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Rethinking Architectural Competitions of Public Buildings : Issues and Challenges in the Building Process

임유경 Lim, Yookyung
배선희 Bae, Sunhye
박태홍 Park, Taehong
양은영 Yang, Eunyoung

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Article 24 of the Framework Act on Building enacted in 2007 stipulates that the national government, local governments, and public institutions should strive to hold architectural competitions to select high quality building and spatial environment designs. In 2013, the Act on the Promotion of Building Service Industry was enacted, which mandated architectural competitions in public construction projects of a certain size, and the scope of this architectural competition mandate was expanded through the amendment to the enforcement ordinance in 2019. Most public buildings such as schools, libraries, sports centers, and welfare facilities frequently used by citizens in their daily life are being constructed through architectural competitions.

The architectural competition method of selecting the best design proposal by evaluating multiple competition submissions is very costly. For such an architectural competition to have the expected effect, it is important that the design and construction proceed in a reasonable manner after the architectural competition. Up to now, monitoring of the design and construction stages after the architectural competition was lacking. Problems such as frequent design changes and insufficient or inadequate

implementation of the design intent in the construction process after winning the architectural competitions have been pointed out.

This study stemmed from the question of whether architectural competitions were achieving the systemic purpose of “creating excellent buildings”. In this study, diagnosis of project progress in the design and construction phases after architectural competitions through monitoring is carried out and improvements to the system are proposed.

In Chapter 2, the characteristics of the legislation introduced for the quality management of public buildings are summarized and the social discussion on the status of the architectural competition system and public building production process is reviewed.

The system and policies related to public building production have been promoted and pursued so that quality architectural plans are produced early on in the project, an outstanding architectural competition submission is selected, and the initial plan and design intent are faithfully implemented until the completion of the construction. However, different laws and regulations are applied for the different stages of the public building process and systemic improvements for quality enhancement of public buildings have been concentrated on the planning and procurement phase. In the budget execution and contract related systems, economic feasibility and fairness have to be prioritized over the implementation of excellent design. While the demand for high quality design is increasing with the adoption of public building quality improvement policies, detailed solutions for the realization of high-quality design in the design and construction stages have yet to be established.

After the expansion of the architectural competition scope in 2020, the number of architectural competition orders increased 60.61% and the number of local government competition orders of design cost less than 500 million won increased 79.68%. It can be seen that architectural competitions have been established as the main method for selecting public building designers. Most local governments have different responsible departments for each stage from planning to procurement, design, and construction, so there are limitations on efficiently holding architectural competitions. The increasing number of cases of the establishment of dedicated departments for the integrated

management of architectural competition preparation from the architectural planning stage to the construction completion since 2019 is a positive change.

Despite the systematic advancements and efforts of local governments, criticism of architectural competitions regarding their fairness and expertise of the screening has continuously been discussed in media reports and expert discussions. With regard to the stages after the architectural competition, the problem of projects that were completed differently from the awarded proposal in the architectural competition due to design changes has been raised.

This study aims to focus on three issues to determine the current status of the site applications of systems adopted for the quality enhancement of public buildings and to analyze the public building production status after the architectural competitions. The first issue is whether the awarded design of the architectural competition is maintained as the optimal proposal, the second issue is whether the planning conditions and requirements derived from the architectural planning stage can be maintained, and the last issue is whether the public building production related system after the architectural competition is appropriate.

In Chapter 3, the status and actual conditions of changes occurring in the main production process of public buildings after the architectural competition were investigated by analyzing contract data and the characteristics of design changes that occurred in 111 public building projects. Also, contractors and designers were surveyed to investigate the reason for the occurrence of major changes and the perception of important matters to minimize changes were investigated.

There are many cases where changes occur in the design and construction contracts, and there are differences in the nature of the changes in the two contracts. Among the projects subject to the architectural competition, about 42.4% of design contracts and about 91.3% of construction contracts had one or more contract changes. In construction contracts, the ratio of contract amount change from construction period change was high, but there were many cases where the contract amount did not change despite a change in the construction period.

