

## SPATIAL COMFORT OF SOCIAL HOUSING UNITS – PERSPECTIVE OF NIŠ, SERBIA

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**Abstract.** *The basic precondition, when it comes to the spatial comfort of social housing units is to create residential space which will, in addition to health, hygiene and sanitary minimum, also provide optimal conditions for proper psycho-social development of the users. Previous researches showed that the most relevant criteria, regarding the unit's spatial comfort, are: size, spatial arrangement and adaptability of housing space, but also the existence of private open areas. Upon these criteria the evaluation model for the valorization of the spatial comfort of social housing units will be formed. This model will further be used for the analysis of the buildings constructed for this purpose in the city of Niš, Serbia.*

**Key words:** *social housing, housing quality, spatial comfort, criteria, evaluation*

### 1. INTRODUCTION

The construction of social housing facilities is inevitable in modern societies of today. The complex nature of social housing, and the mutual correlation between its physical character and social environment, suggest that the spatial characteristics of housing units constructed for this purpose should enable the satisfaction of basic housing needs, but also provide the necessary social support to the users. The basic precondition in contemporary social housing practice is the need to provide adequate quality housing, which in addition to health, hygiene and sanitary minimum should also provide optimal conditions for proper psycho-social development of their users [1] [2] [3].

In Serbia, social housing is a relatively new type of housing and it is minimally represented in the total housing stock. On the other hand, there is an obvious need for this type of housing, which implies that the significant development of social housing is still expected. In such circumstances the research regarding the quality of the built housing

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stock will be beneficial, as it would provide a valid foundation for the future social housing development.

The goal of the research is to identify the positive and negative aspects of local social housing construction in order to enable revision of the existing models and improvement of the quality of social housing. In spatial terms, the analysis of housing quality will refer only to the level of the housing unit. Regarding this, the spatial criteria important for the quality of housing in these facilities will be identified. The identification and definition of the relevant criteria were carried out on the basis of the theoretical background on the global level. In continuation of the paper, defined criteria will be applied to evaluate the quality of social housing in Serbia, specifically on the social housing construction in the city of Niš. Niš can be considered relevant as a geographical framework, bearing in mind that it is one of the leading cities in Serbia and one of the first in the country that started the social housing construction.

The results of the conducted analysis of the spatial comfort of social housing units in Niš would provide a new perspective in order to improve the quality of housing in facilities in Serbia developed for this purpose.

## 2. SOCIO-SPATIAL FRAMEWORK FOR THE DEVELOPMENT OF SOCIAL HOUSING

When it comes to adequate size of social housing units, it is necessary to define the lower spatial limits – minimum housing area and spatial arrangement of the units [1] [3]. When defining these values, it is necessary to take into account the individual needs of users (which can significantly vary from case to case) but also the common needs of the household in general.

As the area of social housing units is limited, the provision of private open areas (balconies, loggias, terraces, private gardens) that are able to support certain activities (work, rest, leisure, children's play) contributes to the improvement of the unit's spatial comfort and quality of social housing in general [3]. Existence of such areas allows that a part of everyday household activities can take place outside the unit. These areas act like an outdoor unit extension, affecting the relaxation of the limited unit space and increase the housing comfort in general [4].

While the issue of unit's size can be considered universal (through: the provision of certain amount of living space per user, or definition of the apartment type, depending on the type and size of the household) – the issue of spatial organization of residential units intended for social housing is much more complex. The primary reason is that social housing beneficiaries are not known in advance and housing needs can greatly vary from one household to another. In order to meet the housing needs of a wide range of households, it is necessary to develop a variety of units in terms of their layout and spatial arrangements [3]. Since it is impossible to design a living space that would fully suit everyone, it should be left possible for individual interpretation and personalization of space usage [5] [6] [7] [8]. This suggests that, in addition to the variety in terms of housing unit types, the spatial organization of the unit should be flexible, in order to allow its adaptation to the diverse and changing needs of users.

### 3. SPATIAL CRITERIA OF THE HOUSING UNIT RELEVANT FOR THE QUALITY OF SOCIAL HOUSING

The observation of socio-spatial framework relevant for the development of social housing showed that the level of fulfillment of certain specific requirements (which are related to this type of housing) can be influenced by the spatial comfort of housing units. The following spatial criteria were recorded as the most relevant ones.

