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## CONCEPTUAL URBANISTIC-ARCHITECTURAL MODEL OF ROMANI HOUSING: CASE STUDY CRVENA ZVEZDA SETTLEMENT IN NIŠ

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### Abstract

*In Serbia, Roma people face various challenges, primarily expressed through discrimination in many fields, as well as difficulties in education, healthcare, and employment. The majority of Roma people in Serbia live in very poor housing conditions. Romani settlements are generally characterized by overcrowded areas, inadequate infrastructure, unplanned construction, lack of amenities in the surroundings and, often, a ghetto-oriented atmosphere. Housing of Roma people, which is the topic of this paper, is a complex topic having various social, economic, cultural and political aspects. The paper considers the Romani housing from a spatial point of view. Provision of housing for the Roma people is one of important ongoing problems that must be addressed by the state. The social and economic status of the Romani national minority could be improved by solving the housing problem. In an attempt to contribute to solving the abovementioned issue, the research deals with finding a sustainable housing model for the Romani population through the case study of the Romani settlement of Crvena Zvezda in the City of Niš: The paper presents an urbanistic-architectural conceptual model for the new Romani settlement on the location occupied by the existing settlement. The model for the new Romani settlement is the result of an architectural analysis of the location and the analysis of the relevant literature that gives a clear view of the state of the Romani population and their settlements in Serbia - their current situation, culture and tradition, habits and needs. The paper gives a proposal for the transformation of the settlement in the form of an experimental conceptual model. The aim of the paper is to contribute to finding an adequate housing model that would provide normal living conditions for the Roma people in a fast, cost-effective, and efficient way, thereby speeding up the process of their inclusion in the society. The modularity and flexibility of the presented conceptual model ensure its applicability in different locations and adaptability to various conditions, making it applicable in different spatial contexts.*

**Key words:** Romani, Housing, Housing Model, Case Study

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## 1. INTRODUCTION

According to the latest census from 2022, the number of the Roma people living in Serbia is 131,936 [1], although many sources speculate that this number is much higher. The predominant characteristic of the Romani life in Serbia is poverty: the major part of the Romani population lives in very poor housing conditions, significantly worse than the majority population (small living space per person, poor construction, bad insulation etc.) [2]. Vuksanović-Macura Z. and Macura V. distinguish various types of impoverished areas where Roma people live, ranging them from *completely inhumane slums* to *relatively acceptable old urban neighborhoods*, and pointing out that regardless of their condition, the majority community typically holds an indifferent or repulsive attitude towards the Romani settlements, which results in the poor integration of Romani enclaves into the majority urban system [3].

Provision of housing for the Roma people ethnic group in Serbia is one of important ongoing problems that must be addressed by the state. The assumption is that by solving the housing issue, the social and economic status of the Romani people would significantly improve. This research deals with the issue of Roma people in Serbia through the prism of spatial organization of living environment with the aim to contribute to the development of a sustainable housing model that can meet the needs of the Romani population. The research is based on a case study of the existing Romani settlement Crvena Zvezda in the City of Nis, that proposes the conceptual urbanistic-architectural model for its transformation, i.e. the design of a new settlement in place of the existing one. The goal is to create a conceptual model that can provide adequate living conditions for the Romani population quickly, affordably, and efficiently, thereby facilitating their integration into society. The model's modularity and flexibility should make it suitable for different locations and adaptable to various conditions, rendering it applicable across different spatial contexts.

Hence, the main research is done using the so-called research by design approach, specific for the sciences such as architecture. According to Hauberg J.: "In many ways, the design process is similar to a research process, searching for new products or knowledge but working in the designer's language, drawings and models, rather than the written word" [4]. "The most important way in which the architect achieves new cognition is through work with form and space: drawings, models and completed works" [4]. Other scientific methods applied in research are: observation, analysis, synthesis, description, comparison and modeling method. The paper is divided into two main parts – the explanation of conceptual proposal, with reference to the location analysis, and the discussion, which further lead to conclusions.

