

Research on the Strategy of Existing Residential Quality Improvement Under the Background of the Supply-Side Reform

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Abstract: With the continued declining of the economy in our country, the task of the Supply-side reform is more explicit, and the quality improvement of the existing residence becomes the major focus. By taking the existing residential quality as the research object, combined with the goal of sustainable development, this paper explores the problems from the aspects of applicability, environment, management, puts forward the countermeasures in technology and management, which helps to improve the quality of existing residence and satisfies the requirements of residents, and to ensure the speed and the rationalization of Destocking.

Keywords: Mismatch between Supply and Demand; Existing Residence; Quality Improvement; Technology and Management Strategies

INTRODUCTION

Since 2015, the downward pressure on economic growth appears in China, and CPI continued to decrease. The increased income of citizens and the declined profits of enterprise shows that the differentiation of China's economic structure. In order to adapt to such change, the Central Economic Work Conference clarified the keynote of Supply-side reform, which include address overcapacity, reduce inventory, deleverage, lower costs, and bolster areas of weakness.

In order to ensure the speed and the rationalization of Destocking, the government should satisfy the demand of residents on the demand side. In china, the area of housing construction has increased year by year, and the accumulated amount is shown in Fig.1[Ma et al., 2015]. But there are many problems in the aspect of quality, such as low thermal insulation performance, poor indoor thermal environment, and high energy consumption of air conditioning and so on, which is shown in Fig.2.

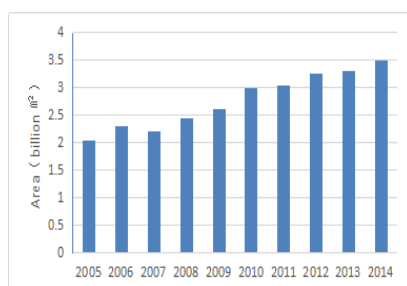


Figure 1. Housing completion area from 2005 to 2014

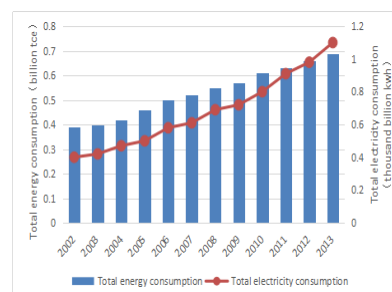


Figure 2. Total energy consumption and electricity consumption of building from 2002 to 2013

With the further development of reform and opening up, people's living standards greatly improved, but the improvement in the quality of living is not obvious. The residential quality cannot satisfy the requirements of residents. Therefore, it is the keynote of Destocking to improve the housing quality and enhance the livability.

CURRENT SITUATION OF EXISTING RESIDENTIAL QUALITY

Livability

Although the amount of residential building is large in china, there are many problems of livability, such as functional space, acoustic and day lighting environment, low thermal insulation and ventilation performance. As the rapid development of the economic, the supply and demand are imbalanced because of the livability which cannot meet the demand of residents.

Environment

Early in the 21th Century, The environmental problems become the focus of people's concern. The quality, such as Indoor air, temperature and humidity, does not conform to national standards In Most of the buildings. The green buildings springing up and developing has brought many changes and the concept of low-carbon shall gradually interiorize. Therefore, it is important that the effective measures should be taken, such as the renovation of the existing urban settlements and the improvement of the surrounding environment.

Administration

In China, the management of existing residential had a focus on breakdown maintenance rather than precaution. Thus, Periodical detection and condition control should be proposed by the administration of existing residential.

In addition, there are some work confusions between the public service and the property service. The owner pay more attention to the service provided by the company and don't realize the life-cycle value of the estate[Shen et al., 2011]. So the property management company should focus on preserving and increasing the value of the estate and improving the living quality, and make clear the core of work[Zhang et al., 2013].

RESIDENTIAL QUALITY IMPROVEMENT UNDER THE BACKGROUND OF THE SUPPLY- SIDE REFORM

Technology

In order to put the renovation for existing residential buildings into practice successfully, we should focus on the technology which has experienced decades of research and practice. The existing residential quality could be improved with the renovation of the building envelope and exterior environment[Xue et al., 2015].

Because of the ratio between heat loss and overall heat loss is large, the unsteady thermal characteristics of the building envelope have great influence on the air conditioning loads[Yang et al., 2014]. So it is important for the renovation to improve the thermal insulation performance of the building envelope.

