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Remarks on the changes required by the design of collective residence

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Summary

In order to explain some notions regarding the "functional-dysfunctional" issue, often discussed lately, we have to start from the basic principle that there is no ideal habitation applicable to all the situations; we make this statement, even if, at international level, there are some attempts to apply solutions developed on the free area. The number of living options shall always equal the number of various human needs. The single issue taken into consideration each time a new dwelling is designed is the following: what kind of dwelling could satisfy all the needs ?

1. THE QUALITY OF THE COLLECTIVE DWELLING DESIGN

1.1 Quality Factors in the Design of Collective Dwellings

Presently, the dwelling finds itself under different pressure conditions compared to the ones during the first half of the 20th Century, when the relations between man - woman and parents – children became fundamentally distinctive.

For example, the personal room, or at least the individual space, intimate and protected, where you can close the door without being really separated from the others, became more important.

The bedroom, the second important element of the net area, where even a desk cannot be placed, cannot be adjusted to its sole function, due to its small size.

In many cases, the children's room is too small, and the living, with its dining table, is used as a passage.

The separation of the dwelling into day and night areas practically reduces to a half the net area. These approaches are applicable when life goes on in a constant harmony, not to the present society, where the conflicts, psychosis and suffering make a real part of our daily life.

This type of room arrangement, strictly focused on the functional aspect, is the result of a functional approach that often proves to be hostile to the family members, with distinct needs and lifestyles.

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The quality of a dwelling is not determined only by volumes and functionality; both the access and surroundings have an impact on its environment. Even if the access areas to the private property, the buffer areas (nevertheless, with an increased socializing potential), are generally reduced in the present design of collective dwellings, this does not mean that they should not be totally abandoned or ignored.

When we notice that the access way of a dwelling consists of dark corridors and elevators, it is obvious that the neighborhood relations had been totally disregarded. The distribution around the corridors represents an arrangement created for a temporary residence, that is totally inadequate to the requirements of a sustainable family residence.

This system, used on large scale in the former Communist countries, consists in a surface cut, by the intended reduction of construction costs. We can say that this is a type of collectivity mysticism, where no attention was given to individuals. The same confusion applies to the field of constructions, where structures were covered with unalterable concrete, instead of allowing the possibility to modify their functions.

From the point of view of interior distribution, there are two opposite approaches. If the majority totally embrace the idea of flexibility, others consider that, by giving more attention to the distribution, the quality of spaces is improved, and the space will be multiplied.

For example, the Italian architect Rossi resumes a large number of ideas, systematically presented in Pan 4 in 1987, proposing the main residence to be associated to an adjacent residence for elderly persons or children, a clear separation of public areas from the private ones.

The celebration of sun and light, the hedonism and sociability mark various experimental designs. The one belonging of Constanzo and Cesaro, two Italian architects, propose a building located on a hill, in a city park, that is tempting by its distribution of spaces and light, and that is not focused only on the lifestyle progress, but it creates, at the same time, the art of living.

These aspects can also be found in the designs of many French architects: “the stay celebrated by light, that enters directly through the narrow openings in the outside walls, or indirectly through a deep loggia”. The basic features of this project are the continuity, the roundness, the various and simultaneous possibilities of use, etc.

A specialized analyst, Maurice Benoist, remarks the “ordinary feature” of the collective dwelling, and that architects should avoid considering it a specific product. The management and profile of inhabitants of the collective dwelling meets multiple criteria, but its shape, volume and quality prove to be similar to the private dwelling. Built under a urban rehabilitation program, the collective

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apartment buildings in Woningbow neighborhood, Amsterdam, are inspired by the blueprints of the experiment apartments built in the '20s (Rietveld), that let the inhabitants decide by themselves the space partition. There are two different types of apartments, with mobile closings and communicating parts that successively open, on in another. The first type (Wagnerstrat), is the most interesting one, because the apartments are wide and less deep, the sanitary installations are regrouped to for a central block, and the space is divided in four independent parts, by light closings built in the walls of the central block.

