

“Space of Provisions” Contemporary Experimental Reconstruction

Thesis Submitted to

Politecnico di Milano

in partial fulfillment of the requirement

for the degree of

Master of Science

by

Xie Junqing

Thesis Supervisor: Professor Giovanna Piccinno

Jun, 2015

Catalogue

| | |
|---|----|
| 1.1 Concepts defined | 1 |
| 1.1.1 Food: provisions..... | 1 |
| 1.1.2 Space of provisions | 1 |
| 1.2 Related research about “space of provisions” | 2 |
| 1.2.1 Related research in China | 2 |
| 1.2.2 Foreign related research..... | 5 |
| 1.3 Research perspectives | 13 |
| 1.4 The research purpose and meaning | 15 |
| 1.5 The research method and frame structure | 16 |
| 2.1 Life observation record | 17 |
| 2.1.1 Family reunion dinner..... | 17 |
| 2.1.2 Kitchen & Living Room | 18 |
| 2.1.3 Homemade dumplings..... | 19 |
| 2.1.4 McDonald's, The taste of "home" | 20 |
| 2.1.5 Slow food movement..... | 21 |
| 2.1.6 To lose weight..... | 23 |
| 2.1.7 meal replacement powder | 24 |
| 2.1.8 Molecular gastronomy | 25 |
| 2.1.9 Kitchen in the telephone..... | 25 |
| 2.1.10 Rice cooker..... | 26 |
| 2.1.11 Eat like a machine..... | 28 |
| 2.2 Generalizations | 29 |
| 3.1 food production | 31 |
| 3.1.1 Handmade food | 31 |
| 3.1.2 Auxiliary machine processed foods..... | 32 |
| 3.1.3 The standardized mass production of food..... | 34 |
| 3.2 Dietary patterns in social relations | 40 |
| 3.2.1 Build lifestyle dietary patterns: diet..... | 40 |
| 3.2.2 To satisfy physiological needs diet: eating efficiency..... | 42 |
| 3.2.3 Production relationships diet: connection | 42 |

| | | |
|------------------|---|-----------|
| 3.3 | Summary: food space transformation | 45 |
| 3.3.1 | Review..... | 45 |
| 3.3.2 | Space transformation - "food" network building | 47 |
| Chapter 4 | "Space of provisions" experimental refactoring | 51 |
| 4.1 | principle of refactoring | 51 |
| 4.1.1 | The principle of criticism..... | 51 |
| 4.1.2 | The principle of experimental..... | 53 |
| 4.2 | The typical "space of provisions" refactoring | 53 |
| 4.2.1 | space of provisions : "Growing" | 53 |
| 4.2.2 | Space of provisions : "Virtual" | 66 |
| 4.2.3 | Space of provisions: "Figure" | 74 |
| 4.3 | More space of provisions briefly | 87 |
| 4.3.1 | Space of provisions: "cooker"..... | 87 |
| 4.3.2 | Space of provisions: "ceremony"..... | 88 |
| 4.4 | Summary of this chapter | 90 |
| | Reference | 93 |

List of Figure

| | | |
|-------------|---|----|
| Figure 1.1 | American System-Built Houses.Plan of model C3 (1915-17) | 7 |
| Figure 1.2 | Beecher's modern kitchen | 8 |
| Figure 1.3 | A route prepare; B route cleaning | 9 |
| Figure 1.4 | Frankfurt kitchen | 9 |
| Figure 1.5 | Kitchen Satellite | 10 |
| Figure 1.6 | Kitchen Satellite 2 | 10 |
| Figure 1.7 | Nest we grow | 11 |
| Figure 1.8 | Nest we grow - section | 12 |
| Figure 1.9 | Environmental factors | 12 |
| Figure 1.10 | Future Food District Supermarket | 13 |
| Figure 1.11 | Future Food District | 13 |
| Figure 2.1 | Family reunion dinner | 18 |
| Figure 2.2 | Kitchen & Living Room | 19 |
| Figure 2.3 | Dumplings | 20 |
| Figure 2.4 | McDonald's | 21 |
| Figure 2.5 | Slow food movement | 22 |
| Figure 2.6 | diet | 23 |
| Figure 2.7 | Meal replacement powder | 24 |
| Figure 2.8 | Cotton candy and bubble taste of black truffle turnip cake | 25 |
| Figure 2.9 | take away | 26 |
| Figure 2.10 | A lot of Chinese tourists to Japan to buy rice cooker | 27 |
| Figure 2.11 | eat like a machine | 28 |
| Figure 2.12 | Life observe summarize | 30 |
| Figure 3.1 | Cookers, electric appliance in the development of our country (the author custom painting) | 34 |
| Figure 3.2 | Cookers, electrical appliances in China's development | 34 |
| Figure 3.3 | sugar cube | 35 |
| Figure 3.4 | Quantitative food size chart | 36 |
| Figure 3.5 | Food nutrition composition table | 37 |
| Figure 3.6 | Quantitative operation process | 38 |

| | | |
|-------------|---|----|
| Figure 3.7 | Tropon Poster by HENRY CLEMENS VAN DE VELDE..... | 39 |
| Figure 3.8 | “Efficiency” food process | 40 |
| Figure 3.9 | The utilitarian diet..... | 42 |
| Figure 3.10 | Eat with others: three square meals a fixed time | 44 |
| Figure 3.11 | Eat with others 2: holiday meals, people from different locations for an appointment..... | 44 |
| Figure 3.12 | Anhui Wang Zhai (Pic from) | 45 |
| Figure 3.13 | Public Kitchen (pic from) | 46 |
| Figure 3.14 | Integral ambry | 46 |
| Figure 3.15 | Unit - food production..... | 48 |
| Figure 3.16 | Unit - people's dietary patterns in the social relations | 48 |
| Figure 3.17 | Inspection: the phenomenon of life into | 49 |
| Figure 3.18 | Transformation of food space network diagram | 50 |
| Figure 4.1 | Refactoring principle: based on the above summary elements, the combination of a critical..... | 52 |
| Figure 4.2 | "Growth" of export food space network diagram | 55 |
| Figure 4.3 | "Growth" space collage concept sketch of food..... | 56 |
| Figure 4.4 | "Growth" food space axonometric drawing..... | 57 |
| Figure 4.5 | Water system | 58 |
| Figure 4.6 | water cycle principle | 59 |
| Figure 4.7 | Light system..... | 59 |
| Figure 4.8 | air system..... | 60 |
| Figure 4.9 | electric system..... | 60 |
| Figure 4.10 | Plan 500mm | 61 |
| Figure 4.11 | Plan 1500mm..... | 62 |
| Figure 4.12 | Plan 4000mm | 62 |
| Figure 4.13 | Plan 6000mm | 63 |
| Figure 4.14 | Rendering - transport and elevation | 63 |
| Figure 4.15 | Rendering - central..... | 64 |
| Figure 4.16 | Rendering - cooking..... | 64 |
| Figure 4.17 | Rendering - drying and storage..... | 65 |
| Figure 4.18 | elevation..... | 65 |
| Figure 4.19 | elevation 2..... | 66 |
| Figure 4.20 | "Virtual" export food space network diagram | 67 |
| Figure 4.21 | "Virtual" food space collage concept sketch..... | 69 |
| Figure 4.22 | "Virtual" space axonometric drawing of food..... | 70 |
| Figure 4.23 | Space of provisions : "Virtual" | 70 |

| | | |
|-------------|--|----|
| Figure 4.24 | The "server" | 71 |
| Figure 4.25 | "Processor" | 72 |
| Figure 4.26 | "Screen" | 72 |
| Figure 4.27 | "Structure" | 73 |
| Figure 4.28 | electricity | 73 |
| Figure 4.29 | "Figure" of export food space network diagram..... | 74 |
| Figure 4.30 | "figure" food space collage concept sketch..... | 76 |
| Figure 4.31 | "Figure" food space axonometric drawing | 77 |
| Figure 4.32 | elevation | 77 |
| Figure 4.33 | elevation 2..... | 78 |
| Figure 4.34 | Food into/waste discharge device..... | 80 |
| Figure 4.35 | Food sorting arm..... | 80 |
| Figure 4.36 | Classification of transmission and processing module | 81 |
| Figure 4.37 | Nutrition converter | 81 |
| Figure 4.38 | Bed | 82 |
| Figure 4.39 | Electricity | 82 |
| Figure 4.40 | "Figure" food space work flow diagram..... | 83 |
| Figure 4.41 | 24 hours life (green: food red: people) | 84 |
| Figure 4.42 | Rendering | 85 |
| Figure 4.43 | Rendering 2 | 85 |
| Figure 4.44 | Rendering 3 | 86 |
| Figure 4.45 | Rendering 4 | 86 |
| Figure 4.46 | "cooker" export food space network diagram..... | 87 |
| Figure 4.47 | "Ceremony" of export food space network diagram..... | 89 |

Abstract

In this article, “food” is a medium, which is used to read today’s society. “Space of provisions” contains different types of relationships and activities between “food” and “people”. This research try to use “food” as the medium to read all kinds of social and cultural phenomenon under the changes of technology, urbanization, consumption, people’s understandings of themselves and so on. And finally use the experimental space “space of provisions” to present the various relationships between people and city under the action of “food”.

The research perspective comes through the study of literature and related cases. And then build a social panorama image of “food” by observations of daily life. At the same time, this research use “food production” and “social relations built by food” these two perspectives to analysis the observations in order to get the basic elements of “space of provisions”. And the design part of the study, create a reconstruction space by using the elements. These reconstruction spaces make the elements and relationships to a stare of extreme, as a criticism of the relations between people and food in contemporary life.

Research of "space of provisions" is not trying to find the solutions for a certain type of contemporary society social issues, it’s an experimental space reconstruction in contemporary society. This study will use space to present all kinds of relationships between people and food exists in the daily life, and at the same time, these spaces will be presented in a more powerful way. This critical representation is the purpose of this study. The rethinking about the way of life arises from the “space of provisions” has also becomes the meaning of the study.

Keywords: food; space of food; experimental; space reconstructio

Premessa

In questo articolo, il "cibo" è un tipo di mezzo per interpretare la società di oggi. "Spazio di cibo" è lo spazio che contiene la relazione tra le persone e diversi tipi di cibo, anche l'attività comportamentale. Io provo a usare il "cibo" come un mezzo per spiegare i vari fenomeni culturali sullo sfondo quali è influenzato dalle tecniche, urbanizzazione, consumi, comprensione della gente e una varietà di fattori. Finalmente, uso lo spazio sperimentale per rappresentare le varie relazioni delicate tra il cibo, le persone e la città nel ruolo di cibo. Nel testo, dopo lo studio delle letterature e i esempi relativi, io ho dedotto il punto di vista della mia ricerca. Un'altra, io ho osservato i fenomeni sul "cibo" della nostra vita al fine di costruire una immagine panoramica sociale sul "cibo".

Nello stesso tempo, ho trovato due aspetti per sistemare e riassumere le immagine panoramiche al fine di trovare la relazione e i elementi fondamentali dello "spazio di cibo". Uno aspetto è la produzione di cibo, un'altra è la relazione sociale fondata dal cibo. Poi li ho rappresentato con la forma di modulo come la conclusione. Sulla base di questa, la parte del design nella ricerca diventa un tipo di ricostruzione dei fenomeni dello spazio con i elementi riassunti, sistemati e scelti. Per il motivo di questi spazi costruiti, i elementi diversi si sviluppano e diventano uno stato estremamente, come la riproduzione critica della relazione tra le persone e il cibo nella vita contemporanea.

La ricerca dello "spazio di cibo" non è solo uno metodo di risolvere qualche problema della società di oggi. In fatti, è un tipo di ricostruzione sperimentale dello spazio sullo sfondo della società contemporanea. Nella mia ricerca esprimo la relazione delicata tra le persone e il cibo nella società di oggi con la forma di spazio. Un'altra, esprimiamo estremamente. Insomma, Lo scopo della mia ricerca è la riproduzione critica. Allo stesso tempo, è molto significativo ripensare il metodo nuovo influenzato dello "spazio di cibo" della vita nella mia ricerca.

Parole chiave: il cibo, lo spazio di cibo, sperimentale, ricostruzione

CHAPTER 1 INTRODUCTION

1.1 Concepts defined

1.1.1 Food: provisions

Food, referring to eat. This article mentioned in the “food” does not mean by “carbohydrates, fats, proteins and water” and other elements of, provides the material of the human energy, but by “food” required a series of physical and mental activities. In this article, therefore, can be seen as a kind of “food” read the media in today’s society, through the “food” to go to the people, and even more extensive and complex environment (city) the various states.

1.1.2 Space of provisions

Today, the development of technology, the acceleration of urbanization, consumption culture continue to a variety of factors, such as led to the change of the understanding of their own. In the process, food and people of that kind of interaction, mutual influence relationship has been quietly. This article refers to “food space”, to accommodate different types of “food” and “people” relationships and activities of the space, the food produced during the interaction with people both in state space, and by the food contact relationships of the space, and even the food in contact with more extensive and complex environment (city) generated by the space state.

This paper is not about “space of provisions” for the present society one kind of social problem have put forward the solution, but in a contemporary society as the background of experimental space reconstruction. This topic to extract in the life of all kinds of factors to filter adjustment, will exist in the daily life all sorts of subtle relationship between people and food in the form of space, and space - "space of provisions" to the more extreme performance, as a criticism of contemporary life relationship between human and food, so as to achieve the study for the purpose of the experimental refactoring “space of provisions”.

1.2 Related research about “space of provisions”

"Food" for the people, is not only to maintain the basic elements of life, the activities of the surrounding food in people's life also occupies very important position. As stated above, "food" as a culture medium, for the food itself, the relationship between people and environment have influence each other. Food related "food" and "space" of related research, not only embodies in the level of "space" to use, it reflects the people, society culture, times change characteristics are worth attention.

1.2.1 Related research in China

1) Ming and Qing dynasties monographs and novels, etc

Since the Ming and Qing dynasties, there are some gardening theory part involves about the content of the “food” and "space of provisions". The book “Superfluous things” (长物志) written by Wen Zhenheng (文震亨), Ming dynasty, in the chapter “SHI LU”^① described where to build the tea house. Chapter “vegetables”^② described a roll of literati in Ming dynasty mountain food and wild vegetables. In addition, a lot of discourse on "food" also spread in all kinds of literary works in the Ming and Qing dynasties, such as, for example, the book of Li Yu (李渔), Qing dynasty, “Xian Qing Ou Ji” (闲情偶寄), “Yin Zhuan”^③ and “Qi Wan”^④ parts describe what food and drinks people like at that time. Famous writer Yuan Mei (袁枚) in Qing dynasty, written “Sui Yuan Shi Dan”^⑤ for the kinds of food, operating requirements, as well as the matters needing attention has carried on the detailed summary of food.

2) Social and cultural studies

Qian Hang (钱杭) and Cheng Zai (承载) co-authored book “the 17th century jiangnan social life” (十七世纪江南社会生活)^⑥, in the “daily life of jiangnan” chapter summarizes the time of the diet, dinner customs and tea and wine such eating habits. Similar to this study, Wang Yubo (王玉波) “Home in ancient China”^⑦ (中国

① (明)文震亨.长物志[M].北京:中华书局,2012.07,page 5-34

② Same ,page 241-260

③ (清)李渔.闲情偶寄[M].北京:中国画报出版社,2013.01,page 177-272

④ (清)李渔.闲情偶寄[M].北京:中国画报出版社,2013.01,page 153-175

⑤ (清)袁枚.随园食单[M].扬州:广陵书社,2008.04

⑥ 钱杭,承载合著.十七世纪江南社会生活[M].台北:南天书局,1998.06,page 251-314

⑦ 王玉波.中国古代的家[M].北京:商务印书馆,1997.05

古代的家), Yan Aimin (阎爱民) “Family education in ancient China”^① (中国古代的家教), Zhu Qianru (朱倩茹) “the life of the famous person”^② (名人的山居生活), Li Lulu (李露露) “Eating customs in traditional festivals”^③, Cheng Li (程犁) “freeze life look at contemporary Chinese culture to adapt to the changes in -- around the dinner table caused by thinking”, such works mostly focus on ordinary daily life, multiple description details such as eating habits, customs and etiquette. Phenomenon reflected this kind of research institute of culture and values to rethink how the Chinese treat “food”, and the relationship between the “food” and the family has an important reference value.

3) In architecture, space research focus on size and so on

“Chinese ancient architectural history” (中国古代建筑史) of Mr Liu Dunzhen (刘敦桢) briefly and systematically describes the development of Chinese ancient architecture and achievements, and cited a lot of documents and physical record. For example, in the Ming and Qing town, houses, gardens and furniture furnishings in this section, the same time in different parts of the characteristic has carried on the related research, including the “kitchen” the summary of the relationship with residential space. “Northern residential represented by Beijing courtyard house... the front by the longitudinal axis of the second, into the backyard. With larger area north of first for the elders living, wing is the younger generation, around in the corridor, as the core part of the whole house. The other is controlled in the first, attached with the wing and small lateral court, buy house kitchen, miscellaneous and toilet; or behind the first, to build Hou Zhao Fang row”^④, and “the middle and lower reaches of the Yangtze river house, in the south of the Yangtze river, for the unit with the enclosed courtyard layout along the longitudinal axis, but not limited to south north direction. The big house to the central hall is built on the longitudinal axis of the hall, JiaoTing, housing, and then around the longitudinal axis layout, the secondary housing and kitchen, sitting room, study room etc, become, left, right of three groups of columns in the compound group”^⑤, etc. The research of the same type and Mr Zhou Weiquan (周维权) “history of

① 阎爱民. 中国古代的家教[M].北京: 商务印书馆, 2013

② 朱倩茹. 明人的山居生活[M].新北: 花木兰文化出版社, 2011

③ 李露露. 传统节日中的饮食风俗[J].装饰, 2008 (02)

④ 刘敦桢. 中国古代建筑史[M].北京: 中国建筑工业出版社, 1984.06, 第 317 页

⑤ 同上, 第 317-325 页

Chinese classical garden”（中国古典园林史），the famous architect Chen Congzhou（陈从周）“Chinese local-style dwelling houses”^①（中国民居），etc.

School of architecture, Tsinghua University jointly with the Harvard graduate school of design of the Chinese “modern city residential, 1840-2000”^②，clearly summarizes the change of modern city residential building type in our country and the development of the “kitchen”. “Food” and points out that the housing and the related development of the space, is the political, economic, social, technology, culture and other change closely related. Book clarify such as population growth, land restriction, market economy, social and cultural changes, such as the form of living still worth thinking about.

Yanmin Zhou（周燕珉）in the article “our country city residential evolution course and the future development trend of the kitchen”^③（我国城市住宅厨房的演进历程与未来发展趋势），the same to the evolution of the urban kitchen has carried on the review and comb. From the national policy and the macro level of urban residential construction, to the time sequence of residential development in our country as the breakthrough point, in-depth study and analysis after the founding of the People's Republic of China up to now, the kitchen development present stage characteristics and the reasons, and puts forward some Suggestions for the development trend of China's residential kitchen and prospected. In the study of “residential compound kitchen”^④（住宅复合型厨房研究）Zhou Yanmin（周燕珉）has in view of the present problem of kitchen space in residential design in our country, the original enclosed the kitchen space and functions are realized, puts forward the concept of composite kitchen. The related research is “residential design refinement”^⑤（住宅精细化设计）.

Julius Panero's “the human scale and the interior space”^⑥ from the perspective of ergonomics, to human body size data as the breakthrough point, points out that the error of the concept of "the average man", establish the concept of anthropometric data points, and use these data to study and summarize the kitchen space relationship between the configuration and dimension of workbench face. Tsinghua university

① 陈从周. 中国民居[M].台北：清华大学出版社，2009

② 吕俊华，彼得·罗，张杰. 中国城市住宅：1840-2000 [M]. 北京：清华大学出版社，2002

③ 周燕珉. 林婧怡. 我国城市住宅厨房的演进历程与未来发展趋势[J].装饰，2010（11）

④ 周燕珉. 邵玉石. 住宅复合型厨房空间研究[J].建筑学报，2003.3

⑤ 周燕珉. 住宅精细化设计[M].北京：中国建筑工业出版社，2007.11

⑥ Julius Panero. 人体尺度与室内空间[M]. 天津：天津科学技术出版社，1999

academy of fine arts (the former central academy of arts and crafts) of environmental art design by the “interior design data set” (室内设计资料集)^① is from the Angle of interior space and scale kitchen space has carried on the induction and collation. Which involves the common human body size, kitchen function analysis, the layout of kitchen furniture, work station of length, and so on. Zhu Jie (朱婕) similar to this type of study “Chinese food culture and cooking behavior and design of integral ambry”, MouJinSen (牟晋森) “studies of the design of modern city residential kitchen household”^② and other academic papers, these studies are based on the basis of rational analysis, based on the scale, function, material, use the analysis and design, in order to improve the efficiency of production and work.

1.2.2 Foreign related research

1) On the basis of housing, construction of the social and cultural studies

From China for research group at the university of Tokyo art Japan Mao Mu Ji Yi Lang (茂木计一郎) etc., in the last century ninety generation to write “Chinese local-style dwelling houses - southeast China local residential space study”^③. Encyclopedia in construction as the breakthrough point, with a view to focus on Chinese local-style dwelling houses of space form. Encyclopedia in anhui, zhejiang, jiangsu, fujian and other provinces of local-style dwelling houses as the main research object, through detailed field investigation and surveying and mapping, as much as possible of the appearance of these living space. In the book, a lot of surveying and mapping in the drawings, photographs and text, there is no lack of "kitchen" in the residential space, and the inside of the kitchen appliances and arrangement of the research. At present, commercial development, under the condition of the traditional folk house decline, these drawings and photographs to the concerning subjects provides rare data.

Japanese Guang Teng Jun Fu (光藤俊夫), Zhong Shan Fan Xin (中山繁信) “live in the water and fire, kitchen, bathroom, toilet history from prehistoric”^④ people

① 张绮曼. 郑曙暘主编. 室内设计资料集[M].北京: 中国建筑工业出版社, 1991.06

② 牟晋森. 现代城市住宅厨房家具的设计研究[D].上海: 同济大学建筑与城市规划学院, 2006.03

③ (日)茂木计一郎, (日)稻次敏郎, (日)片山和俊共著.中国民居研究: 中国东南地方居住空间探讨[M]. 台北: 南天书局, 1996.09

④ (日)光藤俊夫, (日)中山繁信. 居住中的水与火: 厨房、浴室、厕所的历史[M]. 北京: 清

began to use fire or cooked food to eat as a starting point, time for clues to study the development history of the kitchen. Among them through the kettle on the stove, pot, my with him, fork, spoon and cookers, carries on the summary, the use of the records from the side of the kitchen in all times characteristics. Pool of waterway, karez, Wells, civilization on the development of technology, such as step by step, to show how the kitchen from the "fire" evolved into the present integral ambry appearance.

