

Rainwater Harvesting for Domestic Properties (Good building guide)

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GOOD BUILDING GUIDE **GBG 82**

**RAINWATER HARVESTING
FOR DOMESTIC PROPERTIES**

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This Good Building Guide covers the use of rainwater in a domestic property. Most houses have some means of collecting run-off from one or more locations including the house, garage, shed and greenhouse roofs and, possibly, paved areas. Local water suppliers have encouraged this collection of rainwater by making available, at reasonable cost, water butts together with diverters to fit in the downpipe. Systems are now available to store collected rainwater and pump it for use for irrigation and WC flushing. The different options are described together with system design, components and materials. It will be useful to designers and building owners wanting to reduce water consumption.

Piped water within the home is a requirement of national building regulations¹¹ and that supplied from the mains is designated 'wholesome water'. It must comply with the requirements of regulations made under the Water Industry Act¹².

Water usage by a household will obviously vary depending upon lifestyle, occupation pattern and the installed appliances. Average consumption per capita in the UK is between 125 and 201 litres per person per day, with the higher figure from single-person households¹³.

Most of the water used in the home is not consumed. Average figures for the European Union (EU) show that only 5% of wholesome water is used for drinking and cooking¹⁴. Hence, there is a great potential to use non-wholesome water for many of the current domestic uses. For example, typical proportions of UK household water used for various purposes include:

- 35% for bathing and personal hygiene
- 30% for WC flushing
- 12% for clothes washing

- 9% for dishwashing
- 7% for outside use, eg garden watering and car washing¹⁵.

Although rainwater could be used for all of the above uses, the skin contact and risk of ingestion during washing and bathing would require treatment to near-wholesome water standards. However, the wastewater from bathing could be utilised for the other uses if greywater reuse is practised.



Figure 1. Compact rainwater butt



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