DOI: 10.12838/fam/issn2039-0491/n59-2022/878

Giovanna Ramaccini

Minimum drawing, maximum dwelling
Existenzminimum forms between drawing and design

Abstract
The trouble of the passage from the immediacy of the ideative drawing to the exactness of the executive drawing is particularly evident in the cases in which the realization of the project foresees the definition of standards, possibly to reproduce in series. In this sense, with specific reference to architectural design, the theme of *existenzminimum* assumes special importance. The human needs are broken down into limited main functions, distinguishing "typical parts" recognized by precise codes of representation and recomposable in various spatial configurations that meet the needs of economy, modularity and flexibility. Drawing assumes a central role in this framework as a means of verifying the achievement of optimal performance.

Keywords
Domestic interior — *Existenzminimum* — Flexibility — Architecture — Representation

Introduction

«Aldo Rossi had a totally different way of dealing with technicians from what we had experienced up until then: he made sketches, then presented them and waited for the technicians to make all the observations and corrections [...] so much so that one day my uncle said to him, in his gruff way: 'But architect, can't you bring us executive drawings instead of these sketches from which you can't understand anything?' That was the only time I saw Rossi angry» (Alessi 2016, p. 76). The anecdote, which concerns the stormy incipit of what would later turn out to be the successful partnership between Aldo Rossi and the design company Alessi, exemplifies the need to adopt a codified language when communicating an idea, even when the interlocutor concerned is a notorious expert. The difficulty of the transition from the immediacy of the conceptual drawing to the accuracy of the working drawing is particularly evident in cases where the execution of the project involves the definition of standards, possibly to be reproduced in series. In this regard, with specific reference to the architectural project, the theme of *existenzminimum* takes on particular importance, where the dwelling, understood as the favoured place to guarantee high quality standards and to respond to the needs of its inhabitants, is conceived as a *machine à habiter* in which the reduced dimensions of the spaces are combined with high functionality characteristics. At the international level, the concept of *existenzminimum* was sanctioned by the *II Congrès International d'Architecture Moderne* –CIAM – held between 24 and 27 October 1929 in Frankfurt am Main (*Die wohnung fur das existenzminimum* 1979). The congress, curated by Ernst May together with Mart Stam, sees some of the main protagonists of modern European architecture

take part in the theoretical debate, aimed at defining a minimum housing standard for the urban population.

Professor Dr. Water Gropius from Berlin was entrusted with the general summary «The Sociological Assumptions of Minimum Housing». Victor Bourgeois from Brussels and Pierre Jeanneret from Paris dealt in detail with the issue of housing for the minimum standard of living. Bourgeois started with the physical fundamentals and Pierre Jeanneret – replacing Le Corbusier who was in America – mainly indicated the possibilities of realisation. Finally, Hans Schmidt, from Basel, gave a talk on the important topic «Minimum Housing and Building Regulations» in which he showed how the current building regulations, with their rigid characteristics, do not at all prevent an effective housing solution for the minimum standard of living. (Aymonino 1976, p. 96).

Starting from the principles illustrated by Ernst May in his introductory contribution, the minimum housing standard is interpreted in both quantitative and qualitative terms, taking into account the biological and sociological conditions aimed at satisfying the material and spiritual needs of the inhabitants, with specific reference to mass housing (Aymonino 1976, p. 100). Within the different types of houses studied in the 1920s, the one intended for the working class was the one most investigated by architects, as it allowed them to express more strongly the ideas of rationality applied to interiors, such as order, simplicity and economy. (Savorra 2019). In addition to the theoretical contributions, the CIAM exhibition *Die Wohnun für das Existenzminimum*, co-ordinated by May himself, at which numerous examples of minimal houses were exhibited and subsequently published, is equally important. It is a series of floor plan images of flats located in different parts of the world, which, as intentionally expressed by the participants in the debate, is motivated by the intention to codify the different equipment sizes by introducing an international convention, according to the criteria of industrialisation and Taylorisation – as described by Le Corbusier and Pierre Janneret (Aymonino 1976, pp. 113-123) – and hoping to achieve typological standardisation. After all, the concept of type is insistently sought after with the housing experiments by the Modern Movement: «from the prefabricated town planning of the Bauhaus […] to the numerous experiences related to the construction of *Siedlungen*» (Belloni 2014, p. 33). For the specific purposes of this contribution, one thinks in particular of the studies and experiments by Alexander Klein and the importance they assumed for the development of *existenzminimum* theory.

