Urban Planning
2024 • Volume 9 • Article 7800
https://doi.org/10.17645/up.7800

cogitatio

ARTICLE

Open Access Journal

The Lifestyles of Space Standards: Concepts and Design Problems

Alvaro Arancibia

School of Architecture, Pontificia Universidad Católica de Chile, Chile

Correspondence: Alvaro Arancibia (aaaranci@uc.cl)

Submitted: 31 October 2023 **Accepted:** 12 January 2024 **Published:** 20 March 2024

Issue: This article is part of the issue "Housing Norms and Standards: The Design of Everyday Life" edited by Sam Jacoby (Royal College of Art) and Seyithan Özer (Royal College of Art), fully open access at https://doi.org/10.17645/up.i316

Abstract

Space standards are envisioned as a powerful means to regulate dwelling design, ensuring the quality, functionality, and safety of homes. Their ultimate objective is to guarantee a minimum level of design quality that can accommodate a wide range of domestic activities. While space standards primarily focus on isolated quantitative aspects such as overall size, room dimensions, and occupancy limits, they also make assumptions about activities to be performed by ideal "users" and specific lifestyles to be accommodated within a home. However, these assumptions are being challenged by the increasing demands and diverse activities taking place in the dwelling realm, which call into question the validity of existing space standards. In response to these challenges, this article conducts a critical review of the theoretical basis and various interpretations of space standards, particularly in the context of England. It explores their fundamental concepts and historical approaches, as well as examines specific examples of their application and their correlation with design strategies. By delving into the concepts of "the normal" and "the minimum dwelling," the article discusses the three main dimensions of space standards: program, user, and size. Consequently, it argues for a more comprehensive understanding of the general application of space standards, which requires incorporating architectural design problems, particularly from the perspective of flexibility. This approach takes into account the evolving needs and diversity of households, as well as the creation of inclusive and adaptable living spaces.

Keywords

dwelling design; flexible housing; housing design quality; minimum dwelling; space standards

1. Introduction

By the first half of the 20th century, particularly in England, space standards emerged as an important regulatory tool for housing supply, capable of targeting specific market segments or the broader housing

sector in alignment with housing policy goals. Although not universally mandatory, these "standards" represent criteria and guidelines employed to govern the dwelling's design. They aim to ensure housing quality and functionality, specifically concerning the minimum or maximum of various dwelling areas and the interrelationships between these spaces (Madeddu et al., 2015, p. 79). The complexity of the various considerations involved in the implementation and evaluation of space standards cannot be overstated, and it is essential to approach this subject with nuance.

Space standards are a mechanism to secure basic habitability through a minimum standard of space provision that enables the various activities expected to take place in a home. This has to consider not only common activities but also diverse uses, functional changes, lifestyles, and household types. Moreover, what is considered a minimum standard is not universal but depends on how different needs and uses are interpreted and the context in which the standards are implemented. Significant variations in notions of minimum standards can be observed across countries, especially between developing and developed ones. Exemplifying this is the comparison between England and Chile, two countries with a similar conceptualization of space standards but with notable differences in the definition of basic living spaces along with their respective minimum sizes (Jacoby et al., 2022). These differences might be explained by a set of variables that come into play when defining a standard, relating to ergonomic-functional limitations, cultural norms, and affordability.

The first variable primarily concerns establishing minimum dimensions or areas necessary to facilitate common activities by calculating room sizes based on the dimensions of standard furniture required for these activities, occasionally including a prescriptive furniture schedule. The second variable relates to the dwelling program, which has to meet the needs of diverse household sizes and types. This ensures that the essential functions of a home are met by providing rooms and areas for specific uses. The third variable concerns the economic viability of standards, leading some countries to define space standards that push the concept of minimum provision to its limits.

While space standards tend to be in principle qualitative, aimed at improving housing quality, they are predominantly measured quantitatively. Emphasis is placed on the overall size of the housing unit, room dimensions, and the number of occupants. However, standards often make assumptions about the activities and lifestyles within a home, effectively restricting the life possible within these spaces. This normative approach is, however, challenged by the increasing diversity of activities found in homes, especially since the onset of the Covid-19 pandemic, but also due to changing demographics and variety of household types (Çaki, 2022).

The diversity of domestic space requirements, family compositions, and lifestyles, coupled with a preference for quantitative criteria, raises questions about the validity of current space standards. This suggests that space standards should be reviewed both in their theoretical basis, as well as in their definition and application. Based on this, the article poses the following questions: What are the fundamental concepts and problems that produce space standards? How have these changed historically? These questions are explored through the analysis of how space standards are applied and relate to design strategies and lifestyles, particularly in the context of England. Being a pioneer in this domain, England has a longstanding history of space standards, tracing back to the influential Tudor Walters report in 1918, which initiated a regulatory tradition concerning space standards that persists to this day, where various regulatory mechanisms and design strategies have

been explored to standardize dwelling design (Park, 2017, p. 18). This analysis is given context by the concepts of the "normal" by Canguilhem and "minimum dwelling" by Teige and the three main design dimensions of space standards: program, user, and size. Each dimension is exemplified by a key moment in the historical development of space standards and its specific architectural outcome. Based on this, the article examines how space standards can be understood as design principles that shape and support particular ways of living and the various degrees of flexibility they offer to the user.

2. The Normal

Space standards have a strong normative effect and to disregard this would be to discard their agency in regulating the housing supply. Rather than questioning the value of space standards to the process of dwelling design, one can argue that the problem lies in their current focus on largely quantitative considerations. Georges Canguilhem in *The Normal and the Pathological* (1991) provides a clarification of the notion of the normal through which one could rethink this limitation of the quantitative approach to standards. To Canguilhem, the term "normal" can be understood in two ways. On the one hand, it can be defined in purely quantitative terms. This understands the normal as the average demand, measurable by fixed parameters. On the other, the normal can be understood from a qualitative point of view. This understands it as an unstable state, with its demand varying and requiring a versatile response. The normal is not predictable, rather, it continuously changes—as habits, knowledge, technology, and life conditions evolve. Based on this, one can argue that the idea of the normal is related to the ability to accommodate changes, establishing or reestablishing, depending on the case, the basic necessary conditions to address the various demands that arise throughout the development of people's lives, understanding that these evolve either due to the intrinsic factors of each stage of life or new needs that unexpectedly arise.

The distinction between quantitative and qualitative definitions of the normal by Canguilhem derives from his critique of how science has understood health and disease since the early 19th century as separated by a rigid and immobile line defined by the normal. Instead, he argues that the normal is expansive and projective, as the conditions of disease exist within its domain. He stresses that the course of life is not determined by a mechanical and ideal sequence of episodes but by exceptions, which inform the notion of the normal. That is, life is not a pacific motion of events but in a constant fight and negotiation with the limits of norms. Canguilhem sees an example of this in the problem of ageing. He argues that youth is the ideal age in terms of health, but at the same time, it has a limited duration, representing only a period of life, and therefore cannot be seen as normative for other periods such as childhood, adulthood, and old age. As Canguilhem (1991, p. 197) states:

> Being healthy means being not only normal in a given situation but also normative in this and other eventual situations. What characterizes health is the possibility of transcending the norm, which defines the momentary normal, the possibility of tolerating infractions of the habitual norm and instituting new norms in new situations.…Health is a margin of tolerance for the inconstancies of the environment.

