



**Homeowner's
Guide
to
Automatic
Sprinkler System
Planning & Installation**

2 Locations to Better Serve You!

Michigan Sales Office
4266 Hollywood Road
St. Joseph, Michigan 49085
269-429-8200
800-874-2553
Fax 269-429-6669

Pennsylvania Sales Office
3550 Chambersburg Road
Biglerville, PA 17307
717-337-3030
800-672-4700
Fax 717-337-1785

TRICKL-EEZ Company

Automatic Sprinkler System Planning & Installation Guide

Conservation. We must all do our part. The place to start is with our most precious natural resource... Water. If you are like most homeowners, you are probably using as much as 50% more water than your landscaping needs. That's not good for your pocketbook, or for your lawn. The solution isn't just watering less, but more efficiently. The right amount of water, evenly distributed, in the right places at the right time. An Automatic Sprinkler System makes it all possible. Plus, with the help of this guide, it's easier than ever to plan and install a water-efficient system yourself. Like to know more? Read on...

TRICKL-EEZ has been the area's leading supplier of lawn sprinkler equipment for more than 25 years. These sprinkler systems have proven themselves time and time again under the most difficult conditions. When you buy your system from **TRICKL-EEZ** you are the beneficiary of precision engineering, rigorous quality control, and the latest in irrigation techniques.

Commercial grade is our only grade. Unlike some suppliers, **TRICKL-EEZ** does not stock a lower quality line for residential use. We sell only one grade of product... the best. What this means to you is that many innovations, advantages, and features of our top-of-the line equipment are yours when you buy from **TRICKL-EEZ**. We are proud to feature products from IRRITROL Systems.

Every automatic sprinkler system has three main parts: the *sprinklers*, *valves* and *controllers*. The quality of any system can only be as good as the sum of its parts. By following the easy step-by-step instructions on the following pages, you will not only learn how to design and install your own system, but you will learn why specific models of sprinkler system components are right for you. You'll find that the more you understand about the demands made on these components, the more you will want your system components to come from **TRICKL-EEZ**.

Sprinklers apply water at steady rates. Their overlapping spray patterns provide even coverage across the entire lawn.

Valves control water flow to the sprinklers. They can be installed above or below ground, usually near the water source. Valves are electrically actuated, using only 24 volts ac.

Controllers automatically control valve and sprinkler operation. Usually mounted inside on the garage wall. They can also be mounted outside with an optional outdoor cabinet.

Table of Contents

DESIGNING YOUR SYSTEM

- 5 How to select sprinklers that fit your specific area requirements**
Sprinkler Placement Planning
- 6 How to begin designing your system**
Draw your property • Section your yard • Locate sprinklers in large areas
- 7 Complete your sprinkler placement**
Two ways to locate sprinklers in small areas • Locating sprinklers in oddly shaped areas
- 8 How to measure your home's water capacity**
A simple way of determining your home's water capacity
- 9-10 Determine your design capacity**
Rules of Thumb for selecting safe flows through your water system
- 11-12 Zoning your system**
Group your valves • Lay out your pipe • Locate your controller

INSTALLATION IN 10 EASY STEPS

- 13 Step 1: Use flags to mark sprinkler and valve locations**
Step 2: Tap into your service line
- 14 Step 3: Main and lateral line trenching**
Step 4: Install the sprinkler system main line
- 15 Step 5: Connect zone valves to the main line**
Select the right valves • Shut-off valve • Backflow Prevention
- 16 Step 6: Install the automatic sprinkler controller**
Select the right sized controller
Step 7: Install downstream pipe
Step 8: Flush the system to clear debris
- 17 Step 9: Install your sprinklers, zone by zone**
Step 10: Check system operation, zone by zone
- 18 SPRINKLER INSTALLATION TIPS**
How to use swing pipe
- 19 WATER CONSERVATION TIPS**
- 20 WINTERIZATION PROCEDURES**

BEFORE YOU START... CHECK LOCAL CODES AND PERMITS

Call your water company or the proper municipal authority to find out about any building codes or permits required for the installation of underground sprinkler systems. They can tell you about local codes for backflow prevention to protect your household water supply from contamination and advise you on where in the system to locate it. In addition, check with your local utility companies to identify any buried cables before digging.

