

Web-based Daily Report for Data Repository of Standard Cost Data for Modernized Korean Housing (Hanok)

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Abstract : Growing demand for traditional Korean housing, modernized Korean traditional housing (Hanok) was developed as a way of providing Hanok for the public. However, the standard cost data for Hanok has limitations, as it was developed based on single mock-up project actually constructed and verified by another mock-up Hanok. In order to meet these research objectives, daily report composition which is easy-to-use for on-site workers and managers and also easy-to-accumulate standard cost data was developed first. Secondly, access to the system was made easy through a web server. Finally, an automated calculation formula was inserted to allow the last inputted data to be automatically included for adjustment of standard costs. This system was designed from an industry perspective so that any unspecified and nonprofessional users can easily use. For the users, it has an advantage that on-site workers are provided with a daily report system through web server and also they are able to complete such reports through simple input and output without any additional forms.

Keywords: Modernized Korean housing (Hanok), Standard cost data, Daily report, Data Repository

I. INTRODUCTION

As there is a growing demand for traditional Korean housing, modernized Korean traditional housing (Hanok) was developed as a way of providing Hanok for the public. In the previous studies, standardization and productivity improvement for Hanok dissemination have been actively developed. Estimating construction costs for Hanok is also important issue in this sense.

In an effort to provide standard cost data for Hanok, the previous research by the authors established standard classifications and work items. However, the standard cost data for Hanok has limitations (i.e., data shortage), as it was developed based on single mock-up project actually constructed and verified by another mock-up Hanok. The standardization of such cost data requires huge data accumulation through a number of Hanok cases. However, data collection for standard costs is very difficult because each company has different formats and different classifications.

Accordingly, this paper pursues to develop an efficient method and tool of updating data repository that collects cost data directly from actual construction sites. This tool for data repository is based on daily report forms that are commonly used in actual construction sites. In order to meet these research objectives, daily report composition which is easy-to-use for on-site workers and managers and also easy-to-accumulate standard cost data was developed first. Secondly, access to the system was made easy through a web server. Finally, an automated calculation formula was inserted to allow the last inputted data to be automatically included for adjustment of standard costs.

II. DATA REPOSITORY FOR MODERNIZED HANOK

For estimating construction cost in Korea, the government-developed cost estimation standards (including Standard Actual Unit Price, Standard Cost data, and Cultural Property Maintenance Standard Cost Data) for public use, and RS Means run by private sector in the US is also a good source (Jung and Kim 2012). However, all of those standards are difficult to apply for Modernized Hanok, because they have different purposes and different types of information. So, those systems aren't appropriate to estimate costs for Modernized Hanok (Kim and Jung 2013; Table 1). In this context, the purpose of this study is to develop an effective data repository system for Modernized Hanok.

In fact, there are various ways to build a data repository. This paper selected a daily report system, because daily report include most faithful information of the construction site, as it is essential for workers to record information on the site. And also, it includes essential data to develop standard cost data for Modernized Hanok. In this regard, this research suggests daily report as an effective way to collect historical cost data for Modernized Hanok by using systemized and web-based daily report.

III. DAILY REPORT FORM AND SYSTEM

The objective of this research was to develop a daily report format suitable to Modernized Hanok and to systemize it useful to general users. Due to limited space of the paper, the daily report form is briefly introduced with a user interface in Figure 1. The system has the following features:

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Figure 1 Web-based Daily Report for Hanok

- 1) The primary objective of the web-based daily report was to collect data. Therefore, the systems have a structure that can accumulate historical database. This system with SCNS structure (Jung et al. 2012) follows standard facets of facility, space, work section, work item for Hanok, including unit labor cost, unit material cost, unit other expenses, weather, man-days, and so on.
- 2) The second objective of the daily report system is to provide a user-friendly tool. By using this system, users do not need to prepare a daily report manually, and they also can print out the daily report in a desired format for their own use.
- 3) As shown in the left section of Figure 1, the screen shows standard cost information from historical database for Modernized Hanok, which was developed based on actual projects. The content is provided for users as reference to compare with their own project. And then, users can enter information by taking into account the left screen. With the minimum contents entered by users, data analysis of their project can be automatically performed in the same format as the left screen. As the formats for standard cost data and the user's project data are the same, the user can check his productivity compared to the standards, so that the daily report can serve as a valuable reference in performing construction work.

IV. RESULT

This system was designed from an industry perspective so that any unspecified and nonprofessional users can easily use. For the users, it has an advantage that on-site workers are provided with a daily report system through web server and also they are able to complete such reports through simple input and output without any additional forms. For the industry, cost data can be collected directly. It is expected that the data collected from job sites would significantly contribute to updating the Modernized Hanok standard cost repository.

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