Designing Kitchens for Small Domestic Spaces

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Abstract. The role of kitchen area in the house environment has been changing over the course of history. The changes concerned the share of kitchen space in apartment functional structure, as well as the course of everyday chores. Currently, as well as in the past, kitchen areas remain placed either in separate rooms, or they constitute a part of a bigger space (usually the living room). At present, two characteristic domestic kitchen models are preferred: "laboratory" and multi-functional (with a dining room). The space limitations, especially in multi-family housing, favored the "laboratory" kitchen model, or so-called partial kitchens in living rooms. Technical progress enabled creating various types of small kitchen areas, which are adjusted to diverse needs of users, according to their lifestyle.

Kitchen areas are crucial places for completing various household chores. Among everyday duties performed in the kitchen there are: preparing meals, doing the washing up and cleaning up. Those chores frequently are technologically complicated activities. In order to perform them more efficiently, household members use various devices and home appliances. Conducting of chores, storing the appliances and food products etc., requires a vast share of the apartment structure. Providing sufficiently big maneuver and storage spaces is particularly difficult in small kitchens. Shortages in available space may have a negative influence on, among others, the correct layout of working space or ease of movement in small kitchens.

The following paper concentrates on the evolution and examples of types of small kitchens, as well as selected rules concerning the improvement of conditions of their arrangements.

1 Introduction

Throughout the centuries, preparing of meals has constituted one of the main house-related activities. However, the role of household chores, preparing of meals, and kitchens themselves have significantly changed with time. Initially "the kitchen space" was limited only to the space near the fire. With time it took up the space of a dedicated room, where other, even profit-making, household chores were performed. Another factor which constitutes kitchen's quality and looks is the way of heat treating of dishes. Furnaces with open of closed fire, and gas and electric "cold stoves" determined forms of kitchen space. Formerly, the process of storing and processing of food produce rarely took place in one room. Storing of food supplies and firewood, water access and waste disposal required using of other rooms of the house, even areas outside the housing building.

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With time people aimed at clear distinction between areas concerning household chores and leisure. However, it was not until 20th century when a fully monofunctional kitchen model was devised, which combined all the functions connected with preparation of meals. The complexity of kitchen-related chores also led to a spatial distinction of zones used for performance of particular activities using properly chosen and placed equipment.

Preparation and consumption of meals at home formerly took place in "the kitchen area" in the broad sense of the term, or, in wealthy households, also in the adjoining room – dining room. Such a term is justified, as assigning a monofunctional "kitchen" with a full usage program is a solution which has been commonly used only for a couple dozens of years. In such a space, despite typical activities connected with preparation of meals, various household chores (mainly cleaning activities) are also performed. Contemporary kitchens usually are not only the center of household chores, but also the place of family bonding, studying and spending free time with family and friends. However, it is difficult to carry out those activities in small, monofunctional kitchens.

2 Separation of the Kitchen Area in Former Houses

The central place which formerly designated the living and, in particular, kitchen area was the hearth with an open fire. Fire was necessary to maintain comfortable conditions in households (rooms heating function), as well as to process food produce (heat treating) into easily assimilated and warming meals. Together with gasification and electrification the form of the heating medium has changed. Traditional flame was replaced by invisible thermal radiation transferred directly into the dishes. Using of stoves with closed hearth and central heating enabled separation of rooms used exclusively to prepare meals – monofunctional kitchens. Division of flats into separate spaces – chambers and rooms (also with an assigned kitchen) was an effect of successive improvement of life standards and living conditions.

3 Beginnings of the "Laboratory" Kitchen Model

Various economic and social changes took place after the World War I. Among common phenomena of that time one can distinguish: a proceeding decline of big families, emancipation and employment of women, ceasing of using services of domestic workers, etc. Those tendencies influenced social relations, as well as forms of residence. The contemporary need for housing initiated new trends in design. The demands concerning the improvement of housing conditions were formulated mainly by lower social classes, for whom cheap housing with a higher standard than previously was planned to be built. In Europe the idea of tenement housing was abandoned for the sake of social housing.

