



Rainstream

Rainwater re-use solutions for home and garden

Rainstream Home and Garden

Rainstream Home and Garden has been created by Polypipe after intensive research and development to design robust and cost-effective rainwater harvesting systems for the UK domestic market.

Polypipe has almost 10 years experience in rainwater re-use and it's through our proven track record that we have been able to develop new systems specifically for the domestic market. The re-use of rainwater in the home can save owners up to 50% of their annual potable water usage.

Why Harvest Rainwater?

- Population growth and rising consumption is increasing the demand for water
- Climate change is creating pressure to conserve water
- Legislation is enforcing the need to conserve water
- Higher water charges and water metering are predicted

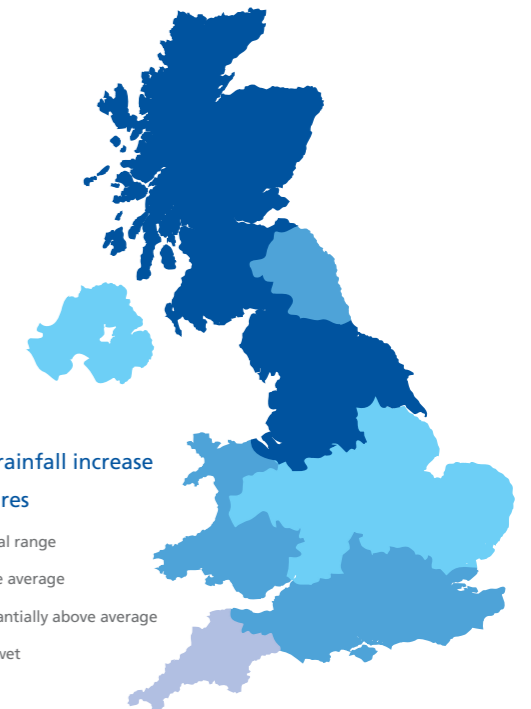


Climate Change and the environment

With average UK annual temperatures predicted to rise by up to 3.5°C over the next 70 years, climate change is already driving the need for innovative solutions to the management of rainfall and surface water. Changing rainfall patterns are likely to lead to wetter winters and drier summers, sea levels are expected to rise and extreme weather events look set to become far more commonplace.

The average person in England and Wales now uses 150 litres of water every day - almost 50% more than 25 years ago. Washing and toilet flushing account for much of this figure, with drinking, cooking, car washing and garden watering also playing large parts. Yet while continental countries such as Italy and Spain enjoy water supply capacities of on average 2,785 m³ per person, per year, England and Wales has a surprisingly low capacity of just 1,334 m³ per person. The high population densities in areas such as South East England mean that there is even less water available to each person in these regions.

Rainwater re-use solutions offer a way to address this increasingly important issue by collecting and recycling rainwater, rather than simply allowing it to drain away. This not only reduces the demand for mains water for toilet flushing, laundry, vehicle washing and irrigation purposes, but also eases the potential for flooding which can be created when rainwater deposited by extreme storms is simply left to run to ground.



Average rainfall increase
2008 figures

- Normal range
- Above average
- Substantially above average
- Very wet

Water management drivers

- Climate change
- Kyoto Agreement
- 80% Reduction in carbon emissions by 2050 (was 60%)
- Construction Industry targeted
- New Homes Sector specifically
- 25% of U.K. Carbon Emissions from Housing
- Code for Sustainable Homes

Water Consumption



Reducing Demand



Toilet flushing

Rainwater is perfect for toilet flushing - the highest consumer of water in domestic buildings. Using rainwater for this purpose can cut mains water consumption by up to 30%. Polypipe Rainstream systems incorporate a mains water backup to maintain operation if sufficient rainwater is not available.

Laundry washing

Although great efforts are made by equipment and detergent manufacturers to reduce the environmental impact of laundry washing, the actual water consumption is often overlooked.

Car washing

Recycled rainwater can be used for washing cars. Again 'soft' rainwater requires less detergent and leaves a streak free finish.

