

## RESIDENTIAL TOWERS AS BENCHMARKS OF LIMAN DISTRICT IN NOVI SAD

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**Summary:** *The silhouette of the settlement is one of the urban and architectural symbols and a very important parameter for the suitability of the design approach to urban landscape. At the settlement level, height benchmarks are unambiguous markers which facilitate navigation, identification and assimilation of the population with the space that surrounds them. Built structures dominant by their height in relation to their immediate environment, are objects created as a reflection of detailed consideration, and during their planning process, numerous factors were involved and their existence is checked at multiple levels such are sociological, economic, psychological, environmental, and architectural. In the area of Novi Sad, it was found that there are vertical benchmarks in different parts of the city, but the conditions that are linked to them, the period of occurrence, the final expression, morphology, urban conditions, typology, are all different, and a number of similarities and differences has been observed that can be evaluated through the comparative analysis. The study of mentioned conditions can point out to the present state at the level of the city, as well as recognise and valorise the current values and disadvantages which such facilities have. Significant topics related to the aforementioned structures are the issue of identification of citizens with these structures, recognition, appeal and the possibility of their existence in the collective consciousness of the citizens. The aim of the study is to form attitudes that would indicate a possible recommendation for further research and to point out the importance of vertical benchmarks at the level of the entire settlement.*

**Keywords:** *vertical benchmarks, orientation, identity, Novi Sad*

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## 1. INTRODUCTION

'The tissue of the city is a dynamic organism that emits a dozen of messages about space and people, pulsing in time' [1] and thus remains as evidence of maturation, changes, trends and forces that shape the appearance of the city. Context of life unfolding in the city is inextricably linked to the physical, social, economic, and political milieu, and it is an image that time period presents as a reflection of diverse scenes which are completely impossible to contemplate. The city is a system that is changing, but its planning is an extremely complex process that results in the quality of its citizens' life, which is an imperative in any developed society.

Silhouette of the city is defined by constructed buildings' forms, decomposed structure, height benchmarks, complex rooftops, rows of buildings, freestanding structures or large free areas formed in the city structure. Every settlement has buildings that are unique in their function, importance for the city, style of representativeness, used materials, colours, morphology, and 'not knowing them would mean not to participate in that culture.' [2]

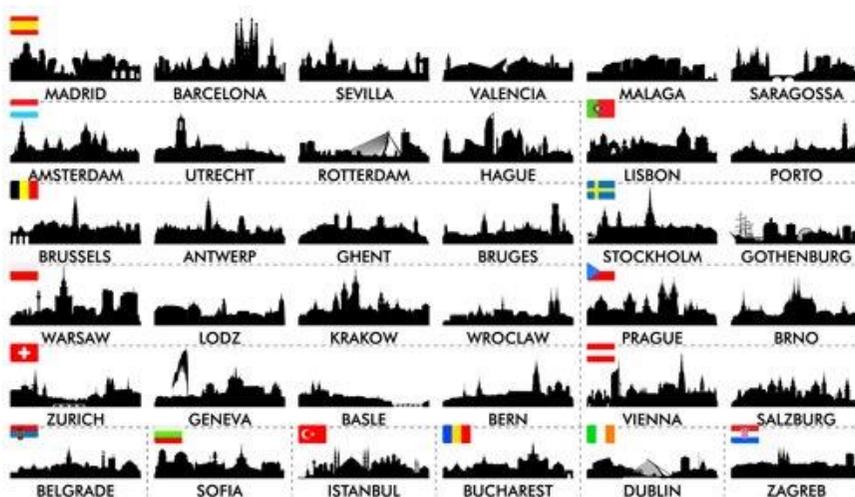


Figure 1. Silhouettes of famous cities in the world

A large number of the settlements are known for their silhouette. Nevertheless such an expression of the city has increasingly been used only for commercial purposes, and thus became the presenter of the city and its offer. Important buildings and identities of the cities which are the most popular tourist destinations, or unambiguous symbols in religious, social or economic sense, have found their place in familiar contours of world's capitals. An interesting fact is that numerous settlements have changed the face of the city with their urban policy, resulting in a large number of objects in small areas that are similar in height, morphology, dominant material, which all raise the issue of unity, identity, and symbolism. Repeatedly amplified buildings may also lose their exclusivity, even though it is one of the design tools to point out to something and create an emphasis in space.

Dubai is one of the most visited and most developed cities in the world, a hub of innovation, ideas and global promoter of the advancement of society and technology. 'The city follows the human, economic and geopolitical imperatives (sometimes only declarative), making the power of globalization more than the obvious' [3], which is why the city is becoming a reference point of modern times and the most prominent example of progress in the world. As such, Dubai is an excellent example of how tall buildings and spatial structures dominant in the area they occupy can become the primary association of the city. The tower, skyscraper or any high building relative to the immediate environment usually becomes landmark in the area and the element of recognition.