Jean Nouvel considers that the quantity aspect of space is its main aesthetic principle. "A beautiful residence – says Nouvel – is a big one. A beautiful room is a big one". Starting from these premises, he builds a complex of social collective dwellings, in the extension of Bezons downtown, with duplex apartments, with a double orientation, with distinctive partitions and wide terraces, with windows. The apartment is developed on the ground floor, based on a whole day area, with the kitchen separated from the living room by a core formed by the bathroom, stairs, and the technical equipment of the kitchen. The living room, which is very well illuminated, continues towards outdoors.

A type of social collective dwellings, extremely economic, made of precast serial elements, is the pilot project to be implemented in Graz. The apartments are built in duplex buildings. On the front side there are huge terraces that allow extensions by simple addition of modules. The structural sandwich panels are fitted between the concrete structure elements. The inhabitants may select various possibilities of using the terraces or they may extend their own apartments.

The trend provided by the research and inquiries made by sociologists provides us the most important information on the general-social or psychological needs of the future inhabitants, as well as the comfort standards.

The needs involve the specification during the design phase, of a list of functions, correlated to a set of specific areas.

Starting with the day area of the apartment, we shall identify its main functions: of leisure, of welcoming guests, of study, of dining room.

These functions are well identified with the unitary area of the living room. All the activities involved can be properly developed if the hierarchy, distribution of organization of the day area is correctly made.

The dining room and the area for conversation and leisure are characterized by sociability, that facilitates communication, opposite to the study room, that requires a certain intimacy (most of the time, the study room is associated to the personal rooms).

The presence of these three functions in the living room reminds of the solution for the day area in the apartments of the buildings built in Romania, in an international

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fashion (Duiliu Marcu, G. M. Cantacuzino, Horia Creangă, Marcel Iancu, Octav Doicescu) where the day area is structured in three distinct rooms: hall – for welcoming, conversation, leisure, a living room – the dining room, and the study room – for study.

These three large areas provide the access to the adjacent resting areas, reducing thus the traffic to the minimal level.

The extension of the day area by the elimination (incorporation) of passages was most of the times achieved by the provision of secondary service stairs, that ensured the access to the kitchen and dependencies.

This type of collective dwelling are amazing even nowadays, because of their spatial coherence and fluency, and of the rational organization of functions. They could be used as study examples for the elaboration of various types of collective dwellings adjusted to the contemporary requirements.

1.2 The quality of basic zonings of the collective dwelling

The basic zonings of the day area may also be improved with other secondary functions (additional or occasional), increasing the number of activities of inhabitants.

In the day area, the architect's work consists in customizing the functions that allow a spatial continuity, in order to avoid a strict zoning.

The three main functions are overlapped by three areas that specifically define a functional relation system.

The contact area between two or several functions, the actual area for performing an activity, and the partition and interconnection areas of functions may provide a wide typological range, considering that the day area covers most of the surface and it has, at the same time, the role of core area for all the activities in the residence.

Depending on the selected structure and on the needs of the family, the day area may become the major area of the house, that may include the hall, the kitchen or even the parents' bedroom.

The option of merging or separating an apartment within a collective dwelling raises problems related to the organization (separation) of the day and night areas, of the subsequent adjustment of the apartment to the changes occurred in the family, or to different lifestyles.

The major outcome of merging is recommended for small, economic dwellings. Another advantage of the partition system is the extension of the day area by eliminating the traffic areas. Nevertheless, the merge of the night area of an

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apartment with the day area caused a discomfort factor, especially when the day area included a resting place.

However, in order to achieve a quality merged apartment, it is recommended to separate the living room, and to reduce the crossing paths as much as possible. Thus, a straight crossing area, parallel with the short side of the living room, along the wall, is more recommended. A crossing area in the corner or a sidelong crossing along the short side is less recommended, especially when the merge has long paths, between two opposite walls.

In case of choosing a partitioned solution, this would depend on both the main access location, that requires a certain type of organization, and on the shape of the partitioned room.

