



EFFICIENT WATERING: OUTDOOR WATERING AND IRRIGATION SYSTEM TIPS AND TRICKS



About Green Calgary

**Since 1978
we've been a
leading local
urban
environmental
charity.**



About CPCIA



We Are the Voice of the Irrigation Industry

Since 2001, the CPCIA has been the leading local membership organization as part of the North American Irrigation Association, for public and private irrigation professionals and companies in AB, SK, MB, and NWT, providing education and certification .

CPCIA Board of Directors consist of professional Certified passionate volunteers elected yearly through the membership



Focus

CPCIA targets four key areas in supporting the irrigation industry

Deliver

We strive to increase public awareness of local water management issues by being an overarching organization for outreach, communication and coordination for our members and the public.

Awareness

We offer educational programs to provide professional certifications for irrigation practitioners (including those in irrigation related disciplines)

Represent

We aim to be representative of the diverse parties and interests involved in irrigation issues and topics on the Canadian Prairies.

Recommend

We always recommend internationally recognized standards and guidelines related to irrigation products, engineering applications and practices.

[@CPCIrrigationAssociation](https://twitter.com/CPCIrrigationAssociation)

Thanks for the Support!



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What is Efficient Watering?

Simple Definition: To apply just enough water, only when necessary, and with minimal water waste to maintain a healthy landscape and conserve water resources.



What is Efficient Watering?

Comprehensive Definition: The ratio of the volume of water available to the landscape to the volume of water supplied from the source. This includes efficiency of water conveyance, water application, water use, and consumptive use



Water application Efficiency (η_a)

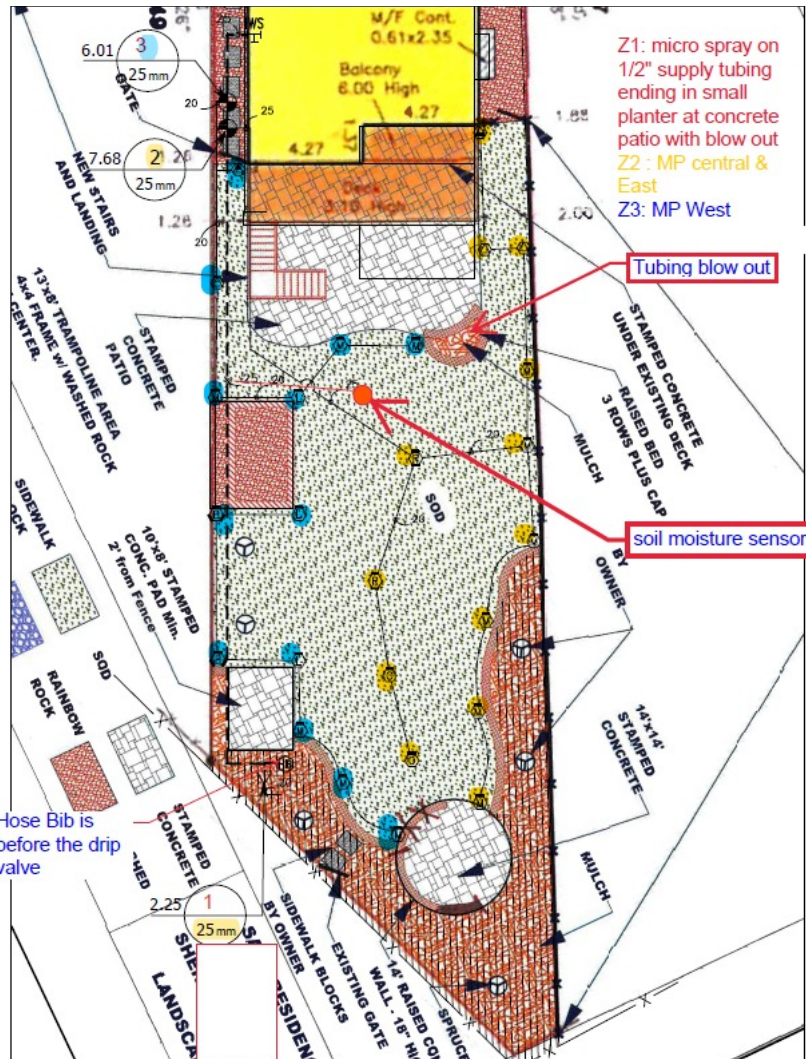
It is the ratio of the quantity of water stored into the root zone of the crops to the quantity of water delivered into the field. It may also be termed as farm efficiency, as it takes into account the water lost in the farm.

