

**A View of Flexible Housing in Germany -  
The Potential of Flexible Housing to Cope with the Social Changes of Users**

Blerim Lutolli

Ing. M. Arch.

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Doctor Engineer (Dr. Ing.)

Bauhaus University Weimar

Faculty of Architecture and Urbanism

Institute for European Urban Studies (IfEU)

Supervisors:

First Supervisor: Prof. Dr.-Ing. Barbara Schöning, Bauhaus University Weimar

Second Supervisor: Prof. Verena von Beckerath, Bauhaus University Weimar

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## **Problem Statement**

Besides its importance, the concept of “flexible housing” remains continuously investigated (De Paris and Lopes, 2018), as its impact on the social aspect of users has not been studied very extensively. Most of the current literature in flexible housing provides only a general historical overview. Moreover, despite the fact that Germany is one of the world's forerunners in this concept, there is a lack of data on flexible housing projects. Furthermore, the last post-occupancy investigation on flexible housing in Germany was conducted almost five decades ago by the Federal Minister of Urban Development and Housing, during the 1970s, in a number of projects from two competitions; namely, *Flexible Wohngrundrisse* and *Elementa*.

Considering the rapid social changes during the last several decades in Germany, the concept of “flexibility” has been broadly used in housing projects as a means of coping with different users' needs. However, there are no studies that determine whether flexibility has been used by the users; more specifically, whether the housing floor plan configurations have undergone changes as initially planned and proclaimed or not. Considering these facts, the existing research on flexible housing in Germany made five decades ago is inadequate and too scarce to determine whether flexible housing is a good way to cope with current users' social changes or not. This research gap constitutes a significant part of the housing literature that needs to be addressed in the German context, especially in current times, when flexibility is widely used and promoted as a means of coping with the user's rapidly-changing social needs.

## **Aim and the Scope of the Study**

Identifying the aforementioned research gap, the aim of this research study is to fill this gap by exploring the development of flexible housing floor plan projects in Germany, dating from 1919 to 2019; and in particular, by conducting a comprehensive research field survey on six case studies composed of different types of flexibility, dating from 1969 to 2013, and located in different cities like in Hamburg, Berlin, Cologne, and Munich. The survey aims to identify whether the flexibility of these housings have been used by the residents, and then to highlight, quantify, and analyze the extent of the changes in floor plan they have undergone up to now. Given that flexibility in housing is mainly linked to the ability to modify the floor plan, these findings will be important in determining how well the

theoretical claim of flexibility is applied in practice. Secondly, exploring the main drivers behind the changes made by the residents will enable us to discover the opportunities and challenges of flexible housing in Germany.

Based on this survey, we can then draw up some recommendations for flexible housing in Germany. It is important to note that this research neither claims that flexible housing can solve societal issues nor attempts to provide an end solution for flexible housing. Filling the gaps in the development of flexible housing in Germany and the current situation is an attempt to build a platform of flexible housing data in Germany, which exposes the extent of flexibility use and the reasons for this use by users, allowing for the discovery of flexible housing's potential as a mechanism to address the users' social changes.

### **Research Objectives**

The major objectives of this research are as follows: (1) To create a historical overview of flexible housing in Germany. (2) To compile empirical data on flexible housing in Germany through six case studies. (3) To investigate the potential of flexible housing in terms of its social aspects. (4) To discover the strengths and weaknesses of flexible housing in Germany. (5) To suggest recommendations to implement flexible housing in Germany.

### **Research Questions**

The research seeks to answer three main research questions and four sub-questions, as follows: Main Research Question 1: How has flexible housing evolved in Germany since its inception? Sub-question 1: What are the main features of flexible housing in Germany? Main Research Question 2: How has flexible housing, as presented in the case studies, evolved over time? Sub-question 1: To what extent have these flexible housings changed in terms of their floor-plan configurations? Sub-question 2: What are the changes in floor plan configurations? Sub-question 3: What are the main social reasons for these changes? Main Research Question 3: What are the potentials of flexible housing in coping with the social changes of users within the German context?

