SECTION 221319- PLUMBING SPECIALTIES

PART 1-GENERAL

1.1 WORK INCLUDED

A. Roof drains

B. Floor drains

C. Floor Sinks

D. Cleanouts.

E. Water hammer arrestors.

F. Wall Hydrants

G. Hose Bibb

H. Water/Gas Energy Monitor Meters

1.2 REFERENCES

A. ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.

B. ANSI A112.21.1 - Floor Drains.

C. ANSI A112.26.1 - Water Hammer Arresters.

D. ASME A112.36.2 - Cleanouts.

E. ASSE 1019 – Wall Hydrants

1.3 QUALITY ASSURANCE

A. Manufacturer: For each product specified, provide components by same manufacturer throughout.

1.4 SUBMITTALS

A. Submit shop drawings and product data per Applicable Division I Specifications.

B. Include component sizes, rough-in requirements, service sizes, and finishes.

1.5 WARRANTY

A. Contractor shall warranty entire systems and equipment for a period of one (1) year.

PART 2-PRODUCTS

2.1 ROOF DRAIN (RD)

A. Acceptable Manufacturers
1. J.R. Smith
2. Watts
3. Zurn

B. Duco cast iron body with adjustable extension sleeve, flashing clamp, gravel stop, dome, and sump receiver; J.R. Smith 1015-Y-C-R (size per plans).

2.2 EMERGENCY ROOF DRAIN (ERD)

A. Acceptable Manufacturers
1. J.R. Smith
2. Watts
3. Zurn

B. Duco cast iron body with adjustable extension sleeve, flashing clamp, gravel stop, dome water dam, and sump receiver: J.R. Smith No. 1080-Y-C-R (size per plans).

2.3 FLOOR DRAIN-1 (3" FD-1)

A. Acceptable Manufacturers
1. J.R. Smith
2. Watts
3. Zurn

B. Duco cast iron body and flashing collar with nickel bronze adjustable strainer head; J.R. Smith No. 2005 (size per plans) Provide and install ASSE 1072 trap seal for each floor drain in leu of trap primers.

2.5 FLOOR SINK (4" FS)

A. Acceptable Manufacturers
1. J.R. Smith
2. Watts
3. Zurn

B. Duco cast iron body and flashing collar with nickel bronze ½ grate, square top, J.R. Smith No. 3100Y-12 (size per plans).

2.6 CLEANOUTS (CO)

A. Acceptable Manufacturers
1. J.R. Smith
2. Watts
3. Zurn

B. Floor Cleanout: Duco cast iron with round adjustable scoriated secured nickel-bronze top; J.R. Smith No. 4020.

C. Wall Cleanout: Duco cast iron spigot ferrule with cast bronze taper threaded plug with stainless steel round cover; J.R. Smith No. 4402.

2.7 WATER HAMMER ARRESTORS

A. Acceptable Manufacturers
1. J. R. Smith
2. Watts
3. Zurn

B. ANSI A112.26.1; sized in accordance with PDI WH-201, precharged suitable for operation in temperature range, 100 to 300 degrees F and maximum 250 psig working pressure; Model #5000 series manufactured by J.R. Smith.

2.8 WALL HYDRANT (WH-A)

A. Acceptable Manufacturers
1. Zurn
2. J.R. Smith
3. Watts

B. Bronze body, stainless steel box, bronze parts, hose connection, integral vacuum breaker and operating keylock: Zurn No. Z-1350.

2.9 WALL HYDRANT (WH-B)

A. Acceptable Manufacturers
1. J.R. Smith
2. Zurn
3. Watts

B. Bronze hydrant with hose connection, integral vacuum breaker and “T”handle key, non-freeze; J.R. Smith No. 5509QT.

2.10 HOSE BIBB (HB)

A. Acceptable Manufacturers
1. Chicago Faucet
2. Woodford

3. Acorn

B. Single water fitting with vacuum breaker, spout, ¾" integrated hose threaded outlet, loose key cap with 293-6 removable tee handle, chrome plated finish; Chicago Faucet No. 952.

