

A Study on Receipt Caused by Spatial Transformation of Kitchen Space in Apartment Housing

Lee-Seoung Choi^{†1} and Hyung-Woo Kim²

ABSTRACT

The recent concept of kitchen is likely defined as “Kitchen Culture” including the function of living room where all families make a conversation as well as a dinner, and it is becoming another type of the residential environment, deviating from the stereotype as only cooking area. Particularly the comfortableness of living room is closely associated with a receipt function of kitchen, and the sort & dimension & size of furniture and diversity of shapes play a more meaningful role for improving our life standard & comfortableness compared with the past, nevertheless this receipt study is carelessly handled in the first phase of construction. This Study is focusing on understanding the modern concept of kitchen where the open space concept is being introduced as more reasonable space concept, and on suggesting a solution for receipt-function of the modern kitchen concept connected with “L-D-K (Living room – Dining room- Kitchen)” space idea. In the Chapter 2 the concept of receipt and function of kitchen, the wide variety of kitchen utensils was checked up, and in the Chapter 3 the change of trends of kitchen area & receipt space was considered, and finally in the Chapter 4 the modern concept of kitchen was presented, by instancing overseas examples with receipt planning. As a consequence, the alternative of the receipt in the modern kitchen is to install an Ireland table or another type of receipt-available table (lower furniture) in the dead space between kitchen & living room for motivating smooth communication and convenient receipt, and that is the trend nowadays. Kitchen desires a rapid change. Through this kind of study it should be more researched that kitchen is not an independent space any more and lies in the mutual connection of L-D-K.

Key words: Apartment kitchen, kitchen space, receipt.

INTRODUCTION

Purpose & Meaning of Study

The big change of manner of living in the apartment houses has brought diverse life style from a sit-down to a stand-up living. In the modern time, not only the stand-up living style, also different needs & desires to advance the life standard are increasing on the basis of the economical growth and cultural development. Kitchen especially lies in the center of such changes. The concept of kitchen today becomes a living space and ‘Kitchen Culture’. The open kitchen is being extending it’s meaning & function by taking charge of daily meal of family and furthermore playing a role as

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1) Hong Ik University Graduate School of Department of Architectural Engineering, Seoul, Korea.

2) Division of Architectural Engineering, Professor, Hong Ik University, Seoul, Korea.

† Corresponding author: Lee-Seoung Choi (Email: newart@iansan.net).

place where families come together & make their hobby, or as a role of a conversation place between the man & wife and/or neighbors. Along the economical growth and cultural development, residents wish themselves the in quality advanced life, not a simple life, and apartments need to be oriented to not simply divided space, but to space-concept with the reasonable thinking accordingly. In particular, the more complicated manner of life compared with the past demands a receipt function dependent on sorts, dimensions and diversity of shapes of furniture to feel comfortable. Besides receipt spaces in living room nowadays are being decreased for the reason of comfortableness. The apartment houses recently, however, show a tendency to the quantitative growth and ostentatious space construction, overlooking receipt function, and therefore residents have been constantly complained about the lack of receipt space and L-D-K(Living room – Dining room- Kitchen) mutual connection. This study hereupon is willing to understand the modern concept of kitchen introducing open space concept as a more reasonable space concept, and recognize a receipt function of kitchen as a space connected mutually with living room, and suggest a solution for this receipt function.

Scope and Method of study

The concept of kitchen in modern time is actually not distinguished from a living room, but mutually associated with it. As an alternative of a receipt function resulted from a simplification of living room life a connection with kitchen is thinkable. The kitchen constructed in apartment house has been selected as a main object of study and irrespective of floor space the changing process of recognition about receipt function has been surveyed. For that in the Chapter 2, the concept of receipt and the function of kitchen, and kinds of kitchen utensils have been considered on the basis of information from the Korea Housing Corporation, the preceding thesis, & websites, and in the Chapter3 the changing of kitchen- & receipt space according to the times studied, and finally in the Chapter 4 the modern concept of kitchen presented per receipt plans and examples from overseas, to suggest another possibility of receipt in modern concept of kitchen.