Garden use

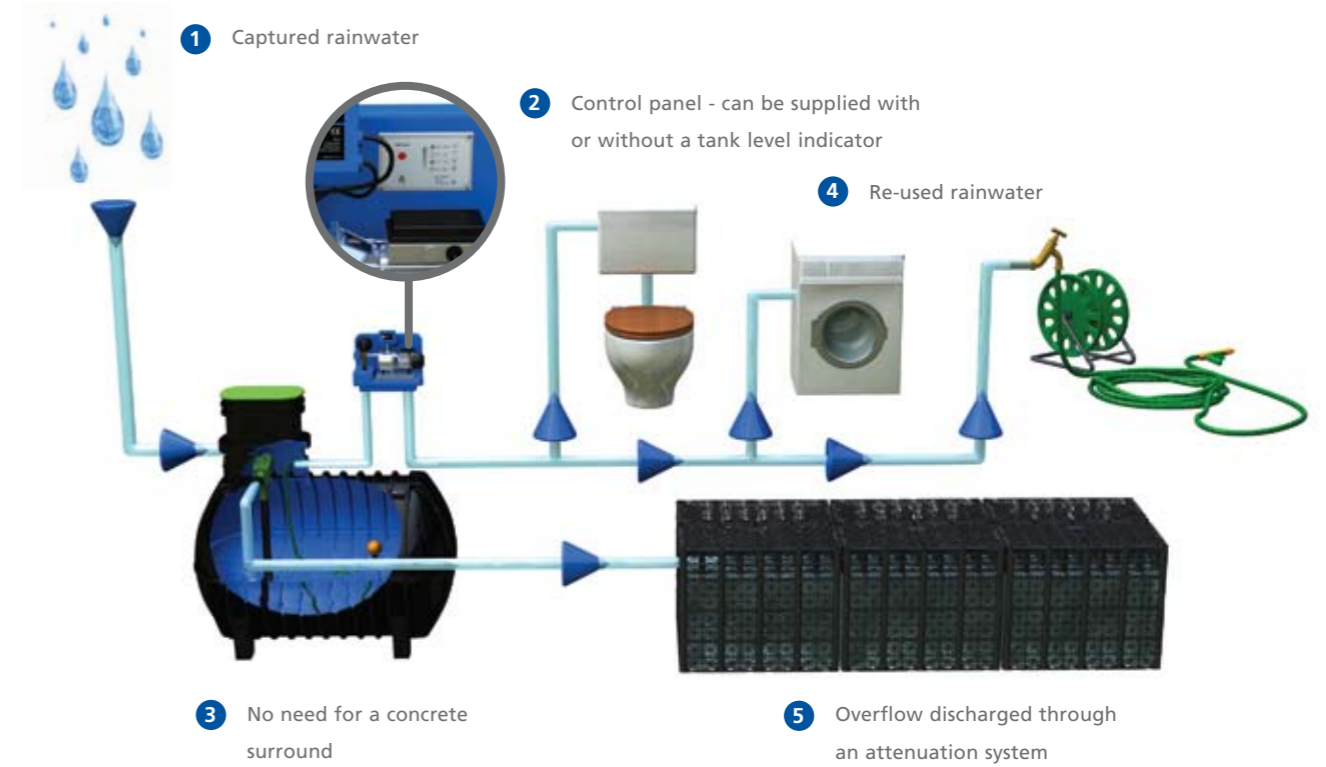
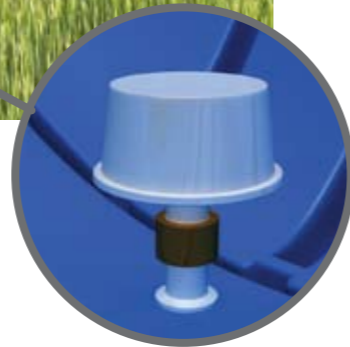
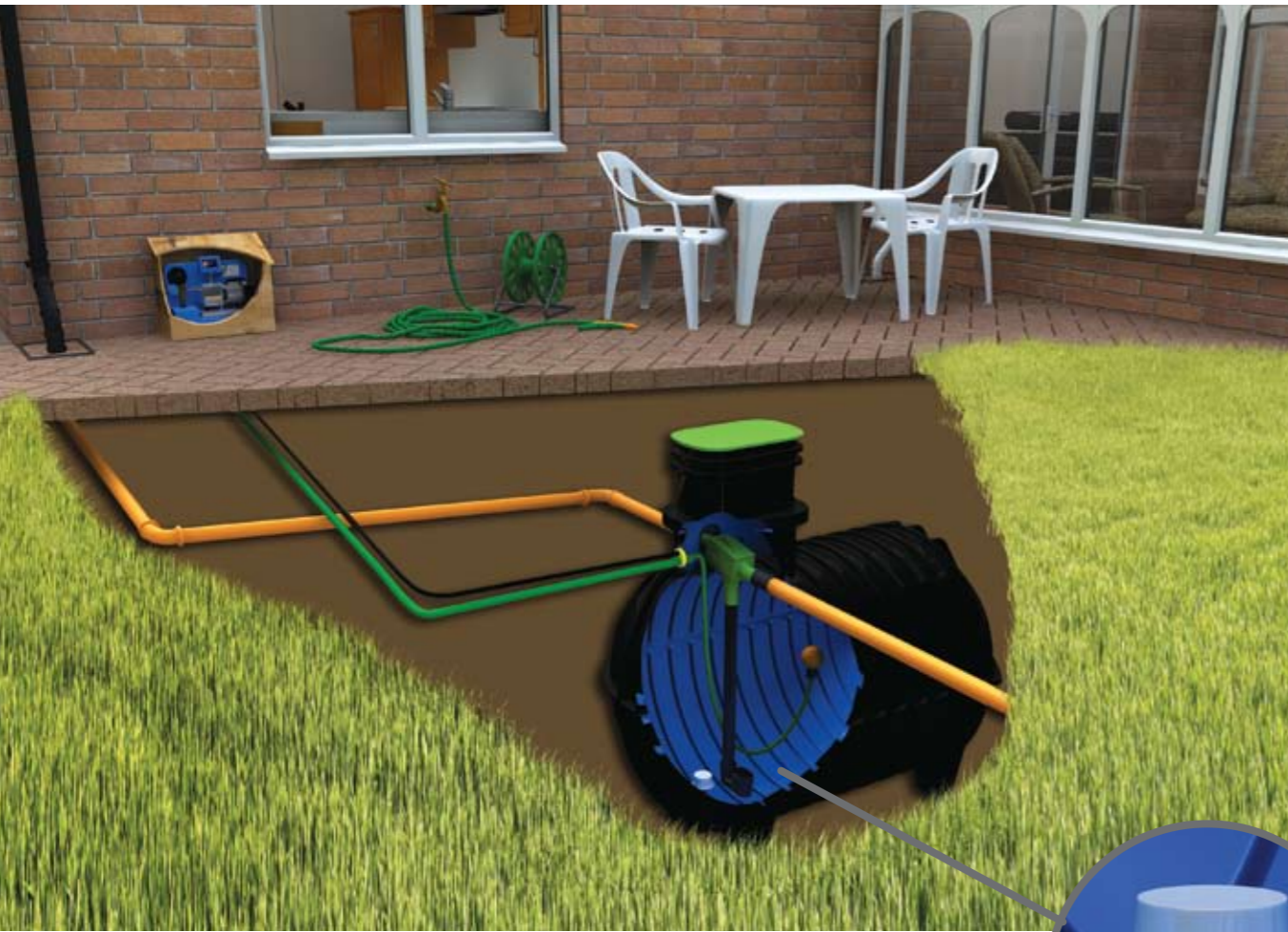
Recycled rainwater is ideal for watering the garden with no dehydrating chlorine or salt content, rainwater will keep grass and plants watered and healthy.

