

## COMPARING LABORATORY EXPERIMENTAL MEASURED C-VALUES WITH FIELD OBSERVATIONS

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### ABSTRACT

Predicted climate changes combined with urbanisation increases the performance demand on urban stormwater management structures. The rational method with the runoff coefficient (C) is one of the most commonly used design tools in stormwater management. The runoff coefficient is the most essential part of the equation to capture land use. In Norway, green roofs are gaining popularity as a stormwater management measure. However, more knowledge is needed on the runoff coefficient from green roofs in order to improve design calculations. This paper compares laboratory and experimental field studies to investigate observed runoff coefficients, C from different types of green roofs. Comparing laboratory and field observed values a model can be developed and calibrated to calculate the C factor for differently composed vegetated roofs. The laboratory measured runoff coefficient is found by the standard German method given in the “FLL Guideline”. Where the runoff coefficient is the ratio between the runoff at the end of precipitation and the amount added. Both combinations of layers and layers alone were tested, enabling the influence from each single layer to be studied. The runoff coefficients from the field were calculated using observed precipitation and runoff from existing green roofs in Oslo, Trondheim, Sandnes and Bergen. The events were selected based on soil moisture and the intensity of the rainfall, which are factors influencing the runoff coefficient. By comparing these values, this study will show to what degree using runoff coefficients for design of green roofs as stormwater structures is a suitable choice.

**Keywords:** Detention; Green Infrastructure; Green Roof; Rational Method; Runoff Coefficient; Urban Storm Water