

Infiltration and Flow-Through Planters

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For Your Home

Want to water less?

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Flow-through and infiltration planters are very similar. A flow-through planter has an impervious bottom with a porous pipe that drains the water after it has been filtered by the plants and soil. Another name for a flow-through planter is wicking bed. Infiltration planters have a pervious bottom to allow water to infiltrate the ground below.

Cold Climate Adaptation:

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

Materials:

- Planter or raised bed
- Gravel
- Universal downspout adapter or flexible down spout extension
- Potting soil
- Mulch
- Plants
- Geotextile fabric
- Silicon caulking
- PVC pipe to correspond to the length of the planter or raised bed

Tools:

- Drill
- One-inch drill bit
- Small drill bit
- Keyhole saw

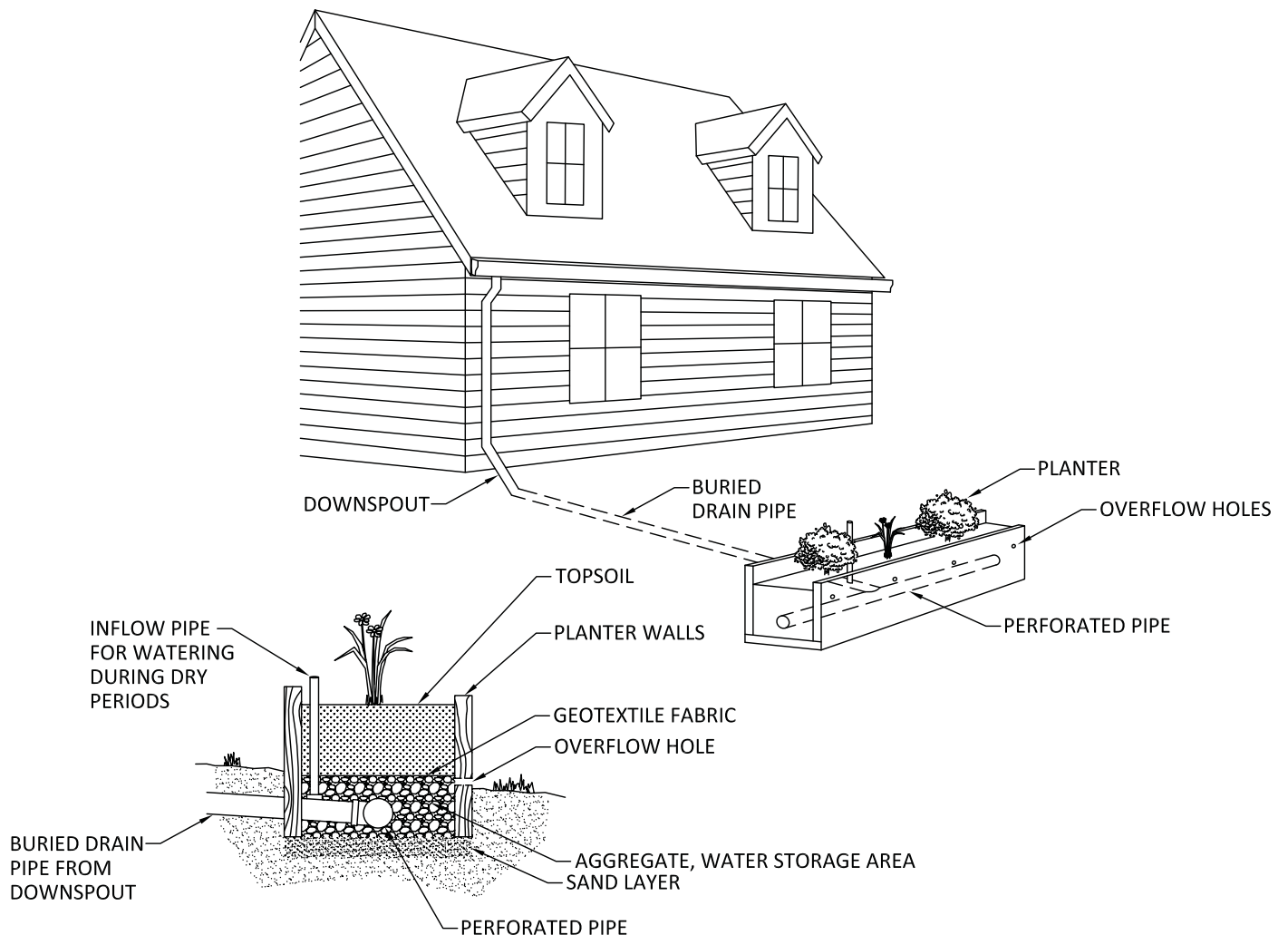
Building a Flow-Through Planter:

1. Find a suitable area on your property:
 - a. Note the direction of runoff and low spots where water collects. These would be good locations for a dry well as long as they follow the location constraints below.
 - b. Only roof runoff should be redirected into a dry well.
 - c. Make sure that the chosen location is downhill and at least ten feet away from buildings with basements.
 - d. Location should not be on or near septic tanks or wellheads. It is not advisable to plant a garden on top of the dry well.
 - e. Be aware of underground service lines or utilities. Call 907-278-3121, or 1-800-478-3121 or go online at www.akonecall.com to have the underground lines marked for you. It is a good idea to take a picture of the markings to record their locations.
 2. Using a one-inch drill bit, drill a hole about two inches from the bottom in the middle of one of the long 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 without the inflow 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 one inch drill bit, 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:
 - 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. Seal the gap around the PVC pipe that extends from the planter with silicon caulking.
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9. 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 a geotextile 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.
14. Mulch.

Building an Infiltration Planter:

1. Follow the same directions above with a few exceptions:
 - a. 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.
 - b. Do not want to build an infiltration planter in permafrost.
 - c. You will also need to test the infiltration rate of your soil.



2. To test the infiltration rate of your soil:
 - a. Dig an eight by eight inch hole within the designated area after the ground has thawed in the spring.
 - b. Fill the hole with water and check the depth of the water every hour for at least three hours.
 - c. 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 for a rain garden.
 - d. If it takes longer than eight hours for the hole to completely drain, then you will want to put a gravel layer under your rain garden.
 - e. Most locations in Fairbanks have well draining soils. If you live in the hills surrounding Fairbanks, you may have poorly draining soils.

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.

Cost Estimate:

- between \$60 and \$250 depending on size and materials.

Time Estimate:

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

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.
- The perforated pipe can become blocked by ice or soil
- Needs good soil for proper wicking

For more information about the Green Infrastructure Project please visit: www.cchrc.org/green-infrastructure

Sources:

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