

Rainwater Harvesting Drivers And Polypipe Rainstream

Conserving water in today's buildings really matters. Water supplies in the UK are under more sustained pressure today than at any other time. This technical bulletin will detail the drivers behind rainwater harvesting, the principles of rainwater harvesting and the solution provided by Polypipe Rainstream.

A combination of population growth, the increased use of potable water for non-potable applications (for bathing, showering, watering gardens and flushing toilets) and prolonged periods of drought all pose a very real threat to the continued supply of clean water to everyone who needs it. Figure 1 below details the typical water usage within commercial buildings, you will note only 9% is used for drinking water, clearly demonstrating an increasing need to consider water collection and re-use to meet demand and not potable water. Added to this is the importance of standards such as The Code for Sustainable Homes and BREEAM, both are determining reductions in mains water usage in conjunction with other 'green' technologies.

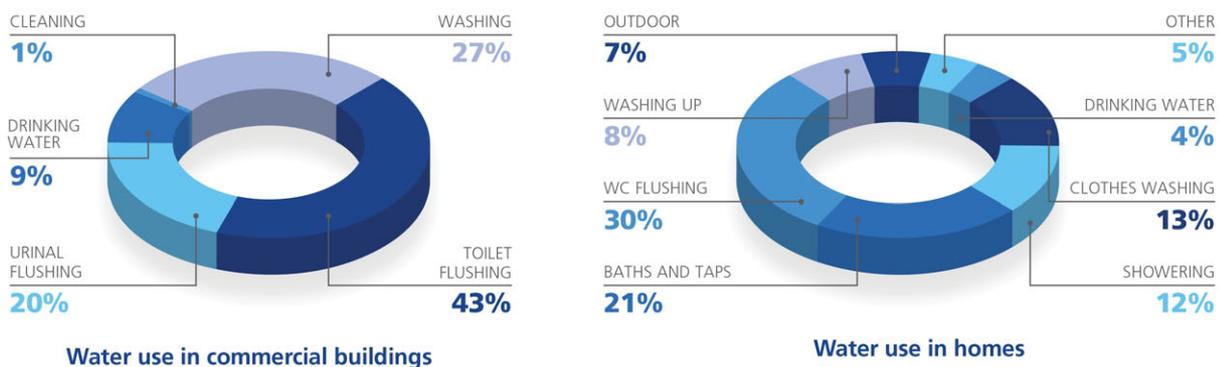


Figure 1: Typical water use in commercial buildings and domestic applications.

Rainwater harvesting systems are becoming increasingly popular in residential and commercial situations because they deliver numerous benefits, primarily:

1. Significant reduction in the wastage of potable water in applications such as toilet/urinal flushing; laundry; vehicle washing and irrigation
2. Reducing the volume of surface water entering the environment at times of heavy rainfall, lowering the risk of localized flooding

The Polypipe Rainstream system, designed in accordance with BS8515:2009 Parts 1&2 delivers a comprehensive solution for rainwater harvesting using the basic principles of Capture/Collection; Filter; Store; Treat: and, Re-Use. Image 1 below illustrates the system detailing the key components:

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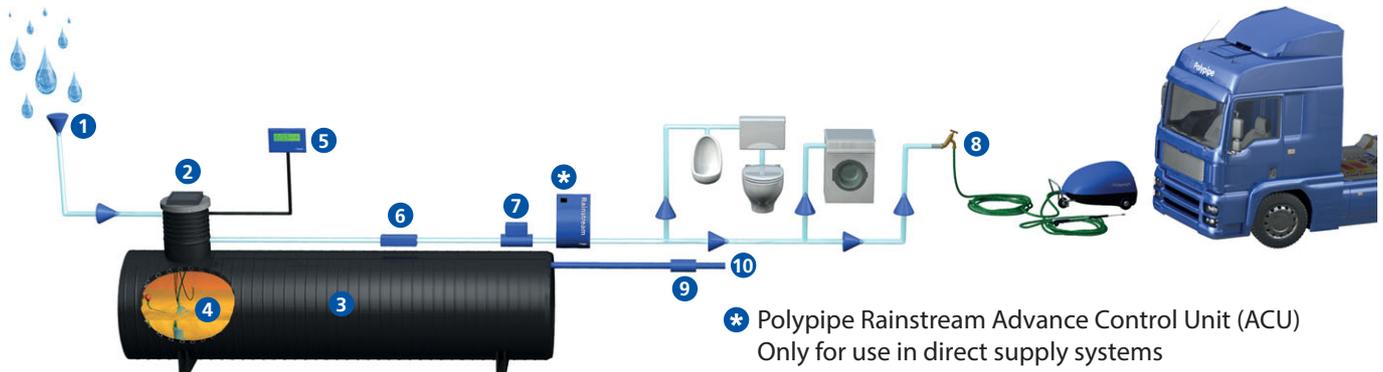


Image 1 – Polypipe Rainstream Rainwater Harvesting System

1. Rainwater falling onto roofs, roads and paved areas can be collected by a variety of measures which include guttering, channel drainage, Polypipe Bluestream and specialised roof drain systems.
2. Pre-tank filtration then removes any larger debris such as leaves, before the collected water passes to the storage tank. Please note that filters can be either mounted internally or externally.
3. The storage vessel is typically a large tank which can be included within a building, surface mounted externally or buried below ground. Tanks are traditionally constructed from GRP but Polypipe Rainstream can offer the Rainstream RXL tanks manufactured from High Density Polyethylene which can be supplied with the Biomaster Anti-microbial tank liner.
4. Captured water is re-distributed with a floating filter pump assembly.
5. An electronic control unit monitors and manages the water levels in various parts of the system delivering water on demand.
6. Third stage in-line filtration to remove finer particles of debris before use.
7. A disinfection process can be used to kill off bacteria and improve the quality of collected water. Polypipe offer both UV and TiO₂ disinfection.
8. Water is supplied on demand to a number of outlets around the property and can be used for many different purposes including toilet and urinal flushing, laundry, vehicle washing and irrigation.
9. A back flow prevention device stops a backward flow of contaminated water from the sewer and acts as a rodent barrier.
10. Outlet to the soakaway, attenuation or stormwater sewer.

With increasing demand for conserving drinking water supplies and managing surface water the Polypipe Rainstream system offers an holistic solution for rainwater collection and re-use within buildings. If you would like to find out more or wish to book a member of our Rainstream team to deliver our RIBA approved CPD – ‘Rainwater Harvesting and Re-use for Sustainability’ please email me at steve.bishop@polypipe.com