**Unit's size.** Housing solutions that tend to meet the housing needs of the socially vulnerable categories are very often based on 'minimum standard' model, which is reflecting in the fulfillment of minimum hygienic and sanitary conditions. However this approach is more than unsatisfactory from the aspect of inclusiveness and sustainability of social housing.

The value of 10 m<sup>2</sup> of living space per user, which is internationally defined as the absolute minimum [9] provides only the satisfaction of basic biological functions. As the application of this value endangers the satisfaction of accompanying needs and thus hinders the proper psycho-social development of the users, the social housing construction according to this model cannot be considered acceptable.

Therefore, contemporary social housing practice is largely focused on the development of housing units which such spatial capacities that can provide, beside basic biological needs, adequate conditions for necessary daily activities. Consequently, the minimum value regarding the living space per user is seen through the provision of a functional minimum – a value that is able to meet complex housing needs (in addition to sleep, food preparation and hygiene, also the work, rest, socializing, etc.). Considering the aspects mentioned above and findings from numerous architectural research and international recommendations [9] the optimal value can be considered the one of 15 m<sup>2</sup> of living space per user.

**Unit's type.** Spatial comfort of social housing units, beside their size, is largely determined by the unit arrangement and spatial organization. Defining the appropriate arrangement (types of the rooms and their number in the apartment unit) in correlation to the household type and its size is necessary in order to ensure that the housing unit of a certain area could really provide a desired level of housing comfort.

In social housing the development upon this criterion is reflected in the limitation regarding the number of users per room. The calculation of the value upon this criterion is measured by dividing the total number of rooms in the apartment, including the living room, and the number of household members. The common practice of social housing in most European countries, as well as the relevant international recommendation [10] states that this value should be 1 user per room. As the living room is included in the calculation, it can be concluded that except for the parents, who share the master bedroom, all the other family members should be provided with separate bedrooms.

This value can be reduced in households with young children. Findings show that parents and child sharing a common room up to a certain age does not represent an obstacle in child's development. However, after the age of 6 the child should be provided with separate bedroom [1] [11]. Also children can share a room up to the certain age – children of the same sex can share a room up to 18 or children of different sexes up to 12 years [1] [11] [12]. After this period, it is necessary to provide separate rooms for the children.

**Unit's adaptability.** The limited social housing fund constrains the possibility to completely satisfy the housing needs of all potential users. It is very realistic to expect that some households will not receive such unit that will fully correspond to their real needs in terms of unit's size and spatial organization. Also, the limited provision of social housing affects the later course of unit's usage. It is expected that, regardless of the change in the dynamics in terms of household housing needs (e.g. due to family expansion, changes in the health status of the beneficiary and etc.), the household will continue to use the same unit for a longer period of time. Therefore, development of social housing should be followed by the application of unit schemes that provide a high degree of space flexibility – so that the users can adapt the unit space according to personal housing needs [13].

In order for a unit to be characterized as adaptable, the space inside its boundaries must have a certain degree of flexibility and elasticity. The level of spatial variability is highest in "open" concept schemes, which are characterized by the use of a column-beam structural elements and grouping of technical-installation features into cores. Beside the "openness", the possibility of unit spatial adaptation and reorganization largely depends on its compactness and the amount of available neutral space (which in this type of housing is the lowest possible).

In social housing, the adaptability of the unit's space should be considered through the possibilities to: 1) use the living room as multi-purpose space and/or 2) change the unit spatial arrangement (within its physical boundaries) with the introducing of additional room.

In order for the living room to be multi-functional (to be used also for sleeping purposes) it should be dimensioned in such way to enable several additional functions. This means that in addition to the minimum dimensional values of the living room area, a certain amount of extra space intended for elements for clothes storing, bedding, etc. should also be provided. Architectural analyzes of the living room intended for sleeping show that the optimal surface area for quality organization is 18 m<sup>2</sup> and optimum width is 360 cm [1] [14] [15]. However, additional function of living room space does not depend only on its dimensions. Modern housing tendencies favor the application of open concept living room – the integration of kitchen, dining and living room within an open and continues living room area. Such scheme (if does not allow the periodically separation of the living room space) is unacceptable in the concepts of social housing. In cases where the utilization of the living room for the purpose of sleeping is expected (which are certain in smaller apartments) it is necessary to envisage the possibility of separation of the living room and its independent function regarding the dining and food preparation. Two spatial modalities can be introduces – allocation of separate dining room and kitchen, or integration of dining area within the kitchen. Both modalities require certain spatial arrangement of spaces – especially in terms of size and natural lightning.