### 1.1. Short history of the Romani people on the territory of present-day Serbia

Sika P., Vidová J. and Rievajová E., referring to Sinaiová, A. and Ondriová I. [5], say that the origin of Roma people is most likely in India [6]. The Roma people's departure from India occurred over multiple centuries through migratory waves [6].

Despite this dispersion, they did not remain in individual countries for equal durations [6].

The Roma people arrived in the territory of present-day Serbia during the 15<sup>th</sup> and 16<sup>th</sup> centuries, during the time of the Turkish rule in these regions [3]. Mitrović A. writes: "In their long history, while moving from one country to another, the Romanies most often settled down close to urban settlements. Their attachment to towns was primarily related to their professions (crafts) that they could practice for the army they came along with and that mostly resided in towns. Coming together with the Turks to the Balkans, the Romanies also settled in Serbian towns as well as, to a small degree, in villages. The Turks had special regulations for ordering the Romanies' settling down. These regulations determined the places for building residential quarters for the Romanies; their quarters had to be on the periphery of the town or the city, separated from the Serbian houses. They came to be called *mahale* or *džemati*. Such a distribution, that is, location of the Romanies' settlements is almost the same even today in a greater part of Serbia. These are actually the settlements of the old type and they can easily be spotted and recognized. The houses are quite worn out and unstable; the hygiene is rather low; the streets show quite visible traces of the lack of sewage; here and there there can be a new house built; all in all, everything bespeaks that the Romany mahala in Serbia has preserved the same appearance described by the travellers as something "special". [7] The socialist social order in the second half of the 20<sup>th</sup> century did not significantly contribute to improving the socio-economic status of Roma. The number of those provided with education, employment, or housing was very small. During the 1970s and 1980s, due to large migrations to cities caused by the industrialization of the country, a new type of illegal Roma settlements - slums, emerged. [3]

## 2. CONCEPTUAL URBANISTIC-ARCHITECTURAL PROPOSAL FOR THE ROMANI SETTLEMENT CRVENA ZVEZDA

### 2.1. Analysis of the location

The Crvena Zvezda settlement is an existing informal Romani settlement in the city of Niš (Serbia), classified by Grbić et al. as *slum*, an improvised, temporary shelter that eventually became a permanent settlement [8]. Its area, covering almost 2 hectares, is defined by Dušana Popovića Street to the north, Gabrovački put to the northeast, existing multi-family buildings to the west, and the dead-end of Đorđa Krstića Street to the south (Figure 1).



Figure 1. Location of Roma settlement Crvena Zvezda: (a) top view, (b) aerial view, source: <https://www.google.com/maps/@43.3107052,21.9200624,294m/data=!3m1!1e3?entry=tту>, accessed 05.03.2024.

The location is built and inhabited by the Roma people. On-site inspection confirmed spontaneous construction without any plan or order and very poor housing conditions (Figure 2a). The structures are mainly made of solid materials, unfinished, and of questionable construction safety. They are mostly low, one- to two-story, buildings, with sloping roofs, placed very close to each other and randomly scattered across the site in a form of a spontaneously created groups (Figure 2b). This unusual spatial arrangement resulted in a creation of specific empty spaces that serve as areas for communication and gathering spots. Throughout the settlement there is no adequate infrastructure - paths are unpaved; the communications are of variable width, but very narrow for vehicles; many communications finish in dead ends. Since a large number of residents is engaged in collecting secondary raw materials, and there is no designated area in the settlement for their disposal, piles of waste can be found everywhere throughout the settlement, right next to residential units. The inadequate living conditions and the necessity to improve the quality of life at the location are evident, both for the people living there, which is primary, and for the people living in the surroundings. Having in mind that the location is close to the important urban facilities, it is also necessary to think of creation of more representative visual image of this part of the city, its safety and tidiness.

