The social aspects of changes in floor plans of dwellings

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Abstract

The question of social blending in housing appears as a multi-layered problem on which the architect’s means have little influence. I will try to show relevant social questions and make them comprehensible according to the development of floor plans of dwellings in the 20th century. Social groups and living modes, which are not taken into account in traditional or usual housing construction, can thus be illustrated. In this sense, the question of alternative housing models and their contribution to a social equilibrium can be raised.

Introduction

If we follow the current debate, we cannot conclude that there is any trend towards an increased social blending – rather the opposite is the case: in the course of ever more differentiation of society into functional sub-systems, the trend towards socially delimited groups increases, manifesting itself increasingly also in physical space. More and more people are getting sensibilized for peculiar and undesired behavior, perceiving it as bothering and reacting by delimitation. (1) If the person(s) concerned have the power to act, physical nearness of socially distant people is rejected and avoided.(2)

With the argument of fighting incivility and unmodernity and often by recurring to the myths of colonization, an image of the undesired Other constructs itself. Neil Smith talks about the “New Urban Frontier”, which, by referring to self-protection and security, enables a targeted displacement of undesired groups of people and behavior. (3) The undesired social groups are on the wrong, unproductive or dangerous side of society, through which unjust treatment and rigorous exclusion become seemingly comprehensible and unavoidable.

On the other hand, the factors density, plurality and social heterogeneity play a decisive role in the development of modern pluralistic society insofar as they have continuously enabled the renewal of solutions.(4) This is probably a chance to encourage the contact with unknown or unfamiliar behavior, with the strange, the Other, and to let emerging conflicts happen and make them negotiable again.(5) As a matter of fact such conflicts culminate around the dwelling, as it is the place where the individual usually stays and where he or she appears as a private person with special habits and living modes. It is via the living mode that the social space inherent to someone manifests itself and becomes evident through the habitus of that occupant.(6) However, if it is true that social relationships crystallize in housing construction, these aspects would appear in the floor plans. According to Le Corbusier, it is the floor plan which acts as a matrix, determining body and surface, and without which there would be disorder and arbitrariness.(7)
Now, what is characteristic of the social importance of floor plan solutions and how far can their development be traced back to social circumstances? Since floor plans have considerably influenced social housing, I will show once again the social conflicts in the 19th century at the beginning of my work. The social aspects mentioned in this discussion serve as criteria for analyzing the further development of housing. Furthermore, the step-by-step development of the floor plan will be shown and the question of how it affected the occupants’ lives will be asked. Comparatively, alternative housing models and their impact on social balance and diversity will be analyzed by means of a concrete example. The last part is dedicated to a forecast of the questions that may derive from all these aspects.

“Zur Wohnungsfrage” - Regarding the housing problem

In the 19th century, the social issue became manifest in European cities in the form of a housing problem. Early industrialization brought an increase of population and cities, which aggravated housing shortage of the lower classes. Up to ten people lived in one room, beds being used to sleep in even during the day. Both the hygienic and the moral conditions were unbearable. This is why it is obvious, that the solution of the housing problem by improving those bad housing conditions was soon considered as a comprehensive approach to all social hardship. Friedrich Engels tried to refute this argumentation. For him, the proper aim of the attempt to remove unacceptable social hardship was to maintain the bourgeois capitalistic order. And he fiercely answered back to Emil Sax’ opinion according to which it was the workers themselves who were to blame for their misery. The workers would accept living in dark squalid overcrowded dwellings, in order to pay less rent, and waste the money thus saved in a sinful manner by drinking and vain pleasure. Engels even refuted Emil Sax’ proposals to solve the housing problem, i.e. the Cottage System models and the improvement of tenement houses. He rather advanced his own claim, i.e. to expropriate landlords and have workers moved into the expropriated houses as soon as the proletariat would have come to power. A posteriori we can see that Engels’ theses were not accepted. However, despite his radical political approach, Engels described very well the state of the debate at that time, as well as the two decisive lines of development in social housing that were spun off at that time. The first current stems from the Cottage System of early working-class estates. The line of development of the working-class house, with a floor plan on two levels, surrounded by a vegetable garden, lead to the garden city movement and later on to the developments of New Frankfurt. The second and more urban current stems from the improvement of tenement houses and the adaptation of the bourgeois dwelling to social housing. With the self-confident appearance of the middle-class, and not least due to the social success of the latter, middle-class behavior standards and ideas of living became a general example. The living mode, artistic scales and middle-class virtues became the starting points for developing the new living space, as Bruno Taut described it. From the point of view of this essay, this current is more interesting than the first one.

