Investigation of Stormwater Performance of Green Roof Systems at SIUE

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The built environment results in increased runoff from precipitation events. The increased runoff causes environmental problems, such as increased frequency and severity of flooding as well as combined sewer overflows. The runoff can also contain pollutants at levels that can cause environmental degradation, such as increased algal blooms and turbidity. Green roofs and walls are types of living architecture being installed on buildings to reduce the negative impacts of stormwater runoff while also providing benefits, such as additional green space, improved biodiversity, reduced heating and cooling costs, and decreased heat-island effect. At Southern Illinois University Edwardsville (SIUE), the quantity and quality of stormwater runoff from green roofs and walls have been studied from model field installations and in laboratory tests. The performances of different green roof systems with various growth media, plant types, and system depths have been studied to determine their impact on stormwater runoff quantity. In addition, the effects of these systems on runoff quality, specifically nitrate, total suspended solids, and turbidity, have been studied. Select results of runoff quantity and quality will be presented.