

Green Infrastructure Project

Flow-Through Planters Infiltration Planters

Want to water less?

A flow-through planter has a closed bottom with a porous pipe that drains the water after it has been filtered by the plants and soil.

An Infiltration planter has an open bottom to allow water to infiltrate the ground below the planter.



East Multnomah, Oregon SWCD

These types of planters require less watering, provide filtration of pollutants, and are suitable in areas with limited space. Planters or raised beds can be constructed during the winter months and installed after the ground thaws in the spring. It is not advisable to use roof runoff for vegetable plants, just flowers. Which planter you choose can depend on your soil and planter location.

Cold Climate Considerations:

The infiltration and flow-through planters must be disconnected from the downspout in the fall to prevent ice dams from forming in the gutters.

Cost Estimate:

- Between \$150 and \$250 depending on size and materials.

Time Estimate:

- This project will take one to two days to complete.

Materials:

- Planter or raised bed
- Gravel
- Sand
- Universal downspout adapter or flexible down spout extension
- Geotextile or Landscaping/Weed Fabric
- Silicon caulking
- PVC pipe to correspond to the length of the planter or raised bed
- Potting soil
- Mulch
- Plants
- 4 Concrete pavers or cinder blocks to raise planter.

Pros:

- Can be placed right next to a building
- Reduces water runoff
- Increases groundwater infiltration
- Requires limited space
- Minimal maintenance required
- Easy to install
- Inexpensive
- Aesthetically pleasing

Cons:

- Surface freezing in the fall reduces the water retention potential
- A restricted list of suitable plants. Only use plants that like moist to slightly moist soils. No vegetables or edible plants.
- The perforated pipe can become blocked by ice or soil
- Needs good soil for proper wicking

Tools:

- Drill
- 1" Hole Saw
- Small drill bit (for holes in pipe)
- Keyhole saw
- Hacksaw (to cut downspout)



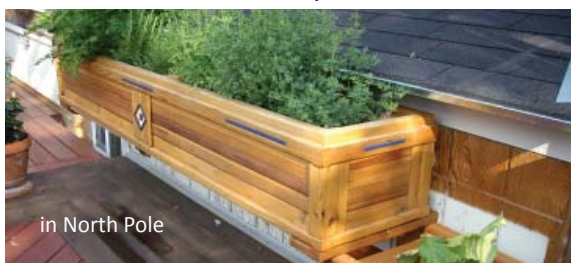
Before starting, test the infiltration rate of your soil:

- Dig an eight by eight inch hole within the designated area after the ground has thawed in the spring.
- Fill the hole with water and check the depth of the water every hour for at least three hours.
- If the water level in the hole goes down on average at least one inch an hour your soil will be able to drain effectively.
- If it takes longer than eight hours for the hole to completely drain, then you will want to put a gravel layer under your planter.
- Most locations in Fairbanks have well draining soils. If you live in the hills surrounding Fairbanks, you may have poorly draining soils.



Installing a Flow-Through Planter:

