

Tennessee Pollution Prevention Partnership Success Story



Tennessee Concrete Association
705 Fort Negley Court
Nashville, TN 37203
(615) 360-7393
www.tnconcrete.org



Water Conservation Using a Pervious Capped Cistern

The Member

The Tennessee Concrete Association was formed in 1986 with 33 charter members. TCA is a 501 C (6) non-profit trade association. Membership consists of approximately 160 companies representing all aspects of the ready-mixed concrete industry in Tennessee. TCA is governed by a 15-member board of directors composed of 10 ready mixed producer members and 5 members from our associate and affiliate divisions.

TCA works on behalf of its members in four primary areas: industry image and awareness, promotion, education & certification, and advocacy. A fulltime staff of three people operates from their campus in Nashville. TCA's office environment is typical of many small business establishments in their daily operations and TCA staff is working to reduce the environmental impact of their activities.

TCA is developing their campus to showcase a number of concrete applications for the residential and commercial construction markets. Many of these applications utilize the latest in sustainable construction practices and are open to the design and construction communities to speed up the adoption of such practices on Tennessee projects.

The Story

TCA understands the importance of reducing storm water runoff, as well as reducing potable water usage. We decided to capture roof runoff and harvest it in a cistern to accomplish both objectives. Construction of the cistern began in October 2009. ICFs (insulated concrete forms) were used to build a 32 inch foundation wall and a commercial pond liner was installed. The space was filled with lightweight aggregate because of its ability to hold more water than standard aggregate. An over flow was built into the cistern so surplus water will filter into an adjacent rain garden (storage capacity of about 1500 gallons) that provides water quality improvement of the runoff. The cistern and rain garden were completed in January 2010. Cistern capacity is

approximately 4,500 gallons of water and was filled within one month of completion. In addition to roof water, the cistern has a pervious concrete top to allow rainwater to infiltrate directly into the cistern.



The Success

Our success for this cistern is storm water reduction and quality improvement, coupled with reduction of potable water usage. Concrete can assist in building simple containment structures like ours and pervious concrete pavements used for parking areas, and other pavements, to allow rainwater to percolate back into the ground and replenish natural aquifers while reducing the quantity of storm water runoff discharged from a site.

The Pollution Prevented

The cistern holds 4,500 gallons of water, reducing storm water runoff and lowering potable water demand. Surplus water from the cistern is further treated by passing through our rain garden before leaving our site, thus improving water quality for Brown's Creek, which connects to the Cumberland River.

July 2010