

New countryside development and housing construction problem in Can Tho city

Phát triển nông thôn mới và vấn đề xây dựng nhà ở tại Cần Thơ

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ABSTRACT

Can Tho city is the first locality in the Southwest region of Vietnam that completes the task of building new countryside earlier than planned. Out of the total of 5 urban districts and 4 suburban districts, all 4 suburban districts: Phong Dien, Vinh Thanh, Thoi Lai, Co Do meet the new rural standards. Therefore, the demand on house building is necessary to align with the development of the planning and construction of these regions, as not only ensuring a good living environment but also preserving the identity of these areas.

Keywords: New countryside, Can Tho city, New rural housing.

TÓM TẮT

Thành phố Cần Thơ là địa phương đầu tiên của miền Tây Nam Bộ hoàn thành nhiệm vụ xây dựng nông thôn mới sớm hơn so với kế hoạch. Trên tổng số 5 quận và 4 huyện thì cả 4 huyện: Phong Điền, Vĩnh Thanh, Thới Lai, Cờ Đỏ đều đã đạt chuẩn nông thôn mới. Do đó nhu cầu xây dựng nhà ở tại đây là rất cần thiết để đáp ứng theo sự phát triển của các vùng này theo các tiêu chí về quy hoạch, xây dựng, không chỉ đảm bảo tốt môi trường ở mà còn gìn giữ được đặc trưng riêng của vùng đất miền Tây Nam bộ.

Từ khóa: Nông thôn mới, Thành phố Cần Thơ, Nhà ở nông thôn mới.

1. PROBLEM STATEMENT

Currently, house building design at Can Tho new countryside are taken into consideration because of the desire to meet the development requirements in these areas while preserving and promoting the architectural values of traditional housing of the Southwest region. A particular housing type of a region that is built upon the basic principles such as: being suitable to natural and economic conditions, being adapted to local construction and social settings, etc., will help residents to have a stable settlement, that is the reason why having appropriate housing type to the location (house built on agriculture land, house built near river,...) and to the financial capacity as a contribution to the new countryside in Can Tho city need to be studied, proposed and put into practice as soon as possible.

2. OVERVIEW OF NEW COUNTRYSIDE ISSUES AND DEVELOPMENT IN CAN THO CITY

2.1. Overview of new countryside issues and development in Can Tho city

On April 18, 2013, People's Committee of Can Tho city approved the project "Developing agricultural farm economy in the period of 2013 - 2015, aiming to 2020". Up to now, all 4 suburban districts of Can Tho city including Phong Dien, Vinh Thanh, Co Do and Thoi Lai have been recognized as meeting new rural standards. Previously, Phong Dien district was recognized in 2015, Vinh Thanh district was recognized in 2018. Can Tho city is the first in the Mekong Delta and the third locality in the country completes the task of building new countryside earlier than planned. [1]

According to Circular No. 35/2016/TT-BNNPTNT of the Ministry of Agriculture and Rural Development, the guidance to implement the criteria of meeting new rural standards for the period 2016-2020, issued on December 26, 2016 and taken effect on February 8, 2017 is provided. [2] In which, housing planning, construction and development must be consistent with the purposes and requirements of the new countryside, and even though the demand for housing construction is necessary for development of the new countryside, it must ensure natural, cultural, social, environmental, customs, and local conditions in terms of housing design solutions. Therefore, the application of construction that promotes the architectural values of traditional houses in the Southwest region is the orientation of today housing construction in the new countryside of Can Tho.

2.2. General assessment of Can Tho rural housing construction in the context of new countryside development

According to the survey, there are as follows these main types of rural houses in Can Tho city: houses built along main roads, houses built along the river, floating houses on the river (houseboats). Some rural areas still maintain the traditional housing architecture with the form of "three compartments and two sub-compartments", with the gap between the front door and the porch, but the building materials are ferroconcrete, tole roofs or tile roofs, filled by various colors. There is almost no more empty space or fishpond. Houses on residential lines are usually more solid and spacious, but the architectural form is not uniform.

Many changes of history, many fierce wars have passed. Architecture of rural houses are dramatically suffered and influenced; they were badly damaged. But also because of that, the face of rural architecture gradually changed. The cold and dry concrete houses and tole roof houses gradually replaced the old cottage, earthen walls, thatched roofs and old-style tiled roofs. Although there are also some

rural houses in Can Tho that are still well designed, however most of them are spontaneously built by people, making the architecture of rural houses become messy and influenced by urban architecture with different kinds. They lack uniformity and are especially unsuitable with the ecological environment, cultural features and traditional lifestyles.