This is also a good time to check into a sub-meter, if applicable.

Installation Accessory Checklist

During installation, you will need several types of accessories and a variety of pipe fittings. Other materials you will need during installation include:

- PVC Pipe Cutter
- Screwdriver
- Pipe Wrenches
- Hammer
- Trenching Shovel
- 1" Pipe Clamps (Poly only)
- Solvent, Primer, Rags (PVC only.)
- Teflon Tape
- Tape Measure
- Marking Flags
- Marking Paint

How to Select Sprinklers that fit your specific area requirements

No matter how simple or complex the landscape, **TRICKL-EEZ** has the sprinkler to cover every angle. Rule of Thumb: Select long spray radius sprinklers for large areas so you can use fewer sprinklers and valves, which results in less pipe, less trenching, and fewer zones. The basic sprinkler types include fixed spray and single stream rotors.

Fixed Sprays - Spray Radius 5'- 15' - Fixed spray sprinklers produce a tight, constant fan of water ideal for small lawn, shrub, and ground cover areas. Pop-up models pop up above grasses and disappear when not in use. Shrub sprays are mounted above foliage to water ground cover and shrubs. More than 40 different fixed spray nozzles to choose from gives you maximum flexibility.

Single Stream Rotors - Spray Radius 35'-48'* - Gear-driven single stream sprinklers cover large lawn areas most efficiently (**48' at 60 psi with 8.0gpm nozzle installed.*)

For detailed information regarding available sprinkler patterns and water usage, please see the TRICKL-EEZ Catalog.

Sprinkler Placement Planning:

Head-to-Head Spacing - For proper coverage, place sprinklers so that the spray from one sprinkler reaches the next sprinkler. Spacing in Windy Areas - If your winds are regularly stronger than 8 mph, space sprinklers closer, at 90% of the spray radius.

Rule of Thumb: Determine Spacing by Sprinkler Radius - For example, if you are using fixed spray sprinklers with a radius of 12', place your sprinklers no more than 12' apart, closer together if you are in a windy area.

Replacing old Sprinklers?

DO NOT MIX fixed spray sprinklers with single stream sprinklers in the same zone. Each type applies water at a different rate. For economical and efficient watering, the same type of head must be used throughout a zone.

How to begin designing your system

Suggested planning tools: Pencil • Large sheet of graph paper • scratch paper • drawing compass • 50' tape measure • straight edge or ruler • marking spray paint for marking trenches • 5 gallon pail • marking flags to mark sprinklers

1 - DRAW YOUR PROPERTY FROM A BIRD'S EYE VIEW - Each small square on the graph paper should represent one square foot of actual property. Using your tape measure, outline and measure your property accurately according to scale, laying out the locations of your home, sidewalks, grass, etc.

- 1 • Outline your house, garage, other buildings.
- 2 • Show walks, drives, slabs, patios and surfaces.
- 3 • Locate and identify trees and major obstacles.
- 4 • From the outside of the house, measure outward to define your outside perimeters.
- 5 • Locate ground cover, grass and flower beds.
- 6 • Identify the location of the water meter (or pump) and service line.
- 7 • Recheck your measurements at several different points. Make sure your drawing accurately indicates the true dimensions.

2 - SECTION YOUR YARD - Divide your yard into areas, according to type of plant material (grass, shrubs, etc., or shade versus sun.) Create as many large rectangles as you can, saving small and oddly-shaped areas for last.

3 - LOCATE SPRINKLERS IN LARGE AREAS FIRST - Locate sprinklers within each area, one area at a time, using larger sprinklers for larger areas. Stay within the allowable spacing range (radius) and remember to space them "head to head". Spacing heads too far apart will produce dry spots. Always place sprinklers in a way that avoids spraying the side of your house, walls, wood fences, etc. Also, minimize spraying onto sidewalks, driveways, and streets. Place half-circle heads on sides and borders; quarter circle heads in corners; and full circle heads in the middle.