$$\eta_a = \frac{\text{Water stored in the root zone during irrigation}}{\text{Water delivered to the farm}}$$
$$= \frac{W_s}{W_f} = \frac{W_f - (R_f + D_f)}{W_f}$$

where

R_f = Surface runoff; D_f = Deep percolation

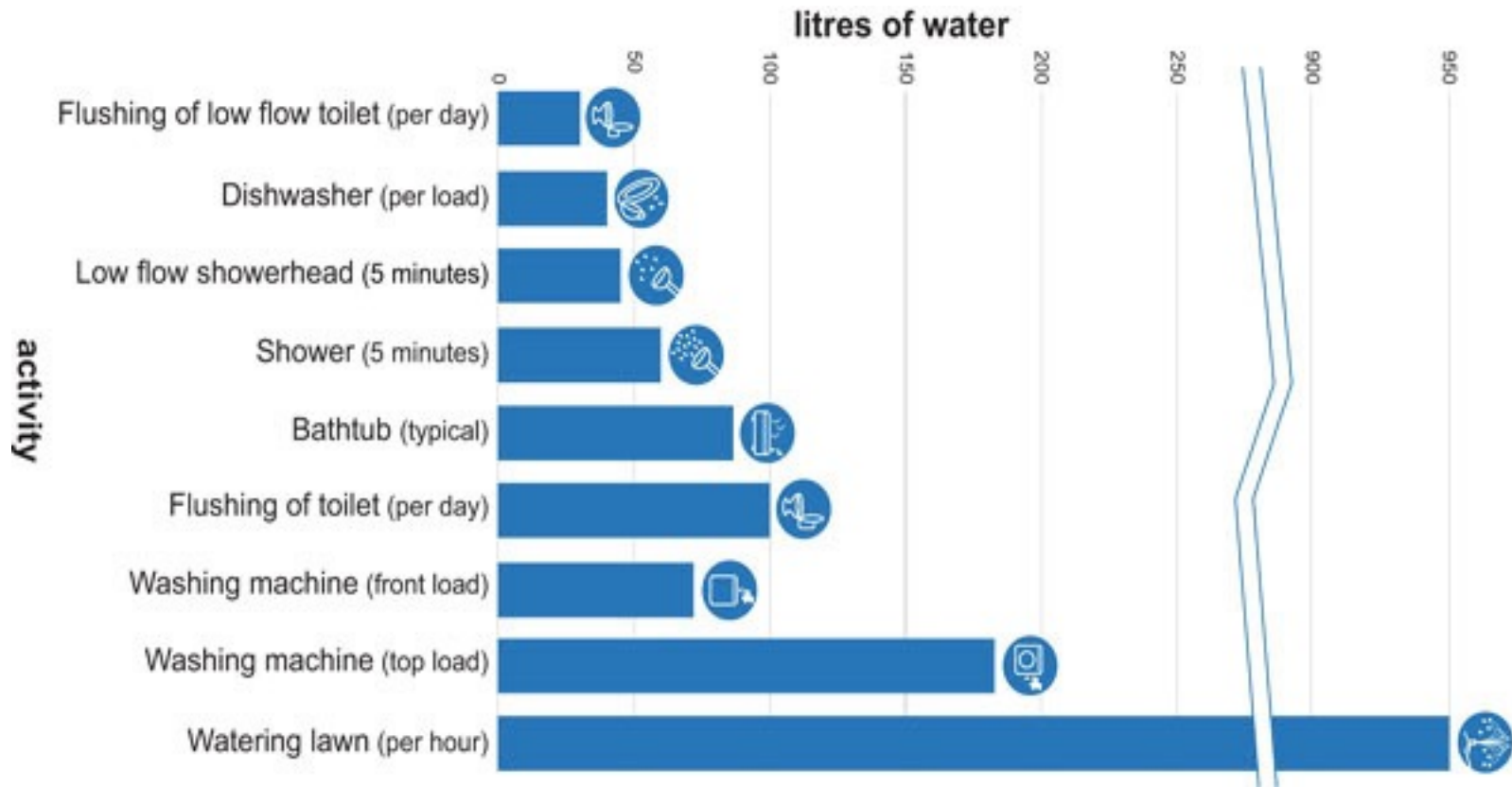
What is Efficient Watering?



