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EFFECT OF CHANGES IN USER DEMAND FOR USER COMFORT HOUSING IN CZECH REPUBLIC

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Abstract: *The main emphasis housing after 1948 was placed on the quantity of flats built and improved technical level of housing. New possibilities were sought with regard to the ac-celeration and economization of construction, frequently at the expense of long-term quality and operational efficiency. Housing, however, must be provided in a fully-fledged, completely operational condition; it must not be regarded as makeshift. The construction concept should always be a natural response to the user's needs, whose housing demands, however, have been changing over the course of time. This paper deals with the overall user comfort of residential houses, which is, among others, influenced by the existence, spatial efficiency and usability of facilities in residential houses.*

Keywords: Block of flats, housing, flat, facilities, usability, user comfort

1 INTRODUCTION

Housing constructions form the basis of the built-up environment, be it whether the significance of this statement is viewed from the perspective of the quantity of constructions built or their impact on every individual's needs.

Housing is often regarded as a relatively conservative sphere of life whereas, as a construction task, it may easily evoke the impression of commonness, perhaps even banality, particularly with regard to collective housing. Whether ordered by public administration, corporations or enterprises, owing to their repeatability, it is often bound by numerous regulations, unwritten rules and cultural restrictions from which present society is still not able to disengage [1].

For the field of collective housing, detailed knowledge of the issues is usually crucial by reason of manoeuvrability in a small space. This includes awareness of various circumstances and concurrences determining the character and methods of utilization of the individual rooms of residential houses used for collective dwelling.

Interest in the issues of collective housing in typological terms, irrespective of special areas such as the housing for seniors, housing for the handicapped, starting flats, etc., is not very typical of our cultural environment even from a historical perspective.

2 THE INFLUENCE OF SOCIAL HOUSING TO CHANGE USER RIGHT AFTER 1948

After 1948, the period of socialist lifestyle began in the Czech Republic, based on egalitarianism and the socialist building industry, the general obligation to work and general right to abode; nevertheless, one should point out, with a very long waiting period. Obviously, the general right to abode meant the necessity of quick construction of new flats, which resulted in overall construction of housing estates according to five-year plans and the technical-economic indicator (Act on the First/Sixth Five-Year Plan No. 241/1948 Coll.). With regard to their characteristics, these housing estates are regarded as social housing today.

At that time, the issue of social housing was not a breakthrough idea at all; the history of social housing dates back to the turn of the 20th century, when the labour force began to flow into cities; therefore, the first social housing buildings appeared in the early 20th century; for example, construction of the Jubilee Settlement in Ostrava from 1921 to 1932 is worth mentioning. Housing of this type was provided for a specific group of the population, as housing for workers and employees or, on the contrary, housing, for instance, for the old, the sick, young families with children and the unemployed. Within this primary social construction, the floor area of every dwelling was about 80 sqm. After 1921, the Czechoslovak Republic placed great emphasis on social issues and further developed social housing; laws on building activities enabled the foundation of housing associations and building activities of municipalities as a counterbalance to private enterprise. Social housing became an important subject of prominent architects; there was a perceptible distinctive pursuit of efficient ground plan layout and reduction of ar-chitectural expression. Another important milestone in the area of social housing was the year 1927, when the "building activity act" was passed, involving preference for ground plan quality and granting of support to buildings in which even fixtures were lit and ventilated, with flats above the ground level. Furthermore, emphasis was placed on facilities such as a common laundry and dryer, often located in the house rooms in contact with the ground, which are today considered of much value, even in the parterre area. As an example of

this period, the small-flat settlements in Obřany and Komárov can be cited.

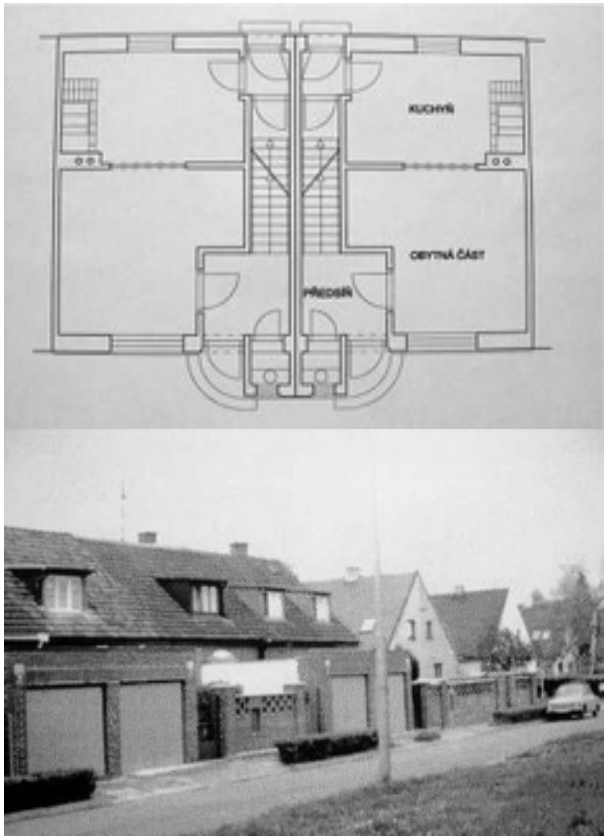

Fig. 1 The small-flat settlements in Obřany (Source: slideplayer.cz/slide/ 2015217/)