Another expected situation is a need for additional room – whether it is a case of separating a child from parents or children from each other. This means changes in the spatial organization of the unit. The changes of the unit's arrangement are easiest to implement at the expense of the dining room, by allocating it function within the living room or kitchen and converting it. Adapted dining room space gets a new role in a form of additional room. Prerequisite is that the dining room is adequately dimensioned and naturally lit; and that living room or kitchen space can receive additional dining function. If this is not the case, an alternative can be sought in the reorganization of available living

space – by reducing the dimensions of individual rooms at the expense of forming an additional room.

**Private open areas (gardens, balconies, loggia, terraces).** The existence of private open areas improves the quality of housing for the majority of household types. Elaborating the importance of these areas, Stoiljković [4] emphasizes that these spaces not only physically expand the housing unit, but also functionally complete it, which makes the living space acceptable to a wide range of different users. In addition to the improvement of the overall quality of housing, bearing in mind the limited social housing unit size, the existence of private open areas can significantly contribute to the relaxation of the units by taking over a part of daily activities (dining, rest, children's play ...), under prerequisite that this area is adequately dimensioned, organized and positioned.

In order for private open areas to be suitable for the wide range of users, the minimum preferences are: 1) an area of 4 m<sup>2</sup> for the needs of a two-member household, with an additional 1m<sup>2</sup> for each added member [3]; 2) minimum depth of 150cm [3]; 3) direct connection with the living room space [3] [4] and 4) insolation at least in one part of the day (with concern of shading) [3].

Some types of households have more complex needs when it comes to the organization of the private open areas. This is especially emphasized in growing families (with children of age between 3 and 11) and elderly. Families with small children have needs for open space that could simultaneously accommodate both adults and children activities. In addition to the increased dimensions, it is desirable that these areas are in the immediate vicinity of the terrain, in order to ensure greater freedom in its use and a longer stay outside [3]. The elders value the possibility of a longer stay in the open air and gardening [3]. In both cases there is an obvious need for upscale of private open areas. Since larger private open areas, due to economic constrains, are usually not the reality of social housing, contemporary architectural practices efforts to find such solutions that will provide at least part of the housing units with larger open areas. Alteration of typical floor plan, formation of significant overhangs, pulling back the upper floors or cascading the main volume – all provide opportunities for the development of larger private open areas. Units situated on the ground floor level can be upgraded with the introduction of garden-like private open areas, by adding a part of the surrounding terrain to the housing unit layout. The shortcomings of the private open areas on the ground level, such as the visual exposure to the public, reduced privacy and the physical proximity of public space that negatively affects the sense of security, can be compensated through the provision of fence and formation of a yard from surrounding terrain. Such arranged ground level open areas reduces the negative aspects of the proximity to the terrain, while at the same time benefit the positive ones – as this space can easily connect to the immediate environment (which is a great advantage for families with children).

#### 4. THE ANALYSIS OF SPATIAL COMFORT OF SOCIAL HOUSING UNITS

Quality assessment of the spatial comfort of social housing units is based on the valorization of the buildings constructed for this purpose in Niš, Serbia. The analysis will cover three social housing complexes: Case 1 – social housing complex in Palih boraca Str., in housing area of Pantelej; Case 2 – social housing complex in Čedomir Krstić Str., in

housing area of Pasi Poljana and Case 3 –social housing complex in Majakovski Str., in housing area of Duvanište.

The analysis will be performed on the basis of the evaluation method, formed upon relevant multiple criteria. Based on the defined criteria – important for the quality of social housing, with the addition of the three-value scale, the level of the spatial comfort of social housing units will be determined. Accompanying value scale valorizes the quality according to each criterion as: low -, medium -/+ or high +. Value - means that there is an obvious lack of quality and that this aspect can be considered completely neglected in the construction of social housing. Also it points out the necessity to improve the criterion through planning and design regulations and practice. Value - / + means that the quality according to the criterion is partially satisfying and indicates the possibility of its further improvement. Value + is awarded when satisfactory level of quality has been achieved and indicates that this aspect has been adequately considered.

**Table 1** Multi-criteria evaluation model for the assessment of spatial comfort of social housing units

Multi-criteria model for the evaluation of spatial comfort of social housing units			
	Value scale		
	-	-/+	+
Unit's area	≤ 10m <sup>2</sup> /per user	10-15m <sup>2</sup> /per user	≥ 15m <sup>2</sup> /per user
Unit's type	2 user per room	1-2 users per room	1 user per room
Unit's adaptability	non	low level	high level
Private open areas	non	area < 4m <sup>2</sup>	area ≥ 4m <sup>2</sup> , depth ≥ 150cm

The multi-criteria evaluation method, with limits in terms of minimum spatial characteristics, is given in the form of a table (Table 1.).