Water quality

Rainstream Home filters the stored rainwater to a level suitable for these non-potable applications in the home. Polypipe advises that the available water quality and intended use are carefully considered and a risk assessment completed where necessary. The company's technical team is always available to advise on such issues.

Rainstream Home

Rainstream Home offers a rainwater re-use solution for the home and garden. Comprising of a robust one piece rotomoulded tank with single turret, housing leaf filter, overflow and calmed inlet; with storage capacities ranging from 2,000lts to 5,000lts and a wall mounted 'pump-pack' to complete the system.



The home system

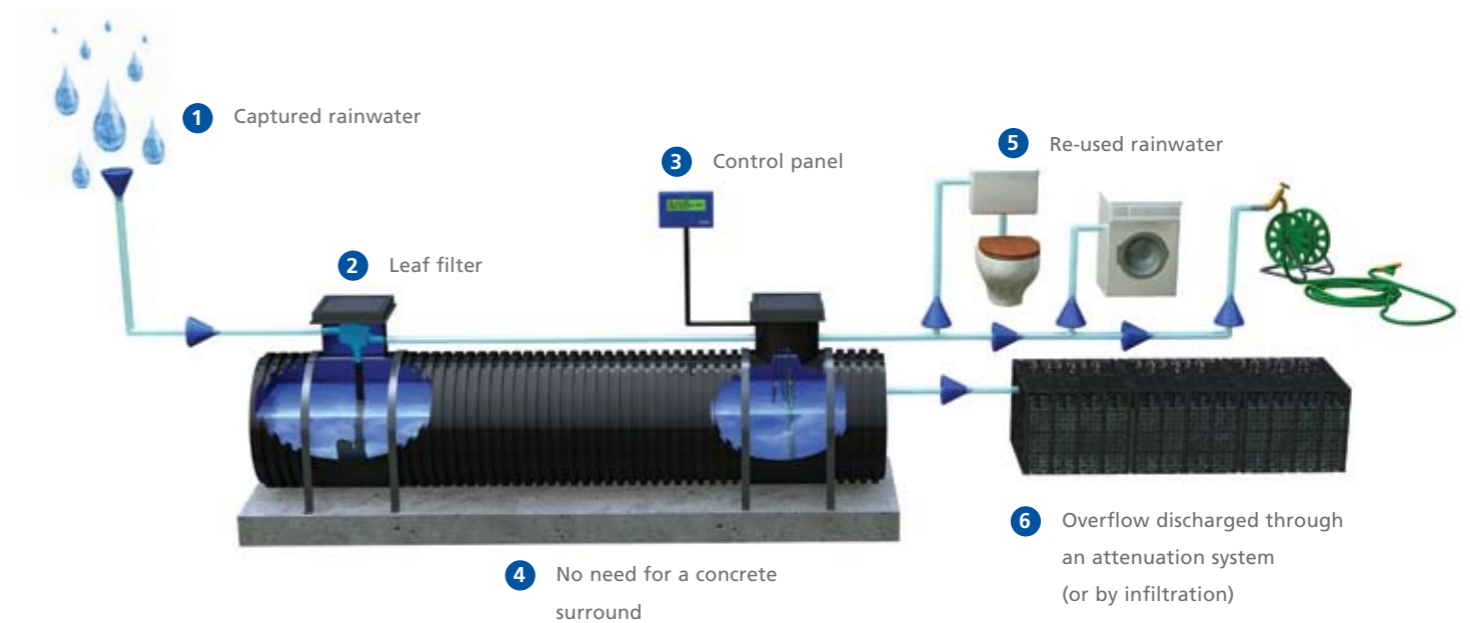
These systems do not need a header tank. Instead an electronic control system monitors the demand for water and pumps it directly from the main storage tank to the appropriate outlet. The control system also measures the water level in the main storage tank and imports fresh water if required to prevent the system from running dry'. Where the optional ground water inlet valves (with filters) are fitted, there is no requirement for a concrete bed or surround. These valves allow ground water from a rising water table to enter the storage area of the tank, thus equalising the hydrostatic pressures on internal and external surfaces, preventing tank collapse or flotation. Not found on any other system this is a unique feature of Rainstream Home.

Features:

- Tanks with 2,000lts, 3,000lts, 4,000lts or 5,000lts storage capacity
- Tanks weights are 112kg, 158kg, 208kg and 258kg respectively
- Four feet on base of tank for stable positioning
- Four grab handles at each corner of the tank for ease of handling
- Two lifting eyes on top of the tank for ease of off-loading
- Optional ground water inlet valves
- Wall mounted pump packs with or without tank water level indicator

Rainstream Home XL

Rainstream Home XL offers an alternative rainwater re-use solution for home and garden use. Where deeper burial depths are required (often a characteristic of communal storage systems) this structured wall tank is capable of withstanding water pressure up to 6m burial depths or 0.6 bar. Far exceeding the normal requirements of rainwater re-use systems. Still a relatively shallow excavation on individual on plot installations; the twin turrets allow easy access to the fully submersed pump and in-line filters which offer the choice of configuring a direct (pressurised) system or an in-direct (gravity fed) system.