The demand for cheap, efficient and undemanding construction predetermined building standardization. Brick residential houses of various types were implemented, differing in their layout and size. The original, functionally undifferentiated rooms of the same dimensions were eventually replaced by rooms with closer differentiation of functions; over the course of time, the floor area standard was also increased. They further included minimum sanitary installations and a small balcony. In the 1960s, panel buildings arrived. The first residential houses implemented by the method of prefabrication appeared in 1955; their construction continued until 1992, when it was terminated. Emphasis was placed on rationalisation and standardization. The civil-engineering design, low standard of sanitary installations and low variability of dwellings soon failed to conform to the ever-developing needs of dwelling users.

In 1989, the recurrent subject of social housing appeared again as a result of differentiation in society. Once again, the subject was topical and appealing to architects; towns and municipalities were motivated by a more favourable housing policy. Architects were encouraged by the high architectural level of social housing in many Western European countries (Austria, the Netherlands, Spain and Germany). However, the standard of living as well as housing demands also increased; the first shortcomings of the panel building housing estates were revealed in support of suburban development as a trend which, paradoxically, was to be curbed according to the original idea.

The construction of residential houses started to decline quickly. There was sparse construction of individual residential houses.

In the 1990s and at the beginning of the 21st century, humanization of the original panel housing estates took place, being primarily restricted to heat cladding, roof extensions and replacement of windows; the internal space of residential houses was totally ignored, or changes in the actual dwelling proportions were considered regardless of the space of the entire internal environment of the residential house including all of its rooms belonging to the dwelling, such as the house facilities.

3 HOUSING DEMANDS OF TODAY

Contemporary people's housing demands go hand-in-hand with the housing function. In general, housing is considered one of the basic necessities of human life (UDoHR, 1948). The right of abode is defined in the Universal Declaration of Human Rights. The most fundamental function of housing is specified as protection against adverse external effects; at present, the functions of relaxation and fulfillment of personal and life needs are somewhat preferred. One can state, therefore, that housing is one of the essential factors of development of the living standard.

The traditional content of housing, or rather its actual function, undoubtedly involves the common life of the family; with the increasing living standard of society, this will mean rising demands for the housing standard, particularly for the general standard, above all in the central living room. Moreover, privacy of the individual family members is of similar significance; even here, society is raising its requirements, posing claims for a separate workroom for every household member living in the given dwelling. Other interference in the layout of present-day dwellings features higher demands for storage areas, pantries and dressing rooms [3].

Up to now, only the demands for the actual housing function have been analysed, with their influence on changes to the layout as well as user comfort. Within the solution of the user comfort of residential houses, however, it is also necessary to deal with the issue of facilities of residential houses. As a whole, traditionally conceived rooms, such as laundries, drying and ironing rooms, spaces for bicycles and prams as well as cellar boxes present functions, many of which were gradually transferred to the dwelling in the past; the remaining part (such as the storage of prams and bicycles) has become highly problematic, for safety reasons in particular.

Whereas in the period of dwelling housing construction, it was common for house facilities to be

designed as well as frequently used in every new house, these rooms rarely perform their originally intended functions at the present time. Before the house and dwelling layout is designed, demands for operational relations, functional and spatial requirements should be clarified. Therefore, one should particularly consider the usability and spatial efficiency of selected rooms of house facilities, particularly the storage room for prams, bicycles and wheelchairs, storage rooms for objects, unless included in the dwelling, which the Czech national standard No. 73 4301, concerned with the issue of residential buildings in the Czech Republic, defines as mandatory to ensure economic and technical operation of the residential building.

Generally speaking, house facilities form an important part of the residential house – they may have a great influence on the housing comfort in the object. At the same time, implementation of the rooms for location of the facilities adds to the construction costs, which in turn have an unfavourable effect on dwelling prices. Moreover, one should realize that the developing companies primarily determine the contents of house facilities in residential houses with regard to the highest possible profit from their investments [2].

