Irrigating a Roof Garden

Roof gardens have their own special issues when it comes to watering. The exposure, the porous soil mixes, and shallow soil depths, pose unique challenges to our irrigation solutions. We need better uniformity since the lighter mixes do not have the capillary action of our native-natural soils. The small root zones make the same plant need regular-shorter watering throughout their life and are most likely to benefit from fertilizer injection. Most native plants on roofs need post-establishment watering.

Emitters and Eco-Mat (capillary) – Emitter lines have emitters installed at different preset intervals and outputs. The lines are laid out in a grid form to cover the whole planted area. It is not affected by foliage or wind. Closer spacing and higher output options are usually used with low capillary action of the light rooftop mixes. The application rate for this drip solution, watering between 1/2 and 1 inch per hour, is higher than is often thought and unseen overwatering occurs. It is the most ideal option for most small to medium roof plantings.

Hunter Industries makes an emitter line in a capillary mat that is installed at a depth of 4” to 6” for turf to 12” for larger shrubs. It called eco-mat and gives excellent uniformity. Also available as fleece wrapped tubing, PLO-ESO.

MP Rotators – They are multi-stream rotating nozzles that fit on spray-head bodies. They apply water at about 1/2 inch per hour. The number of streams changes exactly with arc setting giving excellent uniformity. The streams are lower than spray heads making them very good in wind situations. They come in different models from about 8’ to 35’ radii. Their nozzles have different trajectories giving even coverage throughout the pattern. These are made by Hunter Industries and were chosen for the large native roof garden at the California Academy of Science in San Francisco.

Rotors – They are gear driven as opposed to the impact rotors that were once used. They are most useful in beds over 30’ wide, with a low ground covers. They have a single rotating stream. But on the larger radius nozzles the trajectory is higher and it is more likely to be blown in the wrong direction leaving dry spots just on the down-wind side of the nozzle and along the edge of the pattern. In design shorter radius lower trajectory nozzles should be looked at.

Spray heads – non-rotating popups come in many arcs + radii. They are limited in radius of about 15 feet and when they are placed in a proper overlapping pattern they water at the rate of about 1.5 to 2.0 inches per hour. This is less of a problem in the lighter rooftop soil mixes than most native soils. The spray patterns on the 12 foot and 15 foot sprays have high trajectories that along with the small droplet size become very ineffective in the wind.