

*Research on Urban Organic Renewal from the Perspective  
of the Healthy City  
Taking the Renewal Practice of  
Huafeng Paper Mill in Hangzhou as an Example*

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1. Introduction

In recent years, with the continuous improvement of China's urbanization level, a large number of people have entered the city and metropolitan area to live, followed by a variety of problems such as insufficient living facilities for residents, insufficient urban public resources, and shortage of urban land. Judging from the urban development in the past two years, the urban incremental spatial development has approached a certain limit. People living in cities have a faster pace of life, and chronic diseases caused by bad habits are becoming more and more serious.

Aiming at these two phenomena, this paper conducts research on the concept of healthy city, the configuration of community living circles and the idea of urban organic renewal, and finds out through understanding the planning elements of healthy cities, the configuration of various facilities in the community's living circle, and the concept of organic urban renewal. The implementation strategy of urban organic renewal from the perspective of healthy city. It is hoped that while meeting the needs of residents' lives, they can be guided to adopt proactive health strategies; while protecting the existing social and cultural values of the city's built environment, it can also create new economic, social and environmental benefits. This paper takes the industrial remains of Huafeng Paper Mill in Gongshu District, Hangzhou City as an empirical research object, and proposes organic renewal strategies and renewal design schemes.

According to this process, this article is divided into three parts:

1. Conduct research on the theory of healthy cities, understand the development of healthy cities, basic concepts, planning systems, health impact assessment and other theoretical knowledge, and learn about the construction methods of healthy space systems through cases.

2. Research the fifteen-minute community life circle under the direction of a healthy city to understand the development overview of the community life circle, spatial elements, and the construction and measurement of spatial models. Lay the foundation for empirical research and analysis.

3. Conduct empirical research, comprehensively use the renewal strategy of healthy cities and the allocation strategy of community life circle, and carry out the selection and application of organic renewal practical strategies

The perspective of a healthy city guides the planning of community life circles and combines them with urban organic renewal activities, which is one of the foreseeable urban renewal directions. This article hopes to promote the process of empirical research by tentatively combining the above-mentioned theoretical concepts. By sorting out the difficulties and problems encountered in the research process, we will lay the foundation for the next step of research.

2. Research Summary and Overview

2.1 Related Theories of Healthy City Planning

As for the healthy city, its theoretical composition is mainly divided into two systems, one is the healthy city planning, the other is the healthy city evaluation.

The former mainly improves the health level of residents and communities through specific planning elements, such as land use, transportation system, etc., while the latter affects the health of residents through the evaluation of policy effects and related indicators.

There is a broad correlation between built environment and health.

According to the research of American scholars such as Paul A. S. Andifer (2015), the possible health effects of some of these environments mainly focus on the aspects of psychology, cognition, physiology, disease exposure and control, society, aesthetic culture and entertainment,

providing tangible physical environment and resistance to disease (from the perspective of individuals and communities).

A large number of scholars have also verified the reliability of built environment and personal health through quantitative research. According to current research results, the impact of built environment on human health is mainly concentrated in four aspects:

#### (1) Built environment and physical activities

Existing studies have shown that built environment is closely related to people's physical activities, especially the physical activities dominated by active physical activities, such as walking and running.

According to the research of American scholar Marissa M.Shams-White on the connection between the fitness activities of teenagers and the built environment in the United States, the built environment and the economic and social conditions in the neighborhood will significantly affect the physical activities of teenagers.

And living in built environments that are more livable and walkable is more conducive to physical activity for adolescents.

Jordan A.Carlson also demonstrated, by integrating health records with walking data, that fewer adolescents in walkable neighborhoods are overweight or obese.

In addition, several studies have shown that accessible gridded neighborhoods, mixed-use land, and components of the built environment, such as neighborhood parks and street-side green Spaces, promote physical activity and thus have a positive impact on human health:

#### (2) Built environment and dietary structure

Generally speaking, the diet structure belongs to the residents' personal living habits, and the reasons for its formation are more complex.

And an unhealthy diet can easily lead to chronic diseases.

Some forms of business, such as restaurants, supermarkets, and farmers' markets, which serve as food sources in the built environment, are thought to be associated with the diet of the inhabitants or with chronic diseases such as overweight and obesity.

According to M.Hobbs' research on the availability of

fast food and the situation of overweight residents in Yorkshire, UK, overweight or obese people are surrounded by more high-calorie food such as fast food restaurants than the general population. In the study of Renata G.Paulitsch, the author further provided a direct relationship between different types of food supply sources and BMI, and concluded that people close to convenience stores were associated with higher BMI, while people close to fruit stores and fresh food stores were associated with lower BMI. To sum up, the relationship between the built environment and the dietary structure of the inhabitants lies in the types of food supplies it provides and the different availability of different food types.

If the land use around the community living circle is adjusted to make the selling points of fresh food more abundant and more convenient, it will have a more positive impact on the dietary structure of residents to a certain extent.

#### (3) Health risks caused by built environment and pollution

The correlation between the two and their impact on health is relatively straightforward.

Factors such as land use and transportation systems within the built environment pose different health risks.

For example, industrial land can produce air, water and noise pollution in many aspects, which may be transformed into health risks, directly or indirectly affecting the health of the surrounding residents.

The design of transport systems is also an important source of pollution and health risks in cities. According to a study by Dutch scholar Lizan D.Bloemsma, with the increase of exposure to nitrogen dioxide, the probability of overweight among teenagers aged from 3 to 17 increases.

#### (4) Built environment and mental health

According to the existing research findings of Li Ze et al., the current research results at home and abroad generally believe that built environment and mental health have direct and indirect effects.