Social aspects of the Prince Albert’s Model Cottages, 1851

If we analyze different dwelling floor plans according to their social aspects, a categorization problem rises. Social studies cover mostly quantifiable facts such as the situation of the plot, the number of housing units in a building or even the size of the dwelling and the number of rooms. These statistically gatherable data can be correlated directly with social parameters such as economic possibilities or the belonging to a certain class. In opposition to this, I will emphasize in this essay mostly the qualitative aspects that influence the living mode and furthermore encourage or restrain social behavior patterns. Yet in this context, the debates of the 19th century and especially the reception of the Prince Albert’s Model Cottages of 1951 will be taken as a starting point. Designed by Henry Roberts, two model houses were erected under the auspices of Prince Albert for the World’s Fair in London.
In the framework of this article, the description of the extraordinary qualities of the Model Cottages in the newspaper *Illustrated London News* is informative. The flats were designed for four individual families per house. The access via a vestibule created delimitation against the public space and enhanced privacy. The aspect of hygiene determined the floor plan. The individual flats were very sophisticated for that time and equipped with a “water-closet […] fitted up with a Staffordshire glazed basin” (14). All bedrooms and even the children’s rooms were separated as individual rooms. “The sleeping arrangements, being three in number, provide for that separation which, with a family, is so essential to morality and decency”. (15) Access to the children’s rooms was from the living room. Thus, “an opportunity is afforded for the exercise of parental watchfulness”. (16) The parents’ bedroom is opened from the scullery, “an arrangement in many respects preferable to a direct approach from the living room, particularly in the case of sickness.” (17) The aspects as mentioned, i.e. privacy, hygiene, moral, mechanization and watchfulness describe the state of that time, but are also important for the further development of social housing, at least in my theory.

The question of privacy regards the relationship of the flat with the exterior on one hand, and the relationship of the occupants of that flat amongst them. The border between private and public spheres limits or allows communication. As Hannah Arendt put it, a high rate of privacy also means getting rid of the possibility of communicating with others. (18) The extent of privacy also determines the degree of independency and hence of personal freedom in a certain sense. In this sense the flat could be considered as an immune system that protects somebody against a hostile social environment. (19) Whereas in the 19th century, the notion of hygiene was still determined by diseases, today it means the relationship of a person with his or her own body, the care he or she takes about himself or herself, or his or her self-discipline. The reference to tidiness and property can make hygiene become a moral instance. To avoid dirt, the impure, does not only mean avoiding dirty objects, but also maintaining a society, which is healthy on an interpersonal level. The notion of *psychical ventilation* (20) as Le Corbusier put it, reveals that the notion of hygiene was beginning to include the cleaning of the imaginary too.

Technical progress, considered initially as bringing comfort and coziness, was meant more and more often in the sense of mechanisms allowing to save time and to optimize space. The now mechanized sphere, which in former times had been designed according to the necessities of the occupant, led also to routines that could hardly be eluded any more. In the center of mechanization in the 20th century, there is the notion of mobility. By analogy, the ship and the automobile were transposed via the optimization of space and its interchangeability, to standardized housing construction. The concept of watchfulness manifests itself both in the sense of limitation against the exterior and as a control of the inner space. Transparency in and around the flat is of utmost importance. In order to control what is happening in the interior, it is important to predict, who will be where and what he or
she will be doing there. Measures such as constructive separation and the clear assignment of spaces and functional points enable that control.(21)

These categories taken over from Model Cottages and described here cannot be distinguished sharply. They overlay, contradict themselves and require interpretation. We can find features, can objectify them by numbering facts such as the doors, but this is very difficult. We can only try to figure out to what extent these categories have a direct impact on social behavior patterns, in the sense of cause and effect, but we cannot prove it empirically. The analysis thus will adopt a more descriptive character. I hope though that a debate on underlying social claims can be initiated.

**Taut’s new dwelling: women as a creator. 1924**

According to Bruno Taut, it is women who should modernize the idea of living. Since they are responsible for tidiness and the household, Taut’s text addresses especially them. They should renounce useless bibelots and furniture, and optimize space in order to reduce the burden of household. By means of examples, Taut demonstrates the elements and values of middle-class living conditions, describes what aspects must be adapted to modern times. That this is inevitable is clear to him from a functional and an aesthetical point of view.(23)

Figure 2. The usual flat – the improved flat, Bruno Taut, 1924

![Figure 2](image-url)


By means of two floor plans, one of a usual flat and the other of an improved flat, Bruno Taut shows the changes he considers necessary.