Dao Tian He Ye (稻叶和也), Zhong Shan Fan Xin (中山繁信) “Japan live life history”^① summarizes the traditional Japanese home along with modern industry and the introduction of the so-called western lifestyle changes, residents of different class of different types of residential has carried on the detailed description. In each function which can get the indoor space such as the change and development of the kitchen, bathroom, bedroom, etc. A lot of words and pictures has the very high reference. At the same time, China's historical and cultural similarities with Japan, therefore has a certain comparative study value.

2) Related design research and practice

a. American System-Built Houses, 1911^②

If the development of gas and other clean energy make kitchen from a need to be "cover up" the space transformation of success. So under the background of industrialized production, modular of food packaging, appliances, and even the original kitchen affects people's life. Therefore, since 1911, architect Frank Lloyd Wright was conducted a series of experimental design. One of kitchen storage, countertops and restaurant location is the modular design (figure 1.1). Although the concept of running water production line in the Frank Lloyd Wright was tentatively used in the study, but has not caused strong reaction at the time.

华大学出版社, 2010.07

① (日) 稻叶和也, (日) 中山繁信. 刘缙译. 图说日本住居生活史[M].北京: 清华大学出版社, 2010.01

② 详见 Counter Space: Design and the Modern Kitchen [M]. Museum of Modern Art, New York, 2011, page6、7

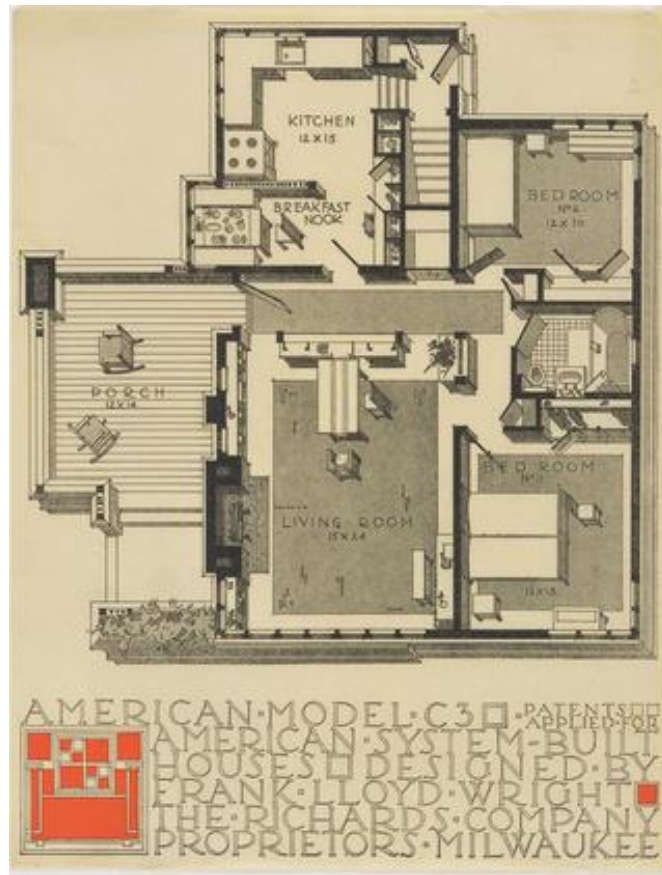


Figure 1.1 American System-Built Houses. Plan of model C3 (1915-17)

b. Frankfurt kitchen^①

In fact, as early as after the first world war, the "efficiency" and "enjoyable" and "female" even there are many relevant kitchen design practice. "Model, in the middle of the nineteenth century Catharine Beecher design kitchen", the law of the design including the size of the wall shelves, plenty of workspace and according to different types of food storage space (figure 1.2).

In 1912-1914, Christine Frederick to kitchen work and made a series of experiments published "The New Housekeeping: Efficiency Studies in Home Management" (New family Management) (figure 1.3). She set scientific principles to the housework in the kitchen work, manage the behavior of the workers, in order to improve the efficiency of the kitchen work. In 1926-1927, Margaret Schutte - Lihotzky (Margaret) from time and motion study and the influence of Taylorism, "Frankfurt

① 同上，第 8-18 页

kitchen" was designed and developed. Through the standardized design, combining with the work path, movement process and working time reasonably come to the space layout, using new materials and technology, to save space, time, for the purpose to carry on the design practice, and eventually applied design results in more than 10000 in the kitchen (figure 1.4).

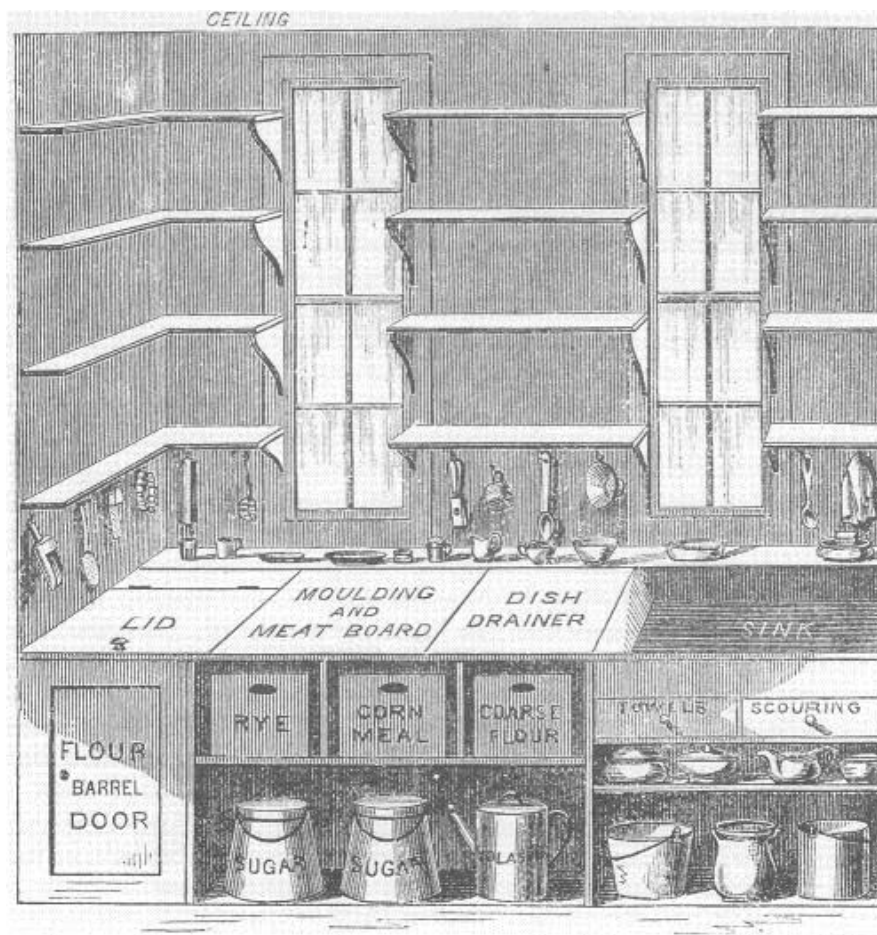


Figure 1.2 Beecher's modern kitchen

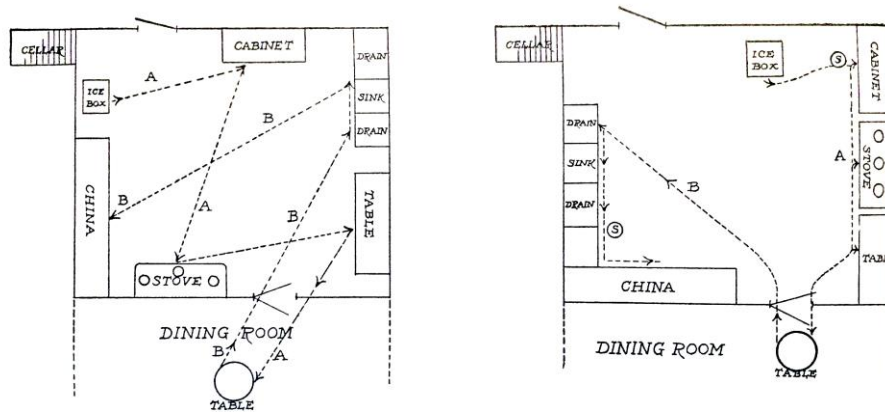


Figure 1.3 A route prepare; B route cleaning



Figure1.4 Frankfurt kitchen

c. Kitchen Satellite, 1969

As the standardized application of the kitchen, in 1969, the German designer Luigi Colani designed a star "future" - satellite kitchen. In this concept scheme, all cooking utensils and electrical equipment within the scope of the arm length, stylist to reflect the working state of "efficiency", and how to design thinking within the limited space (figure 1.5 and figure 1.6).



Figure1.5 Kitchen Satellite

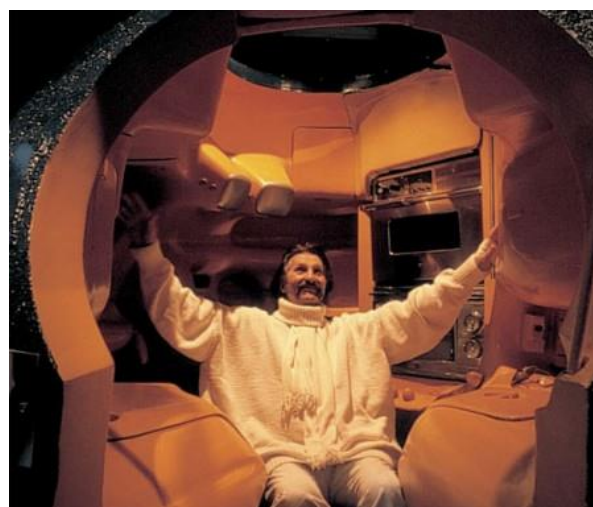


Figure1.6 Kitchen Satellite 2

d. Nest we grow, 2014

“ Nest we grow “ is Kengo Kuma studio in 2014 with the joint participation in the environmental design of California, Berkeley college works of an international architectural design competition. This practice project to “food” with people as a starting point, the cycle of life, and give full consideration to the natural factors and crops will grow, harvest, food storage, cooking and eating, a series of activities such as compost treatment hold in this open architecture, make people form a symbiotic relationship with food (figure.1.7, 1.8, 1.9).



Figure1.7 Nest we grow

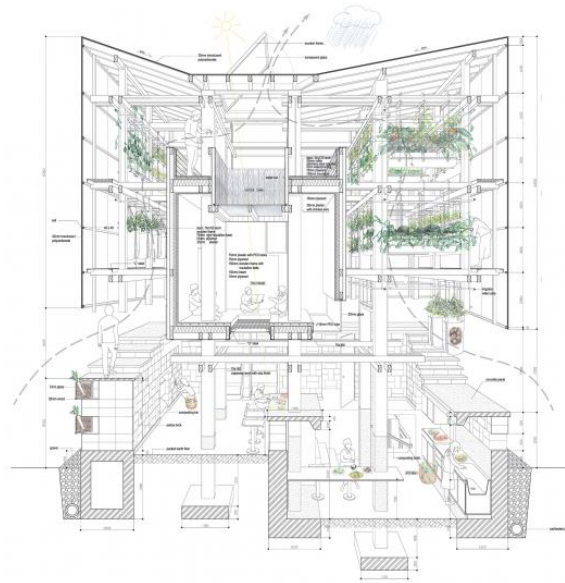


Figure1.8 Nest we grow - section

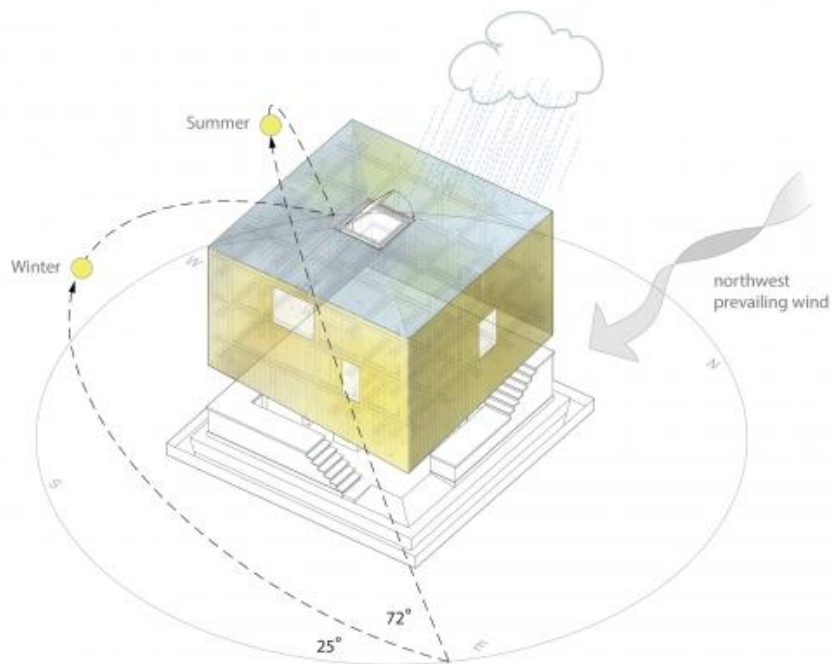


Figure1.9 Environmental factors

e. Future Food District (FFD 2015 Milan expo theme pavilion

Expo 2015 Milan future food area (FFD), mainly discussed the development of

modern digital technology and the impact of food to people. Future Food District is the main part of a huge “supermarket”, through the information visualization technology, such as display digital technology under our new way of interaction with Food, introduces the origin and characteristics of Food, promote more wise spending habits (figure 1.10 and figure 1.11).

“To some extent, it's like to go back to the old market, meet the food producers and consumers, has practical interaction between the two”^①.



Figure1.10 Future Food District Supermarket



Figure1.11 Future Food District

1.3 Research perspectives

Through the above on the "food" and "space" of food, architecture, literature, social culture and so on literature and case study design practice, can be extracted in "food" and "space" food of a few kind of research perspective, summarize in this use the following key words.

^① 详见 CARLO RATTI ASSOCIATI, <http://www.carloratti.com/project/future-food-district/>

1. “efficiency” , people & food & space control and management

Since "ford" industrialization, the kitchen of Europe and the United States and other countries affected by the mass production of industrial products, all with the "modern" and "functional" rational tag. Beecher, Frankfurt, satellite kitchen to today, the "space" food studies pay more attention to rational, working efficiency, scale, modulus, dynamic lines, etc. Kitchen become the management space, manager's behavior. Through the management of space and behavior to achieve the purpose of improve the work efficiency.

2. “connection” , The food's role in maintaining interpersonal relationships

From eating together and emotionally bring people of different dining experience, to the open kitchen in the United States in the 1980 s, as the Chinese local-style dwelling houses - southeast China local living space to explore, and relevant literature of our country to keep a record of "customs" in the corridor in the early days after foundation of public kitchen and dining room. In the food became a sustained human-to-human emotional factors. The open kitchen and public kitchen is given a "food space" social attribute.

3. “dietary patterns” , People’s dietary patterns in social relations built by food

Monographs in the Ming and qing dynasties, novels and literary works in the descriptions of the ancients of dietary patterns are related. There are "from time to time, don't eat such suit season diet, religion, etc in dietary respect have diet concept. This description is in the process of eating, in addition to meet the basic physiological needs of another kind of dietary patterns.

4. “technology” , The basis for the development of food and space

“Living kitchen, bathroom, toilet, water and fire in the history of food” in the space of drainage this paper expounds the development of a technology, shows how the space of the food from the "fire" the single element, evolved into the present step by step to integral ambry appearance. At the same time, the open kitchen popularity is due to the development of technology make the space of the food into a space do not need to be concealed. Energy structure, cooking techniques, production methods, affects the food space state. The Chinese modern city residential, 1840-2000, the our country city

residential kitchen the evolution and future development trend of "also has in the related research.

In this paper, the above article summed up the "efficiency", "connection", "dietary patterns" and "technology" four keywords as the foundation of research direction, to explore the relationship between human and food behind it. Study from all kinds of life phenomena observed, for all kinds of phenomena are summarized and analysed, try to tease out food in the contacts in the present society, city state of different space.

1.4 The research purpose and meaning

People eat sleeping place is the place where live, "feed" in the ancient times people will play an important role in their lives. "Food space" as a person and food is one of the most important medium of space, to a certain extent, can reflect people's life style characteristics of The Times, society, technology culture. Today, we can see with the integral ambry to represent the mainstream of "kitchen" is only gradually developed since the industrialization and mass production.

In the present modern urban social life, however, food is undergoing great changes. Due to the development of technology, productivity, and accelerated urbanization, food become more abundant, cheap and easy to get. People don't like once upon a time people spend enormous effort and energy to get food. "Eat" for the present people easy - means less pay, a greater return on investment. "Food" changed, however, our living environment, our attitude to food whether to catch up with the world changes in the footsteps of the food?

"Food" in the face of new changes, this article through the observation of the phenomenon of today's city life, using the "food" the media try to decipher the phenomenon of social culture, comb the living environment of different social groups and food of different activities, digging behind it may be because of the different factors, and with "food space" - experimental refactoring space to present in food under the action of the present society, food, and the relationship between the people and the city. The images of the critical is the purpose of this study. At the same time, caused by the "food space" for the moment to rethink the future way of life has become even the meaning of the study.

1.5 The research method and frame structure

In this paper, research idea general can be divided into the following three big steps:

1. Phenomenon

Link from observation of phenomena in life, to take targeted observation method. Using the prophase to related research institute summed up the "food room" of "efficiency", "connection", "technology", "attitude" as keywords as observation direction constraints, through the observation of life phenomena about "food" build a society of "food" panoramic images.

2. The inductive

Summarized the panoramic view of life observation analysis, in order to "food production" and "food to build social relationships" this two ways to interpret for life phenomenon, of the precipitation six patterns, and constitute the basic elements of all kinds of model, and will these elements present in the form of network structure, as part of combing inductive conclusion.

3. The refactoring

Derived using network structure, and summarizes the elements of the screening and adjustment, development phenomenon of experimental reconstruction for the space.

Chapter 2 Food social panorama image

Due to the class level, family structure, cultural background, different life style and so on various aspects factors, the present social middleman's relationship with food presents a variety of forms, even in the same individual or family unit can have multiple relationships at the same time.

This chapter mainly describes the relationship present situation research, food and people to the present situation of mixed people into their relationship with food, did not take in the process of research on a certain type of people, family, or class of research method, but the use of related research institute summed up the "efficiency", "technology", "connection", "diet" four perspectives, for some small life phenomenon directly observation records, construct a social panorama image of "food", to precipitate in the modern living environment affects the main points of the relationship between food and people.

2.1 Life observation record

2.1.1 Family reunion dinner

Key words: connection; Dietary patterns

Family reunion together to eat a meal at night symbolizes the reunion of the custom of the family reunion dinner is almost the same in the whole country (figure 2.1). If there is a big family reunion dinner is the big meet the whole family taste buds, on the other hand, it is more like the "housewife" (primary) have the annual grand game in the kitchen.

Diet is an important content of Chinese traditional festivals, in the era of the level of consumption is limited, one of the biggest temptation of holiday for people may be not to eat food. Nowadays, when material life level, once upon a time in the family reunion dinner to some food also can eat at any time in the daily, the significance of New Year to people is not only "eat and drink". The eve of the family members in a specific time together from different places, from her family to prepare dinner together, to the pecking order sitting in front of the table to eat dinner, now it's Chinese New Year, "taste" for the family reunion dinner, it became the second.

Conclusion: here, family reunion dinner into a diet "ceremony", keep the relationship of family members is transformed into an activity. At the same time, eat family reunion dinner is absolutely not just to get the energy for the body, attitudes at this time more is to seek the meaning of "home" behind the family reunion dinner.



Figure2.1 Family reunion dinner

2.1.2 Kitchen & Living Room

Key words: connection; Dietary patterns

Seems to every family will experience when decorate bridal chamber to a tough choices, the kitchen should be closed? True open kitchen looks bigger, more beautiful, but at the same time always hear the voice of another worry, lampblack is too big.

Even so, in the contemporary busy city life, mostly 3 home only in limited early dinner time can coexist, so the family even the cooking time is not willing to put himself isolated in the kitchen. Lampblack problem in a secondary position, open the kitchen also from the original style also gradually turned to be in the form of more families to accept. More functions are added to the kitchen, the kitchen also gradually become important, the sitting room of home center (figure 2.2).

Conclusion: actually obtained from human fire, cooking goes, all the family activities around the space. Such as literature research "live in the water and fire, the history of the kitchen, bathroom, toilet, described in the book, the original life space is mostly with" fire "the kitchen is the most primitive form closely linked. So the kitchen be like sitting room, once again become the center of the daily life, is not a new phenomenon in the contemporary society.



Figure2.2 Kitchen & Living Room

2.1.3 Homemade dumplings

Key words: connection

Today, people can buy in the supermarket a variety of flavors of quick-frozen dumplings, not demanding kneading dough, chopped meat at home to make. But their dumplings the most delicious, this is almost all of the answers, the people to eat the food in big industrialized batch processing ", more and more people begin to miss the old days (figure 2.3).

This is the legend of the flavor of the "mother".

Conclusion: the connection between the individual and family most of the time was precipitated by a food. Family handmade food contains specific dietary habits, personal memories, etc, to that of the mass production of food have very big difference. In this a phenomenon of life, family handmade food with its own characteristics, set up a unique family relationships.



Figure2.3 Dumplings

2.1.4 McDonald's, The taste of "home"

Key words: connection; efficiency

McDonald's as a large chain restaurants, is representative of the globalization, standardization of consumption patterns. Means that, whatever you go to which parts of the world, as long as see McDonald's, you can eat to the familiar taste of the "big MAC package" (figure 2.4). Therefore, when people are because of McDonald's food is not health and environmental protection, and to resist, can always hear another insight: McDonald's is part of the heart harbor. That is to say, eating McDonald's out of the "home".

Unfamiliar environment, strange food and even a strange language for passenger body is in the home is full of the sense of distance, but McDonald's is not only strange place. Here can't can't read the menu, not understand diet etiquette, standardized environment, standardized dining chair with a standardized food, the taste of "home" was born.

Conclusion: different from a life phenomenon. McDonald's fast food as the pursuit of efficiency, thus making is standardized, taste is unified to the general public. Although the taste of McDonald's is popular not because "I" and the be fond of, but as the change of person in space, the standard the same taste of food and dining became another kind of "person" and "food", when a person's memory is full of the standardization of taste, "McDonald's" also became the most familiar with the taste of the people. Here people's space is fuzzy, represents more of a "food" because standardization of familiar of love and intimacy.