The partition has the advantage of a better customization of its elements, but it still presents the disadvantage of additional traffic areas. This may be avoided by a proper location of the access way, the most appropriate being the central one, that facilitates the partition through the hall (preferably with natural light and ventilation) or through the entrance hall connected to the dining room (connected to the kitchen or the living room).

1.3 Sociability – approach criterion for the design of the collective residence

Another aspect related to the design of collective residences is the sociability factor, by creating common use areas in the designed building, by organizing the internal traffic areas (by designing the adequate areas), by providing variety and quality to the secondary areas.

The secondary areas facilitate the social contact and provide safety to the dwellings, being a good solution for combating social alienation.

The positions adopted by architects with regard to the provision of the social character to a collective apartment building may vary. Some of them state that such areas are useless, either because the financial support of the investor (especially for social dwellings) does not allow this "facility", or because the intimacy of a dwelling should be protected.

Other architects exaggerate the role of these areas, considering that these are, in fact, the main support of a normal community life (the improvement of the relationships between neighbors, the avoidance of alienation).

The French and German architects are very interested in the change of social relations through collective living places, used to improve the neighborhood relations, by creating shared services and leisure inside the building.

In the design of a provisional residence by Wilfried Kneffel, each duplex building proposes a semi-public area of 40 m^2 and a semi-public hall with glass windows.

By correlation, the concern for the individual safety is also present. Thus, the architect Herve Krokaert (Belgium) organizes his residence by taking into account the independence of the domestic group, and provides a hobby area, also insisting on solidarity and on the special places that allow it. This is all about the creation of neighborhood unit that enhances interpersonal contacts, a habitation that is both private and collective. Thus, he provides a common garden and terrace in front of the building and on the roof, as well as "relational collective areas".

The team of Swisse architects, Volait, Bureau and Denis imagine annex rooms, with study room, bathroom, and a small salon, that facilitate the sociability or pleasure of an individual. These parts are located on the front side and, together with the illuminated room on the West side, they form a unit. Multiple access ways to the apartment provide independence to the inhabitant.

1.4 The relation between habitation and work

More and more architects are interested in collective dwellings, where living and work mix together. To some of them, this is about following the trend of working at home that shall be adapted by many Europeans, while to others, this idea is analyzed from the social point of view.

Shall the mixture between private life, work and leisure fight against the social alienation that characterizes the present lifestyles, as Georg Stoffelen stated? The intelligent residence often connects the habitation to work.

The project of a Swiss team of architects facilitates the work at home, by equipping the inhabitants with an extension of an information network.

In France, as everywhere, we can notice the large number of provisional residences, where work is very important, giving us the image of a professional and mobile young European or single person.

1.5 Optimization and effectiveness in the design of collective residences. Technical performances and standards

Over the last 20 years, the residence has been considerably improved regarding the sound and thermal proofing, the quality of services, installations and facades. These functional benefits seem extremely spectacular compared to the ones of the post-war generation.

When comparing a collective dwelling of the '50s to one built in the last years, we can easily notice the differences: the systems, the silent installations and effective equipment, the automatic windows, security systems, etc.

Among the requirements to be met by buildings and that provide a high level of comfort and safety, the most important are the technical and functional

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requirements that ensure the comfort, hygiene, and protection against internal or external threats: the air temperature and humidity are eliminated through ventilation, the sound proofing, natural light, protection against earthquakes, and some economic requirements.

As related to the thermal comfort, this was determined by the type of heating and the fuel used, as determinant factors for the interior design of dwelling buildings. The contemporary residence uses central heating systems that allow a high level of independence for the internal organization and for the achievement of high parameters. Presently, the approach of the collective residence should rely on bio-climatic principles, in order to improve the comfort level of the building (building protection against bio-climatic and weather conditions). Although bio-climatic architecture specific designs can rarely be achieved, because of the unfavorable urban alignment and location of buildings in relation to the cardinal points, a careful partition may provide the desired bio-climatic conditions: the positive orientation of rooms towards cardinal points (bedrooms and living rooms towards the sun, and the service rooms to the North), the reduction of the outside walls length, by means of a compact design of the building (85% of the heat loss is made through the outside walls), the longitudinal development of rooms, the avoidance of positioning the rooms in the corners of the building, the good thermal insulation of outside walls (the avoidance of thermal bridges), seal of joints and holes into the walls (doors, windows). In addition, the positive orientation towards cardinal points may determine the hygiene level of the residence.

