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ACHIEVING USE VALUE OF A LIVING SPACE

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Use value is one of the key terms related to architectural functionality. The term itself denotes the level of usefulness of a living space for its user, i.e., to what extent the space can meet specific human needs. The paper analyzes the relations between characteristic human needs and the possibilities for their fulfillment in a living space. Various studies examining different aspects of use value have often identified it with the quality of a living space. This is why one of the main aims of this paper is to reexamine the thesis claiming that use value is just one part which defines the quality of a living space and that these two terms are not equivalents. On the other hand, the paper presents a systematization of cause-and-effect relations between human needs and the basic principles and parameters for achieving use value within a living space. Although the term has not lost its importance since it was first used, the criteria for achieving a higher level of use value of a living space have not been sufficiently researched. Along with a comparative analysis of the terms value, use value and the quality of a living space, as well as an examination of the characteristic human needs present in each living space and ways of meeting them, the key contribution of the paper lies in defining the principles for achieving use value.

***Key words*: architecture, housing, use value, quality, human needs.**

INTRODUCTION

The *use value*[2] of a flat is a term introduced to science in the 1970s by a group of professors from the Faculty of Architecture in Belgrade (Mate Bajlon, Branko Aleksić and Branislav Milenković). Aiming to examine the principles of the spatial and functional organization of a living space that would enable a flat to be organized with the highest quality within the smallest space, they claimed that what was required was economical construction accompanied by the highest possible reduction of the shortcomings of the flat. The term "use value" of a flat was introduced with the idea of gathering all the criteria they deemed theoretically useful for achieving higher quality flats in the exploitation phase. Since then, several decades have passed and the use of this term is still widespread. However, although the term has often been discussed in science[3], the criteria for achieving a higher level of use value with regard to a living space have not been examined sufficiently. It can be assumed that one of the reasons for this has been the identification of the term use value with the quality of the flat itself.

In the domain of this paper, the use value of a living space will be examined in its narrower interpretation, as part of the quality of a living space. Therefore, the main aims of the paper are: a) to reexamine the viewpoint which sees the use value as just one part in determining a flat's value, and to show that these two terms are not equivalents, and b) to carry out systematization of the cause-and-effect relations between human needs and the basic principles and parameters for achieving the use value of a living space.

The methodological framework of the paper includes a comparative analysis of the characteristic interpretations of the basic concepts on which the research is based - value, use value and quality. Having in mind Maslow's theory of human needs, a scientific basis for the systematization of the cause-and-effect relations between human needs and the basic principles and parameters for achieving the use value of living space has been set out.

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[2] The term *"use value"* has been known in science before. It is considered that it was first used by Karl Marx in his work *The Capital* (1867) where he states that "the usefulness of a certain thing makes it a use value".

[3] Bajlon, 1972, 1975, 1979; Čanak, 1973, 1976a, 1976b, 1978; Čanak and Gavrilović, 1978.

A FLAT'S USE VALUE AND ITS QUALITY

Mate Bajlon, in his book *Housing: Topic 1 – The organization of a flat*, states that a flat's use value "should be measured in relation to the needs, the number of people sharing the space and the structure of a certain family or group that the flat can contain." (Bajlon, 1975). According to his viewpoint, a flat's use value primarily depends on the human needs and the number of users. Furthermore, he states that two flats with the same surface area can have different use values, in the same way that one flat can have different use value, depending on whether it is for one or more people. Apart from this formulation, Bajlon does not engage in a wider interpretation of this term, but rather accepts the term and uses it without previous explanation. Even in his publication entitled *A Flat's Use Value*, the author focuses on analyzing the design principles applied in order to achieve better use value, but not the meaning of the term itself. As significant criteria for assessing a flat's use value, Bajlon states the following: a) separation of children by gender, b) separation of children and parents, c) separation of rooms for personal and communal life, d) gathering the family around the table, e) the option of forming a circular connection, f) the possibility of forming an extended communication area, g) undisturbed reception of guests, h) flexibility and i) open space (Bajlon, 1975).

