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Rainwater harvesting systems

United Utilities' have identified rainwater harvesting systems as the single biggest threat to water quality if they are not installed correctly, and so your installer's familiarity with the Water Supply (Water Fittings) Regulations 1999 and the British Standard for pipe identification markings (BS1710: 2014) is fundamental to a compliant installation.

BS1710:2014 provides the standards for pipe ID and includes colour coding requirements, guidance on labels and the contents of pipework. The purpose of this requirement is to prevent accidental cross-connections that could lead to contamination of wholesome water in supply pipes or distributing pipes.

The Water Supply (Water Fittings) Regulations 1999 detail the national requirements for the design, installation, composition and maintenance of water fittings. These Regulations make provision to stop the waste, misuse, undue consumption, erroneous measurement and most importantly the contamination of the drinking water supply.

Key installation points to note

- Strictly no cross connections between mains cold water and harvested water are permitted. It is therefore essential that harvested water pipework is kept totally separate from mains water pipework. Non-return valves, check valves, RPZ valves and motorised valves are not a permitted form of separation
- All harvested rainwater pipework, below and above ground, must be identified in accordance with BS1710:2014. Signage may also be required, clearly stating "not suitable for drinking." This includes the internal pipework that delivers water around commercial and domestic properties, to outlets and appliances such as washing machines and external taps.
- A mains cold water top up to harvested water storage cisterns should incorporate fluid category 5 protection (type AA or type AB air gap) and the branch to the cistern should be fitted with an isolation valve and a suitably approved single check valve as close as reasonably practicable to the mains cold water pipe work from which the branch is taken

Pipe marking and label examples

Colour coding chart detailing the pipe marking requirements for rainwater harvesting pipework. Colourfast polyethylene tape to be spirally wrapped along the length of underground pipework from the rainwater harvesting tank to the property. This should include direction of flow arrows and a text box detailing the contents of the pipe.

Water quality					
Non-potable water system derived from any other	**Green**	**Flint grey**	**Black**	**Flint grey**	**Green**

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Rainwater harvesting systems

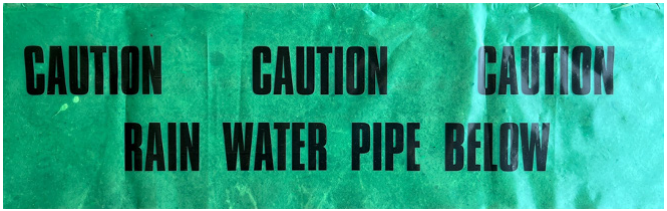
An alternative to the use of underground pipe marking tape is the installation of black/green mdpe pipe specifically manufactured for rainwater harvesting systems in accordance with IGN -9-02-05.



Note: Seek advice from your local inspector prior to laying pipework in contaminated ground.

Warning Tape

Denotes the presence of a supply pipe below. Warning tape to be laid along the whole length of the installation on top of approx. 300mm of back fill. This is in addition to pipe ID.



Internal pipework

The marker tape should still be banded green, flint grey, black, flint grey green and stencilled with whatever fluid family is relevant eg rainwater harvesting. The tape should also incorporate a direction of flow. In concealed areas marker tape should be applied every 500mm. It should also be applied before and after valves and at a point where the pipe changes direction and either side of any wall a pipe passes through. For any long lengths of pipe we would just be looking for a representative application of marker tape that will make the contents of the pipe easily identifiable.

Signage

Signage warning that harvested water is not suitable for drinking



Typical harvested rainwater usage?

- Flushing toilets
- Laundry
- Washing the car
- Watering the garden

What can you not use harvested rainwater for?

- Drinking
- Cooking
- Washing dishes
- Bathing and personal hygiene