

DeepStream Designs

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Garden Planter Drainage: Theory and Practice

For more details, watch “Planting a Planter” video at <http://youtu.be/LmbWaoLXZK4>.

- Here is why stock DeepStream Designs rotomolded liners have a threaded drain hole about 2” up the side of the liner, instead of on the bottom, and why we recommend installing side-wall drains on other liners: This drain hole can be covered conveniently by an **optional Drain Filter Pac** composed of **drainage board, weed block fabric, and Bio-Barrier*** to prevent clogging by silt and roots for an extended period of time. *You may want to install additional drain holes as required by your installation.*



For convenience DeepStream’s Drain Filter Pac, left, is an assembly of 3 components, right.

A planter is really just a shaped French Drain. The fines in the planting medium that clog drains are carried by the gravity-induced water flow downward towards the drain. These fines will block any filter membrane in a short time. The standard practice of placing the drain hole on the bottom of the planter liner covered with a few inches of gravel will quickly clog as the fines are drawn downward to the drain by water flow and gravity.

Even with the best soil selection, the speed of the water flow determines where fines will settle. If the water drains too fast, fines will be drawn to the drain, even a sidewall drain, clogging the filter; too slow, and the plants drown. This is why we place our drainage hole on the side of the planter

For the best results place a **Drain Filter Pac** over the side wall drainage hole with the fabric covered hard Bio Barrier bumps centered on the hole, if it did not come already mounted. Hold that in place and **control water speed** at the same time by mounding .25 Cu. Ft of very clean, very coarse sand, 1-2 mm particle size, against the Drain Filter Pac producing at least a 2-4” thick covering over before installing the other planting material. (For reference, the wire of a medium paper clip is 1 mm.) The reason for this size is to moderate the

speed of the water flow. Gravel, even pea gravel, does not slow down water enough, drawing fines to the filter. Masonry or playground sand compacts, slowing water down too much, creating a watertight seal.

While clean coarse sand is hard to find, one good and readily available material, though not perfect, is Paver Base, NOT Paver Sand, found at Home Depot. Most of the grains are large enough, but it still has a lot of fines in it. **Wash it first if you can.** The properly placed sidewall drains in DeepStream's commercial grade planters create a well deep enough to handle this without clogging the side wall drain.



(Each .5 Cu. Ft. bag provides for 2 liners)

The coarse sand filter covers and holds the **Tremdrain®** drain board (think of plastic egg crate covered with geo-textile covering) which is used to increase the drainage surface area. When adding the plants to the planter, be sure not to compress this drain board against the side of the planter wall, especially easy to do with a large hard root ball, or it will act as a perfect seal against the drain and stop all water flow.

NOTE: Once the drain filter pack and coarse sand are placed over the drain hole, but before installing the planting medium, run water into the liner to be sure the water will drain out.

***BioBarrier®**, used for more than 20 years by commercial growers, is a fabric embedded with plastic dots containing a non-systemic herbicide that leaches out over a 15-year period. It has a lower toxicity than table salt or aspirin, yet creates a 2" thick root-deflection zone around the drain. It is guaranteed effective for up to 15 years by its manufacturer. Using **BioBarrier**, combined with proper soil and filtration composite and you could be able to go 15 years without digging up a planter for drains blocked by roots.