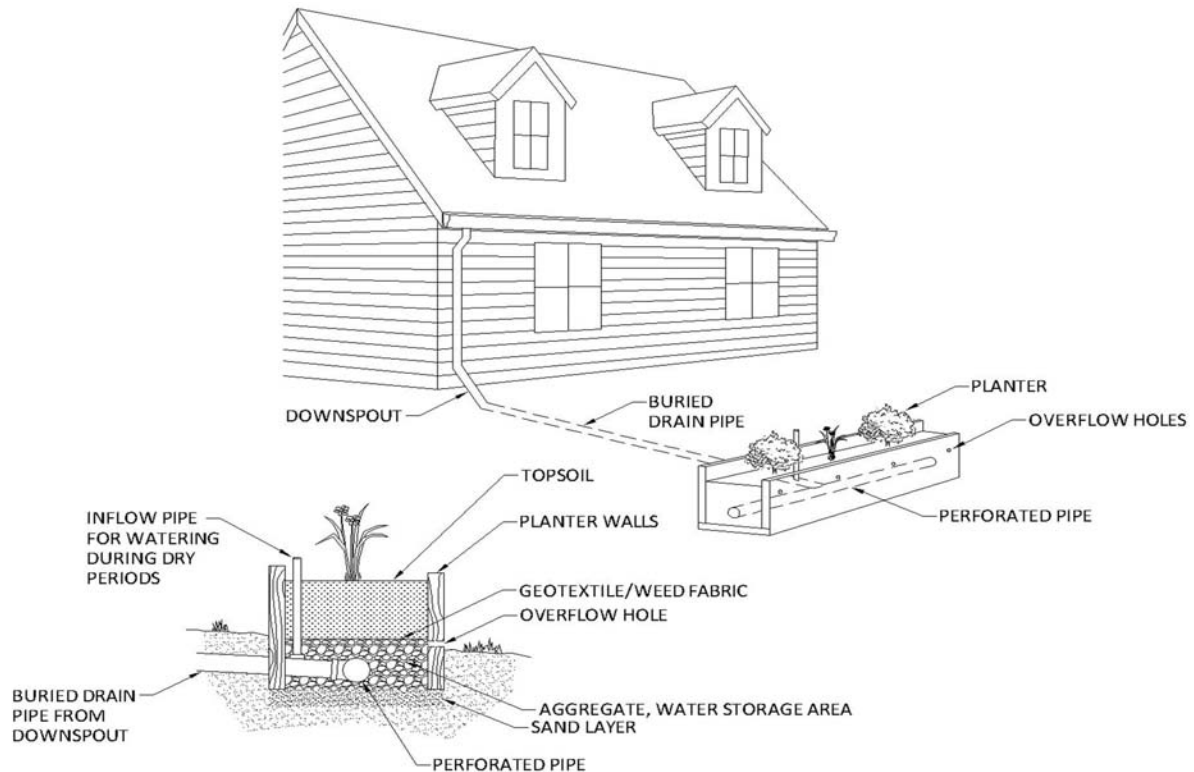
1. Find a suitable location on your property:
 - a. Locate a suitable gutter or corner of the building where rainwater or melting snow is directed.
 - b. Only roof runoff should be redirected into a planter.
 - c. Location should not be on or near septic tanks or wellheads.
2. Using a the 1" hole saw, drill a hole 2-4 inches from the bottom in the middle of one of the sides of the planter. This is for the inflow from the downspout to enter. Use the keyhole saw to make the hole large enough for the downspout adapter or flexible down spout extension.
3. Drill another hole about six inches from the bottom in the front of the planter close to the other end of the planter, not the inflow end, with the one-inch drill bit and use the keyhole saw to make the hole large enough for the smaller PVC pipe.
4. Fill the bottom of the planter with about three inches of gravel.
5. With the small drill bit, drill holes about one-half to one inch apart in the larger PVC pipe. Leave about three inches of one end un-perforated.
6. With the 1" hole saw, in the middle of the perforated PVC pipe drill a hole that will be large enough for the downspout adapter or extension.
7. Set up overflow system: Option 1
 - a. Drill a series of holes (about six inches apart) on the long side of the planter opposite of the inflow pipe.
 - b. Place the holes at the top of where the gravel layer will be.
8. Overflow Option 2 (connect to additional planters or pipe to direct overflow water into ground)
 - a. Do not drill holes on the front side of the planter.
 - b. Place and secure an additional pipe on to the other end of the planter from the inflow pipe. This pipe should bend or be a mixture of bending and straight PVC pipe, so that you can direct the overflow pipe into the ground or into an additional planter.
9. Install planter in chosen location. Be sure to place the planter on top of the pavers or cinder blocks as you install. Adjust so that the location is exactly where you want it before filling it with dirt and plants and modifying the downspout.
10. Modify the downspout so that it directs water into the planter
 - a. Use a hacksaw to cut the downspout at the appropriate height.
 - b. Attach the universal downspout adapter or flexible downspout extension, making sure the adapter/extension is long enough to reach the planter.
 - c. Bury the adapter/extension, or lay it on the ground.
 - d. Insert the adapter/extension into the drilled hole on long side of the planter.
 - e. Attach the adapter/extension to the perforated PVC pipe with silicon caulking, then seal the gap between the adapter/extension and the planter hole.
10. Put another two-inch layer of gravel all along the planter.
11. Lay down geotextile or weed fabric to separate the gravel and soil.
12. Fill the planter with soil. The soil should contain a high level of organic matter. Try to not use soil with clay or silt in it. This will ensure that the soil is able to support the wicking function.
13. Plant. Many plants will do well in the moist-to-slightly-moist soil conditions which these planters will provide. Ask your local nursery for advice on plants that will be happy in this kind of setting. Do not use vegetable or edible plants.
14. Add mulch around the plants.



Installing an Infiltration Planter (without a bottom or overflow pipe):

Follow the same directions above with a few exceptions:

- You will first need to test the infiltration rate of your soil (see pg. 14 for directions).
- There should not be a bottom on the planter or foam along the bottom of the planter. This means that you may have to cut off the bottom of a planter or drill large holes in the bottom if you buy it pre-made.
- Do not build an infiltration planter on top of permafrost.
- Put a layer of gravel down before installing planter, be sure some gravel is outside the perimeter of the planter.
- Do not install an overflow pipe (directions number 7&8)



Maintenance:

- Disconnect the downspout from the planter after the first freeze in the fall.
- Weed when and if necessary.
- Clean gutters once a year to help keep debris out of the inflow pipe of the planter.

For more information about this and other Green Infrastructure Projects please visit:

www.fairbanksgig.com

Sources:

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