Figure2.4 McDonald's

2.1.5 Slow food movement ^①

Key words: Dietary patterns

^① 详见维基百科，慢食运动
<http://zh.wikipedia.org/wiki/%E6%85%A2%E9%A3%9F%E9%81%8B%E5%8B%95>

The beginning of the slow food movement is associated with McDonald's. In 1986, is located in central Rome near the Spanish steps of McDonald's business formally, draw a protest, the slow food movement was launched to - a awakening people's awakening to compete for the traditional diet of fast food movement. Its leaders Carlo Petrini advocated: "everyone has the right to enjoy good, clean, fair food". At the same time, in the greenhouse cultivation is popular now, slow food also advocate of socialism in what the season, what to eat food.

At present, the international association of slow food in Germany, Switzerland, the United States, France, Japan, Britain and other countries are equipped with branches, a total of more than 83000 members worldwide. The concept of the slow food movement is gradually paid great attention by people (figure 2.5).



Figure2.5 Slow food movement

Conclusion: on the surface, the slow food movement is opposed by fast food and fast food, but the slow food movement is actually a kind of excessive urbanization brought about by the high efficiency and fast-paced way of life of reflection. In food industrialization, standardization, in the tide of global of regional culture, local ingredients and takes food centered between relationship established by the attention.

2.1.6 To lose weight

Key words: Dietary patterns

A recipe called "Copenhagen 13 law reducing weight" is very popular on the Internet, through strict control of carbs to achieve weight loss results.

" Day1 breakfast: a cup of black coffee, a piece of sugar; Chinese food: two boiled eggs, a tomato, boiled spinach; dinner: 1 piece of steak 200 g, add olive oil and lemon with lettuce. The second day breakfast: a cup of black coffee, a piece of sugar; Chinese food: 200 g low fat ham, a box of 200 g natural yogurt; dinner: a steak 200 g, add olive oil and lemon mix lettuce. Day3 breakfast: a cup of black coffee, a piece of sugar, a slice of toast, the Chinese food: two boiled egg, 1 slice of ham, lettuce salad; dinner: boiled celery, a tomato, a fresh fruit..." (figure 2.6)

Such diets in notepad of A classmate, there are A lot of, including to everyday diet type and quantity do have strict rules. "Good woman but best" is A classmate is current the motto of many young women. They always maintained a slim figure, confident and beautiful. As the life of all kinds of slimming advertisements on the magazine media model.

Conclusion: through the "lose weight" to keep their bodies. The main purpose of "eating" here is not to taste, full, but through strict control of food intake of link types (such as food, food, edible way) to achieve control of her body.



Figure2.6 diet

2.1.7 meal replacement powder

Key words: efficiency; Dietary patterns

In the past, people thought that sooner or later there will be a day, don't have to worry about cooking meals and busy, just a little pill can supplement the body the energy needed to power the whole day. And the popularity of meal powder on the market, like a science fiction is on the big screen in the real life. People finally live a novel inside some life: don't eat, eat only pill (figure 2.7).

"Meal powder", as the name implies, is used to replace the meal powder objects, eat only need to adjust the water. Meal powder with the six categories of nutrients needed for each meal, at the same time bring obvious satiety, make you believe that your body really had lunch. Generation of food products has many forms, such as meal rods, shake and generation meal of soup and so on. Because it will heat into account, so in recent years was admired by people to lose weight. However, generalized meal is not confined to lose weight. In the 19th century, compressed biscuits, protein powder in food industry, even the space food can be said to be the prototype of the meal.



Figure2.7 Meal replacement powder

Conclusion: this kind of utilitarian, the pursuit of efficiency of dietary pattern and now the city of the fast pace of life there are inseparable relationship. For some people, they do not want to spend too much time to eat, exchanges and other meaning of surrounding diet activities were blocking, food simply represents the human energy material.

2.1.8 Molecular gastronomy

Key words: technology

Cotton candy is no stranger to people, but people is very difficult with the molecules of the famous food together.

The so-called food molecules (Molecular gastronomy) is the glucose, vitamin C, citric acid, maltitol and so on the chemicals can be used for combination or change the Molecular structure of food, then, in 1988 by Seth and Hungarian physicists Nicholas Kurt is put forward. And cotton candy is also using the principle of the change of sucrose crystal molecular arrangement, is worthy of the name "molecular food" (figure 2.8).



Figure2.8 Cotton candy and bubble taste of black truffle turnip cake

Conclusion: molecular food compared to "food" is more like a science experiment results about "food", has been dubbed the "food of the future", "artificial food". "Chef" or you can call it "scientists", in accordance with the laws of science to understand and improve food cooking and production. This attitude of "science" to treat food may bring food today's unexpected way of form, color, food as well as the experience and so on, to give food possibilities of development in the future.

2.1.9 Kitchen in the telephone

Key words: technology; efficiency; connection

English "take-away" to "take away", can be understood as bought rice packed out. But now people mouth is takeout more picked up the phone order takeout service. From each big degree of hot delivery site, delivery in the diet of modern life has occupied a

considerable seats. From the initial "busy white-collar workers", "catch the homework students" because don't have time to go out for dinner and ordered, development to now big thirty families can also hang up to order dinner. More and more high quality restaurants to join to the delivery service, make delivery not only represents the time, cheap inferior, become more faster to enjoy a new kind of "food" means. Pick up the phone, the restaurant kitchen, after the city is their kitchens (figure 2.9).

Conclusion: "take-out" is the pursuit of efficiency of a way of eating. Saves the purchase process, cooking, cleaning, etc. Its all operation link performed by others. The present society, food production and processing of transport close degree goes far beyond people's imagination, and build up a huge "food web" is spent a considerable amount of manpower and material resources. Observation records in the life, each a "individual" in the development of network, communication and other technical support, and city built up a very close relationship.



Figure2.9 take away

2.1.10 Rice cooker

Key words: technology

Recently, the Chinese people during the Spring Festival in Japan to buy rice cooker reports aroused people buzz on the Internet. "More than a dozen series have a morning, loaded with Chinese tour group to purchase. Not very convenient to carry the electric cooker, electric rice cooker is very popular, the most upscale rice cooker and RMB 10000 yuan, a day to sell a few 10, the clerk said, 'the buyer 80% are from China.'"

(figure 2.10) and do not talk about the pros and cons of Japanese goods and made in China, can be seen from this news, we really rice cooker in the important position of life of the people.



Figure2.10 A lot of Chinese tourists to Japan to buy rice cooker

Chinese cooking has a long history, but with the rice cooker cooking are some of the things only after the second world war. After Japan's defeat, many dealers have turned to the development of civilian products, in the late 1940s, Mitsubishi has developed the first electric rice cooker. Rice cooker, electric rice cooker technology constantly updated, use has gradually spread throughout the world, even in East Asia as the region's eating habits and derived different nuances, even become electrical appliances with the regional culture: Guangzhou people love can "cooking porridge" rice cooker, Hong Kong people like to eat the soup rice cooker so lid to have a transparent glass, some rice cooker or even increase the northeast Thailand rice and rice cooking function respectively. All in all, have a fully functional and can meet the demand of their rice cooker, for Chinese people care about the diet is a very important thing.

So maybe can realize "even if is willing to carry back to" psychological.

Conclusion: all kinds of cooking utensils, electric appliance with the rapid

development of modern industrial technology, always affects the People's Daily life. All kinds of instruments diet activities efficiency. At the same time, people in the process of cooking the dependence of of all kinds of instrument is becoming more and more big. On the one hand, the different function of electronics by continual research and development; On the other hand, with the function of electrical appliances there are different kinds of choice. Appliances make the types of processed foods, state produced handmade irreplaceable new features.

2.1.11 Eat like a machine

Key words: efficiency; Dietary patterns

School canteens, fast food restaurant often can see someone eating alone, they eat either side of the watch mobile phone, either through magazines. Eat into the supplementary action, and the mobile phone reading a magazine is the key. Here the phenomenon known as "eating" of the machine. The present society "eating" of the machine. Concentrate on staring at the big screen in the cinema and munches popcorn, restaurant box on a full table of food business, family dinner time learning, chat work three... All in all, the food might call 'jin tian on flowers, and is not the leading role of meal (figure 2.11). But if we are in the Michelin restaurant, eating is marked with the label "expensive", represents a "gourmet" food? Seems to have absorbed to adjust sitting position. "Food" and three meals a day, the difference was so big.



Figure2.11 eat like a machine

Conclusion: in the diet pattern, eating a secondary affiliated behavior for people. In a specific time, place and characters of the object under the combination of the food itself for dinner is not so important.

2.2 Generalizations

To "efficiency", "technology", "connection" and "diet" paper summarizes Angle observation of life, can find the new features of the four types of characteristic in the present society.

Efficiency: in the present society, the "efficiency" is not only embodied in one space for food management. "Efficiency" in people's life style and body itself has the new development. Such as "order", "efficiency" of the "fast food" embodied in the cooking of a number of links to a "others", saved "eat" time; "Efficiency", on the other hand, direct effect on the food itself, foods directly equivalent to the "energy", such as the popular "meal powder".

Technology: the infrastructure to meet the demand of people cooking (such as drainage, energy, equipment, etc.) to involve food itself related technologies, such as "food", "meal powder" and so on change the way of the traditional production methods and the food to eat; New technology under the support of the new ways of access to food (" the kitchen "on the phone, etc.).

Connection: under the background of industrialization and standardization of food production, the relationship between food and people also create new change. Contemporary urban life most of the food is no longer purely as a family unit or small range of transactions. Food production, transportation, production and other larger units such as cities and even countries and daily operation. Therefore, the contemporary social background, the food in maintaining interpersonal relationship on this characteristic, scope also extended to the city and accordingly a wider level. For example in the new way of life, such as "order", "McDonald's" in maintaining people, people and environment, and between people and cities play a new role.

Dietary patterns, such as "lose weight", "meal powder" recorded in the new control and expectations to the body; "Slow food movement" in the reflection of global fast food fast food; People love of electrical appliances, etc. Contemporary life in all of these are outside the full new dietary patterns. These new phenomenon is closely related to the development of the food. This is a process of interaction.

At the same time, in addition to the above four kind of perspective, there are some new small life phenomenon worthy of attention. In order to comb the social relationship between people and food, here can be summed up as "food production", "food to build social relationships" are two major ways to look at the different states of social relationship between people and food, namely "how to food production, food, who was making" and "food to build social relationships - for what to eat, how to eat" (figure 2.12).

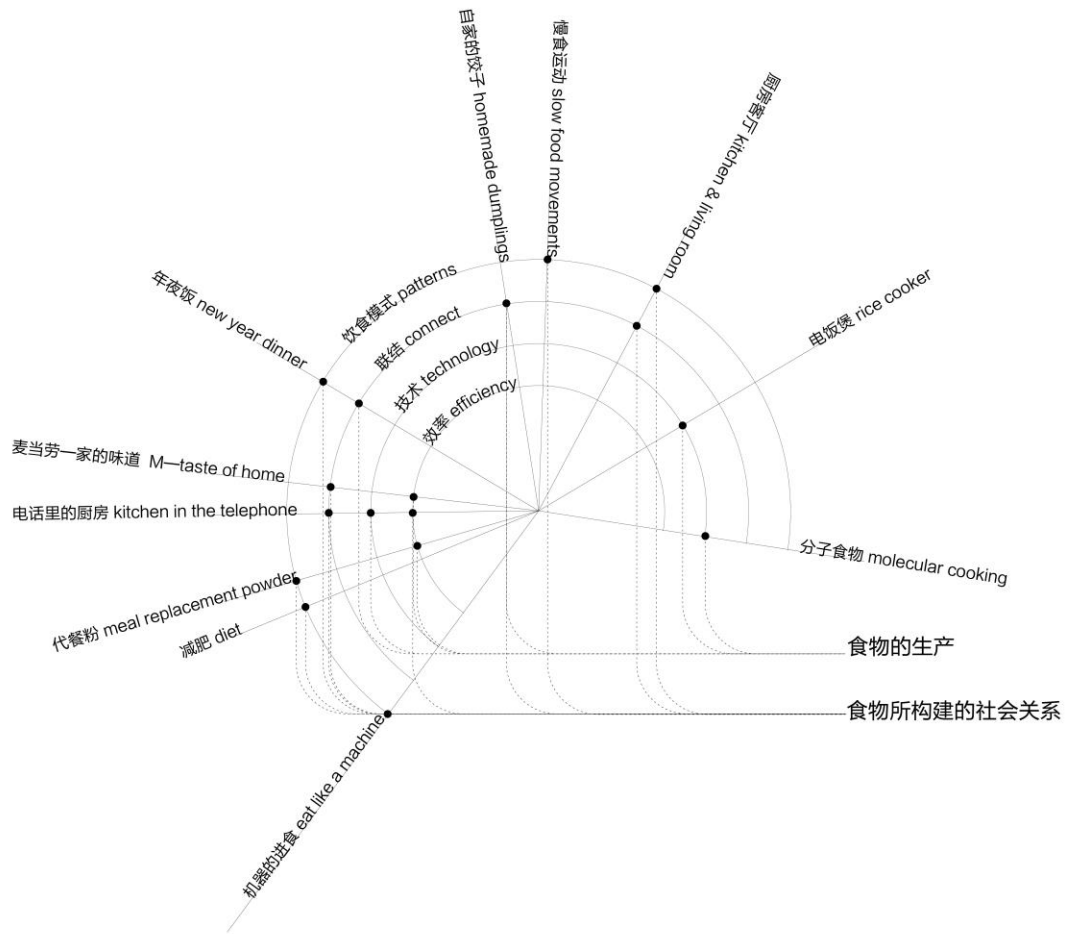


Figure2.12 Life observe summarize

Chapter 3 Relationship and elements of the "space of provisions"

"Space of provisions" is a accommodate different types of "food" and "people" relationships and activities of the space. Food from beginning to end there is interaction with people, influence each other. Based on the present living environment in food panoramic observation, this chapter from the "food production", "dietary patterns of social relations" two aspects, this paper respectively summarized "food space" elements and relationship, and then discuss food "space" in the present social transformation as well as new characteristics.

3.1 food production

3.1.1 Handmade food

Life observation: homemade dumplings, family reunion dinner, slow food movement

The "manual" is not mentioned here that don't need to machine auxiliary food production, but usually in the family attaches great importance to the production of food production process. Such as "their dumplings", "family reunion dinner", etc. No matter in the past and now, handmade food in people's diet in the life is an important part of.

Handmade food than any other way in terms of food, contains more "natural" emotion. Life fragment "their dumplings", "I" involved in or witnessed a family make dumplings from buying material, flavor, such as production process, and factory processing dumplings in the production process and is out of "I". This from the traditional Chinese food culture, family members get together, in different festival, eat different food scene is similar.

In the food industry has not yet been formed for a long time, the production from raw material processing to the cooking of food needs to be done manually by itself, the traditional production mode to modern social life there is still a part of influence, such as: family making soymilk, whose, pickles, etc. Today, however in the food industry is developing rapidly, almost any food can be bought in the supermarket, restaurant, in the city and pop up a "manual" making food, such as: the moon cake, western-style cakes,

etc.

The "manual" making food is not only a continuation of traditional mode of production, but in the modern city life for the pursuit of new way of life and concepts:

1) The food safety and health

As stated above, the production of food in the production process of industrial production line away from the "people", and handmade food the people can actually participate in the "food" is all process from materials to final production, so the quality of the food can be better guaranteed. In the contemporary urban life, handmade food means that attention to itself and family health.

2) Good quality of life

Handmade food means that, on the other hand, spend more time and space. Today, most people in the city in repeating the fast pace of life and work, and relatively crowded living environment, the pursuit of high efficiency become the main target of the life. Be in this kind of life state, still kept the habit of some handmade food, represents the work is not busy, have rich time handmade food; Handmade food, on the other hand, in the process of production, demand for space, reflects the spacious living environment, and shows good economic strength. Therefore, handmade food popular again, is also a good quality of life of the pursuit and yearning.

3.1.2 Auxiliary machine processed foods

Life observation: Rice cooker

Here, the auxiliary machine processing food in the family, often depend on the food processing by electrical equipment, such as "rice cooker to make rice". Life is recorded in the observation, describes the phenomenon of purchasing rice cooker people in Japan, but people do not love for "rice cooker" started in recent years. Actually far first centuries many immigrants, close to the students, even in 6 observed on the luggage bag old man tips, often will find a rice cooker. Although in the foreign market, buy a rice cooker is not a difficult thing, but compared with like TV, washing machine and other household electrical appliances, rice cooker, as a "feeder", directly affect the cooking quality of food.

Early in the initial stage (1949-1978), our country founds a common kitchen utensils and equipment inside the kitchen sink for honeycomb coal stove, concrete build by laying bricks or stones, poor, almost no electrical equipment; In 1979-1997, refrigerator in common use of the family, the food can get timely preservation storage, gas door instead of burning coal at the same time, liquefied petroleum gas (LPG); In 1998-2005, electrification, form a complete set to change inside the kitchen is increased greatly, the spread of electric rice cooker, microwave oven kitchen to get rid of the traditional image of the thirty-three (figure 3.1). The development of technology is the fundamental element of auxiliary machine processed foods.

In recent years, in meet the demand of basic cooking outside, there are various kinds of auxiliary processing food machine the emergence of the more common in people's life (figure 3.2). Affected by the refinement of social division of labor, food all kinds of feeder in the space (such as appliances, cooking utensils, small tools) function also increasingly clear (e.g., fruit and vegetable juice machine, coffee maker, toaster, soda machines, and yogurt machine, water purifier, bread machine, even cut pineapple machine, etc.), these devices because of its precise and scientific operational, its auxiliary treatment of food which has accurate and higher quality. At the same time, the application of complex cooking into a simple gesture operation, significantly enhance the working efficiency of the diet activities people get.

People rely for various types of machinery and equipment, representing the people's pursuit of new concept of diet, the symbol of their own economic strength, is also the technology brought about by the new modern way of life of infatuation.



Figure3.1 Cookers, electric appliance in the development of our country (the author custom painting)

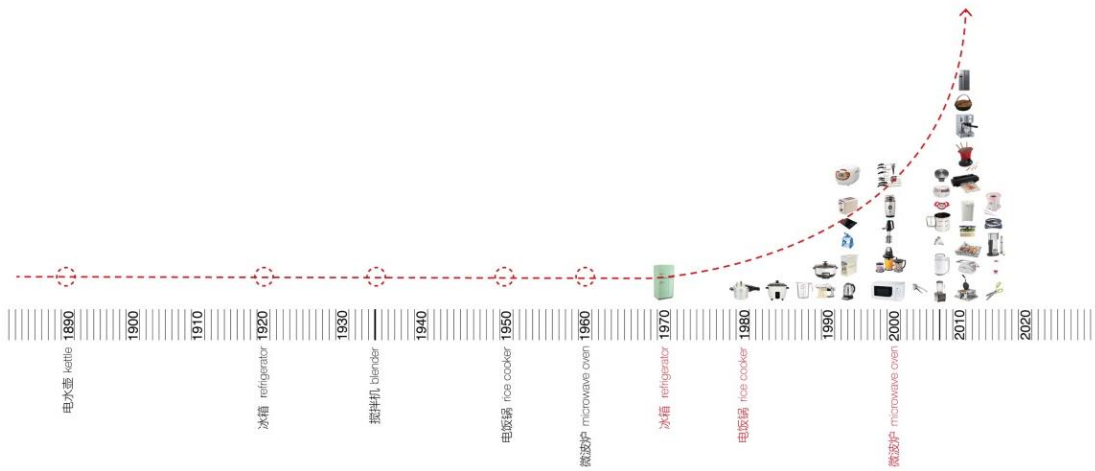


Figure3.2 Cookers, electrical appliances in China's development

3.1.3 The standardized mass production of food

Standardized mass production has redefined the food packaging, purchasing, and storage. Its standard, predictable, and can be measured, the efficiency of the production concept also has a certain influence on the development of food.

1) Quantitative

a. Dimensions & shapes

Quantitative food firstly embodies in the shape of the size. Sugar, for example, in the seventeenth century, europeans at the time of edible sugar need to cut large pieces of sugar then pounded into smaller powder. People must go through tedious manual labor. By the 18th century, the shop will advance the sugar pounded into random size for sale. But at the time of tea, because of the uneven size candy bars, so still not very convenient to eat. Until 1843, when Jacob (Jakub Krystof Rad), a sugar mill boss wife cut my hand when I was in cutting sugar, why can't complain to the sugar is made of the same size and can be very appropriate with a cup of tea? The idea inspired Jacob, that same year "square", "quantitative" sugar (figure 3.3) are manufactured.

Quantitative food everywhere in our life. A tin of coke 330 ml, a bottle of cola 1.25 litres, repackaging flavor 5 x 50 g sugar packets bag, a bag of rice 5 kg, and so on (figure 3.4).



Figure3.3 sugar cube



Figure3.4 Quantitative food size chart

b. Nutrients

Life observation: Meal replacement powder

The quantitative aspects of food is not only the shape, size constraints, food industrial production in modern society in its nutrients also has a "quantity" constraints (such as meal powder).

"In the 19th century, the nutrition science theory has a great development. In 1840, German scientists concluded that food is made up of fat, carbohydrates and protein, consisting of three main chemical composition and to calculate the human body required for each component.

In the 1880 s, with the relevant scientific laws of conservation of energy has been applied in the field of all living organisms, calories by nutrition scientists as a unit of measure the mechanical movement mechanics, measure the energy content in the food consumption of energy and human labor. This achievement is used in prison at the time of food rations, the scientists calculated accurately through provides the most basic diet for prisoners.

In the late 19th century, scientists generally use food as a form of fuel to be conceptualized as "machine of the human body needs. At this point, the food and taste, appearance, types are no longer relevant, food to a certain extent, is pure energy is converted into a number. "(figure 3.5)

| 项目 | 每100g | 营养素参考值% |
|--------|--------------|---------|
| 能量 | 2558kJ | 30% |
| 蛋白质 | 25.2g | 42% |
| 脂肪 | 48.9g | 82% |
| -饱和脂肪 | 10.8g | 54% |
| -反式脂肪酸 | 0g | |
| 胆固醇 | 0mg | 0% |
| 碳水化合物 | 16.0g | 5% |
| 膳食纤维 | 6.1g | 24% |
| 钠 | 492mg | 25% |
| 维生素E | 10.40mg α-TE | 74% |

| 项目 | 每100毫升 | 营养素参考值% | 项目 | 每100毫升 | 营养素参考值% |
|-----|--------|---------|-------|--------|---------|
| 能量 | 180千焦 | 2% | 碳水化合物 | 10.6克 | 4% |
| 蛋白质 | 0克 | 0% | —糖 | 10.6克 | |
| 脂肪 | 0克 | 0% | 钠 | 12毫克 | 1% |

白「可口可乐」及「Coke」商标持有人可口可乐公司授权北京可口可乐饮料有限公司出品 地址：北京市北京经济技术开发区荣华中路0号 产地：北京市 食品生

Figure3.5 Food nutrition composition table

Have a fixed weight, volume, and even energy food simplifies eaters, affect the food storage and space form (figure 3.6). On the other hand, quantitative food "nutrition", "energy" point of view is directly affects the understanding of diet.



