

Information About Roof Washers

What is a roof washer? A roof washer, also referred to as a first flush device, diverts the first few minutes of rain fall away from the cistern. The first few minutes of rainfall cleans the sky, roof, and gutters of particulates, debris and contaminants. Contaminants include bird and animal feces, pesticides, pollution, lichens, moss, roofing material, and dissolved gasses. The contaminants can reside in the sky and on the roof. Debris can be wind-blown dust, leaves and seed pods from nearby trees, pollen, and dead insects.

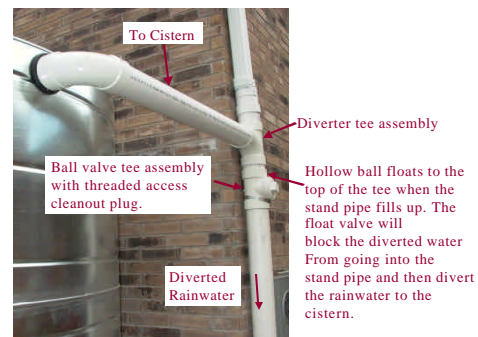
What is the need for a roof washer? The roof washer helps keep debris and contaminants out of your cistern. This reduces the amount of maintenance that needs to be performed on a cistern. That is to say, reduce the periodic cleaning. Organic materials that enter the cistern will decompose, leaving the cistern smelling and growing! Debris will also clog up the drain outlet and cause problems with the pump. Particulates that enter the cistern will build up on the bottom which will require cleaning on occasion. Particulates will also produce a foul smell when cleaning. In summary, roof washers extend the lifetime of your pump, reduce the maintenance of your cistern, and improves rainwater quality.

What types of roof washers are out there? The three most common types are: 1) constant volume, 2) mechanical actuated valves, and 3) filtering system.

A constant volume roof washer uses a containment chamber that fills up during the first few minutes of a rain storm. It can be a container of some sort or a stand pipe. Sometimes this is referred to as a “Poor Man’s Roof Washer.” The stand pipe or container has a constant volume, hence the name. During the first few minutes of rain fall, the rainwater is diverted to the stand pipe or container. Once the stand pipe or container fills up, the rainwater is transferred into the cistern.

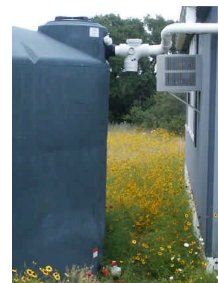
At the bottom of the stand pipe is a valve that is slightly opened. The valve drains the water from the stand pipe so it will be empty for the next rain

storm. The stand pipe can be made a certain length for the amount of rainwater that needs to be diverted. A float valve can also be integrated into constant volume diverter to keep the diverted rainwater separated from the rainwater transferred to the cistern.



Constant volume float valve.

The second type of roof washer is similar to the constant volume roof washer. Instead of using a constant volume container, the second type measures the amount of rainwater to divert by a mechanical method. Once the measured amount of rainwater to divert is detected, a valve is triggered to transfer the remaining rainwater to the cistern.



Mechanical valve.

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The third type of roof washer is a filter system that uses mesh and screens. It only allows particulates of a certain size to enter the cistern. It is placed on the cistern or at the gutter outlet. No water is thrown away with this type of roof washer. This type works best in low rainfall areas where it would be wasteful to divert any rainwater from the roof.



Filter

All first flush devices have advantages and disadvantages. Consider price, first flush device maintenance, cistern maintenance, first flush performance.

The most economical first flush device is the constant volume type. It can be fabricated by yourself inexpensively. It can take up to six hours to install considering design time, locating materials, test fitting, and installation. This device will allow mixing of the “clean” rainwater with the diverted water. To minimize this, a ball valve can be implemented. Performance is not the best as mixing can occur. Also, during rain storms after the first flush is diverting the rainwater into the cistern, anything that blows onto the roof will end up in the cistern, by passing the device. Good gutter protection is required with the constant volume device to prevent this. A drain valve is required on this device with a cleanout. It is not self-cleaning and requires draining after each rainfall. The drain can be cracked open so that it drains “automatically” after each rainfall. The amount of diverted rainwater is not easily adjustable either. However, the diverted rainwater is lost, unless you drain it into a storage container such as a rain barrel for later irrigation use. Without proper gutter protection like Gutter-

Filter, mosquitoes and other insects can enter your cistern via the constant volume first flush device. GutterFilter provides the best gutter protection and prevents any mosquitoes from entering the cistern via the gutter and downspout. During a really long and slow rain, the rain will not wash the roof and the debris and sediment will remain on the roof and the constant volume first flush device will engage and send the roof water to the tank. And if the rain picks up, all of the debris on the roof will be sent to the cistern as the containment chamber is full from the drizzle..



Ball Valve Tee

The Saferain device is a mechanical first flush device that does not require a catchment chamber for operation. The rainwater will perform just as well during a drizzle or downpour. The diverted rainwater can be diverted into a rain barrel. The Saferain can easily be adjusted for any roof area to obtain the amount of diversion desired.



SafeRain

Inline filters will catch all of the rain either drizzle or downpours. No rainwater is lost. The smaller the mesh, the more maintenance required. The self-cleaning filters have more loss.