Withdrawing from the model of household with servants required a different perception of the functional and spatial program of apartments. Maintaining spacious houses with separate utility rooms (kitchens, pantries, laundry rooms), as well as rooms for servants was no longer possible. The household chores were started to be performed

single-handedly and an interest in smaller houses and apartments without chore rooms increased. Simultaneously, mechanization and automatization of chores adapted to the housing environment gained importance. Those developments were introduced thanks to the advancements of industrial productions. However, the aforementioned processes were undertaken mainly in industrialized regions and countries.

Functional construction layouts of buildings created in 1920s were transformed into considerably small apartments, however with both kitchens and bathrooms in standard. Moreover, the aesthetic experiences connected with decorative details were replaced by the superiority of practical needs. That is why the expression "housing machines" gained popularity, as it described the living space as a place of fulfilling only specific utilitarian needs. This expression also resulted from introduction of unification and prefabricated elements in the housing industry.

Designing of modern housing ("housing machines") was based on, among others, the analysis of everyday needs of residents and graphic diagrams determining the traffic patterns between the zones in a test kitchen during performing of the most important chores. Separation of kitchen from other parts of the house was justified by hygienic and health considerations [1]. The reduction of traffic patterns led to certain limitations, especially in the kitchen, where a complex course of activities requires multiple changing of places. Those theoretical considerations were merely a formal justification of needed savings, resulting from the unfavorable economic situation, together with a big shortage of housing and poor sanitary conditions in cities.

It is at that time when the new program of building new housing estates in Frankfurt called "*Das neue Frankfurt*" (The New Frankfurt) was commenced. In the project the model of "laboratory", also known as "Frankfurt", kitchen was proposed. The author of this project was an architect from Vienna, Margarete Schütte-Lihotzky, who, in 1926, designed a kitchen on the area of 6.5 m^2. Her idea was inspired, among others, by the works of Ch. Frederick, an American home economist and household reformer [2].

The size and proportions of the "Frankfurt" kitchen, as well as the galley shape layout, enabled to considerably reduce the distance between the appliances. The measurements of the kitchen amounted to 187 × 344 cm [3]. It had a functional connection with the hall and it was directly adjoined to the living room. Prefabricated elements and standard kitchen furniture was fitted to it. The furniture was manufactured and then assembled inside the room. Due to a careful workmanship, the countertop was smooth and with invisible technological connections. This created a possibility of uninterrupted performing of chores in any place of the countertop and an ease of maintaining it clean. Another new features in the "Frankfurt kitchen" was lack of movable furniture (including the traditional kitchen cabinets) and a dining table. The furniture was fixed permanently to walls. An addition to the furniture, there was a gas stove and a sink with running water. The maneuver space was limited to the minimum. Using of a particular kitchen required just a turn, or taking a few steps to the side. The technology of work was an overriding criterion deciding on the way of particular arrangement of furniture, however the functional and aesthetical variants were not planned.

It was assumed that the kitchen chores would be performed by one person. Therefore the kitchen was an effect of implementation of rules of technical improvement and functionality of the equipment. Specialization of housewives concerning the kitchen chores aimed at reflecting the organization of work in the gastronomic industry,

as it was a popular belief that those activities are a waste of time and an excessive overload, which need to be performed as quickly as possible [3]. In a prototype "Frankfurt kitchen" both the traversed distance, and the time spent on performing the activities was measured. It was estimated that the distance traversed while performing the chores in kitchens of the old type amounted to 19 meters, while in the kitchen designed according to the Frankfurt model it was only 6 meters [4]. It was also noticed that some distances require to be traversed several times, for instance, from the cabinet with kitchenware to the stove, or from the sink to the cabinet with dinnerware. That is why the aforementioned functional segments became adjacent, in order to minimalize the walking distance and the number of unnecessary manual activities.

The comparison of the distance covered while working in a traditional and new kitchen was only seemingly a decisive factor in the introduction of the features of small "Frankfurt kitchen", since the role of the dining area adjacent to the working zone was not included. Appreciating the close placement of dining table, stove and sink in old, traditional rural and bourgeois kitchens, M. Schütte–Lihotzky postulated placement of the table in the living room, in the distance not longer than 3 meters from the kitchen working area [2]. The arrangement of furniture and appliances in "Frankfurt kitchen", in accordance with technological manner of preparing meals can be considered as influential in relation to older, often randomly designed multifunctional kitchens with traditional tables used for consumption of meals.