3. RURAL HOUSEBUILDING PRACTICES IN CAN THO NEW COUNTRYSIDE

3.1. Party-State policies on housing development in the new countryside

In order to develop more harmoniously and sustainably in rural areas, the Party and State implemented a new countryside construction program with 19 criteria, of which new countryside houses must satisfy the requirements of "3 hard" (hard foundation, hard frame, hard roof). The foundation, frame, and roof parts of the house must be made from good quality materials, not made of temporary, perishable or flammable materials. The minimum surface area of a house is 24m²/person or more. For single-person households, it is 18m²/person or more. The service life of houses lasts at least 20 years. The architecture and types of houses must be suitable to local customs, practices and traditional lifestyles. They should meet hygiene requirements, are convenient for daily activities as well as inherit the traditional architectural form and are involved in harmony with the natural landscape. Saving energy, resisting damage from direct sunlight, rain, wind and storms, whose impacts are enhanced due to climate change, must be included. Moreover, they must resolve the close relationship between production space, public space and living space of each household.



Image 1. Current situation of houses in Can Tho new countryside

It is necessary to reduce the construction density within the house area by forming reasonable setbacks and courtyards between and behind the house. Nowadays, there are many high-tech devices for monitoring and protecting residences, so houses are encouraged to use green fences to create a green and clean environment. The new countryside will generally be a fresh and clean area with good sanitation conditions. Therefore, the focus must be on green housing solutions which involves the ecology system (using rainwater, wind, solar energy...). Using sloping roofs is recommended not only to fit better with the natural landscape but also to foster renewable energy devices. Strengthen the system of green trees and water surface outside as well as inside the house area will establish a green infrastructure system that helps to regulate groundwater, filter water, and drain water more effectively under the increasingly unpredictable impacts of climate change.

3.2. Architectural housing design orientation of Can Tho new countryside

Housing design according to the architecture related to microclimate is a method of using outdoor climate data to determine indoor microclimate parameters then analyzing it to assess whether the indoor microclimate ensures comfort for people or not. If not, solutions must be provided to improve the discomfort. This is a passive



Image 2. Current situation of housing structures in Can Tho new countryside

method when looking for architectural design solutions because it allows only climate-adaptive evaluations and suggestions after the construction is already applied. The microclimate architecture focuses on addressing the 4 following comfort conditions: thermal comfort, sound comfort, lightdecorative details in Can Tho new countryside comfort, and air quality to create the best living environment for users.



Image 3. Current situation of housing decorative details in Can Tho new countryside

Housing design according to the architecture related to bioclimate [3] is a method of determining the climate comfort zone based on the construction of climate chart. This method is realized through the following steps:

- + Analyzing indoor and outdoor climate that affects people by thermal sensation. It depends on external climatic factors, level of physical activity, thermal insulation of clothes and people's habit.
- + Determining (in % of hours/year) the occurrence of different weather forms in the locality to classify bioclimate.
- + Identifying architectural design orientations (weather form with highest frequency is prioritized)

Housing design according to the traditional architectural solutions of the Southwest region is a method that aims to preserve and promote the local architectural identities in accordance with the construction techniques, culture and behavior, and in harmony with the natural and social environment. It must take advantage from local materials, which are especially affordable.

3.3. Current situation of implementing new countryside construction in Can Tho

3.3.1. Current situation of planning

The current situation, the management and organization of construction implementation in accordance with the planning of Can Tho new countryside still have many shortcomings, in which the planning process and content have not been updated in time to meet the requirements of sustainable development, adaptation to climate change and green growth. It could not create a synchronous foundation of technical and socio-economic infrastructure. In addition, the lack of synchronization in implementation and management at many stages is still a present issue.

The housing planning which has not been fully clarified due to the phenomenon of spontaneous construction, temporary construction in certain villages, ... affects the rural landscape. No solution is proposed for the urgent demand on using tap water, or the treatment of domestic waste, etc.

3.3.2. Current situation of housing construction design

a. Space organization

Living space and production space of rural houses in the past are organized horizontally with a porch attached to a spacious drying

yard, combining gardens and fishponds to create a lyrical landscape. Today, rural houses changed to a vertical organization, increased the height, and at the same time removed many functions such as garden, farming area, so the space could no longer be used for self-sufficient lifestyle. People must harvest agricultural products right in the fields beside main roads, right in public areas such as communal houses, temples, cultural houses, that has a tremendous impact on the rural landscape environment.