GENERAL FUNCTION OF RECEIPT AND KITCHEN

Concept of Receipt

A receipt means our action to put different objects necessary for life in some place and such spaces for the action. If the objects therefore would not be matched with the placed space, without any connection between objects & place, it could cause a big chaos and waste of time & mental stress. The planned residential environment (L-D-K) sets objects & tools according to space naturally, and installs the ideal space for the personal household products in case of need and puts the right item in right place, so it increases the convenience & comfortableness of our life. Namely, a receipt makes the comfortableness of residential environment increase in accordance with L-D-K mutual connection (Suh 2001). A receipt in kitchen is no exception to this rule, and it is necessary to systemize a firm purpose to put articles in kitchen. A receipt does not mean a simple removal of the articles, but means that they have to be put in right place orderly according to user's activity & purpose, without any damage of their nature and function. Such receipt function is a tactic to enrich our life activities and a concept to make our living in order (Cho 2000). Therefore rationality and functionality have to be first considered and be in harmony with the interior space. Furthermore, the dimension(size) and type, weight, way of receipt and frequency of use of the being placed article need to be allowed too. Besides this the probable change in near future flexibly has to be considered. The modern concept of kitchen is including any circulation of users and their mental situation, because it's open concept is applied to the relation between kitchen & living room, and also dining & kitchen.

Function of Kitchen

The terminology first of all are diverse e.g. kitchen and cookery etc, and all meanings are a little different. Namely, “Buak” brings up the image of the Korean-styled conventional type where there is an iron pot on the fireplace, but “Kitchen” written in Chinese character of “Buak” reminds on the contrary of the modern room (kitchen) meaning a cooking room. In comparison, cookery suggests a community kitchen belonging to any organization or group, but these 3 terms have all same meaning from the viewpoint of cooking rice & preparing meals (<http://100.naver.com/100.nhn?docid=78430>). In this thesis the term “Kitchen” in modern meaning has been taken as a general terminology. The function of kitchen are roughly classified in operation-function, receipt-function and emotionality, and operation-function includes a rational layout of kitchen furniture for cooking, preparation and clean up after meals, appropriate space, convenient circulation for carry-in & out of the food, proper temperature & humidity, water supply, ventilation and lighting system for pleasant working condition. Receipt-function is understood as a storage of grocery and receipt of articles of food, and it has to be planned for convenient usage in consideration of the frequency of use and kinds of article and for maximum use as large as possible. Next emotionality helps for homemaker not to feel isolated during working house affairs, by caring baby, coaching the study of children and inviting friends & neighbors (The Korea Housing Corporation 1987). Since a long time kitchen has been changed into a space for all family members, not only for housewife any more. Partition of kitchen and living room disappears and ireland-table is installed which offers a view of the living room from working space, and sofa & bar etc. are showed up in kitchen area, particularly the Irish-styled kitchen has more various functions (<http://kr.blog.yahoo.com/leicht2006/363>).

Kinds of Kitchen Utensil

Kitchen utensil can be grouped in 4 section roughly, namely in preparation-, cooking-, hand- and table- ware. Also kitchen utensil depends differentially on a size of a family, age, family members, life style, life standard, occupation of housewife, monthly income, type & size of house and living habit, and moreover kitchen utensils are being expanding with the concept of modern kitchen. The classification of kitchen utensil is generally available according to a site of installation, size etc., and it depends on each standpoint. Kinds of basic kitchen utensils are showed in the following table that has been researched by Bok-Ja Yoon and more 5 persons in 1988, and in the other side electric appliances with modern concept and built-in typed refrigerator for Kimchi(Koreanstyle cabbage pickle) & for side dish, drying machine for dishcloth & kitchen board, electric cook top, built-in wash machine, water purifier and coffee maker etc. have brought remarkable changes in kitchen utensil. Besides more articles need to be understood as kitchen utensil in consideration of the connected relation of kitchen with a living room.

Table 1. Classification of kitchen utensil

Classification	Article
Electric appliance	Refrigerator, gas oven range, gas range, wash machine, dish dryer
Electric fitting	Cutter, hand mixer, blender, juicer, coffee grinder, micro oven, coffee maker, coffee pot, frying pan, oven, toaster, rice cooker, grill, spice grinder, yoghurt maker, dish sterilizer, medical herb boiler