The placement of wall cabinets and standing cabinets, as well as characteristic aluminum storage scoops was also carefully thought through. The technological requirements of the work space and reach dimensions of users in various working positions were also considered. The project envisioned performing of activities along the walls in a standing position and next to the window, in a sitting position (Fig. 1).

A narrow room with a simple traffic pattern and parallel functional working zones enabled only one person to work. Therefore the working areas were placed in accordance with the technological course and order of performing chores. Such an arrangement enabled to shorten the distance covered during performing the activities. However, strictly systematized arrangement of chores resulted in boredom. The routine

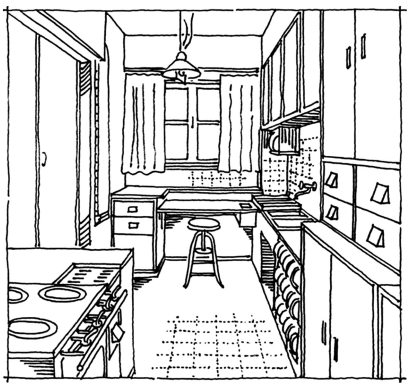

Fig. 1. "Frankfurt kitchen" with furniture fixed to walls and a countertop under the window.

and alienation in the kitchen were deepened by a lack of a multifunctional table, where all the members of family could gather.

The "laboratory" character of the "Frankfurt kitchen" and latter mini-kitchens lead to ceasing of the traditional role of this room – integration of household members. Kitchens became only places of "service" in relation to other parts of the house (the living room in particular). Despite achieved improvements, and both investment-related (financial) and functional limitations in apartments built at that time, the majority of society preferred bigger multifunctional kitchens. Users demanded for kitchens and rooms to be big enough, so that they could individually furnish them and, above all, assign an area for meals consumption [5]. Nevertheless, the "Frankfurt kitchen", and, in a broader understanding, the "laboratory kitchen" with an ordered layout, became a model kitchen design for the following decades, especially in multi-family housing.

4 Popularization of Small Kitchens in Housing Development

Resignation from the services of domestic workers enforced having just one person managing the household. Those changes were particularly dynamic in the USA. Therefore, typical kitchens from 1920s and 1930s were small, and had a "laboratory" character. Frequently they had built-in closets with many doors and drawers, coal and gas stoves, or coal and electric stoves. Among other appliances which became gradually more popular there were: refrigerators, sinks with a dish drainer shelf, waste burning heaters, and smaller household appliances [6], [7]. The models of "laboratory" kitchens equipped with the newest appliances were mainly popularized. While multifunctional and open kitchens were built in bigger detached houses.

The technical and furniture equipment had a better ergonomic quality and characteristic visual features, such as streamlined shapes. It is then, when the term "Streamline Kitchen" gained popularity. Using of streamlined shapes in household appliances was inspired by the contemporary aviation and motorization. Such forms were considered as a visual synonym of speed, efficiency, as well as mechanization of household [8]. The term *streamline* did not refer only to the shapes, but also to ensuring of the continuity and fluency of performed activities [9]. Although kitchens were assembled from the prefabricated elements, various layouts were available, as wall to wall fitted furniture enabled creating an in-line and galley shape layouts in "L" and "U" shapes, etc. [10].

5 Domestic Kitchens After the World War II

The economic and social changes after the World War II contributed to equalization of the status of households. This, in turn, led to a considerable unification of forms and qualities of housing. As a result, average standard of newly built housing was improved. A higher technological standard, mainly of kitchens and bathrooms, became more accessible, despite the wealth of their users.

The economic considerations and significance of class-less societies decided on an averaged standard space of apartments. The savings and cutbacks usually affected the

space of kitchens and bathrooms. That is why they were usually the smallest of all rooms. Providing the installations (mainly waterworks and sewage system) resulted in a higher technical standard of housing. Apartments built in 1950s and 1960s were not very spacious. That is why, the functional program was limited to the basic needs. Placement of functional zones was strictly prearranged, and the space and proportions of rooms excluded a possibility of any flexibility in the interior design. The measurements of kitchens at that time amounted to 4–6 m^2. They were joined together with bathrooms creating a "wet functional block". A serious disadvantage of this solution was, among others, a small surface, resulting in both functional and social consequences. The size of traffic and maneuver space, as well as work space enabled only one person (usually a woman) to work in the kitchen. The participation of other household members, and resulting from it integration of the family, was strongly hindered [11]. Also the consumption of meals could only take place in the living room.

