

Delta T Solutions Irrigation / Flood Floor Specification

2.23 IRRIGATION — FLOOD FLOOR

- a. Watering system general description:
 - i. Design requirements
 - 1. Floor Quantity 2
 - 2. Watering times per floor: 10 Minutes
 - 3. Watering Depth: 2 inches
 - 4. Fill Tank Qty 2

A. FLOOD FLOOR EQUIPMENT

- a. The flood floor irrigation system shall be the Delta T Solutions Flow through system and consist of a dual pump system design to pump irrigation water from one of the holding tanks to the floor spur pipe that is installed below the surface of the concrete floor. The Spur pipe has holes drilled every 12 to 24 inches based on design requirements. The water will pass through the holes and fill the floor to the desired level. After the water is held for the desired time the drain valve will open allowing the water to drain from the floor back to a sump tank where the water is pumped back to the holding tank.
- b. Piping between the tanks and the floor
 - i. Overhead piping shall be Sch 80 PVC piping with solvent welded connections to the fittings.
 - ii. Below grade piping shall be Sch 40 PVC piping with solvent welded connections to the fittings
- c. Control valves for the Drain and supply lines
 - i. Tank control valves shall be Pnumatic butterfly valves per schedule
 - ii. Floor drain valves shall be Delta T Solutions Pnumatic Tee valves per schedule
 - iii. All control valves shall be controlled with 24V Solenoid valves that will open the supply valve and close the drain valve at the same time.
- d. Storage Tanks
 - i. Storage tanks shall be polyethylene per schedule for volume and dimensions
- e. System Pump — The pump shall be centrifugal pumps
 - i. Federal in line-
 - ii. Casing – Standard pumps are built with the suction connection 180° from the discharge connection. Casings can be field rotated for a 90° position changes. Suction and discharge connections are standard ASA Flanges. Top pull-out design permits removal of the rotating assembly without disconnection the suction or discharge piping. Centerline discharge permits straight through piping.
 - iii. Impeller – single-piece enclosed bronze balanced impellers, with diameters cut for specified condition points.
 - iv. Shaft – The pump end is mounted directly on the motor shaft, eliminating alignment problems. A bronze shaft sleeve prevents contact between the shaft and the liquid being pumped.
 - v. Mechanical Shaft seal – A leak-less mechanical shaft seal is standard on all models with the ceramic and carbon faces and stainless steel metal parts. A copper by-pass flushes the seal chamber to prevent dead-ending of abrasives.
 - vi. Motors – Pumps are built with totally enclosed fan cooled motors. Fractional horsepower single-phase motors have built-in overload protection. All motors must have motor starters supplied by others.

- f. Sump pump — The pump shall be centrifugal pumps
 - i. Federal Pump Corporation Type VSS duplex submersible sewage pump unit, or approved equal. The pumps shall be of cast iron construction with non-clog, balanced impellers and shall be rated as shown in the pump schedule.
 - ii. Each motor shall be oil-filled, protected by an oil-filled double-seal chamber, shall have a stainless steel shaft and fasteners and a 25-ft. waterproof power cable. Motors shall be rated as shown in the pump schedule.
 - g. The concrete floor construction shall be designed:
 - i. With a slope of ½” per 9 linear feet to drain the water completely during the desired watering time.
 - ii. Floor shall have 1-1/2” fill/drain holes core drilled through the surface and into the spur line every 18”.
 - iii. The areas controlled shall be separated by and Delta T EPDM water barrier that will be installed into a groove cut into the concrete floor.
 - h. System control –
 - i. Environmental controller will control the zone actuators based on watering cycles required and will cycle the fill pump based on zone demand.
 - ii. Sump pump will be controlled using a float switch based on sump pit level.
 - iii. Motor starters and overload protection shall be supplied by others.
- B. Fertilizer injector shall be shall be a self-contained nonelectric injector able to supply the proper fertilizer dosing from 0.5 gpm to 20gpm flow rates. Dosing shall be based on inline installation with a concentrate reservoir below the unit.
- a. Dilution rates of 1:500 to 1:66
 - b. Unit shall be constructed from all plastic parts polyacetal body.
 - c. Unit will have a built in bypass.