

6.5 Flow-Through Planter



Source: City of Portland 2004 Stormwater Manual

Best uses

- Treating roof runoff
- Next to buildings
- Dense urban areas
- Locations where infiltration is not desired

Advantages

- Can be adjacent to structures
- Multi-use
- Versatile
- May be any shape
- Low maintenance

Limitations

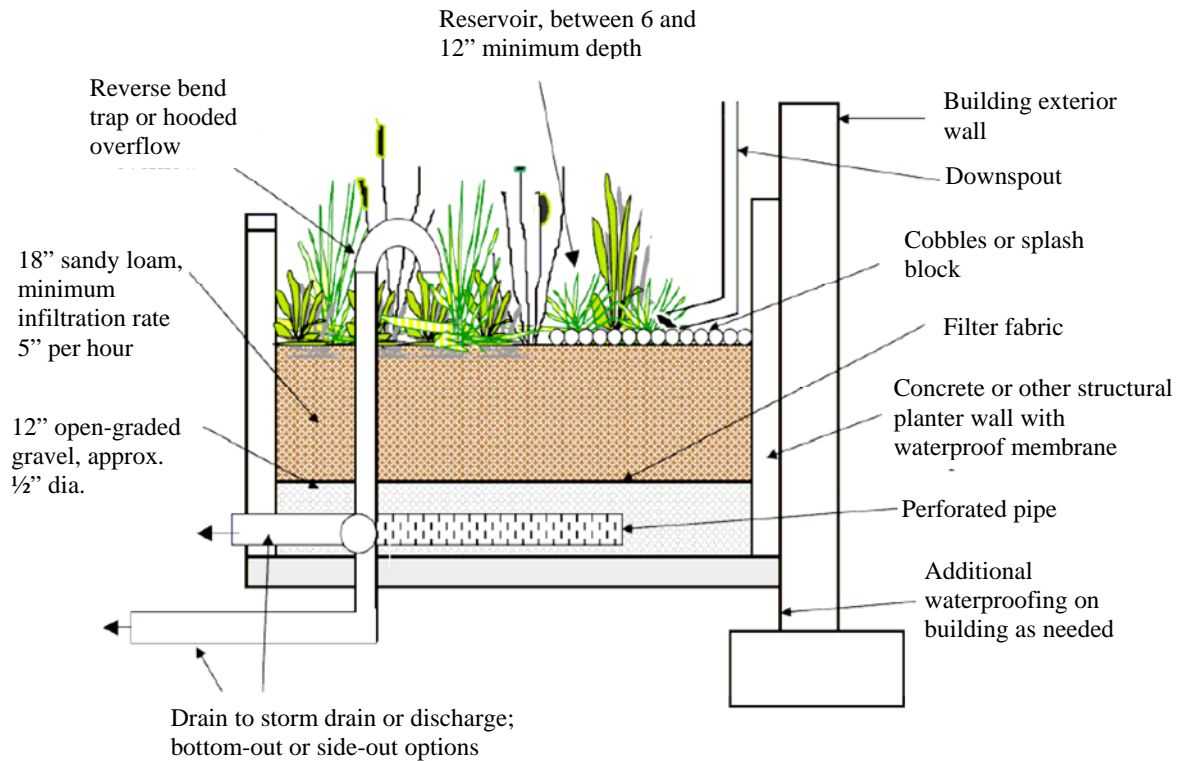
- Requires underdrain
- Requires sufficient head
- Careful selection of plants
- Requires level installation
- Requires irrigation

Flow-through planters are designed to treat and detain runoff without allowing seepage into the underlying soil. They can be used next to buildings and other locations where soil moisture is a potential concern. Flow-through planters typically receive runoff via downspouts leading from the roofs of adjacent buildings. However, flow-through planters can also be set level with the ground and receive sheet flow. Pollutants are removed as the runoff passes through the soil layer and is collected in an underlying layer of gravel or drain rock. A perforated pipe underdrain must be directed to a storm drain or other discharge point. An overflow inlet conveys flows that exceed the capacity of the planter.

Design and Sizing Guidelines

- Infiltration planters shall be designed with a 4% sizing factor (surface area of planter/surface area of tributary impervious area). A loamy sand with a minimum infiltration rate of 5"/hour is required. The ratio is for planning review and is from 0.2 inches of rainfall per hour inflow versus 5"/hour infiltration rate.
- Plantings should be selected for viability in a well-drained soil. Irrigation is required to maintain plant viability.
- Planting surface shall be level.
- Install an overflow weir adequate to meet municipal drainage requirements.
- Between 6 and 12 inches of storage shall be between planting surface and crest of overflow weir.

- 18-inch thick loamy sand with minimum infiltration rate of 5-10 inches/hour. Similar to bioretention 6 inches of planting soil will be placed at the surface for plant growth. Plant in two stages to ensure plants are viable for biotic uptake.
- 12-inch thick layer of ½ inch pea gravel or crushed rock.
- Perforated pipe underdrain with cleanouts and connection to storm drain or discharge point.
- Adequate fall from underdrain to storm drain or discharge point.
- Waterproofing as required to protect building foundations or for the groundwater table.
- Splash blocks or cobbles at downspouts and inlet pipes.
- Provide adequate irrigation to keep vegetation viable.
- Can be used adjacent to building and within set back area.
- Can be used above or below grade.
- Install filter fabric between soil and gravel underdrain and around perforated pipe.
- Size overflow trap for building code design storm, set trap below top of planter box.
- Planter wall set against building should be higher to avoid overflow against building.
- Sizing calculation is area of impervious surface multiplied by 0.04 sizing factor will equal the footprint of the flow-through planter.



Side View. Adapted from the City of Portland 2004 Stormwater Manual.

Maintenance

- Maintain vegetation and irrigation system; inspect periodically and after storms to ensure structural integrity and that planter has not clogged.
- The use of pesticides and quick-release synthetic fertilizers shall be minimized, and the principles of integrated pest management (IPM) followed. Check with the local jurisdiction for any local policies regarding the use of pesticides and fertilizers.