Please note: Locating sprinkler heads is not an exact science. You can locate sprinkler heads without knowing pressure or the gallons per minute (gpm) flow rate of water. These factors will apply later when we divide the system into zones. For now, work on your layout as described in Step 3 until you've achieved head-to-head coverage for all areas.

After locating your sprinklers in large, rectangular areas, you can now locate sprinklers in small non-rectangular areas. Although each situation is different, following are some handy guidelines.

Complete your sprinkler placement

LOCATING SPRINKLERS IN ODDLY-SHAPED AREAS:

- 1 • Pick the spot on the perimeter with the smallest radius.
- 2 • Place a head with a small radius at that point.
- 3 • Place heads along the border starting from that spot.
- 4 • Adjust the radius of each head according to the size and shape of the area.
- 5 • If coverage is incomplete, adjust sprinkler location.
- 6 • If coverage is still incomplete, start over, using a head with a larger radius.

HERE ARE TWO WAYS TO LOCATE SPRINKLERS IN SMALL AREAS:

Areas such as narrow strips bordering your driveway or sidewalk can be watered by two offset rows of part-circle heads. Or you can use special pattern heads for end-strip and center-strip watering.

IMPORTANT! When you have located all of your sprinkler heads, use your compass to double-check your layout. **BE SURE COVERAGE IS HEAD-TO-HEAD.**

Water pressure can vary from home to home, even on the same street. So it's important that you take a measurement at your own home. The danger, if you push your system beyond its capacity, is that it can create water hammer and costly damage to your piping system.

How to measure your home's water capacity - Following is a simple way of determining your home's water capacity.

DETERMINE YOUR WATER CAPACITY AND WORKING PRESSURE USING A 5 GALLON BUCKET AND STANDARD PRESSURE GAUGE

- 1 • Locate the outside faucet (y) that is closest to your water supply line.
- 2 • Locate another faucet (x) on your house and attach a pressure gauge. Open faucet all the way.
- 3 • With faucet (y) open all the way, check the pressure reading on the gauge at faucet (x). If it is less than 35psi, turn down the water flow from faucet (y) until the reading reaches 35psi. If it is greater than 35psi, record the pressure reading and go to step 4.
- 4 • Place a five gallon bucket under faucet (y) and time how long it takes to fill it. This test tells you how much water is available measured in gallons per minute (gpm).

<u>Time to fill bucket</u>	<u>Gallons Per Minute (gpm)</u>
15 Seconds	20 gpm
20 Seconds	15 gpm
25 Seconds	12 gpm
30 Seconds	10 gpm
40 Seconds	7½ gpm

This is how much water is available with a working pressure of 35 PSI or the higher reading that you recorded. (Minimum operating pressure for most sprinklers.)

On your drawing record the psi and gpm.

Note: The pressure found in this step is called working pressure. This pressure reading will determine how far your sprinklers will spray. Use this pressure when referring to the sprinkler performance charts in the **TRICKL-EEZ** Catalog.

FLOW RATES FOR WATER METERS:

<u>Meter Size</u>	<u>Max. gpm</u>
5/8" meter	8gpm
3/4" meter	13gpm
1" meter	22gpm

*Your water meter size can be found stamped on the meter or printed on the face of the meter.

FLOW RATES FOR SERVICE LINES AND SPRINKLER LINES:

Maximum Recommended Flow through PVC (Plastic) Pipe:

We recommend PVC upstream of zone valves, if not throughout the entire system.

<u>PVC Pipe Size</u>	<u>Maximum gpm</u>
1" Sch. 40 (400psi)	13gpm
3/4" Sch. 40 (400psi)	8gpm
1" SDR21 (200psi)	16gpm
3/4" SDR21 (200psi)	10gpm

Maximum Recommended Flow through New Galvanized Pipe:

<u>Galvanized Pipe Size</u>	<u>Maximum gpm</u>
3/4" Galvanized Pipe	8gpm
1" Galvanized Pipe	13gpm

Maximum Recommended Flow through Type K Copper Pipe:

<u>Copper Pipe Size</u>	<u>Maximum gpm</u>
3/4" Copper Tube	6gpm
1" Copper Tube	12gpm

Maximum Recommended Flow through Polyethylene Pipe:

In freezing areas, poly pipe may be used downstream of zone valves.