Figure3.6 Quantitative operation process

c. flavor

Life observation: McDonald's, the taste of “home”

Such as Coca-Cola, frozen dumplings, McDonald's food under all kinds of industrial production chain, based on the production efficiency and achieve better economic benefits, the purpose of these standards, the taste of the food is the same. H rated recipe ingredients, processing time, rated the storage of packaging, lead to the taste of food is also a standard uniform.

The consumption and production from, food taste is the rational data according to the science and technology as well as the public generally taste and production, is not the amount of food for each individual specific requirements.

2) efficiency

a. directly

Life observation: Meal replacement powder

"Meal powder can also be understood as" Tropon new development in the 21st century. The end of the 19th century, "Tropon" protein powder available (figure 3.7), with this new form of food nutrition science and industrial technology development, extracted from animals and plants. "Tropon" purpose is not to bring pleasure for people's taste, but as your body needs some nutritional supplement food. Also, the rapid

development of space industry in the 1860 s, the Pillsbury company produce the "space energy bar" - a highly efficient energy supplement food, its small size easy to carry, and can quickly supply enough energy for the body. In the present society, this kind of food had entered People's Daily life is no longer the embodiment of "high-tech", in the supermarket can be seen everywhere all kinds of "energy", "energy drink" is the pursuit of "efficiency" of the food.

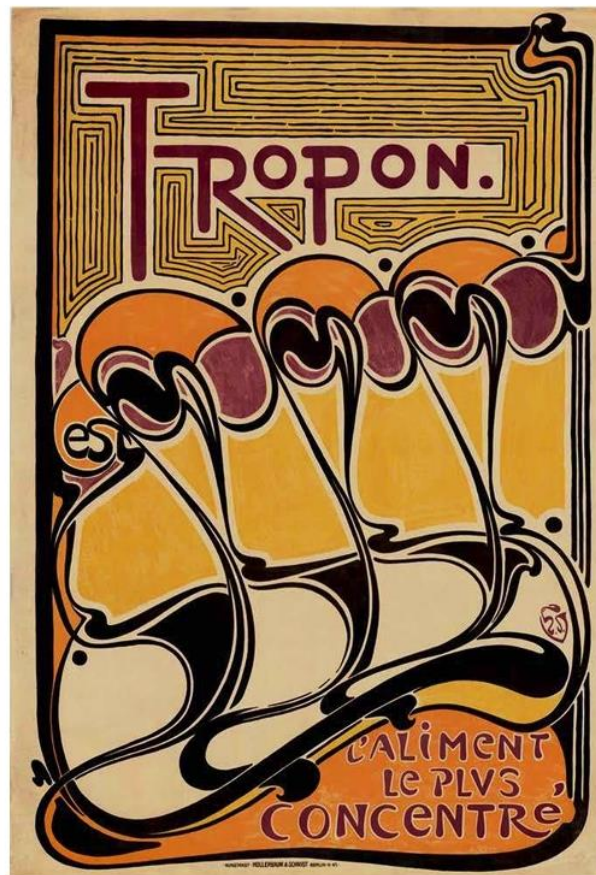


Figure3.7 Tropon Poster by HENRY CLEMENS VAN DE VELDE

b. Indirectly

All kinds of fast food semi-finished products, fast food is the pursuit of efficiency of the society more common way of eating. In 1963 the company invented the instant noodles, become one of the representative of the bulk food. Then all kinds of fast food appeared one after another, such as convenient rice noodle, instant curry rice, instant coffee, tea bags and so on. Such foods are already processed or half processed

ingredients with seasoning in proportion to the packing, only the hot water heating of the brewing or simple in minutes.

"Efficiency" of the food is a kind of based on science, digital diet concept, emphasizes the "fast", "high" and "nutrition" of control, and it also affects people's diet. From food to be absorbed by the body of the entire process, several of the links be simplified (such as the growth of the food, harvesting, processing, packing and so on are completed by factory), the efficiency of the food presented in front of people is all the link at the end of the process, simple operation and even directly equate food with nutrient direct effects on the human body (figure 3.8).

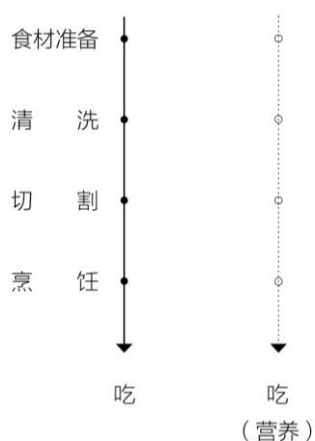


Figure3.8 “Efficiency” food process

3.2 Dietary patterns in social relations

Food brought about by the different features of different production methods, and the people in the social relations of interaction and influence of the relationship between dietary patterns.

3.2.1 Build lifestyle dietary patterns: diet

Life observation: meal replacement powder, to lose weight

Person's diet can be seen as a way of life of a microcosm. In the 20th century, consumer culture and fashion industry growing, health, beauty, body more and more get people's attention. In the life all kinds of slimming advertisements on the magazine

media, model show... Remind people to focus on your body. "Health" and "fashion" has become the image of people yearning. The family diet "to go on a diet to lose weight", "eat meal" wait for a phenomenon is increasingly common, "diet" became the present social attitude a new diet.

" diet (diet) a word comes from the Greek 'diaita', meaning is a mode of life, as a rule of life, it has a more specific meaning, according to the provisions of law into the meat of medicine." In the 17th and 18th centuries, the popular method of treating diseases through diet, a famous physician and writer George czerny (Chcyne, 1671-1742), has pointed out that the benefits of dieting on mental health and longevity.

"Diet is not only the basic content of traditional medical practice worldwide, is also a religious discipline essence. In the diet (diet), laws of asceticism (asceticism) and raise (regimen) is to establish a kind of discipline and control to the body... so, in the form of religious asceticism and treatment of diet is to the body. In the end, to the body of the constraints represented by a series of guidance note and discipline, including for food and diet food, exercise guidance book recommendation table. Then, go on a diet of various pretexts becomes interesting examples on the words and actions rationalization of the body."

Such as stated above, the diet has been used to control the spirit and soul life. Now, however, when people have ample food and clothing, living standards improve, control the purpose of eating is to become more sexy and longevity, fashion and health ancient christians believe obesity said a person too worship their own body and neglected the god, is with your performance desire without restraint; Today, however, obesity becomes a sin neglect their health and image.

In recent years, scientists and health authorities have strongly advocated a low-fat diet rules, combined with nutritional science point of view, and according to the need to consume energy. Although not yet fully prove "eat low fat food" a direct relationship with the mortality and morbidity rates, but the development of the "low fat = = health fashion" this idea is accepted by the public.

In the contemporary society, food filled with everyone's life, still in the "appetite" temptation "vegetarian", "diet" and other "diet" behavior, to some extent represents the regulation and management ability of the self. So, don't look fat, a healthy body is also combined with excellent company image and competitiveness. Have a good body image, vigorous slim is now an important wealth to the society. Women, in particular, slender

figure means sexy, fashion, no wonder people say that one of the notable features in the 20th century is thin woman over fat woman.

3.2.2 To satisfy physiological needs diet: eating efficiency

Life observation: meal replacement powder

Standardized mass production of the "quantitative", "efficiency" and "standard" food while bring people life convenient, also limit the rational thinking of the people in the diet activity. Eating into simple utility of eating behaviors to meet physiological demand, this type of diet can be referred to as "eating" efficiency.

In the act of "eating" efficiency, people no longer care about on the flavor of food, appearance, types, food to a certain extent, is pure energy is converted into a number of, a day just in order to replenish energy (figure 3.9). This colorful eating experience into a sip of water, eat a grain of drug action, and save the three meals a day, and the time of working in the kitchen. This is a kind of utilitarian attitude diet. The pursuit of efficiency and function of diet while lack of aesthetic feeling, but "convenient", "province", "efficient" in the present society, and so is not a "positive" attitude?

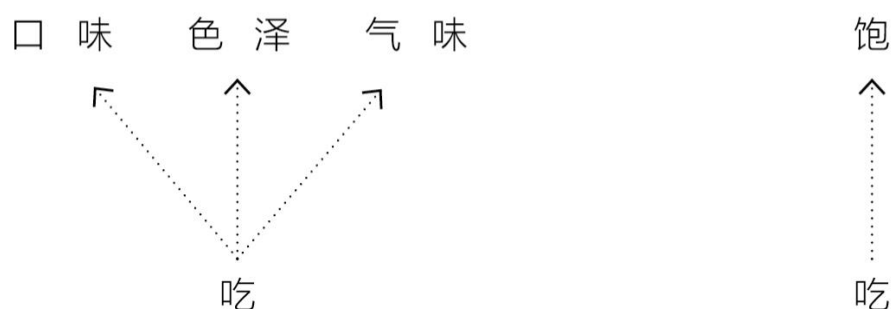


Figure3.9 The utilitarian diet

3.2.3 Production relationships diet: connection

Life observation: Family reunion dinner, kitchen in the telephone

In a higher civilization relations, people regularly arranged three meals a day to day into several segments according to common rhythm; The hominid unaware of the diet of most stable. Regular meals a day, so that people have the opportunity to table with food, with others to enjoy food becomes the behavior of social significance. At this point, the food become a medium production relationships.

Western countries had the research results show that "family eating behavior" in the formation of family characteristics and family harmony played an important role in promoting: "whether the food itself or its extension form of family breeding, vital family dining behavior help maintain and strengthen family harmony and peace." At the same time, an ideal family dining behavior includes "good food", "the extent of the family members to participate in", and "good repast environment". Chinese people eat dinner, eat dinner with family and friends from the country gathered together, at this point, the purpose of eating is not simply to "eat", but to and family reunions, communicate feelings; Parents to their children to school to work a family of three, only breakfast dinner time in a day, three people often rules and sit down at a table, rarely, the phenomenon of the respective end your job back home for dinner, because for such a family of three, time table is prime time family members communicate with each other. In order to communicate with others, so it is time to eat dinner, eating behavior into social a ritual, become a man is a link between food.

Such as observation of life, on the other hand, "the kitchen on the phone," the city life, people through various means of communication order "food". Here "eaters and food in the city" anonymous "producers" and in a different space, however, through sound, image leads to a different link relations. Here the "producers" can be a real person, also can be in the city a food order website, "producer" and "food" is not met, but understand its on eating preferences. Here, the diet of coupling relation is extended to the broader: people, people and city.

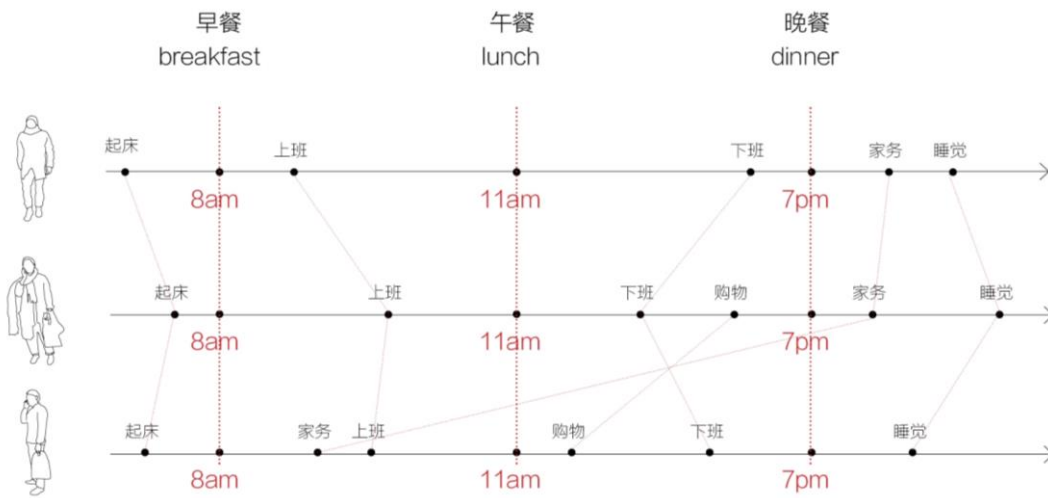


Figure 3.10 Eat with others: three square meals a fixed time

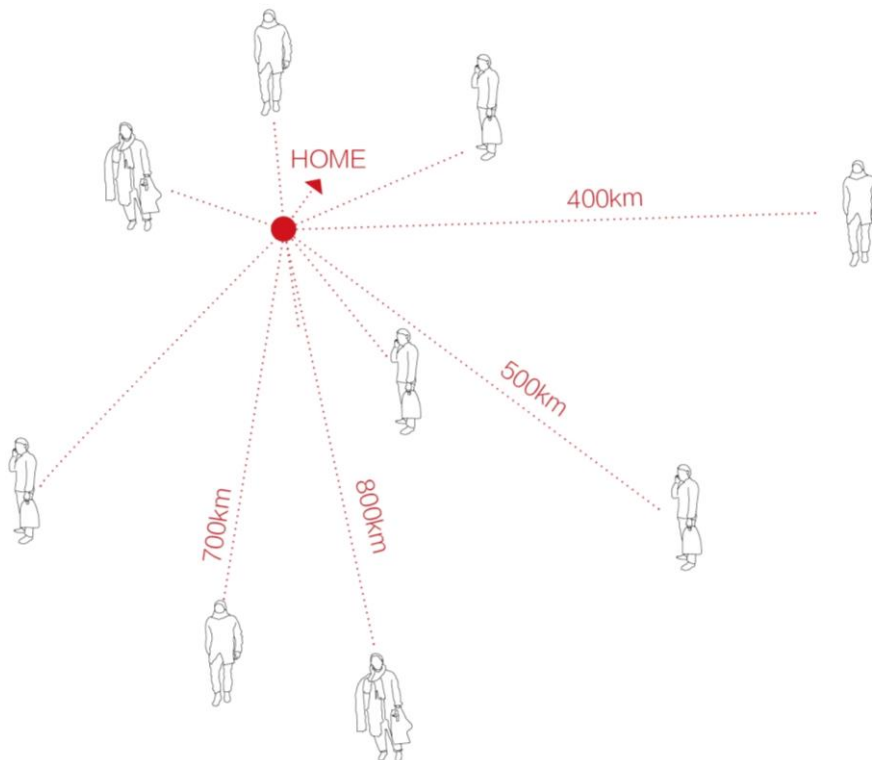


Figure 3.11 Eat with others 2: holiday meals, people from different locations for an appointment

3.3 Summary: food space transformation

3.3.1 Review

1. Closely connected with the natural environment of space

The traditional "kitchen" was once a man and food is one of the most important medium of space. Industrial products, technology is not developed, cooking utensils, energy sources, drainage and other technical constraints, leading to cook food space presents a dirty phenomenon, is people to want to hide a place in life. As you can see some traditional residences in our country most of the position of "kitchen" in the space and outdoor environment are linked together, is divided outside living space, adjacent to the garden, well, toilet and pigsty (figure 3.12).

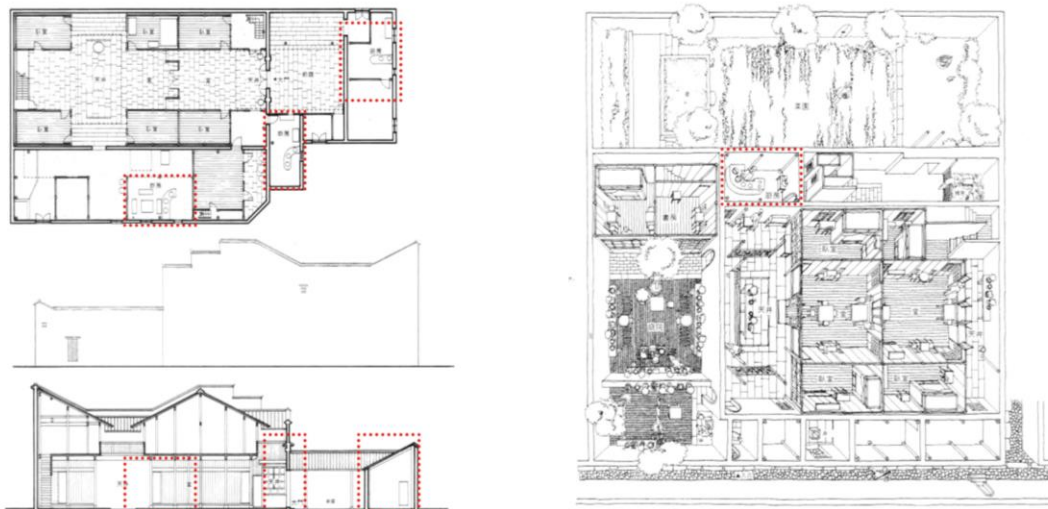


Figure3.12 Anhui Wang Zhai (Pic from^①)

2. Social space

① (日) 茂木计一郎, (日) 稻次敏郎, (日) 片山和俊共著. 中国民居研究: 中国东南地方居住空间探讨[M]. 台北: 南天书局, 1996.09 Page 56, Page 63

At the beginning of the founding of the planned economy period, the residential area, infrastructure, such as limit, cooking food for many share more space, public space become life (figure 3.13).

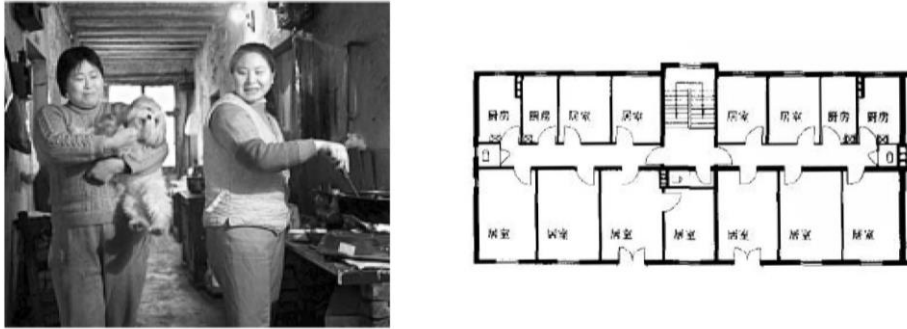


Figure3.13 Public Kitchen (pic from^①)

3. efficiency

This stage (1998 - present^②) of object space as residential level, infrastructure, and the development of the related equipment, dominated by integral ambry became the main form of food in space. Reasonable receive, work flow, make food space operation is clean, people's work in the food space efficiency improved (figure 3.14).



Figure3.14 Integral ambry

① 吕俊华, 彼得·罗, 张杰. 中国城市住宅: 1840-2000 [M]. 北京: 清华大学出版社, 2002 第 132 页

② 周燕珉. 林婧怡. 我国城市住宅厨房的演进历程与未来发展趋势[J].装饰, 2010 (11)

3.3.2 Space transformation - "food" network building

In today's life, new technology, new attitudes, directly or indirectly affect the space in the form of food. In order to more fully discuss food possible change of the space, here the "food" and "people" relationships above summarizes, respectively for "food production" and "people in dietary patterns of social relations" two units, sums up the characteristics of each unit; Then each structural unit in a certain order of permutation and combination, establish "food space" network architecture. Finally use this network architecture to re-examine "food space" in the moment of change.

Unit 1 -- "food production (figure 3.15) : " different "producers" brought about by the different attributes, namely: handmade food (pay attention to food safety and their health; the pursuit of quality of life); Auxiliary machine processed foods (technology, efficiency); The standardized mass production of food (efficiency).

Unit 2 - "at dietary patterns of social relations" (figure 3.16) : namely, build lifestyle of the diet (diet: fashion, health), satisfy the physiological needs of diet (efficiency, energy), production relationships of the diet (link: people with food, people, people and city).

Will be interspersed with each unit 1 and unit 2, same type elements, it is concluded that the "food space" of the transformation of the network structure as mentioned above do panoramic observation results. (figure 3.18).

To test the rationality of the "food space network structure" conclusion, there will be around the "food" in chapter 2 life observation records of all kinds of life into the network, the results show that the basic network covers "food space" "food" in the contemporary life of panoramic image (figure 3.17).



Figure3.15 Unit - food production

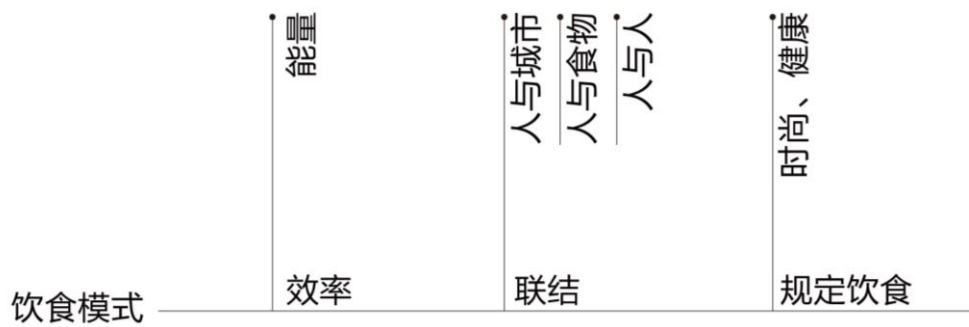


Figure 3.16 Unit - people's dietary patterns in the social relations



Figure3.17 Inspection: the phenomenon of life into

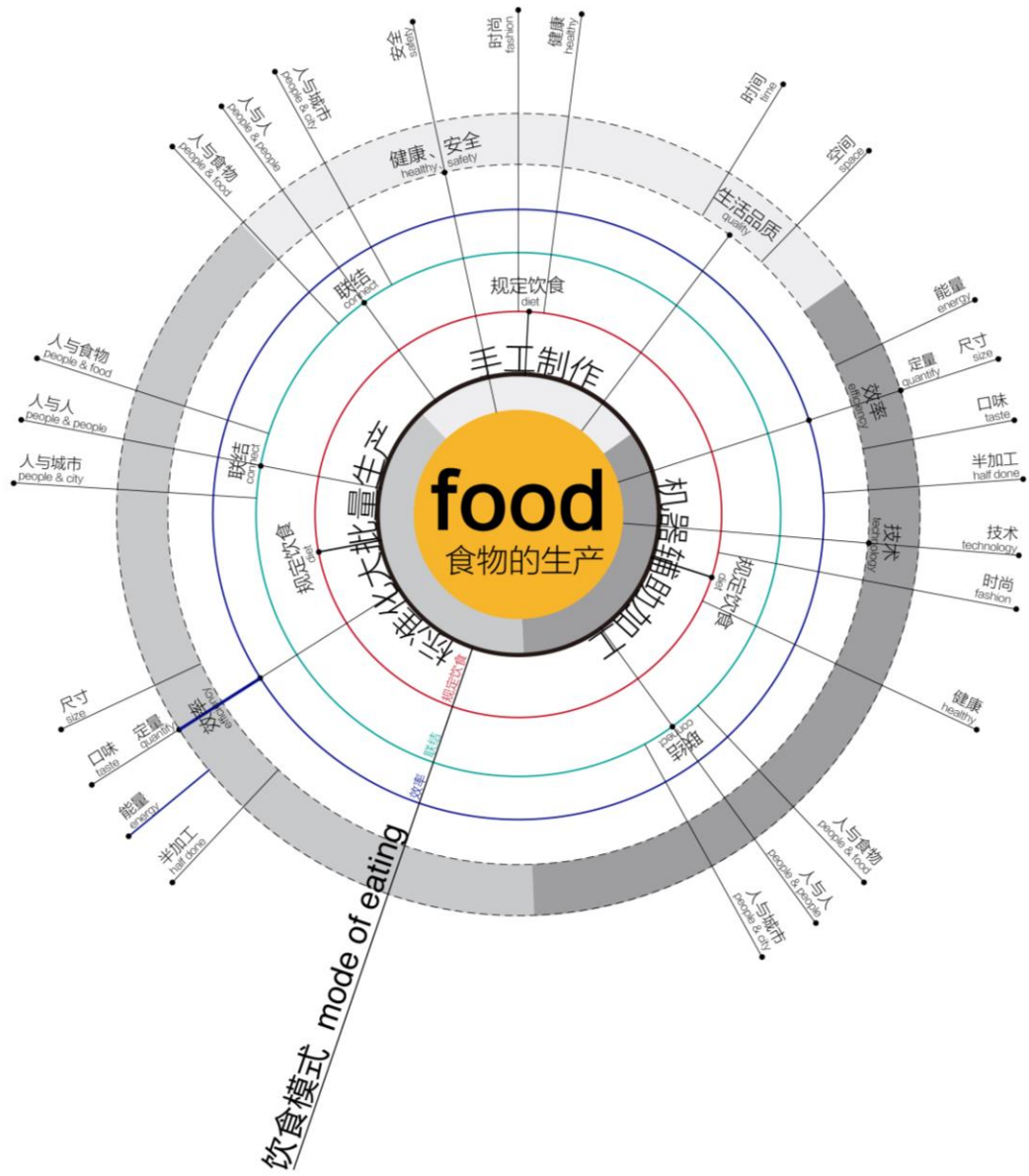


Figure3.18 Transformation of food space network diagram

Chapter 4 "Space of provisions" experimental refactoring

In the present urban life, people has a fixed pattern of life almost every day. Between individual and individual life is abnormal overlap, people passive choice has been reasonable design way of life. In living environment, such as "home", each functional area is reasonable design and standards: the sleeping space, shower space, entertainment space, etc. "Food" and "people" relationships have been hidden in according to the function needs of the modern, rational design of space.

