

BURT PROCESS EQUIPMENT

“Harvesting The Rain”

Rainwater Reclamation



Why Recycle Rainwater?

- 99.7% of existing water is locked in oceans, ice, and the atmosphere
- Increasing demand and decreasing supply of accessible water sources
- Many traditional methods are becoming increasingly impractical (wells, desalination, etc.)
- Harvesting rainwater is cost-effective and energy-efficient (Green Buildings, LEED certification - Leadership in Energy and Environmental Design).
- Use for non-potable water demands such as flushing fixtures and irrigation.

Reclamation System Components

- A surface where rain can be captured and collected
- A storage device, or cistern, to store the water
- Transfer pumps and filters
- Sanitization (UV or chemical sanitant)
- Clean water storage
- Booster pump distribution

Rain Catchment Surface (Roof)

- Determine amount of water potentially available. Determine rainwater density, use at least 7+ years of monthly data.
- Calculate water that can be collected by multiplying rainfall density (inches) x collection surface area (sqft). (Include 35% buffer to account for losses).
- Install collection filter on drain pipe to remove up to 90% of leaves and other debris which is directed to the sewer.



Cistern

- Constructed of thermoplastic, fiberglass or concrete.
- Volume = (Water demand) – (rainwater available). Under sizing can cause water shortage, while over sizing can cause stagnation.
- Cisterns must be watertight and have washable surfaces. Walls should be washed with chlorine solution at final installation and cleaned thereafter on an annual basis

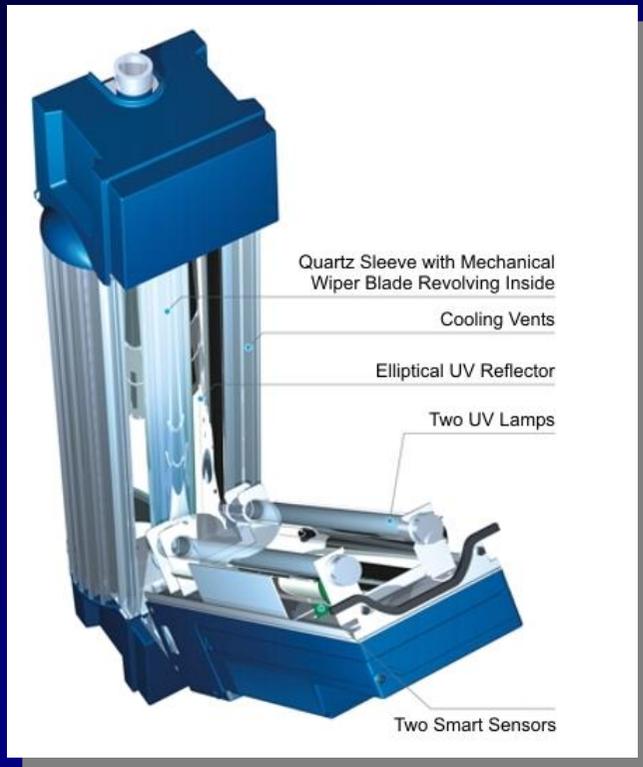


Cistern Pumps and Filters

- Pumps (duplex) sized for required flow and head.
- Controlled via multi-point level switch or continuous level transmitter in the cistern.
- Duplex filter train on discharge for ease of maintenance.



Sanitization



- 254nm UV, size dependent upon flow rate. System includes automatic mechanical wiper of quartz sleeves to prevent biological fouling.
- Sodium hypochlorite liquid feeder or calcium hypochlorite pellet feeder also available.
- Dye injection option available for applications requiring visual distinction between reclaimed and potable water.

Clean Water Storage Tank

- Thermoplastic construction, HDPE or Polypropylene.
- Closed top configuration, available in standard molded sizes or custom fabricated in cylindrical or rectangular configurations.
- Pigmented construction to reduce algae growth.
- Continuous level transmitter for system control.
- Domestic water feed for make-up when rainwater is unavailable.



Distribution Booster Pumps

- Sized for building demand flows and pressures.
- Available in simplex, duplex, or triplex configurations.
- Skid complete with valving, pressure switch, and electrical controls.



Complete System Controls

- PLC control system with HMI touch screen interface.
- Siemens or Allen Bradley components.
- UL labeled control panels.
- Optional alarms for pressure drop across filters and UV bulb intensity.
- Electrical ladder diagrams and panel layout supplied in AutoCAD.

