

SECTION 01 78 00 CLOSE-OUT SUBMITTALS

PART 1 - GENERAL

1.1 GUARANTEES

- A. Compile and submit guarantees, bonds, and service and maintenance contracts specified in the individual Specification Sections.
- B. Guarantees from Subcontractors shall not limit Contractor's warranties and guarantees to the University. Whenever possible, Contractor shall cause warranties of Subcontractors to be made directly to the University. If such warranties are made to the Contractor, Contractor shall assign such warranties to the University prior to final payment.
- C. Submittal Requirements
 - 1. Submit written guarantees, in the form of Guarantee/Warranty Form as shown in the exhibits in accordance with Section 01 33 23 Shop Drawings, Product Data and Samples. Submit the original forms on sheets 8-1/2 by 11 inches punched for 3-ring binder. Fold larger sheets to fit into binders.
 - 2. Submit an electronic copy in .PDF format with the warranties in sequence by specification number. Where one warranty form covers multiple specifications, provide additional copies to place in subsequent specification locations.
 - 3. Assemble required guarantees, bonds, and service and maintenance contracts.
 - 4. Number: 1 commercial quality, 3-ring binder, with durable and cleanable plastic covers.
 - 5. Identify each binder on the cover with typed or printed title, "Guarantees and Bonds", and the following:
 - a. Project No.
 - b. Title of Project.
 - c. Name of Contractor.
 - 6. Table of Contents: Neatly typed and in orderly sequence. Provide complete information for each item as follows:
 - a. Product or Work item.
 - b. Firm name, address, telephone number and name of principal.
 - c. Scope.
 - d. Provide information for University's personnel.
 - 1) Proper procedure in case of failure.
 - 2) Circumstances that might affect the validity of guarantee or bond.
 - 7. Binder Format:
 - a. Place warranties in sequence by specification number. Where one warranty form covers multiple specifications, provide additional copies to place in subsequent specification locations.
 - b. Provide tabs for each CSI division.
 - 8. Submit an electronic copy in .PDF format with the warranties in sequence by specification number. Where one warranty form covers multiple specifications, provide additional copies to place in subsequent specification locations.
 - 9. Time of Submittals
 - a. Within 10 days after date of Substantial Completion, prior to request for final payment.
 - b. For Work activities, where Final Completion is delayed beyond the date of Substantial Completion, provide updated submittal within 10 days after Final Completion, listing the date of Final Completion as the start of the Guarantee to Repair Period.

1.2 PROJECT RECORD DOCUMENTS

- A. Submit the record documents in accordance with Section 01 78 39 Project Record Documents.

1.3 SPARE PARTS AND MAINTENANCE MATERIAL

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual Specification Sections.
- B. Deliver to locations as directed by University's Representative.
- C. When the University Representative requests that materials be delivered to locations other than the Project site, provide receipt signed by the receiver stating the nature of the material, the quantity, and the place and date. Deliver such receipts to the University's Representative upon completion of the Work.
- D. In addition to required parts listed in other Sections of the Specification, provide any special programming software and database tools necessary to operate the system.

1.4 OPERATION AND MAINTENANCE MANUALS

A. Work Included

1. Compile Product Data and related information appropriate for University's maintenance and operation of products provided under this Contract.
2. Prepare operating and maintenance data as specified herein and as specified in individual Specification Sections.

B. Form of Submittal

1. Prepare data in the form of an instructional manual for use by University's personnel.
 - a. Format
 - 1) Size: 8-1/2 by 11 inches.
 - 2) Paper: 20 lb. minimum, white, for typed pages.
 - 3) Text: Manufacturers' printed or neatly typewritten data.
 - 4) Drawings
 - (a) Provide reinforced punched binder tab that is bound with the text.
 - (b) Fold larger Drawings to the size of the text pages.
 - 5) Provide fly-leaf for each separate product or each piece of operating equipment.
 - (a) Provide typed description of products and major component parts of equipment.
 - (b) Provide indexed tabs.
 - 6) Cover: Identify each volume with typed or printed title "Operating and Maintenance Instructions". List the following:
 - (a) Project No.
 - (b) Title of Project.
 - (c) Identify general subject matter covered in the volume.
 - b. Binders
 - 1) Commercial quality three-ring binders with durable and cleanable plastic covers.
 - 2) When multiple binders are used, correlate the data into related groups.
 - c. Submit an electronic copy of all material in .PDF format organized identically to the manual. The electronic copy shall be broken into individual files by equipment and system.

C. Content of Manual

1. Table of Contents: Include in each volume, neatly typewritten.
 - a. Identify Contractor, name of responsible principal, address, and phone number.
 - b. List each product included, indexed to the content of the volume.
 - c. List, with each product, the name, address, and telephone number of:

- 1) Subcontractor or installer.
 - 2) Maintenance contractor, as appropriate.
 - 3) Identify area of responsibility of each of the previously mentioned parties.
 - 4) Nearest source of supply for parts and replacement.
 - d. Identify each product-by-product name and other identifying symbols as set forth in the Contract Documents.
2. Product Data
- a. Include only those sheets that are pertinent to the specific product.
 - b. Annotate each sheet to:
 - 1) Clearly identify the specific product or part installed. Include part nomenclature as indicated in the Design, model number, serial number, operating data and options provided.
 - 2) Clearly identify the data applicable to the installation.
 - 3) Delete references to inapplicable information.
3. Drawings
- a. Supplement Product Data with Drawings as necessary to clearly illustrate:
 - 1) Relations of component parts of equipment and systems.
 - 2) Control and flow diagrams.
 - b. Coordinate Drawings with information in Project record documents to assure correct illustration of completed installation.
 - c. Do not use Project record documents as maintenance Drawings.
4. Written text: As required to supplement Product Data for the particular installation.
- a. Organize in a consistent format under separate headings for different procedures.
 - b. Provide a logical sequence of instructions for each procedure.
5. Copy of each warranty, bond, and service contract issued.
- a. Provide information sheet to the University's personnel.
 - 1) Proper procedures in the event of failure.
 - 2) Circumstances that might affect the validity of warranties or bonds.

