

Cisterns are heart of water conservation

We just experienced the driest winter on record and we must intensify our water-conservation efforts. In recent columns we have addressed two components vital to most roof-reliant landscapes: water budgeting and landscape design. This month we will attend to the heart: the cistern. Just as capillaries send blood through veins to the atria, ventricles, and, ultimately, through an elaborate arterial system, roofs send water through pipes, cisterns, pumps, and drip-irrigation tubes.

Here are the five basic components of a typical cistern system.

Collection - Any impervious surface (and even many partially permeable surfaces) can be considered as a water collection or catchment area. The most effective of these capillaries is typically your roof. It is relatively clean and conveniently located above the system's water-storage chamber(s).

Conveyance - Any gutter, pipe, canale

or downspout that directs water to the cistern is part of the conveyance, or delivery, mechanism. These veins bring water to the heart of the system. Along the way, it is cleaned by leaf filters, sediment traps, and first flush devices (just as our arterial septum helps de-carbonize and re-oxygenate our blood).

Storage - Most cisterns are associated with this type of conveyance and collection, but systems often differ after water exits the cistern. Roof-reliant toilets, washing machines, showers, and even drinking-water systems are sometimes cost-effective, but these creatures are usually not my department.

Pumping - Pumps can be located in a cistern or in a pumphouse. Pumps typically push water to pressure tanks on its way to the landscape's drip-irrigation arteries. Note: if a pressure tank is not desired, in certain situations the Grunfos MQ pump can be a trouble-free alternative.

Drip Irrigation - When it comes to roof-reliant landscaping, drip irrigation is the distribution method of choice. It's precise in both the timing and placement of its water. There's a reason, however, that drip irrigation is sometimes called drip *irritation*. Compared to the efficiency of the 60,000-mile circulatory system in the human body, drip irrigation's efficiency has much to be desired.

There is one telling place where this heart analogy ceases to work with regard to Western medicine. By definition, cardiologists provide every artificial means available to keep hearts pumping. Roof-reliant landscaping, on the other hand, avoids the use of supplemental (in a sense, "artificial") water. Here, we see how roof-reliant landscaping more closely resembles Oriental medicine with its goal of preventing the need for such heroics.

On those rare occasions when watering with a supplemental source seems necessary we sometimes use it, but we



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try with proper landscape planning and appropriate landscaping techniques to make our outdoor environments as roof-reliant as humanly possible.

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