

A study of building performance evaluation and legal system improvement of perimeter block housing

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Perimeter block housing as the alternative of new urban housing

Recently more research is being carried out in order to find the solution for the new housing type in response to the increasing criticism of uniform residential environment made up by apartment houses, separated urban context caused by large scale block development, and closed community formation. Perimeter block housing could be the solution to change the urban residential environment in complex in that it can be closely related to the streets due to its adapted form to the urban block as the basic spatial structure, and internally it can create community around the surrounded courtyard. Perimeter block housings in Uijeongbu Nokyang district and Eunpyeong New Town can be regarded as the experimental example looking for the new housing types. Traditionally, perimeter block housing has been developed in Europe where blocks have formed the urban tissues. Can the perimeter block housing become the candidate for new housing types in Korea? In this study, the meaning and feasibility of perimeter block housing is reviewed in aspects of consideration of urban context, recovery of community, and diversity of housing types through the empirical analysis of cases.

Concept and needs of perimeter block housing

In chapter 2, a literature review of the essential meaning and value of perimeter block housing is carried out, and the background and its status in Korea are reviewed. 'Perimeter block housing' is defined as 'a single or plural urban collective housings continuously arranged along the street and containing inner courtyard within a residential block surrounded by streets'. Perimeter block housing can be evaluated in terms of urban environment, community life, and residential environmental satisfaction as follows.

First, perimeter block housing has merits in that it can ensure the continuity of urban space and urban tissue in urban environmental aspect because it is located conserving the existing urban tissue. As a result, integrated landscape can be formed in accordance with its neighbors. Second, the elevation of residential building forms the public street façade defining the urban public space, and the surrounded inner courtyard creating space for public life of the residents, as perimeter block housings are built along the streets. In the respect of community life, perimeter block housing contributes to facilitating the community both inside and outside of the block. Finally, in terms of residential environmental satisfaction, perimeter block housing is the spatial configuration way enabling not only diversity of choice in housing types, but also balanced life between public community and personal privacy.

Through the history of collective housings in Korea, research about planning concepts such as linkage with urban tissue, streets for daily life, and community space has been conducted in order to find the alternative for the closed and monolithic district. Perimeter block housing can be regarded as the appropriate candidate including three concepts, but its potential and limits are to be evaluated and analyzed in depth. Therefore, in this study, potential, limits, future development and

institutional improvement schemes of perimeter block housing are reviewed through the building performance evaluation of case study at this stage of searching for the change of residential environment.

Framework for building performance evaluation and institutional analysis of perimeter block housing

In chapter 3, the Framework for building performance evaluation and institutional analysis of perimeter block housing is set based on the meaning and value of perimeter block housing reviewed in chapter 2. Building performance of perimeter block housing is conducted in two stages, analysis of planning and survey of residential environmental satisfaction. Evaluation indices for building performance of perimeter block housing are as follows; continuity of urban tissue and space, integrity of landscape, recovery and creation of community, diversity of choice in housing types, and comfort of dwelling. These indices are more specified and applied in analysis of planning and of survey of residential environmental satisfaction. Current planning is analyzed in terms of city-complex level, architecture, and community, and residential environmental satisfaction is surveyed in terms of satisfaction of residential block, apartment building, courtyard space, and individual unit.

The same indices for building performance evaluation are applied to the analysis of regulations for the perimeter block housing and analyze problems in planning and system in reference to those indices.

Building performance evaluation of perimeter block housing

According to the analysis of Nokyang district planning, the first case of perimeter block housing, it is confirmed that residential block partially realizes the essential characteristics of perimeter block housing,

confined inside the block rather than functioning as the part of urban structure. Perimeter block housings in Nokyang district function as block housing only on the side of the internal neighborhood street, separated from city planning roads by the buffer green. That is, apartment buildings are planned along the internal neighborhood street with neighborhood facilities and service facilities on the lower part of apartment buildings.

Local residents in Nokyang district seem highly pleased with the urban and architectural condition and especially set a high value on courtyard space's role in terms of community life. That is, people seem highly satisfied with enclosed district plan, and continuous building façade along the street. Through the survey of residential environmental satisfaction, it is confirmed that planning connecting neighborhood street and apartment building enhances the vitality of the city, and neighborhood street and courtyard space contributes to creating community.