A significant contribution to this subject was made in research by Mihailo Čanak (Čanak, 1973, 1976a, 1976b, 1978; Čanak and Gavrilović, 1978), in which he analyzed a flat's use value in relation to flexible structures and functional concepts, and examined the systems for assessing a flat's use value and its quality, etc. His study that has exceptional importance with regard to this topic is *Functional concept and a flat's use value*, in which the author, starting from an analysis of the term value in different areas of human activities (philosophy, economics, etc.), sublimates different viewpoints and establishes the definition of the term by which "the flat's use value is reflected in its usefulness in relation to one or more individuals, a family or a society in general, i.e. its ability to positively influence, through its characteristics, human needs, wishes and aims" (Čanak, 1976a). Aiming to examine the possibility of evaluating the use value of a flat, Čanak analyzes the evaluation models applied across the world, but for some reason, instead of focusing on the flat's use value, he directs the model of evaluation towards the exploration of a flat's quality. It can only be assumed that this equation of the term use value and quality was conditioned by author's striving to get a deeper insight into objectifying the criteria and the evaluation model (Čanak, 1984).

With regard to recent references, it is important to stress the article by Dragan Marković, entitled *What is a flat's use value, why is it important and how can it be evaluated?* in which the author states that a flat's use value is the "dimensionally-organizational quality of a certain living space. As such, it can be determined by numeric or relational parameters." (Marković, 2020).

By analyzing the above-mentioned interpretations, it appears that equating the term use value with the flat's quality has led to a certain confusion, which is why it is necessary to focus briefly on a comparison of these two terms and clearly discern whether there is a difference between them (Table 1).

When looking at the previous statements in the context of living conditions, it can be established that the use value determines the usefulness of a flat for a person using it. It is a parameter which indicates to what extent a flat meets the needs of its users during its exploitation. The quality of a flat is defined by a group of parameters determining the positive qualities of a living space, but also the level of satisfaction of both the users' needs and other factors affected by the immediate or wider surroundings (construction, materials, position within the building, area, town, etc.). Unlike the use value of the living space, which is determined by those that use it (individuals or groups) and is specifically different for each person, the quality of a living space is assessed in relation to standards such as generally accepted social norms.

Thus, it can be said that the use value of a living space is in a certain way "personalized", as it depends on the individual needs of real users, while the quality of living space indicates the level to which a certain flat's characteristic fulfills the overall requirements prescribed by norms and standards. Consequently, the quality of the living space is a much wider category, which, among other things, also includes its use value, whose domain of influence is limited to the boundaries of the space itself.

In terms of the quality and use value of the living space, the values stand for measures or guidelines that human inclinations move towards. In this sense, the concept of the value of the living space is a more general category than the

Table 1. Comparison of the terms value, use value and quality

<table>
<tr><th>Value</th><th>Use value</th><th>Quality</th></tr>
<tr><td>... includes characteristics which make objects the aim of human striving. (Panchauser, 1971)</td><td rowspan="2">... is reflected in its usefulness in relation to one or more individuals, a family or a society in general, i.e., its ability to, through its characteristics, positively affect the satisfaction of human needs, wishes and aims. (Čanak, 1976a)</td><td rowspan="2">... is the level up to which a group of characteristics fulfil requirements. (ISO 9000, 2001)</td></tr>
<tr><td rowspan="2">... is the measure creating certain orientations in human behavior and doing. (Životić, 1986)</td></tr>
<tr><td>... is a dimensional-organizational quality of a certain living space. (Marković, 2020)</td><td>... of the flat is the level in current circumstances, determined according to the level of fulfillment of requirements of professional standards and all relevant individual characteristics of the flat, the building and its surroundings, classified on a certain assessment scale. (Todorović, 2016)</td></tr>
</table>

quality of a flat or its use value, which leads to the conclusion that the total use value of the living space is determined by three main parameters: a) use value, b) quality, and c) material value (the price).[4]

Based on the above, it can be concluded that the use value is the domain of usefulness of a living space for its users. It refers to the span of usefulness with a threshold below which normal usage of the space is not possible. Each step outside this threshold belongs partially to the scope of quality of the space.

