

## **SPRINKLER BASICS**

This hands-on 4-hour class will cover the basics of sprinkler systems for landscape irrigation. This is not a design class and it is recommended for beginners in irrigation system maintenance as well as landscape maintenance personnel. This class will provide the student with the knowledge and confidence to fix common sprinkler problems and conduct basic system upgrades.

### **Section 1 - Layout of the Sprinkler System                      45 minutes**

The first part of class demonstrates a schematic of a typical sprinkler system followed by pictures of irrigation system components. This helps participants become familiar with the different fixtures they will run into while out in the field. This section includes:

- Schematic of a sprinkler system – a graphic display of the system.
- The Water Meter – a picture and text slide to show the workings of the meter. This is especially important if your company is working on sites with water budgets – the field personnel will be able to take water meter readings.
- Backflow Prevention Devices – pictures to show the various “backflows” found in irrigation systems, along with a description of their purpose. Many landscapers think it’s just a shut-off valve; they need to know that it’s much more than that.
- Pressure Regulators – pictures of pressure regulators for irrigation.
- Irrigation Valves – pictures showing the different valves available for landscape irrigation, including in-line and anti-siphon valves. It’s important for maintenance personnel to be familiar with the component with the most control of the irrigation.

### **Section 2 - Irrigation Pipe and Fittings                                      1 hour**

This second part of class talks about the different PVC pipes available for irrigation, along with a discussion on polyethylene pipe for drip irrigation systems. Pictures of each type of pipe will be shown. The class also includes basic information on flows that different pipe sizes may carry. The class does not include any pipe sizing or friction loss calculations, but it does provide the basics and serves as a good introduction. The class then shows various common fittings used in sprinkler systems.

Exercises: Two exercises are included in this section.

- Pipe cutting and gluing – outside activity. To train participants on later line repair.
- Identification of Fittings – quiz on identification of 10 common pipe fittings.

### **Section 3 - Sprinklers and Nozzles    45 minutes**

The third section introduces the class participant to the various spray-head models available from the three major manufacturers, including Toro, Rain Bird, and Hunter. The class shows pictures of the different sprinkler and nozzles available for each spray-head sprinkler. While pictures of the various sprinkler models are being shown, class participants will be able to inspect and work with the actual sprinklers and nozzles. This

section includes information on sprinkler pop-up height, radius of throw of different nozzles, and area of coverage for various nozzles, including special pattern nozzles.

Exercise: Quiz

Quiz on identification of sprinklers and nozzles.

This will familiarize the class participant to the equipment that they will run across the most while out in the field.

#### **Section 4 - Sprinkler Spacing and Selection                      30 minutes**

This section of class will help class participants make better choices of selection of equipment while fixing sprinkler problems out in the field. Often, when a sprinkler is replaced, it is replaced with the wrong equipment, which turns into a poorly watered landscape, dry spots, and eventually customer complaints.

This section includes various graphics of landscapes and turf areas where proper selection of sprinkler types and nozzles is required. As a group, the class discusses sprinkler radius and pattern for each scenario.

Exercise: Layout Design Tarp

The class is divided into groups and each group is given a kit. The kit contains a tarp that represents a landscape, which includes dimensions (to scale). The kit also includes all equipment necessary to set up the irrigation system. Class participants are asked to select the proper sprinkler and nozzle for each situation, to run pipe segments connected by fittings, to install swing-joint assemblies, sprinklers and nozzles, and to make sure that it is done correctly. This exercise reviews much of what has been covered in class up to this point.

#### **Section 5 - Common Sprinkler Problems                      1 hour**

Once familiar with the layout of the sprinkler system and its components, class participants are then shown the most common sprinkler problems they will encounter in the field. This section of class includes video clips for each of the problems displayed. Video clips provide a better visual and it makes it easier for the class participant to understand. Some of the problems discussed in class include:

- Dry spots caused by poor sprinkler uniformity
- Sunken or low sprinkler heads
- Tilted sprinkler heads
- Clogged sprinkler and nozzles
- Broken heads and lateral lines
- Plant material interference – blockage of spray from plants

Each of the problems covered in class is described in detail. Class participants will not only learn of the problems, but also the solutions.