

Efficient Irrigation: Getting Things Started Right

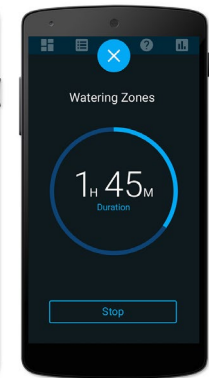
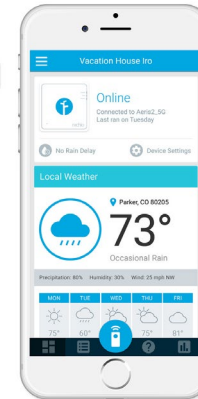
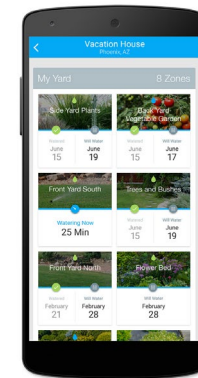
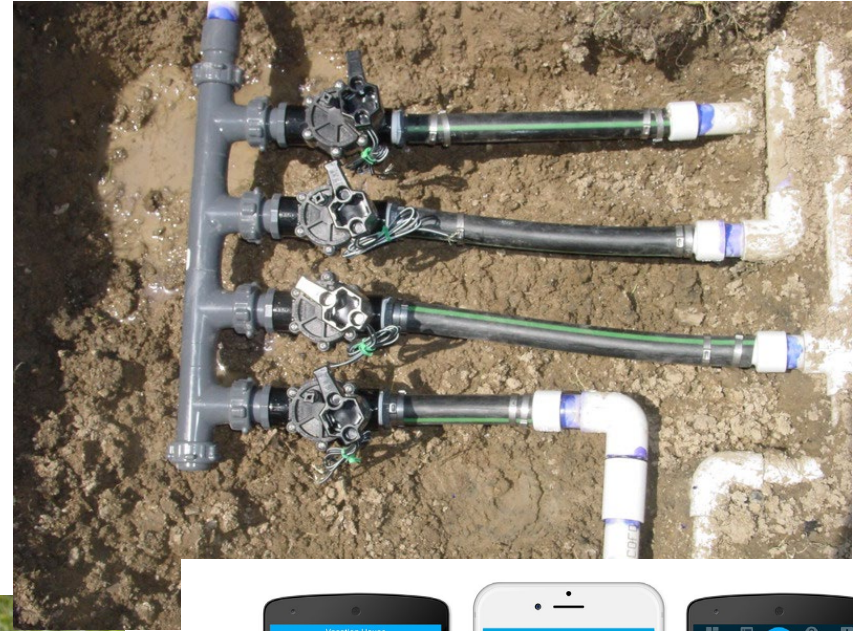


David Rice
Weber Basin Water Conservancy District

Irrigation System and Product Improvements



Irrigation System and Product Improvements



Efficient watering is the goal

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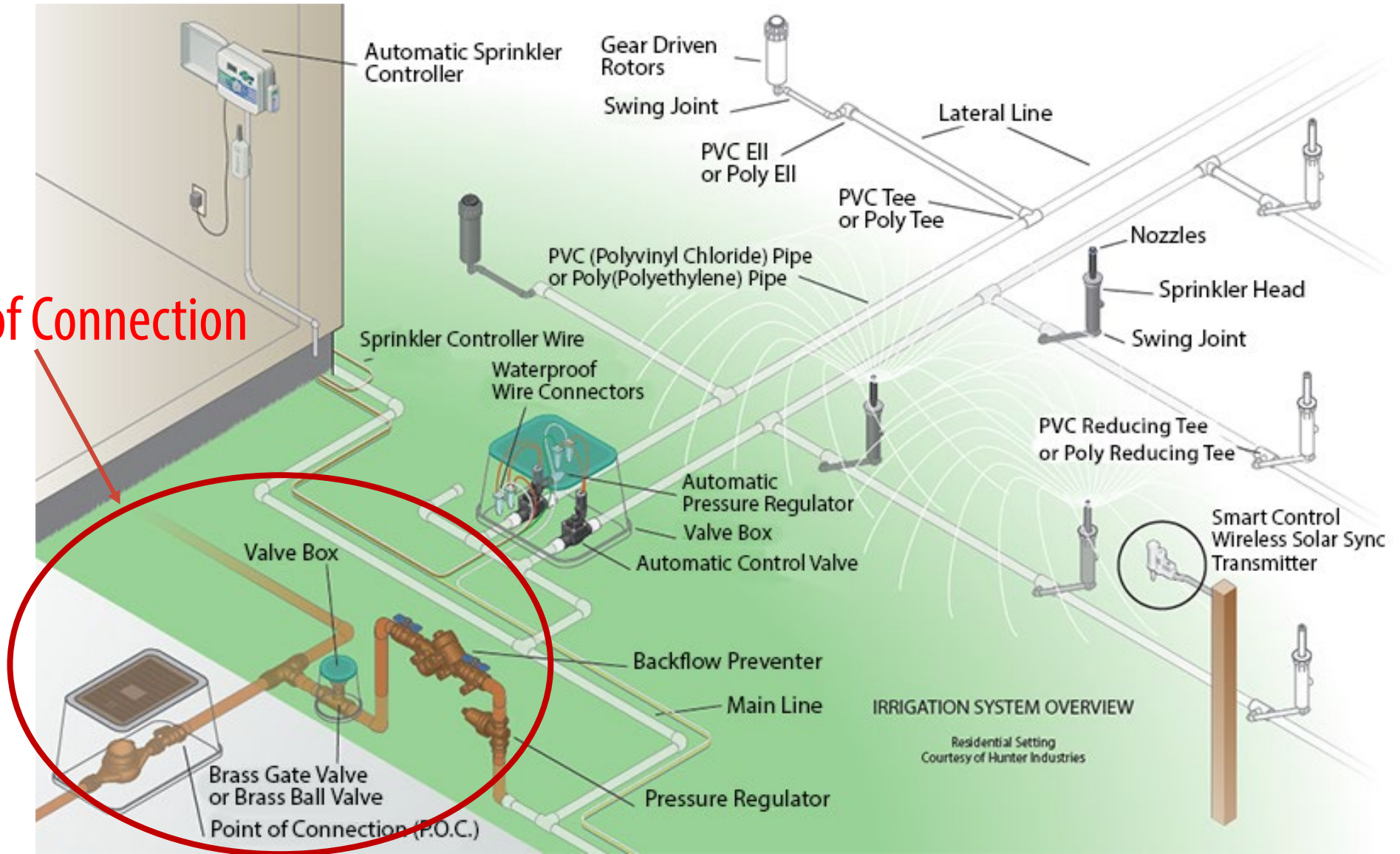
We want to give the plants the amount of water they actually need.



Anatomy of a sprinkler system

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Point of Connection



Graphic courtesy:
Hunter Industries

PVC vs Poly Pipe

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PVC

Poly Pipe



PVC vs Poly Pipe



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PVC

- Rigid/Inflexible
- Can break if water is frozen inside
- More available in warmer climates
- Fittings are secured with glue

Poly Pipe

- Flexible
- Expands to allow freezing without breakage
- More available in colder climates
- Fittings secured with gaskets and barbs

Backflow Preventer (culinary systems)

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Prevents contaminated
water from being
siphoned into the
house.

Required by most city
ordinances.