## 2. EFFECT OF THE BUILDINGS' HIGHT ON THE EXPERIENCE OF SPACE

Kevin Lynch states in his research studies that whenever a man finds himself in a new environment, he automatically forms a mental map [4] which defines the settlement's paths, edges, districts, nodes and benchmarks. Mental record formed in this manner has a major impact on the individual and it represents an expression of his experience of the city, of certain area, and frequently of the whole city. The subjective experience of space in this case is presented through a series of striking urban elements that each individual remembers because it provides him with a sense of security, identity, orientation and recognition of what is seen and experienced.

'Imageability is the quality of a place that makes it distinct, recognizable, and memorable' [5], which is also one of the principles of design in defining totality or the urban segment. Designing of the buildings in a morphological sense should be varied in order to achieve the quality necessary for a healthy life, but also to achieve the wealth of the urban milieu. Embedded buildings that create a closed block structure are experienced within the ground level as a boundary, or the physical frames of micro-urban blocks. 'Morphological characteristics of structures (shape, dimensions, proportions) as well as their colours have domination on the visual sense and in the process of identification' [6] which is why the proper selection of the above mentioned elements is needed, and investment in the general sense of space by observers and users. On the other hand, the combination of buildings in a series that are necessary as a typological structure with free-standing structures represents a good relationship between the objects and leaves the possibility for easier and more differentiated organization of space in the immediate environment. Structures which are dominant with their height become benchmarks in their midst because they are different in relation to surrounding structures, and are suitable as markers by which individuals could easily orient in space. Domination in terms of height has a symbolic character, which has historically shown the need of rulers to show their power and superiority over all, the power of faith to gather their followers, and the need for man to defend himself against natural disasters.

'Characteristics and benchmark points or landmarks, which we consider external in relation to the observer, are a simple physical elements of very different dimensions' [4] but it turns out that the buildings with the dominant height miss a lot of other elements that appear on other structure. For the contemporary man, representation through the height expresses the technology advance, as well as the example of architectural skill which pushes the boundaries and points to the economic and social prosperity of society.

Form of modern buildings is different and tends to the exclusivity, modern expression, and internationality, with the use of glass, aluminium, and metal as materials that lead to sensation and glorification of structure rather than form. According to Čaldarović, society has to face with the consequences that such trends have brought up, and 'today's cities are more and more similar to each other, we might say, because the objects that nowadays fill the 'city' are built using more or less the same technological utilities with prevailing height elements, facades, and partly forms.' [7]



*Figure 2. The appearance of the settlements with a large number of high rise buildings (Vancouver, Bangkok)*

High buildings in the cities worldwide have diverse uses, and they are often poly-functional. Utilization of the space in case of their existence has multiplied, but the other aspect is the question of the quality of urban values, psychological and social security, and a connection with the ground, economy, maintenance, and identity. The sustainability of such facilities is completely different when it comes to buildings of a multi-storey residential and business type. A tendency to build these structures changes the face of settlements worldwide, makes them similar and exclusive, whereas the spirit of the place and quality of space are lost and the city as a scenery becomes similar to some other and loses its characteristics and identity.

### **3. HIGH HOUSING FACILITIES AS BENCHMARKS OF NOVI SAD - A CASE STUDY OF THE TOWERS AT LIMAN DISTRICT**

Liman districts (1, 2, 3, 4) in Novi Sad are parts of the city that were planned and designed with the detailed urban policy as the concept of predominantly residential urban areas. Structurally speaking, it has all sub-typologies of multi-family residential buildings and blocks similar in terms of architecture, whereas the experience of space does not change drastically. Important fact regarding the architecture represent numerical data pertaining to the same period of construction, land use and buildings, population, blocks areas, concept of fitting of free-standing buildings and structures in a row.

In the area of Liman 4, in each block, there are residential buildings that are dominant with their height, and with the consolidated name of the *towers*. When it comes to the identity of the city in relation to these structures, it can be concluded that only three towers on Liman 4, positioned along the frequent Cara Lazara Boulevard, are recognizable structures

in this neighbourhood of the city. Beside them, there are other housing facilities with the similar concept on the Quay, near the railway station, and along the Liberation Boulevard. The architectural form of these buildings is simple, created as a result of the functional organization and multiplication of standard floor plan. 'The functions of the colours are to attract attention, to impart information, to aid deception and to stimulate the emotions' [8], but a neutral colour was used for wall surfaces of this buildings without accented elements, which is why a height is still the most prominent visual characteristic. The only exceptions are the three aforementioned towers which use maroon colour for the design of details in the complex attic floors and balcony slabs which are emphasizing the verticality of the whole structure. Orientation by usage of these objects is easy within the surrounding space, but there is a question of identification with towers in other parts of Liman, which except the fact that they are higher than the rest of the buildings lack in any architectural, aesthetic, and morphological details, and represent a similar structures which are the only vertical benchmarks, but not a landmarks.