D. Manual for Equipment and Systems

1. For each unit of mechanical equipment and each mechanical system include the following:
 - a. Description of unit or system, and component parts
 - 1) Function, normal operating characteristics, and limiting conditions.
 - 2) Performance curves, engineering data, and tests.
 - 3) Complete nomenclature and commercial numbers of replaceable parts.
 - 4) Include with the Manual the Submittal for the equipment. Update to reflect actual installed equipment.
 - b. Operating procedures
 - 1) Start-up, break-in, and normal operating instructions.
 - 2) Regulation, control, stopping, shutdown, and emergency instructions.
 - 3) Summer and winter operating instructions.
 - 4) Special operating instructions.
 - c. Systems Demonstration
 - 1) Prior to final inspection, demonstrate operation of each system to University's Representative and University personnel. All work, required for each system to be fully functional, shall be complete and the system shall be fully operational prior to the demonstration.
 - 2) Instruct designated personnel in operation, adjustment, and maintenance of equipment and systems, using operation and maintenance data as basis of instruction.
 - d. Maintenance procedures
 - 1) Routine operations.

- 2) Guide to "trouble-shooting".
- 3) Disassembly, repair, and reassembly.
- 4) Aligning, adjusting, and checking.

Include if project requires preventative maintenance schedule

- e. Preventative Maintenance (PM) Schedule
 - 1) A tabular listing of all systems and equipment within the facility which require preventative maintenance, to include:
 - (a) System or equipment name.
 - (b) System or equipment number.
 - (c) PM activity to be performed on that system or piece of equipment.
 - (d) Consumable materials required for performance of the PM activity, such as lubricants, including the specification and quantity needed.
 - (e) Frequency of performance of PM activity.
 - (f) Date of performance of first round of each PM activity relative to facility commissioning and acceptance by the University.
 - 2) The requirements of this section cannot be met merely by the supply of O&M manuals from equipment vendors. The extraction of recommended preventative maintenance activities from vendor manuals for all equipment and incorporation onto a summary table as described above is required.
 - f. Servicing and lubricating schedule, with list of lubricants required.
 - g. Manufacturer's printed operating and maintenance instructions.
 - h. Description of sequence of operation by control manufacturer.
 - i. Original manufacturer's parts list, illustrations, current prices, recommended quantities to be maintained in storage, assembly drawings, and diagrams required for maintenance.
 - 1) Predicted life of parts subject to wear.
 - 2) Items recommended to be stocked as spare parts.
 - j. As-installed control diagrams by controls manufacturer.
 - k. Contractor's and Subcontractors' coordination drawings and as-built color-coded piping diagrams.
 - l. Charts of valve tag numbers, with the location and function of each valve.
 - m. Other data as required in the various Specification Sections.
2. For each electrical and electronic system, include the following:
- a. Description of system and component parts.
 - 1) Function, normal operating characteristics, and limiting conditions.
 - 2) Performance curves, engineering data, and tests.
 - 3) Complete nomenclature and commercial numbers of replaceable parts.
 - b. Circuit directories of panelboards.
 - 1) Electrical service.
 - 2) Controls.
 - 3) Communications.
 - c. As-built color-coded wiring diagrams.
 - d. Operating procedures
 - 1) Routine and normal operating instructions.
 - 2) Sequences required.
 - 3) Special operating instructions.
 - e. Maintenance procedures
 - 1) Routine operations.
 - 2) Guide to "trouble-shooting".
 - 3) Disassembly, repair, and reassembly.
 - 4) Adjustment and checking.
 - f. Manufacturer's printed operating and maintenance instructions.
 - g. Original manufacturer's parts list, illustrations, current prices, recommended quantities to be maintained in storage, assembly drawings, and diagrams required for maintenance.
 - 1) Predicted life of parts subject to wear.

- 2) Items recommended to be stocked as spare parts.
- h. Other data as required in the individual Specification Sections.
3. Prepare and include additional data as may be required for instruction of the University's personnel.
4. Additional requirements for operating and maintenance data as specified in the individual Specification Sections.
5. Provide complete information for products specified in the individual Specification Sections.

E. Submittal Requirements

1. Submit 2 copies of the draft of the proposed format and table of contents prior to preparation of the data and a minimum of 45 days prior to the date of Substantial Completion or the scheduled training (whichever occurs first).
2. Submit 1 copy of the complete data in final draft form on or before 75 percent progress payment submittal.
3. Submit 4 copies of the approved data in final form a minimum of 7 days prior to the scheduled training or the inspections scheduled to establish Substantial Completion (whichever occurs first).
4. Submittal and acceptance of the operations and maintenance data is a prerequisite for issuance of the Certificate of Substantial Completion.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 78 00