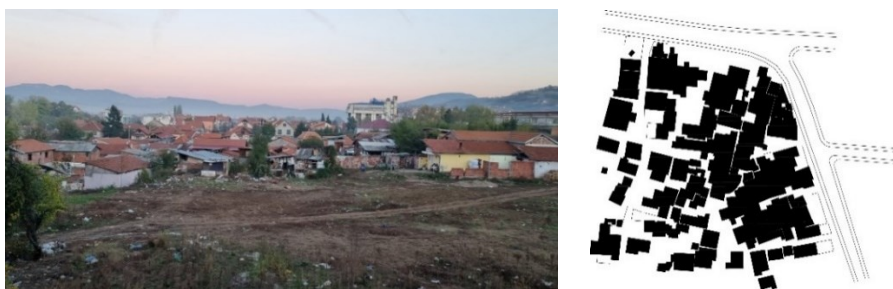


Figure 2. (a) View towards the settlement from the neighboring building, (b) Settlement scheme, source: authors

## 2.2. The explanation of the concept

### 2.2.1. Functional content

Conceptual urbanistic-architectural proposal for the new Romani settlement on the location of the existing one, envisions the construction of 50 residential units and the accompanying communal facilities (Figure 3). Each residential unit is capable of accommodating family consisting of five to eight members, hence the maximum population density the settlement could reach is 210 inhabitants per hectare. Communal facilities, which are scattered all around the Romani housing complex are intended for gatherings and socializing, cultural and educational purposes, as well as for relaxation, recreation and gardening: gathering center, recycle warehouse, playground, fruit and vegetable plantation and market place. There are also few groups of parking places for different vehicle types.

A communal gathering center is located in the southern part of the site and has a direct access from the newly designed street. It is envisioned as a multifunctional facility, which could host various educational sections for children, evening schools for adults, courses, celebrations (which are an essential part of the Romani culture

[9]), meetings, or perhaps the production of homemade food products out of harvested fruits and vegetables from the garden or other homemade crafts that could be further sold at the market. The communal facility is designed to be the formal center of the settlement, the main gathering and socializing place, and a hub for exchanging opinions and knowledge. The existence of such a functional content is of great importance for the sustainability of the settlement. In this case, these facilities are tailored to the general and specific habits of the social group for which the settlement is intended.



Figure 3. Proposal for the new Roma settlement Crvena Zvezda, Site plan, source: authors

Considering the fact that the local Romani population is often engaged in collecting secondary raw materials (packaging, metal scrap, old appliances), the recycling facility is planned at the outskirts of the settlement, where collected material could be stored, separated and further distributed for recycling.

In order to foster interactions with neighbours and other people outside the settlement, as well as to promote the home craftsmanship, along the main road, where the frequency of residents from the surrounding area and other passersby is the highest, i.e. at the place where the new Romani complex merges with the existing group of multi-family buildings, a small paved square with a market setup is envisioned. Here, the Romani people could sell their fresh garden products, thus generating additional income for their households.

For the purpose of relaxation and sport activities, playground that could be used for various sports with the smaller area for children's play is planned in the northwest part of the settlement. On the other hand, the southwest strip is intended for gardening, where the inhabitants could plant fruits and vegetables for themselves or for sale. This area is intentionally left undeveloped in order to create, together with upper relaxation area, green buffering zone at the transition between new Romani and the existing multi-family residential complexes.

### 2.2.2. Urban and architectural setup

The main design characteristics of the settlement are modularity and flexibility, i.e., adaptability to the current needs of the users. The concept is based on simultaneous individualization, so that each family has its own home, and communal living, achieved through a dense architectural carpet structure [10]. The rationalization of construction is achieved through the use of standardized elements, whose repetition forms a complex composition of the settlement (Figure 4). The residential unit is composed of three modular units, which, when combined, form the basic spatial and structural component of the residential part of the

settlement. Two residential units are then grouped together, mirroring each other, in a way that one unit is laterally stuck to another. These attached houses are further multiplied, following an orthogonal grid that fits into the block's geometry, creating a dense structure of single-story buildings (Figure 4).

