PRINCIPLE STUDY ON THE DESIGN GREEN FOR TAIWAN RESIDENTIAL AREA

Bin-Feng YAN  
PhD Student, Graduate school of Architecture, NCKU, R.O.C., winds4040@gmail.com

Soen-Han LEE  
Assistant Professor, Department of Architecture, National Cheng Kung University, Taiwan

Summary

In the recent years, due to the influences of weather changes, there have been disasters all over the world, causing the rise of concepts such as sustainable environment. The greening of the residential areas in Taiwan should be based on the mitigation and adaptation as green design basis, to further establish the Taiwan Residential greening strategy to further establish the Taiwan Residential greening strategy to reach the goal of sustainable eco-city.

For the purpose of improving eco-environment and sustainable development, the literature reviews, case studies, reference Taiwan green building system EEWH, and qualitative questionnaires was used in this research to frame the design aims and principles, and furthermore to establish criteria of design green for Taiwan residential area. It aims to improve Taiwan residential area eco-environment and micro-climate, to create the coexisting area for both human and nature, to enhance the quality of Taiwan residential area life, and to offer a better guide for future green design.

Keywords: Green, Taiwan residential area, Principle, Eco-city

1 Introduction

In the world, the use of "green" to improve the global warming is an effective strategy; function of plants to reduce carbon dioxide and temperature, etc. Moreover, the plant's color, shape, flower and aroma, but also able to create eco-city outdoor space.

Taiwan's green building standards EEWH-HI implemented for a number of years, as the standard green volume indicator is based on plant CO2 fixation, but for Taiwan's urban public space of the ecological nature, as well as future possible disasters, such as floods, typhoons, fires, etc., the greening of the city in Taiwan should not only "carbon sequestration" as a basis, should be developed in response to climate change "adaptation" greening strategy to reach the goal of sustainable eco-city.

This study for the development of Taiwan's Eco-city greening principle, mainly for the residential area to formulate a greening principles, and this principle as a reference when cities and counties to promote the greening plan towards eco-city.
2 Methods

2.1 Analysis of the survey of the literature
According to the purpose of the study, collect ecological urban greening requirements and practices, and to summarize the five municipalities greening principles and related books, as the basis for research.

2.2 Consulting experts
Invite relevant experts to the organization of seminars, discussion residential area greening principle, put forward the principle of increased or correction, based on the principles of green as a residential area in Taiwan.

2.3 Case investigation
Investigation and assessment of the residential area greening situation, to understand the amount of green EEWH-HI indicators implementation effectiveness and difficulties.

2.4 Induction
Through case studies and the research methods to investigate the correlation, comprehensive analysis to collate all the information, to establish Taiwan residential area greening principle.

3 Results

3.1 Ecological urban greening principle structure
Taiwan residential zone type can be divided into the corridor (road), green space and open space (public space) and the buildings (architectural base), this study is in accordance with the "corridor", "green space and open space", "building" as the main framework of the principles of green residential area.

3.1.1 Corridor
Landscape greening of road space, based on the scientific method and artistic point of view on the road space landscaping, make full use of the plant ecology and beautiful features, and good design can be suited to local conditions, to achieve a comfortable and beautiful. Planting design, with the road around all facilities and buildings echo each other to form the overall beautification of the road. Taiwan residential area corridor planning, in accordance with the space categories and management mechanism, the corridor is divided into three categories, including: "environmental protection", "river green" and "linear green.

3.1.2 Green space and open space
"Green space" refers to the land or waters of the plant growth, its broad definition means the ecological, landscape, disaster prevention, recreation and other functions of the open space. The eco-city green space and open space planning, should be better equipped responsibility of environmental education and environmental reform, relevant literature is
divided into the green space the natural type Greenbelt, regional green space and urban green space, but the space level is not easy to define. To avoid Taiwan residential area greening principle in the use of generated fuzzy space, this study compiled about park and square related greening strategy, as well as green building green provisions, the Taiwan residential area of "green space and open space", divided into "green space and open space greening" and "parking greening".

3.1.3 Building
The eco-city buildings green, the green category in accordance with the building and its base space, the building is divided into three categories, including: the greening of open space, green facades, green roofs.

3.2 The Taiwan residential area greening principle
Review of the residential area in Taiwan green principles and practices, the current the ecological community greening of CPAMI requirements, this study is based on the principle of eco-city green-based, integrated the Taiwan residential area green principle to provide the relevant units of the eco-city residential area planning and improve direction reference. According to the needs of the greening of the residential area, the principle in accordance with the characteristics and objectives of the greening of the residential area, residential area greening principle is divided into two kinds of categories, including: "residential security", "sense of community".

3.2.1 Residential security
- Residential area corridor planting plants, planting the impact on traffic or indoor lighting, and the cause was damaged public facilities, to control the direction of the growth of the tree should be pruned planting.
- Because of security reasons, within 10 meters of the distance street lights, signals and road intersections, planting low planting or ground be flower plants.
- The residential area of the sidewalk width of 2.5 meters or more, should be single or double row tree planted, and does not affect the home and out, and avoid invasion of the home by climbing trees.
- Residential trees must migrate the situation:
  - From balconies or windows of buildings within 2 meters of the trees, could easily lead to security risks to enter the indoor climbing.
  - Affected by the typhoon, the trees that have occurred or prone to lodging or tilt affect the residents' lives and property.
  - Plant growth conditions affect the housing security, social security and other facilities.

3.2.2 Sense of community
- The new planting plants overall design, and encourage the planting with local characteristics of a particular plant.
- Native plants should be adopted in accordance with the local ecological climate and environment, and to encourage planting trees, if the topsoil exposed, should be green.
The residential area of green space with trees, shrubs, flowers and lawns. Arbor mainly to carry out the type and stratified design, the same section of the tree planting should be greened cycle planting or alternately planted.

- Idle open space in residential areas, should take advantage of the grass or flowers be green and trimmed regularly.
- Encourage the set roof garden, denial of direct sunlight.

4 Conclusions

The purpose of this study was in response to climate change factors, intended Taiwan residential area green specification and design principles of this study, both on the basis of the research, a systematic study, and look forward to help promote the greening of the residential area of Taiwan. The main outcome of this study is the development of Taiwan's residential area greening principles, research results can be used as the government's future to promote eco-city design and shape with the face of climate change, environmental trends, provide local government for a specific area of policy development, as the establishment of local characteristics space the principle of the development of the eco-city.

References


