UDC 711.58 DOI: 10.17673/Vestnik.2023.04.15

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THE CONCEPT OF A NEW RESIDENTIAL TYPOLOGY BASED ON THE PRINCIPLE OF FLEXIBILITY

КОНЦЕПЦИЯ НОВОЙ ЖИЛОЙ ТИПОЛОГИИ НА ОСНОВЕ ПРИНЦИПА ГИБКОСТИ

Two types of urban areas belonging to conditionally unorganized and super-organized types of development are compared. The comparison is made with regard to the capacity of each type to adapt the material components and the original design solutions to the changing needs of the inhabitants. The aim of the study is to find the best strategy to implement the principle of flexibility in a new experimental residential typology of the future, while maintaining the main advantages of each type.

Keywords: *disorganised areas, over-organised areas, flexibility, search for an optimum strategy, experimental typology*

Сопоставляются два типа городских районов, относящихся к условно неорганизованным и сверх организованным типам застройки. Сопоставление производится на предмет возможностей каждого типа адаптировать материальные компоненты и изначальные проектные решения в связи с изменением потребностей обитателей. Цель исследования заключается в поиске наиболее оптимальной стратегии реализации принципа гибкости в новой экспериментальной жилой типологии будущего с одновременным сохранением основных преимуществ каждого типа.

Ключевые слова: *неорганизованные районы, сверх организованные районы, принцип гибкости, поиск оптимальной стратегии, экспериментальная типология*

Our previous studies, in particular the comparative analysis of the Mezzeh Gardens amateur construction area in Damascus and the Bed Zed neighbourhood in Hackbridge, south-west London, determined that the unorganised area of Mezzeh Gardens was created by the residents themselves, but due to a lack of state planning and regulation the existence of the area was not accompanied by sufficient engineering and social provision. At the same time, social life in the area appears to have been quite successful, with several important aspects, including flexible adjustment to changing circumstances, preservation of cultural traditions, communication of the population, and integration of different groups of the community with each other. In contrast, the Bed Zed development was created with a focus on environmental, economic and social aspects, resulting in a sustainable environment that consumes energy with minimal negative impact on the environment and provides comfortable and balanced social interactions. However, this quality environment project ruled out any initiatives to change facilities independently [1–3].

As a result of the comparative analysis of the two types of urban areas, it was hypothesised that a "third" typology should be theoretically modelled and practically developed, balancing the advantages of the two typologies as much as possible, based on the principles of flexibility and sustainable development of the environment.

Prospects for a "third typology"

The existence of both studied types of urban development – unorganised and super-organised areas – can take place on the basis of the transformation of the first type and the development of professional new-build projects, taking into account the principle of flexibility. Together the two processes will constitute the "third typology" we are looking for. If necessary, only newly developed projects will be included, and the transformation of the unorganised (informal areas) will be perceived as their reconstruction and renovation.

The renovation, reconstruction of naturally occurring unorganised urban areas corresponds to the very fact of the prevalence of so-called "people's construction" ("self-building", "anonymous, popular architecture") in relation to the total number of professional projects carried out worldwide. [4]. "Amos Rapoport in 1995 estimated that folk architecture makes up 95 per cent of the world's built-up environment, compared to the small percentage of new buildings designed by architects and constructed by engineers each year"[1]. In 1971, Ronald Brunskill gave the following definition of 'people's building': "...a building designed by an amateur with no special training"; according to him, the dominant factor in such construction is function

[1] Folk Architecture - https://ru.abcdef.wiki/wiki/Vernacular_architecture

and local materials [5]. Other researchers of this activity, such as Paul Oliver, Allen Noble [6] have tried to raise the status of vernacular construction to the category of "vernacular architecture".

The units of social organisation in any type of urban area are family and neighbourhood. Accordingly, it is to meet and change their needs that both the architecture of unorganised and over-organised neighbourhoods must respond. In one case there is contact between an anonymous builder and the family, in the other the interaction with a professional architect and developer is assumed. Of what we refer to as the realm of positive assumed family and builder contact, much happens in accidental scenarios. In large projects, the consumer is most often cut off from dialogue with architects, and is only given a choice at the flat buying stage.

Urban informal development, unlike rural development, is most often transformed within the house's own boundaries, while in rural areas a family's home may expand at the expense of the backyard. At the same time, in those cases where the yard emerges directly within the city limits and is owned by a single family, the expansion of the house may take place within its boundaries. However, in a broad sense, the flexibility factor is embodied not only in the extension of the dwelling but also in a number of other activities, such as – dividing into rooms, changing the function of existing rooms, introducing new engineering equipment, and sometimes - creating attractions designed to make life more exciting, such as – building dovecotes over the roofs of poor Cairo neighbourhoods.

In our study, the examination of the potential bases of a 'third flexible typology' turns to several classifications relating to 'flexible behaviour' and 'building counter-reaction options'. The 'counter-responsiveness of buildings' is to be understood as their willingness to respond to changing family or societal needs while maintaining the overall viability of the building and the environment.

Resilient environments of unorganized urban areas

Unorganized urban areas can be considered a priori flexible, that is, having the maximum capacity to adapt to changing family or neighbourhood circumstances. However, in order to achieve a sustainable state, these areas, as already mentioned, need to bring in a number of external solutions and services, which are considered feasible as long as the state and experts are involved in the relevant tasks (fig. 1).