Canguilhem's understanding of the notion of the normal allows conceptualizing space standards in different terms than they are currently framed by design considerations based on ideal situations that are typically expressed in minimum room sizes, dwelling areas, and furniture schedules, among others. The implication of this approach is the creation of fixed-design solutions. This is a highly technical view of space standards, as it seeks to provide specific answers to each predicted activity. At its extreme, this leads to the indiscriminate

creation of space standards, with each tailored specifically to a particular action or situation, forcing the housing unit to absorb domestic activities in an isolated manner.

This raises the question of how to overcome this problem. Can the current approach to standards be rethought as a mechanism capable of encompassing aspects of the normal, including the need to absorb changes and a variety of usage demands for housing design? Following Canguilhem, space standards, when viewed in their normative capacity, cannot be just a set of momentary normal design solutions and are only fully effective when capable of accommodating the unforeseen. Therefore, less rigid methods for determining space standards are needed. But how can space standards provide a margin of tolerance beyond the ordinary? One possible answer is that space standards should not be conceived autonomously but should be understood in terms of design strategies that permit not only more flexible responses but also lead to an economy in the regulation of dwelling space.

3. The Minimum Dwelling Concept

For a meaningful reassessment of space standards, it is imperative to revisit the starting point: the concept of the minimum dwelling. Karel Teige (2002), in his work *The Minimum Dwelling*—originally published in Czech in 1932—presents a compelling argument for a comprehensive approach to dwelling design that balances both quantitative and qualitative dimensions while simultaneously giving significant importance to the social aspects defining minimal housing. Teige challenges the principles of the early Modern Movement, as focused on standardization and mass-produced housing without sufficient consideration for the quality of living conditions that ensue. Instead, Teige (2002, p. 42) calls for a complete reimagining of housing design to address what he terms "the housing question":

> The question of the dwelling for those earning the subsistence minimum is, for practical reasons, impossible to solve, simply because the so-called subsistence minimum is identified with a living standard that, in effect, precludes them from a dwelling that, for all intents and purposes, would provide a minimally adequate standard as something affordable rather than as an unattainable luxury.

The quantitative aspects of space standards are undeniably crucial, as they define a threshold that safeguards decent housing by guaranteeing a certain level of comfort and usability within a home. However, when comfort and usability are pursued without restraint, it often results in housing solutions that are unaffordable luxuries, contributing to the growing challenge of housing affordability and availability (Madeddu et al., 2015, p. 77). This problem is notably exemplified in England, where an increase in space standards based on a demand for more functional space has not translated into greater access to affordable housing due to the widening gap between property prices and the incomes of those in need of housing (Chanon, 2017).

As Teige posits, the design of dwellings must take into consideration principles of efficiency to keep costs manageable and ensure affordability. He emphasizes the significance of minimal housing and underscores the necessity of rethinking the basic, functional dwelling program. This, he argues, has to depart from the conventional bourgeois housing model, which, under the precepts of comfort, increases the number of functions within a single housing unit rather than prioritizing functions essential for a minimal dwelling. The conventional approach leads to inefficient and unaffordable housing, fundamentally at odds with the principle of providing housing for all. According to Teige, a minimum dwelling should only consider the

functions vital for life to ensure access to adequately equipped and well-designed living spaces that can foster individual and societal well-being. This approach is essential to providing decent, comfortable, and affordable housing to everyone, through which the housing question is addressed.

Teige's critique of the bourgeois housing model does not mean that a minimum dwelling is a mere space for sleeping, restricted to fulfilling only biological necessities. Rather, he emphasizes that a dwelling is a dynamic and social space, requiring the organization of domestic functions according to varying degrees of privacy. This challenges the conventional approach to space standards, which is typically presented as a neutral list of design requirements, as individual design instances, that do not necessarily work or relate coherently with each other when applied as a whole, and thus create functional and well-designed dwelling arrangements. Teige, in line with his philosophy, contends that these potential relationships should not be seen as additional mechanical requirements but as an essential part of the strategic reasoning and fundamental elements of a minimum dwelling. These elements encompass the program, size, household composition, and lifestyle. Teige suggests that creating a minimum dwelling is a highly complex endeavour, as it necessitates accommodating "maximal life" (2002, p. 33) in a minimal space for individuals living on or near the subsistence minimum. In this context, Teige introduces the concept of the "mini-max dwelling" (2002, p. 33), bringing together two seemingly contradictory notions. On the one hand, the idea of the minimum pertains to the quantitative aspects of design, particularly focusing on size and efficiency. On the other, the idea of maximal life is inherently qualitative, rooted in the act of dwelling and the concept of livability. This livability means the ability to enjoy a decent life within one's home, underscoring the importance of housing quality and comfort alongside considerations of size and efficiency.

Teige further argues that to fully conceptualize the minimum dwelling, it is also necessary to distinguish between two limits. The lower is the "modus non moriendi" (when one does not die of hunger), which is the basic condition for satisfying biological needs. This limit has been the fundamental concern of housing provision and the basis for the production of space standards that ensure dwelling usability at the most rudimentary level. According to Teige, this level is insufficient to comprehensively meet the needs of dwelling from a qualitative perspective of the housing problem. This "minimum vivendi" (the minimum that allows one to survive), which is to Teige the main challenge of housing design, is the threshold to consider in a minimum provision that reflects on both functional and social needs.

In the context of space standards, the "minimum vivendi" precept can be related to current discussions about well-being, and the provision of adequate levels of comfort to a wide range of users. This includes aspects such as natural lighting, ventilation, thermal comfort, accessibility, and adaptability. However, the implementation of these precepts is often limited by budget constraints. The cost of providing housing at this standard can be too high for governments and housing developers, which raises discussions about the balance between design quality and cost.

4. Dwelling Program

The evolution of space standards can be discussed through Canguilhem's idea of the normal and Teige's mini-max dwelling, which provide a theoretical background to the minimum dwelling concept and account for its different scopes and dimensions. The first dimension is the dwelling program. This relates to the household composition, which in turn defines the relationship between rooms and the general functions of the home.

One of the well-known first efforts to standardize a minimum dwelling program was the Model Lodging-House designed by Henry Roberts in 1851. With four flats arranged in a two-storey building, Roberts proposes a dwelling that shapes family life through functional relations related to individual and group demands (Figure 1). His housing solution, comprising a dwelling program of three bedrooms, a bathroom, a kitchen, and living-dining area is carefully arranged to produce functional relationships that support what, at that time, was considered a "conventional" family. The program was organized in a way to allow for a clear differentiation between private and public activities at home. On the one hand, there are bedrooms, for the family members, differentiating between parents and children. The latter could be separated according to their gender, to grant privacy according to biological needs. In this way, both the specificity and the differentiation of functions are fundamental to decisions in the dwelling design. On the other, public activities are efficiently organized as a continuous space without corridors or nooks, establishing a direct visual control between the bedrooms and kitchen-bathroom area.

