

GREENROOF PERFORMANCE STUDY: PUGET SOUND REGION

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1 ABSTRACT

Green roof infrastructure is rapidly becoming a hallmark of sustainable building strategies in the U.S. and globally. Well known as a community that supports urban sustainability issues, the city of Seattle is increasingly promoting green roof infrastructure through regulatory and incentive based development strategies. The University of Washington Green Roof Performance study was initiated to assess the hydrological performance of extensive green roof infrastructure for the Seattle metropolitan region. The study evaluates continuous hydrologic data from five (5) experimental panels (600ft² each) to determine the capacity of extensive greenroof design strategies to alter the quantity and timing of runoff during storm events. Through one year (March 2011 through February 2012) of data collection, the panels retained 30 – 56% of all precipitation. During the regionally dry months (July and August) the panels retained 95 – 99% of all precipitation. However during the wet season performance dropped considerably with retention rates ranging from 28 – 55%. As expected, peak volumes and delay were strongly correlated to soil moisture conditions; however, during the most common storm events (0.01” – 0.25”) peak volumes were reduced 66 – 87% and median peak delays ranged from 2 to nearly 4 hours.

1.1 Keywords

green roof, performance monitoring, stormwater, retention, environmental benefits