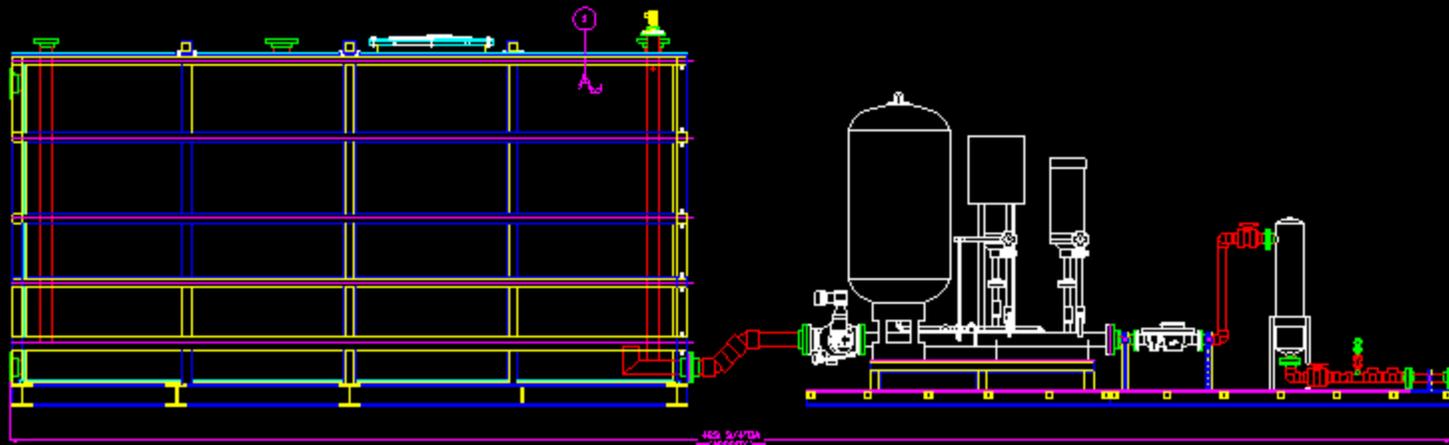
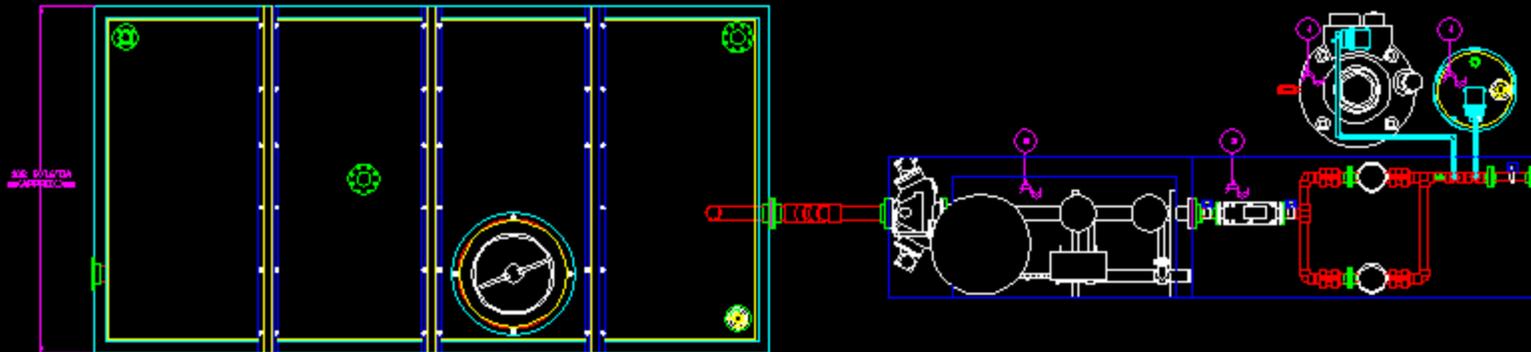