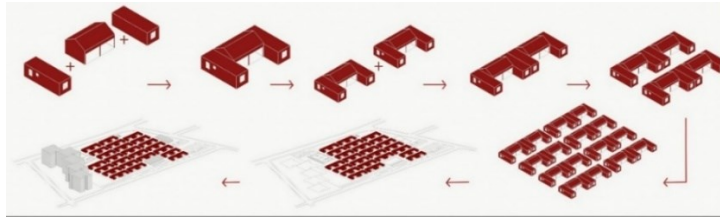


Figure 4. Modularity of Romani settlement Crvena Zvezda, source: authors

The spatial arrangement of the buildings is defined by clear pathways through the settlement. An orthogonal grid of paths creates spaces for easy pedestrian communication through the settlement and for vehicular access in a case of emergency or evacuation (Figure 5). Special attention is given to integration of greenery into the built structure. Greenery is present at multiple spatial levels (Figure 5): (1) within private courtyards, (2) as green strips along longitudinal and transverse communication routes (semi-private areas between buildings), which serve as mini buffer zones between the public and private spheres, or transitional spaces between pathways and courtyards, and (3) around the perimeter of the complex - a buffer layer towards the surrounding streets on the eastern, northern, and southern sides and towards the adjacent group of buildings to the west.

The design of the settlement promotes pedestrian and bicycle traffic. The settlement is entirely free of motor traffic, with access for motor vehicles only possible along the perimeter (Figure 5). Two parking zones are planned - one along the newly designed southern street, which has the least traffic, and one in the form of a parking group accessed from Gabrovački put. There is a total of 51 parking spaces, meeting the criterion of 1 parking space per residential unit. Bicycle parking is located inside the small green park at the crossroad, as well as next to the recycling warehouse.



Figure 5. Constructed area (up left), Green areas (up right), Pedestrian paths and parking areas (down left), Evacuation ways (down right), source: authors

In functional terms, the residential unit is organized to accommodate multi-generational composition of Roma family of characteristic habits (Figure 6a). The space is divided into three structural-functional units: the central unit (largest unit, representing the main, daily, part of the building), and two side units (housing sleeping areas and accompanying facilities - entrance, hygiene facilities, and

household maintenance spaces). The main area/functional zone of the housing unit is organized according to the principles of the open space concept and combines a space for food preparation (single-track kitchen), a dining area with a table seating eight, and a living room with a large sectional sofa. This area serves as the focal center of the residential unit where family activities take place. The interior space of the main area seamlessly extends to the garden terrace on the south side, which serves as an extension of the living space. With movable glass panels, the interior and exterior spaces are integrated not only visually but also physically, becoming one unit that functions as an expanded living room during favorable weather. There is also the option to create a winter garden in the part of a courtyard with additional glass panels, thus increasing the usable daily space during winter months and improving thermal comfort of the building by creating an additional thermal envelope. The night zone is located in the side wings of the house and is deliberately divided into two parts for generational separation. It is characteristic of Roma families that multiple generations live in the same household. Roma often marry at a young age, forming new, young families, so it is not uncommon for children to live with their parents and grandparents (extended family) in the same home. According to Grbić M. and Nikezić A. [9] three-generational structure is the most frequent household organization in Romani settlements in Belgrade. A primary Romani family, that has five members consisting of a husband, wife and three underage children, after the marriage of children (sons) expands, being then comprised of a husband, wife, their sons and daughters-in-law and their children [9]. The division of the night zone follows the idea of separating parents with children from elderly parents. Thus, one part of the night zone includes a parental and children's room with an external bathroom used by all household members, while the other part includes a double room for elderly parents with a toilet, also available to all household members. The dimensions of bedrooms are minimal, for rational space utilization, but sufficient for optimal functional organization. Due to changes in family structure or the increase of household members, by replacing a regular bed with a bunk bed, the children's room initially designed for one child can become a sleeping space for two children, or parents can give their room to the children and use the living room for sleeping in a case of more children. Accordingly, the living room is designed as a multifunctional space (Grbić M. et al. emphasize the necessity of enabling the permanent transition of the living room into a multipurpose room [11]). The bathroom is envisioned to be shared by all users for the sake of economy. As an additional hygiene space, due to possible crowding in the house, there is a toilet, near the entrance, accessed through the laundry room. The number of sanitary facilities is determined following the example of the regulations that apply when designing residential buildings and apartments [12]. Given that the residential units are designed as houses, the entrance area is designed as a vestibule or buffer zone between indoor and outdoor spaces. The building is fully enclosed to the north and opens towards the south and the semi-atrium courtyard. The entrances of adjacent units are placed right next to each other and recessed relative to the northern facade plane to create covered areas as a protection from the weather.

