SECTION 221329 - 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. Submersible, quick-disconnect sewage pumps.
2. Sewage pump basins and pits.

B. See Division 22 Section "Facility Packaged Sewage Pumping Stations" for applications in site-construction sewage pumping.

C. See Division 22 Section "Sump Pumps" for applications in storm-drainage systems.

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 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 SUBMERSIBLE, QUICK-DISCONNECT SEWAGE PUMPS

A. Description: Factory-assembled and -tested, simplex, single-stage, centrifugal, end-suction, submersible, direct-connected sewage pumps complying with UL 778 and with HI 1.1-1.2 and HI 1.3 for submersible sewage pumps.

1. Manufacturers:

a. Chicago Pump Company; a division of Yeomans Chicago Corporation.
b. Deming Pumps; Crane Pumps & Systems.
c. EBARA International Corporation; Standard Pump Division.
d. Fairbanks Morse; Pentair Pump Group (The).
e. Federal Pump Corp.
f. Flygt; ITT Industries.
g. Gorman-Rupp Company (The).
h. Goulds Pumps; ITT Industries.
i. HOMA Pump Technology.
j. Hydromatic Pumps; Pentair Pump Group (The).
k. KSB Inc.
l. Little Giant.
m. Metropolitan Industries, Inc.
n. Myers, F. E.; Pentair Pump Group (The).
o. Paco Pumps, Inc.
p. PUMPEX, Inc.
q. Stancor, Inc.
r. Sta-Rite Industries, Inc.
s. Swaby Manufacturing Co.
t. Tsurumi (America), Inc.
u. USFilter/Davco Products.
v. Weil Pump Company, Inc.
w. Weinman Div.; Crane Pumps & Systems.
x. Yeomans Chicago Corporation.
y. Zoeller Company.

2. Casing: Cast iron, with open inlet, legs (or guide-rail supports) that elevate pump to permit flow into impeller, and vertical discharge with companion flange for piping connection.
3. Impeller: ASTM B 584, cast bronze; statically and dynamically balanced, open or semiopen, nonclog design and capable of handling solids; overhung, single suction, and keyed and secured to shaft.
4. Pump and Motor Shaft: Stainless steel, with factory-sealed, grease-lubricated ball bearings and double mechanical seals.
5. Motor: Hermetically sealed, capacitor-start type; with built-in overload protection; lifting eye or lug; and three-conductor, waterproof power cable of length required and with grounding plug and cable-sealing assembly for connection at pump.

a. Moisture-Sensing Probe: Internal moisture sensor and moisture alarm.
b. Motor Housing Fluid: Air.

B. Pump Discharge Piping: Factory or field fabricated, Schedule 40 PVC.

C. Basin Cover: Cast iron or coated steel and suitable to support controls. See Part 2 "Sewage Pump Basins" Article for other requirements.

D. Controls: NEMA 250, Type 4X enclosure, float switch; with floats, float rods, and rod buttons.

2.3 SEWAGE PUMP BASINS

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

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

1. Material: Poly basin.
2. Reinforcement: Mounting plates for pumps, fittings and accessories.

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: Steel with bituminous coating.
2. Reinforcement: Steel, capable of supporting foot traffic.

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. Set submersible sewage pumps on basin floors. 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 22 Section "General-Duty Valves for Plumbing Piping" 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 221329