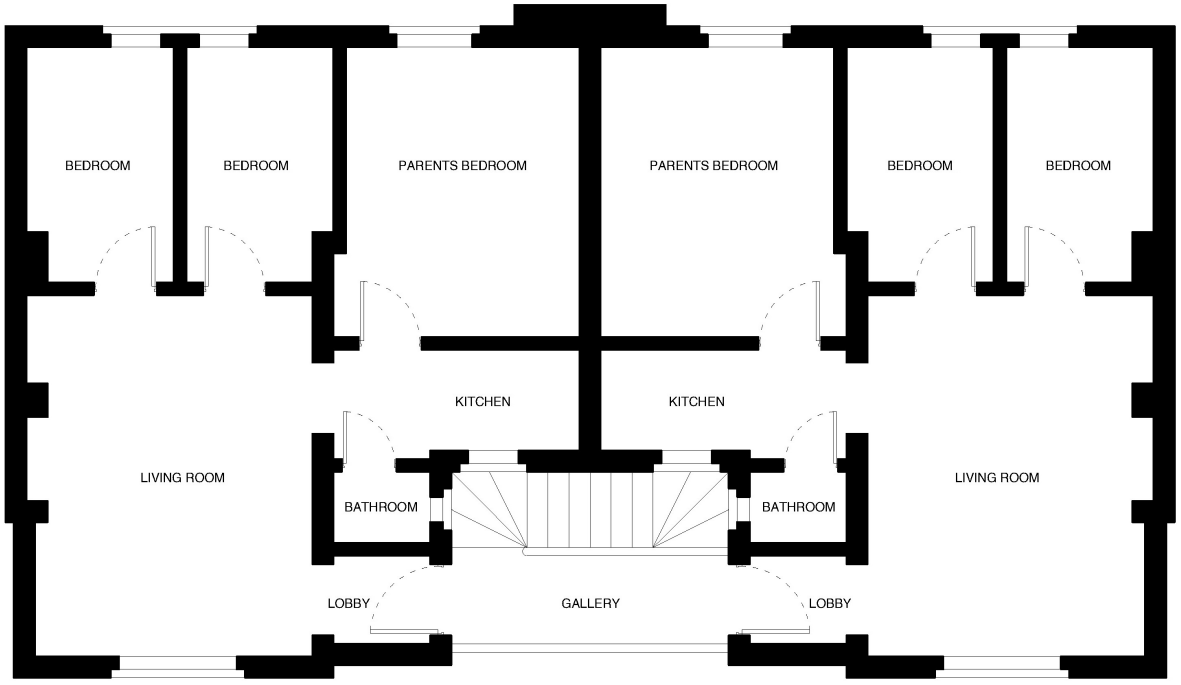

Figure 1. Model Lodging-House floor plan. Source: Drawn by the author from Roberts (1867, p. 121).

Although Roberts' housing model included a series of other design considerations, over time the proposed dwelling program became a paradigm for the conventional nuclear family housing in Western societies during the 19th and 20th centuries and, thus, a primary driver for housing standardization (Aureli & Giudici, 2016, p. 125).

While widely adopted and historically successful, such a housing program faces two significant challenges. First, it presupposes a singular and unchanging family structure. However, today's families are more diverse than ever before. Therefore, relying on a one-size-fits-all program as a solution is inadequate. Secondly, this prescribed housing program assumes fixed functions that can meet all demands within a home, whether functional or social. However, as already argued by Teige, this traditional housing program is bourgeois and limited, and changing lifestyles require more flexibility to adapt to transforming functional and social needs.

5. The User and the Quantified Dwelling

Another fundamental aspect of standards is the protection and preservation of assumed common activities through the use of minimum spaces and their supposed correlation to user needs (Park, 2017). This implies that standards and lifestyles can be predicted. However, it is crucial to note that the act of prediction is not entirely scientific and, therefore, encompasses a significant subjective component. This aspect is overlooked in favor of presenting ideal design situations that are supposed to ensure the functional performance of the home. By connecting minimum floor areas to specific functions, activity predictions are presented as objective data and expressed in quantitative terms. This preference for quantification is in part due to it being often challenging to reliably measure qualitative aspects such as comfort and well-being that space standards are to provide. A quantitative approach seems to offer a more objective measure, regardless of the different levels of precision found in different countries or specific contexts (Appolloni & D'Alessandro, 2021).

The drive for more usability-efficient homes has led to a decade-long focus on a technical understanding of housing design. This evolution, particularly pronounced in developed countries like England, has made space standards a key indicator of the quality of housing design (Jacoby et al., 2022). These standards no longer cater solely to the needs of average users but encompass a broader spectrum of society (see Figure 2). This promotes a concept of "normal" in space standards similar to Canguilhem's "margin of tolerance" (1978, p. 197). It starts to consider more diverse needs, such as accessibility and ageing, by providing more generous spaces than the bare functional minimum, ensuring usability for various user groups (Imrie, 2003). At the same time, space standards in other countries remain at the threshold for minimum usability. An example of this is Chile, where space standards prioritize primary functions, adhering to Teige's "modus non moriendi" concept and pushing minimum provision to the extreme (see Figure 3).

In both the cases in England and Chile, the central focus is on quantifying domestic space, with space standards used to measure functions effectively. This approach bears resemblance to the functionalist approach in early Modern Movement dwelling studies. Particularly the ones based on the concept of Existenzminimum, developed at the Second International Congress of Modern Architecture (CIAM II) in Frankfurt in 1929, which aimed "to construct new low-cost housing to meet an increasingly severe housing shortage" (Mumford, 2000, p. 29). The outcomes of CIAM II are documented in the book *Die Wohnung für das Existenzminimum* (May et al., 1930), comprising 100 different dwelling layouts. These layouts were organized following a Fordist rationalization, with typical activities at home arranged in a way to bring maximum order, efficiency, and comfort to users. Notably, the standardization of the kitchen, with meticulous measurements of activities and space usage, exemplified this functionalist approach to design.

The functionalist approach not only influenced the spatial arrangement of the dwelling unit but was also used to define the household structure. The housewife's role was confined to domestic production within a small and isolated kitchen and the reproduction of the family, turning her into a "professional" of the home (Giudici, 2018). This architectural and social design assigned specific functions to the housewife, focusing on managing domestic affairs.

The kitchen and the strict relation between subject and function are one of the first effects of the incipient standardization of the dwelling unit during the first half of the 20th century, as is evident in England through the first version of the *Housing Manual* (Great Britain et al., 1944), followed by its subsequent versions in

