

# MEGHÍVÓ

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**Revisiting the urban block in the light of climate change, a case  
study of Budapest**

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# **Revisiting the urban block in the light of climate change, a case study of Budapest**

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While the superior environmental performance of free standing building configurations (in terms of improved ventilation and access to solar radiation) have continuously upheld over the past century, only a handful of studies have assessed their impact on the microclimate and almost none have compared it systematically with alternative urban forms. In light of the changing climate, understanding the microclimate performance of different urban block typologies and identifying the most effective heat mitigation strategies is of high importance.

The aim of this study is to compare the microclimate performance of selected urban block typologies through cases from Budapest, Hungary utilizing both results from numerical simulations and data from field measurements. In addition, the study assesses typical heat mitigation measures utilizing a numerical simulation approach. Since heatwaves and hot summer days are characterized by anticyclonic conditions during which radiative conditions drive human thermal comfort, the canopy layer microclimates of the evaluated urban blocks are assessed by means of mean radiant temperature and air temperature.

Numerical simulation results indicate that different urban block typologies have different microclimates, which not only influence the range of suitable heat mitigation strategies but also their effectiveness. While field measurements largely confirmed the microclimate characteristics of the urban blocks revealed by numerical simulations, they also exposed the limitations of this approach. The findings of the study highlight the necessity of field measurements and the importance of urban station networks.