

# Rainwater Glossary

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Term	Description	Picture
aboveground rainwater tanks	A tank collecting roofwater which is either: &bull; fully above ground or &bull; at least half the tank is above ground and the view of and access to the inlet pipe, air gap and overflow pipe are unobstructed. Aboveground rainwater tanks are installed inside or outside a building, usually on reinforced surfaces. Metal, poly/plastic, fibreglass or concrete tanks are typically installed aboveground.	
absorption	The process of a substance actually penetrating into the structure of another substance.	
absorption pit (also called a soakaway)	A pit, trench or well dug into permeable ground, filled with broken stone, bricks or large granular material and usually covered with earth, where liquid may soak away into the ground.	
acidic	The condition of water or soil which contains a sufficient amount of acid substances to lower the pH below 7.0	
activated carbon	A water treatment medium found in block, granulated or powered form which is produced by heating carbonaceous substances, bituminous coal or cellulose based substances such as wood or coconut shell. Activated carbon is commonly used for dechlorination and for reducing trace and soluble materials such as organic chemicals and radon from water.	
aerobic	A state where molecular oxygen is present	
aerobic zone	The section of the rainwater tank above the anaerobic zone, where molecular oxygen is present to help ensure rainwater quality. The best rainwater tank system has two outtake points &ndash; one 100-300mm or up to 1/3 the way up the tank for use inside the home, and the other at the bottom of the tank (in the anaerobic zone) for use outside the home.	
air gap	see visible air gap	
(a) Water supply system	The unobstructed vertical distance through the free atmosphere between the lowest opening of a water service pipe or fixed outlet supplying water to a fixture or receptacle and the highest possible water level of such fixture or receptacle	
(b) Rainwater tank top up systems	Local authorities may require a visible air gap of 40-100mm between the top of the tank and the outlet of the mains water top up outlet to prevent contamination that could theoretically be caused due to backflow of rainwater in the tank (due to failure of the top up system valve) into the mains supply network. Many authorities require the installation of dual check water valves at the property boundary to prevent potential backflow.	
algae	A diverse group of aquatic plants containing chlorophyll and other photosynthetic pigments. Many are microscopic (often being single cells) but some can be large, including the large seaweeds. They grow as single cells or aggregations of cells (colonies) (see Phytoplankton and Macro algae).	
algal bloom	The rapid excessive growth of algae, generally caused by high nutrient levels and favourable conditions. Can result in deoxygenation of the water mass when the algae die, leading to the death of aquatic flora and fauna.	
alkaline	The condition of water or soil which contains a sufficient amount of alkali substances to raise the pH above 7.0	
anaerobic zone	A state where molecular oxygen is not present ie. not using oxygen from the air.	
average recurrence interval	The average or expected interval between events of a given rainfall intensity being exceeded.	
backflow	(a) Flow in a direction contrary to the normal or intended direction of flow; or (b) the unintended flow of water from a potentially polluted source into a potable water supply.	
backflow condition	Any arrangement whereby backflow may occur.	
backflow prevention device	atmospheric vacuum breaker	
dual check valve with atmospheric port	double check valve	
hose connection	vacuum breaker	
reduced pressure zone device (rpz)	pressure type vacuum breaker	
	A device to prevent the reverse flow of water from a potentially polluted source into a potable water supply system.	
	A device to prevent backflow caused by back siphonage, which incorporates a ventilation valve, and operates automatically to admit air into the downstream chamber of the valve whenever the pressure in the chamber reduces to or falls below atmospheric pressure.	
	A device to prevent backflow caused by backpressure, and which has two independently operation force loaded nonreturn valves and incorporates specific test points for inservice testing.	
	A device to prevent backflow caused by back-siphonage or backpressure, which incorporates a ventilation port and two independently operating force loaded non-return valves which prevent backpressure when operative, and which automatically admits air to the chamber between the non-return valves, when the upstream non-return valve becomes inoperative.	
	A device fitted to a hose-tap to prevent backflow in a water reticulation system caused by either back-siphonage or backpressure, which operates automatically to admit air into the system under backsiphonage conditions and vents the system to atmosphere under backpressure conditions.	
	A device to prevent backflow caused by back-siphonage, which incorporates a force loaded ventilation valve, and operates automatically to admit air into the downstream chamber of the valve whenever the pressure in the chamber reduces to 7 kPa.	
	A device to prevent backflow caused by either back siphonage or backpressure in a water reticulation system, which incorporates two independently operating force loaded non-return valves and which automatically drains to waste, whenever the pressure in the system between the upstream and downstream non-return valves reduces to a pressure not less than 14 kPa below the pressure at the inlet to the upstream non-return valve.	
bacteria	Single celled organism. Bacteria may be free living organisms or parasites. Cells range from about 1-10 microns in length and from 0.2 to 1 micron in width. Some bacteria are helpful to man, others harmful	
below ground rainwater tank	A tank collecting roof water which is either: &bull; fully or mostly underneath the ground &bull; where the view of and access to any one of the air gap, inlet pipe or overflow pipe is obscured by the ground or something similar e.g. rockery or garden bed. There should be no possibility that surface run-off eg: on a sloping site will drain to a rainwater tank.	
biofilm	Biofilm forms when bacteria attach to surfaces exposed to water, and begin to excrete a slimy, glue-like substance that can anchor	