The Rainstream Home XL System

The structured wall design of Rainstream Home XL has created a system that is unique in its ability to withstand a high water table. The key benefit of Rainstream Home XL is that it will never need a concrete surround in non-loaded applications, even in cases of a high water table. All that is needed is a concrete base which the tanks are strapped to.

It provides a simple solution to the complex problem of rising water tables and changing weather patterns. As most systems are installed during the summer months, when water tables are at their lowest, the resulting winter rising water table is often not taken into account. Some systems are not designed to be installed within the water table and are unable to withstand the hydrostatic pressures, resulting in their collapse. Rainstream Home XL has been designed by Civil Engineers to withstand these hydrostatic pressures. Further testing has taken place proving the tank's capability to withstand water pressure at a burial depth of up to 6 metres or 0.6 bar, far beyond the pressures the tank is likely to face. The range of tank sizes offered by Polypipe has been researched and designed to meet

the exact requirements of the UK market, based on research into the national average household water use and the most up-to-date MET office data. Rainstream Home XL tanks allow the homeowner to meet their exact requirements and therefore provide the most cost-effective and efficient solution in the market, without the need to over-specify and incur disproportionate purchasing and installation costs. If increased capacity is needed, Rainstream Home XL offers a wide range of tank sizes to ensure rainwater collection is maximised effectively.

Gravity-fed (indirect) and pressurised (direct) systems

Polypipe offer both gravity-fed and pressurised systems. Within a gravity fed system water is pumped from the Rainstream Tank to a header tank in the loft. The water is then fed to each appliance by gravity. Pressurised system uses a pump to feed water directly to the appliance or appliances on demand.

LOW-RES

Rainstream Garden

An ideal introductory product for 'light' rainwater harvesting irrigation requirements, typical use could be to supply rainwater to a garden tap, greenhouse sprinkle or irrigation system.



The garden system

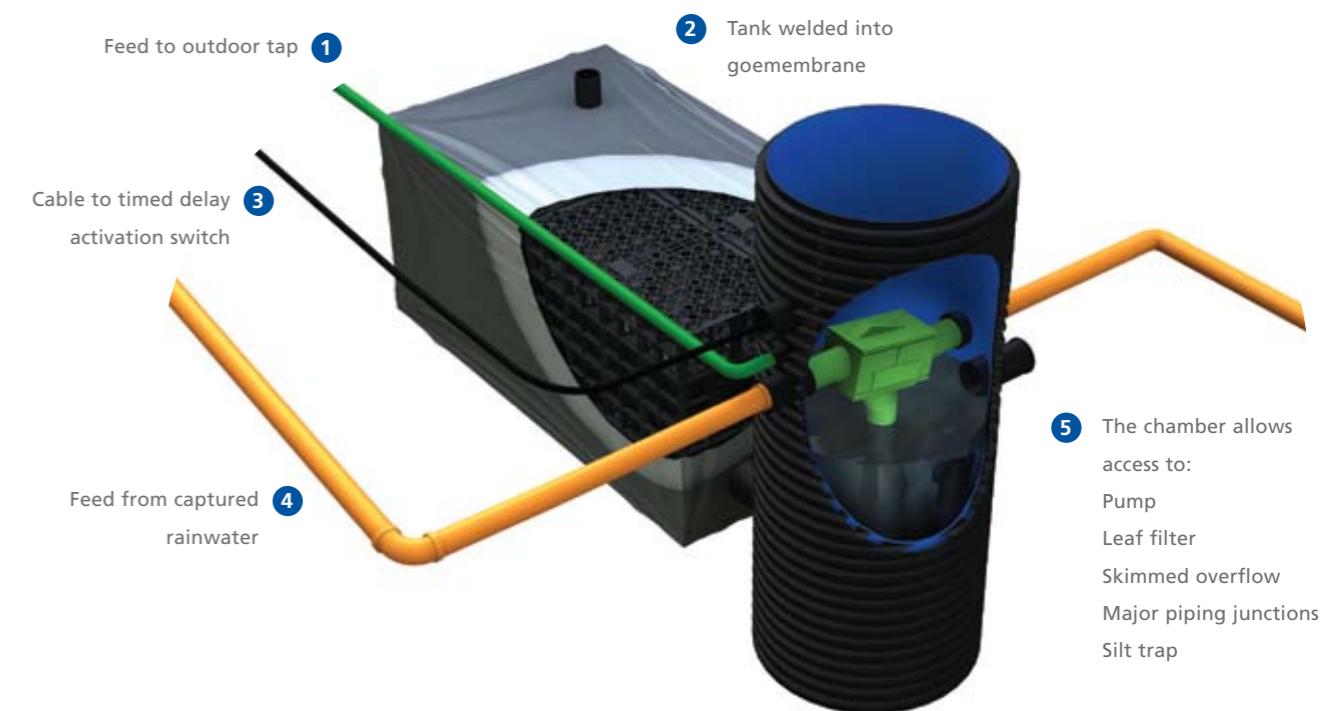
A 1500 litre capacity rainwater harvesting and irrigation system, comprising of: Leaf filter, calmed inlet, skimmed overflow, silt trap, storage tank, pump and timed delay activation switch. In its installed state the product allows the user full access to all components pump, filter, skimmed overflow, major piping junctions, and silt trap for service and system maintenance.