Knife	Kitchen knife, iron knife, fruit knife, bread knife, meat chopper, portable knife, peel off knife(potato), fruit punch knife, kitchen scissor, chef's knife, grater, egg slicer, nutcracker, knife sharper, pallet knife
Cooking utensil	Measuring cup, scoop, filter, drainer, shredder, wicker tray, basket, dipper, whipping, long chopstick, fork, spoon, opener, can opener, funnel, spatula, cork opener, mini juicer, kitchen hammer, wooden board, plastic board, board for fruit, mixing bowl, garlic chopper, coffee filter, kitchen scale, spice container, measuring spoon, brush & bamboo mat, long brush for bottle, mini mortar, timer, rubber spatula, ice cream scoop, turner
Bakery ware	Square pan, savarin mold, baking pan, biscuit pan, cookie pan, roller, ice mold, pudding mold, muffin mold, pie pan, jelly pan, cake pan, pizza cutter
Heating device	Pot with one handle including lid & excluding lid, pot with 2 handle, big & deep pot, steam mold, steamer, pressure cooker, frying pan

CHANGE OF THE TIMES IN KITCHEN SPACE AND RECEIPT SPACE

Change of the times in Kitchen Space

Kitchen prior to the 1970s was the traditional type of residence, 'Hanok' based on underfloor heating system and kitchen & the main living room were connected, and around a cooking fireplace there was an interior space of kitchen where only cooking function was executed. Under this condition kitchen carried out a functional aspects of cooking & heating of house, but had not any function as a public place. After this the apartment house has been distributed and housing supply with the extension of 'nuclear family' has been actively underway. Living room has become a central of the residential environment, and kitchen as well had functionality as a space around family more and more, since a stand-up typed kitchen had been introduced. The 1970s is a starting point when the kitchen includes any public space, and cooking & heating have been separated. In the 1980s the functionality of outside space of house and finishing material of construction have been improved due to the development of apartment house in great scale, multiplex housing supply and betterment of life standard, and this has become a basis for kitchen to be a more functional space where a esthetic aspect as well as color & design of kitchen furniture and circulation have made more functionalities. Meanwhile in the 1990s residence culture has been newly considered along the development of skyscraper & new town, and kitchen hereupon became a center of family and it's space has become more designable and it's function as a public space has been stressed according to the life style of user, and furthermore it has become a systematized multifunctional space equipped with diverse electric appliances in built-in form. The concept of residence in the 2000s influenced by an appearance of the residential & commercial complex (hotel concept) and luxury apartment has been extending into the intelligent system kitchen for human-centered plan, multifunctional kitchen, new style of meal preparation & cooking, diverse way of meal, size of human body, worktable according to the kind of the receipt article, different height of shelf etc. so diversely, and kitchen at this point of time remains not only for house wife, also for all families by carrying out all main function of L-D-K multi-functionally.

Change of the times in Receipt Space

In the late of 1950s the new type of the stand-up styled residential environment has come into our living and this has become the starting point of the stand-up style of kitchen, too. In this phase

there was not a receipt space separately, but just partitions having only dividing function, and the entrance door to kitchen. In the 1960s when the first phase of apartment as residential environment “Mapo-Appartment” was the starting point and inside of that there was a warehouse for briquettes as heating fuel, and such warehouse has existed up to the middle of 1970s and changed into the multipurpose room of nowadays (Yoon 1998). After the 1970s household goods have been increased due to the change of social life style, economical come- back and supply of cultural facilities.

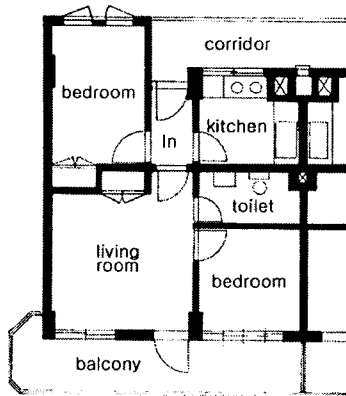


Fig.1. Mapo-Appartment 39.7m².

(provided by The Korea Housing Corporation)



Fig.2 Interior of Mapo-Appmt.

For a convenient residential environment the receipt furniture of built-in style has been increasingly demanded, but the remodeling percentage of receipt furniture in apartment has showed 22~32% and therefore the question of functionality & design of receipt furniture at that time has been risen. Kitchen and dinging room particularly are space having strong needs to make a receipt of cooking utensils & grocery, and almost every family has toughly complained about the lacks of receipt space inside of apartment (Kwon 2001). What is more, the multipurpose room of the 1970s has been used for a washing room as well as for a warehouse. In other words, a receipt and circulation of action become necessary, considering any partial receipt need for e.g. rough washing. Hereupon L-D-K system obtains a necessity for a receipt of the modern kitchen space.