Efficient Watering is achieved through several tools defined by Smart Irrigation, those include but are not limited to:

- **Design**
- **Installs**
- **Products and Hardware**
- **Management and Maintenance**

Why should we conserve water?



Watershed and Climate Change



Irrigation Systems

MANUAL



VS

AUTOMATIC

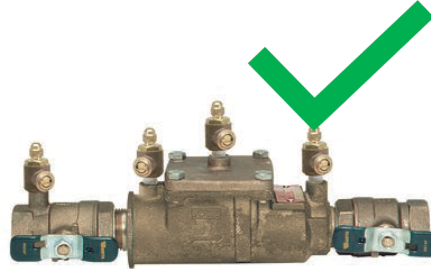


Backflow Prevention

Every irrigation system is required to have backflow prevention. It's a health and safety system that is designed to keep you, your family, neighbours, and community safe from bad water getting into the drinking supply and causing harmful illness or death.

Is it a real thing?

- YES! During 2013 to 2014, a total of 42 drinking water associated outbreaks were reported to the CDC resulting in 1,006 cases of illness, 124 hospitalizations, and 13 deaths.



Spray Heads



Distance: 5 to 15 feet
Variable angle to full circle
Precipitation Rate: 2.1 inches per hour
Watering Length: 8 to 14 minutes

Rotor Heads



Distance: 25 to 40 feet
Variable angle to full circle
Precipitation Rate: 0.6 inches per hour
Watering Length: 24 to 32 minutes

Rotator Heads



Distance: 10 to 30 feet
Variable angle to full circle
Precipitation Rate: 0.4 inches per hour
Watering Length: 40 to 50 minutes