The net area of the residential unit is almost 85m<sup>2</sup> with an additional garden area of almost 40m<sup>2</sup>, approximately half the area of the house. The main space of the house is oriented toward the south, and large transparent surfaces blur the

boundary between indoor and outdoor spaces, uniting them into a whole that functions as one large extended house. The southern orientation also plays a role in passive heat absorption, particularly important for winter months when the daytime area of the house is additionally heated by sunlight. During the summer months, overheating of indoor space is prevented by the awning and the use of opaque curtains (a cost-effective sun protection solution).



Figure 6. (a) Floor plan – attached housing units, (b) 3D model - view from the pedestrian pathway to the south garden of housing unit, source: authors

### 2.2.3. Architectural shape

A typical housing unit is of very simple shape. As mentioned, the housing unit, spatially organized as semi-atrium structure, consists of three volumes. Three volumes/wings are positioned around the central yard that opens to the south and the pedestrian street. The side wings are designed as container structures with flat roofs, while the central volume has a gable roof (Figures 6b, 7a). The gable roof of the central part serves a dual purpose: (1) the southern slope of the roof is used for collecting solar energy through solar panels, which is then used to heat water in the household; (2) the gable roof form, adopted from the existing settlement, corresponds to the design habits of Romani residents.

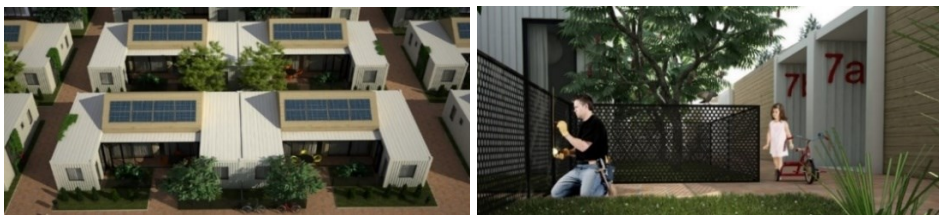


Figure 7. 3D model: – (a) repetition of housing units across the complex, (b) entrances to the housing units, source: authors

Due to the uniformity of the buildings, i.e., the repetition of the same shape, there is a potential problem of a monotonous visual atmosphere in the settlement. However, the assumption is that the residents themselves will give their homes a personal touch (e.g., by installing curtains of different colors, decorating their gardens differently, introducing or not introducing winter gardens, etc.). Each unit is numbered with a large house number at the entrance (Figure 7b), which also contributes to recognition.

## 3. DISCUSSION

Although the primary idea of the new settlement concept stemmed from the analysis of the location, which was conducted before the start of the design process, without prior detailed theoretical background on the topic, it turned out