2.11 ENERGY MONITORING METERS

A. Water Meter

Provide water flowmeter in location show on drawings. Meters shall be line sized of the compound or magnetic type. Readout shall be in gallons. Provide 4-20MA or 0-10 VDC output to Building Automation System. Water meter flow range ½-100 GPM, pressure rating of 30-150 psi, accuracy of 1.5 percent between minimum and maximum flow range. Install usage meters and by-pass with three isolation valves around meters as required. Bypass line and isolation valves to be line size. Wiring by controls contractor.

B. Gas Meter

Provide natural gas meter with pulser type index to monitor total building usage. Meter shall be installed downstream of utility company service meter as show on drawings. Direct Digital Control system shall interface with gas meter to monitor gas usage and provide reports. Meter shall be American Metering Company, or equal by Sensus Metering Systems or Schlumberger RMS. . Install usage meters and by-pass with three isolation valves around meters as required. Bypass line and isolation valves to be line size. Wiring by controls contractor.

2.12 DOMESTIC WATER BOOSTER SYSTEM

A. Acceptable Manufacturers
1. Thrush
2. Quantum Flo
3. Grundfos
4. Bell & Gossett

B. Specifications for variable frequency drive water pressure booster.
1. Model: Thrush PB-VSI-200-35.

2. Provide a unitary pre-packaged domestic Water Pressure Booster Pumping System per engineering data flow, and head requirements for "Packaged Pumping Systems".

C. Pumping System:

1.

Item	GPM	HP	Boost PSI	RPM	Voltage/Ph
1	200	7.5	35	3450	460-480/3/60

2. Unit is provided with the VFD Controls, hydro pneumatic tank, pressure gauges, pressure transmitter, and vibration isolation mounts

3. Provide unit with isolation valve kit.

D. Valves:

1. All valves shall be full port bronze ball valves, with S.S. ball and stem design for valve sizes 2" and smaller, and cast iron, lever operated, lug type butterfly valves, or mechanical grooved end valves with Aluminum/Bronze alloy disc, and Stainless Steel shaft, for valves sizes 2 1/2" and larger. Valves must be rated for maximum pressure service for the system.

E. Fabrication:

1. All headers, nipples, and welded attachments to the headers shall be type 304 stainless steel materials. All welding shall be in accordance with section IX of the ASME Boiler and Pressure Vessel code, all welding on stainless steel piping shall be back-purged with inert gas during the entire welding procedure, and shall be performed by welders qualified under that standard. The completed system shall be hydrostatically tested after all appurtenances have been installed to a minimum of 1.5 times the specified system working pressure. Each pump shall have an individual resilient seated non-slam type check valve on each pump immediately downstream of the pump discharge. All pumps shall be mounted utilizing in-shear rubber vibration isolators mounted to the motor bases. A main system discharge valve is required on the system for proper system set-up.

F. Start-Up:

1. A qualified factory trained technician shall perform initial factory start-up, and owner training. A factory certified start-up report must be provide to the owner, dated and signed by the factory technician.

G. Parts:

1. A complete listing of all parts and equipment for the system shall be listed using the original manufacturers' model, serial numbers and source information.

H. Owner Training:

1. The owner instruction and training shall include, but not be limited to the following:
   a. Training in the replacement of the motor, mechanical seals pump impeller.
   b. Safe replacement of the PLC Control Module chip, fuses, and pilot lamps.
   c. Proper operation of the system, troubleshooting, alarm, and reset features.

I. Service:

1. Provide 24/7/365 factory certified field service during the warranty period, and make available the same service to the Owner after the warranty period is concluded.

J. Warranty, and Factory Authorized Service:

1. Provide 24 hour, 7 days per week, factory authorized field warranty service for a period of (12) months after the factory start-up service, or (18) months from the date

of shipment whichever occurs first. Make available to the owner factory authorized field service after the warranty period. Provide to the owner three (3) copies of equipment owners manuals.

PART 3-EXECUTION

3.1 PREPARATION

A. Coordinate forming of floor construction to receive floor drains to required invert elevations.

3.2 INSTALLATION AND APPLICATION

A. Install specialties in accordance with manufacturer's instructions to permit intended performance.

B. Extend cleanouts to finished floor. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanouts for rodding of drainage system.

C. Install water hammer arrestors complete with accessible isolation valve.

D. Provide operational and maintenance manuals for plumbing specialties.

END OF SECTION 221319