

## UV Pure case study

Application: Municipal/Institutional

Solution: [UV Pure Upstream](#)

Installation: RainHarvest Systems, Atlanta, Georgia

RainHarvest Systems in Atlanta, Georgia provided us with this rainwater for reuse case study. The system was used in a Municipal/institutional setting at the DM Therrell High School in Atlanta, the first school in Atlanta to install and use a rainwater harvesting system.

The objective of the project was to reduce potable water usage for flushing toilets within the school by 50% through the use of rainwater harvesting in order to achieve the requirements set forth in LEED point WE2 – a water efficiency credit that calls for a reduction in potable water use for building sewage conveyance by 50%.

To ensure this objective was met, RainHarvest first performed an analysis of both the water demand information, how much water is used to flush the toilets, as well as the water supply information, how much water can be captured from the roof. Demand information was determined based on the number of occupants in the school as well as the number of days the school is occupied. Supply information was determined based on the surface area of our collection surface (the roof) as well as the rainfall properties of the site location (how much and how often it rains in Atlanta).

### Challenges

One of the greatest challenges involved the sizing of the UV sterilizer, sediment filtration, and day tank. There was a limited amount of space to use within the mechanical room where the pump skid and day tank were to be housed. RainHarvest had to balance the trade-off between upsizing the day tank and downsizing the water treatment components based upon economical and space constraints. In the end it was determined that their best option was to use (2) 30 GPM UV Pure Upstream NC-30-75 sterilizers and a 500 gallon day tank due to the allotted space within the mechanical room.

### Solutions

The pump station was installed at DM Therrell, along with an 80,000 -gallon rainwater collection tank. Rainwater was collected from the roof and channeled to the tank through a series of conveyance piping. Once the water was in the tank a transfer pump would move the water from the main tank through the water treatment components on the pump skid and into a day tank that also resided on the pump skid. From there the water would be distributed to every toilet within the school of 1,500 students by the main booster pumps on the pump skid.

### Results

The system was installed to help mitigate the amount of potable water used for sewage applications (flushing toilets). The transfer pump would move the water from the main holding tank and pump through a set of two sediment filters before going through the UV Pure Upstream sterilizer to disinfect the water. A buffer capacity of treated water was stored within the day tank mounted on the pump skid. This buffer



capacity of clean, treated water was absolutely essential to reducing the cost of the system to enable an economically feasible solution. A buffer of clean, treated water allows for a reduction in size of the water treatment components (sediment filters and UV sterilizers) because they do not need to be sized to meet the instantaneous building water demand. The result is a significant cost savings on the pump skid.

The use of the UV Pure Upstream was determined based upon our past experience with the product. We have had phenomenal success using UV Pure products in past projects from an installation, ease of use, and maintenance perspective. When using UV Pure products we are assured that it is a quality product with a long lifespan that requires minimal upkeep and alerts you when a problem is encountered.

The tank has been in the ground for over 3 years, but complete start-up of the pump skid and system as a whole was only finished 8 months ago.