

**O 53. URBAN DRAINAGE DESIGN ACCORDING TO TURKISH RAINWATER
HARVESTING AND DISPOSAL GUIDELINE**

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ABSTRACT: The natural cover of land has been changed to impermeable layers in most of the cities with rapid urbanization. The impermeable layers are the drivers of urban floods. Urban areas are becoming prone to flood disasters. The rate of infiltration is higher in natural land cover and lower in impervious surfaces. In impervious surfaces, the high rates of runoff are responsible for urban flood disaster. Runoff in urban areas might be one of the restrictions for drainage during the intense rainfall events. Hence, for accurate drainage design, factors which affect the drainage should be taken into consideration. In urban areas integrated green infrastructure design is one of the most effective tools for stormwater management and runoff reduction. There is a need for water sensitive urban designs for flood risks mitigation. Identification of flood-prone regions is crucial for flood mitigation. Improving permeable paving and sustainable drainage system can reduce floods in urban areas. In this study, Barış Street in Selçuklu district of Konya province is selected for rainwater drainage design using rational method according to the rainwater collection, storage and discharge systems regulation which published in 2017. The study area covers 11.04 ha. The study area has many grey infrastructures and there is no green infrastructure existed. Hence, it is prone to urban flood. Intensity-Duration-Frequency (IDF) rainfall curves were used for the intensity and frequency determination. Seven different periods, namely 2, 5, 10, 25, 50, 100 and 200 years were selected for rainfall drainage design. Rainfall intensity determination was based on 15 minutes of rainfall. Rain yield was calculated for each period. The required diameters of pipes for drainage are calculated for the selected periods according to 60% full rates. As a result, 400 mm diameter for 2 years, 500 mm diameter for 5, 10, 25 years and 600 mm diameter for 50, 100, 200 years periods have been found as appropriate.

Keywords: Rainfall intensity, Rainwater, Runoff, Urban flood, Urban flood control