USask Master Specification Directions: The master specifications are intended to be incorporated into the Consultant's final, project specific specification package. The project specific specifications are expected to include any and all sections or portions of sections (Part 1, Part 2, Part 3) that are required to create a fully executable project specification. USask Master Specs only provide information that USask **requires** be a part of the final specification package. Components or sections not included in the Master USask Specifications may still be required for a complete, well-designed project. **It is the consultant's responsibility to ensure all specifications match USask requirements. Any deviations or revisions to any section included in the master specifications requires written consent from the USask Engineering department. The consultant is liable for any omissions, errors, or incorrect equipment or components supplied to site.**
The Master Specifications shall be used in conjunction with USask's Design Guidelines. Any conflicts shall be brought to the attention of USask Engineering staff for clarification.

Part 1 General

Part 2 Products

2.1 MATERIALS

.1 Materials and resources in accordance with Division 01 – General Requirements.

2.2 DOMESTIC HOT WATER CIRCULATING PUMPS

.1 Capacity: as indicated.

.2 Construction: closed-coupled, in-line centrifugal, all bronze construction, two oil lubricated bronze sleeves or ball bearings.

.3 Motor: open drip-proof, with thermal overload protection.

.4 Supports: provide as recommended by manufacturer.

.5 Approved manufacturers: B&G, Armstrong, Taco.

.6 Provide circuit balancing valve, Armstrong CBV or equal, located between pump and connection to cold water supply to hot water heater. Valve construction to be non-ferrous copper alloy. Valve to limit pipe velocity in the main recirculation line to 1.22 m/s (4 FPS) maximum.

2.3 DOMESTIC WATER BOOSTER SYSTEM

.1 Domestic water booster pumps shall be comprised of packaged systems consisting of appropriately sized pumps, pressure transmitters, and variable speed drives. System shall be BACnet compatible.

2.4 SUMP PUMP

.1 Pump systems to consist of complete assembly including level controllers, alarm controls, electric control panel and switches, check valve all as described herein and shown on drawings.

.2 Pumps ¾ hp and smaller shall be submersible, unless noted otherwise.

.3 Provide float controllers equal to Flygt ENM with sealed mercury switch, for alarm signal to BAS for high water. See details on drawings.

.4 For duplex units supply and install a combination switch mechanical alternator equal to Square D Model 9038 AG1 complete with float assembly.

.5 For single units supply and install a level switch for sump pump start stop equal to Penn F59H 1 with Float Kit WGT 11A601R.

2.5 BILGE AND SEWAGE PUMP

.1 Pumps shall be Gorman Rupp, or approved equal, self priming Series 'T'.

.2 Impellers shall be two vane, semi open, ductile iron, non clog type, capable of passing 64 mm sphere.

.3 Pumps shall be complete with double floating, self aligning, oil lubricated mechanical seal, cast iron body, lifting eye, flanged discharge, built in check valve accessible through a cover plate without removing piping, flanged suction. Easily removable cover plate to allow complete access to pump interior to permit the clearances of stoppages and to provide simple access for service and repairs without disturbing suction or discharge piping. Unit also complete with removable and replaceable wear plate, heavy duty ball bearings (oil bath lubricated) bearing housing integral with pump housing, high carbon steel shaft with removable sleeve. Entire rotating assembly to be removable without disturbing volute or piping.

.4 Each pump and motor shall be mounted on steel channel bases by the manufacturer. Mount assembly on NSN pads on concrete housekeeping pad. Supply and install direct drive, flexible connection between motor and pump complete with coupling guard.

.5 Supply and install steel sump cover complete with access panel, vent flange connection, suction pipe outlets, all sealed with gas tight gaskets. Provide seals around control lines.

.6 Pumps shall be controlled by a Milltronics Multiranger Plus. The alternating of the pumps shall be by the Milltronics system.

.7 Provide high water alarm circuit as shown on drawings using polypropylene float bulb equal to Flygt ENM. See detail on drawings.

.8 Suction pipe to be galvanized steel with flanged or Victaulic joints.

.9 All discharge piping in mechanical room or immediate area to be galvanized with flanged joints and gaskets or Victaulic joints.

.10 Provide weighted closing type check valve and shut off valve on each discharge. Provide pressure gauge on suction and discharge, and air release valve on discharge. Discharge pipe to have flexible connector, or use flexible Victaulic joints.

Part 3 Execution

END OF SECTION