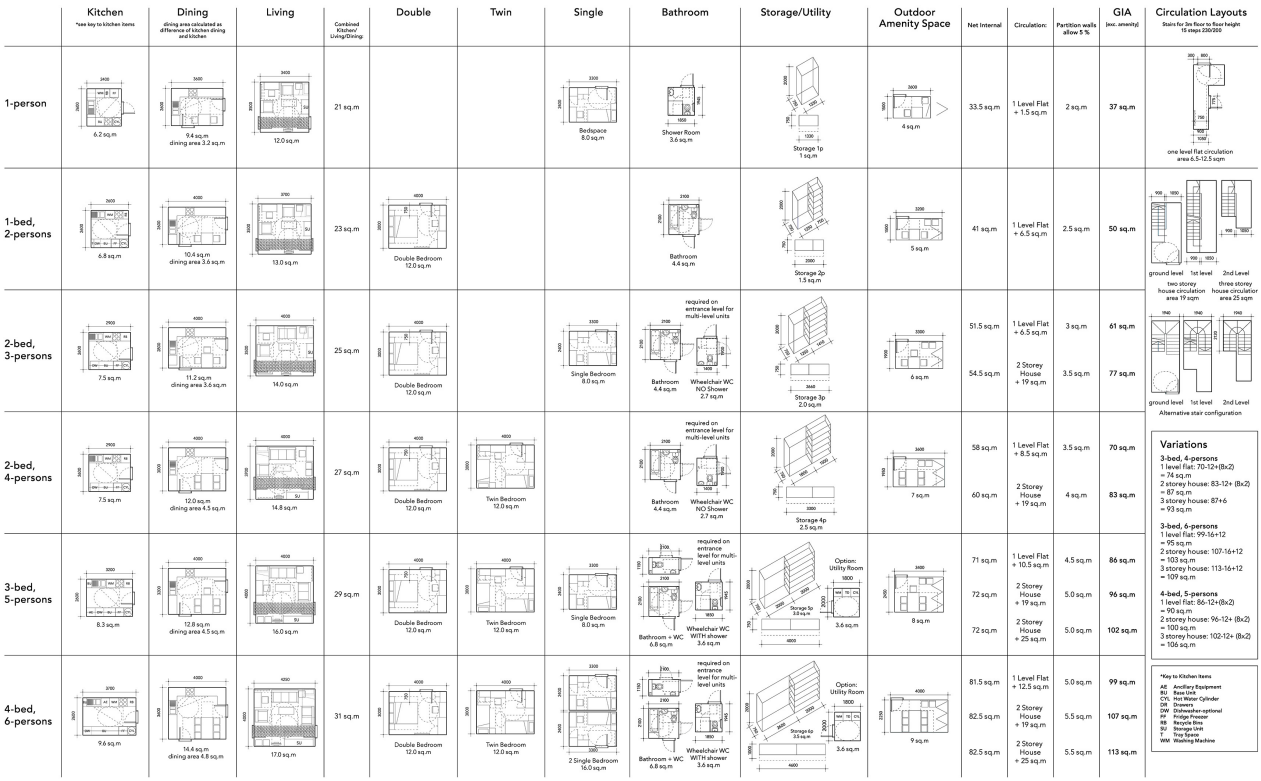

Figure 2. Application of space standards according to different dwelling sizes and room types. Source: Mayor of London (2010, p. 92).

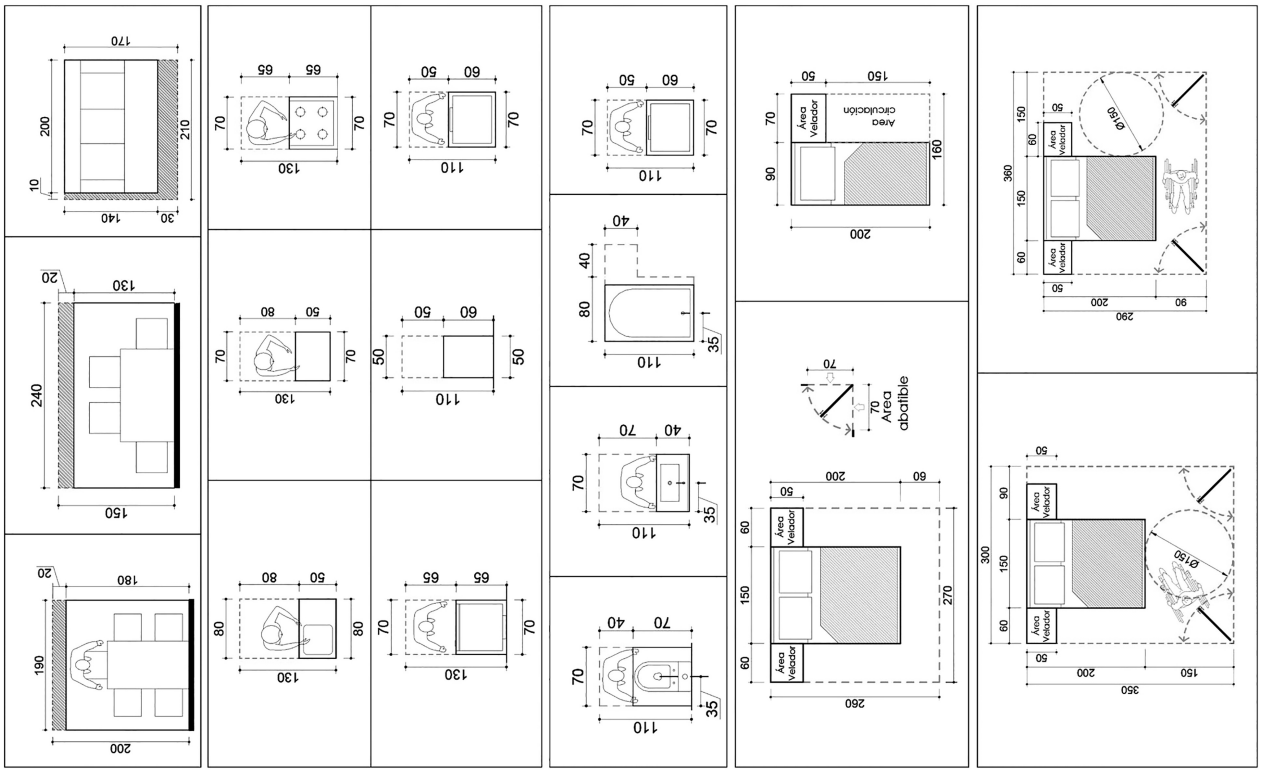

Figure 3. Furniture schedule for low-income housing in Chile developed according to minimum usability. Source: Ministerio de Vivienda y Urbanismo de Chile (2017, p. 3).

1949, 1954, and 1955. This relationship is embodied in the modern idea of the user. To Adrian Forty (2000, p. 312), the idea of the "user" eliminates the subject as an "occupant" or "inhabitant," denying individual requirements and subjectivity. Instead, the concept of "user" becomes a means to dictate functions to dwellers. The word "user" is no more than a vague concept that deprives modern societies of their own living experiences. The *Housing Manual* is an example of the exacerbation of the kitchen as a means for the standardization of dwelling design. Here, three types of kitchens imply each a clear definition of its "user" and a corresponding lifestyle. Each kitchen brings with it a logic of organizing the dwelling unit, separated into a "kitchen-living room," "working kitchen," or "dining kitchen," which were thought as corresponding to a specific domestic lifestyle, manifesting through the proximity and functional relationship between the dining area and the kitchen (see Figure 4).

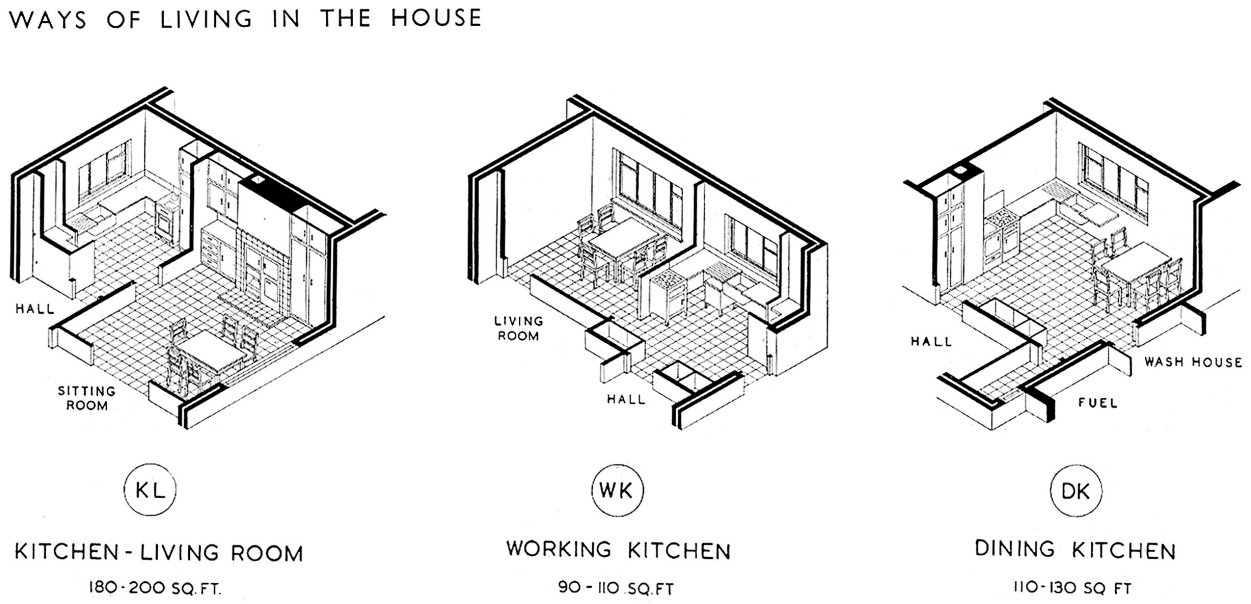

Figure 4. Different lifestyles emerging from three proposed kitchen layouts. Source: Great Britain et al. (1949, p. 40).