them to all kinds of material &ndash; such as metals, plastics, soil particles, medical implant materials, and tissue. A biofilm can be formed by a single bacterial species, but more often biofilms consist of many species of bacteria, as well as fungi, algae, protozoa, debris and corrosion products. Essentially, biofilm may form on any surface exposed to bacteria and some amount of water. Once anchored to a surface, biofilm micro-organisms carry out a variety of detrimental or beneficial reactions (by human standards), depending on the surrounding environmental conditions. Biofilms attached to particles of contaminated soils and aquatic sediments help degrade soil-bound contaminants occurring from accidental chemical releases into the environment. Some reactors designed to promote biofilm growth are very effective for treating environmental wastes such as sewage, industrial waste streams, or contaminated groundwater. Biofilm contamination and fouling occurs in nearly every industrial water-based process, including water treatment and distribution, pulp & paper manufacturing, and the operation of cooling towers.

**biological pollution** Pollution by micro-organisms e.g. bacteria and viruses (see Pollution). **blue greens** Blue greens or Cyanobacteria are an ancient group of photosynthetic bacteria without a nucleus which produce their own energy from sunlight. Some can assimilate dissolved gaseous nitrogen. A number of species produce toxins. Cells can also cause irritation of the skin and eyes on contact. **brackish water** Water containing dissolved solids in the range 1000 &ndash; 15000 ppm. See Salinity **brine** Water containing high quantities of sodium chloride **bushfire rainwater storage** **cartridge filter** A device made up of a housing and a removable cartridge (element) for fluid filtration. Elements can be cleanable and reusable or disposable **charged systems** **chloramines** Chemical complexes formed from the reaction between ammonia and chlorine being used to disinfect many municipal water supplies **cistern** A water storage tank, especially as part of a flushing toilet. An underground reservoir for rainwater connection see direct connection or indirect connection. **contamination** Surface water becomes contaminated when pollutants or microorganisms enter the water body directly, through stormwater drainage, or through groundwater. Groundwater becomes contaminated when pollutants or microorganisms filter through the soil to the water table. **dam** A structure constructed across a drainage system to store surface water flow for water supply use or release in a controlled manner for downstream use. A dam can be constructed across a river valley or at the side of a valley to store water pumped into it from "run of river" flow. Dams also store water for farm use. **deoxygenation** Depletion of oxygen. **desalination** The process of removing salts from water to produce fresher water (see Salinity). **diffuse source pollution** Pollution originating from a widespread area e.g. urban stormwater runoff, agricultural runoff. The opposite of point source. **direct connection** Direct connection occurs: &bull; where a pipe containing water from a reticulated supply is directly connected into a tank or pipe containing water from a rainwater tank, or &bull; where the outlet of a pipe containing a reticulated supply is submerged beneath the surface of water from a rainwater tank. **dirt traps** See First flush water diverters **discharge** Volumetric outflow rate of water, typically measured in cubic metres per second. **discharge area** Area where groundwater discharges to the surface. **dissolved oxygen (do)** The concentration of oxygen dissolved in water or effluent, measured in milligrams per litre (mg/L). **downpipe** A pipe to carry rainwater from a roof to a drain or to ground level **dry inlet systems** A system where the tank inlet is at a lower level than any part of the inflow pipe work thereby allowing the rainwater to drain completely into the tank. [http://www.rainharvesting.com.au/dry\\_systems.asp](http://www.rainharvesting.com.au/dry_systems.asp) **dual water check valves** A device to prevent backflow caused by backpressure, which incorporates two independently operating force loaded non-return valves. **dual water reticulation area** A community which is supplied with both a potable (drinking water) water source, and a recycled water source (for specific purposes, including toilet flushing, external use, etc) **eaves** the part of a roof that meets or overhangs the walls of a building **ecosystem** A term used to describe a specific environment, e.g. lake, to include all the biological, chemical and physical resources and the interrelationships and dependencies that occur between those resources. **effluent** Liquid waste or sewage discharged into a river or the sea **evaporation** Loss of water from the water surface or from the soil surface by vaporization. **evapotranspiration** The combined loss of water by evaporation and transpiration. **fascia** A board covering the ends of rafters or other fittings **filter pits** Can be used if it is not practical to fit rain heads under roof gutters or on a wall to pre-filter water headed for the water tank. Filter Pits enable screening to be done at a pit which can be safer and easier to clean than cleaning the screens of rain heads fitted at the roof gutter. Extremely beneficial when used in conjunction with underground tanks or where tanks are placed downhill from the building. They are usually placed at a convenient spot in the garden, part way between the building and the tank and are a "junction" where the pipes from around the house meet, and from which the main pipe/s then connect to the storage tank. They handle large volumes of water and typically come with insect proof stainless steel screens and screens to filter larger debris. Require a fall between the building and the top of the tank depending on the distance of the pipe run between where the pipe enters the ground at the building and the tank. This system will enable the pipes to be connected directly into the wall of the tank which leaves the top of the tank free for other uses and eliminates the need for a tank screen on top of the tank. This prevents contamination of the tank water due passing of water through to leaves and debris collected in collection via the tank screen and reduces the amount of sunlight entering the tank thus minimising the growth of algae and other bacteria. First Flush Water Diverters should be installed downstream of Filter Pits to improve water quality and prevent the first most contaminated water from entering the tank.