Because of financial reasons, the concepts of multifunctional kitchens were rejected in favor of the "laboratory model", which was sometimes joined with the living room (which usually served also as a bedroom). Another consequence of this solution was a spatial separation of kitchen and dining zone, and moving the dining area to the living room [12]. The reverse of this trend took place only in 1970s, when the model of multifunctional kitchen gained popularity at the expense of the "laboratory model" [13]. This change did not result from returning to the old family structure and the role of the "housewife" who did not have gainful employment. The reason for it was perceived in the possibility of activation of other members of family, by delegating to them certain chores, such as laying the table. In the sample arrangements one of the crucial features was a comfortable work flow, by, among others, installing countertops in between the main work hubs. The rule of the "work triangle" (refrigerator – sink – stove) was gaining popularity at that time, which coincided with popularization of various technological and kitchen appliances, in particular: washing machines, refrigerators, dishwashers, etc.

The size of an average kitchen in post-war multi-family housing was similar to the "Frankfurt kitchen". The "laboratory model" of kitchen, which was strongly popularized and realized until the end of 1960s, still did not gain a considerable recognition. The need of having a dining area was important, even at the expense of correct arrangement of the working area and comfort of work. The division into separate rooms resulted in doubling of the dining area, which was placed both in the kitchen and in the living room (Fig. 2).

1970s was the time of an increase in welfare of societies. Focusing the manufacturing on production of consumption goods favored the improvement of technical standards and

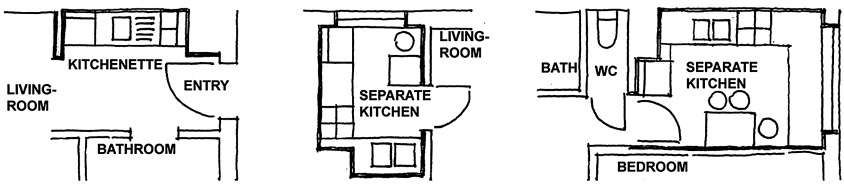

Fig. 2. Sample layouts of small kitchens (often with faulty arrangements of the working area equipment).

sizes of apartments. It applied mainly to the kitchen areas, where most of the household chores were performed. Popularization of mechanical devices led to a change in approach to household and kitchen chores. A common use of food processors, dishwashers, microwaves, washing machines, electric irons, etc. resulted in reduction of the most laborious and unpleasant activities. A return to a traditional role of the kitchen, and considering joint preparing and consuming of meals as a means to integrate the members of the family, commenced a withdrawal from the "laboratory" model, in which the kitchen was an area isolated from the rest of the household. Big multifunctional kitchens, became open, and connected with the living room, which was an expression of practical quality of the apartment [11]. This trend was more visible in wealthier, capitalist countries. At this time, in the socialist countries, there were still struggles concerning the insufficiency of housing and various socio-economical limitations. The preferred model of housing was still large-panel buildings with rigid functional layouts. Small apartments, out of necessity, still contained kitchens designed according to the "laboratory" model. Short layouts usually contained not enough work space and storage room.

The layout of work zones with cabinets along the walls creates a necessity of working facing the wall, with the back to the room. Separation of kitchen from the rest of apartment with walls additionally strengthens the isolation of a person preforming the kitchen chores from other activities and members of the household. This issue was first discussed at the beginning of 1980s by a German designer Otl Aicher, who in his book "*A kitchen for cooking*" (*Die Küche zum Kochen*) postulated that kitchen chores be should also considered as "social and communicative activities" [14]. His books commenced a process of changes in functional and social approach towards kitchen chores. The author criticized the previous model of performing chores at the module work space, which relied on routine preparation of meals (mainly from ready-made frozen products and canned food) and the fact that the person who was cooking was facing the wall [14].