Therefore, according to the mentioned above summary here due to the different relationship with food and formed under the interaction of different food trend of the space, the existing design, has been the living environment of space "food" life fragment experimental refactoring, use a "virtual" space to present has been ignored for a hidden, and growing at different relationship with food.

4.1 principle of refactoring

4.1.1 The principle of criticism

In order to more clearly present the food image of the space, setting reconstruction principle here:

According to section in the previous chapter conclusion - the network structure of the "food space" (figure 3.18), and for the precipitation of elements are combined, and expand its characteristics, make its appear more "extreme" state space.

Here the so-called "exaggeration" is not no logic, but is not in accordance with the specific functional requirements, lifestyle, etc. Based on the reality of rational thinking to think. As stated above, the passive choice the reasonable way of life and living environment. Observation records and sum up the above life of "food" and people's behavior, emotions, and contact, etc., are hidden in this policy on the basis of economic benefits, such as demand and been design space, according to these hidden connections

in combination, but exaggeration, criticism of these don't appear what is concern about the people and the food relationship is "food space" to achieve the goal of the experimental refactoring.

Therefore, the use of "food space" above the network structure, will all kinds of elements to filter combination, can get some life not familiar "food space" (figure 4.1).



Figure 4.1 Refactoring principle: based on the above summary elements, the combination of a critical

4.1.2 The principle of experimental

Space, on the other hand, due to the "food" is not on the basis of "one person", "one family", "one kind of social problem" the reality of the refactoring, but the experimental, space performance to the extreme, so in order to match the food "space" the uncertain characteristics, not to the present society in the common living space in the basis for the space (such as commodity residential house, the house most of the space form of national policy, economic and technical factors directly related, such as different periods of living space form also has bigger difference. This is based on rational, complex reality factors of space environment and the precipitation does not conform "food space"), but rather to set a fixed volume of space (e.g., 8 m x 8 m x 8 m) as a basic experimental model, in which reconstructs the relationship between people and food of all kinds of relations. Each individual "food space" represents a specific type of man's relationship with food, as an entity space factor, to present the present living environment in the present situation of the relationship with food.

4.2 The typical "space of provisions" refactoring

According to the principle of "space of provisions" refactoring known to deduce the several types of food "space". Here, select "growth" and "virtual" and "digital" these three strong representative food space, its relationship with food according to the former scholars have exported food space, in the present social life phenomenon in the process of the corresponding segments, as well as the corresponding state space, etc. In 8 x8x8 (m) established in fictitious space, and do in-depth description, design and performance.

4.2.1 space of provisions : "Growing"

1) Relationship with food

Under the "growth" clues space for food, food become the food itself, with people between people link (figure 4.2). Handmade food was extreme, eating all the links (seeding, growth, picking, storage, cooking, etc.) is placed in the space to a great extent, people with light, electricity, water and other technical control food "growth". Through hands-on food growth process, and then focus on the quality of the food at a time (rather

than the number and types of the) (what to eat in traditional), each link of the food to take to person's joy moment (not to make it convenient and make them comfortable) play a role in the family and food.

Keywords: handmade, connection, technology

2) life describe

People: a family of three

Reality: "homemade dumplings", "slow food movement"

Diet is "globalization". Every day, tens of thousands of aircraft, ship, van, a large amount of food raw materials, processing and finished products shipped to all corners of the earth. Ingredients closer by transport, production, manufacture, standardization of the management to make people on the "eat" the matter has efficiently and huge amount of choice.

Some people, however, rejected this way of life. They believe that more intimate relationship with food will be more happy, let family are three people sitting around a table, and unmatched tear a bag of ready-to-use food.

"Growth" food space arises at the historic moment, therefore, as the name implies, the food here compared with those factories out of packaged food, there is life. Land of vegetable, melon and fruit on the vines, water in the fish and shrimp... In the growth of all the time. The sowing, harvesting, storage and production. If all this is different from the impergium maximum, that is "growth" food space technology. "Growth" of food, in the space simulation light shine on plant growth; Water system will be breeding pool with water work well together, in the soil of circulating water, fertilizer and so on each other. Behind this, is a computer under the control of temperature control device, as well as the electric power system.

"Growth" of food, in the space technology is so advanced, however, without the slightest intention of growth process to cover up the food - the growth of the food is fully exposed in the person's life. Mother in the care of land crops, the children all around the side see eating fresh fruit harvesting, dad is in the side with simple tools to make dinner. In this space, it is difficult to define the growth of food and life line, a family of three only early dinner time in a day, in the "growth" food space is infinite

stretched (figure 4.3 and figure 4.4).



Figure 4.2 "Growth" of export food space network diagram



Figure 4.3 "Growth" space collage concept sketch of food

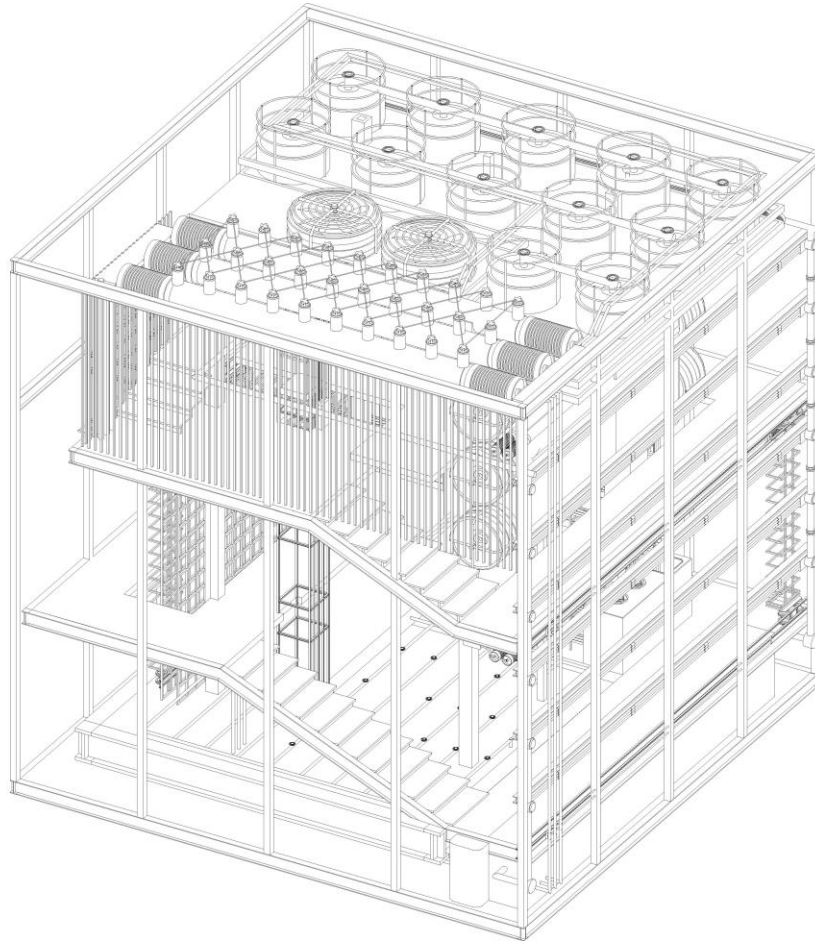


Figure4.4 "Growth" food space axonometric drawing

3) component

As described above, the "growth" food space is a rely on technology to maintain the space of all kinds of plant operation. In 8 m x 8 m x 8 m established in fictitious space, includes the following main components.

a. "Water system" (figure 4.5)

Water system will be mainly aquatic breeding pool, soil cultivation pool and filter tank link together the three parts. Its working process is as follows: 1. The aquatic breeding pool in the bottom, farmed fish and aquatic plants; 2. The aquatic breeding pool water extraction pump to the top of the filter is located in the "growth" food space for loop filter in the water tank, to ensure the water quality; 3. The treated water through a pipe to soil pool, for the crop growth, and to give sustenance; 4. In the end, the excess water in the soil was discharged into aquatic breeding pool again to complete the cycle

(figure 4.6). In the process of water recycle, aquatic breeding pool of nutrients were collected as fruits and vegetables, fertilizer is needed for water plants in the land; Also some nutrients in the soil and in the water cycle is absorbed by aquatic breeding aquatic organisms in the pool.

b. “Light system” (figure 4.7)

Illumination system is placed above the crop soil pool, simulated sunlight for crop growth.

c. “Air system” (figure 4.8)

Air system for the growth of crops to provide appropriate temperature and humidity, also for the space of the food storage, drying, etc.

d. “Electric system” (figure 4.9)

"Growth" food space, the electric system is the core component, using the power supply water system, lighting system and the normal operation of the air system.

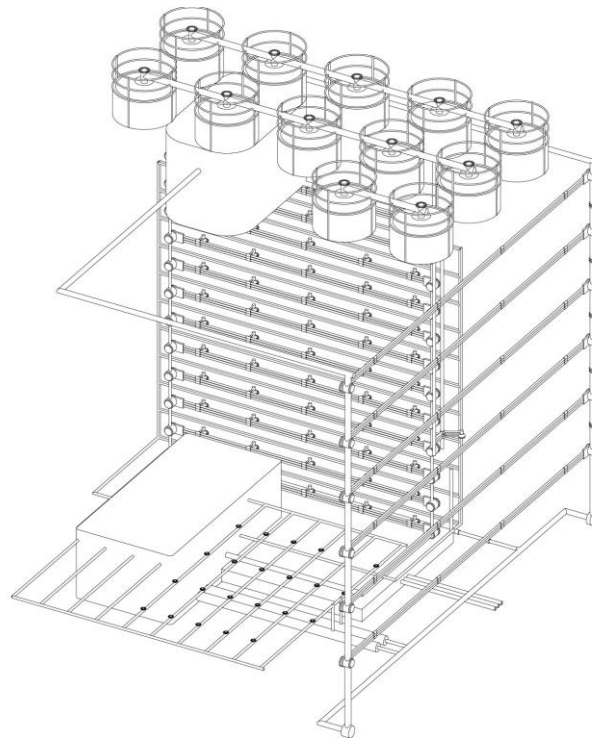


Figure 4.5 Water system

How aquaponics works

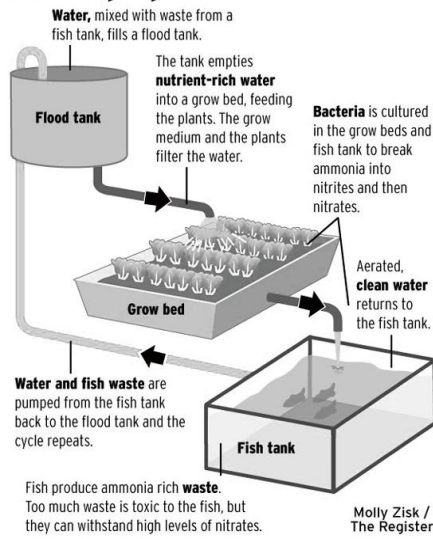


Figure 4.6 water cycle principle

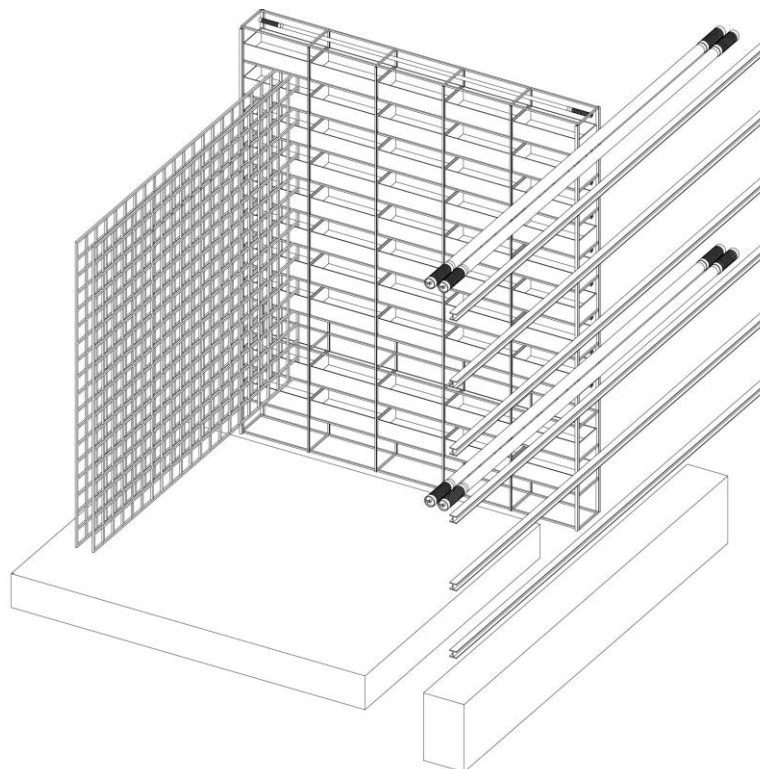


Figure 4.7 Light system

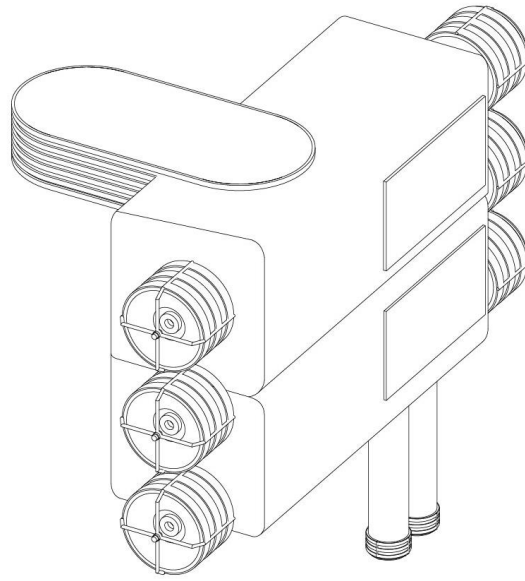


Figure 4.8 air system

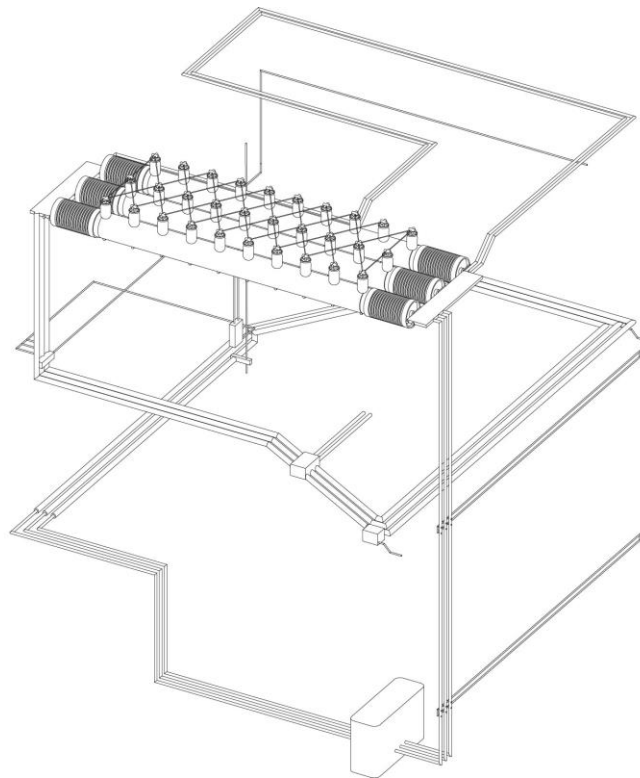


Figure 4.9 electric system

4) space

"Growth" food in space, in addition to the basic function of planting, breeding, under the control of the light, temperature, humidity and so on, at the same time also has the function of food storage, hanging and air dry.

In 8 x8x8 meters space, the growth of crops is placed in the vertical direction at the center of the area, while people's main traffic flow around the crop growth area up layer upon layer. Among them, the vertical direction set transport elevator for picking, storage of food handling.

At the same time, dining and activity space platform is placed at the center of the area, has become the "growth" food in space activity space, for people to diet and rest, etc. This activity space, growing food, hanging around the food decorates the facade of the space, people's life and the growth of food together, forming a unique "food space" landscape (figure 4.6). Here, all the family members to participate in and complete food "food" in the space of the life cycle (seeding, growth, harvest, storage, processing, to enjoy, etc.), people formed a symbiotic relationship with food, food in a certain extent, also be the missing link between family members.