Pressure Regulator

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Keeps system pressure
within optimal range.

Reduces wear on
equipment.

Improves system
efficiency.



Winterization

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- Drains can automatically drain water from the system
- Compressed air can be used to clear water from the system after shutdown
 - Caution: use volume more than pressure to avoid damage to your system



Water Pressure

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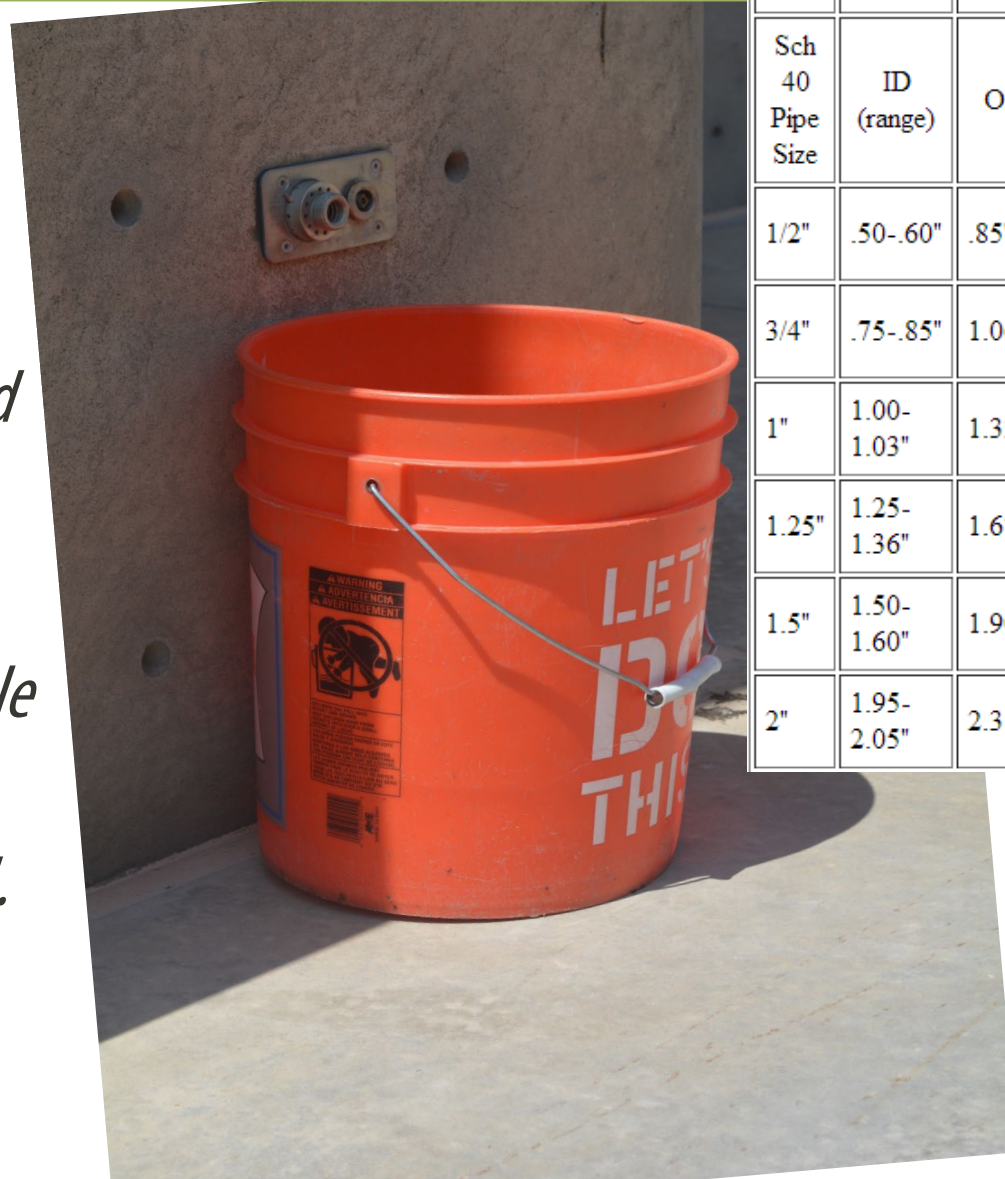
- *Water pressure that is too high or too low can cause problems.*
- *Misting spray heads and water hammer are signs of high pressure*
- *Heads that don't pop up and dry spots are signs that pressure is too low*
- *Drip Irrigation- 10-30 psi*
- *Spray Irrigation- 30-50 psi*





Flow Rate

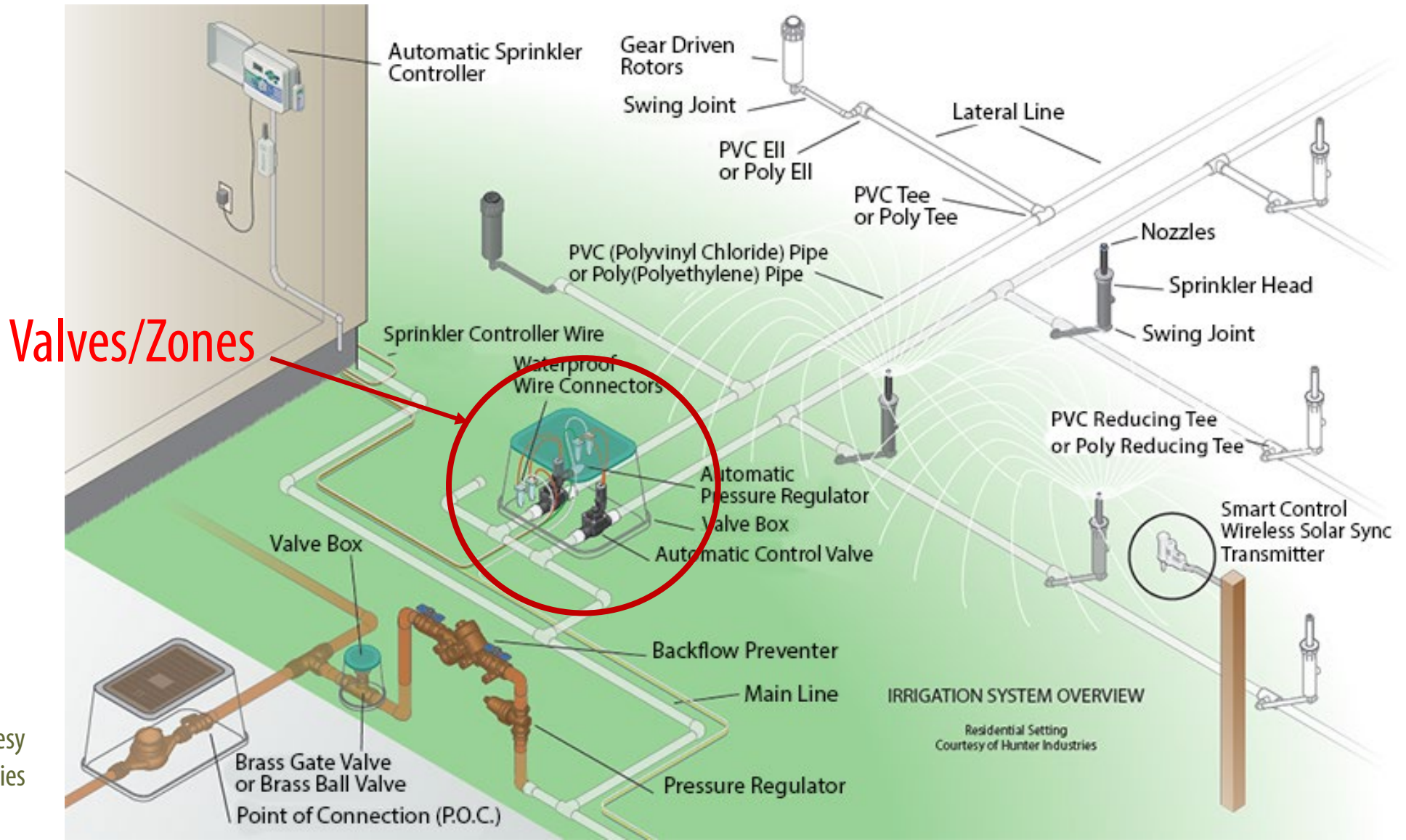
- Use an empty bucket.
- *Fill the bucket for a minute and you have your number.*
- *You can also...*
- *Fill for half a minute and double the gallons.*
- *Fill it for 15 seconds and x by 4.*



