

Case study 13 The Green Shop RWH systems, UK

Background and introduction

The Green Shop is a Gloucestershire based retail outlet for consumers concerned with the environment and with ethical issues. They have, for some years, been selling rainwater harvesting equipment, some imported from Germany and other equipment which has been developed by the shops owner. They run courses for people who are interested in RWH, especially those interested in systems installation or systems management. They also offer a design and consultancy service for those interested in installing domestic or commercial RWH systems. They can be found at <http://www.greenshop.co.uk>.

There are several demonstration systems at the Green Shop which can be viewed by the public. They are designed to meet the needs of the shop and

adjoining garage and workshop and all the systems are fully functional and meet the requirements of the UK water by-laws. There are a variety of systems available to meet individual requirements and budget, using more sophisticated (and expensive) German equipment or more pocket-friendly solutions developed at the Shop.

Technical detail

There are three standard systems offered. All, at present, require a 240 volt, 13 amp electricity supply, although a system is being developed which will use a 12 volt supply. Each system incorporates an automatic switch over to mains water for periods of extended low rainfall. Each of the systems is adaptable for use in most domestic or commercial applications.

System 1 The WISY system

WISY is a German company who have become the field leaders in the flourishing German RWH market (address given in Resources Section of this document). They have developed a number of innovative components for RWH systems which combine to form reliable and sophisticated systems for domestic or commercial use. One of WISY's leading innovations has been its

range of rainwater filter/ collectors which can either be installed directly in the downpipe or below ground, depending on the application (see Figure 1 and Figure 2). They sell a full range of products for RWH systems.

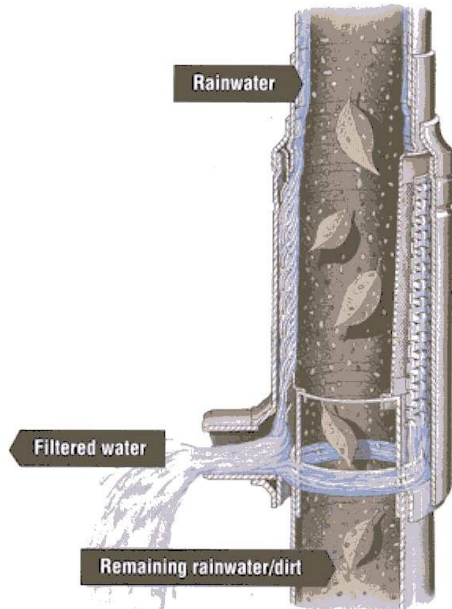


Figure 1 WISY downpipe filter /

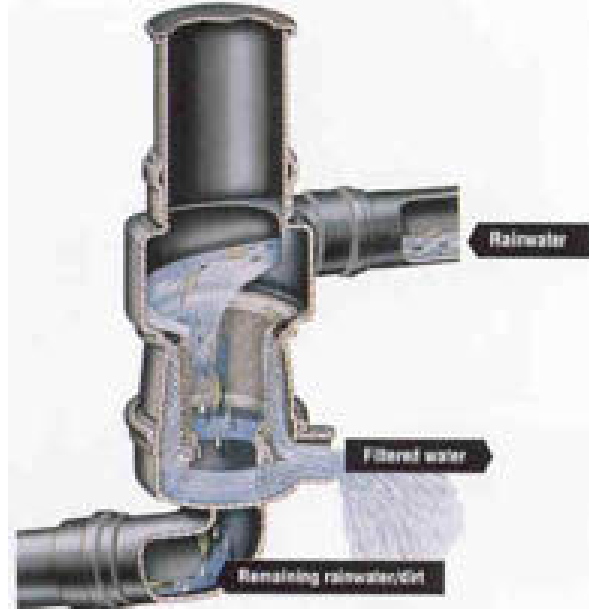


Figure 2 WISY below ground filter /

collector**collector**

(Source: WISY Catalogue)

The WISY system has sophisticated controls which regulate water pressure, provide dry running protection for the pump and automatically controls mains top-up. They claim long life span and low maintenance for the system. A range of pumps are available for a variety of applications.

The full system includes the following components (see Figure4):

| | |
|-----------------------------|--------------------------------|
| pump with auto switch | floating fine suction filter |
| electronic control unit | solenoid operated top-up valve |
| 3m suction or pressure hose | smoothing inlet |
| connectors | overflow trap |

filter collector

WISY AG

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System 2 The KSB Hya-Rain system

Another German company, KSB also offer a full range of RWH equipment. The standard system on offer at the Green Shop includes the following components:

| | |
|-------------------------------|---------------------------|
| pump | electrical control box |
| motorised valve | 7m suction hose |
| mains water bypass cistern | flexible connectors |

floating fine suction filter collector
filter

pressure switch

The main distinguishing feature of this system is a separate mains override cistern for use when the main tank is dry. This allows the topping up to take place in a smaller cistern, decreasing the amount of water needed from the mains at each top-up.

System 3 The Rain Harvester Budget System

This is the Green Shops budget system which has been developed using standard plumbing fittings. The system comprises an 800 watt water pump with integral pressure vessel to smooth the system. An automatic mains top-up is incorporated with suction pipe, foot valve and strainer. The system is shown in Figure 3 below.