Drip Irrigation



Point Source Drip, Flower Pots



Line Source Drip, Gardens/Shrubs

Distance: Within 6 inches of plants

Very Low Flow

Flow is Gallons Per Minute, 0.4 to 1.0 gph

Watering Length: 60 to 120 minutes

Micro Irrigation



Distance: 1 to 6 feet

Precipitation Rate: Variable

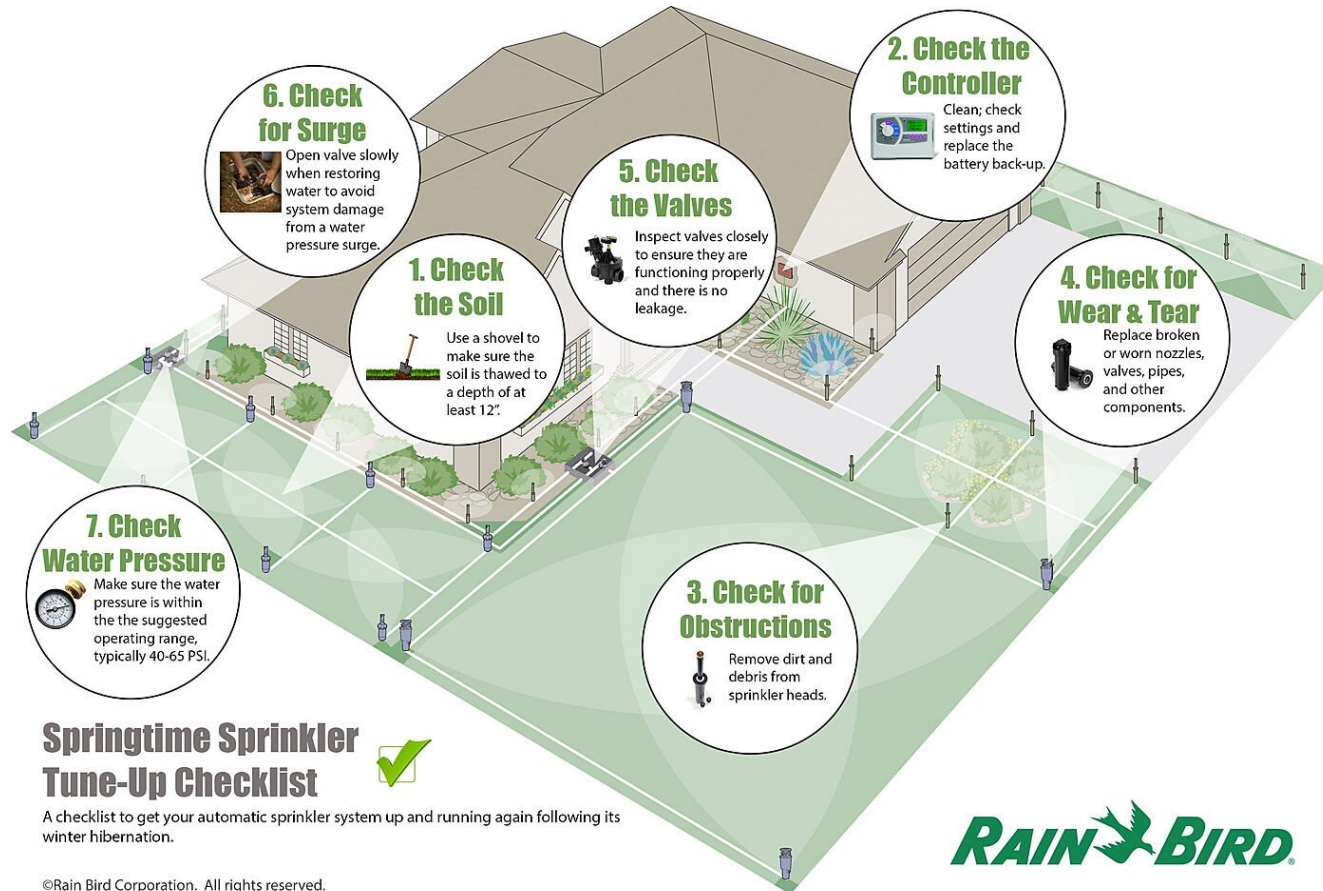
Flow is Gallons Per Hour, 0 to 35 gph

Watering Length: 5 to 15 Minutes

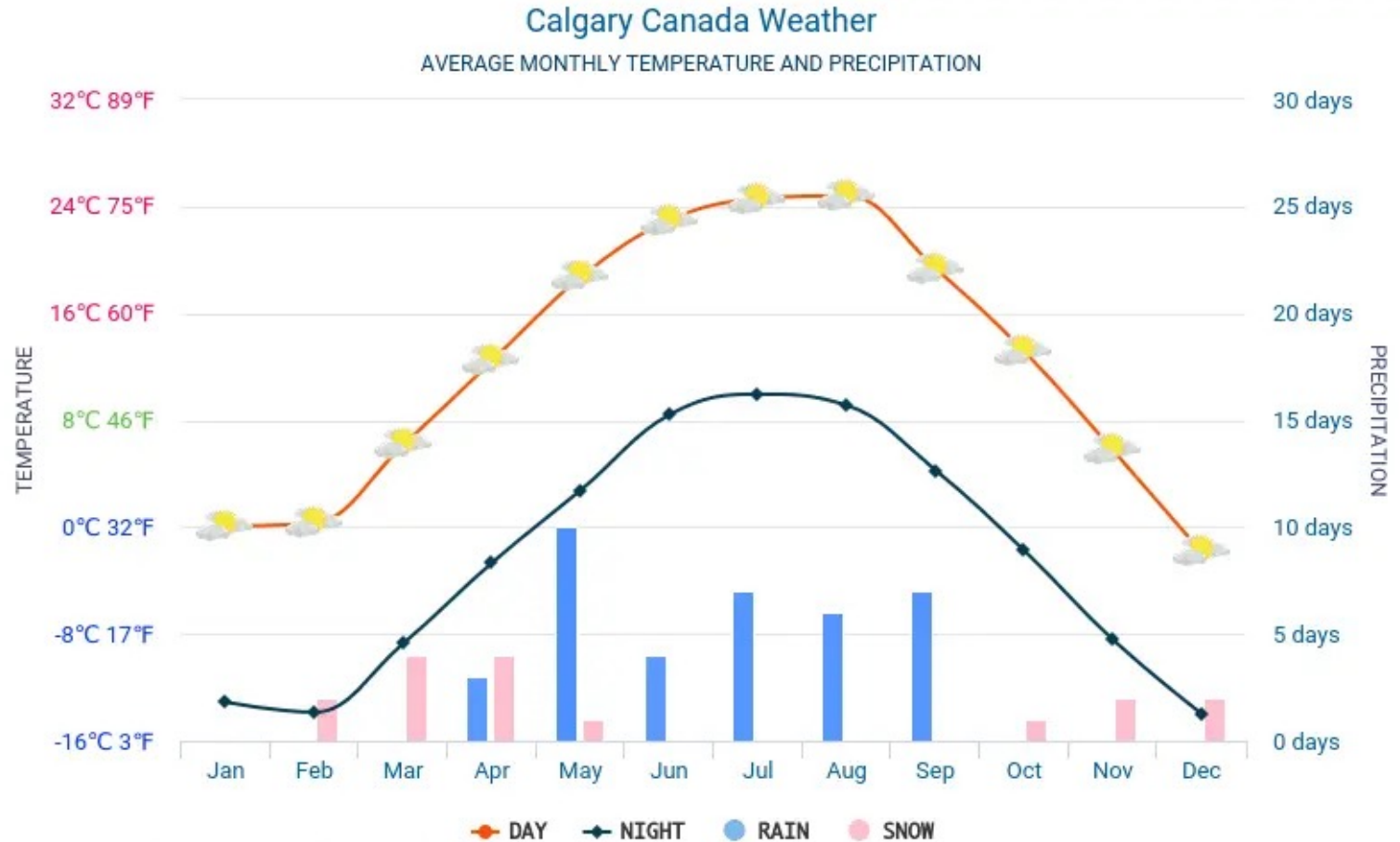
Maintenance – Save Water!

- Annual Backflow Certification, May 1st
- Spring Start-up, May 1st to June 30th
- Mid-season Inspections and Adjustments
- Fall Winterization, September 15th to October 15th

Spring Start-up



Tip 1 – Target 1” in the Hot Months (July, August)



hikersbay.com/climate/canada/calgary

Tip 2 – Water at the “Right Time”

- Water outside the high heat times of the day (10:00 am and 4:00 pm)
 - The heat encourages evaporation
- Water before 10:00 pm at night
 - Late night water promotes disease as plant material stays wet during the coolest part of the day
- Water in the early morning (2:00 am to 8:00 am)
 - Statistically the lowest wind period of the day
 - The highest water pressure available
 - No one's using the landscape and getting 'wet' or damaging the system
- Pick an irrigation start time that works with your life:
 - Figure out the total minutes required to water
 - Figure out the earliest your household showers
 - Work the math back to start your system so it completes before you wake.