## 5. CASE STUDY

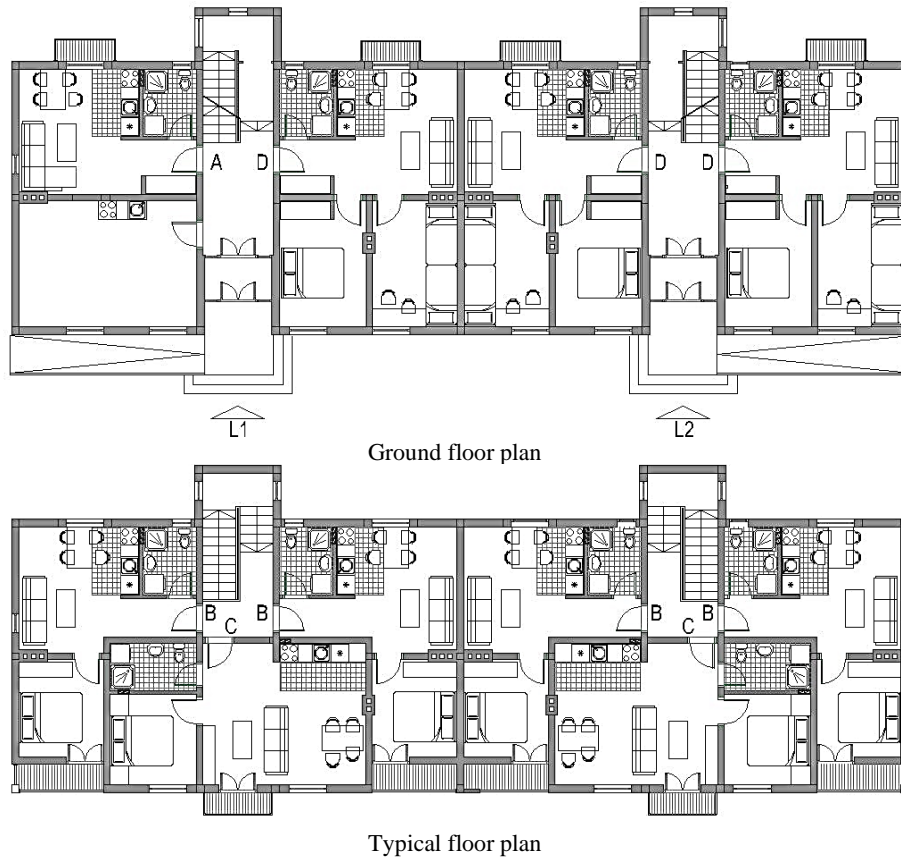
### 5.1. Case 1 – social housing complex in Palih boraca Str. in housing area of Pantelej

This multi-family residential building was constructed in a form of semi-detached building – which consists of 2 segments, with separate entrances and individual vertical access (Figure 1). Initially, the building was constructed as a tree-story building, but due to the shortage of this type of housing, it was expanded with additional two floors.

In both segments, floor plans are identically organized, with the scheme of 3 apartment units per floor, arranged around vertical circulation core (without elevator). Total capacity of this residential complex is 28 housing units, all intended for rental social housing.

Based on the analysis of the spatial characteristics of housing units (according to Figure 1. and given the values in Table 2) it can be seen that the average living space per user is about 10 m<sup>2</sup>. Since there are mostly smaller units, it is expected that the living room will be used also for the purpose of sleeping (in some cases maybe even for two people). These circumstances affect that the value according to the criteria of the unit type is 2 or more users per room.

Beside in the terms of overcrowding, the additional problem is the dimensions, spatial organization and arrangement of the living room. Although intended for sleeping, the area of this space is below 15 m<sup>2</sup> and it is permanently integrated with the dining area, in most cases also with the kitchen. This circumstance significantly reduces the functional quality of the living room.



**Fig 1** Case 1 – spatial arrangement of the housing units

In 2-room apartments bedrooms are dimensioned as single person room, while in the reality they are intended for sleeping of two people.