			Assume Gravity to Low Pressure. About 6f/s flow velocity, also suction side of pump		Assume Average Pressure. (20-100PSI) About 12f/s flow velocity		Assume "High Pressure" PEAK flow. About 18f/s flow velocity*	
Sch 40 Pipe Size	ID (range)	OD	GPM (with minimal pressure loss & noise)	GPH (with minimal pressure loss & noise)	GPM (with minimal pressure loss & noise)	GPH (with minimal pressure loss & noise)	GPM (with significant pressure loss & noise)	GPH (with significant pressure loss & noise)
1/2"	.50-.60"	.85"	7 gpm	420 gph	14 gpm	840 gph	21 gpm	1,260 gph
3/4"	.75-.85"	1.06"	11 gpm	660 gph	23 gpm	1,410 gph	36 gpm	2,160 gph
1"	1.00-1.03"	1.33"	16 gpm	960 gph	37 gpm	2,220 gph	58 gpm	3,510 gph
1.25"	1.25-1.36"	1.67"	25 gpm	1,500 gph	62 gpm	3,750 gph	100 gpm	5,940 gph
1.5"	1.50-1.60"	1.90"	35 gpm	2100 gph	81 gpm	4,830 gph	126 gpm	7,560 gph
2"	1.95-2.05"	2.38"	55 gpm	3300 gph	127 gpm	7,650 gph	200 gpm	12,000 gph

Anatomy of a sprinkler system

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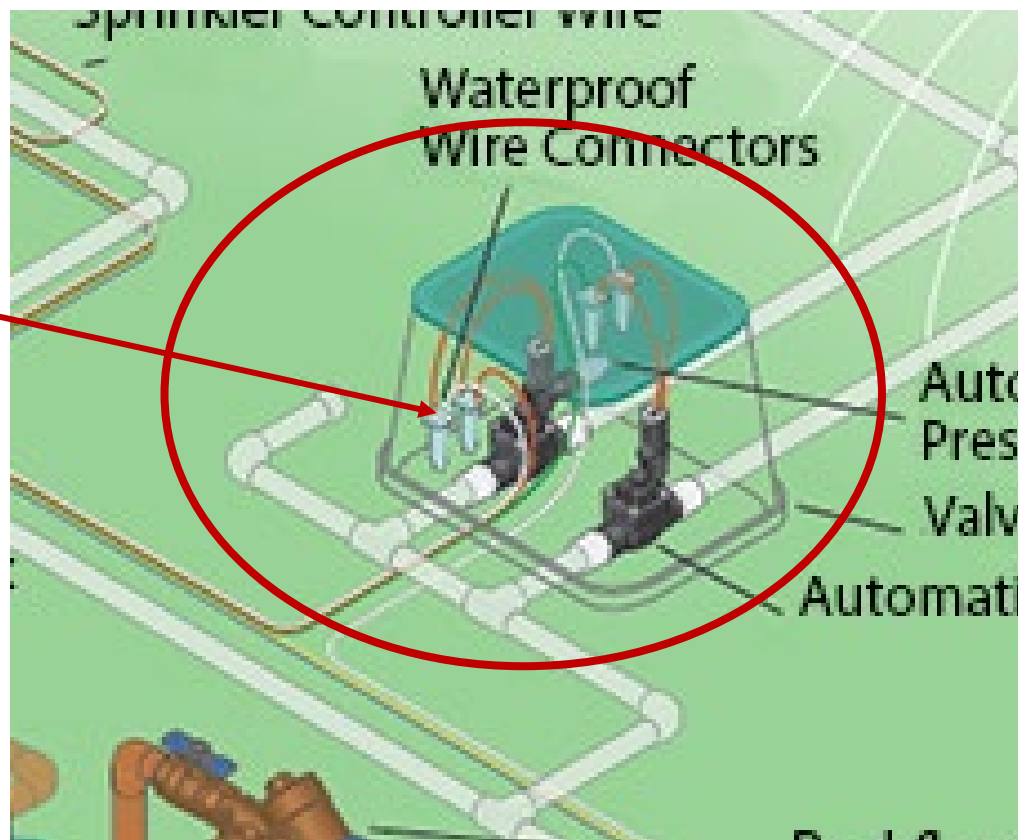


Graphic courtesy
Hunter Industries

Anatomy of a sprinkler system

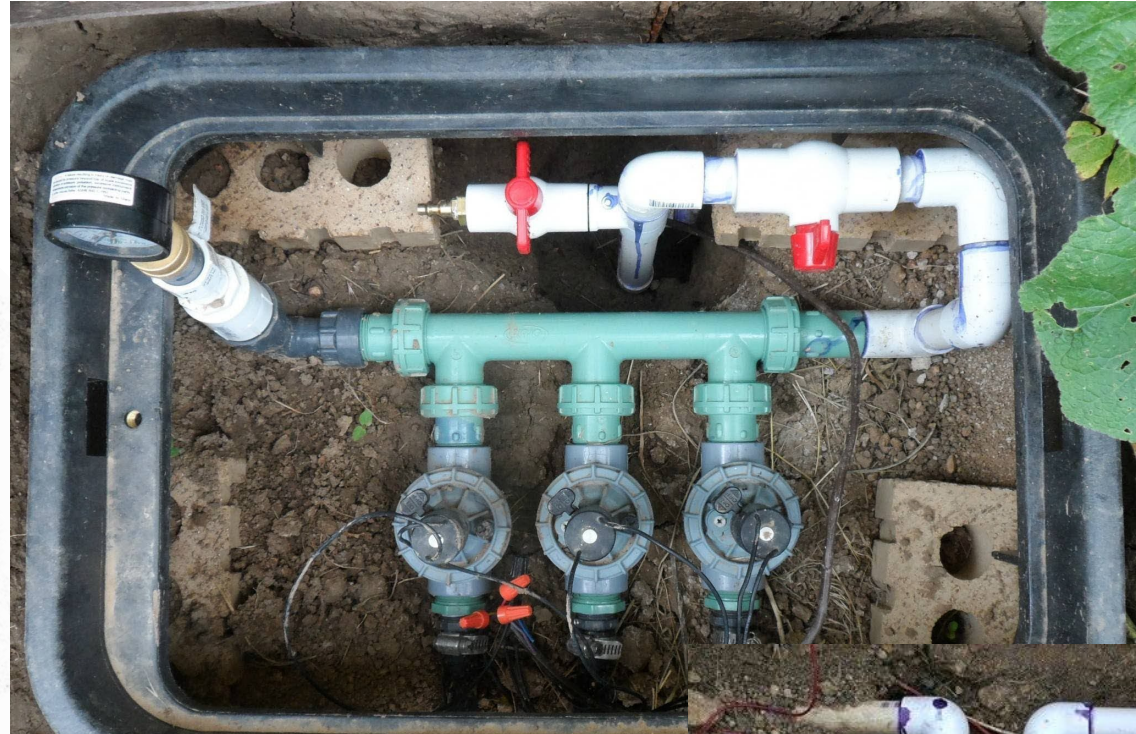
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Valves/Zones