that independent pre-design analysis led to the same or similar conclusions as those reached by experts researching the Roma housing in Serbia. Engaging with the topic of improving spatial organization of housing in Roma settlements in Belgrade, Grbić M. in her doctoral dissertation starts from the standpoint that there exists a relationship between the spatial and social levels in Roma settlements that needs to be recognized, harmonized, and presented [13]. When designing residential space for Roma families, special attention should be paid to the characteristics of the Roma society, primarily in terms of culture, customs, traditions, neighborhood connections, and the like. The conceptual proposal, presented in the previous chapter, took into account the following aspects: (1) Roma families are multi-generational, with often several generations of one family residing in the same household, thus the functional organization of residential units was developed accordingly; (2) Roma families are not isolated; there is a dominant social interaction among neighbors, so the spatial arrangement intertwines spaces of different degrees of privacy within the settlement, ranging from private to semi-private/semi-public to public or communal; (3) Roma families spend a significant amount of time outdoors (especially children, who enjoy being outside with other children), so the settlement intertwines open and enclosed spaces inside of which the life equally takes place during the day - the categories of interior and exterior are more interconnected and overlap each other than in housing the majority people in Serbia are used to.

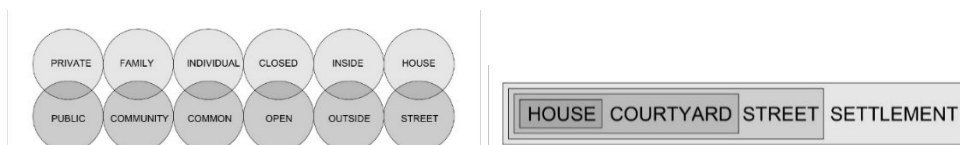


Figure 8. Diagrams of the overlapping of social-spatial categories in Romani everyday life inside of the settlement, source: authors

Observing the Romani lifestyle, one could conclude that the relations between certain social and spatial domains are much stronger than in the lifestyle of the majority population (Figure 8 left). The everyday life of Romanies is intertwined with the constant interactions between opposite social-spatial categories such as: family and community, individual and common, private and public, closed and open, inside and outside, house and street. Those social-spatial categories are of great importance for understanding the spatial needs of the Romanies, because they overlap each other, creating a layered space inside of which inhabitants dwell. Urb-architectural elements: house, courtyard, street and settlement are not strictly separated from each other, but they complement each other, creating a more homogeneous structure of the settlement that functions as a single whole. House imperceptibly expands to the courtyard, which further expands to the street, which further expands to the settlement (Figure 8 right). There are no clear boundaries – the life equally takes place inside and outside those elements, which enhances the gradation of space in terms of privacy, making the spatial scale richer (private/semi-private/semi-public/public).

Some of the basic structural elements of Roma settlements, highlighted by Vuksanović-Macura Z. and Macura V. [3], are: settlement center, residential zone, workspaces, street network, infrastructure, and greenery in the settlement. According to them, the settlement center and public facilities are of vital importance

for the internal integration of residents. Although the majority of existing Roma settlements lack a central gathering point, it does not mean that there are not places for gathering, where children play, and where young people hang out: elements such as crossroads, auxiliary buildings or someone's yards spontaneously become places of social life [3]. According to Grbić M. et al. [8]: "Streets in Romani settlements have a complex character with a significantly pronounced degree of integration of users. Streets in slums are areas of communication, connecting elements of courtyard building groups, but they are also spaces that the daily rhythm of residents initiates into gathering spaces".

Following the habits of Roma population, the conceptual design of the new Crvena Zvezda settlement aimed to satisfy all the needs of the residents. The main and largest zone in the settlement is residential, while other zones - work, recreational, green (buffer zone towards surrounding roads and other neighboring facilities), and socializing and gathering zones - are arranged around the perimeter.

Vuksanović-Macura Z. and Macura V. also emphasize another important fact, namely that Roma people live in family houses with their own yards, and that this type of housing should be maintained as dominant because it stems from the cultural habits of Roma families, i.e., family relationships [3]. Since the same conclusion was made after analyzing the existing Crvena Zvezda settlement, the single-family houses were chosen as housing typology for the new settlement.

