SECTION 22 14 29 - SUMP PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following sump pumps and accessories, inside the building, for building drainage systems:

1. Submersible sump pumps.
2. Sump pump pits.
3. Packaged, submersible, drainage pump units.

B. Related Sections include the following:

1. Division 22 Section "Plumbing Piping and Valves" for application in sanitary drainage systems.

1.3 SUBMITTALS

A. Product Data: For each type and size of sump 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: For each sump pump to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Retain first paragraph below to allow drawing details based on one manufacturer's product to establish requirements and still allow competition. Coordinate with Division 01 requirements.

B. Product Options: Drawings indicate size, profiles, and dimensional requirements of sump pumps and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements."

C. 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.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Retain shipping flange protective covers and protective coatings during storage.

B. Protect bearings and couplings against damage.

C. Comply with pump manufacturer's written rigging instructions for handling.

1.6 COORDINATION

A. Coordinate size and location of concrete bases and pits.

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 SUMP PUMPS

A. Manufacturers:

1. ABS Pumps, Inc.
2. Aermotor Pumps, Inc.
3. Barnes; Crane Pumps & Systems.
4. Bell & Gossett Domestic Pump; ITT Industries.
5. BJM Corporation.
6. EBARA International Corporation; Standard Pump Division.
7. Federal Pump Corp.
8. Gorman-Rupp Company (The).
9. Goulds Pumps; ITT Industries.
10. Grundfos Pumps Corp.
11. Liberty Pumps.
12. Little Giant Pump Co.
13. McDonald, A. Y. Mfg. Co.
14. Metropolitan Industries, Inc.
15. Myers, F. E.; Pentair Pump Group (The).
16. Paco Pumps, Inc.
17. Stancor, Inc.
18. Sta-Rite Industries, Inc.

19. Swaby Manufacturing Co.
20. Weil Pump Company, Inc.
21. Weinman Div.; Crane Pumps & Systems.
22. Zoeller Company.

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

C. Casing: Cast iron; with cast-iron inlet strainer, legs that elevate pump to permit flow into impeller, and vertical discharge with companion flange for piping connection.

D. Impeller: ASTM A 48/A 48M, Class No. 25 A or higher cast iron; statically and dynamically balanced, semi open nonclog design, overhung, single suction, keyed and secured to shaft.

E. Retain two paragraphs above or first two paragraphs below for conventional sump pumps.

F. Retain two paragraphs below for either conventional or economy sump pumps.

G. Pump and Motor Shaft: Steel, with factory-sealed, grease-lubricated ball bearings and double-mechanical seals.

H. Motor: Hermetically sealed, capacitor-start type, with built-in overload protection; three-conductor waterproof power cable of length required, and with grounding plug and cable-sealing assembly for connection at pump. Comply with requirements in Division 22 Section "Common Motor Requirements for Plumbing Equipment."

1. Moisture-Sensing Probe: Internal moisture sensor with moisture alarm.

I. Pump Discharge Piping: Factory or field fabricated ASTM A 53 /A 53 M, Schedule 40, galvanized-steel pipe.

J. Controls: Provide oil sensing unit with pump. See equipment schedule.

K. Capacity and Characteristics: See equipment schedule.

2.3 SUMP PUMP PITS

A. As per structural drawings. Provide fiberglass grate over sump to be flush with floor. Grate shall be rated for a minimum of 300 lb. load and have openings for discharge pipe and power/control wiring.

2.4 PACKAGED DRAINAGE PUMP UNITS

A. Submersible Units: Factory-assembled and -tested, single-stage, centrifugal, end-suction, automatic-operation, submersible, drainage pump unit.

1. Manufacturers:
   a. ABS Pumps, Inc.
   b. Bell & Gossett Domestic Pump; ITT Industries.
   c. Goulds Pumps; ITT Industries.

d. Grundfos Pumps Corp.

e. Liberty Pumps.

f. Little Giant Pump Co.

g. McDonald, A. Y. Mfg. Co.

h. Myers, F. E.; Pentair Pump Group (The).

i. Sta-Rite Industries, Inc.

j. Zoeller Company.

