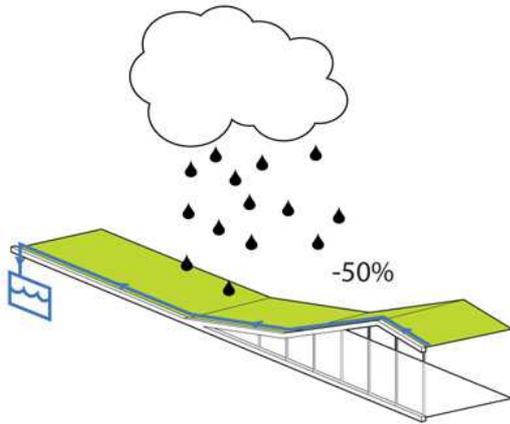


# STORM WATER MANAGEMENT VEGETATED ROOFS

## INFORMATION SHEET



A major objective of low impact development site design is to minimize, detain and retain storm water runoff uniformly throughout a site. This is achieved by infiltrating and temporarily storing runoff water using Integrated Management Practices (IMPs) like green roofs.

The storage provided by green roofs helps to reduce the volume of storm water runoff. The use of water quantity control by green roofs has increased in years due to its potential for addressing urban flooding and in reducing hydraulic loads on combined storm sewer systems. The quantity of rainfall retained or detained by a green roof can vary, but for small rainfall events little or no runoff will occur and the majority of the precipitation will return to the atmosphere through evapotranspiration. For storms of greater intensity and duration, a vegetated roof can significantly delay and reduce the runoff peak flow that would otherwise occur using conventional roof design. This helps to reduce the risk of flash flooding and the frequency of combined sewage overflow events.

## STORAGE CAPACITY ZINCO GREEN ROOF ASSEMBLY

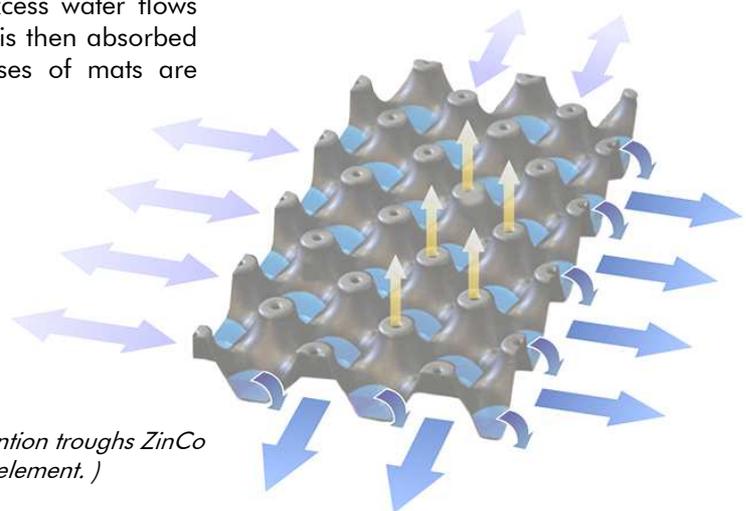
The ZinCo Green Roof assembly includes several layers which can store storm water. The ZinCo product line is so diverse and flexible that these layers can be modified or exchanged to design for your project specific storage volume or quantity control of the storm water run off. The first layer is the **growing medium (1)** which retains about 75% of the total assembly capacity. The density and depth of the growing medium can be used to influence the volume of water stored in this layer. The second layer is the **ZinCo water retention and drainage element (2)** which has the shape of an egg carton. The troughs of this element are used to collect water which will diffuse into the growing medium during the dryer periods. ZinCo provides different drainage elements with different storage capacities. And the third layer is the **moisture retention mat (3)** which is installed underneath the drainage element. When the water in the drainage element is replenished excess water flows over the edge of the element. The overflow water is then absorbed by the moisture retention mat. Various thicknesses of mats are available with their own retention capacity.