The presented conceptual proposal of the settlement relies on the idea of ensuring the optimal use of space, improving housing conditions, and providing accessibility to key resources such as water, electricity, and sanitation. The design of the settlement promotes social interaction and communal activities, as well as integration with the surrounding urban context. The design involves simultaneous individualization, where each family has its own home, but also a sense of community achieved through dense architectural structure. Construction is rationalized through repetitive typical elements, creating a complex composition of the settlement. Aesthetic aspects are also included in the concept to ensure harmony and aesthetic value of the settlement, which would contribute to improving the quality of life and the community identity. The design takes into account traditional forms of Romani houses and their habits, such as gabled roofs, ground-level structures, the need for social life, and outdoor living. One of the goals of the concept is to be sustainable at ecological, economic, and social levels, which means it should encourage the use of renewable energy sources, support the local economy, and promote social inclusion through education, employment, and social support programs.

#### **4. CONCLUSION**

The general description of Roma settlements is often associated with inadequate, unplanned, and ghetto-oriented spaces. Research on the housing of the Roma people in Serbia in this paper emphasizes that housing for this ethnic group is an extremely important issue. The research was conducted through design, namely through urbanistic-architectural proposal for a new Roma settlement on the location of an existing Roma settlement. The aim of this experimental urban-architectural project, or the case study that focuses on the Crvena Zvezda Romani settlement in Niš, which was chosen as the example, is to

contribute to finding appropriate housing model that would help in providing normal living conditions for the Roma population in a fast, inexpensive, and efficient manner. The assumption is that by improving living conditions through housing, the process of social integration of Roma people, which is also one of the most significant issues, could be accelerated. The conceptual urbanistic-architectural proposal for the Crvena Zvezda Roma settlement encompasses a series of elements based on the community's needs and characteristics, as well as sustainability, flexibility, modularity, inclusivity, and aesthetics principles.

This research, within a theoretical framework, represents an experiment that utilizes architectural tools to address the housing issue of an ethnic group whose quality of housing, and, consequently, their overall quality of life, is at a very low level. Considering that this concerns a not insignificant number of people, or families, whose daily life is becoming increasingly difficult, the necessity of addressing this topic is evident. The issue of the Roma population can be viewed from various angles and aspects, as the problem is complex. Since the problems are interconnected, solving one could significantly impact the solution to other. However, on the other hand, to completely solve one problem, it is necessary to address other problems as well. Improving housing conditions would be a significant step forward; however, if parallel efforts are not made in other areas (primarily education, raising awareness about ecology, health, and increasing employment rates), the problem could soon resurface. Addressing the issue of Roma housing, even in theory, represents progress in solving the problem. Certainly, it is crucial for the solution to be implemented in practice, which would open up new obstacles and discussions.

Inevitably, the involvement of the state in addressing the housing issue of the Roma is crucial. Although this problem has existed for decades (or even century), it has only recently begun to be considered, and concrete measures have been taken to address it. However, progress in practice is not as fast as desired, but any advancement, even theoretical, is significant. Based on the research of Roma settlements, one conclusion that can be drawn is the proposal that successful solution of the housing issue of Roma population requires state support in the form of certain subsidies to facilitate access to healthy homes for Roma families. Although this issue can be categorized as part of the broader social housing problem, the approach to addressing Romani housing, due to its specificities (closely linked to Romani culture, tradition, and customs), should be unique and independent. Just as the Regulation on standards and norms for planning, designing, construction, and conditions for use and maintenance of social housing [14] was adopted for the design of social housing, the proposal is to adopt a similar regulation aimed at addressing housing for Roma people. This regulation would clearly define standards for the design of housing in Roma settlements, while adapting the norms to the specific needs of users. Furthermore, if the construction of settlements were to be under the directive of the state, the proposal is to emphasize energy efficiency in construction, as it is the key to sustainability. Njegić T., Manić B. and Lojanica V., speaking about sustainable social housing, state: "Given that social housing is under the direct responsibility of the public sector, it can be a testing ground for promoting energy-efficient solutions and encouraging local market development in the field of energy-efficient construction techniques and technologies" [15].

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