Sustainable Renewal of Recent-Past Detached House Based on Dynamic Development

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Abstract. Through the analysis on the concept and characteristics of the recent-past detached houses, the necessity of sustainable renewal was expressed. On this basis, it analyzes the specific objects and technical routes of sustainable renewal of recent-past detached houses from multiple levels. Based on the aspects of building entities, external environment, and living form, this paper proposes a preliminary sustainable renewal strategy for the recent-past detached house.

1. Introduction
In the process of urban modernization, the speed of building renewal is constantly accelerating. Extensive renovation methods have led to the large-scale demolition of old buildings. After more than 50 years of tortuous development, Recent-past detached houses have recorded the alternates of urban social history, the track of residential function and the changes of human landscape. It is not only an important memory node of a city, but also a detailed material for studying modern history. However, it is incompatible with modern lifestyle in both material and non-material aspects. Therefore, how to carry out reasonable and effective sustainable renewal of recent-past detached house is the current issue.

2. The features of recent-past detached house
Recent Heritage is a very important part of human heritage, they are an important carrier of the social development process. Professor S Zhang of Tongji University proposed: "Recent Past" is a technical term commonly used to describe historical and building resources with a period of less than 50 years[1]. Therefore, we can define the "recent-past detached house" as a detached residential building that has been built less than 50 years but has a certain protection value, as well as the external environment and living forms it contains. As an indispensable part of the recent-past architectural heritage, detached house are significantly different from the buildings of other periods.

2.1. Continuation and replacement of functions.
Recent-past detached houses have not been built for a long time, most of them are well preserved and are still in continuous use. Due to its good geographical environment and cultural atmosphere, some owners have been attracted to abandon the residential function of the original building and replace the building for commercial, office or other uses. The original building is facing a severe test of functional change and different use requirements. Most owners redesign or even demolish and rebuild according...
to their preferences and needs. Due to the lack of effective and correct guidance for sustainable renewal, the original architecture style and external environment have changed greatly, which has irreversibly affected the original value.

2.2. Value diversity
Buildings in different periods or different regions will be affected by the current time and space. This influence makes the exterior image of the building have unique cultural and aesthetic values, thus reflecting the cultural and era characteristics of the construction period. Because of this, the value connotation of recent-past detached house is not only the building entity, but also the social history, living environment and many intangible heritage carried by the building[2]. Although recent-past detached houses are facing the decline of the material and non-physical levels, their distinctive architectural style, comfortable external environment, and leisurely living form still make them have sustainable development potential.

2.3. Affective identification
Most of the existing recent-past detached houses are still dominated by residential functions. The rich buildings forms fully reflect the traditional life. Make a unique life scene with the people who live in them. These have emotional meanings that cannot be separated from the original residents of the building. As a important witness to the development of residential buildings, recent-past detached house have also continued the culture and memory of a city. To carry out a comprehensive and multiple perspectives sustainable renewal on it, it can play a greater role in promoting the protection of urban culture and maintaining emotional bond, and can obtain high affective identification.

3. The object of sustainable renewal of recent-past detached house
To achieve accurate and efficient renewal design, first of all, it is necessary to clarify the objects of sustainable renewal. that is, the content of sustainable renewal value that is covered by "recent-past detached house". Through systematic value assessment and analysis, it can be roughly divided into several aspects.

3.1. Building entities
For the design of recent-past detached house, the architects at the time fully considered the owners' living habits and preferences, and focused on the issues of dynamic and static relationships, primary and secondary divisions, and streamline organization within the building. The building is also more sophisticated in appearance. While adopting modern architectural design techniques as a whole, it also introduces unique regional characteristics. As a product of a specific social background, it preserves a relatively unique architectural style(Figure 1). In terms of the level of architectural design and construction at that time, it was extremely valuable.
3.2. External environment

The biggest difference between detached residential buildings and other types of residential buildings lies in its superior external environment. Buildings and the external environment are an inseparable relationship. Buildings separated from the external environment will become isolated individuals, and the external environment is meaningless without the existence of the building. With the replacement of the functions of some detached houses, the living functions with strong privacy are gradually replaced by semi-public functions such as commerce and office. The external environment is no longer only for the service of a single household, the internal and external landscape permeate each other. The boundaries of public space, private space, semi-public space and semi-private space in the external environment become increasingly blurred.