### **Significance of the Research**

Considering that flexibility in housing projects has been used frequently in Germany - particularly in recent decades as a way of dealing with rapid social changes among users -

but has not been studied for a long time, this study is likely to yield significant results. It will help address the current shortage of research in this field and provide more information about flexible housing in Germany. This research will contribute to addressing the current gap in this domain by providing additional information on flexible housing in Germany. It will then contribute to the current literature by evaluating flexible housing in the context of rapid societal changes that affect users today, after describing the development of flexible housing in Germany over a 100-year period.

This research aims to make a unique contribution to the current literature, which will benefit architects, developers, users, and sociologists. In this context, architects and developers will benefit from this research, as it will enable them to understand the development of flexibility in Germany since its inception. It will provide them with valuable graphic data of flexible housing floor plans within the historical period of the last 100 years. After over a century of providing flexible housing floor plans, reproducing them in Cad and classifying them into groupings will be beneficial for future research. Furthermore, it will provide access to the post-occupancy situation of flexible housing projects based on six case studies. This research will serve as a platform to further evaluate the usage of flexibility in their housing projects. However, because the majority of users are not experts in the field and are unaware of the meaning and role of flexibility in housing, this study may be useful in increasing their awareness of the importance of flexibility in their living environments. Showing them others' experiences with flexible housings will widen their horizons to look beyond floor plan standard configurations that are offered to them at most; and hence, it will empower and encourage them to undertake changes in their floor plans if they need to.

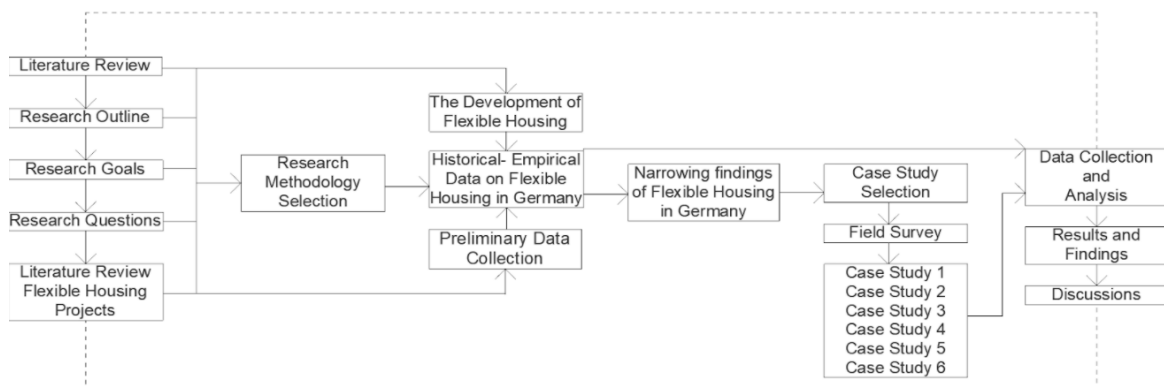
The data from this field of research survey may be useful for further sociological research in the housing sector for sociologists, particularly those working in the housing sector. Given that housing is a social activity, it constitutes a subject matter for sociological study (Wirth, 1947). Considering the changes that have occurred in users' living environment, this research will serve them with a suitable platform for understanding the reasons for these changes, and thus the correlation of social demands of the user and physical space. It will show them how the users interact with their living space when facing demographic, lifestyle, and economic changes.

## Research Design

Understanding flexible housing requires a synchronic and diachronic approach. A diachronic study is helpful to track the changes these buildings have undergone over time, while a synchronic approach is helpful to describe their present condition. The research design in this study elaborates on the investigation of case studies, the collection of primary and secondary data, and their organization. The information for this research was collected via literature review and field survey via questionnaires, interviews, and sampling techniques and the documentation of floor plan drawings. Considering field surveys, two types of questionnaires were used: administrated and self-administered. For the interview, a semi-structured type was conducted on the residents. Regarding sampling techniques: the chain sampling type was used to select voluntary respondents for the interview. About the floor plan documentation: relevant data were obtained from the available literature and from observation in the field survey and from the meetings with the respective architects of these case studies. The flowchart of research design methodology is shown in Figure II/1.

