SECTION 22 13 29 - SANITARY SEWERAGE PUMPS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following sewage pumps and accessories for sanitary drainage piping systems in buildings:

1. Wet-pit-mounted, vertical sewage pumps.
2. Sewage pump basins.

1.2 SUBMITTALS

A. Product Data: For each type and size of sewage pump specified. Include certified performance curves with operating points plotted on curves; and rated capacities of selected models, furnished specialties, and accessories.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.1 WET-PIT-MOUNTED, VERTICAL SEWAGE PUMPS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

1. Armstrong Pumps Inc.
2. Aurora Pump; Pentair Pump Group (The).
3. Chicago Pump Company; a division of Yeomans Chicago Corporation.
4. Paco Pumps, Inc.
5. Weil Pump Company, Inc.
6. Weinman Div.; Crane Pumps & Systems.

B. Description: Factory-assembled and -tested, single-stage, centrifugal, end-suction sewage pumps complying with UL 778. Vertical, separately coupled, suspended pumps complying with HI 1.1-1.2 and HI 1.3 for wet-pit-volute sewage pumps.

1. Pump Arrangement: Duplex.
2. Casing: Cast iron, with open inlet and threaded connection for NPS 2 and smaller and flanged connection for NPS 2-1/2 and larger discharge piping.
3. Impeller: ASTM A 48**,** Class No. 25 A or higher cast iron statically and dynamically balanced, open or semiopen, nonclog design for solids handling; overhung, single suction, and keyed and secured to shaft.
4. Pump Shaft and Sleeve Bearings: Stainless-steel shaft with bronze sleeve bearings. Include oil-lubricated, intermediate sleeve bearings at 48-inch maximum intervals if basin depth is more than 48 inches, and grease-lubricated, ball-type thrust bearings.
5. Pump and Motor Shaft Coupling: Flexible, capable of absorbing torsional vibration and shaft misalignment.

C. Pump Discharge Piping: Manufacturer's standard galvanized-steel or bronze pipe.

D. Basin Cover: Cast iron or coated steel and strong enough to support pumps, motors, and controls. See Part 2 "Sewage Pump Basins" Article for requirements.

E. Cover Shaft Seal: Stuffing box, with graphite-impregnated braided-yarn rings and bronze packing gland.

F. Motor: Single-speed; grease-lubricated ball bearings. Comply with requirements in Division 22 Section "Common Motor Requirements for Plumbing Equipment" for built-in thermal-overload protection appropriate for motor size and duty.

1. Mounting: On vertical, cast-iron pedestal.

G. Controls: NEMA 250, Type 1 enclosure, pedestal-mounted float switches; with floats, float rods, and rod buttons. Include automatic alternator to alternate operation of pump units on successive cycles and to operate multiple units if one pump cannot handle load.

1. Float Guide: Pipe or other restraint for floats and rods in basins of depth greater than 60 inches.
2. High-Water Alarm: Cover-mounted, compression-probe alarm, with electric bell; 120-V ac, with transformer and contacts for remote alarm bell.

2.2 SEWAGE PUMP BASINS

A. Description: Round, factory fabricated basin with sump, pipe connections, and separate cover.

B. Sump: Fabricate watertight, with sidewall openings for pipe connections.

1. Material: Cast iron or fiberglass.
2. Reinforcement: Mounting plates for pumps, fittings, guide-rail supports, and accessories.
3. Anchor Flange: Same material as or compatible with sump, cast in or attached to sump, in location and of size required to anchor basin in concrete slab.

C. Cover: Fabricate with openings having gaskets, seals, and bushings; for access to pumps, pump shafts, control rods, discharge piping, vent connections, and power cables.

1. Material: Cast iron.
2. Reinforcement: Steel or cast iron, capable of supporting foot traffic for basins installed in foot-traffic areas.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Excavating, trenching, and backfilling are specified in Division 31 Section "Earth Moving."

B. Install sewage pumps according to applicable requirements in HI 1.4.

C. Install pumps and arrange to provide access for maintenance including removal of motors, impellers, couplings, and accessories.

D. Suspend wet-pit-mounted, vertical sewage pumps from basin covers. Make direct connections to sanitary drainage piping.

E. Install sewage pump basins and connect to drainage and vent piping. Brace interior of basins according to manufacturer's written instructions to prevent distortion or collapse during concrete placement. Set basin cover and fasten to basin top flange. Install cover so top surface is flush with finished floor.

F. Support piping so weight of piping is not supported by pumps.

G. Piping installation requirements are specified in Division 22 Section "Sanitary Waste and Vent Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

H. Install piping adjacent to sewage pumps to allow service and maintenance.

I. Connect sanitary drainage and vent piping to pumps. Install discharge piping equal to or greater than size of pump discharge piping. Install vent piping equal to or greater than size of pump basin vent connection. Refer to Division 22 Section "Sanitary Waste and Vent Piping."

1. Install check and shutoff valves on discharge piping from each pump. Install unions on pumps having threaded pipe connections. Install valves same size as connected piping. Refer to Division 23 Section "General-Duty Valves" for general-duty valves for sanitary waste piping.

J. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

K. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

END OF SECTION 22 13 29