2. Pump Body: Metal.

3. Impeller: Brass.

4. Retain two subparagraphs above or first two subparagraphs below.

5. Pump Body: Plastic.

6. Impeller: Plastic.

7. Pump Seals: Mechanical type.

8. Motor: Hermetically sealed, capacitor-start type, with built-in overload protection. Comply with requirements in Division 22 Section "Common Motor Requirements for Plumbing Equipment."

9. Power Cord: Three-conductor, waterproof cable of length required but not less than 72 inches, with grounding plug and cable-sealing assembly for connection at pump.

10. Control: Motor-mounted float switch. Enclosure: NEMA 250, Type 4X; wall-mounted.

11. Basin: Plastic.

a. Capacity: See equipment schedule.

b. Inlet Connection: See equipment schedule.

B. Capacity and Characteristics: See equipment schedule.

2.5 FLEXIBLE CONNECTORS

A. Manufacturers:

1. Anamet, Inc.

2. Flex-Hose Co., Inc.

3. Flexicraft Industries.

4. Flex-Pression, Ltd.

5. Flex-Weld, Inc.

6. Hyspan Precision Products, Inc.

7. Mercer Rubber.

8. Metraflex, Inc.

9. Proco Products, Inc.

10. Tozen America Corporation.

11. Unaflex Inc.

B. Description: 125-psig minimum working-pressure rating and ends matching pump connection:

12. Bronze Flexible Connectors: Corrugated, bronze inner tubing covered with bronze wire braid. Include copper-tube ends or bronze flanged ends, braze welded to tubing.

13. Stainless-Steel Flexible Connectors: Corrugated, stainless-steel inner tubing covered with stainless-steel wire braid. Include stainless-steel nipples or flanges, welded to tubing.

2.6 BUILDING AUTOMATION SYSTEM INTERFACE

A. Provide auxiliary contacts in pump controllers for interface to building automation system. Include the following:

1. On-off status of each pump.

2. Alarm status.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine roughing-in of plumbing piping to verify actual locations of storm drainage piping connections before sump pump installation.

3.2 CONCRETE

A. Install concrete bases of dimensions indicated for pumps and controllers. Refer to Division 22 Section "Common Work Results for Plumbing."

1. Revise four subparagraphs below based on installed equipment. Indicate dowel rod quantity, size, and spacing on Drawings.

2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around full perimeter of base.

3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.

4. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

5. Install anchor bolts to elevations required for proper attachment to supported equipment.

3.3 SUMP PUMP INSTALLATION

A. Install sump pumps according to applicable requirements in HI 1.4.

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

C. Retain first paragraph below for wet-pit-mounted, vertical sump pumps.

D. Set submersible sump pumps on sump floor. Make indirect connections to sanitary drainage piping.

E. Install packaged, submersible, drainage pump unit basins on floor or concrete base unless recessed installation is indicated. Make direct connections to storm drainage piping.

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

3.4 CONNECTIONS

A. Coordinate piping installations and specialty arrangements with schematics on Drawings and with requirements specified in piping systems. If Drawings are explicit enough, these requirements may be reduced or omitted.

B. Install piping adjacent to sump pumps to allow service and maintenance.

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

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

3.5 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.
2. Verify bearing lubrication.
3. Disconnect couplings and check motors for proper direction of rotation.
4. Verify that each pump is free to rotate by hand. If pump is bound or drags, do not operate until cause of trouble is determined and corrected.
5. Verify that pump controls are correct for required application.

B. Start pumps without exceeding safe motor power:

1. Start motors.
2. Open discharge valves slowly.
3. Check general mechanical operation of pumps and motors.

C. Test and adjust controls and safeties.

D. Remove and replace damaged and malfunctioning components.

1. Pump Controls: Set pump controls for automatic start, stop, and alarm operation as required for system application.
2. Set field-adjustable switches and circuit-breaker trip ranges as indicated, or if not indicated, for normal operation.

E. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project outside normal occupancy hours for this purpose.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain controls and pumps. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION

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