Minimum drawing, maximum dwelling[1]

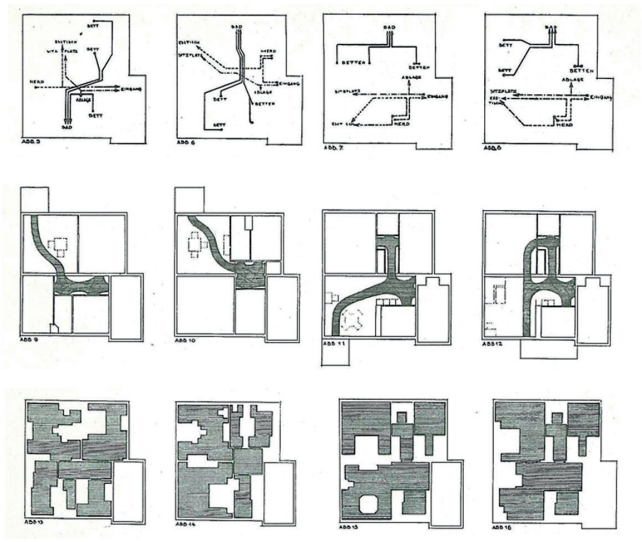
With regard to the specific aims of this contribution, in this part of the text, it is important to stress the value of drawing in research dedicated to *existenzminimum*, highlighting its implications from the design point of view, starting with the studies conducted by Alexander Klein since 1906 (Baffa Rivolta, Rossari 1975). Klein's aim was to provide tools for measuring and verifying optimal performance in terms of the organisation of living space in order to develop a minimum living standard. He developed a comparative method, which can be implemented entirely within the drawing process, because it is based on the comparison of diagrammatic plans that are graphically uniform, thus proposing a taxonomic classification that has its roots in 19th century treatises, in which the transmission

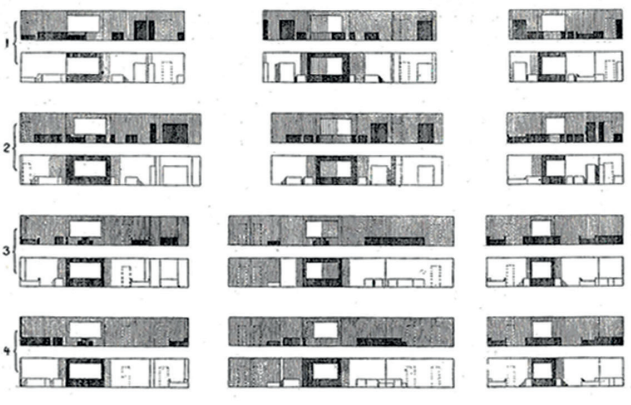
DOI: 10.12838/fam/issn2039-0491/n59-2022/878

Fig. 1
Alexander Klein, Comparison and evaluation of different projects reduced to the same scale (Baffa Rivolta, Rossari 1975, p. 90).

Fig. 2
Alexander Klein, Analysis of paths and free surfaces (Baffa Rivolta, Rossari 1975, p. 94).