The kitchen's role as a dominant standardized space in homes during the first half of the 20th century was notable, but no longer the sole driver of spatial quantification in dwellings. More recently in the 1990s, the need for universal accessibility has emerged as a housing standardization driver. Addressing the increased spatial requirements of individuals with reduced mobility became a critical aspect of space standards. This shifted the challenge from merely catering to diverse user needs to recognizing that an individual's demands can change over time. The concept of fixed functions and spaces designed exclusively for a specific purpose was therefore no longer suitable. An illustration of this new approach to housing design is the establishment of the Lifetime Homes Standards in the UK in 1991, which accommodate the evolving needs of residents while responding to rigorous accessibility requirements, and represent a qualitative shift in standard creation. The Lifetime Homes Design Guide (Habinteg Housing Association, 2011, p. 3) states:

> Good housing design is thoughtful, forward-looking design that maximizes utility, independence, and quality of life, while not compromising other design issues such as aesthetics or cost effectiveness....Standard is an expression of inclusive design. It seeks to provide design solutions in general-needs housing that can meet the changing needs of the widest range of households.

This underscores that standardized housing design can significantly enhance the quality of life. However, offering a qualitative response entails an in-depth assessment of domestic space. Consequently, aligned with the functional studies of the early Modern Movement, there is an intensified focus on predicting activities and greater precision when determining the spaces and activities needed within a home.

A prime example of the continued influence of functionalism in space standards is the use of furniture schedules and diagrams. These combine furniture dimensions with usable space and, in some cases, room layouts. Comparable to design manuals like Ernst Neufert's *Architect's Data* (1936), they provide highly detailed design solutions advocating for a singular and efficient use of space tailored to specific activities. However, they rarely define ranges or alternatives of use, as space standards seem to be more focused on ideal solutions that, in turn, respond to a deliberate act of predicting lifestyles within the home.

6. Dwelling Size

The third dimension of housing standards encompasses adaptability and versatility to accommodate evolving lifestyles. The report *Homes for Today and Tomorrow* (Great Britain & Ministry of Housing and Local Government, 1961) by the UK's Parker Morris Committee, establishing the Parker Morris standards, serves as an early example of this approach by avoiding overly-specific space standards and explicit design solutions. Instead, it focused on general quantitative factors like floor areas, offering a list of preferred domestic and technical conditions and conceptual diagrams depicting common domestic dynamics and potential home uses. Rather than prescribing standards for each room based on functions, the report advocated for an overall increase in dwelling size. This enlargement was seen as a means to provide greater design adaptability that can meet individual needs.

The Parker Morris report introduced a radical shift in thinking about dwellings. Aiming to accommodate "new patterns of living" (Great Britain & Ministry of Housing and Local Government, 1961, p. 2), the report encouraged the adoption of larger homes to accommodate new leisure and socialization activities within the household. By leveraging technological advances, labour-intensive routines like cooking and cleaning could be replaced by new appliances, which however required additional space. This shift in spatial distribution and reasoning introduced a novel concept of efficiency. Instead of concentrating solely on functional spaces, the focus shifted toward the overall management of the household and social performance.

This paradigm shift recognized that domestic appliances and mass-produced goods, like vacuum cleaners, microwaves, electric cookers, blenders, washer-dryer machines, dishwashers, televisions, and stereo hi-fi consoles, could contribute to a more socially and spatially liberated home. The house was transformed into a fluid space defined not by rigid walls but interconnected areas. The report utilized conceptual diagrams that dissolved the physical boundaries of dwellings, emphasizing spatial connectivity, diverse domestic activities, and the proliferation of technology and appliances (Figure 5).

Programmatic indeterminacy became a new cornerstone of housing standards, acknowledging the need to adapt to unpredictable demands of modern life that are constantly evolving and impossible to predict. Spatial redundancy emerged as a strategy to deal with shifting living patterns and needs. However, while the Parker Morris report prioritized the needs of residents and seemingly overcame the modernist idea of the "user," its idea of freedom based on technological appliances inadvertently established a new form of functionalism.

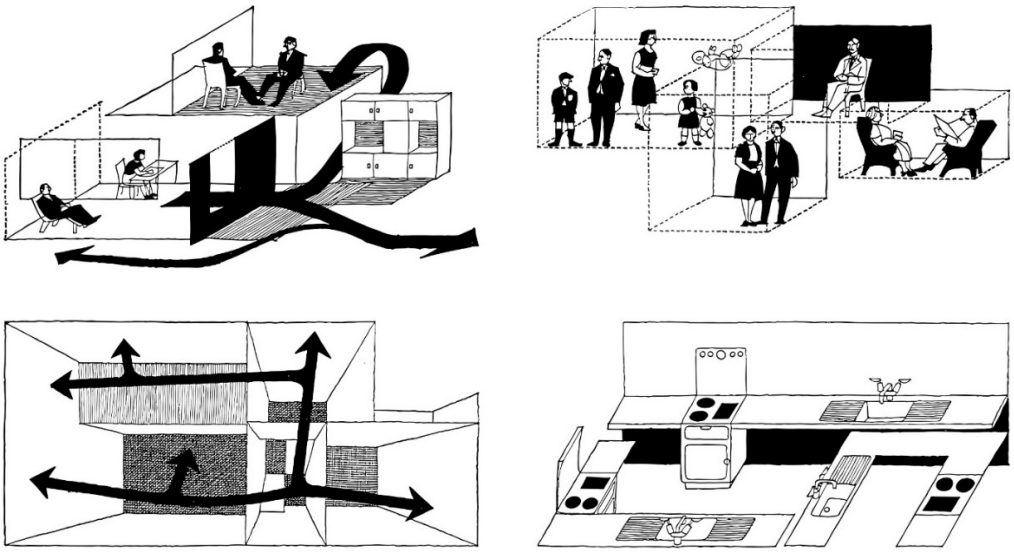

Figure 5. Diagrams that express the ideas of space fluidity, space indeterminacy, and adaptability. Source: Great Britain and Ministry of Housing and Local Government (1961, p. 1).

As Gary A. Boyd (2015, p. 45) highlighted, Homes for Today and Tomorrow:

> Represent a continuation and completion of the Fordist house project. Their diagrams are icons of a dream of a planned economy where domestic technologies and living space would be deployed by the State as a means of achieving balance between production and consumption at the level of the nation.

Consequently, homes were transformed into spaces designed to absorb commodities but, ultimately, became commodities themselves (see Figure 6).

