



## 한옥주택 유지·관리를 위한 점검 기준 및 실행방안 연구

A Study on Inspection Guidelines for Hanok Housing Maintenance and Management

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There are various public support measures to increase the residential convenience of existing Hanok. Among various measures, this study focuses on the preparation of detailed investigation criteria for maintaining and managing existing Hanok and utilization of the investigation criteria by specialists. Using the detailed criteria a specialist investigates the problems of Hanok to live, urgent parts to repair, and so on. Including comprehensive conditions and rates of existing Hanok, the results of investigation provides a resident with a state of housing and the public with the planning foundation of Hanok maintenance and management. The investigation results can contribute for local governments to provide efficient support for Hanok and to develop policies for Hanok maintenance and management.

In the second chapter, this study reviewed the concepts/scopes of architectural asset maintenance and management, including the principles/directions of foreign architectural asset cases. A work of architectural asset maintenance and management is determined as a task of sustaining the historical and cultural value of architectural asset and a task of raising up user convenience and security. The architectural asset value is came from the site, structure, facility, usage and function of architectural asset. The sustaining work is in response to the physical aging of material and structure in architecture, spatial environment and infrastructure. The sustaining work needs to continue until destruction of architectural asset. The work for user convenience and security can be accomplished by conducting daily, regular and optional maintenance checkup, restoring damage parts and providing works of fixing-improving-reinforcing. The causes of physical aging, in case of Hanok, are categorized into ①moisture or rainwater in wood and stone, ②indoor and outdoor mold by water

leak in roofs and walls, and ③material contamination by daily living. When the physical aging is found, instant treatment needs to be implemented in order to prevent deterioration of defects. The treatment for defects of Hanok is divided into building a new building, substantial repair and repair, customizing the range of repair to reflect characteristics of Hanok wooden structure.

In cases of foreign architectural asset, maintenance and management works mean repetitive tasks of maintaining favorable condition of architectural asset's basic structure. Purposes of these works are the prevention of aging and deterioration of asset value and the protection of asset's building structure and function. Foreign cases show that the maintenance and management works are divided into pre-investigation tasks and pro-investigation tasks. Pre-investigation tasks include the understanding of asset's structure and material characteristic. After investigation, results of investigation need to be recorded and documented. These documents and records, then, are utilized for next maintenance and management tasks as references. Tasks through pre-investigation – investigation – utilization of results are hosted by specialists, and an investigation manual or list is recommended for efficient investigation and result documentation.

In the third chapter, this study focuses on laws and regulations related to Hanok maintenance and management. A main feature of the laws and regulations is on selecting of a maintenance target and investigating of the target's safety. Based on investigation results local governments make a building manager conduct essential treatments and supervise a result of the treatments for promoting residents safety and maintaining the building. According to 「Special Act on the Safety Control of Public Structures」, a general building is supervised by facility's safety rating standards. If a building has an excellent or good rating regular investigation is conducted, and if it has less than problematic rating(i.e., C rating) instant repair or reinforcement is implemented with additional investigation.

In the forth chapter, this study examines Hanok housing repair characteristics such as repair scale, part, average price and period, especially focusing on the State-designated important folklore resource cases and the repair cases which had been supported by Seoul and Jeonju-si. Findings of the examination are as follows:

First, roofs have been the most frequently fixed among Hanok housing

components. Examination of cultural asset class wooden housing maintenance cases shows that 33% of total treatment has been for roofs repair and reinforcement. The cases of general Hanok housing maintenance Seoul or Jeonju-si supported also consider roofs as the most frequently fixing part, showing 17% and 61% share of the total treatment case respectively. Other exterior parts of Hanok housing such as outer walls, elevated walls, and walls have also had frequent maintenance treatment besides roofs. Second, the substantial repair and repair have been determined to have the largest share, compared with the other Hanok housing repair treatments to alter, extend and build a new building. For general Hanok housing maintenance, the cases Seoul supported show 13% of repair and 45% of substantial repair and the cases Jeonju-si supported show 59% of repair and 12% of substantial repair. Third, an increase of the average cost for Hanok housing repair has been dramatic in the shift from repair to substantial repair compared with other treatment type changes. In case of Hanok housing repair Seoul supported, the average costs are 18 million won for repair, 200 million won for substantial repair, 215 million won for expansion and 242 million won for alteration. In case of Hanok housing repair Jeonju-si supported, the average costs are 15 million won for repair, 52 million won for substantial repair and 73 million won for expansion. Forth, costs by substantial repair and less treatment are invested mostly on roofs repair, and costs by treatments that exceed substantial repair scale are committed mostly on outer walls and walls. Especially, costs by repair treatment are invested on roofs repair. Fifth, among all components of Hanok housing, roofs are determined as the part that need the most frequent repair treatment. Roofs of cultural asset class wooden housing have been repaired in every 3 years and 10 months. Other components such as stylobate, pillars, walls and outer walls also have been regularly repaired. These findings mean that the exterior space of Hanok housing needs regular treatments.

In the fifth chapter, this study focuses on preparing a checkup list to investigate Hanok housing maintenance status, applying the list to Seoul and Suwon-si Hanok housing, and complementing the list based on the application results to increase investigation quality. Investigating items are classified into a safety-function part and a form-appearance part. A checkup list is used for investigating 45 Hanok housing in Gyeongbokgung Palace west side of Seoul and Hwaseong of Suwon-si. As

results of the investigation, most Hanok housing in Seoul and Suwon-si need safety-function repair and reinforcement treatment. Hanok housing in Suwon-si even requires instant treatment for significant defects in principal structural parts. Residents of Hanok housing have pointed out the cold as the number one inconvenience of Hanok housing. Roofs and roof tiles have been determined as the most recent treatment part. Indoor restroom, improvement of the cold, and roofs repair have been voted to the number one, two, and three parts alteration and reinforcement require, respectively. Most residents of Hanok housing has wanted the public support for minor treatments.

In the last chapter, this study focuses on measures to utilize the maintenance standards of Hanok housing for improving Hanok residents living inconvenience. Compared with current public support for Hanok housing that pursuits to preserve characteristics and landscapes of Hanok by public funds, the maintenance standards and investigations of Hanok housing concern the general safety of Hanok housing residents and pursuit the support for maintaining and sustaining functions of Hanok housing. The maintenance investigation of Hanok housing, therefore, needs to focus on checking up the safety and function of Hanok instead of its appearance. Results of the investigation on Hanok form and appearance can be used to induce treatments. Because of limited public funds and hands, the maintenance investigation the public sector supports and its administrative procedure should not be complicated. The maintenance investigation and implementation procedure, rather, need to be directed to be compatible with existing systems. Fundamental goals of the Hanok housing maintenance and investigation, therefore, are to inform residents of Hanok of current conditions of the Hanok and to advise and direct treatments if needed. In order to provide effective advice and direction, professionalism of an inspector needs to be secured, and qualification of the professionalism should be examined.

**Key words : Hanok housing, maintenance and management, investigation, Hanok repair**