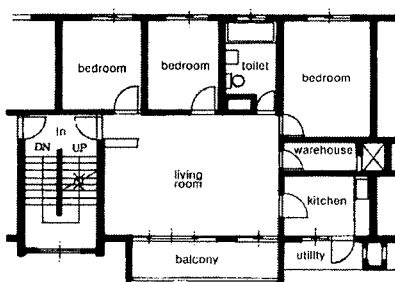


Fig. 3 Han River Apt. 89.3m².

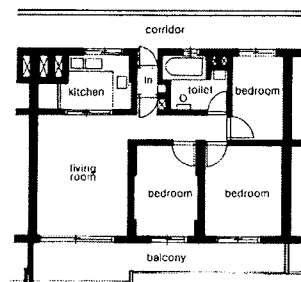


Fig. 4 Jamsil High-rise Apt. 76m².

Taking a look at the ground plan of the Han-River Apartment constructed in Aug. 1970, we can see that the between kitchen & multipurpose room has been positively utilized and in result

more household goods could be placed in multipurpose room and the warehouse for a receipt function also placed inside of apartment. In the ground plan of Jamsil Apartment, however, constructed in 1976 when the modern high-rise apartment has been tried for the first time, a living room-centered design has been showed and the plan between receipt space & circulation of activity is insufficient (Fig. 3 and 4).

While the middle-rise apartment was in the 1970s in vogue to spread the apartment culture, the 1980s was the period of the development & commercialization of high-rise apartment, in order to raise the coefficient of utilization of ground (The Korea Housing Corporation 1992). Inside of apartment of this phase there was a warehouse for the exclusive use of receipt in case of the small-sized apartment, and in the 1990s a low case goods have been placed in the living room so that electric appliance could be laid on that, and besides diverse furniture has been introduced for a receipt function. In large-sized apartment in other side the warehouse for receipt function has been planed inside of kitchen, and furniture like cupboard etc. introduced & utilized positively (Cho 2000).

Table 2. Different Way of Receipt in Kitchen

Researcher	Year	Factor of Receipt way
Sung-Cho, Il-Jin Kim	1981	According to purpose of the goods / placing as near as possible to site of use / Efficient use of receipt space / saving a installation cost/considering of flexibility of space
Joo-Hyun Lee	1985	According to frequency of use / life circle / user
Sekisui	1988	Quantity of goods / life style / shape / location
Bok-Ja Yoon, Soon Ji	1994	Work space by human's physical limit / rational arrangement of work tables / Efficient ordering of receipt furniture
Bok-Ja Yoon	1998	Visibility / convenience of approach / flexibility / maintenance
Soo-Kyung Cho	2000	According to life circle / frequency of use / user

The changes of the times in receipt space have showed that the recognition about the receipt was spread up to the early or middle of the 1970s, after that however the commercial goal of apartment has been reflected in it's planning, and in result the receipt space has been decreased due to the living room as a center of this commercial purpose to let apartment look wider. even though personal articles and kitchen utensils have been increased on the contrary(Pls. refer Table 2&3).

Table 3. Receipt Space & Component Ratio according to Period

		1945~ 1961	1962~ 1966	1967~ 1971	1972~ 1976	1977~ 1981	1982~ 1983
Receipt space	Floor space	0.53	0.5	0.74	1.24	0.62	0.45
	Ratio (%)	3.36	4.41	4.47	6.83	3.3	3.41

The way how user can place the receipt space influences on the comfortableness & efficiency of the house, and it is calculated according to the size of house in one side and according to the ideal space based on each personal use in other side. But receipt space is usually determined by the space

obtained unexpectedly in the course of ground planning, rather than by design intentionally (Kwon 2006). According to the preceding study regarding household chores, housewives work daily 9 hours in average and intemperate consuming electric appliances makes house space limited and it rather obstructs a rationalization of household chores (Yoon 1998). Such result is caused by insufficiency of sense about appropriate quantity of kitchen utensil & their intelligent layout, and if the articles with little frequency of use are placed in convenient location, it also cause unnecessary motion and therefore more working time & tiredness of housewives resulted from the wrong way of receipt. Like this the biggest purpose of receipt lies in the convenient use of the right articles in the right place, not a simple storage of goods.