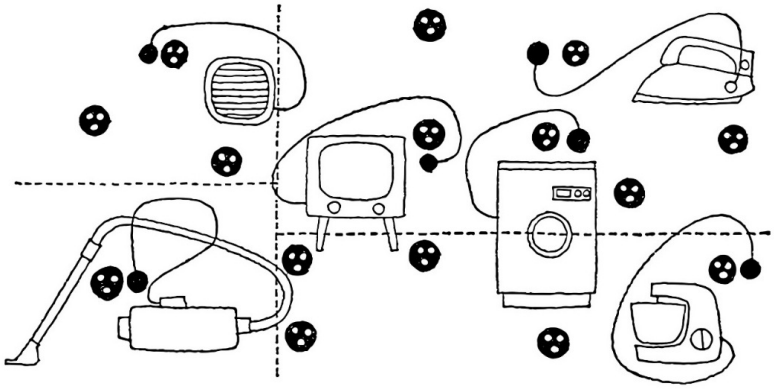

Figure 6. Diagram that centres on the deployment of technological appliances as drivers of new living patterns. Source: Great Britain and Ministry of Housing and Local Government (1961, p. 26).

7. Flexibility

The adaptability of the standards proposed by the Parker Morris committee in the UK to new lifestyles and socialization came at the expense of a fundamental contradiction with the provision of basic housing. Design

quality was defined by larger minimum sizes, making housing less affordable. This conflict precipitated the debate around the Parker Morris Standards, ultimately leading to their abolition in 1980. This decision generated concerns about the reduction of space in new homes and raised worries about the potential loss of benefits associated with the decrease in living space in households (Carmona et al., 2010). However, it was still imperative to incorporate space standards and design criteria capable of both effectively quantifying and efficiently accommodating typical activities and equipment within the home (Noble, 1982). Established by the Housing Corporation in 1983, the *Design and Contract Criteria* document aimed to address this problem. It acknowledged that the production of space standards was not a direct and generic translation of the housing program and user profile, but had to be flexible enough to produce different and more versatile layout configurations (Housing Corporation, 1983).

Although at first the idea of flexibility is understood from a technical perspective with an important emphasis on spatial quantification, the problem of design itself comes to the fore, leaving behind the indeterminacy inherent in the adaptability proposed by Parker Morris. In other words, focusing on flexibility means putting design strategies into play. Some current standards, like those proposed by Lifetime Homes, embraced design strategies promoting flexibility. For example, they suggested that conventional bathrooms, complete with bathtubs, be convertible to accessible bathrooms, featuring a shower unit designed for a wheelchair's turning radius (Figure 7). Another strategy involved allocating space for a future lift installation (Figure 8). While these proposals were undoubtedly desirable, their implementation was often limited to countries with fewer housing provision challenges, primarily due to their higher costs. This raised questions about the feasibility of space standards offering comprehensive, flexible solutions that transcend the confines of functionalism, especially in developing economies.

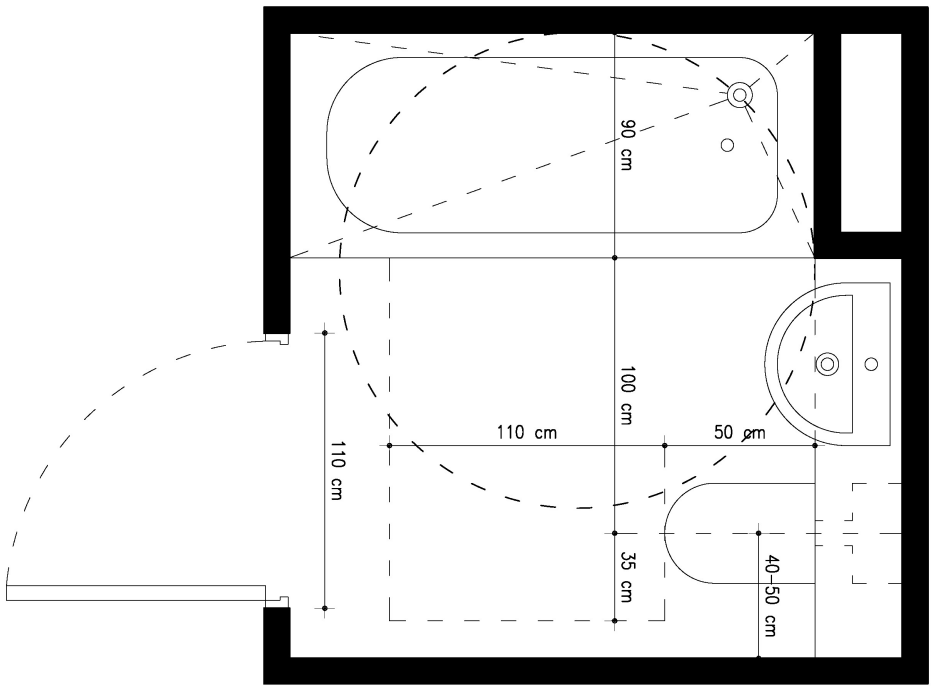

Figure 7. Example of guidance for adaptability of bathrooms to facilitate the transition from a tub-based to a shower-accessible configuration. Source: Drawn by the author from Habinteg Housing Association (2011, p. 45).

Figure 8. Example of a design strategy that considers accommodating an elevator in the future and thus ensuring accessibility over time. Source: Drawn by the author from Habinteg Housing Association (2011, p. 49).

The problem of flexibility on a day-to-day basis remains a key issue that should be considered when creating space standards. This means designing for varied uses instead of static functions and fixed furniture dimensions. This must, however, avoid a deterministic understanding of flexibility. Illustrative of this is the Schröder House by Gerrit Rietveld, built in 1924. A complex sliding panel system on the upper floor transforms the plan according to changing uses throughout the day and night. In this way, the house can have an open plan or be divided into several rooms that can accommodate different uses (Figure 9). The problem with this design strategy is that, although it is flexible in spatial terms, it is not in functional terms. What is proposed is still a rigid design solution that forces the change of spaces when carrying out specific activities. Opposite dwelling functions such as private and public ones cannot coexist due to each requiring the space of the other, which prevents the use of spaces in a manner different from what is prescribed in their plan.

This approach to flexibility is, in fact, comparable to functionalist strategies that aim to achieve a highly "efficient" use of space. Wall beds, sofa beds, folding desks, and sliding wardrobes are all mechanisms to transform the function of spaces, and in most cases, result in a highly deterministic dwelling layout. In doing so, the "user" is once again subject to a very limited form of living, which can be understood through Canguilhem's idea of the normal. From that point of view, one can argue that dwelling solutions based on technical means define an ideal sequencing of uses that do not "tolerate infractions" nor include a "margin of tolerance" (Canguilhem, 1991, p. 197) that can simultaneously accommodate functions belonging to different natures, such as sleeping and socializing (bedroom and living room). This kind of flexibility is only possible when demands for space do not overlap, which typically means that dwellings are for the use of a single person. Otherwise, couples and families will always be fighting for the space that each demands.