HUMAN NEEDS

The term *human needs* is used to denote the motives that drive people to carry out different activities. Generally speaking, all human activities can in a certain sense be described as the search for fulfilment of particular needs (Guillen-Royo, 2014). The idea of the systematization of human needs and their relations was first explained by American psychologist Abraham Maslow in his scientific paper "A theory of human motivation" (Maslow, 1943), where he states that human needs can be classified into groups with a clear hierarchy separating them. According to his theory, the lower levels of needs must be satisfied first in order to activate the higher levels of needs. Maslow grouped human needs into a hierarchy of five levels, from the lowest to the highest (physiological needs, safety, belongingness and love, esteem and self-actualization).[5]

Maslow's hierarchy is most often presented in the form of a triangle separated into five segments, in which each group of needs belongs to a certain level. It is thought that higher needs from this hierarchy are activated only after the lower-level needs have been satisfied to a significant degree.

Furthermore, only when one need has been satisfied does its importance reduce for a period of time and the influence of a different need strengthens, which leads to their successive intertwining (Figure 1). Maslow's theory of motivation is considered the most influential theory in the domain of research into human needs.

The satisfaction of human needs is the basis for the functional organization of a living space. However, it is important to stress that the living space cannot satisfy all the stated needs, as there are certain needs which require relations and activities outside the living space, through contact with other people or objects. On the other hand, the role of an architect is to assess which needs have a permanent character, as opposed to needs with a temporary character, as well as to determine the trends in the transformation of temporary needs (Čanak, 1976a).

PRINCIPLES FOR ACHIEVING HIGHER USE VALUE

In order for a living space to have an adequate level of use value, it is necessary for it to fulfil certain principles, which if applied create an opportunity for the space to meet the user's needs. Each principle can have a radical impact on the use value of the living space. Our aim in this paper is to focus more on the overall principles that can influence the use value of the living space, than on their significance (hierarchy) to the users, as these systems occasionally change and are different for an individual user or a group of users.

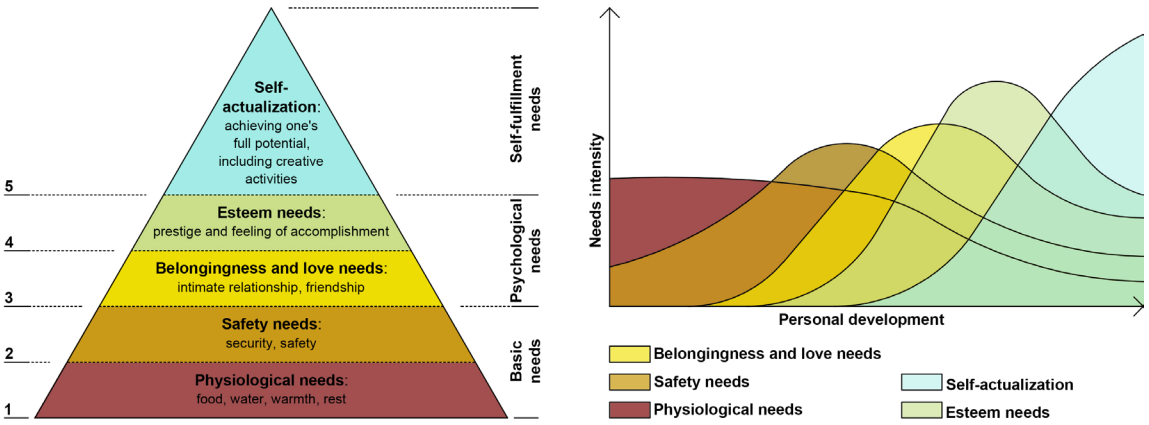

Figure 1. Hierarchy of human needs according to A. Maslow (Source: author's sketch)

[4] Along with these three parameters, we can also discuss "spiritual value" of the living space, determining personal or emotional value of the space for its user.

