



Backflow Prevention and Irrigation Systems

October 21st 2009

2009 Innovations in Irrigation Conference

Bruce Rathburn
Backflow Prevention Supervisor
San Antonio Water System

Types of Water Services

- Domestic water
- Irrigation/ Landscape
- Recycle/Reclaim
- Fire Protection
- Temporary service

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Water Service Connection Types and their Hazards

Backflow Protection for High and Low hazards

- Internal isolation
- Internal Containment
- Containment or Premise Isolation

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Water Service Connection Types and their Hazards



Domestic water

- Drinking water use
- Bathroom use
- Make up water for equipment
- Other uses?

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Water Service Connection Types and their Hazards



Drinking water

- Water Fountains
- Gang Fountains

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Water Service Connection Types and their Hazards

Makeup water

- Water heaters
- Boilers
- Heat exchangers
- Cooling Towers

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Water Service Connection Types and their Hazards



Water heater

- Legionella
- Backpressure
- Thermal expansion

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Water Service Connection Types and their Hazards



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Boilers

- Scale prevention products
- Back Pressure
- Down stream water lines
- The disappearing backflow preventer

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Cooling Towers

- Potable water makeup to basin
- Auxiliary water
- Foaming
- Vapor
- Legionella

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Water Service Connection Types and their Hazards

Irrigation and Landscape

- Residential
- Commercial

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Water Service Connection Types and their Hazards





Water Service Connection Types and their Hazards







25

HOUSE
FOR SALE
NEW HOMES
238-5010



Water Service Connection Types and their Hazards



Water Service Connection Types and their Hazards



Water Service Connection Types and their Hazards

Residential

- Potable water no chemical additive
- Potable water with chemical additive
- Potable water with auxiliary water supply
- Potable water with recycle/reclaim water

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Water Service Connection Types and their Hazards



Commercial

- Potable water no chemical additive
- Potable water with chemical additive
- Potable water with auxiliary water supply
- Potable water with recycle water

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Water Service Connection Types and their Hazards



Commercial Sites

- River Authority
- Military Bases and Government Installations
- Parks and Public Golf Courses
- University Campuses
- Private Golf Courses
- Specialty Organizations
- Limited Residential Customers

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I hope I dream
that I will one day live
where they will be judged
not by the color of their
skin but by the content
of their hearts.

















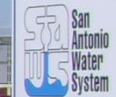
San Antonio Water System



The Water Used For The Irrigation At This Site is NOT from the Edward's Aquifer

SAWS has authorized the use of our alternate source of water for irrigation use

QUARRY PARK



The Water Used For The Irrigation At This Site
is **NOT** from the Edward's Aquifer
SAWS has authorized the use of our alternate
source of water for irrigation use



Recycle

- Tertiary treated water from a treatment plant
- Water from a carwash?
- Cooling Tower blow down?
- Condensate from an A/C?
- Color Coding (purple pantone 512-522)

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Reclaimed water

- Rain Harvesting
- Grey Water
- Ground Water
- Color coding (purple pipe)

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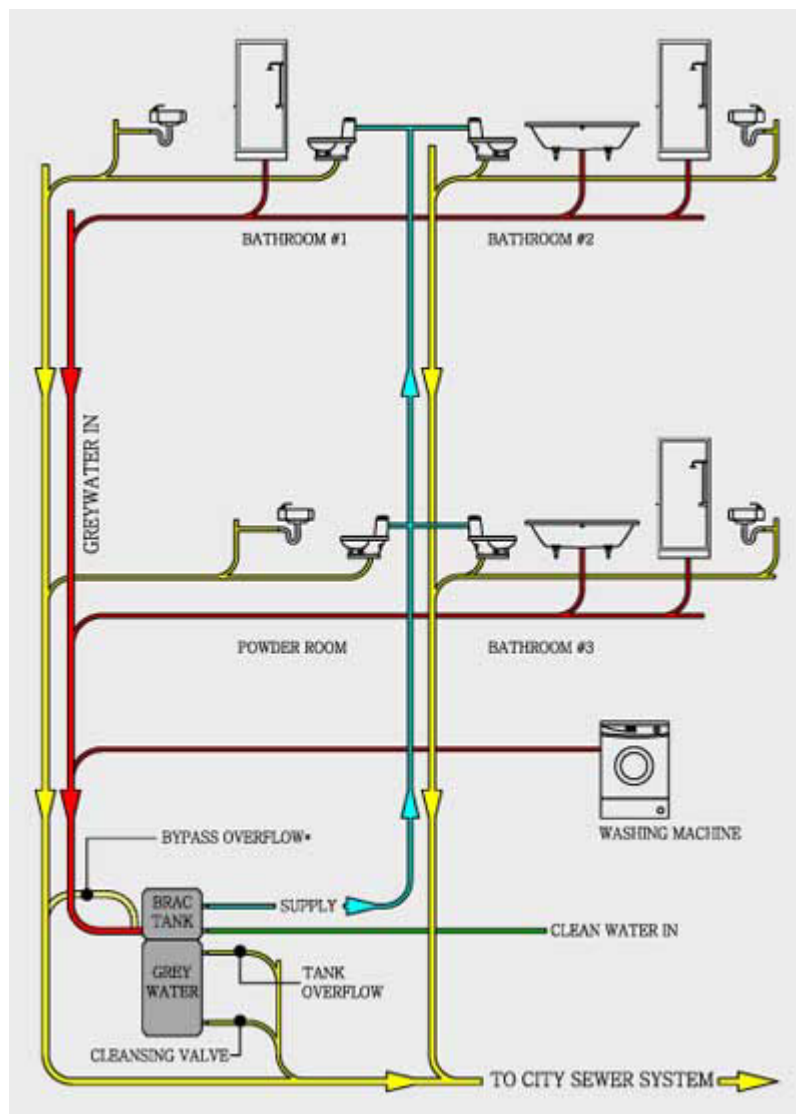


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Rain Harvesting

- On site storage
- Gravity system
- Pump system
- Alternative water makeup (Grey water)
- Color coding (purple pipe?)

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Water Service Connection Types and their Hazards



Grey water

- Washing machine
- Bathroom sinks
- Shower
- Condensate
- Kitchen Sink?
- Dual piping in homes?

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WATER RECLAIMED SYSTEM
NON-POTABLE WATER

WATER RECLAIMED
NON-POTABLE

WATER
NON-POTABLE



GROUND WATER

- During times of heavy rainfall in some areas the ground can saturate to the point the water will channel under the surface
- It can also become artesian and sprout springs up through the ground
- In some instances this can be captured
- Color coding (purple pipe?)

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Aqua-Mate

WATER
(MAY CONTAIN FERTILIZER)



Temp Connections

- What is connecting to your distribution system
- How do you track them
- How are your eyes and ears
- Find them in the yellow pages
- Have informative meetings so contractors understand the hazards they create!

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Water Service Connection Types and their Hazards



Color Code for piping

- Recycle- Purple
- Domestic- Green with White lettering
- Irrigation- Potable Water Yellow Black Lettering
- Rain Harvested- Purple?
- On Site Reclaim- Purple?
- Well- Yellow with Black lettering

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