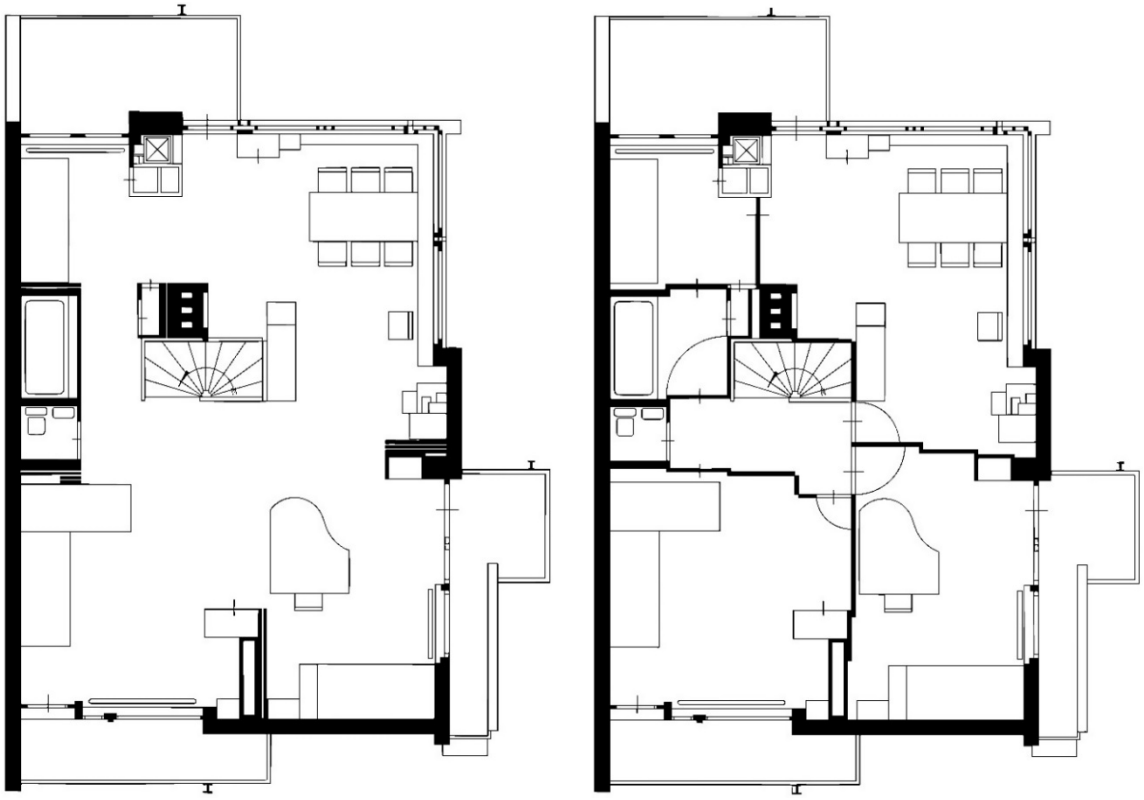

Figure 9. Gerrit Rietveld's Schröder House and the two ways of using the first floor depending on the use of sliding doors. Source: Drawn by the author from Forty (2000, p. 145).

We could then ask how to reconcile functional requirements, demographic changes, household transformations, and technological development in a single design framework. According to Jeremy Till (2008), this can be achieved by overcoming one-sided approaches to dwelling design. On the one hand, these have to do with the rigid and functional arrangement of the dwelling program. On the other, they standardize domestic activities at home. As Till (2008, p. 11) claims, "the issue with space standards is exactly that, they become standard so that the only way that one understands space is through standardization, and the way we standardize it is by measuring it." Instead, he proposes a more balanced approach based on the dwelling as an agglomeration of hard and soft spaces. Hard space determines how it can be used, whereas soft space is unspecified and allows different uses. That is to say, the first only responds to a fixed function and the second to multiple ones. To Till, a clear example of soft space is the Britz Housing (1925) by Bruno Taut. In this project, the dwelling is defined by three service spaces (kitchen, bathroom, and pantry) and a set of rooms or soft spaces with indeterminate functions (Figure 10). This means that the disposition of the dining room and living room—traditionally arranged in a fixed and hierarchical area of the plan—can vary according to different needs. This way, it is the dweller who signifies soft spaces by providing a temporary function to them. Such freedom avoids reproducing conventional dwelling arrangements that fail to answer to changing needs. Thus, if the concept of flexibility is understood as a strategy to create neutral space in contrast to highly functional and determined space, it can become a powerful means for dwelling design. It can answer questions of efficiency (quantitative problem)—dealing, for example, with spatial or programmatic redundancy—and respond to changing demands, which are related to the very idea of the normal as a qualitative problem, thus allowing life to continuously develop.

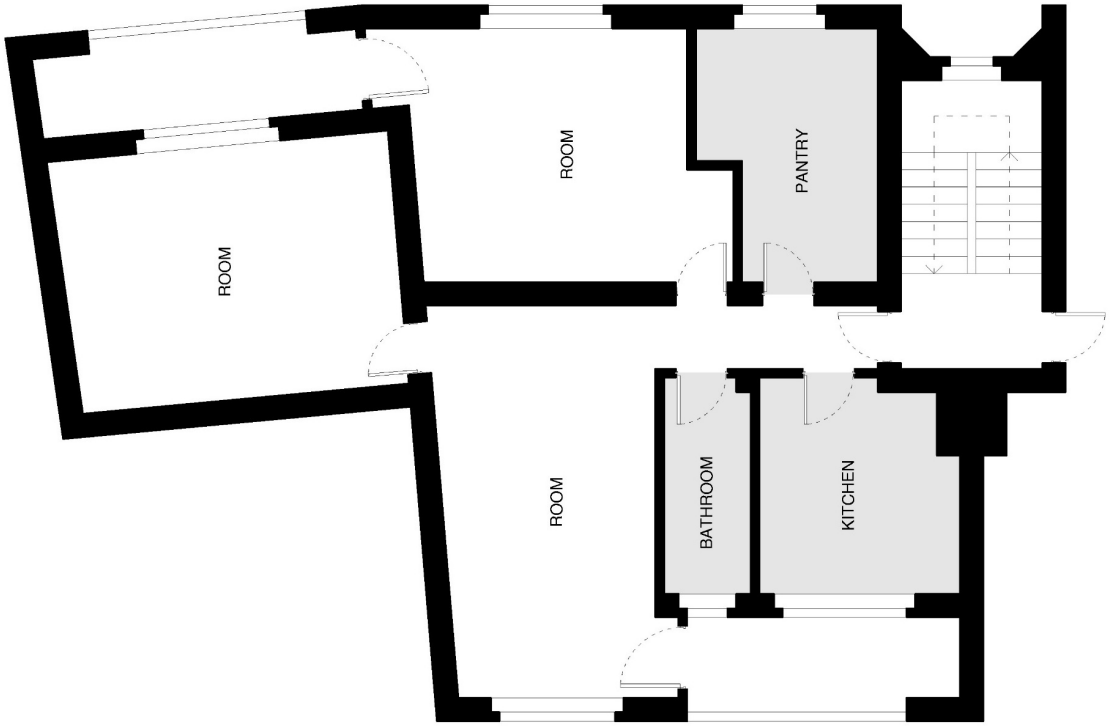

Figure 10. Typical floor plan of the Britz Housing by Bruno Taut, which differentiates between functionally specific and non-specific rooms. Source: Drawn by the author from Till and Schneider (2005, p. 289).

8. Conclusion

This article advocates for a more comprehensive approach to space standards that can consider both the quality and versatility of living spaces from the perspective of a basic housing unit. The traditional quantitative focus of space standards, emphasizing overall size, room and furniture dimensions, and occupancy limits, primarily centers on addressing problems of inefficiency. However, this approach often neglects the requirements of comfort and well-being, as it pushes these aspects to their limits, often simplifying the reality of individuals or families and creating stereotypes that are not consistent with real lifestyles. To overcome this limitation, it is essential to shift towards a more nuanced understanding of space standards that incorporates both quantitative and qualitative dimensions.