[5] Physiological needs (the need for air, water, food, sleep and sex); the need for safety (physical, material and medical safety (employment and healthcare), safety of family and possessions); the need to belong (friendships and family ties); the need for esteem (respect, success, respect of others, acknowledgment of person's success); and the need for self-actualization (creativity, morality, spontaneity, problem solving, lack of prejudice, acceptance of facts).

Spatial conditions for satisfying physiological needs

Living space cannot literally offer the answer to physiological needs, but it can, however, represent a spatial frame for these needs to be satisfied undisturbedly. The need for fresh air can be achieved through a system of natural or artificial ventilation, an adequate size and the positioning of the windows and doors to enable adequate circulation and exchange of air in a particular space. Optimum ventilation is achieved by positioning

the entrance and the window opposite each other, which is why the two-sided or three-sided orientation of a living space are more optimal for use.

The need for food and drink is indirectly influenced by the existence of rooms where food is stored, prepared and consumed. These rooms make the daily activities related to satisfaction of these needs easier. In order to carry out activities related to food storage, preparation and consumption of meals undisturbed, an ergonomically designed space is required that is in harmony with the dimensions of a human body. The minumum linear dimensions determining the lower limit of basic room measurements are: for a single-row kitchen – 160cm width, a two-row kitchen – 210cm width, and a dining room – 200cm width. When it comes to satisfying the need for excretion, sanitary spaces must have a minimal width of 80cm for the toilet and 160cm for the bathroom. It should also be considered that when a living space is used by multiple individuals (3 or more), adequate use means the existence of an additional toilet besides the bathroom. The need for rest and sleep under normal circumstances can be satisfied by having a sound-proof room that can accommodate a bed of adequate dimensions. The minimum width of a room with a double bed must be at least 260cm, while a room with two single beds requires a minimum width of 240cm, and a single-bed room must have a minimum width of 190cm. All of these dimensions represent absolute or critical minimums, below which the functions of the living space cannot be carried out normally, which means that the use value of a living space is not a subject that could be discussed in these circumstances (Čanak, 1976, 2014) (Figure 2).

Depending on the organization of the space, room proportions, and the minimum linear depth and width of a room, it is possible to make a general impression of what the necessary minimal surface area is for carrying out normal functions in the living space. It is necessary to emphasize that a room with an adequate surface area, but with an irregular or bent shape, in most cases cannot meet the expected functional requirements, which is why we should aspire to having rectangular (less often-square) proportions of the rooms, in order to achieve adequate use value of the living space.[6]

It is important to stress that the height of a living space does not significantly affect its use value, but rather the perception of the flat's comfort, as well as the air volume required for normal housing functions in conditions without adequate ventilation. The lower limit for the useful height of a room has been determined to be 226cm, below which a longer stay can create the feeling of being uncomfortable and experiencing space claustrophobia (Lourenco *et al*., 2011). The optimum height for a living space which determines its use value is 260cm.

It is important to emphasize that there are a significant number of studies and regulations in which aspects of the minimum dimensions that determine the use value of residential space have been considered. The dimensions mentioned in this research are given only as an example that relates to design practice in Serbia.

Spatial conditions that satisfy safety and comfort needs

One of the main roles of each living space is to meet the need for safety and comfort. Safety in a living space relates to protection from various external and internal influences, while comfort is the feeling of being comfortable in terms of both psychical and psychological well-being while staying in a living space (Chappells and Shove, 2004).

[6] For more information on the principles of dimensioning rooms, determining minimal surfaces, and the depth and width of rooms, see the study "Functional concept and a flat's use value" (Čanak, 1976).

