



California Model Water Efficient Landscape Ordinance (MWEL0)

The Intelligent Use of Water.™

Background



Governor's Executive Order (4/1/15)

- **Achieve a 25% reduction vs. 2013 in potable urban water use.**
- **Update the State Model Water Efficient Landscape Ordinance (MWELO) through emergency regulations.**
 - More efficient irrigation systems, greywater usage and onsite storm water capture and turf limitations.
- **All standard practices related to the adoption of new codes, regulations and actions were suspended.**



Entities Involved

- **State Water Resource Control Board (SWRCB)**

Appointed 5 member board responsible for state policy on water quality and the allocation of surface water rights.

- **California Building Standards Commission (Cal Green)**

Appointed 11 member commission responsible for the building standards code.

- **Department of Water Resources (DWR)**

Responsible for the management of water usage and the development of California's Model Water Efficient Landscape Ordinance (MWELO).

- **Water Commission (WC)**

Appointed 9 member commission responsible for approving rules and regulations, including MWELO.

- **Water Agencies**

Responsible for implementing and enforcing MWELO or a stricter local or regional standard.

State Water Resources Control Board Emergency Regulations (5/5/15)

■ End-User Prohibitions

- Application of potable water to outdoor landscapes that causes runoff.
- Irrigation within 48 hours of measurable rainfall.
- Potable water irrigation on public street medians.
- Potable water irrigation outside of new construction in a manner that is inconsistent with Cal Green regulations.
- Commercial, industrial and institutional properties must:
 - Limit irrigation to 2 days per week, or
 - Reduce potable water use by 25%.

State Water Resources Control Board Emergency Regulations (5/5/15)

- **Supplier Requirements**

- Limit outdoor irrigation to 2 days per week, or
- Reduce potable water production by 25% vs. 2013.

Cal Green Emergency Regulations (5/29/15)

- **Approved, but will change based on MWELO.**
- **Applies to landscaped areas greater than 2,500 sq. ft. for residential and 1,000 sq. ft. for commercial.**
- **Evapotranspiration Adjustment Factor (ETAF) reduced to 0.55.**
- **Special landscape areas (SLAs), including golf courses, have an ETAF of 1.0.**
- **Weather or soil-moisture based controllers and rain sensors are required on all commercial sites.**
- **Irrigation meters are required on new water service or upgraded water service for landscaped areas greater than 1,000 sq. ft.**



State of Water Restrictions

1. Common restrictions across the state:

- a. Irrigation is limited to 2 days per week.
- b. Fines have been enacted for properties that produce runoff or water during the rain.
- c. Irrigation is prohibited during the day.
- d. Irrigation time limits per zone vary from 5 minutes to 15 minutes.

Model Water Efficient Landscape Ordinance: 2015 Revision

Effective: December 1, 2015

October 18, 2015
Revision 2



Disclaimer

- **This presentation covers only items in MWELO that specifically relate to irrigation.**
- **For a complete list of requirements, you are encouraged to read the full [MWELO document](#).**
- **Click [HERE](#) to link to the Department of Water Resources MWELO page.**
- **Regulations in your local market may be different. Check with your local provider.**

Which Projects are Subject to MWELO?

- **All projects that require a building or landscape permit, plan check or design review AND meet the following criteria:**
 - New development projects: Aggregate landscape area \geq 500 sq. ft.
 - Rehabilitated landscape projects: Aggregate landscape area \geq 2,500 sq. ft.
- **All projects with aggregate landscape areas \leq 2,500 sq. ft. can either:**
 - Comply with the entire ordinance, or
 - Conform to prescriptive measures, as outlined later in the presentation.

