

WATER PETAL CASE STUDY

BETTY + CLINT JOSEY PAVILION

The Dixon Water Foundation promotes healthy watersheds through sustainable land management to ensure that present and future generations of Texans have the water resources they need. As a Living Building, the Betty and Clint Josey Pavilion physically embodies the Foundation's mission. Located on its Leo Unit in Cooke County, the meeting and educational event space provides a perfect setting for facilitating a deeper understanding of how grazing livestock – as well as the built environment – can work to do more good than harm.

SYSTEMS + POLICY

RAINWATER HARVESTING

Rainwater is collected from the roof and stored in a 13,000-gallon cistern. The water is used in toilet flushing and for irrigation. During Texas' last drought, the state released the "Texas Manual on Rainwater Harvesting," which provided guidance to project teams looking to permit similar systems. This made the permitting process relatively easy.

POTABLE WATER

The Josey Pavilion pulls its potable water from a nearby well. The on-site constructed wetland cleanses and returns all of the water used in the pavilion back to the aquifer. Thus, the groundwater pumped into the pavilion's sinks eventually becomes groundwater again. The team initially wanted to collect rainwater for its potable needs as well, but the owner decided that the required equipment and approval process were too expensive, and that the closed-loop system told a better story for the site.

DOMESTIC SEWAGE TREATMENT

The on-site domestic sewage system for the project is a low-energy, low-maintenance treatment system that produces secondary- and tertiary-level effluent for dispersal and recharge via land application. The system includes a primary treatment tank, a constructed wetland using recirculating subsurface flow, a subsurface dosing/storage tank, and subsurface drip irrigation for discharge. The system is designed to treat 150 gpd with a peak daily flow of up to 1,800 gpd. In order to obtain a permit from the County, the team described the system as an elaborate septic system. Throughout the permit process, when in conversation with authorities, they explained "sustainability" as the ability to continue with status quo, thereby acquiring self-sufficiency and security.

LOCATION

DECATUR, TX

TYPE

EDUCATION CENTER

SIZE

5,382 SQUARE FEET

OCCUPANTS

1 - 2 FULL-TIME
1 - 100 VISITORS

RAINWATER HARVESTED/YEAR

22,512 GALLONS

WATER USE INTENSITY (WUI)

1.9 GALLONS/SF/YEAR

AVERAGE WUI*

14.2 GALLONS/SF/YEAR

CLIMATE

HUMID SUBTROPICAL

38 inches of rain/year

56 days of precipitation/year

**Average WUI by building type according to Seattle 2030 District data*

JOSEY PAVILION'S RAINWATER CISTERN