A new functionality was the location of main countertop in the middle of the room, in a form of an island with an openwork shelf for the most necessary accessories. Therefore the person who was working was "in the center of events" and could maintain visual contact with other members of the household [14]. Otl Aicher perceived preparing of meals as an important part of home life, also in the social context, particularly concerning the development of interpersonal ties. This new idea also aimed at including guests in the process of meal preparation.

The island layouts may be used on relatively big spaces. They can be also recommended in small kitchens opened into a living room. Such a layout may lead to considerable savings of space (Fig. 3).

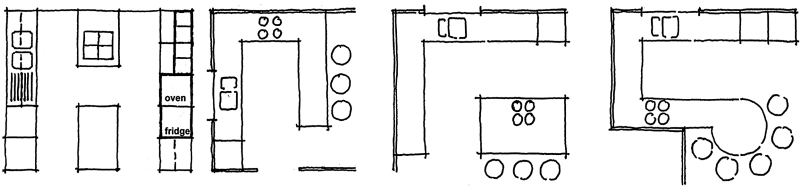

Fig. 3. Outline of a multifunctional island kitchen according to O. Aicher and a small laboratory kitchen with an island opening into a living room.

"Laboratory kitchens" are mainly dedicated to young and single people and those who spend the majority of day outside home (at work), who also often use food services. The traditional kitchen model with a dining area is recommended to families with children, as well as people having a particular lifestyle (for instance those who entertain their guests with a joint preparation of meals). As a result, kitchens again started to serve various functions of daily activities of household members.

The diversity of offered furniture systems and household appliances influenced the popularity of the open kitchen model, as the kitchen area is often a part of living room. This solution led to creation of impression of a spacious room, together with reducing the traffic zones. Those concepts are particularly popular in smaller flats. Stylistic merging of the zones became possible, nevertheless opening of kitchens required a disconnection of gas system installation in the apartments.

6 Measures of Small Kitchen Design

The functional and spatial program of kitchen includes all the functions connected with feeding of householders and their guests, furniture equipment, as well as appliances used for preparation and consumption of meals. The equipment aims at enabling an effective and well-balanced work, together with reduction of needed time and effort, in accordance with users' needs. The functional and spatial program of kitchen depends on the following factors:

- location of kitchen in the house structure;
- proportions of the room and the kitchen area;
- possible layout and length of the work zone;
- number of household members;
- lifestyle, diet and personal preferences.

Other factors which influence the kitchen layout are features connected with traits of the members of household (relatedness, age, relations between members of different generations, education, social and work status, lifestyle, preferences, diets etc.). That is why, especially in the monofunctional kitchens (covering small spaces), it is necessary to fulfill accompanying functions in other parts of the apartment, such as: spending time together, taking care of children, learning and playing and performing household chores not related with preparation of meals (e.g. cleaning, ironing).

Efficient preparation of meals, cleaning works, making stocks, etc. requires appropriate arrangement of space. It is especially vital in small kitchens, whose space is mainly taken by the furniture and mechanical devices. There are various organizational and architectural factors which can contribute to making the kitchen chores more efficient. Among the organizational factors one can distinguish:

- doing shopping more often (possibility of reduction of space needed for making stocks);
- purchasing of partially processed products (ground coffee, juice, frozen foods, etc.) and reducing the number of additional kitchen appliances;
- purchasing of ready-made products (sauces, stewed fruit, jams, etc.) and meals (pizza, soups, risotto, and ready-to-cook foods, etc.) sold in bulk, in jars, cans or frozen;

- using of multifunctional kitchen appliances (e.g. food processors, pressure cookers, microwave ovens).
- The architectural factors are as follows:
- appropriate layout of the working area;
- right choice and arrangement of particular elements of furnishings (furniture, equipment and kitchen appliances);
- minimalization of the length and avoiding of crossing of traffic patterns;
- ensuring of optimum microclimate conditions (temperature and humidity of air, natural and artificial lighting, proper ventilation, etc.);
- elimination of possibilities of accidents (tripping, spilling, falling, burns, cuts, etc.).

A well-balanced placement of the most often used equipment enables to limit the necessity of working in uncomfortable positions, such as: kneeling or squatting. While a proper placement of furniture and appliances may lead to a reduction of time of work and covered distance.