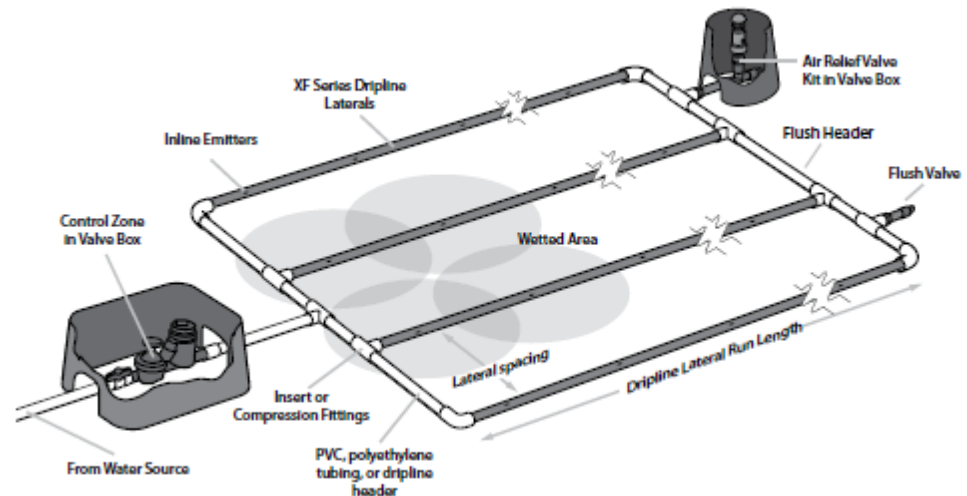
Which Projects are Subject to MWELO?

- **Cemeteries and projects $\leq 2,500$ sq. ft. using only graywater or onsite rainwater capture are subject to only certain portions of MWELO.**
- **Landscapes using recycled water are Special Landscape Areas and get a larger water budget (ETAF = 1.0).**

MWELO Irrigation Design Plan (492.7)

General Requirements

- Must be designed to prevent runoff, low head drainage, overspray or other similar conditions.
- The soil management plan must be used to design the irrigation system.
- Must conform to the hydrozones of the landscape design plan.



MWELO Irrigation Design Plan (492.7)

- The irrigation system must be designed and installed to meet a minimum Irrigation Efficiency (IE) of 0.75 for sprays and rotors and 0.81 for drip.
- Note: Irrigation Efficiency is assumed in the Water Efficient Landscape Worksheet to be equal to the values noted above, so

No Calculation is Required.

MWELO Irrigation Design Plan (492.7)

- **Landscape water meters are required for:**
 - Non-residential landscapes between 1,000 and 5,000 sq. ft.
 - Residential landscapes \geq 5,000 sq. ft.
 - **Note:** Water Code 535 applies above 5,000 sq. ft. and requires a separate landscape irrigation water meter on non-residential systems.
- **Landscape water meters can be:**
 - Provided by local water purveyor, or
 - A privately owned meter or sub-meter.

FMD Series Landscape Water Meters

- Meets new California legislated irrigation sub-meter requirement.
- The only irrigation sub-meter available through traditional irrigation distributor channels.



Model	Size
FMD0625B	5/8" x 3/4"
FMD075B	3/4" x 3/4"
FMD100B	1" x 1"
FMD150B	1 1/2" x 1 1/2"
FMD200B	2" x 2"

MWELO Irrigation Design Plan (492.7)

- **Manual shut-off valves are required at the point of connection.**
- **Backflow prevention devices are required.**
 - Refer to local code for specific requirements.
- **Master shut-off valves (i.e., master valves) are required, except:**
 - In irrigation systems equipped with low pressure shut-down features that allow for individual sprinkler control and pressurization, as commonly found on golf course systems.

MWELO Irrigation Design Plan (492.7)

- Automatic irrigation controllers using ET or soil moisture sensor data are required.

Residential Solutions



ESP-SMTe

Commercial Solutions



ESP-LX Series with IQ



IQ Platform

MWELO Compliant Rain Bird Residential Controllers

- **Easy to Install**

- Weather sensor is easily wired to the controller using two quick-connect terminals.

- **Easy to Operate**

- Programming is fast and intuitive thanks to easy-to-follow setup wizard, minimal dial positions, and English or Spanish.

- **Easy to Sell**

- The ESP-SMTe provides a 30-70% water savings to your customers.

ESP-SMTe



www.rainbird.com/esp-smte

MWELO Compliant Rain Bird Residential Controllers

- **Makes any irrigation controller “smart”**
 - Precisely monitors moisture levels, unaffected by soil temperature or electrical conductivity.
- **Water savings of 40%+.**
 - Optimizes the amount of moisture at the root zone, for a healthier landscape.
- **Advanced soil moisture sensing technology**
 - Checks soil conditions every 10 minutes.



