www.halstedrain.com

Flatform Tank Rainwater Harvesting System

Installation Instructions and Guidelines

The Halsted Rain Flatform Rainwater Harvesting System is designed specifically for storing and delivering rainwater for toilet flushing and garden irrigation. It can be installed on domestic and light commercial property and is an ideal retrofit option. The system is simple, reliable and affordable compared with tradition subterranean alternatives and can be installed in a partial or shallow excavation either in open ground or a void in the building. Each component is carefully designed for ease of installation and maintenance.

This document is intended as a guide and as such does not cater for every eventuality encountered during installation. Halsted Rain assumes that the installer has sought and been granted all necessary permissions and will employ good building practise.

1. General Health and Safety Guidelines

These guidelines are prepared for the experienced DIY and trade installer and should always be read in conjunction with the detailed instructions provided with each component and downloadable from the Halsted Rain website. Components should be installed using the special fittings and fixtures supplied. A qualified electrician should certify any electrical installation. It is recommended that electrical components are connected to the power supply via an RDC socket. The installer should know the whereabouts of other services, pipes, cables, ducts etc. Normal safety precautions must be taken and appropriate procedures observed to avoid accidents.

2. Regulation

Councils give expeditious and sympathetic handling of planning permission to applications for new build and extensions which include rainwater harvesting. The retrofitting of most systems does not need planning consent, but exceptions apply for Listed Buildings, buildings in Conservation Areas and World Heritage sites. If you are in any doubt about planning requirements contact the local planning office.

There are currently no direct building regulations for rainwater harvesting. However, Hygiene and Drainage are covered by the Building Regulations and can influence rainwater harvesting system design.

Several other associated regulations apply; In England and Wales the Water Supply Regulations 1999 (Water by-laws 2000 in Scotland and Water Supply (Water Quality) Regulations (Northern Ireland) 2002 must be adhered to. These regulations are enforced by the water supplier.

The essential requirements of the regulations specific to rainwater harvesting are;

- No cross bonding of rainwater piping with potable supply pipes
- Prevention of backflow to potable water supplies according to CEN EN1717 with air gaps
- The clear marking of rainwater pipes with the words “Not Drinking Water” or other identification in accordance with WRAS # 9-02-05
- Material specifications, where contact with wholesome water is permissible meet the prevailing approved list.

Further guidance on the design and utility of rainwater harvesting systems is provided in British Standard 8515 and the Code for Sustainable Homes.

3. Flatform Rainwater Harvesting System

The system comprises of 4 main components.

- Filter

The downpipe filter removes leaf litter and debris from the rainwater before diverting it to a tank. It also incorporates an inspection flap for easy access and maintenance and a backflow prevention feature to ensure foul water from the drain cannot enter the tank. The filter is a high grade stainless mesh enclosed in a UV protected ABS plastic. Alternatively, an in-tank filter option is available upon request and is supplied preinstalled in the inlet and overflow pipe assembly

- Tank

The Tank is available in four sizes, 1500, 3000, 5000 and 7500 and its unique features are the particularly shallow profile, integral pump sump and insulated shaft cover. It is purpose made of food grade polyethylene for storage of rainwater to be used inside a property. The tank is of a heavy duty construction with added UV protection and is opaque to protect the quality of stored water.