Here the researchers built environment can be divided into the urban structure level, space form and visual hierarchy level, different levels and elements such as the influence on mental health can be divided into two kinds, respectively by sensory directly affect and formation of sites and services provided by the built environment such as indirect effects,

such as some social activities, security, etc.

The links between health and the built environment are broad and complex and varied.

It is helpful to further study the factors of healthy city planning through sorting out the related factors of built environment and health.

### 3. A Theoretical Review of Community Living Circle from the Perspective of Healthy City

Community is the basic unit of a city. The implementation of healthy city depends on the construction of healthy community. This chapter will focus on the construction of community living circle system from the perspective of healthy city. Based on the strategy of healthy city planning at city scale and the related requirements of current community living circle configuration, the allocation strategy of community living circle is put forward.

#### 3.1 A Theoretical Review of Community Living Circle

According to the standard of local special planning, Shanghai is the city that carried out the 15-minute community living circle research earlier in China, and also the city that carried out community planning and practice earlier. At present, the research on the special planning guidelines is relatively perfect. At the same time, the urban built environment of Shanghai is relatively complex. The study of community living circle is also more detailed. In addition to the classification and grading of various planning elements, various specific indicators and corresponding ways of connecting urban planning with urban design are also considered. This study will take the indicators of Shanghai planning guidelines as the corresponding basis to solve the index problem of community living circle reconfiguration.

In the guidelines issued by Shanghai, the specific contents of the community life circle are divided into five parts: residence, employment, travel, service and leisure. Through sorting out the Guidelines, we can get the spatial index of the 15-minute community living circle construction in Shanghai.

#### 3.2 Community Living Circle Configuration System from the Perspective of Healthy City

From the perspective of healthy city, the allocation system of community living circle is mainly composed of

the spatial model of community living circle (scope delineation), the selection of community living circle elements, the coverage rate of facilities in community living circle elements, construction indicators, and the quality of facilities.

### 4. A Theoretical Review of Community Living Circle from the Perspective of Healthy City

#### 4.1 The Basic Characteristics of the Community Living Circle

As stated in the previous study on the 15-minute community living circle case, the establishment of the 15-minute walking range first requires obtaining the traffic network, traffic facilities and water system in a large-scale area to determine the facility points, network systems and obstacle conditions required for network analysis. Obtaining the contour and height of buildings in the region can be helpful for the next step of architectural environment analysis and surrounding design demonstration.

On this basis, according to the network analysis method mentioned above, 18 residential areas were selected as the starting point to construct the community living circle according to the road network, and 5 minutes, 10 minutes and 15 minutes were used as partitions to construct the community living circle in layers.

It can be seen from the nuclear density analysis that a large number of facilities are distributed in the west plate of the bridge on the east side of Xitang River. For the west part of Xitang River, the facilities on the east side of Dengyun Road are concentrated, which can be inferred that the configuration is relatively complete. At the same time, the distribution of facility points basically formed a distribution pattern along the road, with Moganshan Road-Dengyun Road, Moganshan Road-Pingshui Street intersection most concentrated. In line with the basic spatial characteristics of service facilities distribution.

At the same time on the density of population density and space facilities matching dimensions, we can draw three relatively obvious conclusion, xitang river west southwest part unit facilities with relatively, river street and harmonious border peace street lane configuration, concord nanyuan area is relatively perfect, and because huafeng land for the factory before, the current configuration is relatively lack, need to increase the configuration.

## 4.2 Reconfigure the location of the facility

The following factors are mainly considered for the site selection of facilities reconfiguration:

### (1) From the demand distribution to set site selection

From the perspective of demand distribution, the incremental space is mainly concentrated in the northwest of the community living circle, and the corresponding incremental space should be matched with the configuration of the future community living circle.

For the stock space, since the space utilization within the stock is approaching the limit, the allocation of new facilities for the stock demand should focus on the edge connecting with the incremental space or improve the efficiency of the existing land to enhance the space capacity.

### (2) Taking into account the development characteristics of the plan

From the perspective of planning and development, the planning defines the disposal of different Spaces such as reservation - protection, demolition - reconstruction, and the utilization of large residential, commercial and office land.

At the same time, the road network structure and road level in the space are clearly constructed and graded.

As for the configuration of the service facilities in the community living circle, it should be fully combined with the needs of the community and the facilities should be arranged in a position with better accessibility.

### (3) Taking other factors into consideration

In addition to the above policies, there are other factors to consider when configuring the service facilities.

For example, at the level of healthy city planning, it is necessary to improve the intensity and efficiency of mixed use of land. Therefore, it is necessary to consider the full

mix of land use in the process of facility allocation and design the volume and form of facilities accordingly.

Or in the landscape protection areas and conservation protection of the built heritage design, it is necessary to choose the appropriate functional facilities combined with the design of the stock space.

## 5. Conclusion

The main purpose of this study is to apply the healthy city theory to the protection renewal of the existing built environment in the city based on the 15-minute community living circle by combing the healthy city theory and combining with the existing planning and design guidelines of the healthy city.

By sorting out the implementation framework of "idea-plan-space design", it is helpful to understand the theoretical research direction of healthy city and realize the local practice of the theoretical research content.

Through combing the development of healthy city, basic concept, components and evaluation system of healthy city planning study, the intention of combing previous studies by means of theoretical research on how to request to the corresponding urban planning index, the planning level of relevant indicators and how to implement the specific design of city space scale.

In the first stage, the goal and direction of urban development should be transferred. Compared with traditional urban planning, the concept and thought of pursuing efficiency and balance should be pursued.

In the third stage, it is necessary to formulate corresponding conceptual plans for the protection and renewal of existing cities or the construction of new development areas according to the corresponding guidelines and detailed control regulations of each city.