Table 4. Grouping of Kitchen Utensil

Type of receipt	Detail	Remarks
Arrangement of work table	Work space, receipt location, user's body size, way of receipt (nearest location to use)	Arrangement
Function of receipt furniture	Visibility according to purse of use, availability of approach, maintenance	Way of receipt
Life style	Frequency of use, life style of user, quantity of goods, Form of receipt, articles, flexibility of receipt	Way of receipt

The preceding suggestion about the receipt of kitchen utensil is Table 4(Kwon 2001) is general. The study as to the receipt of kitchen utensils prepared by Kwon showed that the nearest placing to work is the highest ranked with 45.3 % and next easy to carry in & out and the maximum receipt as many as possible have similar grade of the requirement. On the basis of the above mentioned survey the main points of the receipt of kitchen utensil are briefly summarized as follows: 1) intelligent arrangement of worktables / 2) according to the function of the receipt furniture / 3) according to the life style of user. A perfect kitchen should mean not only the interior of kitchen, also it's including place. In other words, it means each zone necessary for the entire process from a receipt function of groceries, through preparation & cooking, to our daily life.

RECEIPT FUNCTION OF KITCHEN AND CHANGE OF MODERN KITCHEN SPACE

Receipt Function according to Arrangement of Worktable

An arrangement of worktables(gas range, kitchen table and sink) depends on the cookerries, and Korean food is usually made by re-cooking process, namely from gas range to the kitchen table back, and therefore preparation table – sink - kitchen table -heating device -pantry in order are recommended (The Korea Housing Corporation 1987). At making an arrangement of article, it is regarded as important that each necessary table ware & utensil are used in which work table fist, not the concept that they only should be arranged visually well, and so they need to be placed in the related receipt furniture in upper- or lower- part, according to function. Especially the article for daily use and for non-daily use, but seasonal use are differently placed in interior space and in service space, multipurpose room respectively and that is the essential for understanding the relation between circulation & L-D-K receipt. From such analysis the connection between worktables and receipt space for more efficient kitchen work is regulated as below in Table 5(Cho 1976). According to the research of the Korea Housing Corporation, gas range in ordinary family is the 2 burner gas

range (99.4 %) and it's dimension is as 600 x 550 x 705 mm (L x W x H) same, most of cooking works is available with this 2 burner gas range.

Table 5. Connection between Work Table and Receipt Space

Service Space	Upper part	Shelf. Radio. cookery book	Shelf. dry food. flour food	Window. Shelf. dishcloth	Shelf. Taste. Spice	Shelf. wall. Pan. hood. range hood	Shelf. table ware. small electric tools.		Dining room
	Work table	Refrigerator. Rice case	Preparation table	Sink	Kitchen-table		Range	Pantry	
	Lower part		Drawer. Office ware	Cleaners Cleaning tools. Trash can	drawer	Small appliance	Oven. pot. kettle	drawer	
		Vegetable. grocery. etc			Spice Kitchen board			Big table ware / little frequency of use	

The recent trend in kitchen is a layout of the Ireland table, despite of in small-sized apartment. Also kitchen is psychologically as well as physically becoming a social space and is connected with the living room as “open” concept and efficiently intended to satisfaction of five senses (Jung 2007) etc. and finally being changed to receipt-friendliness kitchen.

Receipt according to Function of Receipt Furniture

Function of receipt furniture is largely divided in fixed type (independent form constructed as a part of house only for receipt function), removal type (receipt furniture available to remove as the need arises) and the others receipt furniture (except fixed & removal type, different types of receipt space like shelf, box and hanger etc.)(Cho 2000). The necessary condition of the kitchen receipt is that the interior is easy to be looked(visibility) and row by row installation is recommended, if available. The articles with high frequency of use are placed in convenient height(approach) and heavy goods in lower part and the articles with little frequency of use in upper part (convenience). In lower part of the receipt furniture the sliding type of drawer is more convenient than the fixed type. Open receipt furniture without doors, namely shelf is also easy to use. To put articles in nearest place of their use is a good way of the receipt. The height of interior of the furniture need to be adjusted according to the requirement (adjustment), and the receipt space with door is more convenient than the opened type shelf, to keep & prevent articles from dust or insect (maintenance). But placing the articles with high frequency of use outside is convenient and good for environment (Lee 1985). The availability of human physical labor is generally determined by the space size, and worktables are the essential component of kitchen space. According to the information of the Korea Housing Corporation), the cupboard ownership ratio is 44.4 % and it's dimension is 900~1,200 x 300~350 x 1,200 ~2100 mm (L x W x H). Availability of the cupboard is mostly focused on the functional use for receipt of kitchen utensil than on displaying the fine tableware. The location of the cupboard is informed as first in dining room (49.8 %), next in living room (19.4 %) and then in kitchen (12.0 %), and there were some cases in entry hall, main room, and children's room. The