Modern kitchen furniture systems enable to match the equipment precisely to the size of the kitchen area, as well as to the size and movement abilities of its user. It is accomplished by the choice of cabinets and work surfaces with specific height, depth and width. It is also possible to arrange the equipment according to individual needs of users (placing of refrigerator, stove etc. in any part of the working zone and on individually chosen height) despite the location of installation connections.

The situation of the doorway in the kitchen has a big influence on a well-balanced arrangement of this room. Its edge should be placed minimally 60-65 cm from the corner of the room. In case of a smaller distance, the placement of the countertop or kitchen cabinets with a depth of 60 cm is impossible, and a narrow unused space covered up with a door and with limited traffic pattern possibilities is created. Increasing the space to 70 cm enables placement of tall cabinets, as well as installation of a light switch (Fig. 4).

The minimal assumed width of the kitchen doorway, amounting to 80 cm (in case of people with disabilities who use wheelchairs – 90 cm) can be considered as sufficient in order to provide a free traffic pattern, even while carrying big trays and bags. However, for preventive reasons (the possibility of health deterioration of the household members), and in order to increase the comfort and meaning of the kitchen in the housing structure, it is

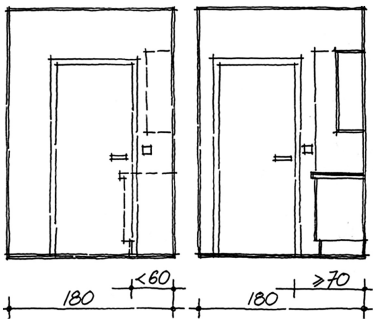

Fig. 4. Narrow and recommended space between the door and the corner of the room.

recommended to use unified, extended width of the doorway, amounting to 90 cm. Nevertheless, the number of doors in the kitchen area should be limited to the minimum. The door to the hallway (the entry and traffic zone of apartment) and a potential door to the living room (the dining area) may be considered as sufficient. Meeting the demand concerning the extension of doorway might therefore result in the necessity of increasing the traffic area in the apartment, especially in the hallway.

The window should provide a sufficient amount of day light for both working zone, and the whole room. Windows may have one or multiple panes, however, big glass surfaces are more difficult to open and clean, and, after opening, they take up a lot of space. The most convenient are double casement windows, with a possibility of full or ajar opening. However, an ajar window does not allow to quickly and effectively air the room. A wide opened window should not block often used cabinets or force to move tableware from the countertops.

The height of window sill should create a possibility of installing cabinets and countertop underneath it, and it should be 85-110 cm (e.g. "L" or "U" shaped). In this case it is recommended to connect the sill and countertop into one element on the same level. The window sills built in multi-family housing, with the height of 85 cm practically hinder the possibility of installing higher worktops adjusted to the standing work of taller people. If the sink is placed under the window, it is advised for the opening window to be installed approximately 30 cm higher, because of, i.a., sink standing taps. Therefore, the opening of windows should not be constricted by furniture or placed on it equipment, appliances and tableware.

Both standing and wall cabinets are usually installed up to the corner of the external wall. They should not block the window opening (Fig. 5). Therefore the window should be in a distance of at least 40–45 cm from the corner of the room (assuming that, at the same time, the window sill is above, or on the same level as the countertop). In many apartments window openings take up the whole wall of the room. Then, wall cabinets are moved away from the window, creating an unused corner; the space gained in that way still prevents from a full opening of the window. Resulting in difficulties in cleaning of the window from the outside.

As a result of putting the countertop in front of the window (which is the case in all kitchen layouts except one wall kitchen and galley layout), it is difficult to reach the

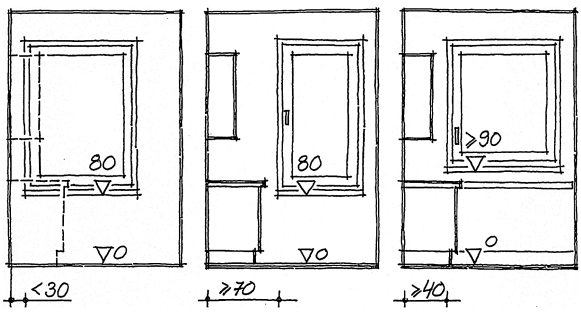

Fig. 5. The influence of the size of the window proportion on the possibility of moving the work zone to the external wall.

window handle. That is why it is advised to install it lower, so that it is easier to grip from behind the countertop under the sill.