MWELO Compliant Rain Bird Commercial Controllers

- **Intuitive operation.**

- Large display, simple-to-use dial and easy-to-follow prompts lower installation expenses and troubleshooting time.

- **Unprecedented flexibility.**

- Modular designs are perfect for a range projects—from the straightforward to the most complex.



ESP-LXME



ESP-LXD

MWELO Compliant Rain Bird IQ Platform

- **Convenient**

- Manage your entire system from anywhere at anytime.
- Compatible with ESP-LXME and ESP-LXD.



- **Labor and Water Savings**

- Quickly and remotely make controller adjustments and use ET-based scheduling to save water.



- **Peace of Mind**

- Sleep well at night knowing that IQ is monitoring your system and the information you need is at your fingertips.

MWELO Irrigation Design Plan (492.7)

- **Rain, freeze and wind sensors are required.**
 - As appropriate for local climate.

**WR2 Wireless
Rain/Freeze Sensor**



Wired Rain Sensor



**Anemometer with
Central Control**



MWELO Compliant Rain Bird WR2 Wireless Rain/Freeze Sensors

- **Installs faster with one-person**
 - Signal strength is displayed on both the sensor unit and the controller interface.
- **Easier to use and program**
 - In just a few seconds, you can select set points, program the irrigation modes and save your default.
- **Superior signal reliability**
 - Dual antennas safeguard the system from signal interference
 - Weather data is updated every 45 seconds



MWELO Compliant Rain Bird Central Control & Anemometer

■ Total Control

- Prevents irrigation cycle from completing during windy conditions, saving water, avoiding property damage, and improving sprinkler distribution uniformity.

■ Convenience

- Compatible with all Rain Bird central control and controller products.*

■ Peace-of-Mind

- Three year trade warranty.

* Requires PT3002 Pulse Transmitter for all central control and controllers except Maxicom2®.



MWELO Irrigation Design Plan (492.7)

- **Flow sensors that detect high flow are required for:**
 - All non-residential landscapes.
 - Residential landscapes $\geq 5,000$ sq. ft.
- **Flow sensors must be capable of receiving flow signals and operating master valves.**

Flow Sensors

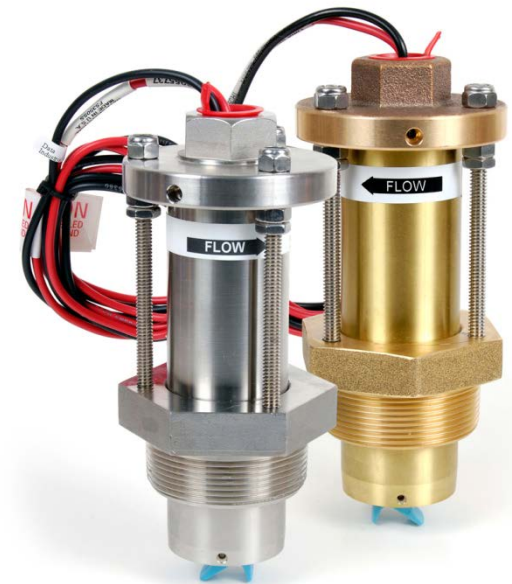


**Commercial
Controllers &
Central
Control**



MWELO Compliant Rain Bird Flow Sensors

- **Flo-Watch™**
 - Constantly monitors for low or excess flow
 - Automatically quarantines and shuts down the problem area
 - Continues to irrigate non-affected areas.
- **Learned Flow**
 - The controller automatically learns station flow rates resulting in more accurate flow rates.
- **FloManager®**
 - Determines the optimal station irrigating sequence.



MWELO Irrigation Design Plan (492.7)

- Pressure regulating devices are required.