Fig. 3
Alexander Klein, Analysis of internal elevations (Baffa Rivolta, Rossari 1975, p. 98).





of knowledge is functional to its practical application – one thinks of the tables in the *Précis* in which, identifying *Convenance* and *Économie* as the two fundamental criteria for design practice, Durand proposes a veritable «reasoned handbook of architectural prototypes that are easy to use in relation to functional needs» (Belloni 2014, p. 30) –, and which will be adopted by subsequent design manuals (Strappa 1995, p. 110) – from the *Manuale dell'architetto* by Mario Ridolfi (1946) to the *Architettura pratica* by Pasquale Carbonara (1954).
The functionalist experience, which finds in Klein one of its greatest exponents, works on the «fine-tuning of part-types of building organisms (staircase, office, bathroom-kitchen, room, classroom, etc.) that [can] once again become instruments of a broader architectural composition» (Aymonino, Aldegheri, Sabini 1985, p. 11). The accommodation is designed on the basis of the identification of three main moments of daily activity in the domestic environment: cooking-eating, living-resting, and washing-sleeping, connected by short, mutually non-interfering steps. The survey method developed by Klein is divided into three stages: proceeding from statistical analysis by means of questionnaires, through the reduction of projects to the same scale, to the graphical method by which «to refine a project meaning to increase the efficiency of the dwelling while maintaining the same surface area or to decrease the surface area while maintaining the efficiency of the dwelling» (Baffa Rivolta, Rossari 1975, p. 93). Although clearly oriented towards identifying the functional and distributive characteristics of buildings, Klein's classification cannot be understood as a mere objective method of evaluating living space. Despite being schematic representations, the mediation value they assume between theoretical elaboration and design realisation is by now well established «[combining] an extraordinary capacity for descriptive synthesis with a great potential for poetic-ideative projection, at the same time establishing the possibility of an authentic scientific dialogue between the words of theory and the things of construction» (Ugo 1986, p. 23). While the graphical method acts as an analytical tool, it also takes on an operational role in the creative process where, by comparison, it attributes a genetic and inventive component to the schematic plan (Ugo 1986, p. 27; Purini 2000, pp. 155-156; Belloni 2014, pp. XXIII-XXV). On the other hand, this is consistent with the context of modern thinking that gives the plan a central value in design at different scales, from architecture to the city, and even involving social issues (Carones 2017, pp. 37-59). Just think of Le Corbusier's exclamation: «The plant is the generating element. So much the worse for the unimaginative!» (1973/2010, p. 35). Against the scientific definition of the standard, Klein introduces a psychological lens.

> We are all aware of the harmful influence of tobacco, alcohol, spices, etc., and we take an interest in these problems; however, only a few of us take an interest in the scientifically proven fact that a favourable environment can have a healthy effect on our mental condition [...]. The accommodation we build for ourselves must be actively and organically related to the living conditions and cultural needs of our time, and it must also meet the necessary demands for greater economy and simplicity; in a word, it must help us in every part and in every respect to make life easier for ourselves while maintaining our physical and spiritual energy. (Baffa Rivolta, Rossari 1975, p. 77)

Besides clear distribution criteria, in fact, the adoption of simple forms in construction, layout and furnishing are considered fundamental to guaranteeing calm, rest and recuperation of the energy consumed during work. From this perspective, it is interesting to note how the attention paid to the intimate dimension of living is confirmed in representations exclusively aimed at interior spaces. The plan diagrams of the dwellings are associated with their interior elevations in order to assess the spatial quality perceived by the inhabitants. Thus, window surfaces – sources of light and ventilation – the arrangement of furniture along the walls, shaded areas as well as free surfaces are shown. So, in order to guarantee as free circulation spaces as possible and to avoid «a useless waste of physical strength, generated by the continuous need to accelerate and slow down one's pace and repeatedly rotate the body» (p. 95), the new dwelling calls for the need for storage units built into the walls rather than bulky furniture set against the walls, leading to the integration of furniture into the architectural space and thus to a standardisation of furnishings based on the criteria of modularity, versatility and componibility (Forino 2019, pp. 193-195; Nys 2020). As perceived by Le Corbusier and Pierre Jeannert in the design of the *casiers standard* of 1924 or by Adolf Loos in his writing programmatically titled *The abolition of furniture*, also dated 1924, where the author emphasises the future dissolution of mobile furniture because it is expected to be absorbed by the wall.

