

# Study on Tianjin Public Housing Residential District Planning to Meet the Needs of Migration in Rapid Urbanization

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**Abstract:** Along the rapid urbanization, the housing problem of medium and low-income residents in cities has been one of social problems, which is drawing the attention of government in the world for a long time. In present China, both the national policy and market of housing system are in the process of perfecting, which pay more attention to the low-income residents and rural residents. This paper chooses Tianjin, the third pole of China development as the example for research. Tianjin public housing residential district planning explored a mode of “large-scale mix and small-scale pure” for the whole homeland development. It confirms that regional coordination, ecological concepts, green transport, space characteristics and appropriate technology is important in planning.

**Key words:** Public housing, residential district planning, Tianjin, Shuangqing New Homeland.

## 1. Introduction

Along the rapid urbanization, the housing problem of medium and low-income residents in cities has been one of social problems, which is drawing the attention of government in the world for a long time. In present China, both the national policy and market of housing system are in the process of perfecting, which pay more attention to the low-income residents and rural residents. At the same time, planning and design ideas, criterion and statute of low-income residential districts are in the process of promoting. Now public housing construction has become an important method to solve housing problem, promote healthy real estate market and meet people demand.

## 2. Tianjin Public Housing Residential District Development Situation

With own reality, Tianjin formulated the public rental housing developing strategy “reasonably building in central city, large homeland at periphery of city”. Particularly, a lot of new homelands are planned

at the periphery of the central city since the beginning of 2006 and became an important measure of pushing the housing construction, driving the development of small towns at suburb, and satisfying the housing demand, wherein the constructed Huaming new homeland was selected into Shanghai World Expo in 2010 and shown to the world as the best practice area of city. Now in Tianjin, large-scale public mixed residential districts at edge of city core area with convenient traffic condition, which named new-homeland, are one kind of good choices for the low-income residents as well as medium residents.

Wherein the Shuangqing New Homeland is located at the north part of Tianjin and covers 3 km<sup>2</sup>. The current land mainly includes farmland and accompanies with a few channel and pond. The land is closely adjoined to outer ring express way, 15 km to the center of Tianjin, and 13 km to Tianjin Station. This area had good traffic environment and preliminarily formed a road traffic system formed by a high way, an express road, main and secondary roads. Two subways in plan will pass through this area. Therefore, this area enjoys superior geological

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position and regional advantages [1].

### 3. Case Study: Planning Method and Feature of Shuangqing New Homeland

#### 3.1 Model of Big Mixing Residence and Small Group

By following the security housing model of big mixing residence and small group, the residential product includes public rental housing, low-cost commercial residential building and ordinary commercial residential building (Fig. 1). Therefore, the residents of public rental housing can organically fuse with the residents of commercial residential building, and equally enjoy the public service without psychological gap, thereby avoiding the formation of a new slum [2].

#### 3.2 Core Idea Stressing on Regional Coordination

The community for security housing is not alone, and capable of really reflecting the theme of humanistic concern by being integrated to the urban life and regional development. Shuangqing New Homeland takes traffic as the entry point in planning, structures the road system for regional balance, contacts demonstrated town in south-north direction, communicates the central city in east-west area, and arranges the new homeland center at the core area of the principal bidirectional axis, thereby a good grading service relationship with the main center of the area is formed, good service at the inner part of the new homeland is realized, and it becomes an important consisting part of Shuangqing area achieving the development and location of new north livable area of Tianjin central area. Moreover, the travel convenience of new homeland residents is guaranteed, residents can get a job at this area conveniently, and thus residents can live and work in peace and contentment really.

#### 3.3 Respect of Ecological Environment and Local Memory

A brand-new security housing community must

protect the ecological environment of the base, reserve the existing element of the base, create own cultural deposits, and promote overall quality of the area, thus its health and sustainable development can be realized. Shuangqing New Homeland concentrates on renovating the current channel and surrounding land of the base, plans it to be an ecological valley, realizes the communication with surrounding water system, and forms a small cycle of the entire regional ecological system. The planned ecological valley covers about 25 ha, and 2.2-km long, and 40~200-m wide; It becomes an important ecological breeding land of the new homeland, links various functions in series, provides a place of leisure and entertainment for the whole community, and realizes the balance of environment and landscape (Fig. 2).

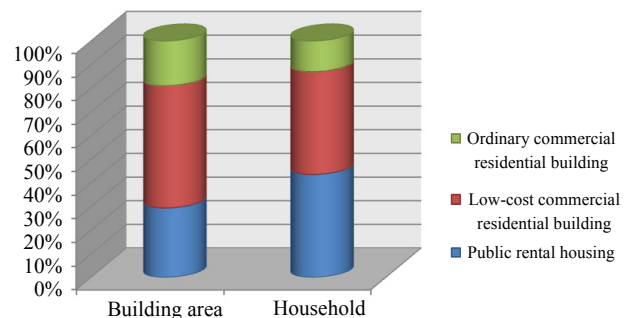
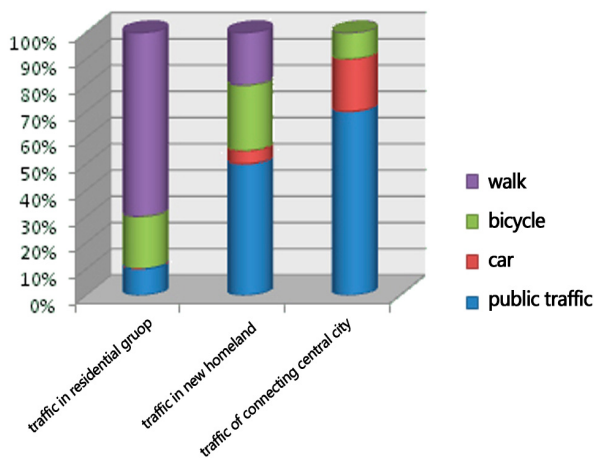