Sprays



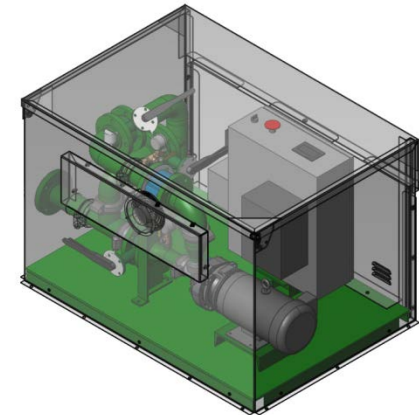
Rotors



Valves



Pumps



Pressure Regulating
Filters

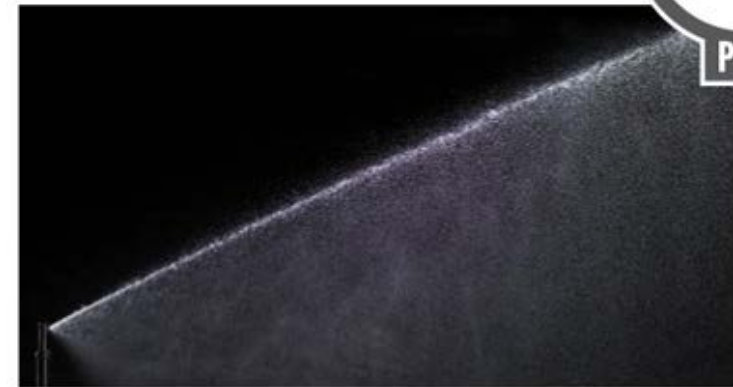


MWELO Compliant Rain Bird Pressure Regulating Sprays & Rotors

- **Quantifiable Savings**
 - Save approximately one gallon per minute per rotor or spray.
- **Minimizes Wind Drift**
 - Larger water droplets resist wind drift and evaporation, so you always hit your target zone.
- **Protection from Mayhem**
 - If a nozzle is damaged, PRS can also reduce water waste by up to 70%.



Without PRS



With PRS

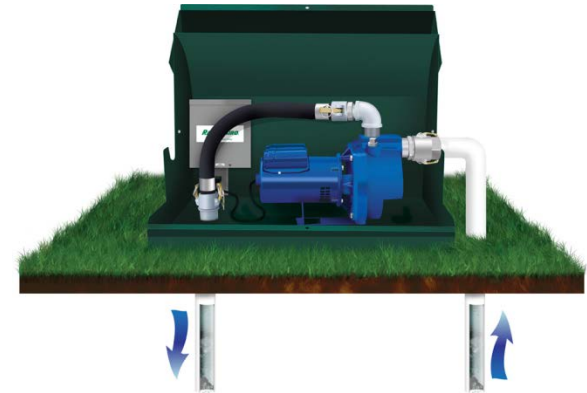


MWELO Compliant Rain Bird Pressure Regulating Low Volume Control Zone Kits

- **Efficient Low Volume Performance**
 - Assures downstream emitters are performing optimally while protecting fittings from failure.
- **Increased Reliability**
 - Fewer threaded connections mean less chance of leaks.
- **Easier Installation**
 - Include a matched set of components in one convenient package.



MWELO Compliant Rain Bird Pumps & Pump Start Relays

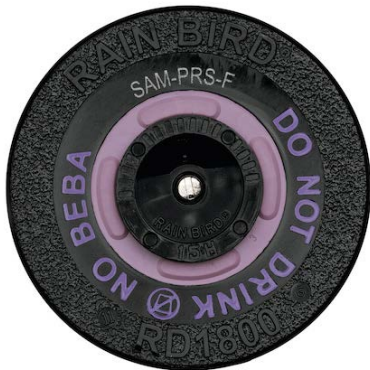


- **Designed for Irrigation Systems**
 - Compatible with most irrigation controllers
 - Quick disconnects to speed up installation and winterization
- **Durable Powder-Coated Steel Enclosures**
 - Safe, vandal-proof encasements for pump and controls
 - Cooling louvers included in the LC pump
- **UL Listed internal components**

MWELO Irrigation Design Plan (492.7)

- Check valves or anti-drain valves are required where low head drainage could occur.