<u>Poly Pipe Size</u>	<u>Maximum gpm</u>
3/4" Poly Pipe (100psi)	8gpm
1" Poly Pipe (100psi)	13gpm

TIP: Use only 80% of the design capacity to allow for future demand and household consumption of water for domestic purposes (showers, sinks, washing machines, etc.)

Zoning your system.

A zone is a group of sprinkler heads that operate off of a common valve. Your system controller controls zones independently of one another. The capacity of any zone must not exceed the safe design capacity of your home's water system.

To divide your system into zones:

- 1 • Write down the capacity (gpm) of each head next to where it is located on your grid layout. These capacities are listed in the tables found in your **TRICKL-EEZ** Catalog.
- 2 • Next, draw lines that divide similar sprinkler heads into groups.
- 3 • Add up the sprinkler gpm flow for each zone. If the total zone gpm flow exceeds the safe design capacity, you must split the zone into more zones or put some of the sprinklers into another zone with available capacity.

Helpful Rules of Thumb:

- *Don't mix sprinkler types within a zone - For example, fixed spray sprinklers should not be grouped with single stream rotary sprinklers.*
- *Separate lawn and shrub areas.*
- *Separate shady zones from sunny zones.*

1 • COUNT YOUR ZONES. Determine the number of valves that you will need, based on the number of zones you have designed.

2 • GROUP YOUR VALVES. We recommend grouping the control valves - for example, one control valve location to operate front yard zones, and one to operate back yard and/or side yard zones.

Locate the first set of valves in a convenient spot near the main water connection. A good location is where the service line enters your house.

The number of zones used on your automatic controller should match the number of zones in your system.

3 • LAY OUT YOUR PIPE. Piping will run from the service line to the first set of valves, from the first set of valves to the second set, from the valves to the sprinkler heads.

Good new's... You can include more than one pipe in a trench.

Draw these connecting pipes on your grid layout following these rules:

- Use as many straight runs as possible.
- When possible, avoid turns which result in loss of pressure.
- Avoid going under sidewalks and driveways whenever possible.

NOTE: We recommend 1" PVC upstream of electric control valves and at least ¾" PVC or 1" Poly Pipe downstream.

4 • LOCATE YOUR CONTROLLER. Locate your controller inside your garage or on an outside wall near a 110v outlet. If you locate the controller outside, be sure to mount it in a weatherproof cabinet.

Place your wires in the same trenches as your pipe. Remember that valves will be wired to the controller, so locate the valves so that the valve wires will have easy access to the controller.

We recommend 18 gauge solid, multi-strand direct burial wire to connect valves to the controller. You will need 1 wire per zone, plus the common wire. So, an 8 zone system will need 9 wires, a 4 zone system will need 5 wires.

INSTALLING YOUR SYSTEM

Step One: Use Flags to Mark Sprinkler & Valve Locations. Use marking flags to mark where each sprinkler should go according to your design. Use line marking spray paint to locate the lines along which you'll trench and install pipe. Check your worksheet to make sure you mark the lines accurately. You will be digging your trenches along these lines (Step Three.)

Step Two: Tap into Your Service Line. By cutting into your service line and slipping on a "compression tee", you can connect your sprinkler system to your water supply without soldering! You can avoid cutting the main line by attaching your system to the outside faucet connection, though this could result in significant restriction of water flow. In addition, PVC may be substituted for copper in non-freezing areas. (Check local codes.)

