

Raingardens - box basics

“A Raingarden is a vegetated area designed to attenuate rainfall”

A basic box Raingarden

A simple way to build a rain garden is to install an above ground box next to the down-pipe from a building's roof. The downpipe is disconnected and flows directly into the box. Water then slowly filters through the plants, soil and gravel within the box, before re-entering the drainage system.

There are many options, but think of something like a garden planter. The box can be something that you have made using strong wooden boards (strong enough to withstand the weight of soil, gravel and water pressing against the sides) or a pre-fabricated box bought from the local DIY shop or on-line. If it is made from wood or has joins in it, the box should be sealed to avoid leakages. This will not be necessary for a single-moulded plastic box/planter.

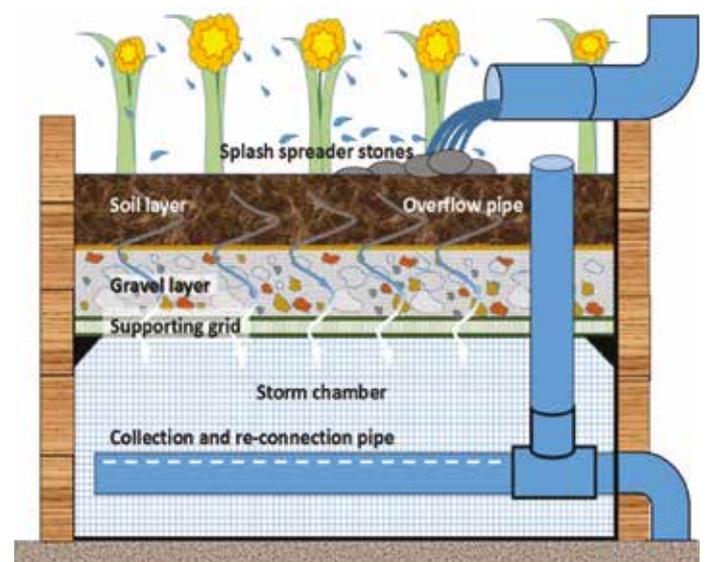
Connecting the box

With the box in position but not filled (it's easier to move when empty!) install the plumbing. Disconnect down-pipe at the top of the box, and then re-connect the base of the box to the drainage system, with a pipe. This re-connection will need a neat and accurate hole cut in the box to place the connecting pipe through. This hole can then be sealed using appropriate plumbing components.

When connecting the down-pipe to the rain garden and then re-connecting to the drainage system, consider or not you will need a plumber to do this. If you are doing the plumbing yourself this will still need to be checked by a suitable professional. Remember to obtain any permissions.

Creating the Raingarden

Starting from the bottom, install a slotted, collecting pipe along the bottom of the chamber. This should also be connected to a high level overflow which can receive flows during very heavy rainfall or if a blockage occurs.



Example of a down-pipe rain garden layout

Alternatives to a box Raingarden

In-ground arrangements can be straightforward but you will need various checks including building standards - it may be worth a chat with the Building Control Officer in the local council. Also check that the area to be dug does not have any pipes or cables in it. If in doubt "Utilities checker" providers (available on-line) can help.