Design changes occur frequently in the building production process after the architectural competition. In design and construction contracts, change in the design is

the main reason for contract changes, and the survey results of the contractor and designer also showed that the ratio of design changes was higher than changes to the budget or period. In addition, there were some cases where extensive design changes occurred in the construction stage after the completion of the design.

There is a significant difference in the degree of reasonable change in the winning design of the architectural competition that the contractor and designer of a public building project experience. Compared to the contractor, the designer perceived that the preparation before selection and securing rationality in the following process after selection were more important than the selection itself.

There was also a clear difference in the perceptions of the contractor and designer regarding the major causes of change in each stage after the architectural competition. In the design stage, both contractors and designers considered “budget” the most as the cause of design changes. Secondly, contractors cited “inappropriateness of the winning design” while designers cited “additional demands of the contractor”. At the construction stage, contractors pointed to “errors in the design” as the cause of design change while designers pointed to “problems with the current system”.

Regarding the current standards related to design work, the perceptions of the contractor and designer were also different. Especially, opinions differed on the appropriateness of the compensation or payment of design work and the necessity of paying for additional work outside the scope of the task. The group of designers who responded that the current design work compensation is not appropriate pointed out that the scope or content of design work is ambiguous and there is no established standard regarding additional work. On the other hand, contractors expressed their opinion that changes in the work that occur after establishing the service contract should be considered within the scope of the work.

While the contractor considered communication to be important for the efficient management of public building projects, designers focused on project management consistency, experience of the person in charge, and the system. In particular, the designers suggested that it is necessary to unify the decision-making system and establish a consistent project management system in order to minimize changes to the design and increase the efficiency of the project. Consistent project management and decision-making system is very important for the designer because in a project ordered

by the public, major decision-making is related to whether or not changes occur to a project. It is necessary to review the potential improvements to the current system to enhance the understanding of the entire project process and secure workflow continuity by the ordering institution.

Chapter 4 investigated the main points and causes of design changes that occur in the public building production process after the architectural competition through a survey of 56 designers and in-depth analysis of major cases. The public building production process was divided into 5 stages: contract preparation, planning design, interim design, working design, and construction. The following are the obtained results.

First, changes to plans frequently occurred in the public building production process after the architectural competition. According to the survey responses, design changes occurred throughout all the stages from design to contract preparation and construction. The ratio of design changes in the contract preparation stage was more than half of the total sample, which suggests that architectural planning of the corresponding project was not faithfully carried out or detailed design guidelines were not presented during the architectural competition.

In public building projects, major causes of design changes can be divided largely into three categories.

The first is design changes caused at the request of the contractor. Survey results showed that more than 70% of all projects saw design changes at the request of the contractor in the design service contract preparation and planning design stages. In-depth case studies revealed that numerous design changes were made at the request of the institution head or person in charge at the contracting department.

Second, design changes are made according to procedure including various consultations, reviews, and certifications. Such changes tended to occur starting in the interim design stage where the design undergoes refinement and multilateral assessments in various related fields take place. The consultation, review, and certification system significantly impact not only the design but also the entire schedule management of the project. For example, the design period of a parking tower project increased by around 50 days due to traffic impact assessment and the design service of a council building project was shut down for more than 3 months as the project had to go through the

urban planning facility decision-making process of the local government.

The third is design changes caused by inflation or changes in related standards. These causes were found to be the main causes of design changes in the planning design stage where related legislation and regulation are examined in earnest after the architectural competition and the working design stage involving the preparation of the construction cost statement. This is determined to a result of the procedural characteristics of public building projects that require numerous years from the budget compilation in the early stages of the project to the start of the construction and is difficult to respond flexibly to external factors.

Chapter 5 summarizes the characteristics of the public building production process, derives the direction of future public building policy, and presents improvement directions to the public building system and amendment proposals to related legislation and regulations.

The first characteristic of the public building production process after the architectural competition is that the development stage is subdivided and a diverse range of subjects become involved. In public building projects, various departments of public institutions participate as well as expert groups such as committees. The second characteristic is that the decision-making process is a multilayered process. The organization structure is hierarchical, replacement of the person in charge is frequent, and the authority of committees is strong, so the responsibility of decision-making is dispersed. The third characteristic is that there are many factors for changes in the conditions during the long project period. There is a high chance of changes in the construction cost and related standards. The fourth characteristic is the high uncertainty in the site conditions. The relationships with roads and nearby lands along with the current soil state have significant effects on design changes. Lastly, despite such various factors, the system is rigidly operated. The rigidity or stiffness of the system is a major factor in design change.