(Layer for storm water storage in ZinCo green roof assembly)



(ZinCo moisture retention mat)



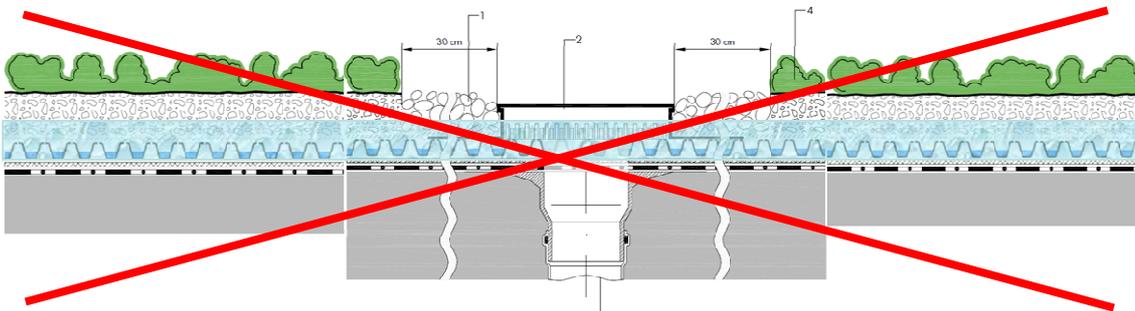
(Water retention troughs ZinCo Floradrain element.)

# STORM WATER MANAGEMENT VEGETATED ROOFS

## ROOF TOP STORAGE USING CONTROLLED ROOF DRAINS

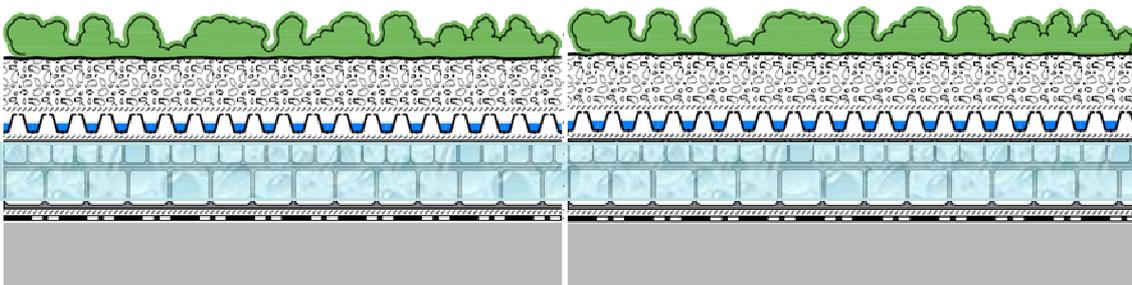
The ZinCo green roof assembly can be used with **controlled roof drains**. This is an advance method of removing storm water of the roof. As contrasted with conventional drainage practices, which attempt to drain off storm water as quickly as possible, controlled roof drains do this at a controlled rate. Excess water accumulates on the roof (around the roof drains) under controlled conditions and then drains off at a lower rate. This method lightens the load on (combined) sewer systems by reducing the rate of water drained from the roof tops during severe storms thereby reducing flooding and overflows.

When using the standard ZinCo green roof assembly with controlled roof drains the green roof / vegetation will be sitting in moist conditions for long periods of time. This will affect the development and performance of the vegetation.



*(Green Roof / Vegetation is sitting in moist conditions for long periods of time)*

To avoid moist growing conditions the green roof assembly needs to be elevated out of the ponding water. ZinCo found a solution using the **ZinCo Grid Spacer**. This grid is creating a void underneath the green roof assembly that can be used for storm water detention. The grid spacer is coming in different sizes and can be stacked on top of each other to accommodate the required storage capacity.



*(Green Roof assembly elevated above the ponding water using ZinCo Grid Spacers)*



◀ ZinCo Grid Spacer GS 52 (52 mm)

ZinCo Grid Spacer GS 30 (30 mm) ▶