> The walls of a house belong to the architect. There he rules at will. As with the walls so with any furniture that is not moveable, such as built-in cupboards and so forth. They are part of the wall, and do not lead the independent life of ostentatious unmodern cabinets. (Loos 1972/2014, p. 324)

Moving on to introduce the evolution of the *existenzminimum* in the contemporary era (Irace 2008), it is exactly from the reference to the element of the wall, by definition the boundary between interior and exterior space, that it seems necessary to focus on an aspect that has only been treated implicitly so far. Although associated with an increase in the level of equipment and performance, the reduction of surfaces in living space entails an articulated and complex conception of housing, which inevitably takes into account a relationship with the outside world (Baffa Rivolta, Rossari 1975, pp. 36-37), both from a functional and an emotional point of view. One thinks of Ugo La Pietra's far-sighted Telematic House (1972), conceived as a micro-architecture with a triangular cross-section, in which communication with the outside world takes place through virtual connections mediated by equipment such as the "Ciceronelettronico" and the "Videocomunicatore". Or think of the more recent Diogene project, by RPBW (2011-2013), conceived as a perfect *machine à habiter*, standardised and in the forefront of technology, in which the relationship with the outside world is ensured by a vertical cut, of humanistic memory, "in contact" with the sky (Ottolini 2010, pp. 17-31).