Considering the characteristics of the public building production process, the following question can be asked: is the architectural competition system with the goal of selecting the optimal design plan and faithfully realizing it achieving the intended purpose of the system? From a long-term point of view, there is a need for a decision-making process fitting to the public building production process as well as a reassessment of the time

point in the process where the designer takes part and the method of participation. From a short-term perspective, in order to maintain the current architectural competition system and attain the expected effects, change factors need to be minimized while improving the system in a direction that reasonably manages the design changes in the design and construction stages and enhancing construction quality.

In order to minimize changes during the public building production process after the architectural competition, the architectural planning of individual projects is to be further strengthened(task 1) and facility standards are to be established for universal application to public buildings or application to specific types(task 2). Moreover, there is a need to improve the guidelines and screening of the architectural competitions(task 3). The establishment of a dedicated or exclusive organization or the designation of a dedicated person in charge that oversees the entire process is proposed for workflow continuity(task 4).

For the reasonable undertaking of design change work that occurs frequently in the public building design stage, the concept and work of “design change” need to be redefined and the related procedure and compensation or payment standard need to be established(task 5). Also, the modification and management of construction costs in the stages before and after the architectural competition need to be justified(task 6).

In order to properly realize the awarded architectural competition design, construction quality needs to be increased. For this, the bidding and evaluation system of public building constructions that are based on economic feasibility must be improved(task 7). Plus, disclosure of the completion materials regarding architectural competition projects needs to be mandated to examine the effects of the architectural competition system(task 8).

The system improvement tasks were divided into short, mid, and long-term tasks taking into consideration their urgency and current state of related research, and a plan is proposed. Based on the diagnosis result of the public building production process after the architectural competition, the task of reconstructing the public building decision-making and design processes need to be carried out in the long-term. Evaluation of standards in the areas of urban development, architectural design, structure, machinery, and fire prevention is prerequisite to the establishment and operation of public building facilities, thus, it is proposed as an intermediate-term task.

For the improvement of the bid winner decision system to increase the construction quality, the problems of the comprehensive screening system are actively being discussed and improvement solutions are being sought. The enactment status of the Public Building Special Act needs to be taken into consideration with regard to the accomplishment evaluation reflecting the characteristics of public building projects, so it was proposed as an intermediate-term task. The disclosure of completion materials for the strengthening of architectural planning, improvement in architectural competition management, organizational composition and designation of supervisor or dedicated person in charge for workflow continuity securement, establishment of a design change work related system, construction cost calculation and management streamlining, and strengthening of monitoring after the public building architectural competition was proposed as a short-term task.

In this study, the characteristics of the public building production process after the architectural competition were investigated and future policy direction and system improvement solutions were proposed through policy and system analyses, design and construction service analysis, survey of related personnel perceptions, and in-depth case studies.

Annually, there are more than 900 architectural competition orders carried out by national institutions, local governments, public institutions, and local public enterprises, and this study was conducted with a focus on the local government as the contractor institution. There is a need to reflect the various characteristics of public institutions and take in the opinions of related personnel to supplement the system improvement tasks and legislation and regulation amendments proposed in this study. Furthermore, since the in-depth analysis was inevitably carried out based the survey responses of designers, meeting notes, and reports, there is the limitation that the opinions of the contractor were not sufficiently collected.

In order to carry out the systemic improvement tasks proposed in this study for enhancing the public building production process, the current state of system operations for each project needs to be examined in detail and follow up assignments that will evaluate the utility of the proposed system improvements. To strengthen architectural planning, the principal agent to carry out the architectural planning work, method of

carrying out such work, and compensation or payment need to be presented in detail. Considering the reality where the Public Procurement Service reduced architectural competition agency services due to increased workload and lacking internal capability of public institutions, follow research on solutions for the management and operation of architectural competitions are also required.

Keywords :

Architectural competition, public building, building process