Graphic courtesy
Hunter Industries

Zone Set Up - Manifolds and Valves



Sprinkler Valves

Standard Valve



Valve w/
pressure
regulator/ filter



Valve considerations

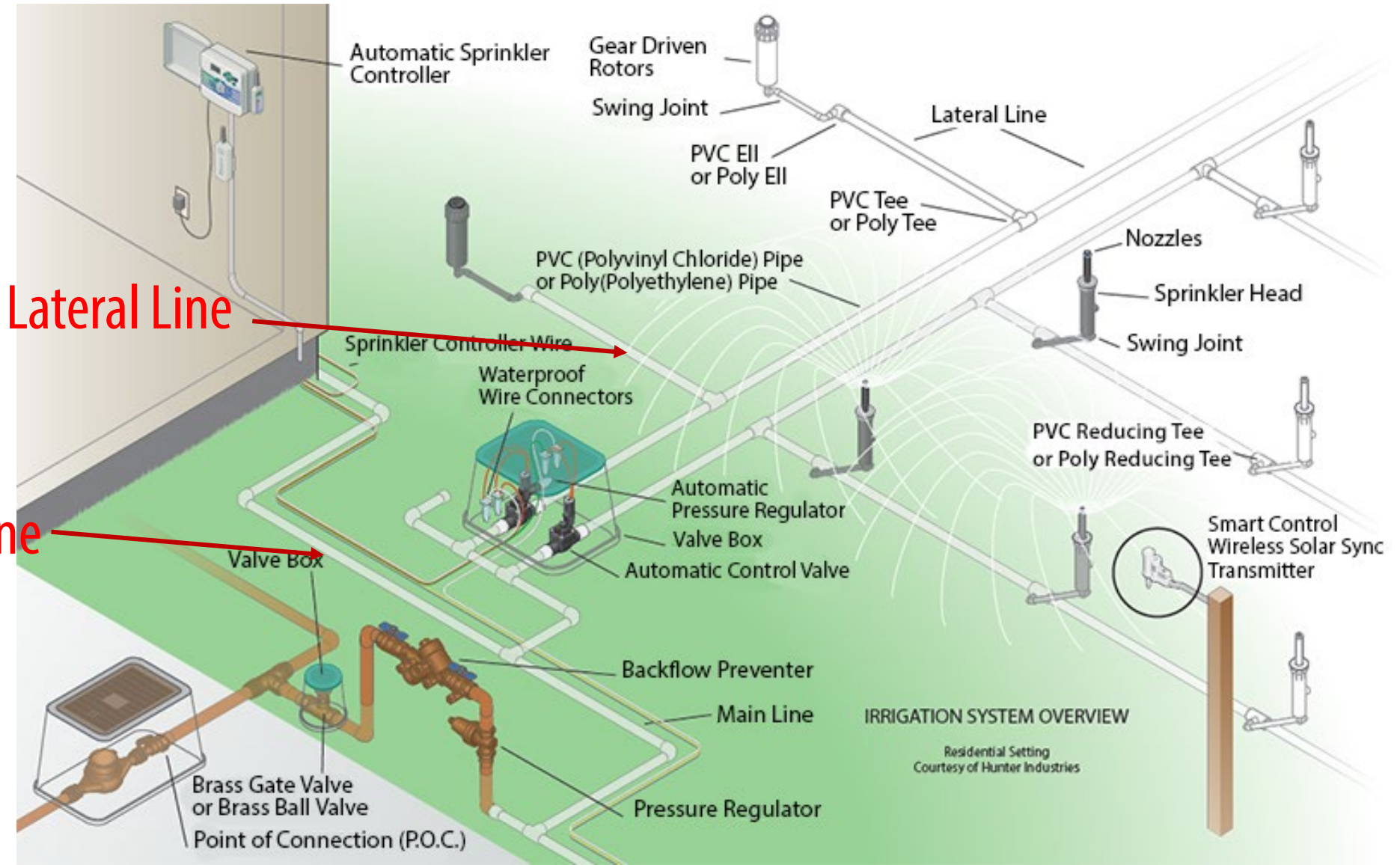
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- Location
 - Should be near area being irrigated, but not IN the lawn
- Each valve should water a zone with drip or spray but not both
- Valve manifolds help with later repair and replacement



Anatomy of a sprinkler system

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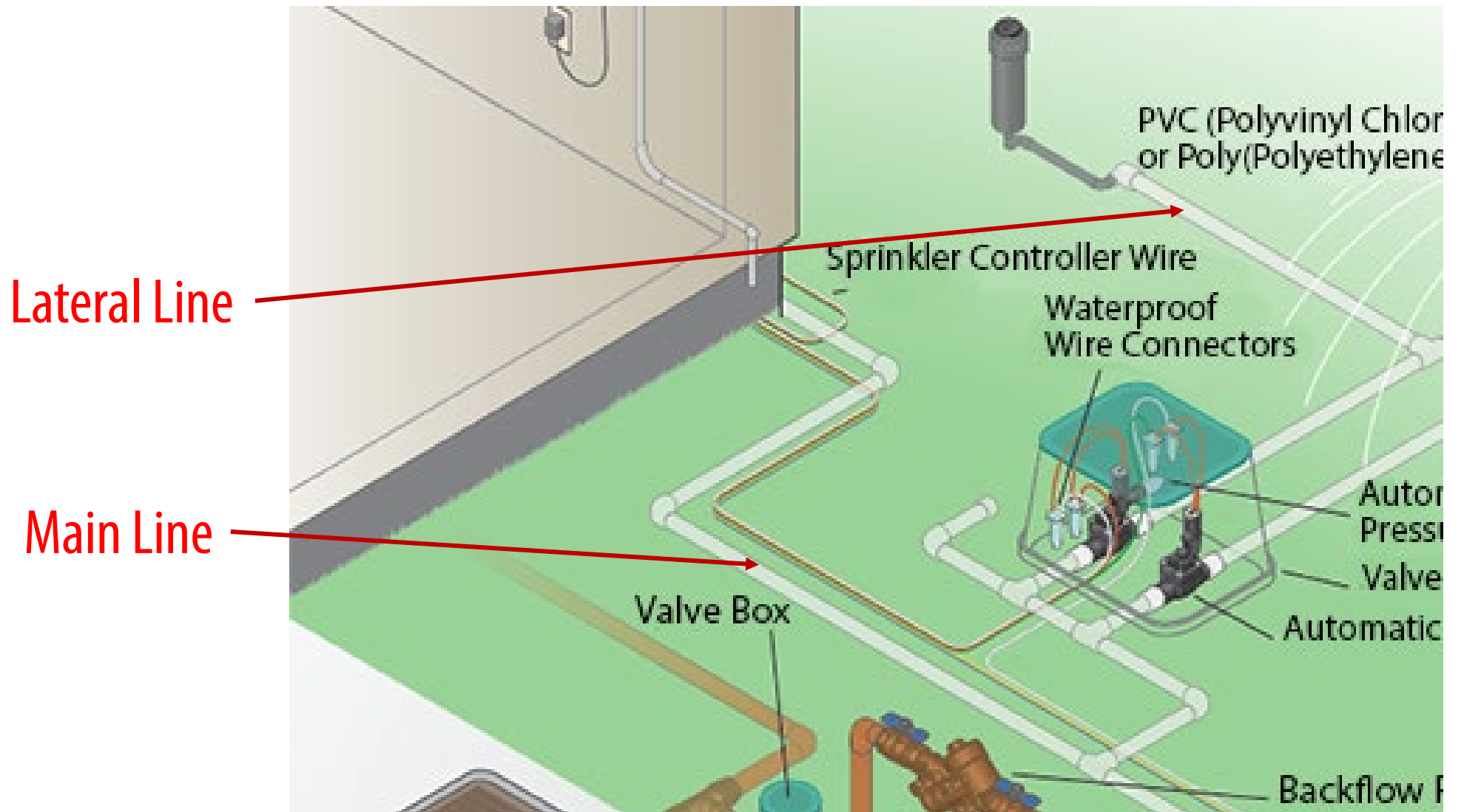
Lateral Line

