

SECTION 01730  
OPERATION AND MAINTENANCE DATA

## PART 1 GENERAL

## 1.1 SECTION INCLUDES:

- A. Format and content of manuals.
- B. Instruction of Owner's personnel.
- C. Schedule of submittals.

## 1.2 QUALITY ASSURANCE

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

## 1.3 FORMAT

- A. Prepare data in the form of an instructional manual.
- B. Binders: 8<sup>1</sup>/<sub>2</sub>" x 11" D-side 3-ring binders with durable plastic covers; 2" maximum ring size.
  - 1. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of project; identify subject matter of contents.
- D. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- E. Text: Manufacturer's printed data, or typewritten data.
- F. Drawings: Provide with reinforced punched binder tab; fold larger drawings to size of text pages.
- G. 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.
    - a. Significant design criteria.
    - b. List of equipment and parts list for each component.
    - c. Operating instructions.
    - d. Maintenance instructions for equipment and systems.
    - e. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
  - 3. Part 3: Project documents and certificates, including the following:
    - a. Shop drawings and product data.
    - b. Air and water balance reports.
    - c. Certificates and originals of warranties and bonds.

## 1.4 CONTENTS, EACH VOLUME

- A. Provide a table of contents with title of project; names, addresses, and telephone numbers of Architect, Sub-consultants, 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 of component parts of equipment and systems, to show control and flow diagrams.
  - 1. Do not use project record documents as maintenance drawings.
- E. Typed text as required supplementing product data, providing logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01400.
- F. Warranties bind in copy of each as specified in Section 01740.
- G. Bonds bind in photocopy and original of each.

#### 1.5 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.
  - 1. Provide information for reordering custom manufactured products.
- 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.
  - 1. Provide recommendations for inspections, maintenance, and repair.
- D. Additional requirements as specified in individual product specification sections.
- E. Provide a listing in table of contents for design data, with tabbed flysheet and space for insertion of data.

#### 1.6 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. 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.
- B. Panelboards circuit directories provide electrical service characteristics, controls and communications by label machine.
  - 1. Include color-coded wiring diagrams as installed.
- C. Operating procedures include:
  - 1. Startup, break-in, and routine normal operating instructions and sequences.
  - 2. Regulation, control, stopping, shut-down, and emergency instructions.
  - 3. Summer, winter, and any special operating instructions.
- D. Maintenance Requirements include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- E. Provide servicing and lubrication schedule, and list of lubricants required.
- F. Include manufacturer's printed operation and maintenance instructions.
- G. Include sequence of operation by controls manufacturer.
- H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- I. Provide control diagrams by controls manufacturer as installed.
- J. Provide Contractor's coordination drawings, with color-coded piping diagrams as installed.

- K. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- L. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- M. Additional Requirements as specified in individual product specification sections.
- N. Provide a listing in table of contents for design data, with tabbed dividers and space for insertion of data.

#### 1.7 INSTRUCTION OF OWNER PERSONNEL

- A. Before final inspection, instruct Florida Tech designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.
- B. Equipment requiring seasonal operation - perform instructions for other seasons within six months.
- C. Use operation and maintenance manuals as basis for instruction.
- D. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- E. Prepare and insert additional data in "Operation and Maintenance" manual when need for such data becomes apparent during instruction.

#### 1.8 SUBMITTALS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of work for Architect to review and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one draft copy of completed volumes fifteen days prior to final inspection, the Architect will return with comments after final inspection.
  - 1. Revise content of all document sets as required prior to final submission.
- D. Submit three (3) sets of revised final volumes, within ten days after final inspection.

### PART 2 PRODUCTS

2.1 Not Used.

### PART 3 EXECUTION

3.1 Not Used.

END OF SECTION