

Green Stormwater Infrastructure: Green Roof, Gainesville Regional Utilities

[00:09] Eban Bean: Hi, I'm Eban Bean, and we're here at the GRU Eastside Operations Center in Gainesville, Florida. We're at the intensive green roof that is on top of one of their buildings here. And like many green roofs, this site is intended to capture rainfall, allowing the plants to take up that water and the nutrients that might come with it for their survival, so they can evapotranspire that water away, reducing the amount of runoff that would come from a conventional rooftop.

[00:37] Now, you'll notice that this might be a bit different from other green roofs that you may have seen or may have come across before. Plants up here are fairly large. We have evergreens, we've got some grasses, we've got palms, bushes, some that are as large as me.

[00:53] That requires a deeper soil media, so we need more like six to eight inches of media versus a conventional green roof or an extensive green roof that might only have about three inches of material or media to grow in.

[01:05] With that larger media and the larger plants here, we also might need some supplemental irrigation. The rainfall that we get, or the periods without rainfall, the droughts that come along may be too extensive or too intense for these plants, so we actually have some supplemental irrigation that's being applied to these larger plants. That may come from a cistern in other cases.

[01:29] In this situation, it's coming from our water supply, our reclaimed water supply from the wastewater plant. Notice as well that this provides quite a bit of a park-like setting on the top of a rooftop. Think about that in context of an urban area, and that's sort of where we would tend to find something this intensive.

[01:49] One of the main features of the plants that we find on green roofs commonly is that they tend to be very drought tolerant. That's a key aspect because we're going to have periods where we don't have rainfall for a while, and after the drought we need those plants to be able to come back from that period without rainfall and still be able to perform that function.

[02:08] Now, the fluctuations of wet and dry times can create different soil conditions, and especially in these deeper media installations we can have different vegetation or weeds, nuisance plants, come in that need to be removed as part of the maintenance plan. You'll notice in the grass we've got a couple of different types of plants that weren't put in here but natively recruited.

[02:33] The other side of this is that these plants are fairly large. This is not an installation that we would put in as a retrofit. This is such a large intensive installation, this would need to be incorporated into the original building design. A hundred and fifty pounds per square foot is a lot of weight for a rooftop not designed for that additional weight to be able to carry, so we wouldn't necessarily think of adding this on after the fact, after the building is constructed.

[03:03] However, in an urban area where we may not have many amenities or natural spaces or gardens, intensive green roofs can provide that setting on the tops of our newly constructed buildings. For example, if we wanted to grow herbs or certain vegetables up here, we would have that opportunity just upstairs from where we may be living or working.

[03:29] So, intensive green roofs can provide quite an additional benefit beyond just stormwater management, but also in providing a park-like setting, a garden, and other features to the public.

[03:44] So just like any other stormwater practice, green roofs also have a maintenance requirement with them, whether it's pulling out the weeds that may come in over time or replacing plants that may not have survived for various reasons, maybe being too wet or too dry for extended periods.

[04:01] In addition, the mulch and bark that's up here may need to be replaced over time. For very large storm events where our storage is filled up and we have overflow off of the rooftop, it may carry some material into the gutters, and that may need to be cleaned out over time.

[04:21] Green roofs can be a very effective practice, but they definitely need maintenance just like anything else.