

# TRANSFORMATION PROCESS OF URBAN DWELLING SPACES BY FUEL-CONVERSION

Soon Hee Lee, Ansan Junior College  
Yong Hwan Park, Hanyang University

The Korean urban dwelling has been transformed in various ways through modernization, since Independence (1945). Understanding the elements of the origins and transformation of the urban dwelling are important. Strong demands for rationalization as well as Japanese and Western influences caused the rapid modernization of the Korean dwelling. Factors that have directly influenced this transformation include the change of domestic fuel-conversion from On-Dol, which has been the traditional heating system in Korea. This change has played a significant part in the transformation of the composition of dwelling spaces. This study analyzes the transformation process of dwelling spaces in terms of the conversion of domestic fuels, an important factor in understanding the modernization of Korean dwellings. Fuel conversion means changes in cooking and heating systems due to new fuel developments.

The results of this study supplement and support results of previous research that examined the transformation of the urban dwelling in terms of its physical development, showing the influence of fuel-conversion on the modernization of dwelling spaces. With this study, we can get basic information about the urban dwelling house and can also predict the future of the dwelling house, through the development of fuel conversion.

From this perspective, we investigated urban one-family houses that were constructed after Independence. One-family houses were chosen for the following reasons. First, one-family houses are culturally characteristic of this time. Second, the study of one-family houses simplifies space relationships and dwelling features. The study of one-family houses also makes it possible to observe the transformation of plan type. Third, other dwelling types which have been built since the 1960s involved no fuel conversion. We investigated 494 one-family houses from all periods in the Seoul region. The investigation includes:

- Times and types of fuel conversion,
- Changing house spaces, reconstruction, and redesign.

The method was to conduct a field survey of sites, of spaces and arrangement of housing furnishings, and to interview the residents.

This study consists of examining reference documents and investigating and analyzing actual living conditions. The reference documents include site data and architectural data for the dwellings involved. The investigation includes present living

conditions, extensions, and renovations of houses by fuel-conversion, and a comparison of the modifications with the original houses.

The contents of this study are:

1. Consideration of features of dwelling spaces since Independence, and transformations in cooking and heating systems; analysis of dwellings under study and their features.
2. Investigation of the transformation of cooking and heating systems by fuel-conversion with regard to the timing of dwelling space change.
3. Study of cooking and heating systems combined, against cooking systems separated from heating systems, and a comparison of both cases.
4. Based on 3, a summary of the relationship between the re-composition of dwelling spaces and fuel-conversion, including corresponding relations between the transformation and dwelling spaces, and the recomposition of dwelling spaces.

The results of this study are:

1. The connections between An-bang (master bedroom) and the kitchen, which is the basic space composition in the Korean urban dwelling have broken, and the kitchen has become separated from An-bang. When the kitchen was close to the living room, the form of DK or LDK appeared in small houses. Meanwhile, there has been a tendency to separate the kitchen from the living room in large houses, as well.
2. An-bang has traditionally two functions, as a traditional meeting space for a family, and as a bedroom for a couple. However, as the form of DK or LDK became one of the compositions of the dwelling spaces, the function of An-bang as the bedroom for the couple as a private space has become more significant than as a meeting space. Sometimes the An-bang is divided into two separate spaces. One is for the meeting space and the other is for the couple's bedroom. This arrangement maintains the traditional complex functions of An-bang.
3. As the center of the dwelling space changed from Ma-dang to Maru, Ma-dang lost its original function and became a passage from the gate of a house to Maru (a living room with a wooden floor) or a garden. Maru is located at the spatial center but remained as a summer living space or as a passage between rooms. Using hot-water heat for the floor of Maru, Maru played a role of living area, and functions as a public space for the family, including the role of Ma-dang.
4. Fuel conversion caused the modernization of dwellings, with free composition of plan, stand-up kitchens, vertical partition of layers, integration of space composition, with the changing of Ma-ru to a living room, and the maintenance of An-bang.

Results show that changes in the spatial composition of the dwelling have been influenced by fuel conversion.

To conclude, fuel-conversion played a significant role in the modernization of dwellings and the preservation of traditional dwelling modes. The results of this study on re-composition of dwelling spaces could be helpful to in planning the urban dwellings.

### References

Lee, Soon-Hee, (1997.7), A Study on the Transformation Process of the Organization of Dwelling Space in terms of the Conversion of Domestic Fuel, Journal of Architectural Institute of Korea, pp. 65-70

Lee, Soon-Hee, (1997.8), A Study on the Change Living Pattern by the Conversion of Domestic Fuel, Journal of Architectural Institute of Korea, pp. 78-83

Lee, Soon-Hee, (1995.8), A Study on the Process of Changed Use in the of Urban Housing, Annual Meeting of Architectural Institute of Japan, pp. 345-346

Moon, Hong-Gil, (1982), A Study on the Change of the Korean Traditional Residence after the time of Enlightenment, Master's Thesis, Seoul University

Cho, Yong-Hoon, (1984), A Study on the Transition of Urban Dwelling-Unit in Korea, Master's Thesis, Seoul University

Lee, Byung-Wook, (1988) A Study on the Change of Dwelling Space in Korean Urban Housing, Master's Thesis, Hanyang University