Regarding the adaptability of housing units, it can be said that units are partially able to meet the changing needs of the household. Except for the apartment type "C", where it is possible to separate the living room from the kitchen, in other types of the apartments there is almost no possibility for other modalities in unit's spatial organization.

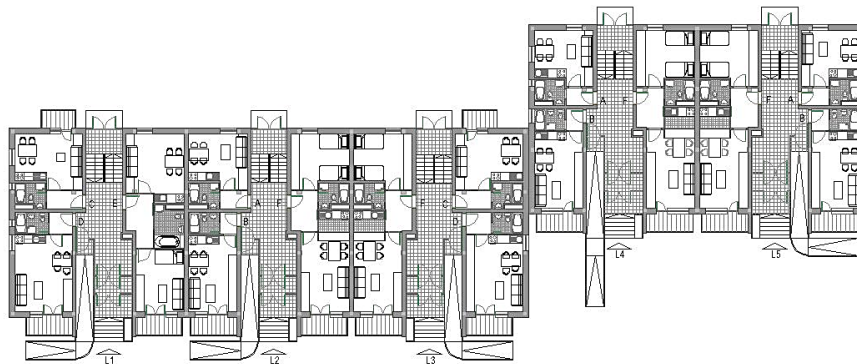
Although, each apartment has some kind of balcony, they are undersized. The depth of this space is 80 cm and their area less than 1.5 m<sup>2</sup>, which make them nonfunctional.

**Table 2** Case 1 – Spatial characteristics of typical housing units and the facilities

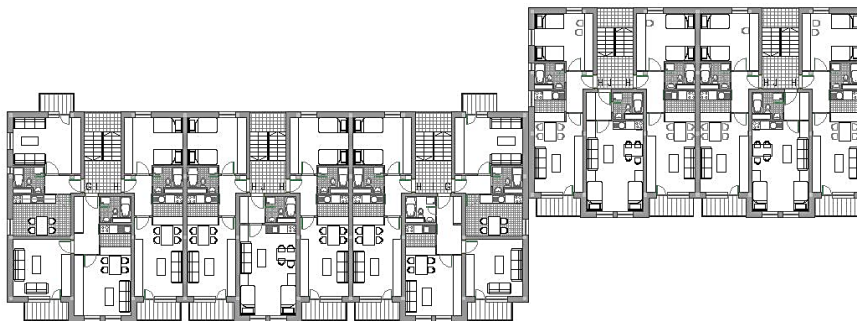
	CASE 1 - unit types			
	A	B	C	D
	studio	2-room	2-room	3-room
	ground floor	typical floor	typical floor	ground floor
entryway	2.96	3.63	3.37	4.93
bathroom	3.64	3.64	4.12	3.64
kitchen	-	-	4.12	-
living room	-	-	14.89	-
living room with kitchen	15.29	13.29	-	13.47
bedroom	-	8.37	7.92	10.87
bedroom	-	-	-	10.66
terrace	1.15	2.43	1.15	1.24
Total:	23.04 m <sup>2</sup>	31.40 m <sup>2</sup>	35.66 m <sup>2</sup>	44.81 m <sup>2</sup>

### 5.2. Case 2 – social housing complex in Čedomir Krstić Str., in housing area of Pasi Poljana

The second analyzed case is social housing complex located in Čedomir Krstić Street, in Block 8 of the suburban residential area of Pasi Poljana in Niš. The complex is positioned on the northwestern edge of the newly built part of the area.



Ground floor plan



Typical floor plan

**Fig. 2** Case 2 – spatial arrangement of the housing units



The building has ground floor and 5 upper floors. Build as linear form the building consists of five segments, all with individual entrances and vertical accesses. In each segment the floor plan is organized in a form of 3 apartment units per floor, arranged around the vertical circulation core (without an elevator) (Figure 2). The capacity of each section is 17 housing units, 85 housing units in total, all intended for rented social housing.

Based on the spatial comfort of housing units (Table 3), the obtained average living space per user is around 12 m<sup>2</sup>, while the average number of users per room is 2 or more.

All off the apartments have balconies. The areas of these spaces on the ground floor units range from 2.93 m<sup>2</sup> to 4.04 m<sup>2</sup>, while on the higher floors is 3.77 m<sup>2</sup>. The depth of these areas is the same on all floors and it measures 1.25 m.