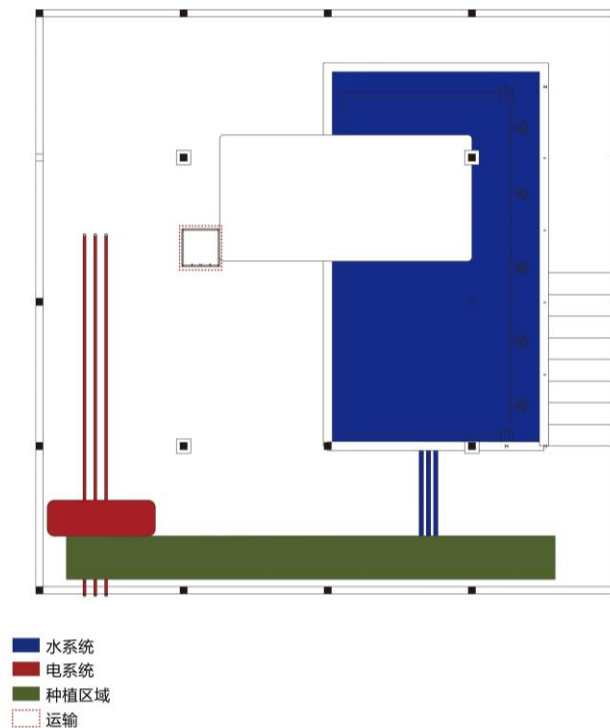


Figure 4.10 Plan 500mm

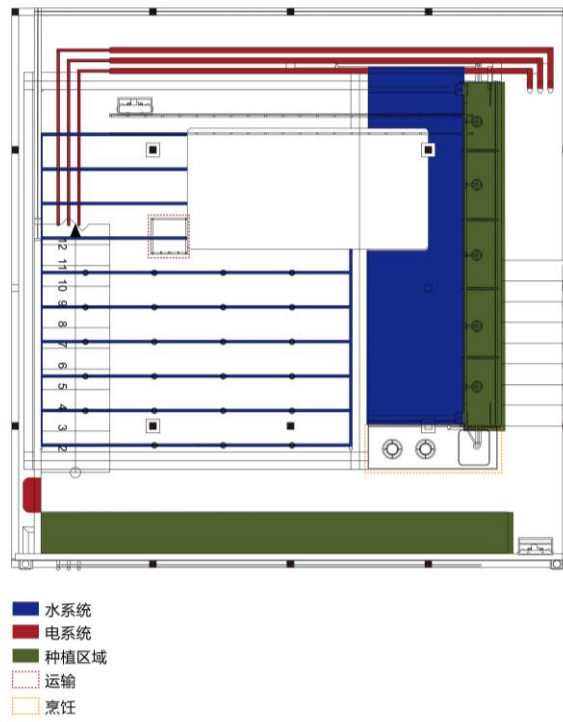


Figure 4.11 Plan 1500mm

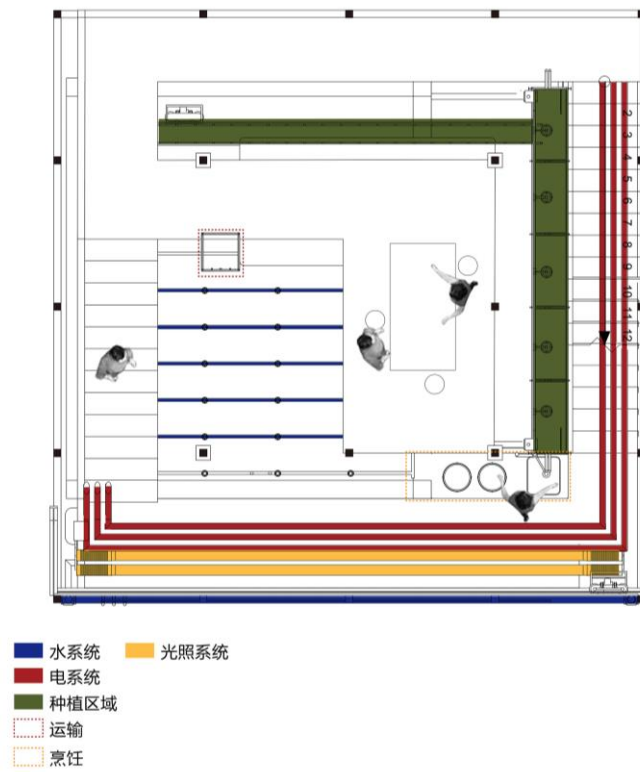


Figure 4.12 Plan 4000mm

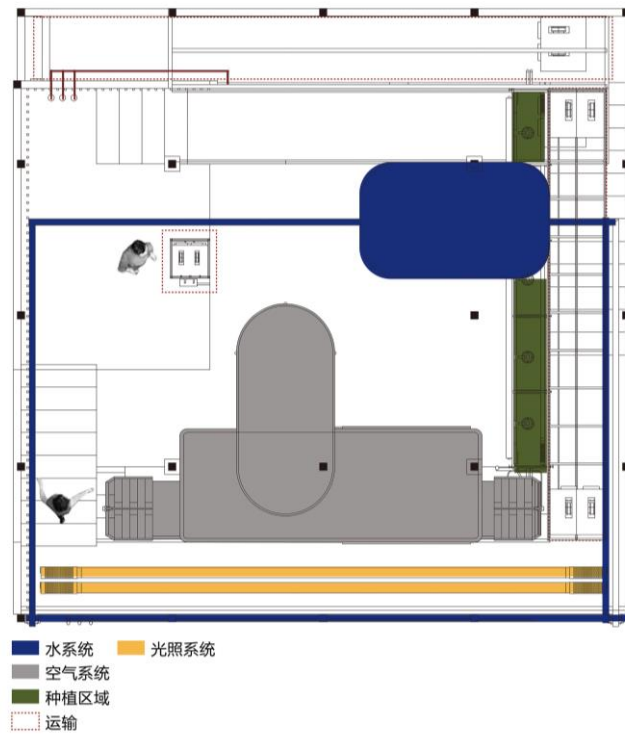


Figure 4.13 Plan 6000mm



Figure 4.14 Rendering - transport and elevation

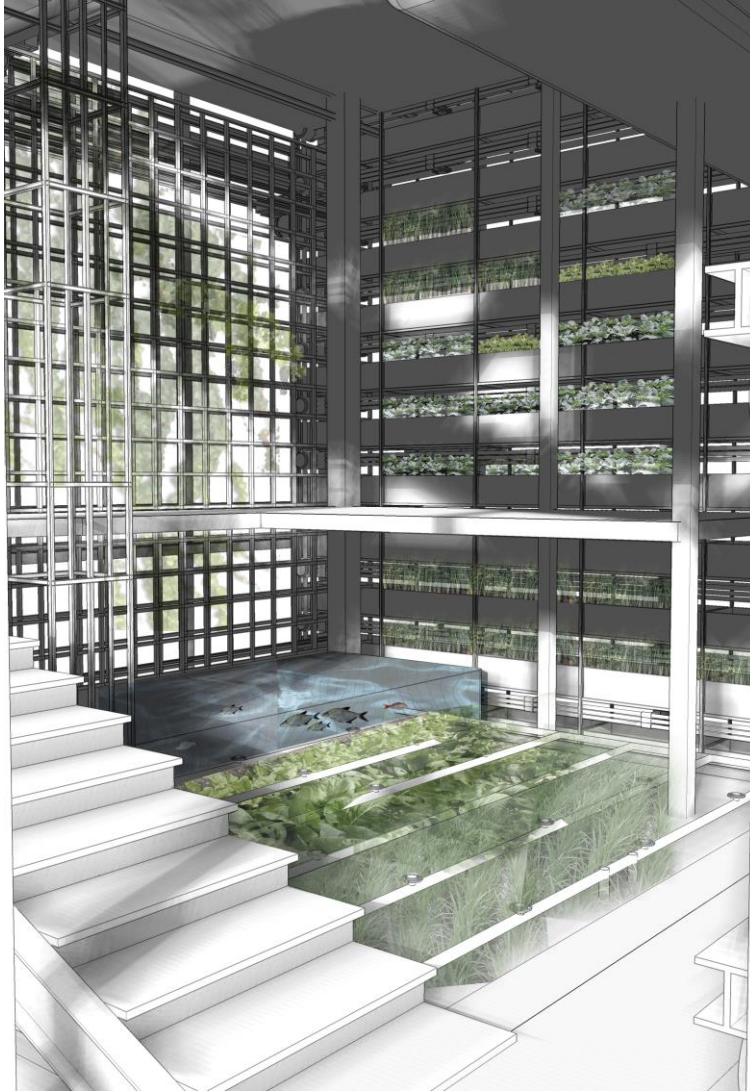


Figure 4.15 Rendering - central



Figure 4.16 Rendering - cooking



Figure 4.17 Rendering - drying and storage

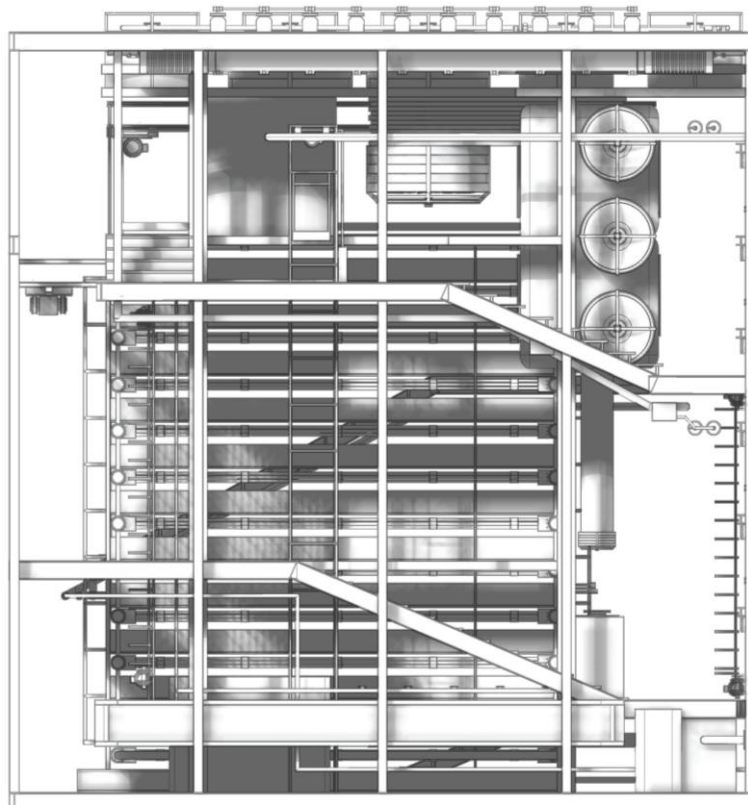


Figure 4.18 elevation

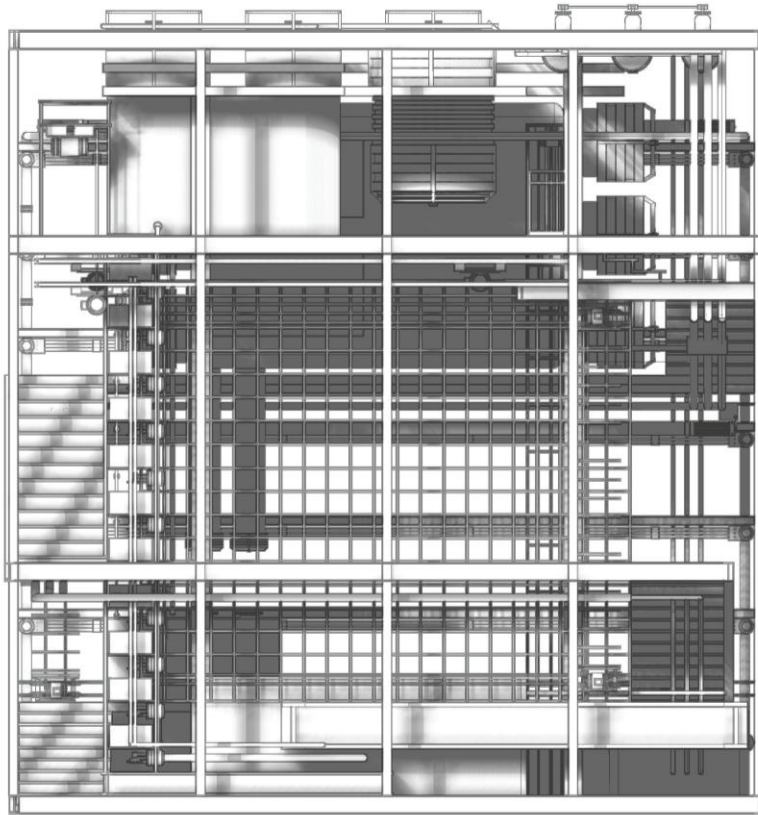


Figure 4.19 elevation 2

4.2.2 Space of provisions : "Virtual"

1) Relationship with food

In the "virtual" food space, become a kind of medium, connection is people, people and the whole city (figure 4.20). Rely on the development of technology, such as telecommunications and the Internet all part of the diet activities scattered in various parts of the city, to a great extent by anonymous. Animal and plant breeding, transportation, processing, production of a terminal to be control, virtual space for food, the relationship between human and food is efficiency, people own just finger operation can be completed.

In the traditional market, food producers and consumers have the actual interaction, is a place for people to social. Virtual space food did this again. People can learn about

food production, through the screen producers, etc. In connecting people, people and the city at the same time, the "virtual" food space to a certain extent, help people to get to know the food we consume come from where, how to obtain, such as how to make... Through food, explore the operation of the city.

Keywords: efficiency, connection, technology



Figure 4.20 "Virtual" export food space network diagram

2) Life describe

People: Single white-collar

Reality: "Kitchen in the telephone"

Pick up the phone "buy" food, open the computer "transportation" food, picked up a watch "make" food... This is a busy single white-collar workers diet life. Under the perspective of "virtual" space for food, no longer exists in people's living space alone,

but with advanced and convenient information network scattered in every corner of the city. In vegetable garden on the edge of the city has a 10 square meters of dishes; Have two chickens in poultry breeding centre, a pig, and combined with others to raise a big ox; Supermarket storage areas have to buy good drinks and all kinds of snacks... Former home refrigerator, shopping bags, all kinds of cooking utensils are virtual scattered in the city, a functional unit. Do these only need to have a good network environment, an intelligent electronic devices and download software platform, a system can be on the screen to look after their own "food", like a game to develop. When need to cooking, only need to the display screen, choose "see" up to a nice restaurant, the system will according to the existing ingredients suggest recipes and production, processing, in accordance with the reserved detailed address, it is a hot food around the corner. Food space virtual exists in electronic screen, the relationship between human and food also screen through the network, by the hand of others to connect (figure 4.21).



Figure 4.21 "Virtual" food space collage concept sketch

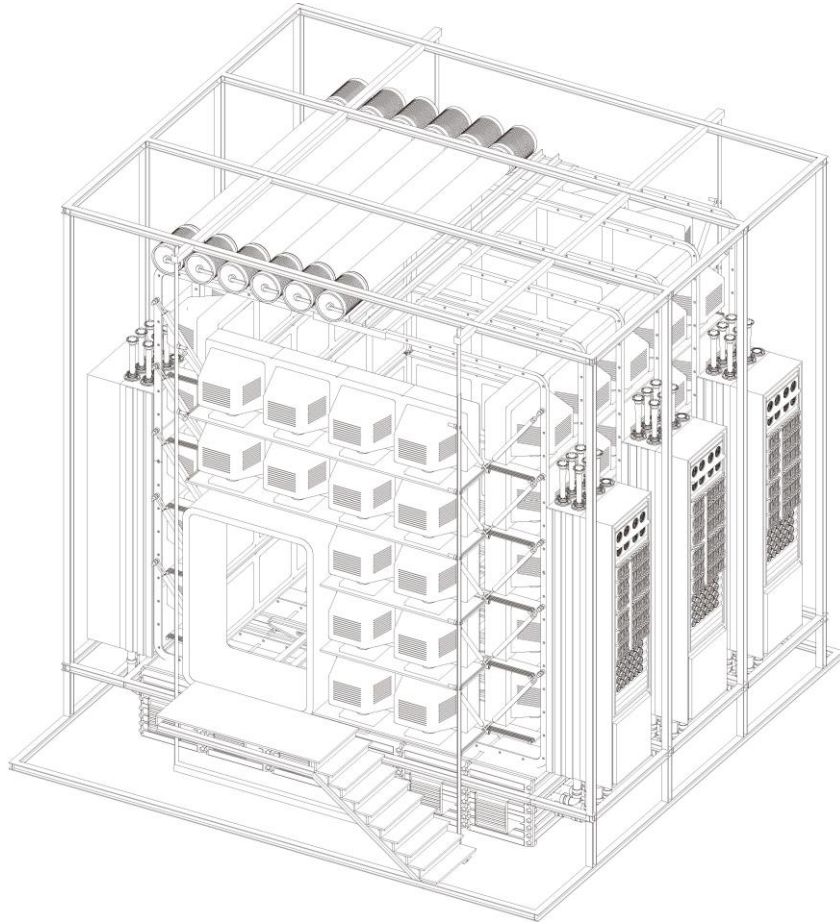


Figure 4.22 "Virtual" space axonometric drawing of food



Figure 4.23 Space of provisions : "Virtual"

3) Component

a. The "server" (figure 4.24)

Under the network environment, the collection of people and the food storage space for food preferences and requirements, and links to the city's "food" information, the food is a virtual space information collection, management, and published in the core components.

b. "Processor" (figure 4.25)

Based on the work of the server platform, data calculation, and connected to the screen.

c. "Screen" (figure 4.26)

Screen is food "virtual space", one is the most intuitive feel people with food. "Food" thought background of each link are display on the screen, in order to realize the interaction between producers and consumers is finished through the screen.

d. "Structure" (figure 4.27)

In place and connection parts structure foundation of functional components.

e. "electricity system" (figure 4.28)

The basis of various components to run.

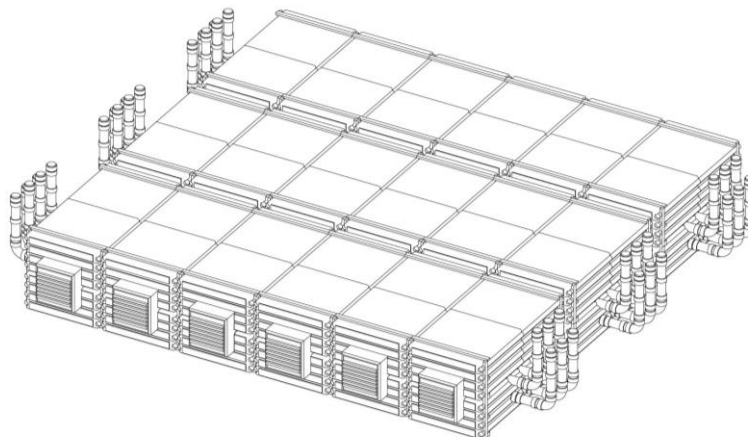


Figure 4.24 The "server"

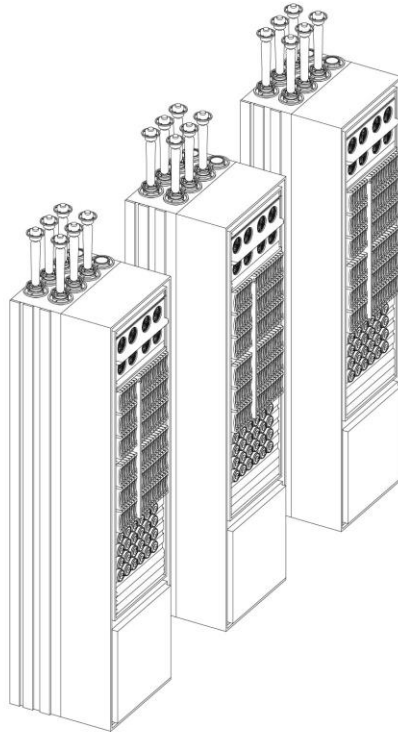


Figure 4.25 "Processor"

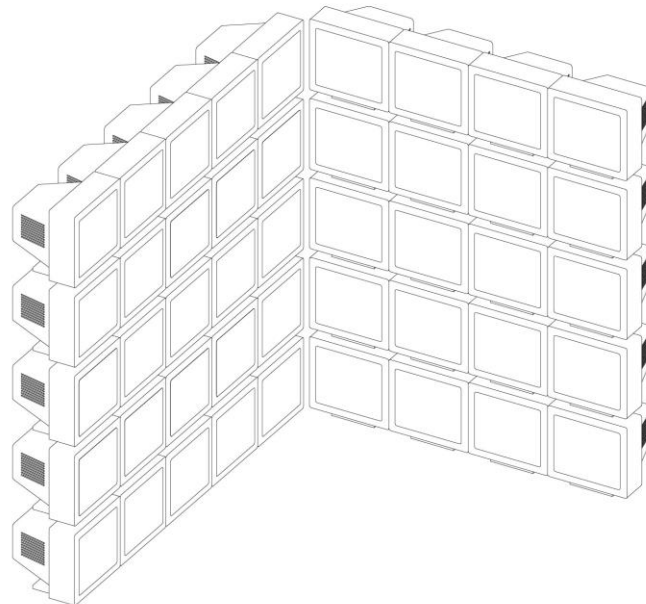


Figure 4.26 "Screen"

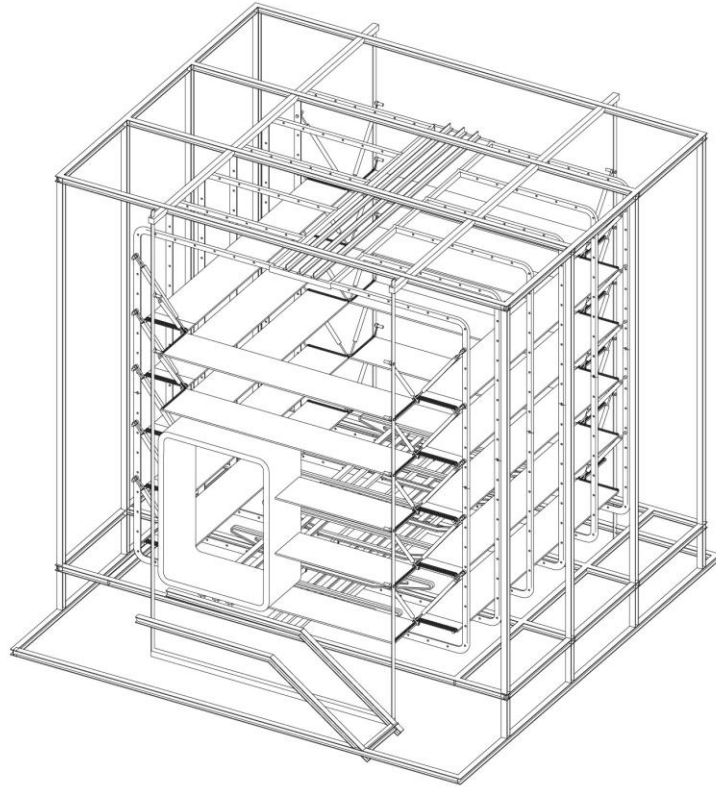


Figure 4.27 “Structure”

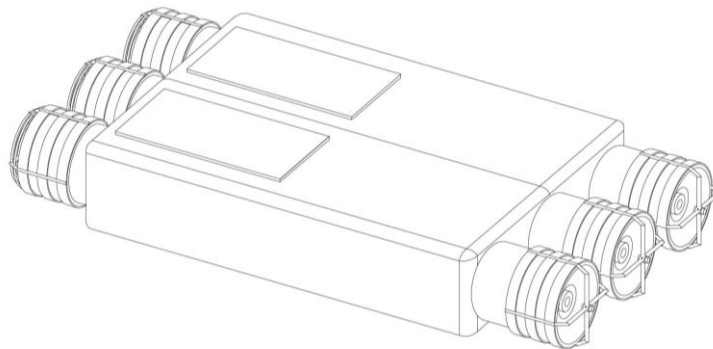


Figure 4.28 electricity

4.2.3 Space of provisions:"Figure"

1) Relationship with food

Under the "figure" clues space for food, food under the support of technology into represents the number of different energy, people seeking efficiency of extreme diet - direct energy; Or is it for the sake of health, fashion, for their diet, physical strict digital energy control (figure 4.29).

Keywords: efficiency, technology, dietary patterns



Figure 4.29 "Figure" of export food space network diagram

2) Life describe

People: model

Reality: "meal replacement powder", "to lose weight", "eat like a machine"

Get up, eat a pill, kissing the child, to go to work, punch in, punch out, kiss baby, sleeping... One day is a cycle. Like Charlie Chaplin in "modern times", performed by daily life into a rational order, repeated texture, mechanical operation and any industry.

People no longer care about food "color", "sweet", "taste". Food for people, it is a energy, is digital, is the day for consumption, is their own health. Food to cooking, don't need people more operation processing is completed by machines, people no longer care about the process of cooking, so space is associated with cooking all hidden until after the "wall", a large processing machine. People need tip according to the machine to buy different kinds of food, and then come home from work into "food put in the mouth", the machine will automatically to sorting, food processing, such as eventually translate into a pill "life", for people to take after get up every day. Here, people are sleeping in the space of the "food", "bed" as a "body" detector and cooking machines are linked together, to measure human body in sleep substances necessary for a part in the pill on processing. All kinds of screen display is the value of different nutrition and physical index. At this point, the relationship between human and food become a kind of pure energy conversion behavior (figure 4.30).

