

ARCHITECTURAL STYLE IN LINE WITH ENERGY DEMAND:
TYPOLOGY-BASED ENERGY ESTIMATION OF A DOWNTOWN
DISTRICT

Viktória SUGÁR , Attila TALAMON , András HORKAI ,
Michihiro KITA

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Corresponding Author:

Viktória SUGÁR, M. Arch.

Hungarian Academy of Sciences, Centre for Energy Research; Szent István University, Ybl Miklós Faculty of Architecture and Civil Engineering, Hungary

29-33. Konkoly-Thege Miklós street, Budapest, H-1121, Hungary

sugar.viktoria@energia.mta.hu

Attila TALAMON, Dr. Ph.D.

Hungarian Academy of Sciences, Centre for Energy Research; Szent István University, Ybl Miklós Faculty of Architecture and Civil Engineering, Hungary

talamon.attila@ybl.szie.hu

András HORKAI, M. Arch.

Szent István University, Ybl Miklós Faculty of Architecture and Civil Engineering, Hungary

horkai.andras.laszlo@ybl.szie.hu

Michihiro KITA, Prof. Dr. Eng.

Osaka University, Division of Global Architecture, Graduate School of Engineering, Japan

kita@arch.eng.osaka-u.ac.jp

Abstract

In the European Union, substantial ratio of the primary energy is consumed by the buildings, thus designing energy saving structures are mandatory in the Member States. The ratio of these energy efficient buildings, however, is evanescent compared to the vast number of existing, ineffective stock. The energetic refurbishment of the older, historical buildings raises several additional questions related to the possible methodology of their renovation.

Authors of the present paper survey the architectural and geometric features of a Budapest downtown district. The area consists mainly of characteristic, ornamented, multi-storey apartment buildings.

Present paper aims to answer the following question: Can the energy demand be estimated by using only easily obtainable data? The significance of the above question lays in the possibility of simple, large-scale energy estimation, which can be used as a benchmark for future rehabilitation action plans.

The heating energy demand and the characteristic geometry of the buildings were investigated, as well as their relationship with architectural style. The paper also introduces a structural typology for the downtown building stock of Budapest.

The results show, that the heating energy demand can be estimated based on geometry and architectural style data, in case of the downtown residential stock.

Keywords: energy efficiency, residential building, historical building, building stock analysis, typology, energy demand, building structure

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