Recently, new rural houses have been built in the form of urban tube houses. They have many features that are not suitable for the rural landscape environment: width of about 5 meters, length of about 20 meters, with 1 up to 3 floors. These parameters are showing rigidity, aridity and lack of local identity. Natural lighting and ventilation are also poorly considered.

b. Architectural form

New rural houses in Can Tho are mainly built in a very spontaneous way. They appear on inter-ward and inter-commune roads, which are not planned but are sold by the local government as "land for exchange infrastructure". Because a plot has width of about 5 meters, length of about 20 meters, so most people build their house in a concrete box style like those in urban areas with flat roofs from 2 to 3 floors high. Several houses modeled spontaneously, almost no design or planning are making the architecture of Can Tho new countryside messy with many mixed forms. In general, the current types of houses built in traditional villages as well as in Can Tho new countryside have unfavorable factors in terms of the living environment, energy consumption, local lifestyles, agricultural production, architectural aesthetics, rural landscape, etc.

c. Structures and building materials

Most of the new countryside houses in Can Tho now use reinforced concrete frame structures and flat roofs, or tole roofs in the style of urban houses.

Although house structures made from these modern materials will be stronger and more durable than bamboo, wood or coconut leaves, etc., but at the same time, it also gradually fades the traditional features of this place as river region.

d. Decorative details

Houses in Can Tho new countryside are now built in the same model, including decorative details of plasterwork from cement mortar, plastic or wood, to be similar with urban housing architecture.

3.3.3. Current situation of techniques and new building materials applied to house construction in Can Tho new countryside

Unburnt bricks and block bricks have initially been used for housing construction in Can Tho new countryside. This type of brick, after being shaped, is self-curing to achieve the required mechanical parameters in terms of compression, bending, water absorption, without the use of high temperatures. The price of this type of brick is relatively reasonable, it is also durable, and environmentally friendly, but in fact, it is not commonly used in housing construction here. Meanwhile, terracotta tiles, ceramic tiles, ... are used quite commonly and their prices are relatively suitable to the economic conditions of local inhabitants. However, this material is not environmentally friendly due to the furnace gas that causes pollution. The roof is usually covered with zinc tole and color-plated steel, instead of traditional leaf and tile roof thanks to its higher durability, cheaper price, and faster construction. However, it is not guaranteed in terms of insulation and noise resistance. Iron and steel are also often used for load-bearing structures such as beams, floors or used for details such as stair railings, door frames, window areas, etc., that prone to oxidation, corrosion and rust.

3.4. Remaining problems to be fixed

The general features about the current situation of housing



Earthenware brick



Precast concrete



Tole roofs



Fresh concrete at building site

Image 4. Current situation of building materials in Can Tho new countryside

construction in Can Tho new countryside show that the application of urban tube houses for those in the new countryside is completely inappropriate. In effect, this area is characterized by rivers, flood season, farming and practices for agricultural products.

The spontaneous housing construction with arbitrary designs affects the architectural aesthetics and the landscape of the new countryside area.

Using unsuitable materials and decorative details not only causes waste but also unfit to natural conditions and cultural characteristics.

In addition, the planning of this area should focus on environmental sanitation, electricity and water supply, waste treatment as well as solutions to prevent flooding from climate change.

4. CONCLUSION

The main characteristics of traditional housing architecture of Can Tho and other provinces in the Southwest region are often associated with rivers and canals. Today, due to the influence of many factors, especially the phenomenon of "rural urbanization", the construction in general and residential architecture in specific of the Southwest region have gradually lost their preeminent values of traditional architecture that has been challenged through thousands of years. Nowadays, they are replaced by various mixed types of houses with many defaults in terms of spatial organization and architectural form.

In addition, studies on the development of traditional houses in the Southwest region show that the values of old spatial organization, architectural form, etc. are very suitable for the geography, climate, environment, production, society and people of this region. The traditional housing architecture also has many characteristics that appropriate for the actual advanced construction solutions.

Therefore, it is necessary to preserve and inherit traditional architectural values. Otherwise, more research for housing design in Can Tho new countryside to meet the lifestyle of the community in this region is also essential. They should focus on experiences of traditional houses in the Southwest region in order to create an architecture that is modern but keeps the main features of this river region.

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