

SECTION 400500 - BASIC REQUIREMENTS FOR PROCESS MECHANICAL

PART 1 - GENERAL

1.01 GENERAL

- A. All provisions of the Contract Documents apply to the work of this Division.
- B. All Division 40 Sections are subject to the provisions of this Section.

1.02 SUMMARY OF WORK

- A. Work Included: Provide all labor, materials, equipment, and incidental items necessary for completely finished and operational mechanical systems. Examine documents of other trades for any additional work which may be required of the Mechanical Contractor.

1.03 DEFINITIONS

- A. Exposed: Exposed in mechanical rooms or rooms with finished walls or ceilings.
- B. Concealed: Located in pipe chases, furred spaces, attics, crawl spaces above suspended ceilings or all other locations not exposed to view.

1.04 DIVISION OF RESPONSIBILITY

- A. Specification formatting which indicates a division in the mechanical work is for convenience only. It is not intended to delineate lines of responsibility between subcontractors and/or suppliers. Such delineation rests entirely with the contractor.

1.06 PLANS AND SPECIFICATIONS

- A. Plans are diagrammatic. They indicate general intent, design and arrangement of systems. Provide all minor incidentals such as offsets, fittings, etc., as may be required even though not shown. Do not scale the plans; take dimensions from actual field conditions.
- B. Specifications establish quality of materials/equipment, manufacturing details, and installation particulars.

1.07 CODES, REGULATIONS

- A. Conform to codes and regulations applicable at the project site.
- B. Call for inspections from local authorities as required.
- C. If discrepancies occur between contract documents and local regulations, the more stringent requirement applies.

1.08 FEES, PERMITS

- A. Obtain required permits.
- B. Pay permit fees, construction fees, inspection fees.

1.09 COORDINATION

- A. Coordinate with other trades to ensure orderly progress of the work and to ensure proper fit in confined spaces.
- B. Coordinate utility interruptions with the Owner and/or the Utility Company.
- C. Report to the General Contractor any construction defects which affect the mechanical work; proceed with mechanical work only after defects have been corrected.
- D. Prepare coordinated shop drawings at 3/8" scale. Use these drawings for fabrication and installation. Do not use the Contract Drawings as shop drawings.

1.10 QUALITY ASSURANCE

- A. Perform work in accordance with good trade practice and in a neat manner. Comply with Project Engineer's direction concerning finished appearance.
- B. Adhere to manufacturers' recommendations.

1.11 PROTECTION

- A. Of People: Arrange barriers, signs, etc. as required to minimize the hazard to people. Comply with applicable safety and health regulations.
- B. Of Work: Take all measures necessary to protect the work both before and after installation, to ensure that it will be in clean, undamaged, unblemished condition when turned over to the Owner. Repair/replace work damaged during construction.

1.12 SUBMITTALS

- A. Submit product data and/or shop drawings for:
 - 1. All items scheduled on the Contract Drawings.
 - 2. Any items specifically called for in other Sections.
- B. Submit samples of any items specifically called for in other Sections.
- C. Submit through General Contractor to Project Engineer. Do not submit directly to Engineer. Include at least one additional copy above the requirements of Division 1.

1.13 SUBSTITUTIONS

- A. Basis of design is indicated by make and model.
- B. Other manufacturers desiring acceptance to bid must submit for prior approval. See Division 1 for procedure.
- C. For all listings of acceptable substitute makes, the phrase "or equal" is implied unless specifically indicated otherwise.
- D. If makes other than that used as the basis of design are utilized, be responsible for space requirements, configuration, performance, suitability, architectural and structural changes, etc., resulting from substitution.

1.14 ENGINEERING INSPECTION

- A. Notify Project Engineer to inspect:
 - 1. All work under test.
 - 2. All work prior to concealment.
 - 3. All equipment prior to start-up.
 - 4. All work prior to Owner's acceptance (i.e.: "Final Inspection").
- B. A "Final Inspection" punch list will be issued outlining work for correction/completion. When all punch list items have been rectified, signify same by initialing each line item in the appropriate space provided on the punch list. Return the initialed list to the Engineer who will verify same. The cost of any engineering inspections required after this point will be back charged to the Mechanical Contractor.

1.15 RECORD DOCUMENTS

- A. Maintain at Job Site: Contract documents, reviewed submittals, field test records.
- B. As-Built Drawings: Neatly revise the design drawings to reflect the as-built condition. Dimensionally locate site utilities and underslab work. Identify major valves in accordance with valve tag list. Deliver as-built drawings to Project Engineer at project completion.

1.16 OPERATING & MAINTENANCE MANUAL

- A. Format: 8-1/2" x 11" loose-leaf hard cover, permanently labeled. All contents typed or neatly lettered.
- B. Contents: Each section set off by index tabs. Include:
 - 1. Table of Contents.
 - 2. Executed Warranties.
 - 3. Name, address and telephone number of installing contractors and subcontractors, along with brief description of their project responsibility.

4. Name, address and telephone number of material and equipment suppliers, along with listing of items supplied.
 5. Brief narrative on each system including:
 - a. System description.
 - b. System start, operation, shutdown procedures.
 - c. Emergency procedures for fire, failure, etc.
 - d. Preventive maintenance program including cleaning, replacement, adjustment, lubrication schedules.
 6. Equipment tabs arranged in the same order as the spec, to include for all equipment supplied:
 - a. Reviewed submittals.
 - b. Installation instructions.
 - c. Operating instructions.
 - d. Maintenance instructions.
 - e. Parts lists.
 7. Temperature control system tab to include the same information as the equipment tabs. Diagrams should reflect the as-built condition.
 8. Balance report.
 9. Valve tag list.
 10. Certificates of Inspection
- C. At project completion submit one copy of manual to Engineer for review. Make any corrections required. Transmit three corrected copies to General Contractor for delivery to Owner.

1.17 WARRANTIES

- A. Provide warranty addressed to Owner. Extend warranty for one year from date of acceptance.
- B. Provide extended warranty for equipment requiring same.
- C. Include executed warranties in Operating & Maintenance Manuals.
- D. During warranty period provide labor and materials to repair or replace defects. Pay for damage to other work resulting from defects.

- E. See Division 1 from additional requirements.

1.18 KEYS & SPARE PARTS

- A. At project completion transmit to General Contractor for delivery to Owner.

1.19 DEMONSTRATIONS

- A. Conduct demonstrations when systems are complete and operational and ready to be turned over to the owner, and after the Operating and Maintenance Manual is complete.
- B. Instruct the Owner's representative, in the presence of the Project Engineer or Engineer, on the proper operation and maintenance of the mechanical systems. Perform this instruction at the project site, using the Operating and Maintenance Manual as a guide. Continue instruction until the Owner's representative is comfortable with his knowledge and understanding of the systems.
- C. Pay particular attention to normal and emergency start-up and shut-down procedures, seasonal change-over, safety devices, and temperature control systems.
- D. For subjects in which the Contractor may not be personally qualified to offer complete comprehensive instruction, secure the services of one who is.

1.20 BUY AMERICAN REQUIREMENTS

- A. Provide certificates to show that all products meet the following requirements.
 - 1. American Iron and Steel (AIS)
 - 2. Build America, Buy America Act
- B. See Supplementary Conditions for details.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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