to include commissioning data. Commissioning data to include a written copy of all program values entered into all equipment supplied.
- .11 Do not include unnecessary information, advertising and theoretical data not directly related to equipment being supplied.

1.2 Instruction of
Operating Staff

- .1 See Section 01820.

End Section 01730