



PHOTO COURTESY COPE ENVIRONMENTAL CENTER

WATER PETAL CASE STUDY

COPE ENVIRONMENTAL CENTER

The Cope Environmental Center (CEC) is located in Centerville, a small town in rural Indiana. Despite its proximity to coal country, the town of Centerville (population 2,000) has a history of supporting innovation and environmental conservation. The Cope Environmental Center was founded in 1992 in order to teach children about a sustainable way of life: solar has been on the Cope property for over 25 years. Their new environmental education center is the first building in the state to register for the Living Building Challenge. The new building will also serve as the official trail head for the upcoming Children of Indiana Nature Park — a conservation area dedicated to the 1.2 million school aged children of Indiana.

SYSTEMS

Though CEC was unable to install the on-site systems it desired, the team equipped all of the municipal connections with a shut-off valve to employ once their advocacy efforts are met with success.

POTABLE WATER

CEC meets all of its on-site potable needs using a campus well. The water they use is measured, and at least that amount of stormwater is infiltrated to recharge the aquifer.

RAINWATER HARVESTING

The team plans to harvest rainwater for all of its non-potable uses as soon as a permit pathway is created. A system is already installed which will capture rainwater from the roof of the building and filter it through a treatment system.

BLACKWATER TREATMENT

The team is currently connected to the municipal sewer system, with the intention of shifting to an on-site constructed wetland upon receiving approval.

LOCATION

CENTERVILLE, IN

TYPE

EDUCATION CENTER

SIZE

6,500 SQUARE FEET

DAILY OCCUPANTS

10 FULL-TIME
UP TO 300 VISITORS

CLIMATE

HUMID CONTINENTAL
41 inches of rain/year
76 days of precipitation/year

TREE PLANTING AT CEC GRAND OPENING



PHOTO COURTESY JOSHUA SMITH, PALLADIUM-ITEM

WATER PETAL CASE STUDY POLICY SOLUTIONS

RAINWATER HARVESTING

The team hoped to use rainwater to meet all non-potable needs on site, based on a desire to shift plumbing code requirements and provide a meaningful educational opportunity for students and visitors, but were unable to get their interior non-potable system permitted.

The Indiana Plumbing Code regards captured rainwater much the same as greywater, and therefore has stringent requirements for treatment. With the argument that harvested rainwater is in fact much cleaner than greywater, the project team was able to successfully negotiate an exception - they are not required to use UV or chlorine in their rainwater treatment for irrigation use. This exception paves the way forward for other project teams looking to accomplish similar goals.

BLACKWATER TREATMENT

The team originally planned to stick with a simple septic system. They knew that projects had success permitting these in the past. However, when they found that the soils on-site did not drain fast enough to rely on the system, they were forced to look into alternative approaches to treatment.

RAIN CHAIN TO CAPTURE STORMWATER



PHOTO COURTESY CEC

Alice Quinn, an environmental scientist for the Indiana Department of Health and a member of the Indiana Onsite Waste Professional Association (IOWPA), recommended a sand mound system in concert with a constructed wetland. Alice's work with IOWPA helped the team form relationships with industry professionals, who agreed to participate in a field study to build and learn from the constructed wetland.

However, in the course of engineering the system, the team discovered that the sand mound method was likely to fail given the site-specific conditions. Unfortunately, the state had already insisted that Cope move forward with the sand mound approach, while the City of Centerville had made it clear that in the event of failure, the team would be forced to connect to the municipal sewer.

Forced into this catch-22, the team connected to the municipal system with a fitting before the tie-in that will allow for installation of a future on-site system as they continue to work with the State to identify a viable alternative.

PROCESS + LESSONS LEARNED

The project team took a different approach to educating their community and regulators about the project's goals. In the state of Indiana, words like "sustainability" and "deep green" can carry an air of snobbery. Instead, the team spoke of the health and safety of occupants, as well as stewardship of the environment.

CEC's deep roots in the small community were also beneficial - on several occasions, regulators and project team members were able to discuss issues informally and come to a better understanding.

In general, the local regulators tended towards precaution, though many were won over by the distinction of the Living Building Challenge and the opportunity to put Centerville on the map as the home to the first certified building in the state.