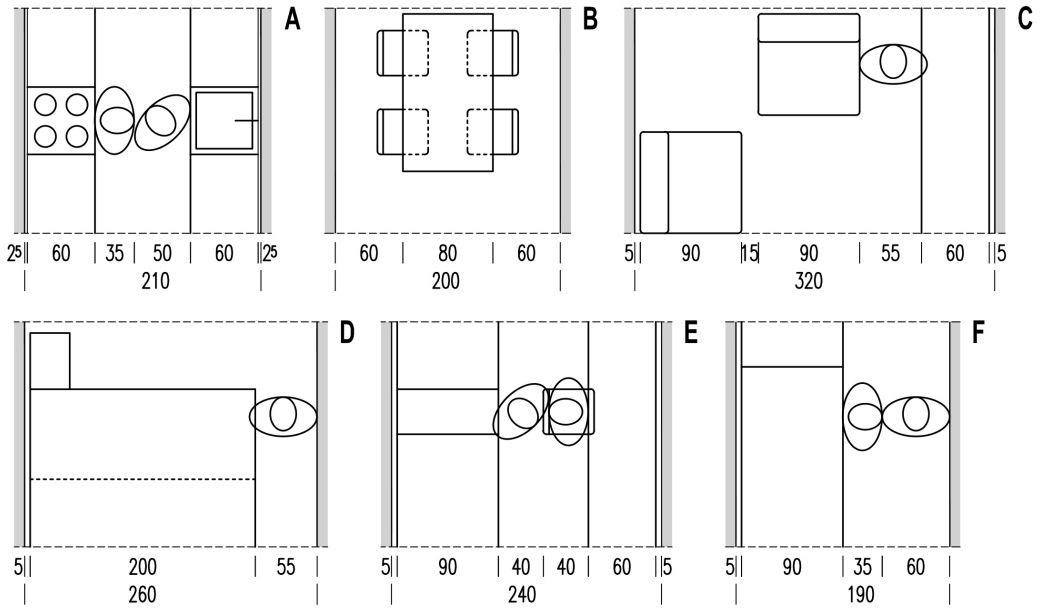

Figure 2. Minimum linear width of a room: a) two-row kitchen, b) dining room, c) living room, d) parents' room, e) room with 2 single beds and f) a room with a single bed
(Source: Čanak, 2014)

What influences the fulfillment of physical safety is primarily the ergonomics of the space and the furniture, the lack of sharp surfaces and angles, and having irregular and adequately dimensioned objects or parts of the space. The parameters that meet the safety needs of a family and their belongings in a living space are mechanisms securing their safety from break-ins, such as safety entrance doors, balcony doors or windows. The need for material security can, in some cases, be fulfilled through the existence of a workspace (office, cabinet, atelier, etc.), which could, if necessary, be a room with a separate entrance where the professional working activity of a user can be carried out. The need for healthcare security and physical wellbeing in a living space can be fulfilled if there are adequately dimensioned rooms for personal hygiene (bathroom and/or a toilet) and space for relaxation and recreation in the form of a fitness room or a gym.

The most significant group of parameters comprises those that satisfy the need for privacy and isolation, especially important in living spaces with multiple users, regardless of whether it is a family or a group of strangers using the same common space – *coliving* and *cohousing* models of housing. Bajlon states that the minimal social conditions to be secured within a flat are: "the possibility to satisfy the personal needs (work, rest, isolation, etc.) of every member and the option of taking part in common forms of family life, within the boundaries and up to the scope that the available means allow" (Bajlon, 1979). The need for privacy and isolation can be fulfilled by the use of several design principles: a) by separating the activities of children and parents, b) by separating the children according to gender, c) by separating the rooms for personal and common life, d) by using a circular connection and e) by using separate entrances.