RD1800 SAM-PRS



1800 SAM-PRS



5000 SAM-PRS



XFCV Dripline



MWELO Compliant Rain Bird Sprays & Rotors with Check Valves

- **Stops Water Waste**
 - Holds back water up to 14 feet to prevent flooding and erosion.
 - Perfect for sloping sites.
- **Reduces System Wear**
 - Minimizes water hammer during start-up.
- **Reduces Labor**
 - Built-in Seal-A-Matic™ (SAM) check valve eliminates the need for under-the-head check valves that are difficult to maintain.
 - No parts to be installed at the site.



Without SAM



With SAM



MWELO Compliant Rain Bird XFCV Dripline with Heavy-Duty Check Valve

■ Stops Water Waste

- 3.5 PSI check valve holds back water up to 8 feet to prevent flooding and erosion.
- Eliminates the need to re-charge the line at the beginning of each cycle.

■ Improved Uniformity

- Keeps the dripline charged assuring all plants receive uniform coverage.

■ Reduces Labor

- Greater flexibility enables tighter turns with fewer elbows.



MWELO: Irrigation Design Plan (492.7)

- **No overhead irrigation within 24 inches of any non-permeable surface, unless:**
 - The landscape area is adjacent to permeable surfacing and no runoff occurs, OR
 - Adjacent non-permeable surfaces drain entirely to landscaping, OR
 - No overspray and runoff is documented and confirmed through audit.

- **Maximum 0.75 in./hr. precipitation rate for slopes greater than 25% (4:1), unless:**
 - No overspray and runoff is documented and confirmed through audit.

MWELO Irrigation Design Plan (492.7)

- **No overhead irrigation within 24 inches of any non-permeable surface:**



Dripline (on-surface or sub-surface)



Point-Source

MWELO Irrigation Design Plan (492.7)

- All emission devices must meet the requirements of ASABE/ICC 802-2014.
- All sprinkler heads must document a lower quarter distribution uniformity (DU_{LQ}) of 65% or higher.
- Emission devices must have matched precipitation rates.

Meet 65% DU_{LQ}
Requirements:

- U-Series
- HE-VAN
- R-Series
- R-VAN

Tight Watering Windows



Low Precipitation Applications



MWELO Compliant Rain Bird Spray Nozzles – Tight Watering Windows

- **Save Water and Money**
 - Superior coverage and close-in watering reduces run times by up to 35%.
- **Superior Wind Resistance**
 - Large water droplets reduce misting and airborne evaporation so the right amount of water is delivered to the right place.
- **Ideal for Tight Water Windows**
 - Faster run time to meet local water restrictions.



MWELO Compliant Rain Bird Spray Nozzles – Low Precipitation Rate

- **Required on Slopes Greater than 25% (4:1)**
 - Lower precipitation rate reduces run-off and the potential for erosion.
- **Water Lands Where It Should**
 - Strong streams and larger water droplets fight wind and reduce misting and airborne evaporation, so more water is delivered to the target area.
- **Maximum Flexibility**
 - Available in both fixed arc and variable arc models.



MWELO Compliant Rain Bird Rotors – Low Precipitation Rate

- **Low Precipitation, High Performance**
 - Complete line of short to long range rotors delivering low precipitation rates that reduce run-off and not performance.
- **Saves Water**
 - The larger water droplets produced by Rain Curtain technology prevent misting and airborne evaporation so the right amount of water is delivered to the right place, saving water and money.
- **Optimal Coverage**
 - Rotors engineered to deliver a uniform spray pattern, providing superior coverage in real-world conditions.



MWELO Irrigation Design Plan (492.7)

- **Swing joints are required on risers adjacent to hardscapes or high traffic turfgrass areas.**



The Rain Bird
TSJ Swing Joint

The best performing swing joint on the market.

MWELO Compliant Rain Bird Swing Assemblies & Swing Joints

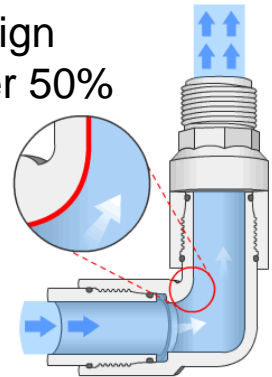
Swing Assemblies

- **Save Time and Installation Cost.**
 - Preassembled units
- **Easy Adjustment**
 - Swing arm lengths allow quick adjustment of spray heads to grade.
- **Three Year Trade Warranty**



Turf Swing Joints

- **Save Time and Installation Cost.**
 - Preassembled units
- **Easy Adjustment**
 - Swing arm lengths allow quick adjustment of spray heads to grade.
- **Lower Pressure Loss**
 - Rain Bird's Swept Elbow Design reduces pressure loss by over 50% compared to the competition.