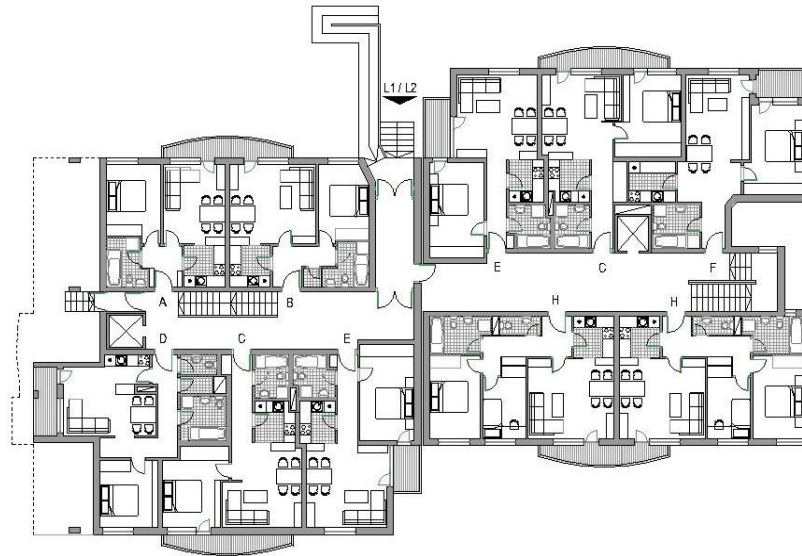
**Table 3** Case 2 – Spatial characteristics of typical housing units and their facilities

Case 2 – unit types					
	A	B	C	D	E
	studio	studio	studio	studio	studio
	ground floor	ground floor	ground floor	ground floor	ground floor
entryway	2.24	1.79	2.98	2.36	6.14
bathroom	3.28	3.08	3.28	3.33	5.48
kitchen	-	-	-	-	-
living room	-	-	-	-	-
living r. with kitchen	14.45	17.85	16.91	21.30	18.01
bedroom	-	-	-	-	14.44
balcony	-	4.05	2.93	4.05	4.05
Total:	19.97 m <sup>2</sup>	26.77 m <sup>2</sup>	26.10 m <sup>2</sup>	31.04 m <sup>2</sup>	48.48 m <sup>2</sup>
Case 2 – unit types					
	F	G	H	I	J
	2-room	1-room	2-room	2-room	studio
	ground floor	typical floor	typical floor	typical floor	typical floor
entryway	5.19	3.07	4.11	6.79	3.20
bathroom	3.78	3.28	3.28	3.28	3.28
kitchen	4.41	11.18	4.41	4.41	-
living room	17.02	16.91	14.45	16.10	-
living r. with kitchen	-	-	-	-	24.30
bedroom	14.44	-	-	15.40	-
balcony	4.04	2.93	3.77	3.77	-
Total:	48.88 m <sup>2</sup>	37.37 m <sup>2</sup>	47.14 m <sup>2</sup>	49.75 m <sup>2</sup>	30.78 m <sup>2</sup>

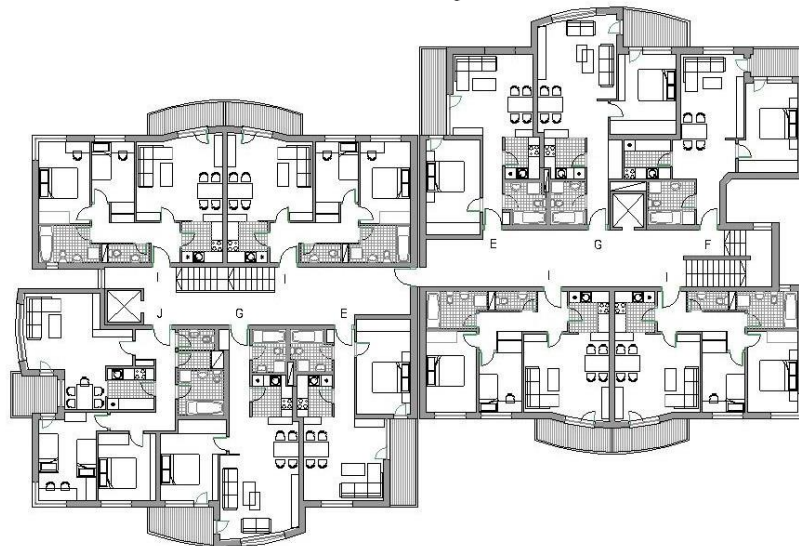
The spatial organization of most residential units implies the integration of the living room, dining room and kitchen (with the exception of unit type "F", where the kitchen and dining room are positioned within a separate room). With the area of the living room space ranges from 14.45 to 17.85 m<sup>2</sup> (depending on the unit type) unit's spatial quality is more than modest. Partial compensation of this shortcoming (in larger apartments) is enabled through the "neutral" room organization. Namely, the use of structure modules of 360x420, and 420x420 cm, enables the bedrooms to be large enough to accommodate different organization modalities (for example creating additional gathering/leisure point for the household members). However, the changes in the spatial arrangement of the units are not possible due to the usage of massive structure system.