Among the details that may provide a better thermal insulation of residences, we can mention the buffer areas in the contact areas with different thermal level (interior - exterior, interior - interior).

Considering that the staircase behaves like a ventilation column, that facilitates the vertical circulation of cold air, each apartment should have several additional buffer areas to reduce its effects. Among the solutions suggested by Cosma Iurov PhD, we mention the use of one or two vertical insulation of the staircase, on 4 or 5 floors, that cancel the negative effect of the air current. Another protection against low temperatures is to insulate of some parts of the residence by loggias, that contribute to the protection against cold weather and even to the apartment acclimatization, when used as an extension of the apartment functions. The greenhouses and verandas are the areas designed as both protection and as architectural structural elements for volume and façade.

To achieve the best organization of the dwelling partition, adjustable to the variety of needs of its future inhabitants, it is necessary to adjust the structure in order to ensure multiple options of flexible partitions (removal of vertical structural elements inside the apartment), in addition to the safety specific standards (earthquake proof).

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Among the most frequently used structures we mention the pillar – floor system with / without structural beams – with precast reinforced concrete panels (classic frame type structures) and concrete slabs (the elegant solution).

The savings made in the construction of collective residences are due to the optimization and effectiveness, and consist in finding high quality solutions adjusted to the technical requirements of constructions provided by law. Besides, the building should have a good behavior in time. In this regard, it is recommended to design sustainable dwellings, using adjustable solutions of interior organization, with modern and effective equipment and installations, even if they are more expensive, but with a better life performance, compared to relatively cheap buildings, lacking of multiple partitions, and with a high level of deterioration.

2.6 Industrialization and standardization in the design of collective residences

The order of repetitive elements is given by the modular principle, established since ancient times as a measure unit for determining the ratios between the building elements, and between them and the whole building. The modulation is considered as a characteristic of the industrialized buildings of the first half of our century. Le Corbusier, the mentors of Bauhaus, Mies van der Rohe and Gropius are the ones who supported the idea of applying this principle in the new buildings.

Standardization was rapidly adopted (the post-war "baby - boom", that generated a dwelling crisis) due to its economic and material benefits, its short assembling time, low price (especially for collective apartment buildings).

The standardization is grounded on two different theories – the model theory and the material theory. The first one involves the design of constructions – made of big, precast elements, specially designed for a certain type of building (concept applied in our country due to its economic benefits; the main disadvantage of this theory is that such approach limits the number of architectural elements).

The second theory characterizes an advanced industrial production, and it consists in the design of standard elements that may be included in various types of constructions (this theory is more appropriate for the customization of buildings).

The standardization of construction elements into a reduced range involves a good knowledge of technical and technological requirements to be met by the building.

Although the standardization is characterized by a certain degree of universal use, resulting from the use of light elements for closings and partitions, that facilitate subsequent changes required by the developing manufacturing technologies, Nikolas Hebraken noticed that "the development process of constructions does not entirely guarantee the coherence of the system, because this development process is not grounded on a construction concept, but on a work method".

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Standardization and industrialization should be approached, in the present context, in the design of light and small sized elements and subassemblies, only for big investments (i.e. the construction of a large number of collective dwelling complexes) that make possible and effective the industrialization of such parts.

2. CONCLUSIONS

Considering the variety of needs and lifestyles, the priority is represented by the complex approach of the construction of residences that involves finding solutions for a variety of partitions, fully adjustable to the needs and the development in time of families.

The solution for a quality of the collective dwelling involves the analysis of several basic aspects of this type of residences: optimization and effectiveness of the building process, the compliance with the technical performance and requirements, the functional and spatial shaping adjusted to the new requirements generate by the variety of lifestyles, flexibility and sociability.

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