

An Introduction to Urban Rainwater Harvesting

Rainwater Utilisation

A rainwater utilisation system comprises of a filter, storage tank, pump and mains valve that is connected to utilities and appliances to use rainwater for toilet flushing, laundry and garden irrigation. Rain falling on the roof of a building is channelled via the existing gutters and down pipe to a filter which removes leaf litter and other debris before diverting the water into a storage tank. When an appliance demands water a pump is automatically switched on and draws water from the tank. In the event that the tank runs dry a mains water valve is automatically activated to partly refill the tank.

At Halsted Rain we believe that rainwater utilisation should be a practical and affordable conservation measure for all buildings. Conventional rainwater harvesting systems are complex and expensive to install and maintain, because the tank, filter and pump are installed below ground. Modern and visually discreet above ground systems enable owners of smaller property and those with limited space to economically reduce their use of mains water.

Urban Systems

Above ground rainwater utilisation systems for the urban 'built up' environment are a new innovation in the UK but are widely used in other countries. These state-of-the-art modular systems are an attractive, practical and contemporary solution to managing water resources and blend seamlessly with modern and traditional building designs.

Urban systems that offer a modular tank design enable flexible sizing of the water storage capacity. At Halsted Rain we make no excuse that urban systems can sometimes be a compromise between space, utility and cost. As much as 80% of the potential saving of mains water usage can be gained from an urban system at a fraction of the installed cost of a conventional below ground system.

Lack of Water

Water is becoming an increasingly precious natural resource. Whilst we appear to have an abundant water supply 97% of the 1.4 billion cubic kilometres of water on Earth is sea-water, 2.7% of the remaining 3% is permanently bound up in ice at the poles. This leaves only 0.3% of the Earth's water resources as usable fresh water. It is now recognised that the south east of England in particular is short of water (London has less water available per capita than Madrid or Istanbul). As the result of limited supply and increasing demand, in August 2008, 10 Water Boards applied for price increases that could lead to a 40% rise in water charges within 5 years. In Germany, the use of rainwater utilisation is over 100 times that of the UK.

Use of mains water

Each person in the UK uses 150 litres of water a day, 70% more than 30 years ago. A typical family uses 70,000 litres of water each year for toilet flushing, clothes washing and outside use. One third of all water used in the home gets flushed down the toilet. Rainwater utilisation

systems can replace up to 50% of household mains water consumption, and up to 85% of light commercial consumption.

Water and CO₂ emissions

For a typical family it takes 120 kilowatt hours (kWh) to supply water and 100 kWh to treat the dirty water put in to the sewers every year. When you include the heating of water, this means that 20-25% of a family's total average energy consumption is used on water, enough to boil a kettle continuously for more than two months or the carbon equivalent of a return flight from London to New York. Therefore, saving water also help avert climate change.

Conservation is a Priority

In response to increasing water stress new UK Government Policy and Regulation is requiring and promoting the wider use of water conservation measures. Recent publications have included the EU Water Directive, Future Water and Sustainable Homes. Government Grants and Capital Allowances are available to encourage the installation of rainwater utilisation technology. Planning Consent is now conditional on meeting water conservation standards. Many Water Companies are increasing their promotion of conservation and encouraging the wider use of water meters to prevent local shortages and as the result of pressure from Government.

Planning Your System

The simple rule is, the larger the roof area connected to the tank, the more water can be collected. To calculate the available rainfall (litres) multiply the local rainfall amount (mm) each year by the roof area (m²) connected to the tank. The average rainfall for England is 850mm. The expected usage each year can be calculated by multiplying the usage per person per day (150 litres) by the number of persons using the building by 50% and 365 days. For small and medium size urban systems, scale the storage capacity by calculating 2% of the lower of available rainfall or usage. More complex calculations are available but one of the benefits of an urban modular rainwater system is that additional tanks can be easily added at a later date if more capacity is needed.

About Halsted Rain

Halsted Rain is a supplier of urban rainwater harvesting solutions. We offer a range of products including tanks, filters, pumps and accessories specifically designed for above ground rainwater collection and utilisation systems that can be installed in a confined space. Our products are ideally suited for installation on domestic and light commercial property particularly as a retrofit solution. Halsted Rain prides itself on its ability to offer customers;

- Proven and easy to install products
- A comprehensive range of compatible products and accessories
- Reliable service
- Affordable prices

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