### 5.3. Case 3 – social housing complex in Majakovski Str, in housing area of Duvanište

The third analyzed social housing complex is located in Majakovski Street in the area of Duvanište. Complex forms 8 semi-detach apartment building. The buildings consist of ground floor, 5 upper floors and loft area. The floor plan of each building is organized as corridor structure, with 5 apartment units per floor. The total capacity of this housing complex is 215 housing units. Of that, about 40 units (20%) are intended for rental social housing while the rest was sale with subventions.



Ground floor plan



Typical floor plan

**Fig. 3** Case 3 – spatial arrangement of the housing units

Based on the spatial characteristics of the apartments (Table 4), the average living space per user is 13.6m<sup>2</sup> (for apartments of type "H", "I" and "J" about 15m<sup>2</sup> per user). The average number of users per room ranges between 1 and 2, depending on the unit's type.

From the aspect of unit's adaptability, the possible alternatives are reflected in the modalities for usage of living room space, in a way that it can also be used for the function of sleeping (when/if such need arises). The spatial organization of all housing units is characterized by the application of open living room concept (integration of the kitchen, dining room and living room). While the kitchen can be spatially separated, dining area remains permanently integrated within the living room (except for apartment type "J", when it is possible to divide area and form separate dining and living rooms). However, it is not possible to change the housing organization and spatial arrangement within the unit's boundaries.

All off the apartments have private open areas in a form of loggias or balconies. In smaller apartments (2-bedroom), their area ranges up to 3.44 m<sup>2</sup>. Larger apartments have open areas over 4 m<sup>2</sup>, with depths over 150 cm. Open areas of the apartment on the ground floor level are with reduced depths.

**Table 4** Case 3 – Spatial characteristics of typical housing units and their facilities

CASE 3 – unit types					
	A	B	C	D	E
	2-room	2-room	2-room	2-room	2-room
	ground floor	ground floor	ground floor	ground floor	ground floor typical floor
entryway	4.94	5.36	5.76	2.93	5.39
kitchen	4.34	4.17	4.53	3.81	4.18
living room	14.46	18.35	16.43	15.01	18.82
bathroom	4.16	3.87	3.65	5.48	4.17
bedroom	10.27	10.35	12.13	10.58	14.97
balcony	2.74	2.74	5.53	3.58	5.46
pantry	-	-	-	3.02	-
Total:	40.90 m <sup>2</sup>	46.07 m <sup>2</sup>	47.94 m <sup>2</sup>	50.29 m <sup>2</sup>	52.99 m <sup>2</sup>
	F	G	H	I	J
	2-room	2-room	2.5-room	2.5-room	3-room
	ground floor	typical floor	ground floor	typical floor	typical floor
entryway	2.63	5.76	4.16	4.22	3.74
kitchen	5.62	4.53	4.34	4.64	5.36
living room	23.00	23.63	18.35	19.30	23.96
toilet	-	-	1.91	2.09	1.83
bathroom	4.13	3.65	5.31	5.40	5.48
hallway	-	-	3.74	3.57	5.59
master bedroom	13.40	12.85	11.05	11.42	10.58
bedroom	-	-	7.71	7.69	-
bedroom	-	-	-	-	13.89
balcony	3.44	4.87	4.87	4.76	5.06
pantry	-	-	-	-	1.48
Total:	52.22 m <sup>2</sup>	55.29 m <sup>2</sup>	59.31 m <sup>2</sup>	62.89 m <sup>2</sup>	77.07 m <sup>2</sup>

## 6. DISCUSSION

The conducted analysis of the constructed social housing resulted in the achieved spatial comfort of social housing units, according to the relevant criteria. The results of the evaluation are given in a form of table (Table 5.) with more detailed elaboration given in the text below.

**Unit's area.** The living space per user varies from case to case, however the average rang is from 10 to 15 m<sup>2</sup> per user. In some housing units in the Case 3 – Majakovskog Street, these values are closer to the upper limit. Considering the given values, the quality according to the criterion of the unit area can be characterized as partially fulfilled.