7 Summary

Kitchen plays a special role in every household. It is a place for preparing meals, but also of creating culinary art and feasting. That is why designing a kitchen is not only a technical process considering potential changes and technological improvements. The design should encompass the philosophy of life of its users, as well as a possibility of changes of their lifestyle and social relations.

Throughout the centuries, the role of kitchen in social and spatial structure of house has been reflecting the attitude towards work. Although kitchen has been the center of home activity for a long time, it did not use to have a representative role. It was often spatially and functionally isolated from the rest of the house. Thanks to the scientific rationalization of housework and considerable savings of space in the first half of 20th century, kitchens were considered as "service" areas in comparison with the leisure areas of the house. What is more, the social recognition of housework declined together with the emancipation of women and their work activation.

Introduction of a small kitchen in a "laboratory" model, requires a detailed planning of the kitchen activities. The equipment should be well chosen and installed in appropriate places. However, in most cases the work zones are placed intuitively, without the analysis of courses of activities. This leads to functional errors, and, in a result, to extension of the way traversed during everyday chores.

Small kitchens usually enable only one person to work inside. Because of their separation from the rest of apartment, the kitchen chores are isolated from other household activities. Moreover, kitchen is viewed only as a monofunctional secondary room, which cannot be used to integrate the household members. Therefore, other common needs of house-dwellers are to be met in different rooms.

The current view of preparation of meals as a pastime, opportunity to relax and means to entertain guests changed the rank of kitchen in the house structure. Nowadays, in many houses kitchens became prestigious areas, alongside with the living rooms. As a result, they are even considered to be "kitchen rooms". Prospective achievement of such a value by small kitchens requires both functional and spatial connection of them with adjacent rooms (living rooms).

References

1. Petsch, J.: Eigenheim und gute Stube Zur Geschichte des bürgerlichen Wohnens, vol. 154. DuMont Buchverlag, Köln (1989)
2. Kähler, G.: Geschichte des Wohnens 1918–1945 Reform, Reaktion, pp. 219–277. Zerstörung. Deutsche Verlags-Anstalt, Stuttgart (1996)
3. Spechtenhauser, K.: Die Küche: Lebenswelt, Nutzung, Perspektiven. Birkhäuser Verlag, Basel (2006)
4. Andritzky, M.: Oikos Von der Feuerstelle zur Mikrowelle Haushalt und Wohnen im Wandel, pp. 104–105. Anabas Verlag, Giessen (2000)

5. Beer, I.: Architektur für den Alltag Von sozialen und frauenorientierten Anspruch der Siedlungsarchitektur der zwanziger Jahre, vol. 125. Schelzky & Jeep, Berlin (1994)
6. Carlisle, N.: America's Kitchen, vol. 123. Historic New England, Boston (2008)
7. Plante, E.: The American Kitchen: 1700 to the PresentFrom Hearth to Highrise, pp. 225–229. Facts on File Inc., New York (1995)
8. Giedion, S.: Die Herrschaft der Mechanisierung, pp. 655–659. Ein Beitrag zur anonymen Geschichte. Europäische Verlagsanstalt, Hamburg (1994)
9. Lupton, E.: The Bathroom, the Kitchen and the Aesthetics of Waste, p. 65. Princeton Architectural Press, New York (1996)
10. Malnar, J.M.: The Interior Dimension: A Theoretical Approach to Enclosed Space, p. 215. Van Nostrand Reinhold, New York (1992)
11. Flagge, I.: Geschichte des Wohnens. Von 1945 bis heute. Aufbau – Neubau – Umbau, pp. 755–761. Deutsche Verlags-Anstalt, Stuttgart (1999)
12. Weresch, K.: Wohnungsbau im Wandel der Wohnzivilisierung und Genderverhältnisse, p. 131. Dölling und Galitz Verlag, Hamburg (2005)
13. Wenz-Gahler, I.: Die Küche, p. 282. Rohwolt Taschenbuch Verlag, Reinbeck, Lernbereich Wohnen (1979)
14. Aicher, O.: Küche zum Kochen. Das Ende einer Architekturdoktrin, pp. 40, 45, 57. Callwey Verlag, München (1982)