



## The influence of green roofs on runoff quality — 6 years of experience

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### ABSTRACT

Green roofs have gained global acceptance as a technology that is beneficial for both the environment and the urban population. It is generally believed that green roofs also improve the quality of runoffs. The article presents the results of a 6-years study of water quality in runoffs from extensive green roofs of different constructions with respect to the quality of rainwater and runoff from a reference roof. The research results show that analyzed green roofs are capable of neutralizing runoffs and should not be also regarded as sources of ammonium nitrogen pollution in runoffs. Apart from the positive effects, these green roofs can also have a negative influence on the quality of runoffs. The high total concentrations of nitrite nitrogen, nitrate nitrogen, phosphates, and the content of organic substances that do not undergo biodegradation observed in the runoffs. Based on the results of this research it can be inferred that the influence of green roofs on the runoff quality will improve during the operation period, but not for all quality indicators. There is a need to focus more on the quality of green roof runoff. It should be controllable through better design, management, and maintenance of green roofs.

*Keywords:* Green roofs; Runoff quality; Substrate; FLL Green Roof Guidelines; Sustainable urban drainage system (SUDS); Rainwater management

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