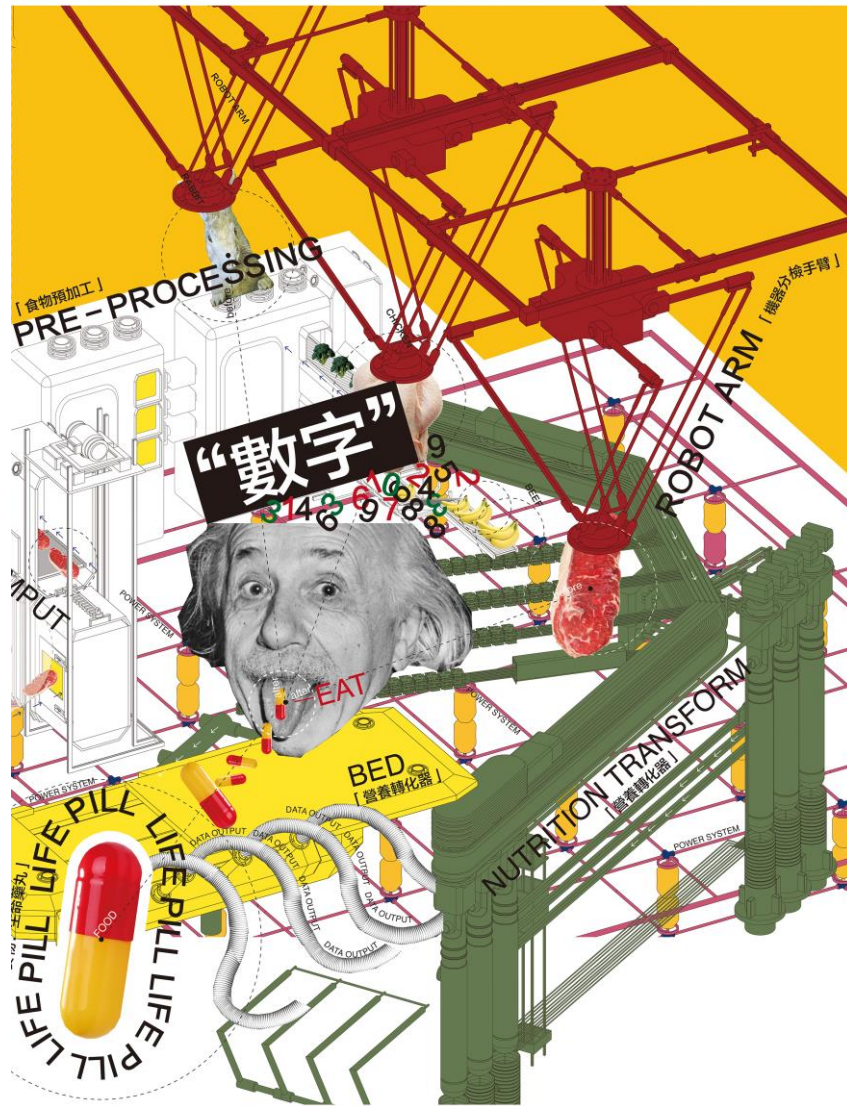


Figure 4.30 "figure" food space collage concept sketch

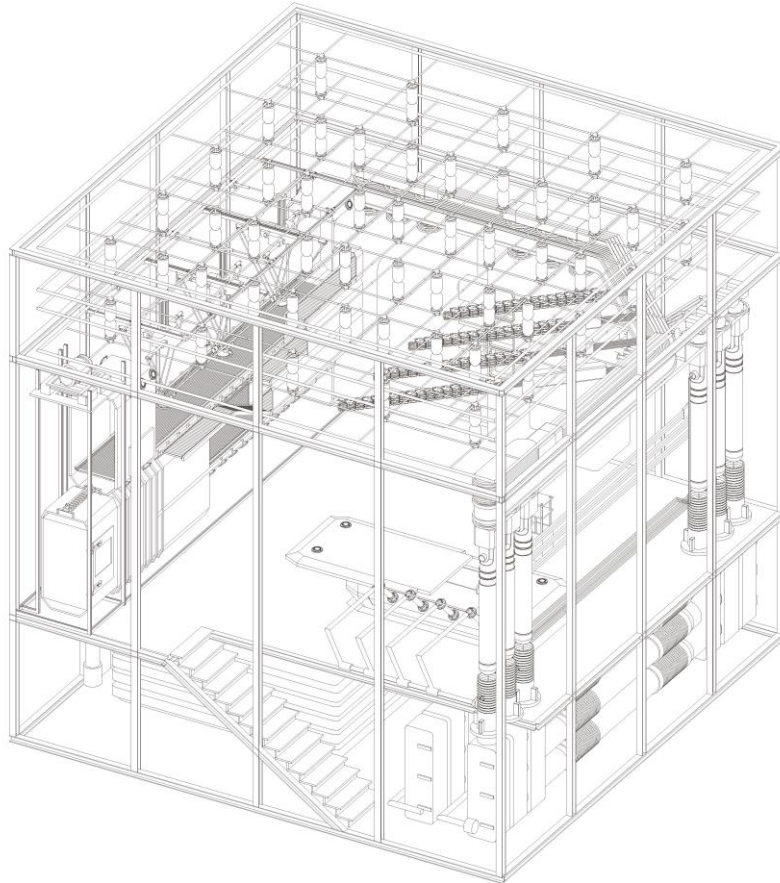


Figure 4.31 "Figure" food space axonometric drawing

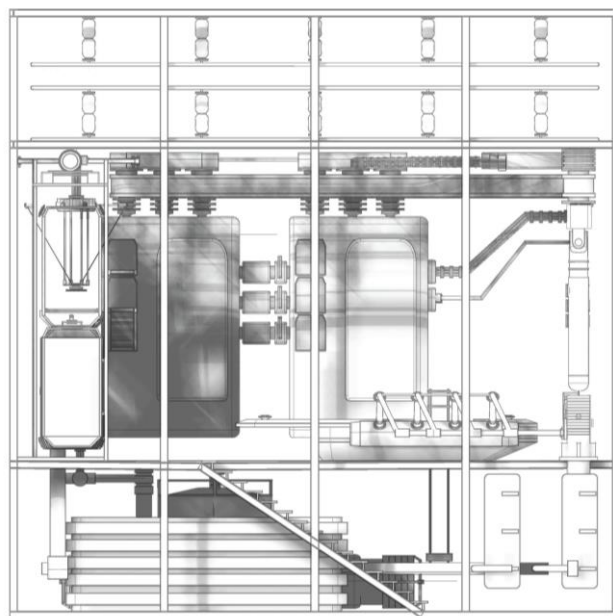


Figure 4.32 elevation

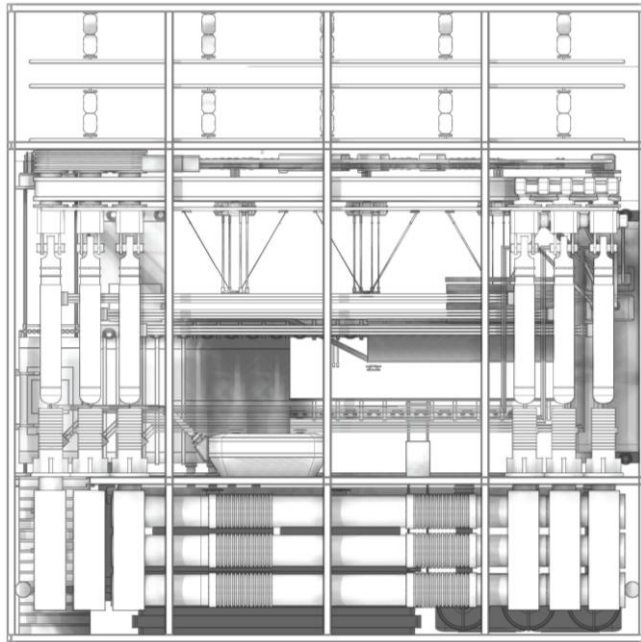


Figure 4.33 elevation 2

3) components

"Figure" food space, directly into "energy" were edible, space consists of several major functional components as a whole.

a. Food into/waste discharge device (figure 4.34)

Food into/waste discharging device is a "digital" food in space are part of the operation of the first, also is "number

Word "space food in contact with the food the only link. Various foods (meat, fruits and vegetables, fresh and so on) can be arbitrary input here, waiting to be transferred to the next link." Number "waste from the production of food production process which discharge port.

b. Food sorting arm (figure 4.35)

Food arm can be sorting through its sensing device, to identify the kinds of food were put in, and carries on the Classified sorting.

c. Classification of transmission and processing module (figure 4.36)

The functional monomer with multiple transmission device, in charge of will be sorting classified food delivered to the food additive

Engineering equipment. In the food processing link, the first batch of waste generation, and in accordance with the corresponding transmission line to component 1, for collection

d. Nutrition converter (figure 4.37)

Food after preprocessing, into the nutrition, it is also a "number" food is an important component part of the space. Here, in the daily life of common "food", "ingredients" into "pill" on behalf of the energy. In this part, "waste", the second part of the so-called "waste" for the excess, temporarily do not need to "energy", storage area of the converter are centralized recovery in nutrition, real waste left along the preset pipeline, back to the component 1, for people to unify.

e. bed (Nutrition monitoring terminal (figure 4.38))

"Bed" in the space of the food, not only on the function of "for people to sleep". "Bed" as the terminal of connecting people and food processing components, have the function of the detection and control. In sleep, rest in the process of monitoring the energy body parts, control work "food processing equipment. When every day morning, when the food production process, "bed" food conveyor mouth open, a pass on the energy of the day - life pill.

f. Electricity system (figure 4.39)

Traditional food in space gas, fire and other foods in the "number" ceased to exist in the space. "Digital" food space the components in the equipment, all rely on the power and operation. So the distribution of electric power system components operation support the first half of the food in the digital space, become an important part of food in space.

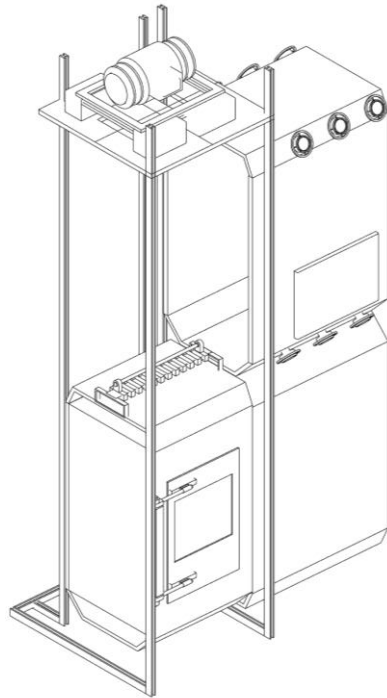


Figure 4.34 Food into/waste discharge device

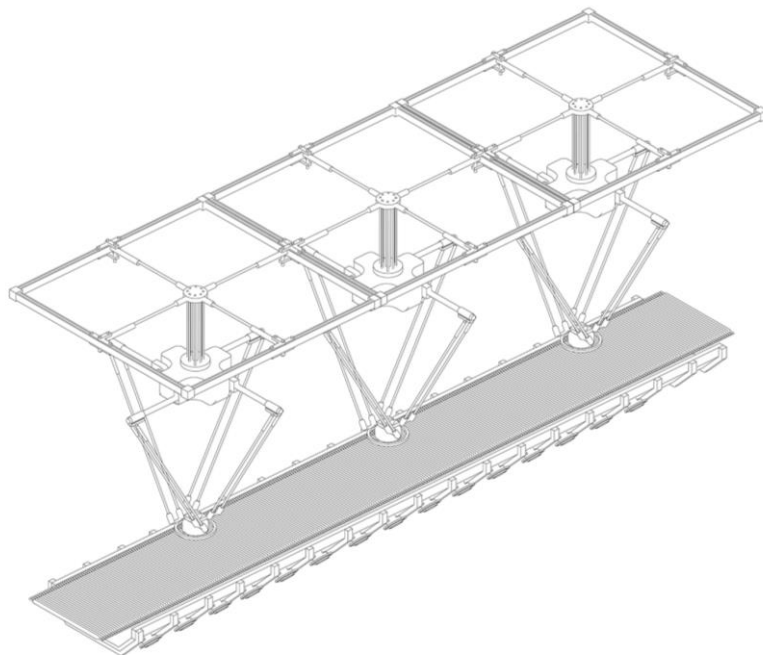


Figure 4.35 Food sorting arm

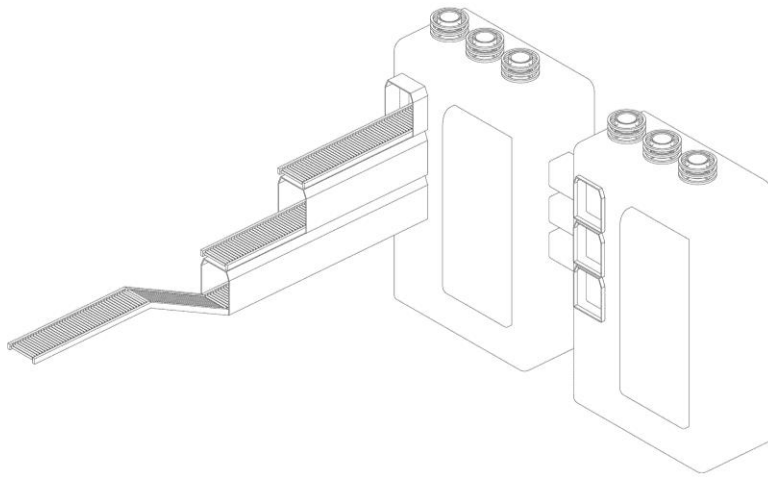


Figure 4.36 Classification of transmission and processing module

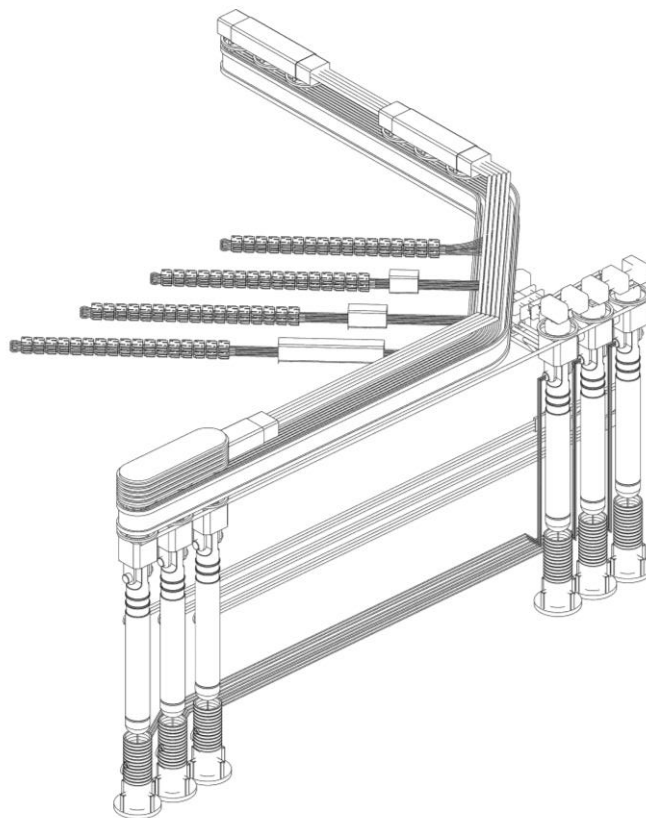


Figure 4.37 Nutrition converter

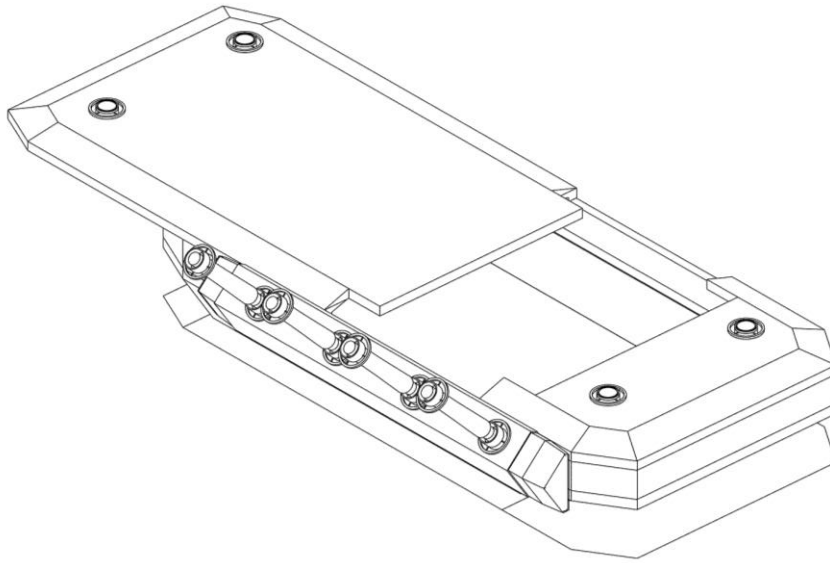


Figure 4.38 Bed

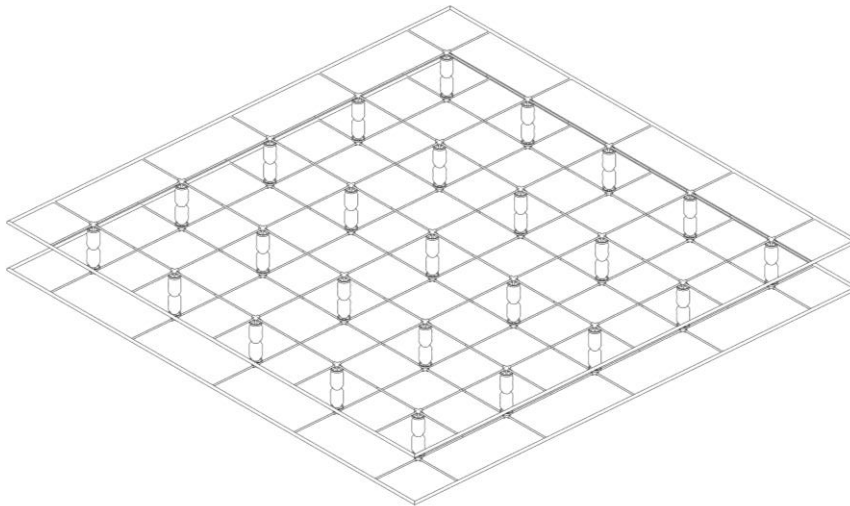


Figure 4.39 Electricity

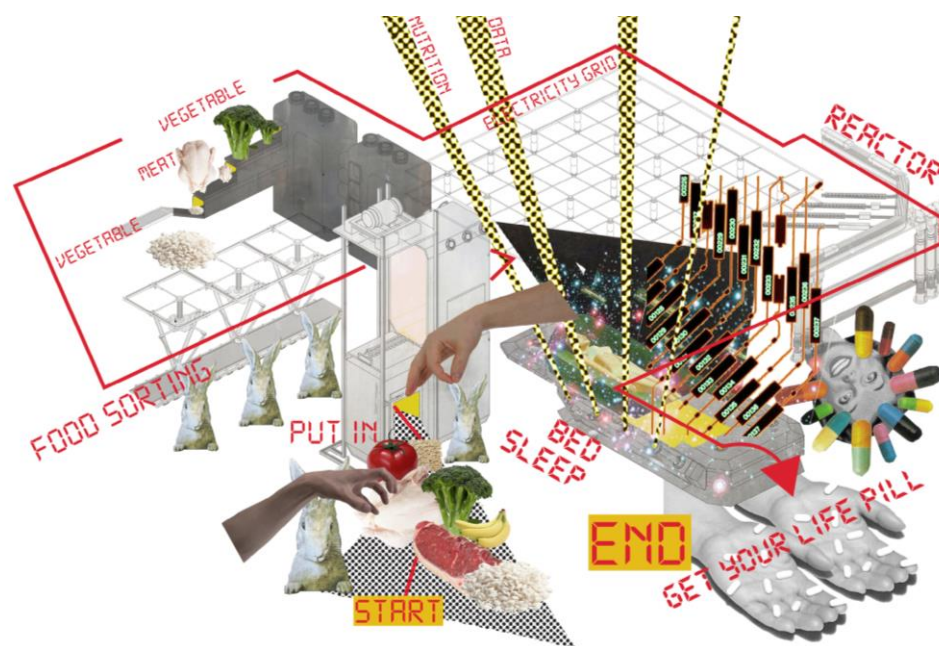


Figure 4.40 "Figure" food space work flow diagram

4) 24 hours life (figure 4.41)

"Digital" food space, people's rational, repetition, and food cold relationship, determines the "regularity" of the people live in it. Here in 24 hours for a "food" operation cycle.

6.00 PM: "food" in TouRuKou components (1) is "hero", food from the elevator traction device mentioned + 2 m place, waiting for sorting to pick up. "Food" including a lettuce, an apple, a handful of rice and a piece of beef.

6.05 PM: sorting device (component 2) launch, lettuce and apple was sorting to fruits and vegetables conveyor belt, rice sorting to the starchy, beef was transferred to the meat section.

6.10 PM: sorting work completed

6.12 PM: pre processing components (component 3). Different food disinfection, cleaning, crushing, respectively. The first batch of solid and liquid wastes, the liquid into the liquid pipelines, solid transport component 1 for recycling.

8.00 PM: is processed. "Food" of the form has been scattered along the was sent to nutrient conversion device (4) module, food is broken down by further extraction.

11.00 PM, "the hero" back to the space of food, to sleep. "Bed" program start, began to monitoring of human body, collect data, and send back to nutrition conversion

device.

3.00 am: nutritional converter classification decomposition. "Bed" transmit the data to complete human body. On-demand synthesis. Excess nutrients are stored for later use.

5.00 am: food - "life pill" has been completed, sent to wake up the device.

8.00 am: "the hero" awakened, wake up device pop-up life pills, screen display has been testing the physical indicators, and all kinds of nutrients in the storage area, storage today need to be put into a chicken, three bananas and a piece of cheese.

8.00-9.00 am: "the hero" wash and dress, change clothes and leave.

.....

6.00 PM: "food" in TouRuKou components (1) is "hero", food from the elevator traction device mentioned + 2 m place, waiting for sorting to pick up. "Food" including a chicken, three bananas and a piece of cheese.

.....

The protagonist in the space of life, "number" food daily energy monitoring and complement, step-by-step, so cycle.