Separating children's and parents' activities is recommended as different generations of users have different interests, needs and dynamics. Separation can be executed through the physical segregation of activities inside a particular space. It is thought that the healthy psycho-physical development of a child requires the closeness of their mother, and for children to sleep in their parents' room up to the age of three, while the separation of a child into a room of his or her own should be done by the age of six at the latest (Dinić, 2003). After the age of thirteen, when the child is in the final phase of forming their personality, it is necessary to have the option of separating him or her from other family members within the same living space. For this reason, it is advisable to introduce an auxiliary entrance to the flat which allows undisturbed use of the space and a higher level of privacy within the living space (Alfirević and Simonović Alfirević, 2019).

Separation of children by gender is recommended due to their different psychological and social needs and the dynamics of growing up. It is important to take into consideration equality among the children in a family and for them to have equal space while growing up.

The separation of space for personal and communal life makes it possible to have simultaneous group and individual activities. Pre-school children have the need for more intensive contact with parents, whereas this need steadily decreases by the age of twelve, so that after the age of thirteen a child will express more need for periods of privacy in their own individual space (Dinić, 2003).

By applying a circular connection and introducing an auxiliary entrance, it is possible to achieve a higher level of privacy, as the users do not disturb each other when carrying out their chosen activities. Circular connection enables the option of alternative movement in the space and reduces the possibility of meeting other users or guests, which from the parents' point of view is not essential, while adolescents express it as one of their most characteristic needs. In order to achieve adequate spatial independence of individual and common spaces, it is desirable to have the option of forming a circular connection which excludes the zone of the living room or to have one or two rooms directly connected with the entrance zone (Alfirević and Simonović Alfirević, 2018).

Spatial conditions for satisfying the need for belonginess

Belonginess is a need of key importance in the social development of any person. The need to communicate with others (family and friends) within a living space is most often carried out in spaces designed for gatherings. In order to fulfil its purpose, a gathering space (living room, multi-purpose room, salon, etc.) must have adequate dimensions for the expected number of users (regular users and guests). In two-generational and three-generational families it is advisable to have separate gathering spaces, i.e., for a living space to have at least two centers. The presence of only one center can lead to conflict, for instance in situations when social contacts among younger family members and the reception of guests by older family members coincide (Montgomery, 1972). In living spaces of medium and lower standards, in most cases it is customary that the gathering center for users is the living room, while, if necessary, the dining room space can also be included, as it is closely connected with the living room either as an independent room or as a part of the zone of the so-called "extended communication area". According to Bajlon, the extended communication area was the result of the need to "find the form of family gathering at the common table, in cases when the lack of space in the flat did not allow other forms of gatherings" (Bajlon, 1972).

Spatial conditions for satisfying the esteem need

Esteem needs (self-esteem, success, respect by others and acknowledgment of one's own achievements) represent a higher level in the hierarchy of life needs, which are most frequently met in contact with others and are not directly connected to the spatial context. However, the need to achieve and most of all, to show off success, can be related to one's physical surroundings in that a person wants to show off his or her success and material status, not only in terms of the style of the living space, but also in terms of the space having a larger surface area where the person lives or receives guests, in order to artificially create the feeling of respectability. According to Jelena Ristić, "the concept of structure and shaping of the family homes of the elite is connected to 'class expectations', i.e., the need for some social classes to establish their own hegemony through the presentation of their living space to show off their social status, social value or lifestyle" (Ristić, 2009).

Space conditions to satisfy self-actualization needs

The need for self-actualization, similarly to the previous group of needs, relates to psychological needs of a higher level and mostly does not depend on spatial conditions. The need for creativity and some form of creative activity can be related to the physical context in that there should be certain spatial conditions for undisturbed activity that contributes to a person's creative expression. In an ideal case this would be a hobby room, which, depending on the activity, can have different characteristics, while in some cases and in spaces with a smaller surface area, the hobby room can be integrated into a living room zone.

DISCUSSION

Through parallel analyses and the systematization of relations between characteristic human needs in a living space and the options (principles) for their satisfaction, it can be concluded that a living space provides physical conditions to meet the basic human needs (physiological and psychological), while higher level needs are most often satisfied in social relations outside the living space (Table 2).