MWELO Irrigation Design Plan (492.7)

- **Low volume (drip) irrigation is required in mulched planting areas.**
 - Nearly all non-turf areas require mulch.
- **Exceptions:**
 - Turf areas (>10')
 - Creeping or rooting groundcovers
 - Direct seeding applications where mulch is contraindicated.
 - Designated insect habitats (up to 5% of landscaped area)



Dripline



Point-Source

MWELO Compliant Rain Bird Low Volume (Drip) Irrigation

- **Healthier Landscapes**

- Deliver water at or near the plants' root zones.

- **Water Savings**

- Up to 80% over traditional overhead sprinklers.

- **Everything You Need**

- With over 150 products, Rain Bird has the broadest drip irrigation product line in the industry to meet any site requirements.



Control Zone Kits



QF Dripline Header



Emitters



Dripline

MWELO Irrigation Design Plan (492.7)

- **Areas less than 10 ft. in width in any direction:**
 - Must be irrigated with subsurface irrigation, OR
 - Other means that produces no runoff or overspray.

XF Series Dripline



Point-Source Emitters



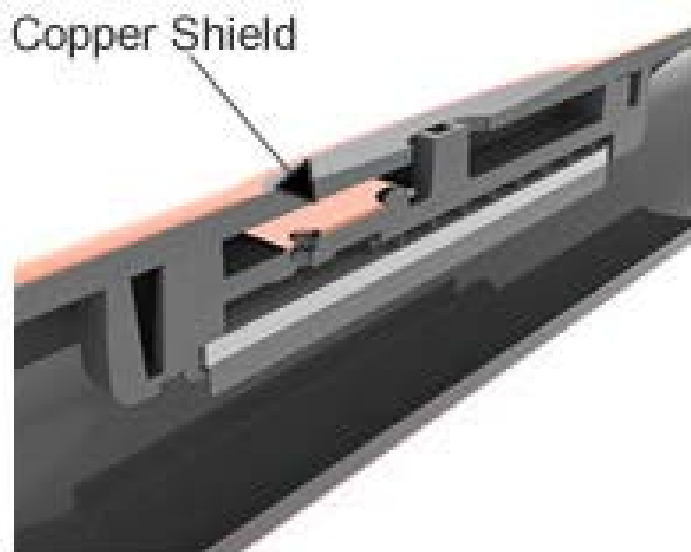
MWELO Compliant Rain Bird XFS Dripline with Copper Shield Technology

- **Reliable**

- Copper Shield Technology protects the emitter from root intrusion.
- Root protection delivered without the use of harsh chemicals.

- **Multi-purpose**

- XFS may be used under turf or shrub and groundcover areas.



MWELO Compliant Rain Bird XF Series Dripline for On-Surface Applications



- **Easy to Install**
 - The most flexible dripline tubing in the industry.
- **Grit Tolerant**
 - Proprietary emitter design resists clogging by using an extra-wide flow path combined with self-flushing action.



MWELO Irrigation Design Plan (492.7)

- **Low and high water use plants cannot be zoned together.**
- **Where feasible, trees should be zoned separately.**

MWELO Compliant Rain Bird Root Watering System (RWS)