Comparing the two floor plans, we notice that the Kalte Pracht (“the cold splendor”), the rarely used representative salon, has disappeared. From now, family celebrations and visits are taking place in the living room. Although Taut assumes that everything is always neat and tidy, (24) we can suppose that visitors are sparse and rare. As before, the vestibule is the threshold towards the adjacent staircase. However, not all rooms open from it. The parents’ bedroom can only be entered via the living room or the children’s room, and is thus in a more intimate situation.

The modern floor plan is orderly, because the cleanliness and clearness of the dwelling should also reflect the life of its occupants. Time saved in the household can be used for sports, physical exercise
Workshop 25: Reviewing Architecture and the Residential Design in the Urban Context
- A Critical Inventory

and gardening (25), or on the chaise longue in the living room with psychical cleaning. Because, according to Taut, brains hygiene must be added to body hygiene.(26).

When furnishing bedrooms, Taut obviously thinks of fold-away beds in order to save space, an astonishing thing above all in the parental bedroom. Sleeping is reduced to a necessity that should be as short as possible. Taut was inspired, as he said, by means of transport such as cars, planes, motor boats and ocean steamers. (27) All in all, the dwelling seemed to be designed for a short sojourn only. The most sophisticated room is the kitchen. Here, Taut, inspired by Christine Frederick (28), optimized the technical equipment and underlined them through lines of motion. However, the functional flow is interrupted by the piano room between dining room and kitchen. The piano room is protected by a double door against noises from the kitchen.

Compared with the original dwelling, the rooms have become less interchangeable and less transformable. Each function has its dedicated place. If we move around in it, there is no spatial hierarchy, since there is not only a direct access to every room, but also a rear door through which we may escape, and we also can move like in a roundabout. Taut also proposed small balconies as free spaces protruding from the bedrooms, the living room and the kitchen.

“Die flurlose Wohnung”: A dwelling without corridor, 1928

Alexander Klein designed the dwelling without a corridor in 1928, thus continuing Bruno Taut’s ideas. Including light, air and sunlight, Klein tried to optimize the floor plan not only from a functional and economical, but also from a qualitative point of view. As a support for optimization of the dwelling, Alexander Klein started a research series. By means of a graphic method, he varied the geometry of floor plans as long as he obtained for a given width and front length of the building a housing program on a minimum surface, together with comfortable room proportions and favorable daylight conditions. (29)

Figure 3. Alexander Klein, dwelling without corridor, 1928

Taut’s opening from the dark corridor has become part of the living space. Although through the variable separation by a curtain, a traditional vestibule can be installed. Like Bruno Taut, Alexander Klein divided the floor plan according to function and orientation in two groups of rooms: the living room, dining room and kitchen were orientated towards the west, the parents’ bedroom, children’s room and bathroom to the east. The furniture reveals that Klein understood the bedrooms also as habitable rooms. The bathroom between the bedrooms shortens the distances; in return, the architect accepts the increased effort of separating the kitchen and the bathroom. The situation of the dining corner is brought closer to the kitchen, which facilitates the housewife’s tasks. The balcony is also especially assigned to the dining corner.

The Allraum, 1957

For IBA 57, Alvar Aalto was assigned to design a building in the Berlin Hansa neighborhood. Influenced by Modernism and following its logical evolution, Aalto was against mere rational designs and in favor of an advanced integration of the aspects of human life and cohabitation. As Alvar Aalto argued, to “make architecture more human means better architecture, and it means a functionalism much larger than the merely technical one. This goal can be accomplished only by architectural methods - by the creation and combination of different technical things in such a way that they will provide for the human being the most harmonious life.” (30)

The major innovation in the floor plans is the Allraum introduced by Aalto, which just like the living space in Alexander Klein’s dwelling without corridor, serves to open the flat, but is moreover a multi-purpose zone and the core of the dwelling.

Figure 4. Flat for IBA 57 in Berlin, Alvar Aalto, 1957


From a common staircase one enters into a small entry space, which, however, is not separated from the living room. If the sliding door is open, one has a view to the kitchen. Privacy is limited to the sleeping bedrooms around the central living room, whereby the former are orientated towards the city.
The public character of the living room, which is due to the overview from the door, comprises also the protruding loggia, and creates a relationship to the exterior space. Thanks to the clear arrangement and necessary layout, the living room lacks any deposit surfaces. As a consequence the flat possesses a generous storage room and storage niche. The central living room and in the kitchen must be clean, unless the occupants would like to demonstrate a casual way of life. Thus the table – a working space? – is immediately perceived as an obstacle.