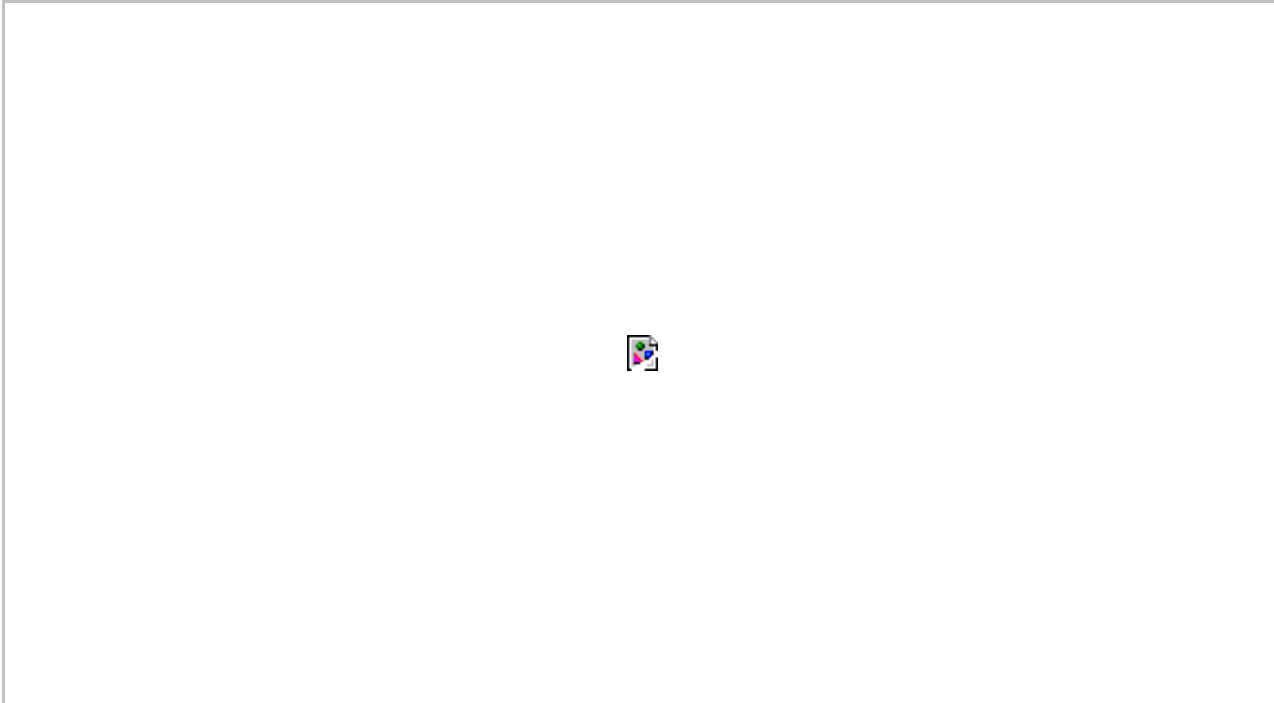


Figure 3 The budget system at the Green Shop (source: Green Shop Catalogue)

Tanks

A number of different types of tank is available for use with the above

systems. Obviously, the size of tank will be determined by the application. In Europe, where services tend to be as inconspicuous as possible, the below ground and cellar tanks are both popular. Common tank materials include plastics, fibre glass, concrete and steel. Many are purpose built and can be expensive. The budget system at the Green Shop uses an old 1520 litre Orange Juice transportation tank. This type of tank is cheap and ideal for the do-it-yourself enthusiast. These tanks can be easily linked to provide incremental increases in storage capacity. A typical below ground system is shown in Figure 4 below.

Rainwater installation with cistern in the ground and a pressure pump in the cistern

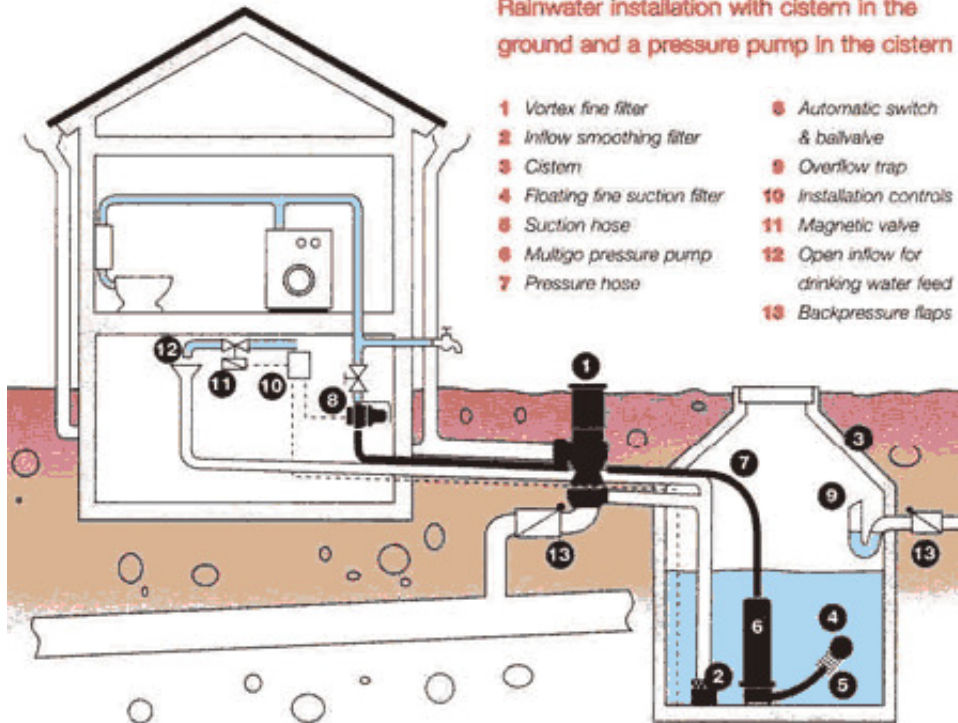


Figure 4 Rainwater Installation with below ground cistern and pressure pump.
Source: Construction Resources News, Winter 1997

All plumbing fittings are from plastic to avoid corrosion, which is a real problem when using rainwater.

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