1500 litres of rainwater storage comes from eight Polystorm lite cells which are supplied wrapped and welded into a geomembrane for water tight storage and a geotextile fleece for light protection during installation. The chamber supplied is ready for

installation with the silt trap, leaf filter, calmed inlet, overflow socket connection, rainwater inlet socket, pumped water pressure outlet connection fitting and outlet to tank socket connection fitted.

Also supplied ready for installation is eight Polystorm cells pre-wrapped in a geomembrane and geotextile to be connected to the chamber with inlet and ventilation socket fitted.

Surface water enters the chamber via the rainwater inlet. It is then filtrated though a leaf filter; waste travels through a waste outlet while filtrated water travels vertically down and back up through a calmed inlet.



The filtrated rainwater remains in the chamber until a predetermined level, where thereafter it flows into the connected Polystorm storage tank. This process minimizes the amount of silt build up in the tank as all rainwater initially enters the chamber; any silt therefore remains in the accessible chamber where it can be removed during maintenance and doesn't enter the Polystorm tank. The timed delay switch has a sufficient IP66 rating so it can safely be mounted indoor or outdoor to suit the users' convenience. When pressed the system activates and the pump begins to prime and build sufficient pressure between the outlet and pump: recommended delay setting is 20 minutes. The pump has a built in pressure drop sensor so only 'pumps' when the tap (or other suitable outlet) is opened.

The pump gathers stored rainwater through a secondary filter subsequently prolonging the pumps life and pumps to the plumbed outlet.

The pump and calmed inlet sit on a ledge creating a silt collection sump. The calmed inlet ensures that any silt in the tank is not disturbed; the offset level ensures any silt that is not removed by the initial filtration will relocate harmlessly to the bottom of the chamber where it can be removed during periodic maintenance of the system.

As all major components are located within a 600mm diameter chamber the space required for installation is minimal. The design of the chamber is such that all the components are accessible via the chamber. This makes periodic servicing of filters and desiltation easier it all takes place within the chamber.

Legislation and standards

Growing public awareness of water issues has helped create a large body of legislation and standards. Polypipe is committed to helping customers understand these issues and comply with all the necessary requirements. As an essential component of effective SUDS solutions, rainwater re-use plays a central part in this process and can help meet the requirements of PPS 25, Building Regulations Part H, the Code for Sustainable Homes and many other recognised standards. Rainwater re-use can also help achieve the aims of the Wildlife and Countryside Link's Blueprint for Water document, which offers a timetable for achieving a sustainable standard of water by 2015. It complements the EU's Water Framework Directive by aiming to reduce consumption by 20% - something which rainwater re-use can often achieve.