High objects that are the subject of this analysis have a lot of owners, because there are a large number of apartments formed on all floors, making the entrance to the towers semi-private. All rooftops of towers are flat, except the three towers at Liman 4, but there are no facilities on them that would provide tenants with the exclusivity in relation to the place of residence. The last floors of tall buildings, whatever their purpose is, offer the quality of visual insight of the whole city and narrow consideration of the adjacent urban context. This potential is completely untapped in high multi-family residential buildings in Liman district.

Through the study of the tower's characteristics, there are the several conclusions, analysed from following aspects:

- **Spatial (urban) characteristics** - location of the towers is respectable because Limans are organized residential areas with large number of spacious inner-block surfaces, they are located near important roads and the Danube River, and depending on the context are looking at the Quay, Petrovaradin Fortress and parts of Fruska Gora;
- **Physical characteristics** - the prominence is achieved by multiplying of one structure because at all of the analysed locations the towers are in pairs or even three in a row. 'When the elements of a set belong together because they co-operate or work together somehow, we call the set of elements a system' [9], as it is in the case of the subject premise system that is seen as a whole, rather than as a single structure;
- **Functional characteristics** - over 95% of the content is residential. At all higher floors this is the only content while in some towers there are smaller shops on the ground floor besides some non-residential activities;
- **Architectural characteristics** - the attractiveness of these objects is still present among citizens of Novi Sad, but in terms of quality of housing a large number of tenants agree that the solvency of facilities is of medium quality, and that it is necessary to implement certain changes and improvements of the facade;
- **Aesthetic characteristics** - as it has already been pointed out, there are only three towers on Liman 4 that are visual benchmarks with different final expression in relation to the immediate environment. It should be noted that the location of these towers is the optimum in the area, and that all the characteristics of these buildings have a more dominant role on a scale of valorisation. The other towers are

characterized by bright colours, usually with ochre colour of facade brick or wall, in combination with grayscale tones and glass;

- **Economic characteristics** - buildings have a multiple owners, and there is a problem of an economic nature that is visible on the facades of buildings. There is notable alteration of insulation, openings on the facades, glazing of terrace and balconies, all in accordance with economic status and capabilities of the owners. In the event of a large number of families, consistent economic policy is impossible, and the city authorities cannot easily regulate such issues;
- **Environmental characteristics** - urban planning of these structures has not undermined the ecology of the site, but for individual buildings that are extremely high, the facades indicate visible effects of the microclimate that is slowly changing appearance of the building. When it comes to comfort for those who live on the upper floors, there are other noticeable factors that change the complete atmosphere of housing quality (flat roofs and the accumulation of water, the impact of the strong winds and sun, birds, and in very rare cases the seismic factors noticeable in ground floors);
- **Sociological characteristics** - residents of the towers have no common spaces intended for socialization, because areas where the implementation of such contents is possible are now inactive. Residents say that they face the problem of living culture, and that the question of maintenance, tolerance and uneven caring, which further complicates the existence of shared areas.

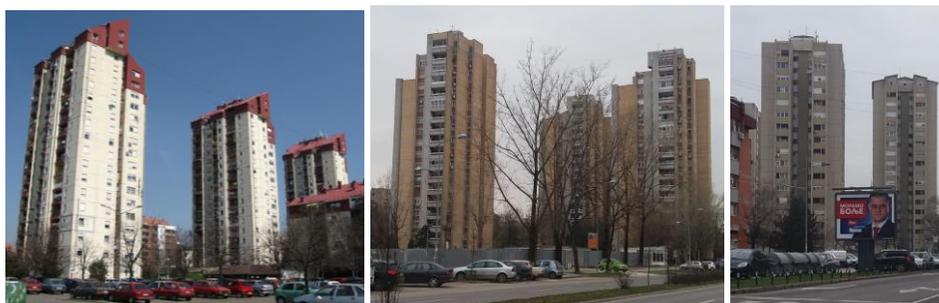


Figure 3. The residential towers at Liman district (Liman 4, 3, 2)

#### 4. CONCLUSIONS

'The mere factual analysis and classification by the type of shape, geometric characteristics, size, position, or any other physical characteristic is essential in the study of spatial forms, but essentially it is not self-sufficient.' [10] This observation was confirmed in the conducted analysis. The reached conclusion is the fact that in the case of residential towers in the area of Liman, shape and structure must be considered together, and the impact of other morphological elements is correspondingly very important. In addition to the height, which definitely dominates the silhouette, objects that have a function that is not of a public nature and whose access to facilities and amenities in it is

semi-private, have the potential to become benchmarks and points of sight which facilitate orientation in space. The towers have the potential to highlight their complex structural arrangement, harmony and articulation of the architectural expression, but the impact of colour and light is essential fragment that make their existence in the urban structure more emphasized.