The bathroom and toilet are in one room, but on a minimized scale, so that the washbasin can hardly be used. Contrary to Klein’s dwelling, where every room has windows, the inner rooms have to be aired mechanically. Despite the necessary technical effort, the flat does not give the impression of an optimized, anonymous or interchangeable space. It rather seems that it should be furnished with stylish furniture, in order to enhance its qualities.

The arrangement of couch and couch table makes you think that no space for a TV set was yet provided. This is where the family meets, where guests are welcome and where conversations take place. The dining room is apparently considered as less important.

From the central living room, one can always see who is in which room. If the doors of the sleeping bedrooms are open, the observability of the layout appears as if arranged, even panoptically arranged.

La Celosia, Madrid 2009

Since their establishment in 1991, the Dutch architects MVRDV have dedicated the major part of their work to housing construction. Above all the up-to-date articulation of the border between privacy and public space has often been an issue in their projects.(31) MVRDV’s working method can be called pragmatic. They try not to consider constraints and limits in a negative way, but to use them in a productive manner when designing the project, thus achieving extraordinary solutions.

The Celosia housing development in Madrid designed together with Blanca Lleó, includes 146 social housing units, the flats being grouped 8 by 8 into separate building units. They have been arranged in a way that they allow for spacious loggias in-between that are used as an access and as a common outdoor space. The publicly accessible atrium of the block and the shops on the ground floor lend the building a public character.

Figure 5. Flat in La Celosia, Madrid. MVRDV 2009

Source: ACTAR (Ed.): Total Housing. Barcelona 2010, p. 279
Access to all flats is from a two-storey common part around which the dwelling units are grouped. Between this common zone and the flat there is an entrance loggia working as a buffer. Depending on which doors are opened, it becomes either a part of the public sphere or of the eat-in kitchen. This loggia is multi-purpose and can be used as an entrance hall, a living and dining room, or even as a working space in summer.

The eat-in kitchen is clearly separated by a door from the more private sleeping area. Although this type is related to the *dwelling without corridor*, an inner corridor was introduced as an access to the sleeping bedrooms. The rooms themselves are arranged as a series and can only be used as sleeping bedrooms because of their small size. Every flat is equipped with two bathrooms, each with a toilet, and two large storage rooms. The smaller size of the sleeping bedrooms is most probably due to the preference given to hygiene and cleanliness. From the mirrored dwellings and the arrangement of bathrooms and kitchens, we can conclude that their arrangements were chiefly determined by economical aspects such as common wells, rather than by functional ones. The kitchenette has been minimized and cannot be used by more than three people at once.

Regarding the potential mobility of the occupants, the dwelling is very close to the ideal of *living in a hotel*, which can be changed at any time. Living here means short-term living without adapting the dwelling to ones needs. It is easy to move out and move in.

If one passes from the public staircase to the sleeping room, one has to cross several thresholds that lead from one room to another, into more and more privacy. The control of the doors is up to the occupants, which means that they decide about the extent of penetration of the public sphere in their private lives.

**Intermediate report**

I would like come back to the characteristic features of this line of development of the floor plan from Bruno Taut until MVRDV. The vestibule as a distributor and barrier against the public sphere was removed. Moreover, the living room takes over the role of a reception zone. The sleeping bedrooms that Taut opened from the vestibule next to the door moved more and more away from the entry and became closed, more intimate zones together with the bathrooms. The kitchen which Taut as well as Klein and Aalto considered as a room in its own right, was integrated into the living room. *Light, air and sunlight* – Alexander Klein’s manor themes – lost their importance for the floor plan. Klein’s aim of choosing the ideal spatial proportions according to every floor plan depth was more and more neglected. Whereas the size of the living and sleeping bedrooms remained more or less the same, space required for storage rooms and bathrooms increased considerably.

If housing construction follows the occupants’ needs, the question is: for whom were these flats designed?

Even if the rate of nuclear families diminishes, the floor plan seems to be adapted to their needs – at least at first sight. Only the eat-in kitchen can be used as a common room. Families with several generations must share this room and have no possibility to retreat from the others. This circumstance is also a burden for collective living modes such as apartment-sharing communities. Guests can only be accommodated in the children’s room, at least for a few days. Living together with people who are not part of the family, e.g. subtenants, remains excluded.