Main Line

Graphic courtesy
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Anatomy of a sprinkler system

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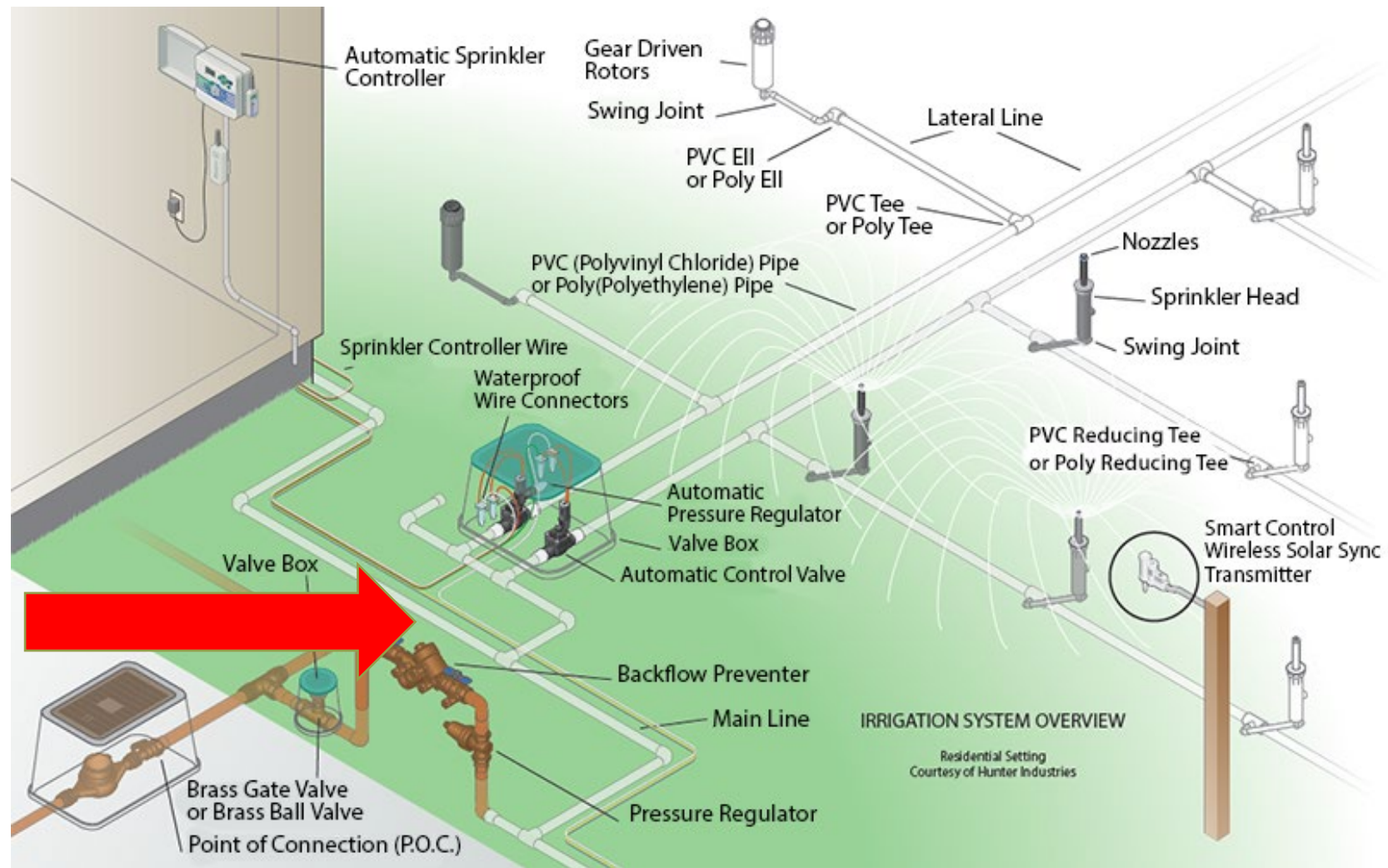
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Main Line

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Constantly
pressurized.

