# SECTION 01830 - OPERATION AND MAINTENANCE DATA

## PART 1 - GENERAL

### 1.1 REQUIREMENTS INCLUDED

A. Format and content of manuals.

B. Instruction of Owner's personnel.

C. Schedule of submittals.

### 1.2 RELATED REQUIREMENTS

A. Section 01330 - SUBMITTAL PROCEDURES

B. Section 01770 - CLOSEOUT PROCEDURES

C. Section 01780 - PROJECT RECORD DOCUMENTS

D. Section 01781 - WARRANTIES AND BONDS

E. Individual Specifications Sections: Specific requirements for operation and maintenance data.

### 1.3 QUALITY ASSURANCE

A. Prepare instructions and data by personnel experienced in maintenance and operation of the described products.

### 1.4 FORMAT

A. Prepare data in the form of an instructional manual for use by Owner's personnel.

B. Binders: Commercial quality, 8 1/2 x 11 inch three-ring binders with hardback, cleanable, plastic covers; one inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

C. Covers: Identify each binder with typed or printed title "OPERATION AND MAINTENANCE INSTRUCTIONS"; list title of project and identify separate structures as applicable; identify subject matter of contents.

D. Arrange content by systems, under section numbers and sequence of Table of Contents of this Project Manual.

E. Provide tabbed fly leaf for each separate product and system with typed description of product and major component parts of equipment.

F. Text: Manufacturer's printed data or typewritten data on 20 pound paper.

G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

H. Submit three copies of the completed manual at least 14 days in advance of the Contractors request for final payment.

1.5 CONTENTS, EACH VOLUME

A. Table of Contents: Provide title of Project; names, addresses and telephone numbers of Architect/Engineer and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

B. For Each Product or System: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

C. Product Data: Mark each sheet to clearly identify specific products and component parts and data applicable to installation; delete inapplicable information.

D. Drawings: Supplement product data to illustrate relations to component parts of equipment and systems to show control and flow diagrams.

E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

F. Warranties and Bonds: Bind in copy of each.

1.6 MANUAL FOR MATERIALS AND FINISHES

A. Building Products, Applied Materials and Finishes: Include product data with catalog number, size, composition and color and texture designations.

B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.

C. Moisture-Protection and Weather-Exposed Products: Include product data listing applicable reference standards, chemical composition and details of installation. Provide recommendations for inspection, maintenance and repair.

D. Additional Requirements: As specified in Individual Specifications Sections.

E. Provide complete information, "As Appropriate To This Project", for products specified in.

1.7 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Each item of Equipment and Each System: Include description of unit or system and component parts. Give function, normal operating characteristics and limiting conditions. Include performance curves with engineering data and tests and complete nomenclature and commercial number of replacement parts.

B. Panel Board Circuit Directories: Provide electrical service characteristics, controls and communications.

C. Include as-installed color coded wiring diagrams.

D. Operating Procedures: Include start-out, 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.

E. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair and reassembly instructions; and alignment, adjusting, balance and checking instructions.

F. Provide servicing and lubrication schedule and list of lubricants required.

G. Include manufacturer's printed operation and maintenance operations.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.

J. Provide as-installed control diagrams by controls manufacturer.

K. Provide Contractor's coordination drawings with as-installed color coded piping diagrams.

L. Provide charts of valve tag numbers with location and function of each valve, keyed to flow and control diagrams.

M. Provide list of original manufacturer's spare parts, current prices and recommended quantities to be maintained in storage.

N. Additional Requirements: As specified in individual Specifications Sections.

O. Provide complete information, "As Appropriate To This Project", for products specified in all divisions of the specification.

1.8 INSTRUCTION OF OWNER PERSONNEL

A. Before final inspection, instruct Owner's designated personnel in operation, adjustment and maintenance of products, equipment and systems, at as agreed upon times. Manufacturer’s representatives should be brought in for specialized training / maintenance and operating instructions as identified as required with in each specification section. Video Tape instruction sessions and provide 2 copies of each training / instruction session to the owner for their use. Label each CD or Video Cassette appropriately. For equipment requiring seasonal operation, perform instructions for other seasons within six months of substantial completion.

B. Use operation and maintenance manuals as basis of instruction. Review contents of manuals with personnel in detail to explain all aspects of operation and maintenance.

C. Prepare and insert additional data in Operation Maintenance Manual when need for such data becomes apparent during instruction.

PART 2 - PRODUCTS (Not applicable).

PART 3 - EXECUTION (Not applicable).

END OF SECTION