In the spatial sense, the towers are not located along the regulation line, which further complicates the introduction of public facilities to the ground floors, but their detailed social policy resuscitation can still be carried out. Customizing activities that would contribute to more attendance, more economic utilization of space on the ground floors and the minimum sustainability would be an adequate initial solution. Other potentials lie in the highest floors and in a flat roof that could become a zone of socialization, and excellent facility that could cuddle all tenants. Such intervention would adequately prevent the leakage problem that all the tenants of the attic floors are facing.

Further research of the topic could be directed to the solving of the current problems in relation to the towers that are located in other locations, or for the comparative analysis and evaluation of the current situation, but also to the creation of an adequate strategy to improve the quality of housing, urban and architectural factors, and to contribute to the quality of ecological and sociological aspects that are related to the high housing facilities in Novi Sad.

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#### REFERENCES

- [1] Bazik, D.: *Scenografija gradskog prostora - put do ljudske svesti* u Dragičević Šešić, M. (urednik): *Javna i kulturna politika - sociokulturološki aspekti*, Magna Agenda, Beograd, 2002., p. 125
- [2] Ballantyne, A.: *Architecture*, Oxford Universiti Press, 2002., p.p. 117-118
- [3] Stupar, A.: *In scale out scale*, STRAND - Asocijacija za razvoj održive urbane zajednice, Beograd, <http://www.strand.rs/globalization/izlozba2.html> (datum posete 01.03.2017.)
- [4] Linč, K.: *Slika jednog grada*, Građevinska knjiga, Beograd, 1974., p.99
- [5] Ewing, R., Clemente, O.: *Measuring Urban Design - Metrics for Livable Place*, Island Press, Washington-Covelo-London, 2013., p. 5
- [6] Milinković A., Krklješ M., Brkljač D.: *Multifamily Residential Buildings as Urban Landmarks in Novi Sad*, Proceeding of Conference: Contemporary achievements in civil engineering 2015, Faculty of civil engineering Subotica, University of Novi Sad, Subotica-Serbia, 2015., p. 676
- [7] Čaldarović, O., Šarinić, J.: *Suvremena komunikacijska tehnologija i urbana sredina - prostor, mjesta, vrijeme*, Socijalna ekologija Zagreb, Vol. 17, No. 4, 2008., pp. 331-341, p.335
- [8] Lancaster, M.: *Colourscape*, Academy Editors, London, 1996., p. 8

- [9] Christopher, A.: *A City is not a Tree*, Architectural Forum, vol. 122, no. 1, 1965. pp.58-62
- [10] Đokić, V.: *Morfološka istraživanja u urbanizmu*, Arhitektura i urbanizam, No. 20-21, 2007, str. 61-72

### СТАМБЕНЕ КУЛЕ КАО ВИСИНСКИ РЕПЕРИ НА ЛИМАНИМА У НОВОМ САДУ

**Резиме:** *Силуета насеља један је од урбанистичко-архитектонских симбола и изузетно битан параметар за адекватан одабир пројектантског приступа уређењу градског простора. На нивоу насеља, висински репери представљају једнозначне маркере помоћу којих је олакшана оријентација, идентификација и асимилација становника са простором који их окружује. Изграђене структуре доминантне по својој висини у односу на непосредно окружење, архитектонски представљају објекте настале као одраз детаљног промишљања, а приликом њиховог планирања укључују се бројни фактори и њихово постојање проверава се на више нивоа, социолошком, економском, психолошком, еколошком, архитектонском. На подручју Новог Сада утврђено је да постоје висински репери у различитим деловима града, али су услови који се за њих везују, период настанка, завршни израз, морфолошка структура, урбанистички услови, типологија, другачији, те је уочен низ сличности и разлика које могу бити вредноване кроз упоредну анализу. Истраживањем поменутих услова указано је на постојеће стање на нивоу насеља, како би се сагледале и валоризовале тренутне вредности и недостаци са којима се овакви објекти суочавају. Значајне теме везане за поменуте структуре јесу питање идентификације становника са овим објектима, препознатљивост, допадљивости и могућност њиховог постојања у колективној свести грађана. Циљ студије јесте да се формирају ставови који указују на могуће препоруке у даљим истраживањима и приказују важност постојања висинских репера на нивоу насеља.*

**Кључне речи:** *висински репери, оријентација, идентитет, Нови Сад*