As we mentioned previously, human needs make a complex system of motives, some of which regularly and cyclically take turns and complement each other, as is the case with physiological and partially with psychological needs, whereas some needs develop and build up and are present less often. When designing a living space, it is necessary to pay attention not only to satisfying constantly present (cyclical) needs, which is primarily achieved by adequate spatial and functional organization of the living space, but also to take into consideration satisfying developmental needs, which requires a flexible spatial frame that can reflect their changing nature.

If we look back at the topic of use value of a living space and the options for achieving it, it is important to stress that "an ideal" living space is one which provides different

Table 2. Review of the characteristics of human needs in a living space and the possibility of meeting them

Human needs in a living space		Living space potentials for meeting these needs
Physiological needs	The need for air	• Natural or artificial ventilation of space
	The need for food and drink	• Space for storing food • Space for preparing food • Space for having meals
	Excretion need	• Sanitary space (bathroom and/or toilet)
	The need for rest	• Rest space
	Sexual needs	• Rest space
Safety and comfort needs	Physical safety need	• Ergonomics of space and furniture
	The need for family safety	• Break-in safety
	The need for safety of belongings	• Break-in safety
	Material security need (employment)	• Work space
	The need for health, safety and good physical condition	• Personal hygiene space • Space for rest and recreation
	The need for privacy and isolation	• Separation of children and parents • Separation of children by gender • Separation of rooms for personal and communal life • Circular connection that allows intimate access to night zone • Living space with two entrances
	The need for comfort	• Optimal equipment of rooms • Optimal dimensions of rooms
Love needs	The need for belonging and feeling loved in a family	• Space for family gathering (living room, dining room, kitchen, extended communication)
	The need for friendships outside family	• Room for receiving guests
Esteem needs	The need for esteem within the family	---
	The need for esteem outside the family	• Space for receiving guests • Space for accommodating servants
	The need for self-esteem	---
Need for self-actualization	The need for independent activities	---
	The need for contact	• Space for gathering
	The need for directed social activities	---
Artistic and knowledge needs	The need for knowledge	• Space for reading (cabinet, library)
	The need for art	• Space for work
Altruistic needs	The need to help others outside the family	---
	The need for social engagement	---

spatial conditions for the regular and complete satisfaction of most human needs. The primary potential of a living space includes rooms that allow basic life activities, with adequate dimensions for meeting the specific needs of the users. On the other hand, when it comes to living in a group, the aspects of the users' privacy and socialization become quite important.

An important aspect requiring exploration is also the level of furnishings. If the space includes inadequate, non-standard and excessive furniture, the dimensions of otherwise optimal useful space will be reduced, as "cramming" the space with furniture reduces the experience of spatial comfort, meaning it also lessens the use value of the living space.

By comparing the terms *quality* and *use value* it was concluded that the use value of the living space makes up a significant part of its quality, and that it refers to the boundaries of the space actively used and defined by the gross useful area and room height, as opposed to quality, whose determinants exceed the spatial frame, which is why it is impossible to establish equivalency between these terms.

CONCLUSION

The paper presented a systematization of cause-effect relations between human needs and the basic principles and parameters for achieving the use value of a living space. By analyzing characteristic human needs, the paper offered the most significant solutions for achieving the use value of a living space. The importance of the research is reflected in the possibility of using its findings when forming the pattern or procedure for evaluating the use value, which would be an adequate counterpart of the Flat Quality Certificate, based on assessing the parameters of a specific flat in relation to the concept of quality level and average human needs. With regard to the statement that a flat's use value is "personalized", as it depends on the individual needs of its users, assessing the use value, along with a Flat Quality Certificate, would be of importance to the end user, as it would serve as proof of the level of use value of the space owned by this user. On the other hand, the structure of principles and parameters presented can be the basis for conceptualization of the project task, through conversation with a known user who requires the design of the living space as a solution to the specific hierarchy of his or her personal needs.

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