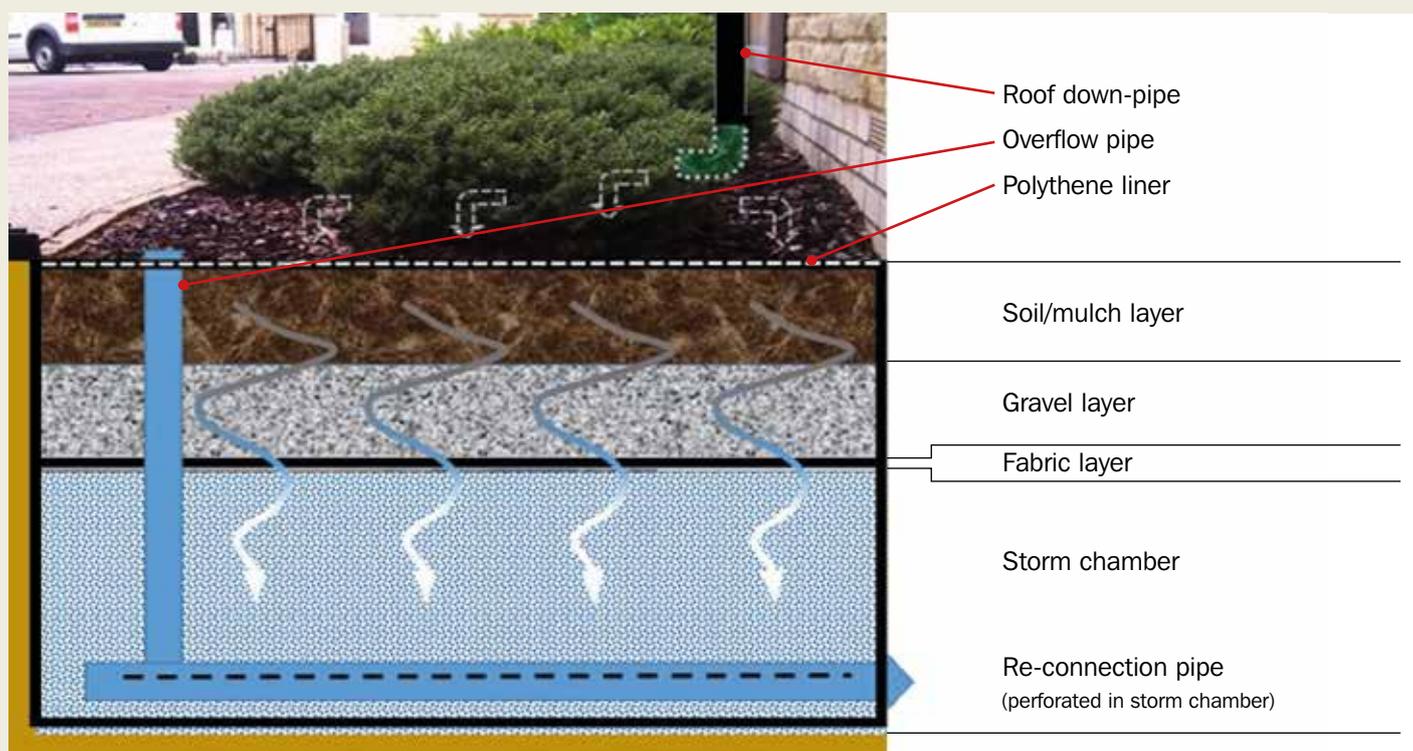
Dig an area within easy reach of the down-pipe or the area/s that you want to drain, for example driveway or yard. Line the pit with a polythene liner. Re-connection to the existing drainage system will need more effort as it's below ground and again will need a suitably qualified person to ensure that plumbing and building control requirements are met. Direct connection to a nearby stream may also be acceptable with permission from SEPA. More comprehensive detail is required for larger systems serving larger areas or more than one property and a suitably qualified engineer or architect will need to be employed. However costs can be shared and improvements increased due to the larger area being considered.



In-ground rain garden

© Taylor Wimpey

Other choices include pocket parks between buildings or at open locations in the street and other existing open spaces. These areas along with roads, footpaths and car parks amongst others, will require more comprehensive arrangements and may involve the local authority who could be willing to assist in the process.



Example of "in-ground" rain garden with example layers



© CSGNT

Example of a down-pipe rain garden layout

Once the plumbing is completed and checked, carefully begin to construct the storm chamber. This can be filled with stone which will support the layers above or can be an open chamber. If open you will need to think about supporting the layers above with a strong metal or plastic grid.

The layers above this will then need to be placed but make sure that the soil and finer gravels are not able to settle into the storm chamber which will cause the whole system to collapse. The use of fabric material is usually recommended to stop this from happening but this can also cause blockage over time. A natural fabric that will rot over time is best. By the time the fabric rots there will be enough support from the roots of plants to stop collapse from occurring. Place the gravel and soils accordingly.



© CSGNT

Professionally installed down-pipe rain garden

On top, think about placing stones to scatter splashes from the down-pipe and to have an even distribution of flow across the rain garden. This will also protect the soil from erosion.

Plant choice

The types of plant to use will be down to the specific location and personal preference, but choose plants that are robust and able to tolerate dry periods and very wet soils. Yellow flag (Iris) and ragged robin usually suit well. See “Further reading” for more advice.

Further reading

www.melbournewater.com.au/getinvolved/protecttheenvironment/raingardens/Pages/What-is-a-raingarden.aspx

www.sustainablecitiesinstitute.org/topics/water-and-green-infrastructure/urban-forestry/rain-gardens/10000-rain-gardens-initiative



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Scottish Green Infrastructure Forum

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The Forum is a group of organisations, businesses and individuals interested in promoting and encouraging the building of Green Infrastructure. This guidance was prepared by Buglife - The Invertebrate Conservation Trust for the Scottish Green Infrastructure Forum.