Future water strategy

This document explains how the Government wants the water industry to operate by the year 2030. It focuses on such issues as reducing water consumption from 150 litres per day to 130 litres per day and improving water supply by building more reservoirs and issuing fewer abstraction licenses. The quality of water in the natural environment is also covered, as is the use of SUDS measures to improve surface water drainage, the wider use of water metering in water stressed areas and the need for better planning to reduce the risk of flooding from rivers and rising sea levels. [For more information visit www.official-documents.gov.uk](http://www.official-documents.gov.uk)

Planning Policy Statement 25

This sets out Government policy on flood risks associated with development. It aims to make flooding a central consideration of the planning process, so that only appropriate development is undertaken in areas at risk, with that risk limited as far as possible. [For more information visit www.communities.gov.uk](http://www.communities.gov.uk)

The Code for Sustainable Homes

The Code is used to rate the environmental performance of new homes in England, Wales and Northern Ireland and certain compliance criteria is mandatory for participants. To achieve target ratings set for 2016, developers must adopt measures such as rainwater re-use that will significantly cut water consumption. [For more information visit www.communities.gov.uk/thecode](http://www.communities.gov.uk/thecode)



Making better use of a valuable resource

BS: 8515

This BSI rainwater harvesting code of practice gives guidance on design, installation, testing and maintenance of systems for non-potable applications. [For more information visit www.bsi-global.com](http://www.bsi-global.com)

BREEAM

The Building Research Establishment Environmental Assessment Method (BREEAM) is now recognised as the standard measure of sustainable building design. It addresses environmental and sustainability issues and enables developers to prove the environmental credentials of their buildings to planners and clients. [For more information visit www.breeam.org](http://www.breeam.org)

Associated Products

Drainage and piping systems

Polypipe's unique range of drainage and piping products allow roof to re-use systems to be created for any type of project.

Rainwater gutter systems

The various guttering products available from Polypipe enable the creation of bespoke guttering systems that maximise rainwater capture efficiency. They include half-round, square section, deep, high and ogee extra capacity profiles, plus complementary products such as spacers, adaptors, brackets, rafter arms and connectors.