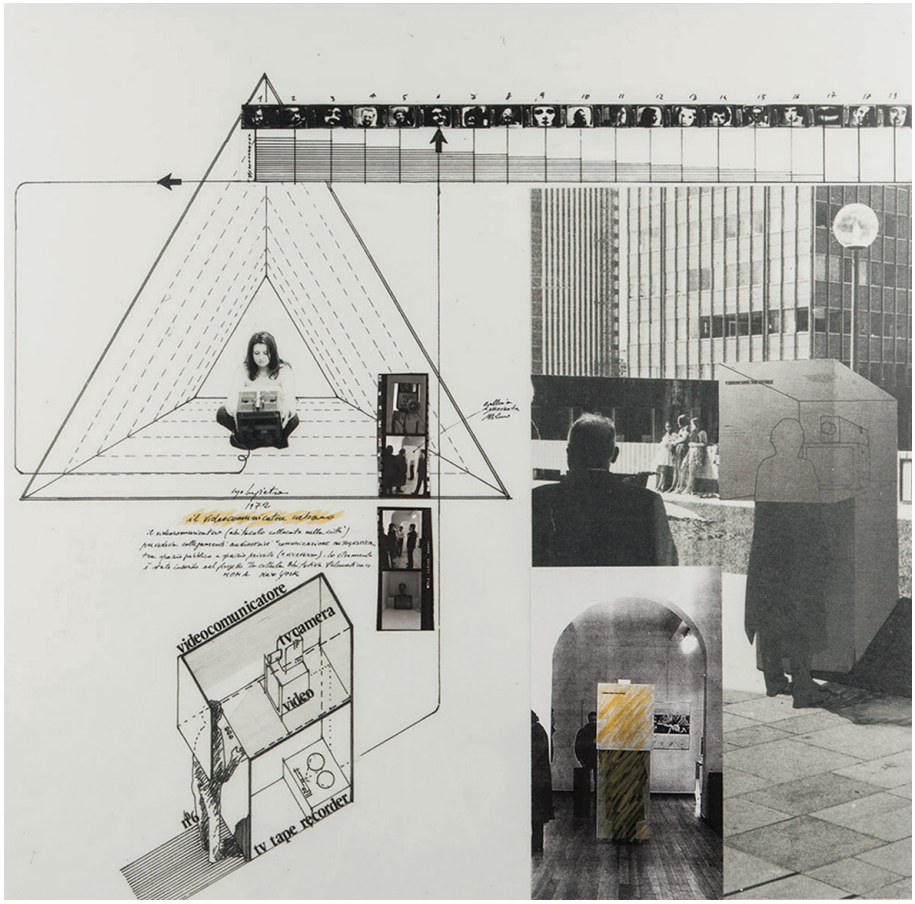
Conclusions

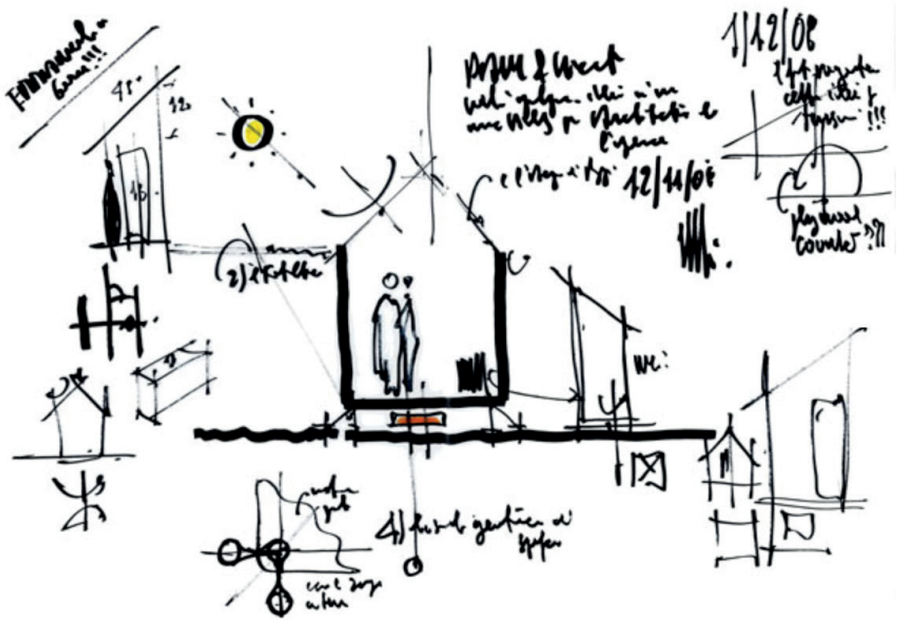
Turning to the conclusions, it is only right to dwell on how the advent of the Covid-19 pandemic has highlighted the need to live in adaptable and flexible homes, whose interiors can be modified and reconfigured easily and with light intervention (Bassanelli 2020; Molinari 2020). A need even more exasperated in conditions of minimal living space. Although

DOI: 10.12838/fam/issn2039-0491/n59-2022/878

Fig. 4
Ugo La Pietra, «Casa telematica», 1975.

Fig. 5
RPBW, «Diogene», 2008.





