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Recent Changes and Prospects of Hanok Building Technology

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Chapter 1. Introduction

This study proposed a direction of developing technologies involved in Hanok(Korean Traditional Style House) construction and a policy for popularizing the technology. This study examined the modern Hanok technology which had been developed to increase performance and economic efficiency of Hanok. This study also simulated structural performance and environmental efficiency of Hanok by applying the modern Hanok technology.

Chapter 2. Social Recognition on Hanok Technology

As understanding social recognition on the Hanok technology and construction cost, we examined major issues, sudden pop or drop words, and chronological changes that were all related to 'Hanok technology' by exploring web-pages, blogs, and so on.

The result showed that insulation performance, energy related technology and standardization, and cost were popular issues in today, compared with past issues which were about structure and feature of Hanok, material, and traditional skills. As popularizing Hanok village tour programs and experiences, social recognition on

Hanok is shifting from a traditional Korean house(i.e., Hanok) to a contemporary living place where can be built by yourself.

Chapter 3. Development of the Hanok Technology and Product

In this chapter, this study prepared a list of Hanok technology and product and analyzed 179 patents of Hanok technology and 112 products related.

The analysis result showed the patents involved in Hanok construction had been increasing and the patents were focused on major structural parts of Hanok. This study also found that producing the Hanok roof tile, window, and fence was highly limited to few manufacturers.

The Hanok technology that had been developed through a government-led R&D project was mostly focused on new methods to construct Hanok; however, those patents were not likely to be commercialized.

Technologies related to environmental performance were developing to increase construction feasibility which could be matched to modern life style; however, development of the technical design and product were not active so that it was necessary for a policy to promote various experiments and suggestions on the technical design and products.

Chapter 4. Performance Analysis of Structural Technology for Hanok

By analyzing the structural performance, in this chapter, this study proposed planning and technical alternatives for increasing structural performance. The structural performance was analyzed by comparing performances of structure, material, frame, roof of wooden houses with those of Hanok. This analysis also enabled this study to provide alternatives that the structural technology of wooden houses could be applied to Hanok.

The analysis result showed that the necessary input quantity and traditional locating position of materials could be optimized so that construction costs could be decreased. This study also found that material's horizontal positioning would perform

more efficiently and reasonably with a single big material positioning than using double layered materials.

The alternatives on structural technology this study proposed were developing proper measurement systems, earthquake-proof ground plan and elevation, design details on structurally separating parts, and so on.

Chapter 5. Performance Analysis of Environmental Technology for Hanok

In this chapter, we examined the indoor comfortability and energy consumption applying environmental technology to Hanok.

The result showed, as the length of an awning goes longer, that the energy consumption for air conditioning in summer season decreased, but the energy consumption for heating in winter season increased. The dehydration in summer season was found to play an important role for the indoor comfortability. The air tightness of Hanok was another finding in increasing energy efficiency of Hanok.

Chpater 6. Conclusion

As a conclusion this study proposed the development prospect of Hanok technology with political agenda for the technical development. An independent supporting policy which considers the feature of technology and pace of development is necessary for the development of Hanok technology. A system which certifies Hanok material and environmental performance is also needed. A promoting policy which can encourage various modern construction industry so to increase the demand for Korean style is also proposed.

Keywords : Hanok Technology, Social Recognition of Hanok, Hanok Product, Structural Technology for Hanok, Environmental Technology for Hanok