**Unit's type.** As the social housing are characterized by the construction of smaller housing units (mostly studios, 1-room and 2-room apartments) and taking into account the average household size in Serbia (which is 2.9 members according to the 2011 Census), it is certain that the living room space is used for sleeping function. The usage of the living room for this purpose is certain at the locations 1 and 2, while at the location 3 it is expected in some type of units. Based on the facts stated above, the quality according to this criterion can be considered as partially achieved.

**Table 5** Spatial comfort of social housing units – Case study Niš, Serbia

Multi-criteria model	Case study valorization		
	Case 1	Case 2	Case 3
Unit's size	-	-/+	-/+
Unit's type	-	-	-/+
Unit's adaptability	-	-	-/+
Private open areas	-/+	-/+	-/+

**Unit's adaptability.** In most cases, the level of housing space adaptability is very low. A small percentage of apartments have the possibility of separating the living room from the dining area and kitchen (this is only possible in apartment type "J" in the Case 3 – of Majakovski Street). In other cases, these spaces remain permanently integrated.

The use of a skeletal structure system, with relatively uniform spans, provides a certain degree of neutrality of the premises, which allows alternatives in the way the rooms are used individually. However the changing of the unit spatial arrangement is not possible.

**Private open areas.** Private open areas, in a form of balconies and loggias are represented in almost all of housing units. Apart from the apartments on the location 1, and on the ground floor at the location 3, where these spaces have undergone a significant reduction (their depth is only 60cm), other apartments have open areas of adequate dimensions. Their surface ranges from 3 to 5 m<sup>2</sup>, and the depth from 120 to 200 cm, which makes the quality according to this criterion partially satisfactory.

Although on each of the locations the ground floor was solved as exclusively residential, in none of the cases the surrounding terrain was utilized to form a garden-like private open areas.

## 7. CONCLUSION

The quality of facilities build for the purpose of social housing unequivocally affects the life quality of its users. Adequate housing not only affects the problem of lack of housing space for socially disadvantaged groups, but also provides adequate support to the overall growth and development of their users. Therefore, it is not surprising that the modern tendency in the development of social housing aims to create a stimulating living environment. In the domain of spatial comfort of housing units, this indicates equalization in the treatment of social and market housing.

The results of the conducted research regarding the spatial comfort of social housing in Serbia, Niš, show that contemporary local practice in this field is on a satisfactory level. Regarding the criteria analyzed in this study it can be concluded that a certain level of quality is present in each of the criterion. Also the latest practice of social housing (Case 3) has upgraded spatial comfort, almost equal with currently dominant market housing construction.

However, having in mind the specifics of social housing and their users, it can be concluded that some of modern design principles, when it comes to planning facilities for this purpose, still have not found their application in domestic practice. This primarily refers to the development of the associated private open areas, especially in the apartments located on the ground floor. Such a design principle does not affect the cost of construction, however it can have a significant effect on the housing comfort. Additionally the development of local social housing is mainly based on the construction of smaller units (studios and 2-room apartments), which initially prevents a significant amount of households from reaching an adequate housing comfort. This is also hindered by the spatial organization of the living room itself, which in most cases cannot be divided from the rest of daily living space, and therefore has purely potential to be used for sleeping.

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## **PROSTORNI KOMFOR STANOVA NAMENJENIH SOCIJALNOM STANOVANJU – SLUČAJ GRADA NIŠA, SRBIJA**

*Osnovni preduslov, kada je u pitanju prostorni komfor stanova namenjenih socijalnom stanovanju, jeste stvaranje stambenog prostora koji će pored zdravstvenog, higijenskog i sanitarnog minimuma, obezbediti i optimalne uslove za pravilan psiho-socijalni razvoj njihovih korisnika. Dosadašnja istraživanja su pokazala da su najrelevantniji kriterijumi koji utiču na visok kvalitet prostornog komfora: veličina, struktura, adaptabilnost stambenog prostora i postojanje privatnih otvorenih površina. Na osnovu ovih kriterijuma biće formiran evaluacioni model za valorizaciju prostornog komfora stanova građenih za ovu namenu. Ovaj model će se dalje koristiti za analizu kvaliteta izgrađenog stambenog fonda socijalnog stanovanja na teritoriji grada Niša u Srbiji.*

**Ključne reči:** *socijalno stanovanje, kvalitet stanovanja, prostorni standard, evaluacija*