Because of the reduced size of sleeping bedrooms and corridors, people with special needs can live in the flats only when making compromises, e.g. by removing all inner doors. Should somebody want or have to work at home, he would have to convert the children’s room.

As regards the role of the housewife, the development of the kitchen shows that she has partly abandoned her responsibility for managing the household. The kitchen is no longer a closed room, but is integrated into the common living room, of which we might conclude that domestic work is shared among all occupants. Cooking also becomes less time-consuming because of convenience food.

Although the floor plan is family-orientated, it seems to be difficult for children to arrogate space outside their sleeping-bedrooms. For teenagers, the situation is especially full of conflicts. They have
no possibility to retreat from common space. If they invite friends, they are continuously confronted with the presence of and control by their parents.

As it is shown, this kind of living is not appropriate for some groups of occupants and complicates them the use of the flat. However, I would like to propose considering the question of the disadvantage for certain groups of occupants in a larger context and go beyond the merely functional satisfaction of needs. The aspect of social balance must also be understood in the sense of encouraging or hindering cultural, ethnical and social habits, in order to let them happen. Via *silent orders and calls to order* (33) the dwelling tells the occupant what is adequate or wrong living according to social standards. It is not about whether all occupants have room in the flat, but which role they can or should adopt within the community.

Do the rooms admit individual living modes such as cooking and eating habits, a different image of the woman, alternative partnerships etc, do they allow all that without giving the occupants a feeling of being out of place? For avoiding such a feeling, two different approaches are possible (34):

Either the creation of a generally applicable, universal floor plan solution that has the capacity of adapting to a maximum number of individual needs and desires, or maximizing flexibility and elasticity through variable sizes and room design, so that the floor plan can adapt to the needs and desires. The main difference for the user is that in the case of a universal floor plan, there is no spatial transformation and hence no additional (or less) effort. However, adaptability is smaller than in the event of flexible solutions.

The above-mentioned floor plan by MVDRV is neither the one nor the other. It is neither flexible nor general nor universal. It is special and adapted to a living mode that can be described as the living mode of the middle-class in industrialized countries.

From the point of view of social diversity, there is the question of solutions allowing the occupants a greater deal of shaping their own dwelling. Thus, I will try to analyze the possibilities of alternative housing models by means of an example.

*“Das neue, andere Wohnen”: A new kind of living differently* (35)

After breaking through social constraints and reevaluating social coherence, a movement formed in 1968, claiming personal responsibility and participation on all levels and in all fields. Increasing anonymity and differentiation as was expressed in the large-scale projects of postwar modernism were considered as problematic. In challenging them, alternative forms of living were investigated, that could entail communities and simultaneously admit greater individual freedom. Also the role of the architect as powerful designer was challenged.

Thus from 1970, an alternative current formed in Austria in housing construction, which investigated the possibilities of participation, developing concrete models for the implementation of participative ideas. In this context, architect Fritz Matzinger created a series of housing schemes, which he called *Les Palétuviers*.

The name stems from mangrove trees in Côte d’Ivoire and symbolizes the community of group members gathering around the shady tree. Accordingly, the inner courtyard should strengthen the community and break up isolated nuclear families. Community, neighborhood and communication should be experienced in a casual manner without abandoning any individual claim.
The project *Les Palétuviers* in Raaba comprises 24 housing units grouped 8 by 8 around each of the three inner courtyards. The bearing structure consists of prefabricated concrete modular units arranged around the inner square courtyard. In their interior, the modular units offer free distribution of rooms and free arrangement of functions.

All housing units are opened from the inner courtyards, which are also used as semi-public meeting places, playgrounds, ballroom, and covered with a sliding glazed roof. Initially a common kitchen according to Jean-Baptiste André Godin's *Familistère* from 1859 (36) should have been installed instead of individual kitchens in every housing unit, but could not be implemented according to the participation process. On the upper floor, there is a gallery around the atrium, which in a first phase was meant to open one-storey flats. In consequently following participation by the occupants, the façades were developed from inside.

The modular units piled up and the arrangement of prefab bathrooms and stairs imposed a rigid structure on the one hand, but induced a great variety of adaptations on the other. Although one-storey flats would have been possible, only two-storey flats were built. Through the second access via the gallery, the housing units could be divided afterwards. According to how many modules were used, the size and layout of the rooms could be adapted to the needs of the occupants. In this logic it seems to make sense not to analyze only a single flat, but the common structural elements.
Since all flats are accessible from the atrium, and all entrances can be seen from there, the living rooms were provided with lobbies. They form an important barrier for the private sphere and accommodate the bathroom-WC block and the spiral staircase leading to the upper floor. All living and sleeping bedrooms are turned towards outside and open up widely through generous glazing. However, all those rooms can also be seen from the public paths in the garden.

