

Parametric Urbanism: A Climate Responsive Urban Form for the MENA Region

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Abstract : The MENA region is a challenging, rapid urbanizing region, with a special profile; culturally, socially, economically and environmentally. Despite the diversity between different countries of the MENA region they all share similar urban challenges where extensive interventions are crucial. A climate sensitive region as the MENA region requires special attention for development, adaptation and mitigation. Integrating climatic and environmental parameters into the planning process to create a responsive urban form is the aim of this research in which "Parametric Urbanism" as a trend serves as a tool to reach a more sustainable urban morphology. An attempt to parameterize the relation between the climate and the urban form in a detailed manner is the main objective of the thesis. The aim is relating the different passive approaches suitable for the MENA region with the design guidelines of each and every part of the planning phase. Various conceptual scenarios for the network pattern and block subdivision generation based on computational models are the next steps after the parameterization. These theoretical models could be applied on different climatic zones of the dense communities of the MENA region to achieve an energy efficient neighborhood or city with respect to the urban form, morphology, and urban planning pattern. A final criticism of the theoretical model is to be conducted showing the feasibility of the proposed solutions economically. Finally some push and pull policies are to be proposed to help integrate these solutions into the planning process.

Keywords : parametric urbanism, climate responsive, urban form, urban and regional studies

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