3.3. Living form

For the recent-past houses, which were built relatively recently, its unique charm lies in its continuous vitality, which is mainly determined by its characteristics that are still in use and constantly changing. The attention to the existing living form in the building is also an important part of the sustainable renewal work. These living forms are a continuation of the group memory and provide great possibilities for further stimulating the potential vitality of the building.

4. Dynamic mechanisms for sustainable renewal

No matter in which way the recent-past detached house exists in the future, it needs to be realized through certain methods. Therefore, to develop a series of scientific, reasonable and forward-looking dynamic mechanisms is crucial to the implementation of sustainable renewals.

4.1. Promote spontaneity under technical guidance

Most historical buildings with a certain preservation value are generally initiated by the government, guided by experts, and given the aesthetic characteristics of consensus to renew. As its users, residents lack the subjectivity to participate. For the recent-past buildings, the characteristics are closer to the residents' aesthetic standards. As the direct users of the building, residents directly participate in the sustainable renewal of the building, which can give the building more freedom. But this freedom is not unlimited, it's based on spontaneity under certain technical guidance.

4.2. Retaining elastic space for functional replacement

Under the guidance of the market, most owners of recent-past detached houses have started the development mode of interaction between land and cultural assets[3]. Most will retain the landscape
features of the exterior of the building, while the interior will be transformed into commercial functions such as dining or cultural innovation. Although this spontaneous functional replacement has broken the habitability of the original building, it has brought new impetus and vitality to the development of the building. Therefore, in the face of the situation that the nature of the current land use does not comply with the updated design, in principle, it is agreed to continue to maintain the original function, and once it needs to be uniformly updated, it will be fully replaced to give the design a certain flexibility.

4.3. Factor classification renewal
Most historical buildings adopt the "The overall classification" method of sustainable renewal. For the recent-past detached house, the market and residents' self-renovation are more common, which requires a simple, clear and easy-to-operate method. According to the elements of different buildings, the dynamic sustainable renewal design should be made, and the relationship between "present" and "future" should be properly handled[4]. Aiming at the sustainable renewal of recent-past detached houses, based on a detailed survey, an independent sustainable renewal plan was developed for each building. Regulate the overall sustainable renewal measures of the building, and propose specific governance measures for the details of the building, the external environment, etc.

5. Specific measures for sustainable renewal
The recent-past detached house have undergone changes for nearly 50 years, presenting new development characteristics in today's new social environment, and many problems have emerged. It is mainly reflected in the protection and updating of the building entity, the transportation organization of the external environment, and the gradual transformation of living forms. It is necessary to adopt certain implementable and forward-looking measures for related rectification and treatment. To realize the sustainable development of recent-past detached house.

5.1. Sustainable renewal of buildings entities

5.1.1. Ensure authenticity preservation. Respect the use of its original state, the greatest degree of assurance of the authenticity, by the effective guidance to protection of the original building of updates, for repair or replacement of the original damaged components, using the original construction technology, on the premise of respect the original style and features of old walls and doors to wash or repair, reduce the damage to the original building information[5].

5.1.2. Rectify destructive renovation. Due to the changes in the internal use function, the original appearance of the building is greatly damaged. On the one hand, If there is room for salvage, it should be rectified and renovated in time to avoid further expansion of the broken surface. On the other hand, non-action can be restricted by establishing relevant protection regulations and sustainable renewal plan.