While perimeter block housings in Nokyang district are planned as part of the complex, those in Eunpyeong New Town are tightly planned at the urban scale and seem to become the part of urban tissue. Neighborhood streets in Eunpyeong New Town are city planning roads as public space and they forms harmonious street façade by continuous arrangement of perimeter block housings along the streets. Thus, though the sense of district seems to dissolve here to some degree, spatial configuration method except central neighborhood street still follows an existing practice.

Local residents in Eunpyeong New Town district 2 seem highly pleased with building arrangement and streetscape, and especially set a high value on comfort of street environment and convenience in its use. While residents in Nokyang district regard courtyard space and neighborhood street as the intermediate space for the community formation, residents in Eunpyeong New Town think little of its

contribution. In addition, due to vehicle noise and invasion of privacy issues, the residential environment satisfaction of residents living along the neighborhood streets is low.

According to the survey of residential environment satisfaction of Uijeongbu Nokyang District and Eunpyeong New Town District 2, while most residents appreciate the role of perimeter block housing in enhancing the vitality of streets and improving streetscape, they criticize noise and invasion of privacy in common. Thus, though the building arrangement and introduction of new housing types applying the concept of ‘street’ and ‘block’ is verified, the problems in residential environment must be solved in order to make perimeter block housings popular.

Improvement scheme of the current legal system for the application of perimeter block housing

In chapter 6, though the analysis of current legal system, improvement scheme is suggested in order to remove the restrictions of applying perimeter block housings related to the streets and block despite its potential. The problem and improvement scheme of current legal system is as follows.

First, the development of small block is restricted under the current legal system focusing on the development of large complex. Therefore, the institution should be improved in order to prepare the base for three dimensional land use considering the characteristics of the district and to facilitate the development of small block. Second, as the current building codes and District Unit planning are chief factors in uniform building arrangement, it is necessary to work on countermeasures to connect blocks closely and diversify building arrangement. Third, as the building distance in building codes is main cause of the failure in continuous cluster arrangement with the mixture of high rise buildings and

low-medium ones, it is required to apply the rules controlling building distance more flexibly and especially to reconsider the restrictions on the building length and orientation in some local governments' ordinances and design guidelines.

Fourth, as the regulation about buffer green and separating distance from the street prevents apartment building and street from being closely connected, some regulations disturbing the direct relation, such as building limit line, height limit and buffer green, should be improved for more flexible application. Fifth, some building codes and guidelines are required to be flexibly applied because limited location and excessive area for service facilities disturbs integrated development of housings and service facilities. Sixth, as building coverage regulation in National Land Planning and Use Law restricts the space program and facilities layout in lower part of around courtyard area, regulations should be relaxed for three-dimensional space planning in courtyard area. Finally, current regulations and practices are required to be revised for various plan designs, as regulations such as the limits on the number of bays in each unit, guidelines for balcony cause the standardized plan design in perimeter block housing planning which requires the combination of various unit plans.

Analysis of current legal system in this research reveals that obstacles against the implementation of perimeter block housing are not only the current building codes and housing act, but also local government ordinance, guidelines, and current practice pursuing only business efficiency. In order to encourage perimeter block housing to spread, it is required to revise the restrictions causing the residential complex and to arrange various incentives.

Research results and tasks

In this study, the possibilities and limitations of perimeter block housing are identified through the building performance evaluation of the realized case in Nokyang district and Eunpyeong New Town. Through analysis of planning and survey on the residential environment satisfaction, it is confirmed that perimeter block housing can be the solution for the problem of closed structure and monolithic form in current development of large complex in terms of urban environment and community life. Problems in residential comfort such as noise and invasion of privacy are the limits of perimeter block housing inevitably facing the streets or courtyard.

Despite of some problems, perimeter block housing is considered as the potential housing types at this stage of facing limits of large complex development due to the socio-economic situation and growing social needs for the renewal of existing residential area. Future tasks to spread perimeter block housing are as follows.

In terms of planning, various types on block layout, logic of configuration, spatial composition of unit plan should be tested. In terms of policy, small scale development should be facilitated for three-dimensional space planning rather than focusing on uniform supply. In terms of institution, some restrictions encouraging residential complex and monolithic types should be revised, and various incentives should be arranged in order to enable professionals to actively carry out research for new housing types.

Perimeter block housing is a part of city as well as living space for livelihood. More discuss about perimeter block housing should be made as the part of the process for setting up the basic concept and methodology of urban planning and architectural design. For this purpose, the cooperation of public and private sectors is indispensable.

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