Fig. 1 Residential product of Shuangqing New Homeland.



Fig. 2 Ecological valley design of Shuangqing New Homeland.

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**Fig. 3** Green transport of Shuangqing New Homeland.

#### 3.4 Model of Guiding Space by Green Transport

One of the key points of security housing community planning is to realize the green and convenient travel goal. By fully using the traffic advantage of two rails, Shuangqing New Homeland arranges a public traffic system connected with the rail stations, and realizes the traffic service system with relatively high accessibility between the new homeland and the central city, the public traffic stations within 500 m is completely covered by the main traffic network in the area, and the traffic network system reaches in front of every residential building through a slow system. Finally, the green traffic mode of public traffic, bicycle and walk mainly in the new homeland security housing community is realized (Fig. 3). The plan is focused on the community at the rail station area and gives a kind of comprehensive real estate development mode. Starting and ending stations of public traffic are planned at the bottom layer of buildings to realize the zero transit for residents. The bottom layer and roof platform of the building are properly developed to be the public facility of community service, thereby creating a good landscape service environment. The security housing community is intensively constructed in the form of point type high-rise, so that the utilization efficiency of land is improved and the regional value is promoted.

#### 3.5 Structure of Security Housing Community, Model of “Small Family, Big Community”

Viewing from the design of the house layout to the external environment, the plan of the public rental housing community has performed the directive consideration and design, and pointed out the design standard of the house layout. As the public rental housing is characterized by small living area, a part of living function, including receiving visitors, reception, party, and is concentrated in the community, the group center of the public rental housing becomes a platform of interpersonal communication, and greatly shortens the distance of residents. Through the spirit molding of the field, residents generate the sense of identity and belonging on this community, simultaneously, safety of this street is enhanced, and the complexity and difficulty level of the high-density community management are reduced within limits. Specific to the supporting standard of the public service facility, the group of  $300 \times 200$  m street outline scale is a model community. The new homeland project adds a public canteen, tea room, a washhouse, a chess and card room, a fitness room, a swimming pool, bathrooms, small size hotels, community medical stations, police service room, room for community management, and other facilities in the public facility supporting of every model community. Through a part of overhead first layer of the building, the enclosure of corridor of the building affiliated opening space of the public building, two-level public spaces of group courtyard, and other design methods, then a comfortable and convenient public service is formed, a part of demand of internal household space is transferred to the public space of the community, thus the development model of “small family, big community” is realized (Fig. 4), the requirement on intensive and efficient development is reflected, and the human-based concern is spread [1].

#### 3.6 Assurance Guiding System by Proper Technology

Directing at the characteristics of the security housing



Fig. 4 Overhead first layer and enclosure of corridor for public community.

community, the new homeland plan stresses on the development idea of structuring an ecological community by a proper technology. The plan designed a rainwater open trench with greening landscape effect, which can make rainwater flow into the water system in the community and is used for supplying the water for landscape and wetland landscape. Rainwater in normal year can strive for zero discharge, thereby saving water for greening and irrigation. Reclaimed water through strict treatment can be reused by residents on the basis that every index reaches standard strictly. The treated recycled water will be used for the greening and irrigation of this community, thus the burden of inside water is reduced. The demonstration function of the security housing community in terms of water resource utilization is really realized. The plan adopts the intensive heat supply method to supply heat, preferentially uses clean energy source and intensive solar water heating system. Moreover, the soil source hot pump, the underground water source hot pump, and sewage source hot pump techniques are tried. A low-cost energy-saving and environmental-protection ecological circulatory system of new homeland are structured. Through calculation, energy source can save about 13,000 t standard fuel yearly by promoting the solar energy utilization and ground source hot pump technology; finally, the ratio of renewable energy sources of Shuangqing New Homeland area in

the regional energy source consumption reaches 6.7%, which is higher than the 3% development goal of Tianjin [3].

#### 4. Conclusions

Since starting at the beginning of 2012, Shuangqing New Homeland has completed the construction of million square meters of public rental housing and low-cost commercial residential building at present. Along with the gradually construction of Shuangqing New Homeland, the planning work and method have performed in-depth thinking on guaranteeing people's livelihood, maintaining social equity, and other core ideas. It is a good try in more concerned about the demand of migration of a lot of low-and-moderate-income population in rapid urbanization progress, and more focused on the housing demand of urban "sandwich" group; and carried out beneficial exploration on slowing down the population pressure in central city and pushing forward the construction of new demonstration area at suburbs.

#### Endnotes

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