5.1.3. Encourage rational transformation. Buildings that are in disrepair and are relatively poorly preserved but have sustainable renewal value. It is encouraged to rationally transform and update it through modern technology and materials to add and expand, effectively distinguish from the original building on the premise of ensuring the harmony and unity of the whole(Figure 2).
5.1.4. *Avoid holistic dismantling.* Some buildings were demolished and rebuilt due to their identification as dilapidated or based on the owner's use needs. The construction method and material selection of the rebuilt building are completely determined by the residents according to their wishes, and there is a lack of uniformity in the appearance of the building. It is necessary to establish a series of regulations and policies to give some valuable recent-past detached houses a certain status, so as to avoid the situation of complete demolition.

5.2. *Sustainable renewal of external environment*

The spatial pattern of the original external environment has been unable to meet the needs of people in today's society. Due to the recent-past construction period, no cars parking garage or parking space was considered. With the change of the times, the demand for the use of cars is on the rise. At the same time, the width of the original residential area roads was relatively narrow, and many vehicles directly occupied the sidewalk space on the roadside in order not to affect the traffic flow when they were parked. How to solve the cars parking in the original residential building area is an urgent problem.

5.2.1. *Construction of centralized parking lot.* The space form of the external environment of the original building has been basically finalized, and there is not much abundant space for the construction of new cars parking lot. Therefore, to solve the parking problem of cars in the residential area, it depends on the unified planning in the surrounding area to a large extent. It is possible to adopt the idea of planning and designing a certain scale of centralized parking lot for use during urban renewal in the surrounding area.

5.2.2. *Implementation of vehicle classification management.* Cars in and out of residential areas are mainly divided into residential vehicles, consumer vehicles and other vehicles. In view of the user's different, may consider to implement the vehicle classification management system. On the one hand, certain access management equipment can be set up at the main entrance and exit of motor vehicles in the area, allowing only the cars of residents in the area to park in and out; On the other hand, for the group cars and other cars coming to the residential area for consumption activities, they are all parked in a centralized parking lot outside the area.

5.3. *Sustainable renewal of living form*

With the development of society and the improvement of living standards, people are no longer satisfied with the monotonous and traditional mode of life, but yearn for a more open living environment, and also seek for a variety of ways of communication. People not only can communicate in the community, but also need a lot of entertainment space for leisure. As a result, the original private, closed community space is gradually being eliminated, in urgent need of transformation.

5.3.1. *Mining the personality and characteristics of the community.* By tapping the personality of the community, find the charm of local resources, and based on this, use its unique history and culture to
accumulate its historical, cultural, and artistic values. Through the excavation of the unique characteristics of recent-past detached house, combined with community resources, attract community residents' common awareness of themselves and the community, and promote community building[6].

5.3.2. *Increase the participation of community residents.* the goal of community construction is to create some physical environment, but to establish the sense of participation of community members in community affairs. In the sustainable renewal of recent-past detached house, residents in the community can get moderate participation, make their own voices heard, put forward ideas for their homes, and improve their sense of identity and participation in the community.

5.3.3. *Improved hierarchy of community public space.* for building still maintains the function of use, through strengthening the community public space system of grading and the relationship between the different population, can build all kinds of and the corresponding social structure, have different levels of space material structure and rich level of sequence, the formation of transition from private to public space gradually, forming a stronger sense of security and belonging, make the residents to get to know each other better, strengthening the collective sense of residents.

5.3.4. *Enhance the accessibility and complexity of building courtyards.* for buildings whose functions have been replaced by commercial and other public functions, transform the original closed courtyards into semi-open or open courtyards. During the operation period, keep the courtyards open, or change the original closed wall into a semi-open wall. By making it accessible to people with different use needs, the possibility of sharing and communicating between different individuals in the community space is enhanced.

6. **Conclusion**
The recent-past detached houses have their particularities and should take full account of the dynamic and sustainable renewal. It is necessary to pay attention to the current and future life in the framework of sustainable development, and pay special attention to building entities, the external environment and living forms. The sustainable renewal of recent-past detached house is a gradual process involving multi-disciplinary, multi-field and multi-sectoral. At the same time, it is also affected by many aspects such as national development, urban construction, social attention and professional guidance. It also requires the joint efforts of the national government, planning and design departments, and the general public, so as to promote the efficient and sustainable implementation of the recent-past detached house.

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