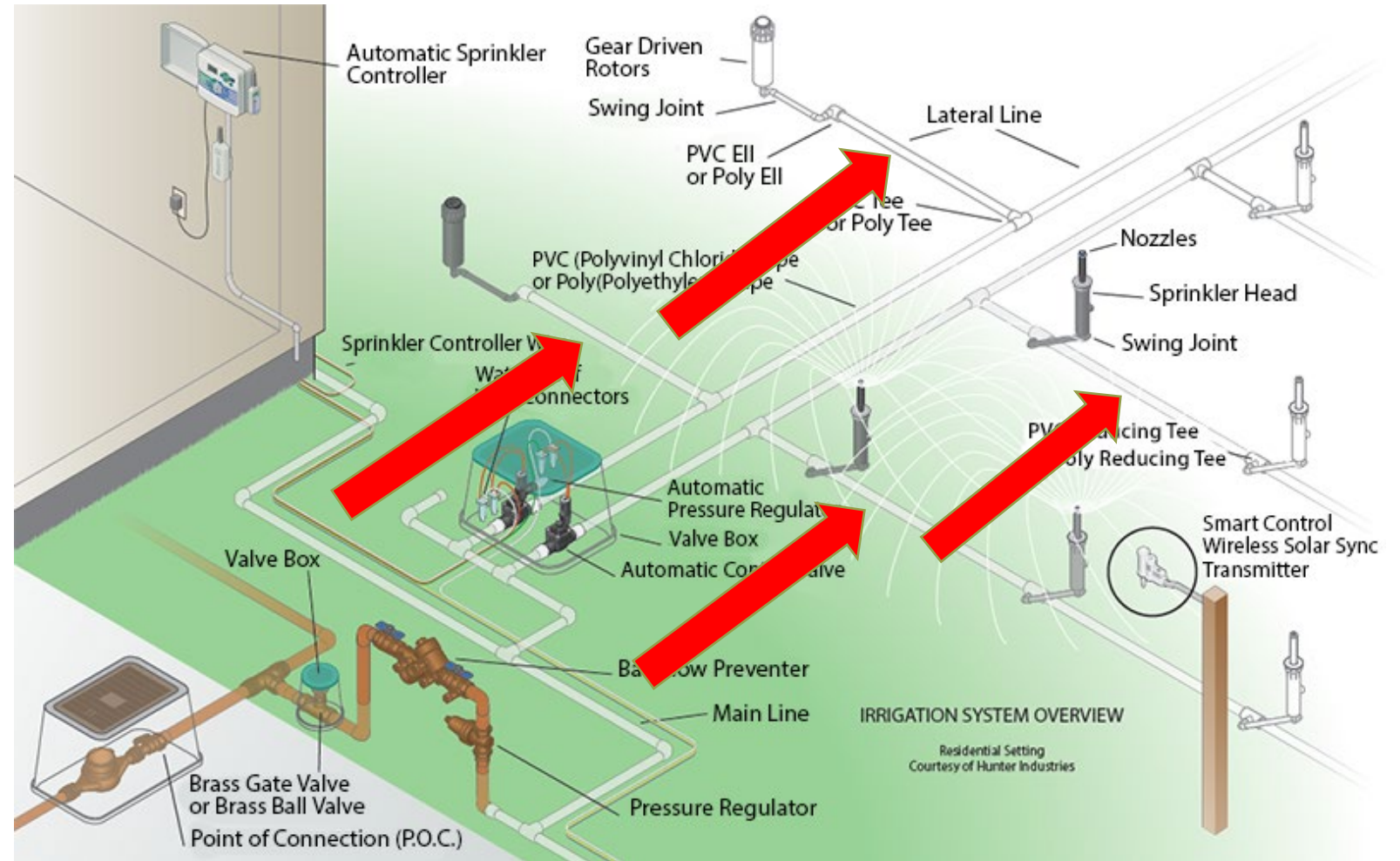
Should be larger or
equal in size to
lateral lines.



Lateral Line

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Pressurized only
when the valve
is in operation



Filtration- a necessity with secondary water



Filter
Pressure
Reducer

For Drip a mesh/screen size of 150 is probably adequate. The higher the number the finer/higher the filtration.

All drip systems need:

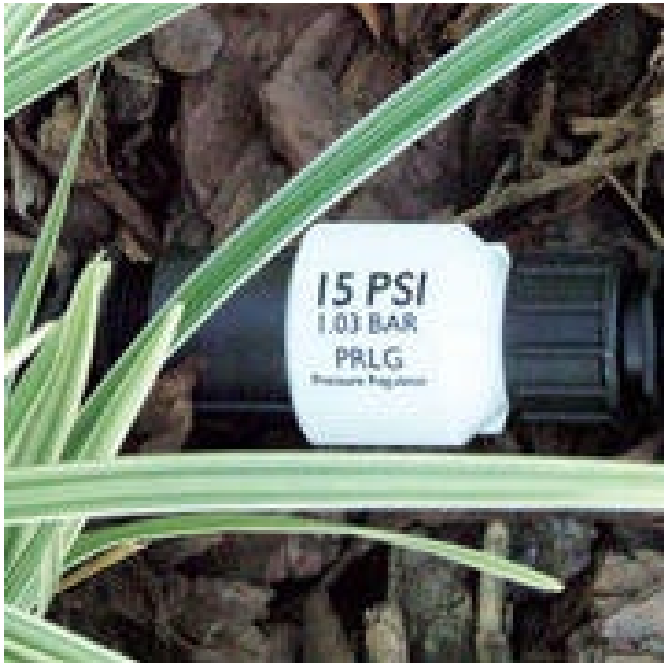
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Filter



Pressure
Reducer

pressure regulator/reducer



Uni Flo



Hi Flo

Pipe types and terms

- PVC (schedule 40)
- Poly
 - ½ inch or ¾ inch.
 - Used for main lines or lateral lines.
 - Thickness varies depending on use (drip applications have thinner walled pipe)
- Lateral Line- line from valve assembly to delivery (heads or emitters)
- Main Line- supplies water to valve assembly (always pressurized)



Drip irrigation retrofit kits



New technologies make switching from overhead spray to drip much easier.