(1)External Wall

The ratio between external wall and the building envelope is about 50%, and the heat transfer quantity through the external wall is 30%. So the life comfort is correlated to the thermal performance of the external wall. Up to now, the variety of thermal insulation system concludes the external thermal insulation composite system, the internal thermal Insulation Composite System and the sandwich thermal insulation composite system.

In the construction of the internal thermal Insulation Composite System, the thermal bridge might occur, Panels with interior insulating layer for

external walls produce the cracks easily, and people's life would be disturbed[Wang et al., 2012]. The external thermal insulation composite system, which concludes external layer, protection layer, thermal insulation layer and bonding layer, is in common use in the renovation for existing residential buildings; it is shown as table 1.

Table 1. The Characteristic of External Thermal Insulation System

Type	Content
Structure	Due to the large thermal capacity, room temperature is relatively stable. Heat loss could be reduced. Service life could be increased by reducing the temperature stress.
Construction	There is no influence of usable area and people's life. The increasing thickness of thermal insulation material that the cost is increased less can enhance the insulation effect.
Performance	Eliminating the bridging effect, improving the Waterproof and the Air-tightness and moisture condition. Keeping up a steady room temperature and improving the life comfort.

(2)Roof

The thermal insulation of the roof has much influence on the energy consumption of the whole building[Zhang et al., 2014]. The methods of renovation are shown in table 2.

Table 2. The Design of Roof

Method	Add Thermal Insulation Layer on the Roof	Air-spaced Roof
Content	On inverted roof, insulation layer is designed to put above waterproof layer whose position is between insulation layer and the floor, while the protection layer on upper insulation layer enjoys the good quality of water and air permeability. This pattern could efficiently prevent inner insulation layer from condensation as well as protect the waterproof layer and enhance the durability of whole structure so that the thermal stability will get improved.	The insulation layer and ventilation and heat - insulation layer was added on previous roof to form air-spaced roof. This structure utilize thermal pressure difference inner and outer the room as well as the wind pressure difference of windward side to achieve convection (here refers to natural wind), so that radiant heat originated from the roof will decrease. By doing so, the thermal stress effect of concrete gets weaker and service life is prolonged.
Method	Flat-to-sloping Roof Conversion	Planted-Roof
Content	The inner thermal insulation material is needed when turning "flat" to "slope" in order to level up thermal performance of the roof. According	Planted roof featured by green, ecological and environmentally friendly can change building scenery and make thermal island effect become

	to the principle of ventilation roof, the sloping roof could quickly dissipate heat in summer and close the air-vent in winter to achieve heat preservation.	weaker. The solar radiation is absorbed by utilizing transpiration and photosynthesis of plants in order to efficiently reduce temperature of roof inner surface.
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(3) Windows

Because of the large area, the energy consumption of the heat exchange of windows, which is frequent, is about a third of total energy consumption of building and the Solar radiation in summer has a great effect on the room temperature[Gong et al., 2008]. Therefore, windows which have bad thermal performance are the emphasis of the renovation. The specific methods of renovation are shown in table 3.

Table 3. The Design of Window

Method	Content
Energy-Saving Window	The heat-absorbing glass absorbs the infrared radiation and keep transmission rate of visible light. The insulating glass is a kind of heat and sound insulation material whose weight is lighter compared to others. The heat-reflection glass could form a layer of heat reflective coating on its surface.
Adding Effective Measures on the Window	The metallic window frame of original glass one is kept while its sash is replaced to insulating glass window, which will not destroy previous window frame and the adornment around it. The gaskets are added on two positions to improve air impermeability, one is the gaps around original frames, and the other is the junction part between frames and walls. The sealing effect will be influenced by the materials and shapes of gaskets, etc. The glass protector could be directly adopted and glued, especially those continuously metallic or metallic oxide protector. The degree of visible light's transparency could achieve between ten percents to sixty percents, while the solar radiation is hindered and its reflection rate decreases to forty percents to sixty percents. And it is very simply and economic for construction.
Window Shade System	The window shade system is one of the key aspects on low-carbon buildings, for it could effectively hinder solar radiation if being properly designed. It could be divided into exterior shade system and interior shade system, and the latter usually performs better. Interior shade system will destroy interior decoration, which generally not plays the important role.