IF THE METER IS IN YOUR YARD:

- 1 • Shut off your water supply at the meter (Check with water department)
- 2 • Where convenient, dig to expose the service line.
- 3 • Tie into the service line between the water meter and the house.
- 4 • Remove a section of pipe, leaving a gap large enough to slide on a "compression tee".
- 5 • Slip the tee over each end of the cut pipe.
- 6 • Tighten the compression nuts. The rubber gasket will compress against the pipe, creating a seal to prevent leakage.
- 7 • Install a short section of pipe coming out of the tee.
- 8 • Attach a shut-off valve to this section of pipe. The shut off valve allows you to turn off the system by hand, if necessary

IF THE METER IS IN YOUR BASEMENT:

- 1 • Shut off your water supply at the meter. (Check with water department)
- 2 • Tap into the service line after the water meter with a compression tee.
- 3 • Drill a hole through the sill above the foundation. Or drill or chisel a hole in the basement wall. Make a hole no bigger than needed to run a 1" pipe through.
- 4 • Install the piping. Add a shut-off valve and drain cap. The drain cap should be in a low position to allow system drainage.
- 5 • Run your connecting pipe out of the basement through the hole to the outside, to where the backflow preventer and first set of valves are on your planning worksheet.
- 6 • To drain water from the system, close the shut-off valve, place a bucket under the drain cap, and remove the cap.
- 7 • After the connecting pipe is installed, seal the hole in the wall with caulking compound.

NOTE: If you are not comfortable with cutting into your home's main water line, consider hiring a licensed plumber for this part of the project.

Step Three: Main and Lateral Line Trenching

Trenching by Hand. To soften the soil, water the ground approximately two days before you dig. Dig trenches 8" to 12" or below frost line in freezing climates. Put sod on one side of the trench and dirt on the other.

Trenching with a Trencher. Trenching machines are an easier, faster alternative to digging with a spade. They can be rented from a lawn supply store or rental equipment dealer. The person you rent from can show you how to operate the machine properly and safely. Trenchers should *not* be used to dig through ground cover, flower beds, on steep slopes, or near buildings.

Going under Obstacles. To tunnel under brick and concrete walks, attach a piece of Schedule 40 PVC pipe to a hose with a hose-to-pipe adapter. Cap the end with a PVC cap and drill an eighth of an inch hole in the end of the cap. Point the end of the pipe where you want to tunnel. Turn on the water. Push the pipe under the concrete: the force of water will blast away soil to form a tunnel. Tunneling requires care to avoid damage to walks and driveways.

Step Four: Install the Sprinkler System Main Line. Attach your sprinkler system main line to the service line. Run it along the bottom of the trench from the house to the first set of valves, and then, if required, on to the second set.

TIPS ON WORKING WITH DIFFERENT PIPES:

PVC Pipe:

- 1 • Cut pipe with a PVC pipe cutter.
- 2 • Brush on primer to clean the pipe surface and inside of fitting.
- 3 • Brush solvent on the outside end of the pipe and inside the fitting.
- 4 • Slip the pipe into the fitting and give it a quarter turn.
- 5 • Hold in place for about 20 seconds so solvent can dry.
- 6 • Wipe off excess solvent with a rag.

Warning: Wait twenty four hours before running water through the system.

Poly Pipe:

- 1 • Cut pipe with a PVC cutter or sharp knife.
- 2 • Slip stainless steel clamp over end of pipe.
- 3 • Insert fitting into end of pipe past the barbs.
- 4 • Slide clamp over the barbs of the fitting.
- 5 • Tighten clamp.

Note: to relax pipe, expose to sunlight. Never expose poly pipe to open flame.

Warning: Do not use poly as the connecting pipe between the service line and control valves. Surge pressure may rupture poly pipe.

Step Five: Connect Zone Valves to the Main Line

What about a shut-off valve? In systems with a Pressure Vacuum Breaker (PVB), these may be used as shut-off valves. In systems where PVB's are not used, we recommend installation of a shut-off valve between zone valves and the service line.

A GROUP OF VALVES IS CALLED A MANIFOLD. Use flags to mark the location of the valves as indicated on your worksheet. In-Line Valves and Angle valves are installed below ground. Protect valves below ground by sheltering them in valve boxes. Dig out the area where below ground valves are to be installed. Install valve boxes at or near grade level. When you buy boxes, check to see how many valves each box holds.