DOI: 10.12838/fam/issn2039-0491/n59-2022/878

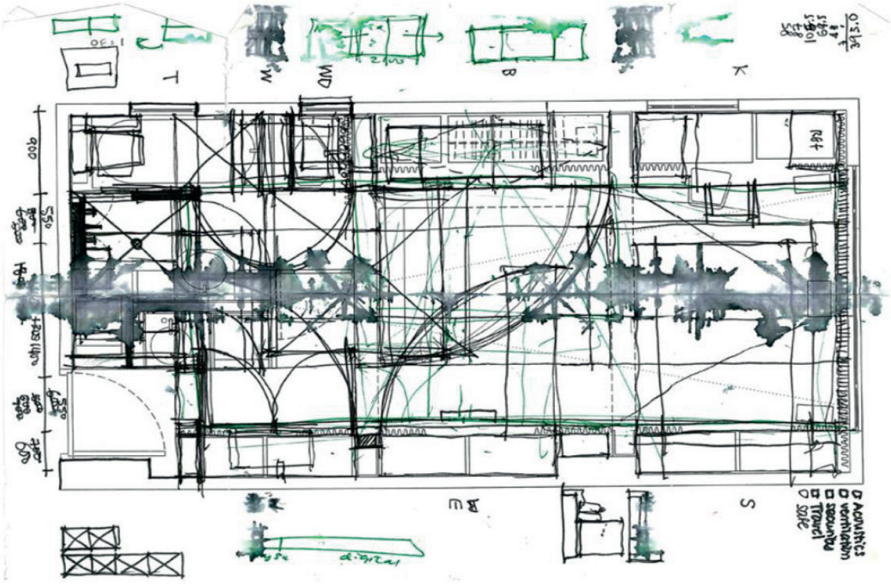


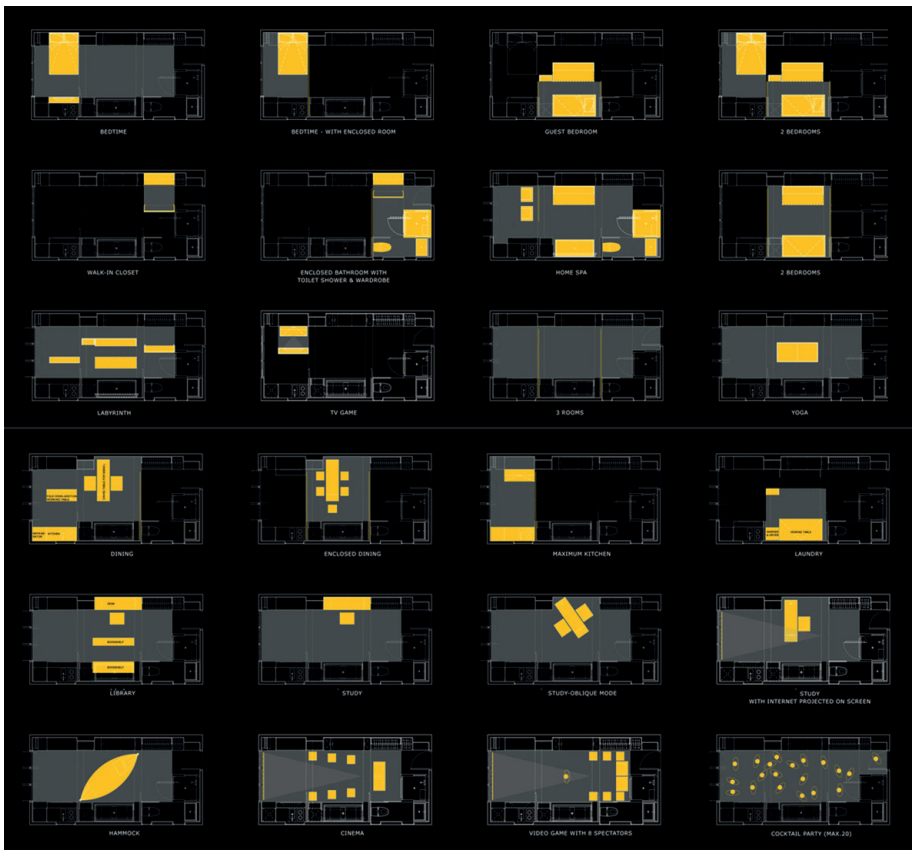
Fig. 6
Gary Chang, «32 m2 Apartment», design studies.

Fig. 7
Gary Chang, «32 m2 Apartment», patterns of different spatial configurations.

it preceded the emergence of the health emergency, the experience of the Japanese architect Gary Chang is exemplary in this respect (Chang 2012). Over a period of thirty years, from 1976 to 2006, the designer transformed the 32 square metres of his home into twenty-four different distribution solutions, each time varying in response to changing personal conditions, conceiving architecture as a device capable of adapting to change. If, on the one hand, the idea is represented through plan sketches in which annotations and afterthoughts are stratified, certainly functional to the development of thought and probably sufficient for the relative communication – given the specific coincidence between designer and client – on the other hand, the author develops plan diagrams, addressed to an external public, entrusting the drawing with a gesture of registration and documentation aimed at bearing witness to a situation that is planned but changeable, because it is in continuous evolution. Once again, as in the case of Klein's diagrammatic representations, the abacus of plants drawn up by Chang is not an abstract scheme, but rather the instrument for the slow and progressive definition of minimal forms, maximally adapted to life.