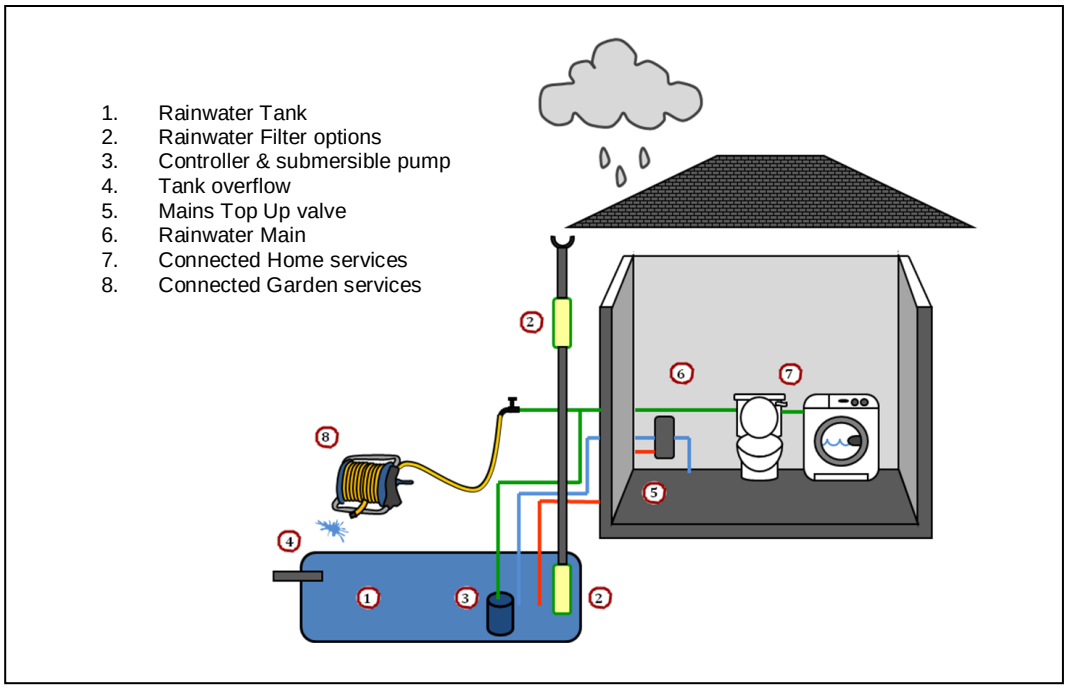
- Rainwater Pump

Halsted Rain offers several pump packages to match a range of duty requirements. For the Flatform Tank System for toilet flushing and garden irrigation we recommend a submersible pump which supplies the flow rate and water pressure normally required of a system of this size and duty. The pump is pre set to self prime and supply water on demand. When the pressure in the pipe work reaches the required level the pump will automatically switch off. The pump is supplied with dry run protection.

- Mains Top Up Valve

The valve is designed to supply mains water to the tank when there is insufficient rainwater. It incorporates a valve, tundish and float switch and will automatically activate when the water level is low and top up the tank with a small amount of mains water. This maintains the utility but leaves the tank empty to receive rainwater.

Typical System Schematic



4. <u>Considerations when installing a Halsted Rain System</u>

- Filter

Correct installation of the filter is essential to maintain the quality of rainwater stored in the tank. It can be fitted into the existing downpipe adjacent to the tank inlet and should be at a height that allows easy access by the user. Various configurations are possible and more details are contained in the filter installation guide. Connectors are supplied to 68mm round downpipe. For other sizes and profiles it is recommended to use an adaptor supplied by the rainwater system manufacturer or a ‘flex-seal’ type coupling both of which are available from builders merchants. For optimum performance it is recommended that if the drop from the gutter is more than 2 metres, rainwater is channelled via a 45° elbow fitting into the filter inlet. This prevents the force of water pushing debris through the filter mesh.

The alternative in-tank filter if specified is preinstalled. Details of secondary and tertiary filtering options are available on request.

- Tank

The tank is designed to be installed horizontally in a shallow trench on firm ground covered with 10 cm of compacted ballast. In preparing the ground care must be

taken to accommodate the pump sump and properly support the sump shoulder. If you are in any doubt about the stability or load bearing properties of the site it is recommended that advice is sought from a groundwork engineer. The tank is supplied as standard with a 60 cm walkover access shaft and cover and 20 cm option; and drivable options are available on request.

- Rainwater Pump

The Rainwater Submersible Pump for toilet flushing and garden irrigation is designed to be installed inside the tank. It is rated for intermittent duty, but may operate continuously until the water supply is exhausted. The pump incorporates electrical controls that protect it from dry running. Roof debris or sediment from building materials in the tank may cause the pump to fail and problems of this nature are not covered by the product warranty. The standard pump installation is as part of a direct feed system however a header tank and gravity fed system is available on request. Joints in the rainwater main must be pressure tight and not installed under strain which can lead to failure of the pressure seal.

- Mains Top Up Valve

The mains valve is designed to be installed inside the property at a level above the tank. Water flows under gravity from the valve to the tank either through a pipe in the service duct or directly into the rainwater drain. It should be installed in accordance with water regulations to provide the required air gap and pipe fittings must be approved for use with mains water. It is recommended that the level switch is installed at a height that ensures the pump is always submerged. The mains valve is offered as a ‘plug and play’ package.

- Location, Drainage and Plumbing

The installed tank must not compromise the structural integrity of the foundations and there must be sufficient gradient on the inlet drain to ensure rainwater flows readily to the tank. The tank overflow pipe connected to a main drain or soak away must have a drop greater than the inlet gradient to accelerate the water flow away from the tank.

We recommend the use of valves to isolate the main components and facilitate easy access and maintenance. Tanks and pipe work should be flushed out with clean water prior to commissioning as swarf, plumbers tape and debris can damage the pump. Pipe work should be clearly marked to show the pipe is used for rainwater and not drinking water.

For further technical information and support please contact;

Halsted Rain Ltd, Halsted House, Lock Chase, Blackheath, London SE3 9HB

Direct Line: 07900 427450
Switchboard: 0208 318 0957
www.halstedrain.com