HOW TO ORDER AND BUY A DISTRIBUTION BOX

The distribution box, or d-box, is designed to disperse effluent from the septic tank evenly to each of the drainlines exiting the box. Bacteria feed on the organic solids contained within the wastewater discharged by the septic tank. If more effluent is going to one drainline than the others, that line will get more flow, which overstimulates bacterial growth and decay. This activity produces a slime (biomat). In addition to the organic loading that causes the biomat, more non-degradable solids will be carried into the lowest drainline, physically filling the soil void space. When the lowest drainline is clogged, effluent is then forced to the next highest line, which will eventually clog and so on until the whole drainfield is clogged. The effluent is then forced to the ground surface or back into the house. (This is known as a hydraulic failure in the septic system.)

For the distribution box to work, it must be installed level so all the lines distribute the same amount of water. In reality it is impossible to get and keep a distribution box level. If one line is 1/8" lower than the rest, 80% of the flow will go to that lower line. In most soils this drainfield will eventually fail. In very sandy soils, biomats do not form and drainfields will not hydraulically fail. But because the water moves through the soil rapidly, very little treatment takes place — also referred to as a treatment failure.

There are devices that can be installed which allow for the adjustment of the invert elevation (bottom) of the pipes in the distribution box. These devices known as Speed Levelers or Dial a Flow are inexpensive and easy to install and adjust. Unfortunately, distribution boxes do not generally have risers to grade, making the inspection and maintenance of distribution boxes extremely difficult and costly. Distribution boxes should be ordered with riser access to grade. Either a riser can be installed into the formed lid of the distribution box or a large diameter PVC riser and fiberglass lid can be ordered to sit on top of the d-box in place of the concrete lid. This is the proverbial round hole sitting on the rectangular box, so the space between the riser and the box must be sealed with concrete or some other sealant. Precasters should be encouraged to change the design of the distribution box to more easily accommodate access for servicing. The d-box should be checked once a year and adjustments made to the levelers if risers are in place. There are some devices that claim self-leveling capabilities, but it is still a good idea to allow for access into the d-box to inspect for solids accumulation and other problems.

For More Information: Technical Assistance, training programs and information. URI Cooperative Extension’s On-Site Wastewater Training Center George Loomis, Program Director, (401) 874-4558, gloomis@uri.edu David Dow, Program Manager, (401) 874-5950 dbdow@uri.edu Website: www.uri.edu/ce/wq

Several examples of devices that can be installed on the drainlines within the distribution box to equalize wastewater flow.
An alternative to the conventional distribution box is the tipping d-box. The tipping d-box has a plastic pan with counter weight that pivots forward when the weight of the water trickling from the septic tank into the pan overcomes the counterweight. This dose of wastewater is pushed forward by the action of the tipping pan, assuring all the distribution lines get some effluent and moving the wastewater down the length of the drainline. It is a simple and effective device. A riser to grade is also recommended for this distribution box. A smaller 6"to 8" diameter riser is sufficient, because there is no need for routine adjustment of the pan.

Other types of distribution boxes may soon be available. The State is changing its regulations to allow different designs and materials to be approved.

An exposed view of the tipping distribution box.