DOI: 10.12838/fam/issn2039-0491/n59-2022/878

Fig. 8
Gary Chang, «32 m2 Apartment», progetto.



Notes

1 The title of the paragraph, as well as that of the entire article, is intentionally referred to Karel Teige's work *The minimum dwelling* (1932/2002). Although the text differs in its treatment from the topics of the present contribution, it is an indispensable reference for the literature relating to the reflection on the subject of minimum housing that affects the international debate of the early 20th century.

References

ALESSI A. (2016) – *La fabbrica dei sogni. Alessi dal 1921*. Rizzoli, Milan.

AYMONINO C. (edited by) (1976) – *L'abitazione razionale*. Marsilio, Padova.

AYMONINO C., ALDEGHERI C., SABINI M. (1985) – *Per un'idea di città la ricerca del Gruppo architettura a Venezia (1968-1974)*. Cluva, Venice.

BAFFA RIVOLTA M., ROSSARI A. (edited by) (1975) – *Alexander Klein. Lo studio delle piante e la progettazione degli spazi negli alloggi minimi. Scritti e progetti dal 1906 al 1957*. Gabriele Mazzotta, Milan.

BASSANELLI M. (edited by) (2020) – *Covid-Home. Luoghi e modi dell'abitare, dalla pandemia in poi*. LetteraVentidue, Siracusa.

BELLONI F. (2014) – *Ora questo tipo è perduto. Tipo architettura città*. Accademia University Press, Torino.

IRACE F. (edited by) (2008) – *Casa per tutti. Abitare la città globale*. Triennale Electa, Milan.

CHANG G. (2012) – *My 32 m2 apartment. A 30-year transformation*. MCCM creations, Hong-Kong.

Die Wohnung fur das Existenzminimum: Chateau de La Sarraz, 25-29 Juni, 1928. C.I.A.M.: congrès internationaux d'architecture moderne (1979). Kraus, Nendeln

FORINO I. (2019) – *La cucina. Storia culturale di un luogo domestico*. Einaudi, Turin.

LE CORBUSIER, CERRI P., NICOLIN P. (edited by) (1973/2010) – *Verso un'architettura*. Longanesi, Milan.

LOOS A. (1972/2014) – *Parole nel vuoto*. Adelphi, Milan.

MOLINARI L. (2020) – *Le case che saremo*. Nottetempo, Milan.

NYS R. (2020) – "Fare architettura. La prefabbricazioni / Making architecture. Prefabrication". Domus, 1047, 66-73.

OTTOLINI G. (edited by) (2010) – *La Stanza*. Silvana Editoriale, Milan.

PURINI F. (2000) – *Comporre l'architettura*. Laterza, Bari.

SAVORRA M. (2019) – "La casa razionale". In: F. Irace (edited by), *Storie d'interni. L'architettura dello spazio domestico moderno*. Carocci, Rome.

STRAPPA G. (1995) – *Unità dell'organismo architettonico. Note sulla formazione e trasformazione dei caratteri degli edifici*. Dedalo, Bari.

TEIGE K. (2002) – *The minimum dwelling*. MIT Press, Cambridge. (Prima edizione 1932).

UGO V. (1986) – "Schema". XY, Dimensioni del disegno, 321/86, 21-32.

Giovanna Ramaccini (Spoleto 1987) is an architect. She graduated in Building engineering and architecture at the University of Perugia, attended the international PhD programme in Civil and Environmental Engineering and in May 2018 she obtained her PhD degree. She is currently a researcher in "Interior and Exhibit Design" in the Department of Civil and Environmental Engineering at the University of Perugia, where she teaches "Shelter Housing" as part of the master's degree course in Planet Life Design and "Food visual merchandising" as part of the degree course in Design. Her main areas of research focus on the issue of housing, with particular reference to fragile individuals.