

# Carmax Case Study

**Objective:** To utilize green building technology that would help reduce water usage at a new commercial building site in Potomac Mills, Virginia.

## Site Specifications & Known Requirements:

- Harvested water usage to be 100% irrigation.
- 6,000 gallons of water needed per irrigation cycle
- Rooftop square footage = 20,000 ft<sup>2</sup>
- Average yearly rainfall for the area = 43" per year
  - (adjusted for evapo-transpiration factor = 39" per year)
- Required H2O load rating for parking lot application
- Required automatic integration & control of replenishment water



## Solution:

The optimal tank size was determined to be 20,000 gallons. (equal to 3 cycles of the system or 1 week of standard operation)

The original plans proposed a concrete cistern. By switching to a composite tank, we were able to get twice the total capacity for only a fraction more money. The total cost of the underground composite tank was less than 50% of the price of the concrete cistern of equal volume. The tank was buried underground and stored beneath the parking lot.



With a VFD we can tune the pump output to match the exact irrigation system demand. This maximizes efficiency and minimizes utility bills.

## Results:

- This system collects 12,000 gallons on a 1" rain event.
- That's 461,000 gallons per year. Or 77 irrigation cycles.
- The Sky Harvester system cuts Carmax's water consumption for irrigation by 44%.
  - The entire system will pay for itself in approximately 4 years.

"The SkyHarvester project for Carmax Corporation worked out extremely well. We were actually able to increase the size of the tank and still stay within the budget of the project. We ended up getting twice the amount of capacity based on suggestions that Watertronics made."

— Travis Hall, Hydro Environmental Inc., Irrigation Consultants in Marietta, GA