Tip 3 – Water the “Right Way”

- Split your watering over 2 or 3 days
 - Reduces run off
 - Allows mother nature to ‘skip’ one of your water days



Don't Water 10 minutes every 2nd day

- Determine the base water by sprinkler type
- Increase or decrease based on Sun/Shade and soil moisture

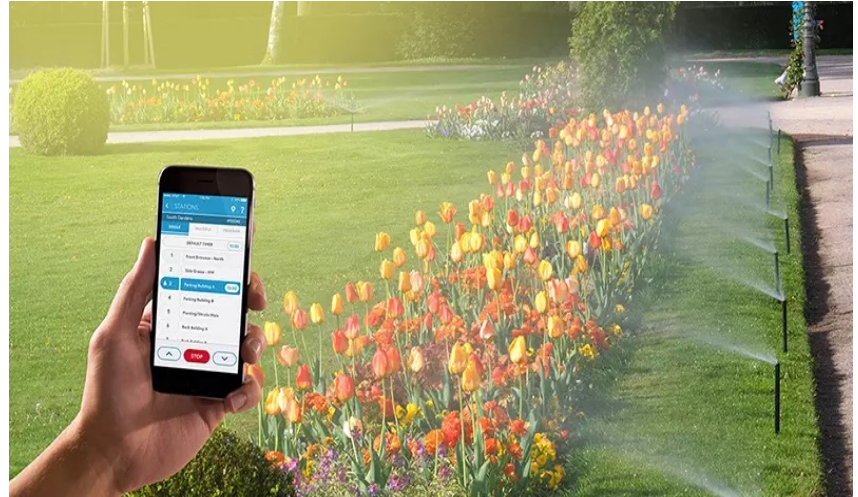
Tip 4 – Smarten Up!

Leverage Water Sensing Technologies

- Rain Sensors
- Freeze Sensors
- Moisture Sensors

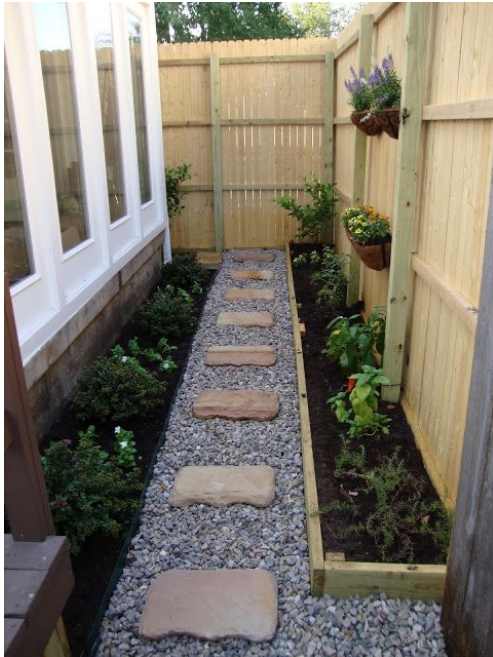
Use Weather Enabled Controllers

- Water less on cool days
- Skip water when 80% chance of Rain
- Water more on hot days



Landscape Design Tips 1

Don't install grass in narrow shady areas like between houses and fences where the distance is less than 5 feet. Choose other options.



Landscape Design Tips 2

On south facing properties consider installing a heat buffer layer along the side of the house. To reduce double reflection of heat. For example, add a 2 foot band of decorative rocks or mulch along the house.



Landscape Design Tips 3



July Smart Irrigation Month - SIM



PROCLAMATION

Smart Irrigation Month increases awareness of the value of efficient water-use and water-saving products, practices and services. There are various ways that businesses and residents can keep their lawns and gardens healthy while minimizing the likelihood of overwatering those landscapes.

- Whereas: Adopting water smart habits is essential to protecting and extending our community's water supply, especially during the warm summer months;
- Whereas: The City of Calgary's *Water Efficiency Plan* identifies actions that everyone can take to ensure we're always choosing solutions that use and waste less water;
- Whereas: Calgarians are encouraged to support the efficient use of our precious water resources and contribute to our city's resiliency to climate change.

On behalf of City Council and the citizens of Calgary, I hereby proclaim July 2022 as:

SMART IRRIGATION MONTH

JYOTI GONDEK
MAYOR



Thank You!

Find resources attached to this presentation at:

www.greencalgary.com/water

You can find Green Calgary online at www.greencalgary.org

You can find CPCIA online at www.cpcia.ca

Facebook: facebook.com/greencalgary.org

Facebook: facebook.com/CPCirrigationAssociation

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