Select the right valves. There are several options. "Angle" valves, "In-Line" valves, "Dirty Water" valves. See your **TRICKL-EEZ** Catalog for more detailed information on the various valves.

Installation Tip: When you are installing your system in the front yard with plans to install in the back yard later: Run your sprinkler main line and wire to an accessible location in the back yard. Cap off. Leave extra wire (more strands) to handle more valves as you expand in the future.

What about Backflow Prevention?

CHECK LOCAL CODES AND PERMITS. Call your water company or the proper municipal authority to find out about any building codes or permits required for the installation of underground sprinkler systems. They can tell you about local codes for backflow prevention to protect your household water supply from contamination. They can also advise you on where in the system to locate it. Also, check with them about having a "sub-meter" installed.

In addition, check with your local utility companies to identify any buried cables before digging.

Step Six: Install the Automatic Controller

- 1 • Locate the controller in your garage or some other convenient place. If an outdoor location is desired, plan to use an outdoor cabinet to protect the timer against the effects of weather. Make sure an adequate power supply is available. Most system controllers require only a standard 110VAC outlet. (See controller instructions for details.)
- 2 • Run wires along the trench, underneath the pipe, from the valves to the system controller.
- 3 • Take one wire from each valve and connect to a common wire. (For ease of identification, use the white wire as the common.) Connect together the common wires of valves that are located together. Connect the common wire to the common terminal on the controller.
- 4 • Take the other wire from each valve and connect to the timer terminals in sequence.
All outdoor connections and splices must be waterproofed.
- 5 • Plug in the controller.

Step Seven: Install Downstream Pipe

Start from the valves and move outward, laying the connecting pipe along the bottom of the trenches. At each flag, put a threaded tee or an elbow fitting.

Follow the tips for working with different pipe that are listed under “Install the Sprinkler System Main Line”.

Step Eight: Flush the System to Clear Debris

After the pipe has been connected and the glue has dried (PVC pipe only), turn on the water, open valves one zone at a time, and flush until the water runs clear.

TIP: Don't backfill your trenches until your final system operation check is complete.

Step Nine: Install Your Sprinklers, Zone by Zone

INSTALL ONE SPRINKLER ZONE AT A TIME, USING “SWING-PIPE”

REMEMBER TO REFER TO THE PLANNING WORKSHEET AND SPRINKLER FLAGS.

- 1 • Placing the sprinkler in the trench as a guide, measure and cut a length of swing-pipe from the connecting pipe fitting to the bottom of the sprinkler.
- 2 • Install the correct size swing-pipe elbow in the sprinkler. Install the correct size swing-pipe elbow into the PVC or Poly Pipe fitting.
- 3 • Connect one end of swing-pipe to the sprinkler. Connect the other end of the swing-pipe to the connecting pipe fitting.
- 4 • Position the sprinkler in the trench so that the top of the sprinkler is flush with ground level. Stabilize the sprinkler with soil, without filling the entire trench.

PLACE SPRINKLERS AT LEAST 3" FROM SIDEWALKS, CURBS, ETC.

Step Ten: Check System Operation, Zone by Zone

Now, slowly turn on the water and manually open the control valve. If your coverage is incomplete:

- 1 • Make sure the control valve and shut-off valve are fully open.
- 2 • Turn off any water being used in the house (washers, showers, sinks.)
- 3 • Adjust sprinkler zone valve flow control. Adjust the screws on the sprinkler heads to fine-tune the spray pattern. (Also see TIP regarding fine-tuning with ratcheting risers.)
- 4 • If coverage is still not complete, go back and check your system layout against the plans.
- 5 • When coverage is satisfactory, fill in the trench with dirt and cover with sod.

TIP: FINE TUNE SPRAY DIRECTION WITH RATCHETING RISERS. Most fixed spray sprinklers feature a “Ratcheting” riser which allows you to manually turn the riser while the sprinkler is operating in order to fine tune the direction of spray

CONGRATULATIONS! When installed properly, your automatic sprinkler system will help keep your landscape green and healthy for years of recreation and enjoyment!