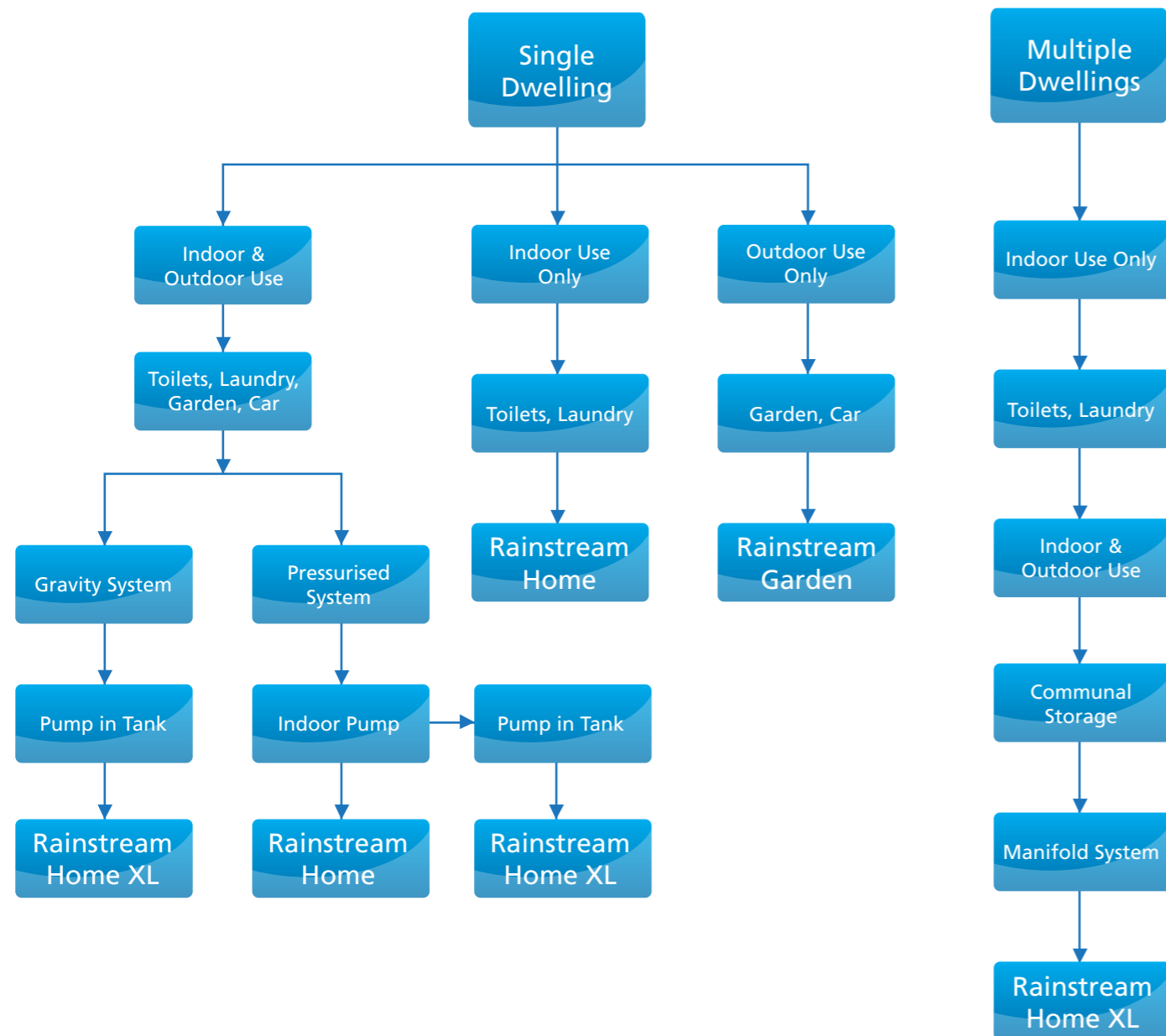
Attenuation and soakaway

Polypipe provides a variety of pipeline or modular cell based solutions for attenuation or soakaway applications, depending on the requirements of the project. Ridgistorm-XL provides a large diameter pipe and storage solutions for any scale of rainwater re-use project. Designed as a bespoke solution for each project, Ridgistorm-XL is the most advanced large diameter plastic pipe system available in the UK. The Polystorm range of modular cells offer a sustainable and adaptable solution for any attenuation or soakaway project. Polystorm cells can be constructed to accommodate all types of ground conditions, planning requirements and design considerations.



Selecting the right system

To ensure clients choose the correct solution for their requirements Polypipe has provided the following selection matrix...

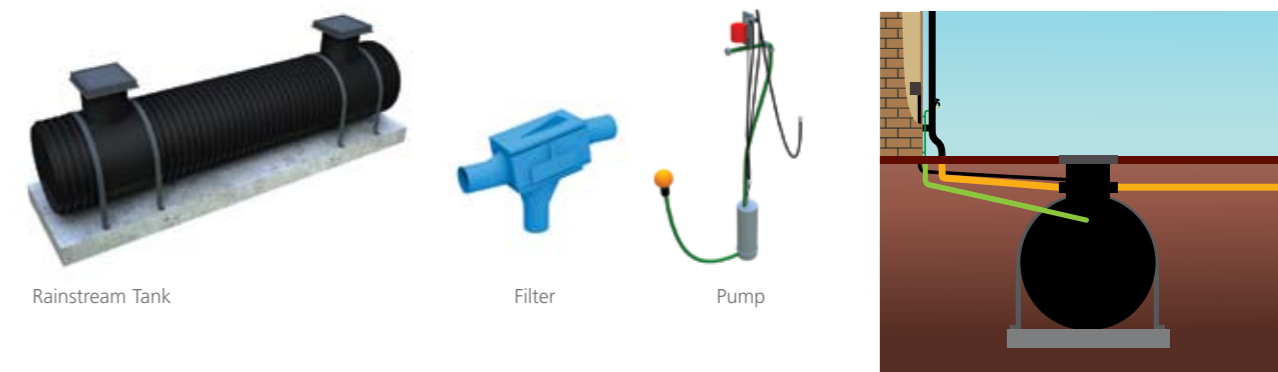


Installation

Home



Home XL



Garden



Rainstream Home and Garden



Polypipe Building Products

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