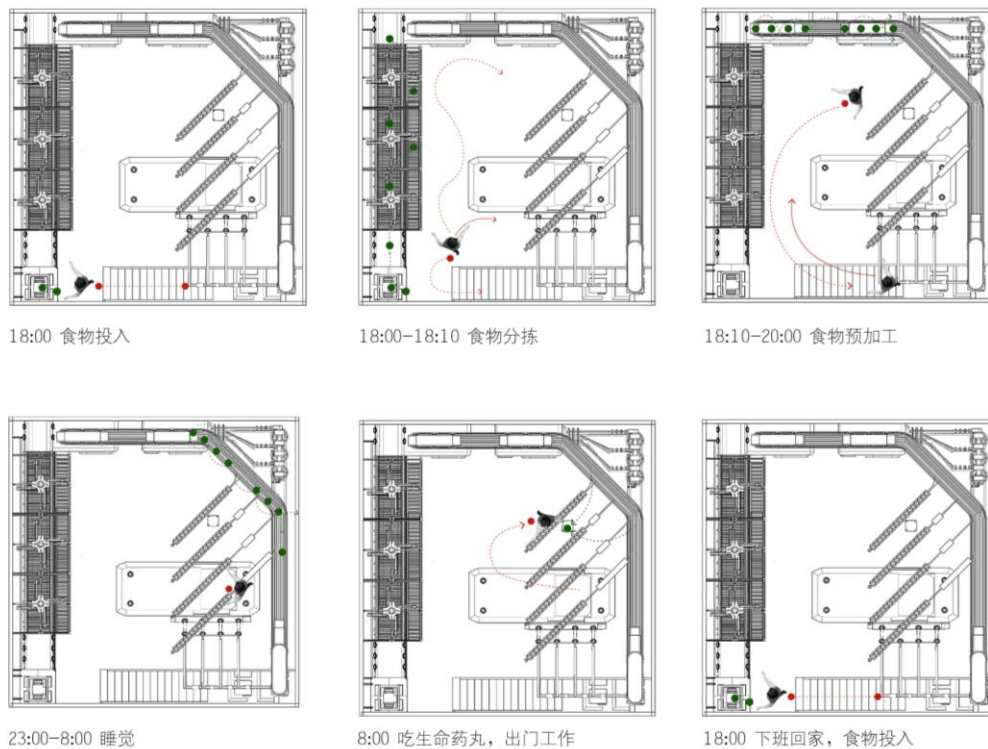


Figure 4.41 24 hours life (green: food red: people)

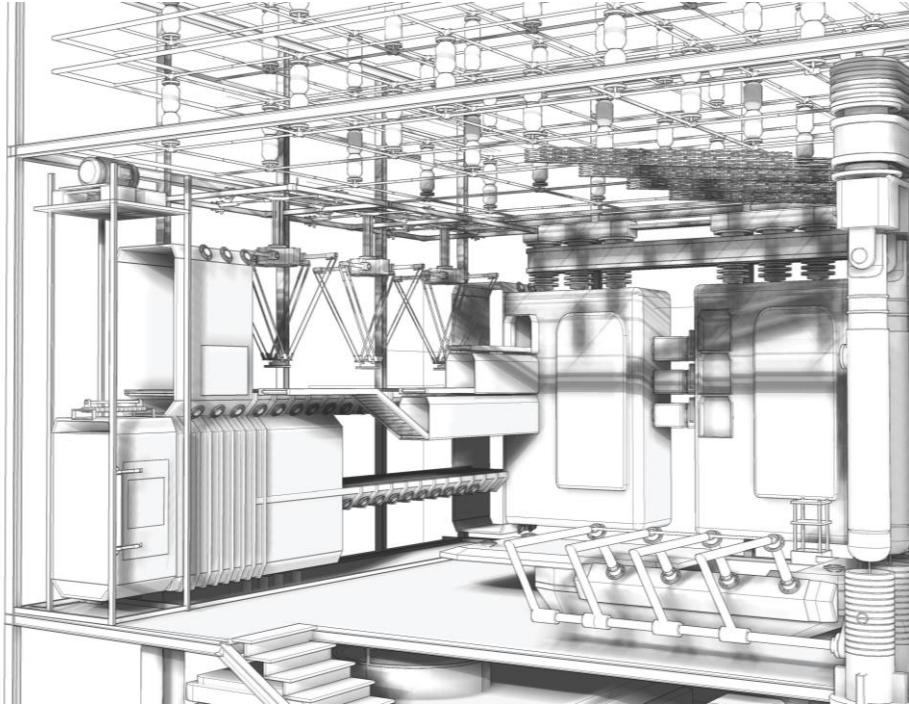


Figure4.42 Rendering

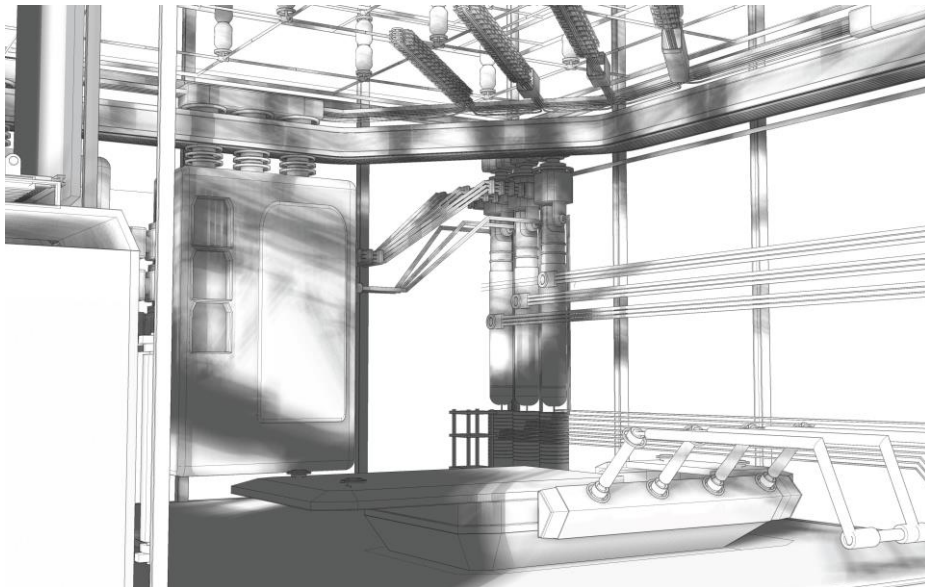


Figure 4.43 Rendering 2

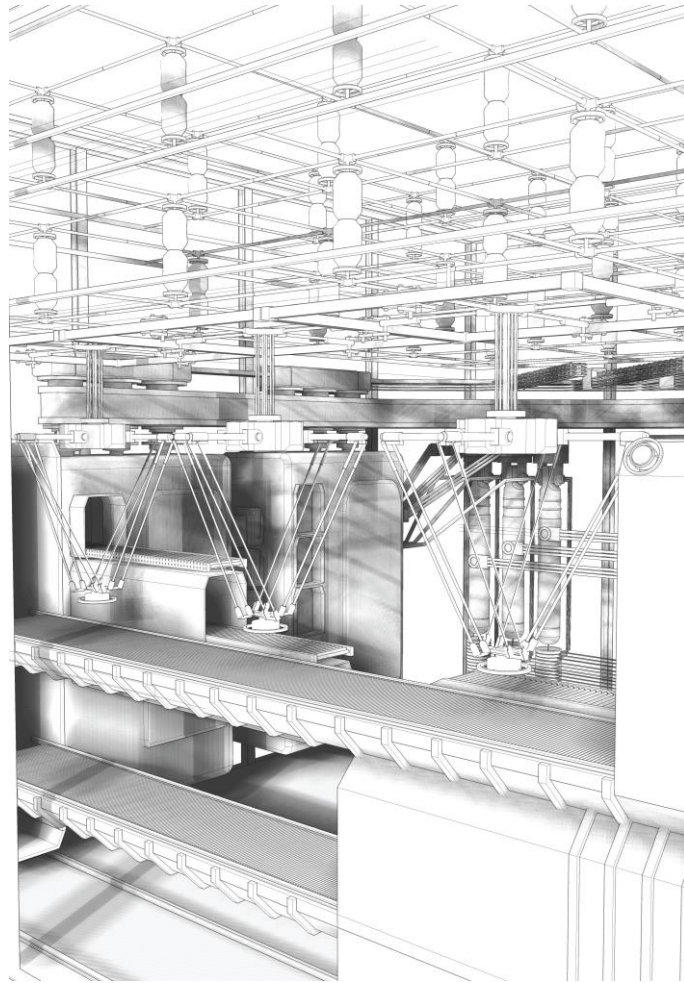


Figure 4.44 Rendering 3

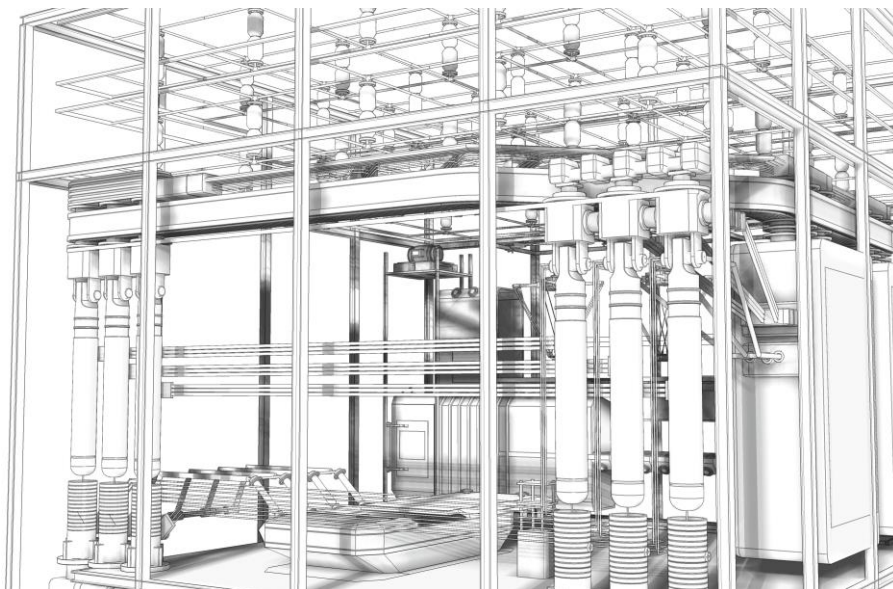


Figure 4.45 Rendering 4

4.3 More space of provisions briefly

4.3.1 Space of provisions: "cooker"

1) Relationship with food

"Cooker" food in the space, people through a variety of small tools, cookers, electrical appliances production of food (figure 4.46). Under the background of refinement of social division of labor, food, space of the function of the feeder are more detailed. Various feeder with the technical characteristics, function is clear, the complex cooking process into a simple gesture and program operation, made of food standard, superior, people's work efficiency improved diet activities. People enjoy food convenient, comfortable in the process of making food expense, thus the relationship between human and food is indirect, episodic.

Key words: efficiency, technology

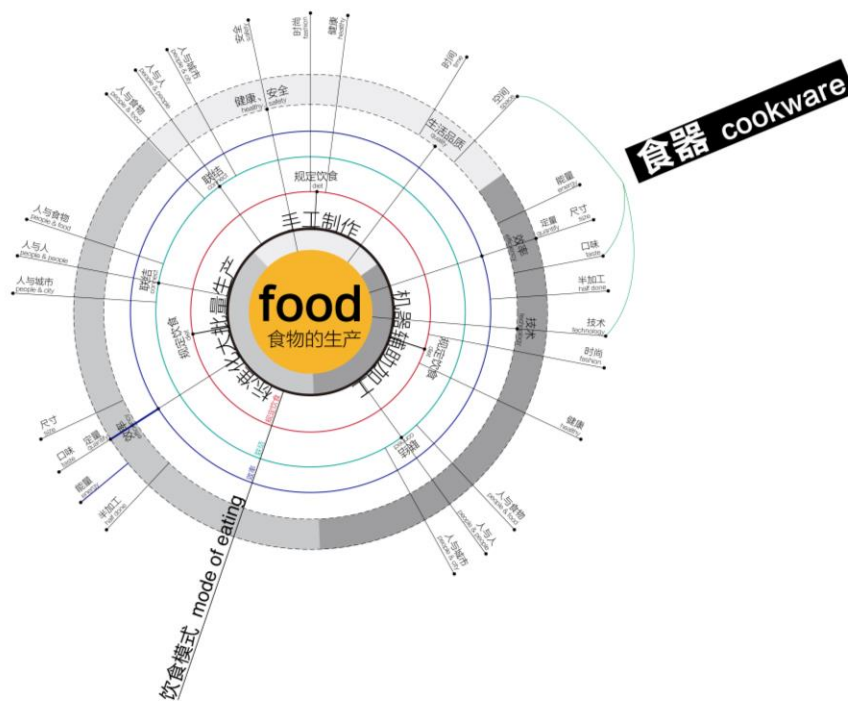


Figure 4.46 "cooker" export food space network diagram

2) Life describe

People: Elite couple

Reality: " rice cooker"

The development of industrial technology make various kinds of "feeder" presents a explosive growth. The more social division of labor is clear, "feeder" food space, every behavior, every function can be done with a machine. This kind of high efficient space and a symbol of the technology and knowledge of food is a knowledge, wealth and status of the elite family love.

Different container for different kinds of food storage, various types of special cutting tools, cooking food of different pan, oven, stove... At the same time, the new "feeder" is still in the every moment in was invented, and a variety of cooking food by the machine type is increasingly multifarious.

Diet activities have no lampblack, sweat, and manual labor "unclean" scene, with the help of various feeder, all get organized, even if you don't know how to cook, under the guidance of operation instructions, also can easily finish a big dinner table. Elite families will diet activities into a mechanical operation, as for the "food" is really about, they have no longer care. "Feeder" space, food has eroded into a larger feeder, and the people in it is just an operator.

But people are still unable to extricate themselves in it. In front of the large feeder, seems to have no "right" and "wrong", some only the love of "modern" way of life.

4.3.2 Space of provisions: "ceremony"

1) Relationship with food

" Ceremony " food space, food is no longer important to people. Once, the person to associate with others and fixed the three meals a day time, so in the ceremony of food space, food has become a symbolic symbols. Whether it's homemade food, or restaurant in the city, food is under the extreme condition connect people bond. In the "ceremony" food space, beyond the simple significance of nourishing the body, eat what, how and who eat, communication, etc., make this form has the rich connotation of infinite (figure 4.47).

Key words: connection, dietary patterns

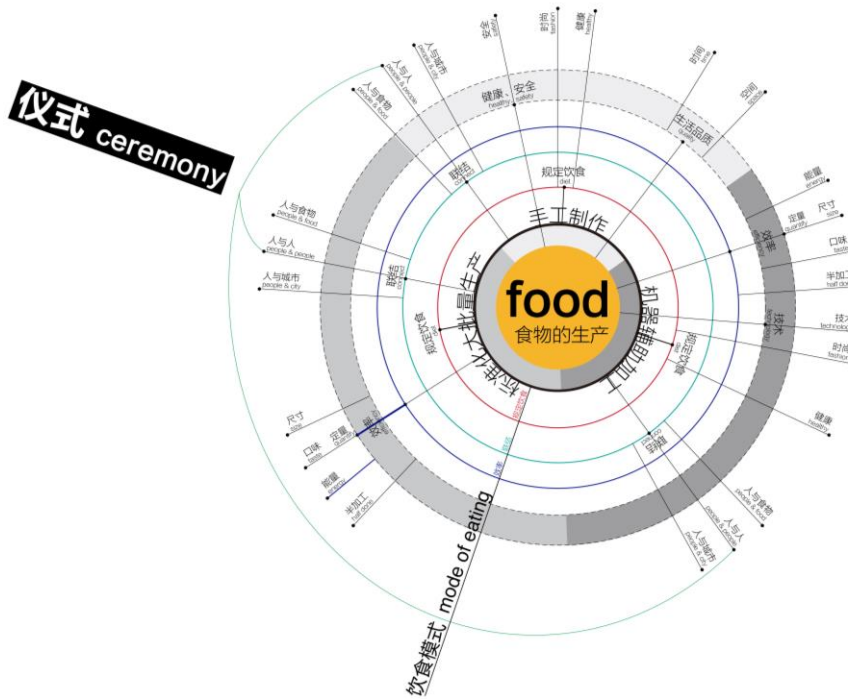


Figure 4.47 "Ceremony" of export food space network diagram

2) Life describe

People: anyone

Reality: " family reunion dinner", "kichen & living room"

People with others in order to have a meal together and unified the three meals a day time, but when food type explosive growth, when the method is more and more for getting food, eat when this behavior is becoming more and more convenient and anytime and anywhere, when dinner is just added a pill, for people to eat another layer of meaning is more apparent - interaction. "Ceremony" diet space is created. People sat together on time in this space, the atmosphere of the space is filled with old eating, exquisite tableware, clean cloth, the light source of a comfortable, food zi zi, voice, and some lampblack sweet sweet taste, or any other touch the emotions. Food in this space

is not important, important is in addition to food.

4.4 Summary of this chapter

This section for the design part of the study. Filtered through to the above summarizes factors adjust chapter 3 (superscript rd) was deduced by the "food space" network structure, set up "food space" refactoring principle: critical principle and experimental principle. Can try to reconstruct the several different "food space" theme. Listed in this section of the categories of "food space" is in the many possibilities and the present condition of the contemporary life contact more closely, more easy to make readers resonate with several types.

On the other hand, the "growth", "virtual", "number" of the three types of food space is mainly the type of space in this experimental research. In the process of experimental reconstruction, this three types of food space in its relationship with food to a virtual x8x8m (8) in the space, and develop into a state of extreme, as a criticism of contemporary life relationship between human and food. This refactoring is not in order to solve a particular type of practical problems for fundamental purpose, more is the hope would be more clear the relationship between human and food, causing the reader to think about the present way of life, in order to achieve the study for the purpose of the experimental refactoring "food space".

Chapter 5 Epilogue

In contemporary society, the development of technology, the acceleration of urbanization, the continuation of consumer culture under the influence of various factors, such as people's eating habits, the composition of the diet and food are the major changes. Through the "food" to go to the people, and even more extensive and complex environment (city) the various states is unique research perspective of this article.

Introduced in this article, through the study of literature, the related case research perspectives, and in the second chapter through a lot of "food" in the life phenomenon observation to build a social panorama image of "food". In chapter 3 of this article, from food production and build social relationships by food the Angle of the two mentioned above make a panoramic view of observation was carried out and analyzed, and draw the corresponding relation and constitute the basic elements of these relationships. Summarizes the elements of the basic composition of food in the role of the contemporary life. At the end of the chapter 3, the relationship between these elements is presented in the form of network structure, as a conclusion. On this basis, the chapter 4 as the design part of the study. Filtered through summarizes the elements of the adjustment, the final development phenomenon of reconstruction for the space, the reconstruction of the elements of space will be different to a state of extreme, as a criticism of contemporary life relationship between human and food, achieved the study for the purpose of the experimental refactoring "food space".

In "food space" for the reconstruction of the experimental process, the "food" has transcended the nutritious body a single meaning, diet as an important part of the family life, the practice of work related to food, food, and eat the tutor etiquette etc are largely defined by family roles, rules and traditions. At the same time, to simply "satiety" purpose of this layer, "what are we going to eat" in their daily lives, "whom we eat meals with" has become in contemporary society and community and even a way of contact between the two cities. To explore the attitudes of people around the food, practices and rules, is actually to own the most basic beliefs and our life world.

Part in the design of the study - "food space" experimental reconstruction, is the social relationships between people and food under the extreme means of rendering. The core meaning of the research is not the solution to one kind of social problems in real life, the more value is embodied in detail by means of life we often no direct

perception of the subtle relationship of amplification, triggered by food this Angle to self, family, life, culture and other thinking and review, and then to more future-oriented thinking space design questions.

Reference

- [1] Counter Space: Design and the Modern Kitchen [M]. Museum of Modern Art, New York, 2011
- [2] (英) 布莱恩·特纳. 身体与社会[M]. 沈阳:春风文艺出版社, 2000.
- [3] (意) 伊塔洛·卡尔维诺. 看不见的城市[M]. 江苏:译林出版社, 2006.08
- [4] 汪民安, 陈永国. 后身体:文化、权利与生命政治学[M]. 长春:吉林人民出版社, 2003.
- [5] (德) 雷德侯. 万物: 中国艺术中的模件化和规模化生产[M]. 北京:生活·读书·新知三联书店, 2012.
- [6] (法) 尚·布希亚. 林志明译. 物体系[M].上海: 人民出版社, 2001.04
- [7] 吕俊华, 彼得·罗, 张杰. 中国城市住宅: 1840-2000 [M]. 北京: 清华大学出版社, 2002
- [8] (日) 光藤俊夫, (日) 中山繁信. 居住中的水与火: 厨房、浴室、厕所的历史[M]. 北京: 清华大学出版社, 2010.07
- [9] (日) 稻叶和也, (日) 中山繁信. 刘缙译. 图说日本住居生活史[M].北京: 清华大学出版社, 2010.01
- [10] (日) 茂木计一郎, (日) 稻次敏郎, (日) 片山和俊共著.中国民居研究: 中国东南地方居住空间探讨[M]. 台北: 南天书局, 1996.09
- [11] (日) 中村好文. 林铮顛译. 住宅读本[M]. 北京: 中国人民大学出版社, 2008
- [12] (日) 中村好文. 林铮顛译. 住宅巡礼[M]. 北京: 中国人民大学出版社, 2008
- [13] 刘敦桢. 中国住宅概说[M].台北: 明文书局, 中华民国七十年四月
- [14] 刘敦桢. 中国古代建筑史[M].北京: 中国建筑工业出版社, 1984.06
- [15] 潘谷西. 中国建筑史[M].北京: 中国建筑工业出版社, 2003
- [16] 周维权. 中国古典园林史[M].台北: 南天书局, 1993
- [17] 陈从周. 中国民居[M].台北: 清华大学出版社, 2009
- [18] 钱杭, 承载合著. 十七世纪江南社会生活[M].台北: 南天书局, 1998.06
- [19] 王玉波. 中国古代的家[M]. 北京: 商务印书馆, 1997.05
- [20] 朱倩茹. 明人的山居生活[M].新北: 花木兰文化出版社, 2011
- [21] 阎爱民. 中国古代的家教[M].北京: 商务印书馆, 2013
- [22] (明) 文震亨. 长物志[M].北京: 中华书局, 2012.07
- [23] (明) 计成. 园冶[M].北京: 中华书局, 2011.08
- [24] (清) 袁枚. 随园食单[M].扬州: 广陵书社, 2008.04
- [25] (清) 李渔. 闲情偶寄[M].北京: 中国画报出版社, 2013.01
- [26] (英) Anne Massey. Interior design of 20th century. London : Thames & Hudson, 2001.08
- [27] (美) 罗启妍. 中国古典家具与生活环境[M].香港: 雍明堂出版社, 1998

-
- [28] (美)那仲良,罗启妍. 家:中国人德居家文化(上)(下)[M].北京:新星出版社,2011.11
- [29] (美)罗启妍. 古承今袭:中国民间生活方式[M].香港:雍明堂出版社,1999
- [30] 周燕珉. 住宅精细化设计[M].北京:中国建筑工业出版社,2007.11
- [31] 周燕珉. 邵玉石. 住宅复合型厨房空间研究[J].建筑学报,2003.3
- [32] Charles • Nickie, Kerr • Marion. Women, Food, and Families [M]. Manchester: Manchester University Press, 1988.
- [33] Julius Panero. 人体尺度与室内空间[M]. 天津:天津科学技术出版社,1999
- [34] 张月. 室内人体工程学[M].北京:中国建筑工业出版社,1999
- [35] 张绮曼. 郑曙暘主编. 室内设计资料集[M].北京:中国建筑工业出版社,1991.06
- [36] 周燕珉. 林婧怡. 我国城市住宅厨房的演进历程与未来发展趋势[J].装饰,2010(11)
- [37] 王强,白羽. 中国古代灶具设计演变研究[J].装饰,2010(11)
- [38] 朱婕. 中国饮食文化和烹饪行为与整体橱柜设计[J].装饰,2010(11)
- [39] 李露露. 传统节日中的饮食风俗[J].装饰,2008(02)
- [40] 程犁. 定格生活看中国当代文化适应——围绕餐桌上的变化引发的思考[J].装饰,2010(07)
- [41] 牟晋森. 现代城市住宅厨房家具的设计研究[D].上海:同济大学建筑与城市规划学院,2006.03
- [42] 胡溪. 网易旅游综合频道[N/OL].[2015-02-12].
<http://travel.163.com/15/0212/09/AI895QR300063KE8.html>