WHAT IS SWING-PIPE? Swing-pipe is a high-strength poly tubing that solves tough sprinkler installation & replacement problems. Put simply, swing-pipe acts as a flexible extension cord between sprinkler line and sprinkler head, allowing you to easily position sprinklers where you need them, even in hard-to-reach areas!

One of the most useful and timesaving sprinkler installation aids is swing pipe. Whether you are installing a new system or replacing an old sprinkler head, swing-pipe can make your job quicker and easier.

- Swing-pipe is ideal for use when installing hi-pop sprinklers, because you don't have to dig such a deep trench.
- It's great for positioning sprinklers in awkward or hard-to-reach areas.
- And, when used to install sprinklers next to sidewalks, driveways or other high traffic areas, swing-pipe acts as a cushion in case of impact.

Swing-pipe enables you to install or relocate sprinklers with ease, without the need to retrench or alter existing water lines.

The flexibility of swing-pipe protects against damage in high traffic areas.

Installing lines under walkways, driveways, or extending into hard to reach areas is much easier with swing-pipe.

Water Conservation Tips

Your new underground sprinkler system is now installed and ready to water your lawn - automatically. Here are some tips for successful operation:

- Water in the early morning (before sunrise) when water pressure is greatest, evaporation is minimal, and the lawn drinks in the most water.
- Do not water at night because water will sit on the lawn, and may cause disease.
- Do not water in the heat of the day because the sun will evaporate water before it can soak in.
- Give lawns more water than plants, placing plants on a separate watering schedule. Some controllers provide up to four watering schedules which allow you to schedule lawns, shrubs and flower beds separately.

RULE OF THUMB FOR WATER SCHEDULING

Divide weekly run times into days... for example, if you need to water 65 minutes a week, you could water 9-10 minutes daily, or 16-17 minutes every other day. If you have sandy soil, you can apply your daily requirement all at once. With clay soils, you will need to apply water more slowly and may have to use more daily start times.

<u>Avg. Daily Temp.</u>	<u>Minutes per Week</u>	
	Fixed Spray	Single Stream Rotary
60's and 70's	45	120
80's and 90's	65	180
90's and 100's	85	240

Winterization Procedure Recommendations

Manual Drain Valves

- 1 • Close the main water supply valve.
- 2 • Open all manual drain valves downstream of the automatic valves to allow drainage of the lines.
- 3 • Open all manual drain valves upstream of the automatic valves to allow drainage of main line and valve manifold.
- 4 • Follow recommended winterizing instructions for your specific sprinkler controller.

Automatic Drain Valves Note: If the system is installed with automatic drain valves, the lines downstream of the automatic control valves will drain automatically when the automatic control valve closes.

- 1 • Close the main water supply valve.
- 2 • Open all the manual drain valves upstream of the automatic valves to allow drainage of the main line and valve manifold.
- 3 • Follow recommended winterizing instructions for your specific sprinkler controller.

Automatic Control Valves Note: This procedure should be followed if adequate control valve drainage cannot be achieved through the use of manual or automatic drain valves.

- 1 • Close water supply valve.
- 2 • Complete manual drain valve, automatic drain valve, and sprinkler controller winterization procedures.
- 3 • Disassemble the automatic control valve and drain all water.
- 4 • Reassemble the automatic control valve.

Winterization with Compressed Air.

CAUTION: Do not exceed 50psi of air pressure in any system. Exceeding 50psi can result in equipment damage.

WARNING. To prevent personal injury, do not attempt to disassemble system while under pressure.

- 1 • Close the main water supply valve.
- 2 • Connect the air compressor (25cfm or larger with pressure regulator adjusted to 30-50psi or less) to fitting downstream of the water supply valve.
- 3 • Activate each automatic valve from the timer allowing each valve to remain open until all water has been expelled from the zone.
- 4 • After all valves have been activated and all water has been expelled, disconnect the air compressor.
- 5 • Turn the controller off.