survey showed also that the kitchen utensil placed in cupboard is off-season or not so used frequently and used for only special case, and therefore it makes no problem, if the cupboard would be located in dining room or living room. Furthermore regarding the receipt there is little space inside of kitchen and so user prefer the veranda to keep the rice under the cool & dry condition. This need has been reflected in the late 1990s, because a supplementary kitchen has been offered by extending the veranda space existing in rear side kitchen. The supplementary kitchen has made washing and receipt function available that was executed in multipurpose room or rear veranda earlier, and solved moreover such problem of cooking process with bad smell, and finally contributed to the fresh inside air (Lee 2005). The other survey of the KHC is telling us the households having electric rice cooker at home are 92.2 %, and in case of micro-oven 23.1 % and these ratios are in proportion to the scale of house. Electric rice cooker and micro-oven had not fixed place for the receipt, but the former normally was placed on the work table or on the floor, and the other on the refrigerator or on supplementary receipt table. Like that there are some kitchen articles to be not simply placed, and electric appliance, pot and processed food are the examples. The reason for that is the lack of receipt space and the inappropriate partition on shelf. The height-adjustable shelf and movable partition in drawer (Flexibility) therefore have been considered (Kim 1995). In the modern kitchen mostly Ireland table has been installed for taking the receipt function of living room, and also the receipt in kitchen has been suggested in different ways.

Receipt dependent on user's Life Style

Receipt should be planed according to the member, age, occupation and hobby of family, and the articles with high frequency of use in order of daily, week and year should be placed in nearest site in short-term receipt space, and the other goods in comparison or seasonal articles should be placed in long-terms receipt space (Lee 1985). All household chores, articles and products are classified according to the function. For instance, if a housewife has to pay attention to her little baby all day long, the open-typed kitchen is recommended, or in case that there are many articles, a receipt-oriented kitchen, and a couple working together, a functional-designed kitchen (Lee 2005). The consumption behavior of resident influences the quantity of receipt and it is placed dependent on the form of the goods. The new kitchen culture including refrigerator for Kimchi, electric cook top, wine displayer & cellar, household work and home office etc. has to be applied recently. The recent receipt in kitchen is storage. The tendency is showing that dress room instead of built-in furniture in bedroom, working & closet, and storage receipt in upper & lower part in kitchen furniture or wider & higher furniture are popular (Jung 2007).

Change in modern Kitchen Space

The biggest change in the modern residential environment is showed in kitchen environment along the change of recognition about function of kitchen. Deviating from the conventional idea that kitchen is a place only for cooking meal, it is becoming a public space where all families can take a meal and exchange their conversation. The change of kitchen, e.g. the qualified construction material, systematized stand-up furniture, diversity of kitchen utensil etc. means functional change, too. The open kitchen takes a cooking function of course, but it's function & meaning are expanding up to the area where families unit together and make their hobby, and the man & wife or neighbors can make a conversation. The remarkable points hereupon are the constructional enlargement of space, partition space by space according to each function thanks to independently systemized kitchen furniture etc. Even inside of one space, space partition is efficiently made and each separated space has a meaning.

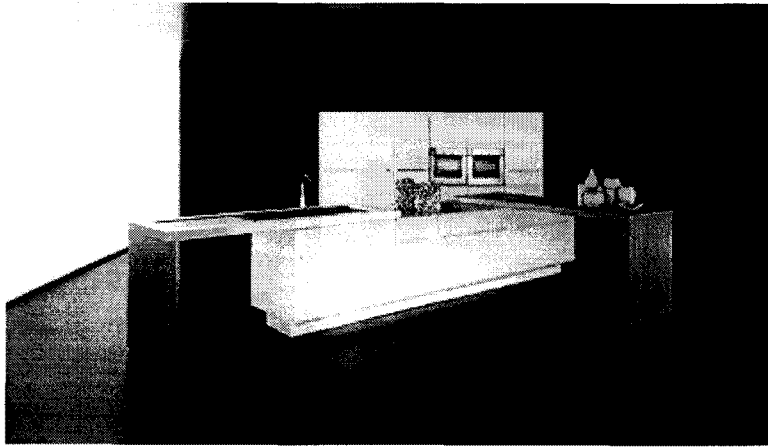


Fig.5. DADA Kitchen.
Dada made by Molteni 1970, advanced Italian furniture company,
Diverse spaces for receipt & oven, 2 doors-refrigerator built-in.

