

GENERAL IRRIGATION SPECIFICATIONS UNIVERSITY OF PENNSYLVANIA

UPDATED 3-26-15

**General:**

**System Requirements**

- A) Copper irrigation pipe stub with male adapter through the exterior wall of the building to be irrigated in a sealed sleeve. Pipe size to be determined by irrigation system designer, to provide adequate water flow and volume for system to be installed.
- B) A  $\frac{3}{4}$  inch hose bib installed downstream of backflow preventer inside of building to be used to drain line during winterization process
- C) Provide a sealed sleeve through the exterior wall of the building to be irrigated for the zone wire(s). Once wire is run through sleeve, interior of sleeve to be sealed by irrigation installer
- D) Reduced Pressure Zone type backflow preventer device to be installed inside the building to be irrigated. Size of device must be appropriate for pipe size, flow and volume. Device MUST have adequate size drain installed either to properly sized floor drain OR outside of building.
- E) A 120 volt GFI power source on a dedicated circuit to a breaker panel must be provided for irrigation controller.
- F) A separate water meter to be installed upstream of the backflow preventer to be installed as requested/required to monitor water usage by irrigation system only.

### **Work Performance, Equipment and Design**

- A) PA ONE CALL must provide a mark out prior to any excavation. Emergency repairs must be hand dug.
- B) All irrigation heads used on campus must be the following: Rainbird 5000 series SAM PRS rotor heads and Rainbird 1800 series SAM PRS spray heads. Fixed nozzles to be used ONLY. NO VAN nozzles. (Or approved equivalent)
- C) No alterations will be made to existing irrigation systems unless approved by the UPM and designated Irrigation Representative of the University of Pennsylvania
- D) Each system to utilize WeatherMatic Smartline series controller and on site weather station. (or approved equivalent "smart" controller)
- E) All mainline piping must be PVC (minimum SDR 21)
- F) All zone valves to be Rainbird PEB or PESB when using reclaimed water sources
- G) All valves to be installed in individual "standard" (10" x 14" x 12") size valve box with minimum 3 inches of stone in bottom for proper drainage.
- H) All wire splices to be made utilizing DBY waterproof wire connectors
- I) All heads to be installed using a swing joint, either using Marlex fittings, a pre manufactured swing joint or funny pipe.
- J) All sidewalk or road crossings to be placed in a PVC Schedule 40 pipe sleeve.

- K) All zone wires to be direct burial wire approved specifically for irrigation systems, 18 gauge or larger
- L) All zone to operate independently from each other
- M) All systems to be designed to operate within approved watering window. (11 pm to 5 am). Written approval from University of Pennsylvania is required to operate outside of this window.
- N) All zone wiring to follow the main line
- O) A ¾ inch (minimum) winterization port (threaded plug) or quick coupler to be installed on main line near water source exit of building inside of 10 inch round valve box
- P) An main line isolation valve to be installed near water source exit of building inside of 10 inch round valve box
- Q) All systems to have “smart” controller with weather station (or approved equivalent)
- R) Turf zones and planting beds to be irrigated separately. Head types not to be mixed on each zone. Must be separate.

### 3. Post-Installation Requirements

- A. A checklist stating that all previous criteria were met during installation of the Irrigation System, signed by a designated Irrigation Representative of the University.
- B. A Walk-Through of the system with a designated Irrigation Representative of the University and the Supervisor of the installed system must occur before the system is officially turned over to the University.
- C. An As-Built drawing, to scale, of the Irrigation System installed, within ten (10) days of project completion, must be provided to a designated Irrigation Representative of the University, and include the following information:
  - i. Backflow type, size, model number and location, including key required to access the Backflow Preventer Device.
  - ii. Clock location, manufacturer, model number, and number of zones with programmed run schedule.
  - iii. Zone type (rotor, spray or MP Rotator).
  - iv. A designation for gallons per minute in each zone.
  - v. At least two (2) physical measurements to each valve box from two (2) different permanently fixed objects.
  - vi. Each zone's physical location and number of heads per zone.
  - vii. Nozzle type and size for each zone.
  - viii. Sizes of all Main and Lateral Pipes and zone valve.
  - ix. At least one (1) physical measurement for each Sleeve from a permanently fixed object.
  - x. Head spacing, in feet.
  - xi. All pump specifications and location (if required).