Sample System

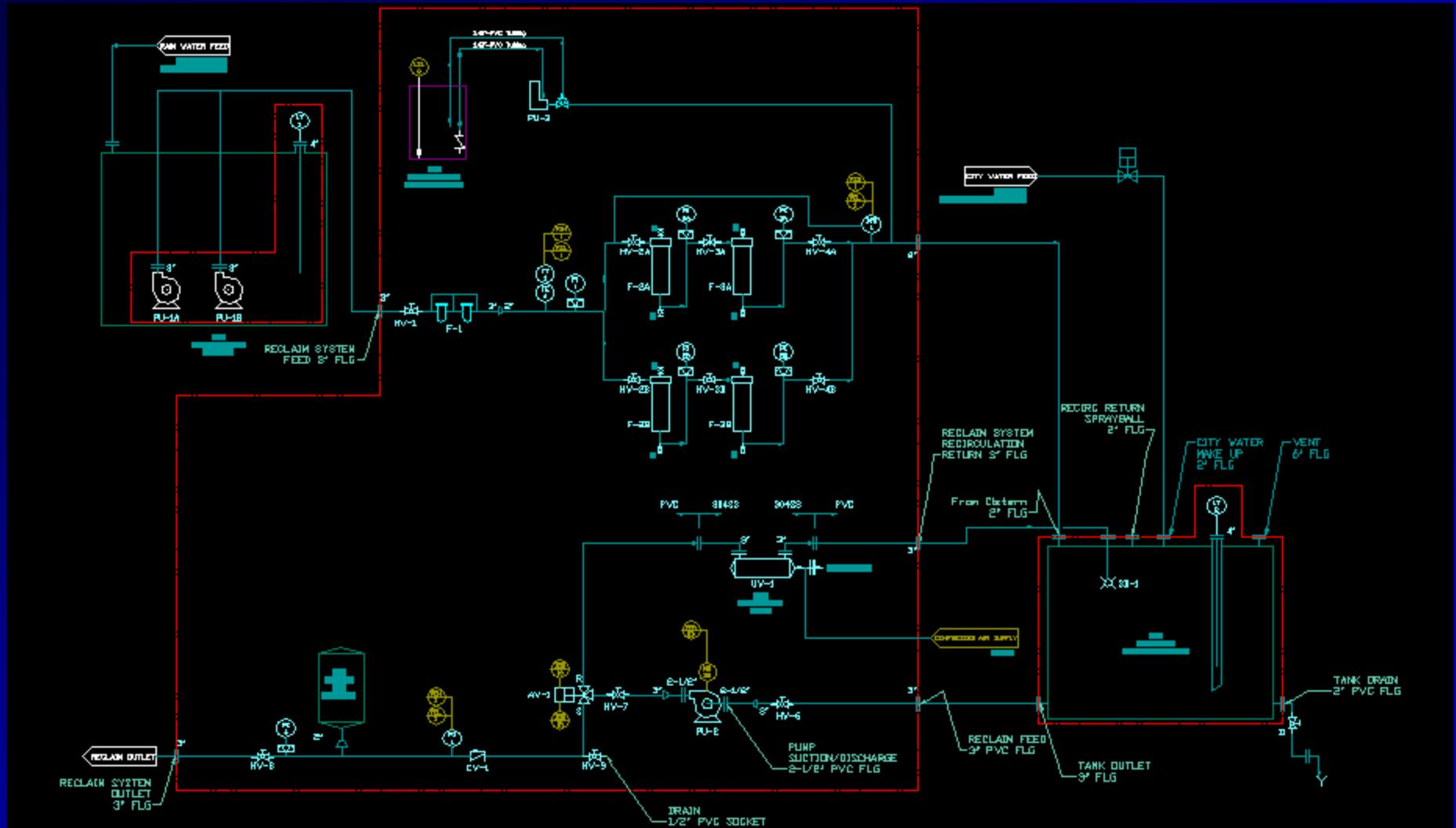


- Chlorine injection for sanitization.
- PVC piping, painted purple to differentiate from potable water lines.
- Duplex filter chambers.
- Calcite filter for pH adjustment.
- Rain water reclaim at a new high school facility.

Storage Tank & Booster Layout



Sample P&ID-Cistern Storage



LEED Certification

- Leadership in Energy and Environmental Design (LEED)
- Green Building Rating System created by U.S. Green Building Council (USGBC) to establish a common standard.
- LEED certification is based on a point system. There are 69 possible points and four certification levels (Basic, Silver, Gold, and Platinum). 26 points required for Basic.
- 1 point for reduction of potable water for irrigation by 50% over conventional means.
- 1 point for reducing the use of municipally provided potable water for building sewage conveyance by a minimum of 50%, or treat 100% of wastewater on site to tertiary standards.

Thank You!

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