The area intended for the dwelling can be utilized for various layout solutions – they can differ in the size and shape of the individual rooms, position of doors and windows. The user's wishes should be respected and the layout adapted to them. Similarly to the dwelling area, the area of the house facilities can employ certain variability in its layout solution; thus over the years, when the facilities have ceased to perform their basic function, they can be transformed to a different functional use by simple modification, in which way a defunct room can be revived again. This would have to be considered as early as during the design and actual construction of the residential houses. For the existing residential houses, which mainly involve panel buildings, possibilities should be considered of rediscovering the options for changes in the layout or functions of the existing layout.

4 REPORT FROM RESEARCH ON USABILITY AND SPATIAL EFFICIENCY OF FACILITIES OF RESIDENTIAL HOUSES TO DETERMINE THE USER COMFORT

The crucial requirement of the present is increasing sustainability of new projects and existing buildings as well as increasing their future benefit. This condition primarily applies to the group of the housing and dwelling fund; there are rising demands for user comfort and spatial efficiency of residential houses. In the methodology of the national tool for certification of quality of buildings with regard to the sustainability principles (SBToolCZ), the weight of the user comfort criterion amounts to 9% and that of the spatial efficiency criterion to 7% [5].

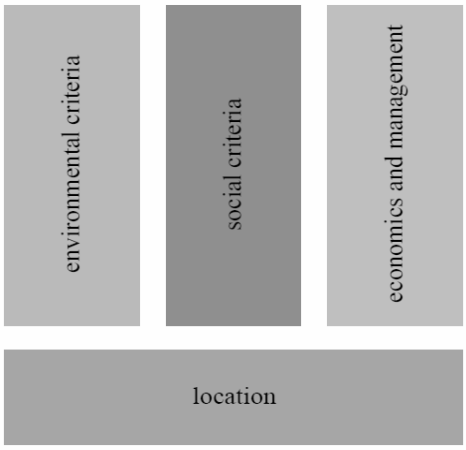

Fig. 1 The basic structure of the methodology SBToolCZ (Source: [5])

Table 1 The structure of the criteria in the socio-cultural field

Criterion	Scale
S.01 Visual Comfort	10%
S.02 Acoustic Comfort	11%
S.03 Thermal Comfort in Summer	10%
S.04 Thermal Comfort in Winter	10%
S.05 Material Health	12%
S.06 User Comfort	9%
S.07 Wheelchair Accessible	10%
S.08 Ensuring the Security of the Building overrun	5%
S.09 Flexibility of Building use	7%
S.10 Spatial efficiecy	7%
S.11 Use exterior of the Building for Residents staying	9%

(Source: [5])

With regard to the absence of any statistical materials concerning the real usability and efficiency of the house facilities in residential houses, a direct survey of the real state has been conducted in the form of questionnaires within the university project SP2015/127.

The survey aimed either to confirm or to rebut the hypothesis that the house facilities are not really utilized sufficiently and, pursuant to this result, to propose subsequent forms of amendments of legal and technical standards governing the subject issues (e.g., by partly transferring the areas to the areas for dwelling accessories – pantry, cellar room, etc.).

Within the period of May-October 2015, a questionnaire titled Survey of Usability and Spatial Efficiency of House Facilities of Residential Houses was sent off and made publicly available on the Netquest portal (intended for the creation and publication of surveys in the form of questionnaires) to obtain a broad spectrum of respondents.

Among others, one can state on the basis of the answers that the highest number of respondents (62%) live in dwellings located in panel buildings. This is

almost double in comparison with dwellings in brickwork estates. The questionnaire survey further revealed that the highest number of respondents, the entire 35% or 52 persons, live in dwellings sized 3+1. According to the size, the other most frequent dwellings inhabited by the respondents include 2+1 with 19%, 2+kitchenette with 14% and 3+kitchenette with 12%. Dwellings of other sizes make up about 20% in total; they mostly include smaller-size dwellings; 4+kitchenette dwellings only make up 3% of the total. Inhabitants of larger dwellings did not participate in the survey. Further, the questionnaire survey revealed that house facilities of some types mostly do not fulfil the needs of the residential house inhabitants. These primarily include pram and bicycle rooms, cellar cubicles, parking areas and flat roof adaptations (which, however. only exist in 4% of the respondents' residential houses). Furthermore, house facilities such as letter box, waste disposal, cellar cubicle, pantry, parking areas and assembly rooms, if present in the residential house, are really utilized at 100% or almost 100%. On the contrary, facilities such as heating and mainte-nance rooms, laundries, rolling presses and rooms for carpet beating, if present in the residential house, are hardly ever used. The other house facilities are used variously; for example, in dependence on the locality, respondents' dwelling size, or the structure of the residential house inhabitants. In the respondents' opinion, the original purpose of house facilities, for which they were designed, is today only fulfilled by the letter box, waste disposal room, heating rooms and parking areas; largely, by cellar cubicles as well. If the respondents' residential houses included (provided they do not include) rooms such as a pram and bicycle room, waste disposal rooms, cellar cubicles, pantry, parking areas, dryers, assembly rooms and an adapted roof area, then these rooms would be utilized. Next, the respondents responded to the question of "Where in your house would you like to have a room to store objects outside your dwelling?" in the way that 34% of the respondents wished to have a room for the storage of objects on the floor at their dwelling, or in the form of a cellar cubicle in the house basement (20%), at the main entrance on the ground floor of the house (17%), or in separate rooms in the immediate vicinity of the residential house as well (15%).

