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: 8½” 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