The flexibility of unorganised areas is provided by the relatively safe characteristics of low-rise construction, simple technologies and materials, and the ability to transform the original structures both by rebuilding and by the expansion of space in three dimensions.

To achieve the characteristics of a sustainable urban environment in unorganised areas, infrastructure improvements and social services can be applied (fig. 2).

Quarterly type of development	Dividing a neighbourhood into parcels	Limiting the size of the neighbourhood (number of families in one community)
Engineering support	Self-governing locality	Possibility of physically changing buildings
Available building materials	Limiting the number of store	Flexible sanitary and fire regulations

Fig. 1. Principles of development and flexible change in informal settlements

Neighbourhood communication centres, elements of a university campus	Locality engineering service stations	Creating a hierarchical system of engineering and transport services
Establishment of self-government and cultural centres	Limiting the size of the neighbourhood	Legitimisation and list of accessible elements of self-building
Implementation of craft workshops and shopping streets - self-sustainability of the area	Introducing environmentally friendly and renewable energy sources	Local architectural offices, law and health services

Fig. 2. Methods to achieve sustainable environment characteristics in unorganised areas

Flexibility factor for hyper-organised areas. The concept of a new typology

With a high degree of formal organisation of the territory by the state and the construction companies, it is necessary to develop methods of architectural design and construction which take into account the factor of flexibility, including the experience of self-development of disorganised areas.

Methods and principles to achieve such characteristics may in fact indicate the development of a "third typology", on the one hand including modelling based on contemporary construction practices and the development of new territories, and on the other hand giving the new development the qualities of a changing environment, similar to those of unorganised areas (fig. 3).

The creation of a new residential typology can be seen as the most urgent objective of the architectural and urban planning policy of the state and development companies in the fairly foreseeable future. The methods and principles outlined in this paragraph (see fig. 3) can be taken as a basis for appropriate research and design experimentation.

The metabolic movement undertaken by Japanese architects Kikutake and Awazu largely anticipated the creation of professional strategies of flexibility, but did not go beyond the analogy of the building with the biological processes of self-change[2] [7]. Aravena in his projects broadened the spectrum in understanding the contemporary application of the principle of flexibility by incorporating the concept of self-development based on balancing professional projects with resident initiatives [8]. In a study conducted in the workshop of Malakhov and Repina, it was substantiated that maintaining compact links within the urban neighbourhood is a guarantee of a flexible sustainable environment [9].

Hierarchical construction of locality according to the city principle: courtyard, block, street, centre	Limiting the size of the minimal locality: the yard and the neighbourhood	Increasing density while reducing floor space
Self-governance of localities	Admissibility of controlled self-building	Combination of standard structures, modularity and individual inclusions
Self-sustainability of locations through the introduction of workshops and street retail	Self-organisation of the future neighbourhood at the design stage[3]	Free-spanning flats
Incorporating a space of potential self-development in the project	Local architectural and law office	Facilities of a distributed campus
Balance with the natural environment	Renewable energy and engineering sources	A cultural centre of locality

Fig. 3. Methods and principles for introducing flexibility into the new typology

Conclusions. 1. The overall comparative analysis of the two types of residential development suggests that future residential strategies should take advantage of both types: the flexibility of unorganised development and the physical stability of organised development.

2. The fact that the majority of the world's building processes are massively self-built, suggests the need to transform professional and public building standards in a dialogue with the accumulated experience of anonymous architecture.

3. Flexibility and adaptability to continuously changing needs are the distinctive positive characteristics of the unorganised built environment, but the engineering and social aspect remains vulnerable.

4. The stabilisation of the infrastructural aspects of the unorganised development allows it to be seen as a de facto prototype of the formed basis of a new residential typology.

5. In the subsequent development of new projects concerning the area of responsibility of the state and development companies, the principles and methods given above in the material of the article should be taken into account. First of all, a more extensive list of effective models must be included in the experimental designs, largely borrowed from the experience of anonymous construction, going back to the evolutionary practice of sustainable development of unorganised territories.

[2] In their manifesto, the authors of the concept of metabolism explicitly state: "The ideal scheme of the metabolic building is derived from an analogy with biology and nature". [7]

[3] Self made city" concept, developed as a pilot project under the leadership of E.A. Repina

6. New experimental typologies, developing their own resources of professional practice and professional concepts (metabolism, flexible planning, acceptable collaboration with residents), should include new morphological codes (urban hierarchy of spaces, parcells) and effective strategies of self-development (neighbourhood, multifunctionality, amateur architecture, campus).

7. The development of a new residential typology based on the principle of flexibility should be in the form of experimental design, taking into account the world's achievements and developments in professional practices and concepts.

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For citation: Malakhov S.A., Alsayed Ahmad M.T. The concept of a new residential typology based on the principle of flexibility. *Gradostroitel'stvo i arhitektura* [Urban Construction and Architecture], 2023, vol. 13, no. 4, pp. 115–119. (in Russian) DOI: 10.17673/Vestnik.2023.04.15.
Для цитирования: Малахов С.А., Алсаиед Ахмад М.Т. Концепция новой жилой типологии на основе принципа гибкости // Градостроительство и архитектура. 2023. Т. 13, № 4. С. 115–119. DOI: 10.17673/Vestnik.2023.04.15.