

### **The purpose of the research / research hypothesis.**

The purpose of the proposed research is to investigate the relations between the feeling of being enclosed / overwhelmed in an urban interior in multi-family housing estate and the shape of this interior. At the present stage of knowledge demonstrated conclusively that there are three kinds of urban interiors: too spacious, optimum and too tight. While the too spacious urban interior is not a problem in the structure of our cities and settlements, too tight interiors seriously increase stress levels resulting in significantly lowering the spatial quality of life for residents. It seems that it is possible to determine in a measurable way such relations, both morphic and metric, to be able to check at an early stage of the design risk of discomfort resulting from too tight structure of the building arrangement.

### **Research project methodology**

These studies are multidisciplinary and integrate findings from the fields of urban planning, environmental psychology and the latest computer modeling methods.

The basis of the ideological construction of the research is the structuralist approach, according to which the way to understand the phenomenon of a man being overwhelmed in urban interior, it is necessary to understand the structure of the factors influencing the perception of urban space, followed by analysis of these factors treated autonomously and through the prism of emerging synergies. The author being aware of the high complexity of this kind of structure aims to examine a clearly isolated fragment, namely the relationship between the shape of the urban interior and overwhelming feeling resulting from associating with the interior. The methodological idea of the study is the comparison of measurements derived from the shape of urban interior with the results of the survey of human overwhelm feeling. For the purpose of determine seemingly non-quantifiable category which is "shape" in parametric way it is proposed to apply the coefficient of Sky View Factor.<sup>1</sup> The results regarding the level of feeling overwhelmed should be obtained based on semantic differential questionnaires obtained from a group recognized as representative by the standards of statistical surveys. It is proposed to derive the above mentioned measurements on computer simulations of urban interiors watched using virtual reality glasses. The use of computer simulations in the study design rather than real is associated with the occurrence of an allegation that the results obtained in this way give adequate response to the situation for the virtual world and not real. Nevertheless, the benefit of the use of computer simulations is the maximization of control over the independent variables in the examined models, which seems almost impossible in the chaotic reality of the real environment. The author is at the same time aware that any results obtained through these studies will be a component of a broader model that only as a whole can effectively provide the simulation of the psychological reaction towards the projected housing developments.

### **Expected impact of the research project on the development of science, civilization and society.**

The present level of scientific knowledge encourages us to state that the relations between the structure of urban arrangements and the psychical sphere of a man are moderately well-studied in the matter of their direction, but the part of their quantities is almost untouched. As the result, designers have only declarative guidelines of the directions of creating the housing environment.

Some flexibility, which is typical for the assumptions from the field of environmental psychology, makes it difficult to use it in town planning, because the truths which haven't been quantitatively studied became an easy prey for critics and their opponents, as well as they are waved aside by cursory actions which simulate real answers to the problems of the housing estate's inhabitants.

In the current situation of politics and markets in Poland, a multi-family housing estate is created according to the paradigm of maximizing the usable floor area in the name of the developer's business. It results in a high-density housing development and the space between blocks of flats becomes smaller, and it negatively affects the psychical condition of the inhabitants.<sup>2</sup>

For that reason there is an urgent need and a sign for town planners to create analyzing tools which would be in qualitative and quantitative ways help the processes of evaluating the quality of the housing environment in the matter of satisfying the requirements of one's psychical needs.

Moreover, it should be noted that only the development of CAD / BIM, and in particular the invention of VR goggles in 2012 opens up the opportunity to perform these research. It hasn't been possible so far.

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<sup>1</sup> Zielonko-Jung K., *Kształtowanie przestrzenne architektury ekologicznej w strukturze miasta*, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2013, ISSN 1896-1630, s. 27

<sup>2</sup> Czyński M., *Architektura, stres i potrzeba bezpieczeństwa*, [w:] *przestrzeń i FORMA*, nr 10/2008, Wyd. Uczelniane Zachodniopomorskiego Uniwersytetu Technologicznego w Szczecinie, Szczecin 2008, s. 153-162