One way to achieve this is by reconsidering the concepts of "the normal" and "the minimum dwelling." On the one hand, the normative approach to space standards, based on fixed parameters, should be complemented by a qualitative understanding that allows for variability and versatile responses. By embracing a qualitative notion of the normal, space standards should be able to accommodate changes and set the conditions for typical activities of daily life while also providing flexibility and adaptability for unpredictable changes. On the other hand, Teige's mini-max dwelling concept offers valuable insights for the production of space standards, since it distinguishes between a biological-ergonometric minimum and a minimum of vital order—one capable of ensuring the basic conditions for the development of life itself. Facing the challenge of minimum housing means seeking a delicate balance between aspects of housing efficiency—addressing quantitative problems such as minimum sizes and affordability must be considered—and the essential aspects of comfort, ultimately aiming at the strategic organization of the domestic space.

Based on the above, this article proposes three design dimensions through which it is possible to unfold the concepts of "the normal" and "the minimum dwelling." The first one is the dwelling program, as standardized homes are often understood just as a reduced version of a large, conventional house, resulting in the over-accumulation of functions within a space that essentially only requires an elementary configuration. Furthermore, the dwelling program is often associated with outdated societal ideas, exemplified by conventional and biased design approaches like the one proposed by Henry Roberts, which no longer align with today's diverse social dynamics and family compositions. The second design dimension is that of the user. This centers around typical activities and routines that emerge from the idealization of lifestyles, which translates into the standardization—and often simplification—of individual demands. This is a process that ultimately results in the absolute quantification of the dwelling unit. Earlier examples of this approach were initially the user stereotypes proposed by CIAM II and the Housing Manuals in the UK, and much later the appearance of the problem of accessibility, which intensified the dimensional regulation of the dwelling space. The third and last proposed dimension is size. Through spatial abundance, the problems that come with the definition of "users" and the subsequent prediction of activities seem to appear to be resolved, allowing not only the meeting of spatial demands but also the accommodation of unpredictable changes. This approach promotes new forms of socialization and facilitates access to comfort through technology. This idea, however, contradicts the very concept of minimum housing, as is evident in the case of the standards proposed by the Parker Morris committee.

Rather than privileging one design dimension over the others, what is proposed here is a more strategic approach to the implementation of space standards that incorporates architectural design strategies, particularly by using the concept of flexibility. This approach allows for the reconciliation of the concepts of "the normal" and "the minimum dwelling," thus combining issues of spatial efficiency (quantitative) with versatility and adaptability of uses (qualitative). However, the proposed idea of flexibility should not be understood as another form of functionalism that requires high levels of technical control for the absolute orchestration of spaces, furniture, and activities at home. Instead, flexibility should be addressed as a strategic design problem, and not as a standard in itself, balancing spaces subject to high standardization (hard spaces) and functionally indeterminate spaces (soft spaces). This approach allows adaptability to today's demands, including accommodating diverse activities and changing household compositions, and supports different lifestyles.

Acknowledgments

This work was supported by the Arts and Humanities Research Council, United Kingdom, as part of the project "Housing Standardisation: The Architecture of Regulations and Design Standards" (Project Reference AH/W003198/1).

Conflict of Interests

The author declares no conflict of interests.

References

Appolloni, L., & D'Alessandro, D. (2021). Housing spaces in nine European countries: A comparison of dimensional requirements. *International Journal of Environmental Research and Public Health*, *18*(8), Article 4278.

Aureli, P., & Giudici, M. (2016). Familiar horror: Toward a critique of domestic space. *Log*, *38*(3), 105–129.

Boyd, G. (2015). Parker Morris and the economies of the Fordist house. In S. Kite, M. McVicar, & J. Odgers (Eds.), *Economy and architecture* (pp. 38–48). Routledge.

Çaki, F. (2022). Family projections after Covid-19: A turning point? *İMGELEM*, *6*(10), 1–20.

Canguilhem, G. (1991). *The normal and the pathological*. Zone Books.

Carmona, M., Gallent, N., & Sarkar, R. (2010). *Space standards: The benefits*. University College London.

Chanon, B. (2017, August 21). Space standards are pricing many out of home ownership. *Architects' Journal*. https://www.architectsjournal.co.uk/news/opinion/space-standards-are-pricing-many-out-of-home-ownership

Forty, A. (2000). *Words and buildings: A vocabulary of modern architecture*. Thames & Hudson.

Giudici, M. (2018). Counter-planning from the kitchen: For a feminist critique of type. *The Journal of Architecture*, *23*(7/8), 1203–1229.

Great Britain, & Ministry of Housing and Local Government. (1953). *Houses 1953: Third supplement to the Housing Manual 1949*. H. M. S. O.

Great Britain, & Ministry of Housing and Local Government. (1961). *Homes for today and tomorrow*. H. M. S. O.

Great Britain, Ministry of Health, & Ministry of Works. (1944). *Housing manual, 1944*. H. M. S. O.

Great Britain, Ministry of Health, & Ministry of Works. (1949). *Housing manual, 1949*. H. M. S. O.

Habinteg Housing Association. (2011). *Lifetime homes design guide*. BRE Press.

Housing Corporation. (1983). *Design and contract criteria*.

Imrie, R. (2003). Housing quality and the provision of accessible homes. *Housing Studies*, *18*(3), 387–408.

Jacoby, S., Arancibia, A., & Alonso, L. (2022). Space standards and housing design: Typological experimentation in England and Chile. *The Journal of Architecture*, *27*(1), 94–126.

Madeddu, M., Gallent, N., & Mace, A. (2015). Space in new homes: Delivering functionality and liveability through regulation or design innovation? *The Town Planning Review*, *86*(1), 73–95.

May, E., Giedion, S., Gropius, W., Le Corbusier, Jeanerette, P., Bourgeoise, V., & Schmidt, H. (1930). *Die Wohnung für das Existenzminimum*. Verlag Englert & Schlosse.

Mayor of London. (2010). *London housing design guide*. Palestra.

Ministerio de Vivienda y Urbanismo de Chile. (2017). *Cuadro normativo y tabla de espacios y usos mínimos para el mobiliario: Para proyectos del Fondo Solidario de Elección de Vivienda regulado por el D.S. N° 49*.

Mumford, E. (2000). *The CIAM discourse on urbanism, 1928–1960*. MIT Press.

Noble, J. (1982). *Activities and spaces, dimensional data for housing design*. The Architectural Press.

Park, J. (2017). *One hundred years of housing space standards: What now?* RIBA.

Roberts, H. (1867). *The dwellings of the labouring classes: Their arrangement and construction, with the essentials of a healthy dwelling*. Society for Improving the Condition of the Labouring Classes.

Teige, K. (2002). *Minimum dwelling: The housing crisis, housing reform*. MIT Press.

Till, J. (2008, September 23). *Soft space* [Paper presentation]. RIBA Research Symposium 2008: Space at Home, London, UK.

Till, J., & Schneider, T. (2005). Flexible housing: The means to the end. *Architectural Research Quarterly*, *9*(3/4), 287–296.

About the Author

Alvaro Arancibia is an architect from the Pontificia Universidad Católica de Chile, holding an MPhil in urban design and a PhD in architectural design, both from the Architectural Association. His practice and research focus on issues of collective housing and urban design, particularly in the context of Santiago de Chile. As a researcher, he was awarded with the "AA Graduate Prize for Research: Outstanding Work 2015–2016" for his doctoral thesis. Since 2022, he has been working as a co-investigator for the project "Housing Standardisation: The Architecture of Regulations and Design Standards," funded by the AHRC (UK) and developed jointly by the Royal College of Art and the Pontificia Universidad Católica de Chile. Through his architectural practice, he has won several housing competitions organized by the Ministry of Housing (Chile), notable among them being the "Mirador Laguna" project, to be completed in 2024. Both Alvaro's design proposals and written works have been internationally published and presented at universities in Chile, the UK, and Mexico.