■ Investment Protection

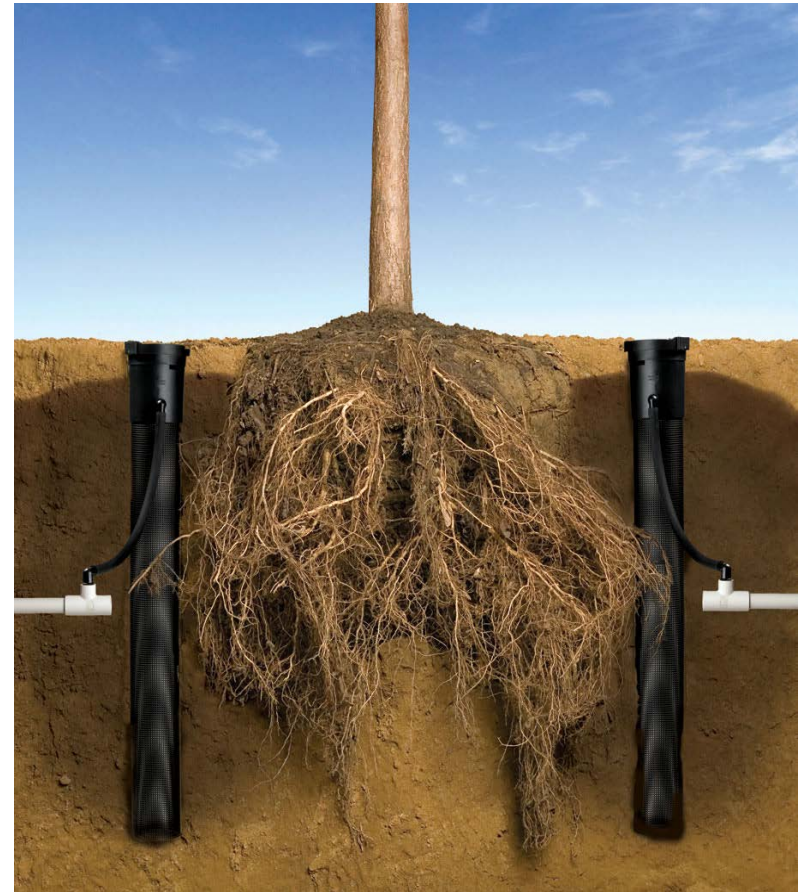
- Greater tree stability, higher survival rates and healthier growth.

■ Watering Efficiency

- Reduces water loss due to evaporation, wind and edge control losses.

Landscape Aesthetics

- The below-grade installation promotes a natural landscape appearance.



Additional Requirements

■ Irrigation Scheduling (492.10)

- Overhead irrigation must be scheduled between 8:00 PM and 10:00 AM.
- If local regulations are different, the stricter of the two applies.

■ Irrigation Audit (492.12)

- Must be conducted by a local agency landscape irrigation auditor or a third party.
- Cannot be conducted by the person who designed or installed the landscape.
- The audit rate for large projects or with multiple installations is 1 in 7 lots, or 15%.
- New and rehabilitated landscapes must have a water audit.

MWELO Irrigation Design Plan (492.7)

Recommended Measures

- **Recommended that the irrigation designer inquire about local peak water operating demands and water restrictions.**
- **Spray and rotor head-to-head coverage is recommended.**

Prescriptive Option for Landscapes $\leq 2,500$ sq. ft.

■ Turf Requirements:

- Limited to 25% of landscape in residential areas and 0% in non-residential areas.
- Turf prohibited on 4:1 slopes or steeper.
- Turf prohibited in parkways < 10 ft. wide, unless adjacent to a parking strip where passengers enter and exit vehicles.
- Any turf on parkways must be irrigated with subsurface irrigation or other means that creates no overspray or runoff.

Prescriptive Option for Landscapes $\leq 2,500$ sq. ft.

■ Irrigation Requirements:

- Automatic controllers using ET or soil moisture sensor data and a rain sensor.
- Controllers must retain programming data during power interruption.
- Pressure regulating devices.
- Manual shut-off valves at the point of connection.
- Sprinkler compliance with ASABE/ICC 802-2014.
- Sprays and rotors must meet a 65% DU_{LQ} .
- All areas 10 feet wide or less in any direction must use subsurface or other irrigation that eliminates runoff or overspray.
- Non-residential projects $\geq 1,000$ sq. ft. must have a landscape irrigation sub-meter.

Rain Bird Tools & Resources

- <http://25Ways.Rainbird.com>
 - Outdoor water savings tips for homeowners, commercial property owners, golf courses and agricultural sites.
 - Includes tips on how to improve your existing system, installing a new drip system and installing a water efficient sprinkler system.
- <http://25Ways.Rainbird.com/saleskit>
 - Customizable contractor tools to promote more efficient irrigation solutions.