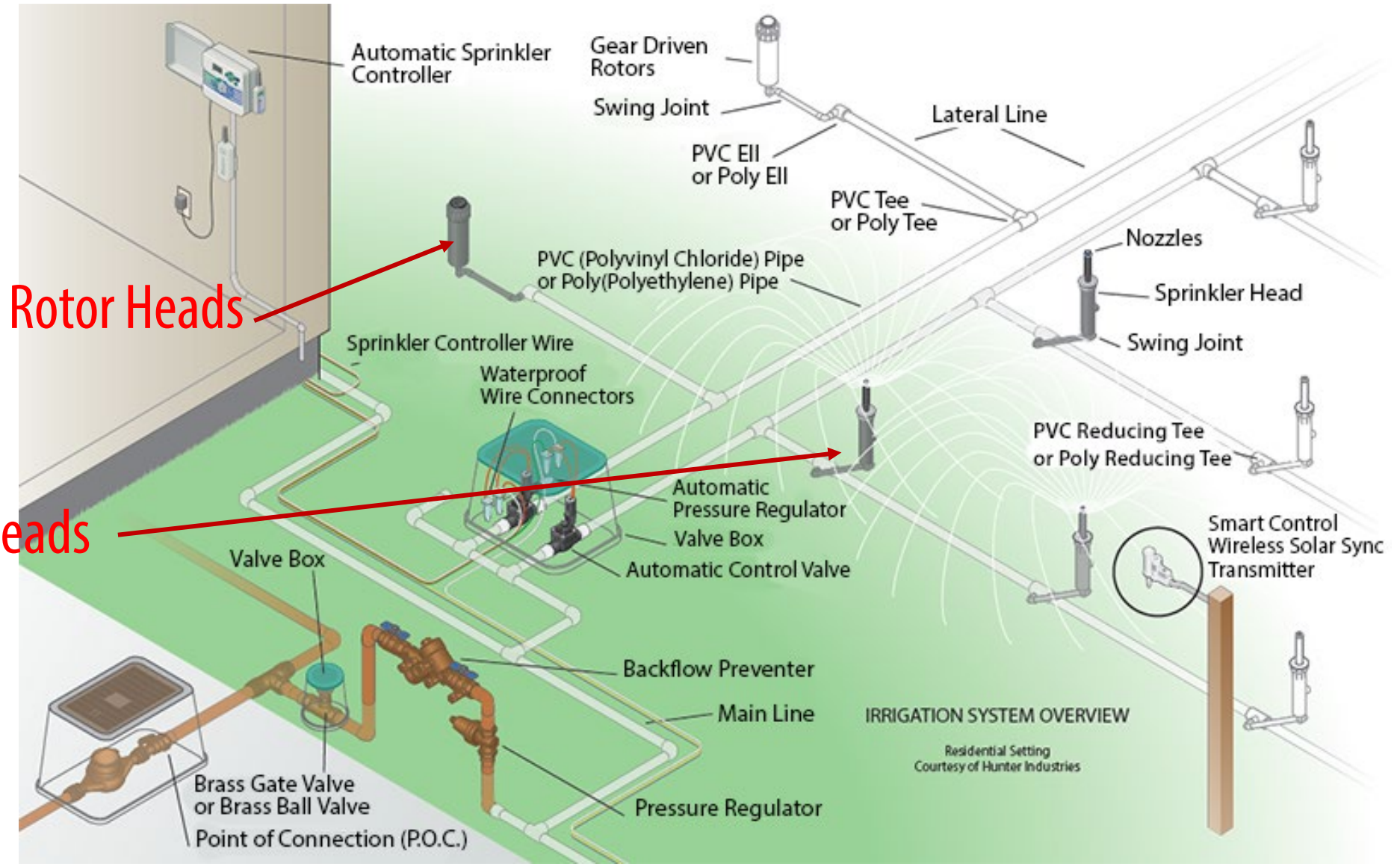


Spray to Drip Conversion



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Rotor Heads

Spray Heads

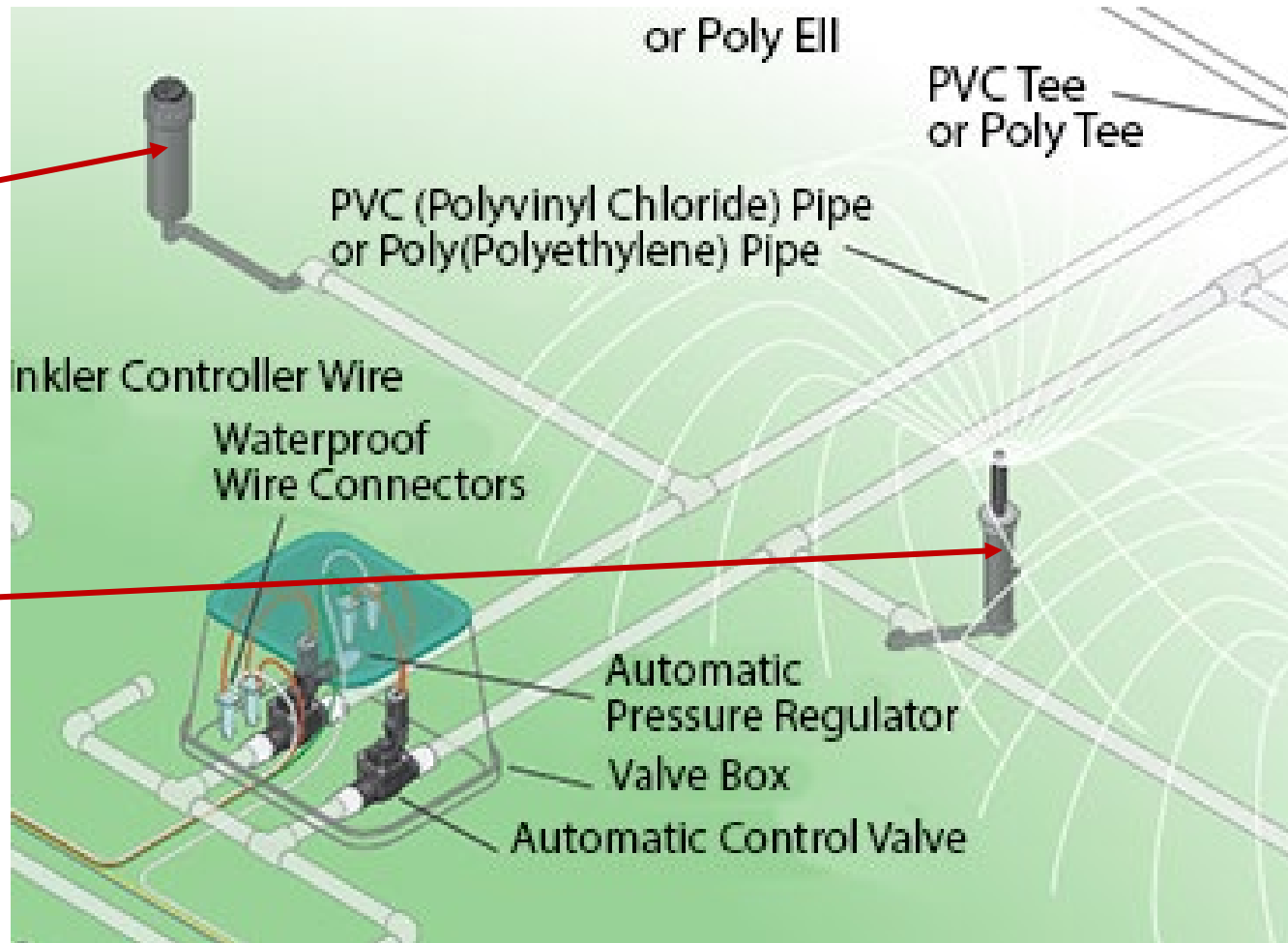
Graphic courtesy
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Rotor Heads

Spray Heads



Graphic courtesy
Hunter Industries

Fixed spray heads

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Best for small areas

Highest
precipitation rates



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Fixed spray nozzles

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Choose from
Full
Half
Quarter
SST
U



Rotor heads

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Best used in large
areas
Lower
precipitation
rates



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Rotor nozzles

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Choose the right
Gallons Per Minute
for the area the head
is covering



Rotary nozzles

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- Can be used in most area sizes
 - Lower precipitation rate



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Swing joints

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Helps sprinkler heads be more adjustable and less prone to breaking when impacted





Broken Heads or Nozzles

- Results from snow plows or shovels
- Freezing
- Cars driving on it
- Lawn mowers

These should be fixed right away to avoid water waste and poor coverage issues



Examples of Water Waste





Water, Water, Everywhere



Best watering practices standards

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1. Lawn is always
watered separately
from other plants.



Localscapes watering standards

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2. Planting beds are always watered with drip irrigation.



