

SECTION 22 3000 - PLUMBING EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Sewage Ejector System
- B. Instantaneous Point-of-Use Water Heaters

1.2 SUBMITTALS

- A. Product Data:
 - 1. Indicate pump type, capacity, power requirements.
 - 2. Provide certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.
 - 3. Provide electrical characteristics and connection requirements.
- B. Operation and Maintenance Data: Include operation, maintenance, and inspection data, replacement part numbers and availability, and service depot location and telephone number.
- C. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Identification: Provide pumps with manufacturer's name, model number, and rating/capacity identified by permanently attached label.
- C. Performance: Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, operate within 25 percent of midpoint of published maximum efficiency curve.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

1.5 EXTRA MATERIALS

- A. See Div. 01 specifications, for additional provisions.
- B. Provide all required maintenance parts for up to 1 yr. for all required regular maintenance

1.6 OWNER INSTRUCTION/DEMONSTRATION

- A. Provide owner instruction and demonstration for all pieces of installed equipment. Demonstration shall include: regular operating instructions, required regular maintenance, regular required maintenance schedule for each piece of equipment. P.C. shall employ the service of a manufacturer's representative where necessary or where otherwise noted in these specifications.

PART 2 PRODUCTS

2.1 INSTANTANEOUS POINT-OF-USE WATER HEATERS

- A. Manufacturers
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - a. Eemax; www.eemax.com.
 - b. Chronomite Laboratories Inc.
- B. Description: Point-of-use, tankless, electric water heater conforming to applicable requirements of UL 499. Refer to plumbing drawings for individual models and specifications.
- C. Construction: Manufacturer's standard and without hot-water storage.
- D. Working-Pressure Rating: 150 psig (1035 kPa).
- E. Electric Heating System: Nichrome electric-resistance type.
- F. Cover: UL rated 94 Vo.
- G. Mounting: Bracket or device for wall mounting.
- H. Temperature Control: Factory pre-set, temperature-control thermostat for adjustable, outlet-water temperature (110F maximum setting for Public Lavatories and Conforming to ASSE1070 TR).
- I. Safety Control: Automatic, high-temperature-limit cutoff.

J. Factory installed disconnect switch in cabinet (cabinet size is 30" x 24" x 8.75")

K. Schedule

1. IWH-1 (Filter Room)

a. Basis of Design: Chronomite Model: ER50L/480_3P (480v/3ph, 24.0 kw, 29A)

b. Accessories:

1. Nema 4x Stainless Steel Enclosure (-N4X)

2. Disconnect Switch

2. IWH-2 (Family Toilet Room) - Alternate

a. Basis of Design: Chronomite Model: ER42L/480_3P (480v/3ph, 20.0 kw, 24A)

b. Accessories:

1. Nema 4x Stainless Steel Enclosure (-N4X)

2. Disconnect Switch (2095-4)

2.2 SEWAGE EJECTOR PUMP (SE-1)

A. Duplex Pump System: Contractor shall provide One (1) Duplex sewage pump system model SKX55CSS as manufactured by Penn Pump and Equipment Co., Inc 215.997.6100. www.pennpump.com <<http://www.pennpump.com>> or prior approved equal.

B. Ejector Pumps

1. The pumps shall be Stainless steel, 7.5 hp, (480v/3ph) each to include a stainless steel clog impeller with a 2" discharge and a 2" solids handling capacity. Each pump is rated for 570 gpm and is to include a 3/16" stainless steel lifting chains. The installing contractor is to provide and install a stainless steel ball type check valve and gate valve for each pump.

C. Concrete Backwash Pit by G.C.

D. Cover

1. The wet well cover shall be vapor tight sealed, 1/4in. heavy duty steel construction (54" square), black epoxy coating, duplex pump access plates with grommited discharge piping holes and one inspection plate, grommited vent hole.

E. Pump Controls

1. Provide a NEMA 4x Duplex alternating control panel for remote mounting to contain:

a. ATL Magnetic starters

b. Circuit breakers

c. Control transformer

d. HOA selector switches

e. Pump pilot lights

f. Electronic alternator

g. High level alarm light and horn

- h. Alarm silence and test button
- i. Remote alarm contacts
- j. Float switches with stainless steel mounting clamp

F. Coordination

- 1. The pumping system manufacturer shall provide all of the system components to insure proper pump system performance. The pump station manufacturer shall provide one half day of field start up service with owner instruction and copies of all start up reports.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.
- B. Coordinate with plumbing piping and related electrical work/fuel piping for each piece of equipment to achieve operating system
- C. Provide Concrete housekeeping base of sufficient size for all floor mounted equipment. Concrete bases shall be dowelled into floor decking. Coordinate all work with G.C. in field.
- D. Ejector pumps
 - 1. Refer to Plumbing details for pump installation information and associated piping accessories.
 - 2. Field verify and coordinate all piping inlet inverts and required basin depth with pump supplier prior to submittal and order of unit.
 - 3. Field verify and coordinate all required sump connections prior to order.
 - 4. Backfill area around sump basin with 2A modified crushed stone or equivalent.
 - 5. Install check valve and ball valve on pump discharge piping in accessible location above sump cover.
 - 6. Provide startup and commissioning. Verify proper operation of all float switches, pumps and alarms.
 - 7. Provide pump supplier startup verification and Owner instruction. Coordinate scheduling of Owner instruction with Owner in field.
- E. Pumps:
 - 1. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.
 - 2. Provide vibration isolation/flexible connectors on inlet and outlet piping

F. Instantaneous Point-of Use Water Heaters

1. Verify and coordinate electrical requirements including voltage and amperage of unit to be provided with E.C. in field prior to order/installation.
2. Perform the following final checks before startup:
 - a. Verify accessible disconnecting means has been provided and unit is wired with GFI protection.
 - b. Fill water heaters with water.
 - c. Check that piping system tests are complete.
 - d. Check for piping connection leaks.
 - e. Test operation of safety controls, relief valves, and devices.
3. Perform the following startup procedures:
 - a. Energize electric circuits.
 - b. Adjust operating controls where required.
 - c. Verify hot water outlet temperature is within max and min. temperature limits for each fixture type.
 - 1) Handwash/Lavatory - 90F min./110F max.
 - 2) Sink - 110F min./120F max.
 - d. Adjust hot-water-outlet temperature settings as necessary

END OF SECTION