Figure II/1

Research Design



## Data Collection

To validate the research hypothesis, two types of data, mutually dependent, were collected; namely, *primary data* and *secondary data*. In this thesis, the term “primary data” refers to any information collected from the field survey, including observations of the six case studies, the findings of the questionnaires, interviews with residents, and changes of the floor plans. “Secondary data” refers to the information obtained from the literature review on flexible housing in Europe, particularly in Germany. It serves as a platform on which primary data is foregrounded and tested.

This research aims to investigate flexible housing in Germany in the real context. Therefore, selected case study methodology is used to perform this investigation, as it supports the investigation in its natural context. In this research, multiple case studies or collective studies are used for data collection and for validation of the results. This research inspected the collected data thoroughly at both surface and deep levels to find the explanation in the data.

### **Discussion of the Main Research Findings**

One of the main findings of this research is the extent and the form of use of flexible housing in Germany, thus filling the gap in research in flexible housing made five decades ago. The findings of this research shows that the use of flexibility stands at 70%, indicating that residents use flexibility satisfactorily. The research also reveals the extent of use of flexibility in the post-occupancy phase by residents. Findings show that one flexible apartment goes through a change every 11.4 years, on average (varying from seven to 18 years), indicating that, after approximately 11 years, families have to undergo changes in floor-plan configuration to fit their needs. This means that, over one generation, a flexible apartment is expected to go through changes at least five times. Accordingly, this means that, living in an inflexible apartment, the number changing their living places would be approximately the same. However, the results show that changes in new apartments happen more frequently than in older ones, reducing the frequency of changes to every seven years. This indicates that the use of flexibility decreases over time, especially after the first and second users. The reason for this could be that the first users take more advantage of flexibility, as they are commonly directly involved in the housing process; therefore, they are aware of the possibilities. To this end, in flexible housing projects, effort should be made to provide enough information to all subsequent residents about the possibilities that flexible apartments offer.

The findings concerning the role of residents' occupancy status in determining the extent that they apply changes to their apartments (showing that 76% of owned apartments and 60% of rented apartments changed) indicate that flexibility in rented apartments in Germany is exercised to a good extent. However, as research shows, this indication is only valid in cases where the housing project is not under the developer's control. Concerning the role of the commissioners/developers in determining the extent that residents use flexibility: there is a concerning tendency of the developers to discourage and insufficiently

inform residents, or even to deny to residents that they may apply changes. Although this has happened primarily in silence, research has revealed that such marginalization originates from the developers (investors) of the buildings, and, surprisingly, very rarely from the private owners of the apartments.

The findings concerning the reasons behind this usage and its impact on the residents are further important pieces of feedback from this research: firstly, considering that changing demographics (44%) followed by changing lifestyles (23%) are the main reasons for the use of flexibility by residents; and secondly, considering that the residents' evaluation of this use, with its good impact on their daily lives, gives some validation to the hypothesis of this research (that flexible housing is a good way to cope with users' changing social needs).

### **Further Research and Limitations**

This study provides viable quantitative and qualitative data paving the way for further research. Although this research has provided important and viable results where the most important part of the research is covered and investigated, it had some limitations, especially in the empirical part of the study. As per the research findings, flexible housing has been used by residents on a large scale and primarily as a means of coping with their changing social needs. However, there is some kind of limitation in the limited number of projects that were researched and the low number of flexibility types, where, for each type of flexibility, there were only one or two or mixed types. There were limitations to including further case studies for this research at this stage, considering the extent of the work - which included surveying the building, drawing the original floor plan with the changes that the building has gone through and the current situation, and interviewing the residents. In this context, a higher number of case studies - more than one for each type of flexibility - is proposed as an expansion of research. Furthermore, the personal data of the residents, such as their social backgrounds and economic levels, could not be obtained for the field survey. It may be important to consider such aspects of the users' characteristics in further studies of their possible impact on the extent and form of their use of flexibility. Therefore, generalizing the findings should be done carefully; hence, the valuable data that this research provides paves the way for continuous assessment on the topic, which is essential for effective validation.