(4) Staircase

In China, the staircase is always opened, which has much influence on the thermal performance of buildings. So it is necessary for renovation to change open-type into close-type and install a door at the entrance which is a guarantee of safety.

(5) Vegetation

The heat conductivity and thermal storage coefficient of the asphalt ground and concrete ground

is very large and it's the reason that the longer the radiation time, the higher the average surface temperature, and its surroundings. According to the experiment and the data analysis, the average temperature of lawn is 70 degrees lower than asphalt ground and 44 degrees lower than concrete ground in summer[Liu et al., 1999]. Therefore, the reasonable afforest in compact space, which is a good choice for the small-scale renovation, can improve the micro-environment around the residence effectively. According to the experiment and the data analysis, the vegetation combination has influence on the experiment in the residential area[Shen et al., 2010], as shown in table 4.

Table 4. The Comparison of Vegetation

Effect	A tree	B shrub	C lawn
Temperature increase	A>B>C A+B+C>B+C>C		
Moisture retention	A>B>C A+B+C>B+C>C		
Conclusion	Multi-layer planting structure is better than single-layer planting structure.		

(6) Ground

It is necessary for renovation to change the walkway, outdoor parking lot and part of the road into the type of grass-brick in the residential area. These help to change the coefficient of thermal inertia and decrease the heat reflectivity.

Management

Aiming at the rule of law and business problems in the existence of property management, we should study the idea of mature property management abroad, combining our country's situation and form a whole set of property management system. The management system is shown in table 5.

Table 5. The Management System

Normalization	Residential property management enterprise of existing residence should standardize the way of actual operation and improve management system. We should save cost and keep little profit for the basic business of residential property management. In the aspect of the characteristics of the business, we can give consideration to both sides of small profit and quality, and charge reasonable fees.
Greenization	Greenization requires the management of the residential energy consumption, environment, and maintenance and greening development from the perspective of life cycle. What's more, greening development of community should follow the low-carbon concept, chose the appropriate combination of tree, shrub and natural ecological greening. Finally the purpose of adjusting residential micro-climate could be reached.
Intelligentization	Intelligent Building Property Management System which use the network and automation technology build a community integration information service platform so that it's easy to collect

	messages of users ,manage the community, and make the management of community become more effective, reasonable and have clear responsibilities[Gu et al., 2014]. Managers should know about the present status and development of industry, and apply the intelligent information management system intellectually.
Legislation	With the popularization of the law in China, the legal awareness of owner has strengthened. It is available to supervise the residential property management company of residence. The owner should establish the right-protecting system to strengthen supervision of property spending in the community without the committees. And the owner should establish the system to make the decision valid and guarantee the legitimate interests in the community with the committee[Wen et al., 2013].

Low-carbon lifestyle and sustainable development play a central role in people's daily life. It's essential for people to promote the low-carbon consciousness all around the world, especially the resource-poor areas because of the low-living cost and the comfort life quality. In recent years, the use of high-power electrical appliances in families is frequent, which is the main way of the energy consumption of residents and it is important to set proper guidance of behavior[Wang et al., 2014], as shown in table 6.

Table 6. The Energy Conservation Behavior

Appliances	Usage
Air-Condition	Conditioning and fan should be used at the same time. Installing air-conditioning units at cool and ventilate. Regulating the temperature of. Cleaning air conditioner filter mesh. Curtains could block the interchange of air and improve the efficiency of air-conditioning.
Refrigerator	Reducing the frequency of opening and closing. Keep a distance between refrigerator and wall. Storage capacity should be limited at about 70% of the total. Keeping optimal temperature in refrigerator.
Computer	Turn off the PC and power plug connected to the wall when you leave. Regular dust removal and screen clean is necessary.
Television	Controlling Screen Brightness and volume as medium. Turn off the TV when you leave.

CONCLUSION

Under the circumstance of Supply-Side Reform, we can improve the quality of existing house by adopting low-carbon and environmental-friendly concept, green reconstruction techniques and

multilevel management approaches, so that populace's requirements featured by "ecological, green, low-carbon and environmentally-friendly" towards residences will be met. Supply could match up with demands to achieve the goal of "destocking" in a proper and fast way. We hope that the whole housing business could develop in a green mode under the stimulus of "turning points into lines and then flats".

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