The advancement of details expressing a deep esthetic in use realistically, human-friendly convenient use based on human engineering, and further environment-friendly space construction are standing out. The rational planning of space is now possible thanks to the furniture, and the design for this purpose is a main formative phenomenon. Unit system focusing on different formation according to each purpose, on the basis of module and grid, and assemble function like adding or removing, depending on that the need arises or not, meet successfully the satisfaction of user. That is the concept maximizing the mobility of space by space and the variation of space utilization under the condition that furniture lies independently, deviating from the already installed furniture by the constructional characteristic in time past. In comparison with the past time, one unit furniture satisfy multifunctional purposes at once. A good example hereon is designable care to assist Home Office environment where an office environment during the day is varied to the living room in the evening. Convenience of user is the main concept and for that the mobility of each unit factor should be maximized to meet multifunctional purpose.

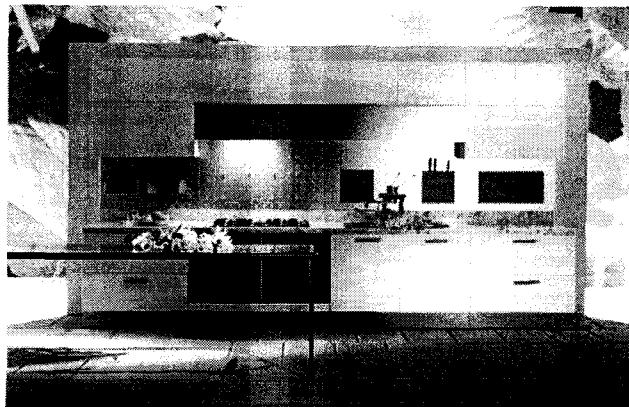


Fig.6. Toncelli.

Toncelli is the kitchen furniture brand made by Fernando Aldo in Italy. Well-Known as considerer of physical characteristic and environment for the customer. Advanced kitchen furniture equipped with built-in wine cellar, espresso machine etc. and it matches with open space well.



Fig.7. Alno Kichen.

Alno is a German masterpiece made in 1920. Having 6 kitchen furniture brands Alno, Pino, Implus etc. according to Home-, Country- and Life-style. Suggesting bountiful and comfortable space based on best quality, stability, function and design. Circulation of preparation, washing, cooking and keeping stands out. Introduction of the drawer-typed receipt furniture and space for keeping of food are particular.

Also in detail factors of kitchen the purpose of use has been positively considered (e.g. introduction of partition in trash can for separate garbage collection), and the material change to the environment-friendly material except PVC component and further the change up into the esthetic factor being able to analyze the psychological factor esthetically per color and texture have been tried (Choi 2008).



Fig.8. SALVARANI.

Established in 1959 Italy / the top-ranked brand in sales, Bar in the corner of Ireland table makes the relation of families close and helps communication by hiding the cooking process.

The concept of receipt in kitchen in case of Leicht (German) is making a new space by attaching the receipt-functional furniture on the wall. This approach by design is showing also a sense of unify between kitchen & living room and representing user esthetically and functionally. Such new space with color makes a living room more wider in terms of the common receipt in living room & in kitchen as well, and kitchen becomes a new space too, because more functional & rational design solution play a role here and a limit between kitchen and living room disappears. (<http://www.leicht.de>).

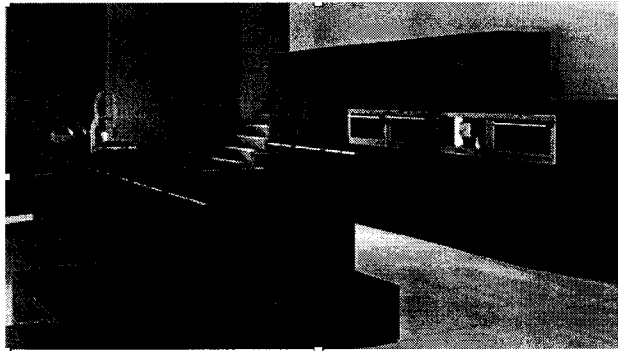


Fig.9. Leicht.