And it is this very answer that might indicate the demands made for the rooms by the present-day user. To the final question of "How in your opinion can the situation of house facilities be improved in your residential house?" respondents replied in almost the same way regardless of their different permanent residence, dwelling size or usability and spatial efficiency of house facilities. Namely, they requested more storage rooms in the dwellings, or even outside the dwelling, includ-ing their larger area, more parking places; about 70% of the informants considered safety to be of the utmost importance. Safety was mentioned in relation to the house facilities, entrance door as well as the surroundings of residential houses.

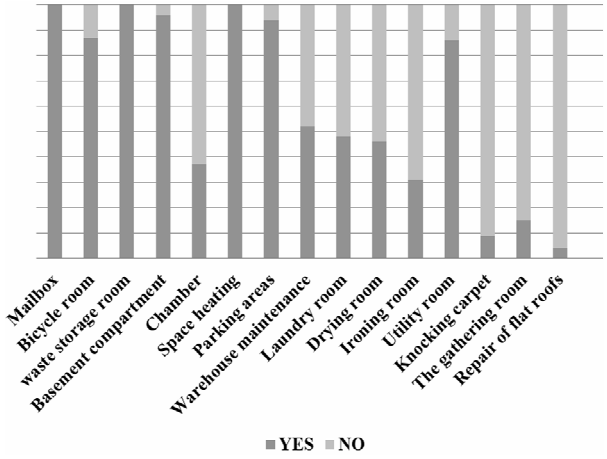

Fig. 1 The existence of home furnishings in the apartment building the respondents (%) (Source: author's archive)

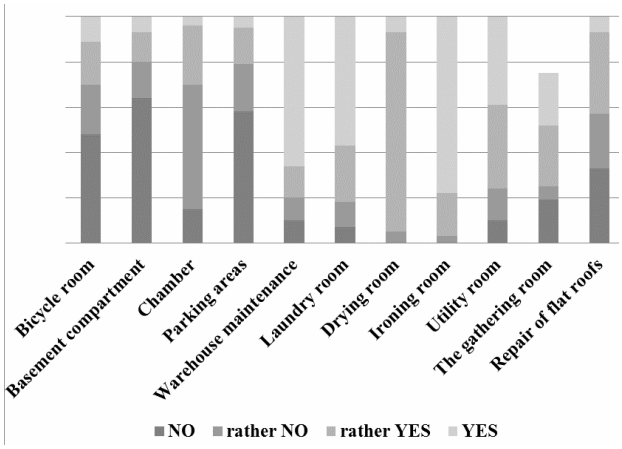

Fig. 2 The Sufficiency of house equipment needs of the respondents (%) (Source: author's archive)

4.1 Conclusions of the questionnaire survey:

If present in the residential house, the following is really used:

- Cellar cubicles and pantries (insufficient for the inhabitants' needs).
- Parking areas (insufficient for the inhabitants' needs).
- Assembly rooms (insufficient for the inhabitants' needs).

If present in the residential house, the following is not used really:

- Laundries (empty room, storage).
- Rolling presses (empty room, storage).

The other house facilities (such as pram and bicycle rooms - insufficient for the inhabitants' needs) are used in various ways; for example, depending on the locality, dwelling size, or structure of the residential house inhabitants.

5 CONCLUSION

Only understanding the significance of collective housing and the influence exerted by an environment built in this way on the quality of its users' lives could lead to appreciating a solution of this issue as well as preventing any innovations from being merely "morphological"; instead, they should rather be based on a well-considered concept of housing in its social, cultural, as well as economic and technical context.There are considerable differences in the area of dwellings and the area of house facilities in residential houses. This fact also influences the usability and spatial efficiency, and subsequently the overall user comfort of residential houses.

In the Czech public sphere, relatively little attention is paid to housing and almost none to house facilities. This fact further means that even though there are various other areas directly related to housing, such as building and administrative legislation, landscape planning, public housing policy, housing market and new construction, as well as consumer culture, demographic changes and patterns of behaviour, changing in the course of years, they are often unrelated in public documents.

Finally, it should also be said that it is appropriate to focus consistently on the organization of rooms within the layout, as well as their proportional relations. Material and aesthetic qualities should be rigorously applied at creation. Provision of efficiency, user, material and aesthetic quality produces the desirable user comfort.

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