The rooms themselves were optimized during a participative process according to the occupants’ needs. The sleeping bedrooms are either small and closed or larger units connected to each other in a floating manner. Due to the dominant bearing structure, the partition walls seem like temporary room dividers that can be shifted as needed.

The prefabricated plastic bathrooms were minimizes, but were replaced by some occupants by larger traditional bathrooms. In most flats, the kitchen is on the ground floor and is an eat-in kitchen. Through the participative process, all flats were designed in an individual and unique manner. The outcome is often a mix of idiosyncratic, interlaced rooms with several connecting paths that are not easy to understand.

The first tenants were almost exclusively young nuclear families. The open structure and the possibility of participation, however, allowed for all different spatial needs of any user group. Through the second entrance and the tailor-made rooms from the basic module, a part of a flat can also be used.
separately as a working room or as a teenager’s living area, if required. However, due to the steep spiral staircase and the small bathroom/WC units, people with special needs would have to undertake major conversions before moving in.

After more than 20 years of use, the housing scheme was evaluated in the framework of a sociological study, and the sustainable quality of the social structure and the high satisfaction with dwelling conditions confirmed. In some cases the second generation is already living in the flat. (37)

One would think that the socially challenging housing scheme would have led to a highly diverse group of occupants, but the opposite is true. It consists almost exclusively of well-educated middle-class people. The occupants are so similar that there are even some professions that dominate: in a similar scheme in Rif, almost 50 percent of the initial occupants were teachers! (38)

In this context it should be mentioned that the Palétuviers model according to Matzinger is based on the idea of elective neighborhood. (39) Thus a selection process was implemented in order to select the right people for each of the inner courtyards and avoid conflicts and errors. Instead, groups were formed according to similar interests. This selective process, however, raises the question whether a less restrictive selection process would have brought a better blend of occupants. I can also imagine, that due to intensive communication as required during the participation process, mainly groups of similar social background are formed.

Figure 8. Photo of the exterior - of an inner courtyard

Source: archives of Karlheinz Kahlig

Conclusion

Is it possible to sustainably influence the social intermix by the way housing units are designed? Even formulating the socially relevant aspects has proven to be difficult and contradictory, and the solution was not unambiguous. The way the floor plans developed reveals a change in the way of living, but we cannot conclude from it that it has a general impact on the social microstructure.

The example of MVRDV, however, showed that floor plans developed for a special lifestyle could hardly be adapted to individual desires and needs. In this respect, more universal or flexible solutions offer a wider range of possibilities to adapt the flat to a given lifestyle. Also participation of the future occupants in the design process allows to take into account their needs, as is not the case with traditional project design. One can assume that those participative projects offer solutions that are better balanced from a social point of view, but we have also noticed that the participative model of the Palétuviers instead of yielding more social diversity, has even led to a particularly homogeneous group of occupants.

How should the ideal floor plan then look like, in order to correspond to individual lifestyles, to cover differentiated needs and enabling more heterogeneous and diverse social groups though? This question
cannot be answered at the moment. This report delimits the field of factors that could have an impact on this question and that should be examined in the framework of an empirical research. In order to open the debate, I will outline the following questions that are relevant in my opinion, and that can be derived from my short analysis:

Regarding the categorization of dwellings, it should be analyzed whether analytical methods such as used in *Space Syntax Analysis* (40), can be developed, in order to take into account social aspects. In this context, the flexibility and universality of floor plans is highly relevant.

Regarding the trend towards rationalization of housing the question should be asked, whether it is possible to follow the studies of Alexander Klein and take the qualitative aspects of rooms, such as room proportions and daylight conditions, into account.

Concerning the size of the rooms we must examine whether the concept of moving away from the optimum conditioned by function, i.e. by designing too large or too small rooms, offers additional random possibilities of use.

In the sense of a more human architecture, the question should be asked, whether uses should not rather be considered as reaching far beyond the functional needs, and to what extent personal ideas about living environments can play a role.

With regard to different cultural, ethnical and social backgrounds, we must find out what concrete floor plan desires and needs are decisive, and whether a common denominator can be found.

Regarding privacy it should be clarified to what extent the occupant can delimit himself, in order either to assert his or her individual lifestyle, or to open it up.

Concerning participation, models should be developed that can be implemented regardless of the form of property (and the social constraints linked to it).

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