Such changes in kitchen are creating the new life styles and new types of kitchen, and hereby the new trend of the 21st century is being formed. At the same time kitchen is becoming a space being never overlooked by resident. It is the timing that we recognize the receipt function correctly to correspond with the change of kitchen space and to advance our life standard.

CONCLUSIONS

For the kitchen furniture in future the comprehensive, not partly, systemized development and the lay out of the circulation based on the relation between housewife and families, extension of environment-friendly material, built-in furniture and the receipt of electric appliance are necessary. Since kitchen culture has been changing into the advanced multiplex space where all families make conversation, the tendency of the receipt there need to correspond with this change accordingly. Structure of space, question between kitchen & living room, life style of family are influencing different types of the receipt. So, the kitchen furniture should consider of work-flow from preparation, sink, cooking, heating to pantry and also handle the connection with living room important. The types of the receipt furniture in kitchen are roughly classified in fixed type, movable type and the other type, and the efficient way of receipt is to place the kitchen utensil on the upper-and/or lower part of the related receipt furniture, in consideration of which articles belong to which work table and which utensils are used first for cooking etc. Hereupon an application of visibility, approach, convenience, adjustment and maintenance etc. should be considered. Receipt function is the necessary factor for comfortableness and it's rationality & functionality have to be first managed, and be in harmony with interior space in result. Receipt is based on the size, sort, weight and the

way of receipt first of all and then also on the probable change in near future. In other words, the quantitative question and arrangement in receipt space are the essence for the efficient receipt. Also hygiene and working circulation are here required. Finally, the alternative of the receipt in the modern kitchen is to install an Ireland table or another receipt-available table (lower furniture) in a dead space between kitchen & living room for motivating natural communication and convenient receipt, and that is the trend nowadays. Kitchen desires a rapid change. Through this kind of study it should be more researched that kitchen is not an independent space any more and lies in the mutual connection of L-D-K. Furthermore the domestic case also has to be surveyed how the process of receipt in the living room and kitchen furniture have been changing, and in order to make kitchen a common space for refreshment and amusement of family, constant study is urgent.

REFERENCES

- Bokja Yoon and more 5 1998, Current status of household appliance ownership of the Seoul-resident & forecast of demand, Memoir 9 of The Korea Housing Institute, pp 19~89.
- Dongjun Lee 2005, Furniture in my home, 29 Media, p 38.
- Joohee Lee 2005, Study and Requirement of supplementary kitchen in apartment, Master thesis at Ulsan University, p 7.
- Kyehyun Lee 1985, Study about receipt plan in residential environment. Master thesis at Hongik University, pp 32~91.
- Kyusook Suh 2001, Receipt and space construction, Kukje Publishing Co., p 6.
- Kyutae Jung & more 2 2007, Tip to change the apartment under 30 PY floor space, Woogjin Living House Co., pp 85~99.
- Leeseoung Choi 2008, Receipt study of multifunctional room in apartment, Out of collection of the thesis in Architectural Institute 2008, pp 50~51.
- Misung Kwon 2006, Receipt study of entry hall in apartment house, Master thesis at Hanyang University, p 21.
- Myunghee Kwon 2001, Receipt study about eating habit area in apartment, Master thesis at Ulsan University. pp 4~8.
- Sookyung Cho 2000, Receipt study according to floor space of apartment, Master thesis at Joonang University, pp 8~21.
- Soyoung Kim 1995, Study of built-in furniture use in apartment, Master thesis at Yonsei University, p 79.
- Sunggi Cho & more 1 1976, Residence study, DongMyung Publishing Co., p88.
- The Korea Housing Corporation 1978, Study of dimension & space of kitchen and dining room in apartment, pp 14~18.
- The Korea Housing Corporation 1992, 30 years history of the Korea Housing Corporation, p265.
- <http://100.naver.com/100.nhn?docid=78430>
- <http://kr.blog.yahoo.com/leicht2006/363>
- <http://www.leicht.de>