SECTION 23 25 00 - HVAC WATER TREATMENT

PART 1 - GENERAL

DESCRIPTION

The requirements of this section apply to the chemical treatment of the mechanical systems. Provide shot feeding of treatment chemicals for closed loop hydronic systems. Provide continuous treatment for open loop systems, including steam systems.

Related Work: The requirements of Section 23 05 00, Common HVAC Materials and Methods, also apply to this section.

QUALITY ASSURANCE

Regulations: Comply with all DEQ, EPA, OSHA, OSEA, local sewerage agency and Fire Marshal requirements concerning allowable amounts of each chemicals which can be disposed of through the sewer system or in proximity of personnel.

Codes: Comply with applicable sections of the State of Oregon Health and Safety Code, OAR Chapter 437, Div. 155, Hazard Communication.

Chemical treatment system design, installation, and startup shall be performed by an experienced HVAC system chemical treatment contractor. The chemical representative on site is to have no less than five years' experience. The vendor must have representation within a 200 mile radius of the site. Vendor must have local research and development facility and local in-house manufacturing. Mt. Hood Chemical Co., Chemcoa, or approved.

Field Wiring: It is the intent of these specifications that all systems shall be complete and operable. Refer to all drawings and specifications, especially the electrical drawings, to determine voltage, phase, circuit ampacity and number of connections provided. Provide all necessary field wiring and devices from the point of connection indicated on the electrical drawings. Bring to the attention of the Architect in writing, all conflicts, incompatibilities, and/or discrepancies prior to bid or as soon as discovered.

SUBMITTALS

Submit catalog data of chemical treatment equipment, installation details and list of likely chemicals to be used.

Submit all chemical Material Safety Data Sheets for each chemical.

Submit operating and maintenance data.

DELIVERY AND HANDLING

Chemical Containers Label: The following shall be included as a minimum label on chemical containers:

Chemical contents.

Hazard warnings prominently displayed.

Manufacturer's and/or supplier's name and address.

Delivery: All chemical containers shall be factory sealed and unopened.

PART 2 - PRODUCTS

PERFORMANCE CRITERIA

Corrosion: Provide a system to limit annual metal corrosion rates as follows:

Cast iron	< 0.002" per year.
Copper	< 0.0005" per year.
Mild steel	< 0.002" per year.
Stainless steel	< 0.0001" per year.

Scaling: System shall prevent no greater than 1% loss of heat transfer efficiency in any component or piece of equipment by preventing deposit formation.

Fouling: Recommend methods to keep fouling to a minimum. Set blow down rates and/or schedules.

Biological Contamination:

Closed Loop Systems: Keep biological counts (algae, bacteria and fungi) to near zero readings.

Open Loop Systems: Maintain total count to less than 1,000,000 per milliliter in a cyclical manner to achieve optimum control with minimum chemical consumption.

PART 3 - EXECUTION

PIPING INSTALLATION

Refer to applicable Sections for Valves, Insulation, Painting, etc.

EQUIPMENT INSTALLATION

Installation and Arrangement: Install and arrange as shown on the Drawings. Comply with manufacturer's recommendations for installation connections and start-up.

Lubrication: Lubricate all moving and rotating parts in accordance with the manufacturer's recommendations prior to start-up.

CHEMICAL TREATMENT OF HEATING WATER SYSTEM

General: Provide chemical treatment for the heating and chilled water systems. The treatment specialist shall recommend the proper treatment for the systems and initiate the various treatments, including the required chemicals.

Standards: Chemical treatment shall be in accordance with currently accepted standards for the Environmental Protection Agency (EPA). Chemicals shall be EPA registered and labeled in accordance with EPA Standards.

Implement the treatment and instruct the Owner's personnel in the proper care, use, and maintenance of the systems. Include testing procedures to maintain proper control and to assure adequate corrosion protection and control of water side deposits and scale.

Provide an initial start-up supply of chemicals, add them to the systems, and maintain the system at proper chemical level until project final completion. Following project final completion, provide a 12 month supply of chemicals for the systems.

Upon completion of cleaning and chemical treatment, tag each system as follows: "This piping system has been cleaned and chemically treated. Do not disturb unless authorized." Locate tag to be plainly visible.

END OF SECTION 23 25 00