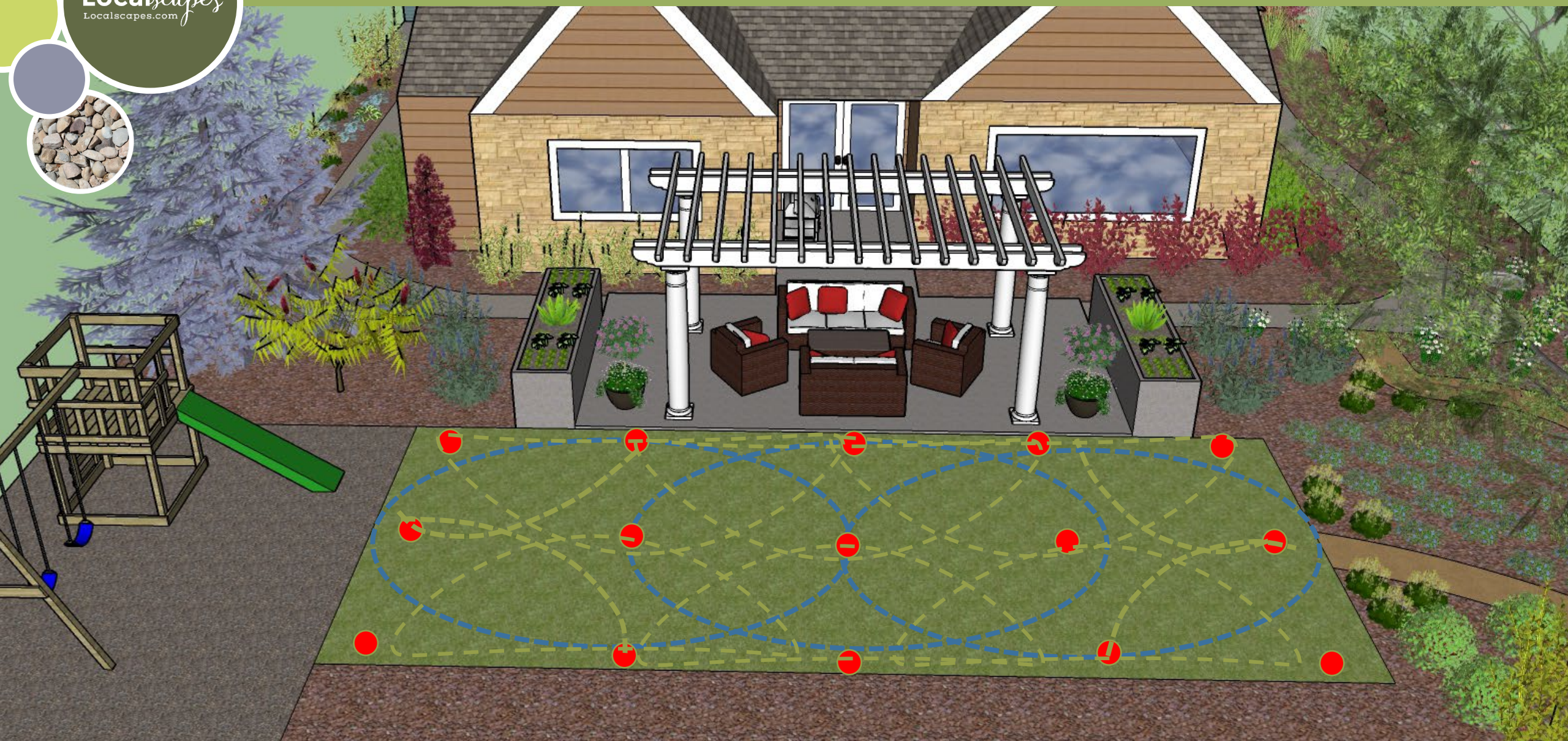


3. Use only one type of irrigation per zone. Don't mix spray and drip lines on same zone.



Head-to-head coverage

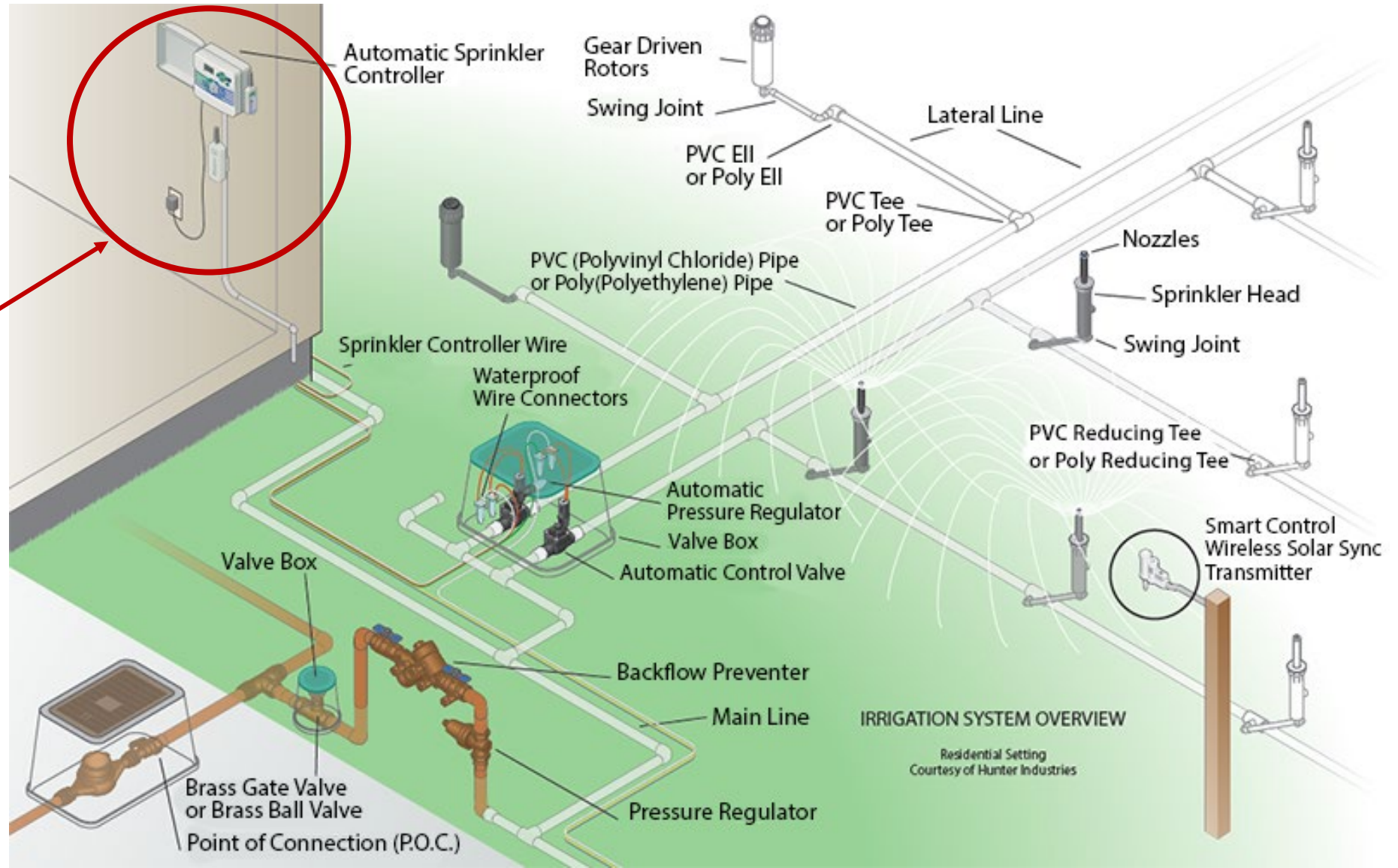
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Controllers



Graphic courtesy
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Smart Controller Rebate Program

Receive 50% rebate up to \$150 maximum for EPA WaterSense certified smart controllers that run on weather or soil moisture based operation.

Over 4000 rebates processes in 2018.



Utahwatersavers.com



It Pays to Save

Ready to start saving water on your landscape or in your home? Create a Utah Water Savers account to view cash rebates and programs available in your area.

Programs and Rebates

Smart Technology still needs user input

Smart control will not fix poor design and requires smart input to be effective



Discussion and Set Up

The logo for Localscapes, featuring the company name in a stylized font and the website address below it, all contained within a dark green circular graphic.

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- Drip Irrigation for Veggies/Raised Beds
- Leaks
- Repairing broken items
- Relocating Heads as Turf is removed
- Conversion from Spray to Drip
- Scheduling over the summer
 - (Consider your soil reservoir and how often it needs filled/ how fast it drains for the plants/evaporation/transpiration)
- Fittings and Glue
- All other issues and parts

Questions ?

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- You can do this
 - Water Management is our personal responsibility
 - Proper irrigation will result in healthy landscaped and a reduction in landscape water use.
-
- Thank You for Coming- Go help others with your knowledge when you can.