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**Youm, Chirl Ho**
Research Fellow

**Yeo, Hae Jin**
Associate Research Fellow

# Improvement of the Evaluation System for Public Building Development Projects

## – Focused on Central Government Office Building Projects –

### Introduction

Today, public buildings number approximately 150,000 in Korea, and about 6,000 public buildings are newly built each year. Public buildings comprise not only a major portion of state and common property, but also daily visiting places for residents, such as community centers, borough offices, nursery facilities, schools, libraries, and so on. They are directly connected to people's quality of life.

However, many problems regarding public buildings remain unsolved. For example, central departments customarily propose a project on a larger scale, and they usually construct buildings with similar building uses without a local demand survey. This causes a lower coefficient of utilization. Furthermore, they disregard the value of design, and proceed with the whole working process oriented administratively. "Review In Advance" is expected as a betterment of the public building planning phase by the Architecture Service Industry Promotion Act. Still, the evaluation and management system is limited to the early stage of new building projects only and is insufficient for overall evaluation of the results.

The central government builds and rebuilds "Government Office Building and Official Residence Building" operating the "National Property Management

Fund," and this type of project is called "Public Property Acquisition Project (PPAP)." The total budget of PPAP is roughly 900 billion won. This research aims to propose an evaluation system for national public architecture projects for the purpose of budget execution efficiency and progress in design quality through a good circulation system.

### Review of National Public Architecture Projects Evaluation System

The present condition of the evaluation system is reviewed. Its limitations and problems are as follows: First, the evaluation procedure is disconnected and works at the individual phase without a linkage program in the system. Second, the current system is mainly operating for large-scale public engineering works, and it is difficult to evaluate small-scale public building projects. This becomes the major reason almost 95% of public building construction projects have been excluded from the existing evaluation system so far. Third, the system hardly evaluates planning, design quality, or building use; rather, it focuses on evaluating construction expenses. Fourth, the system evaluates public buildings as a mere formality, simply comparing the project's purpose and the result.

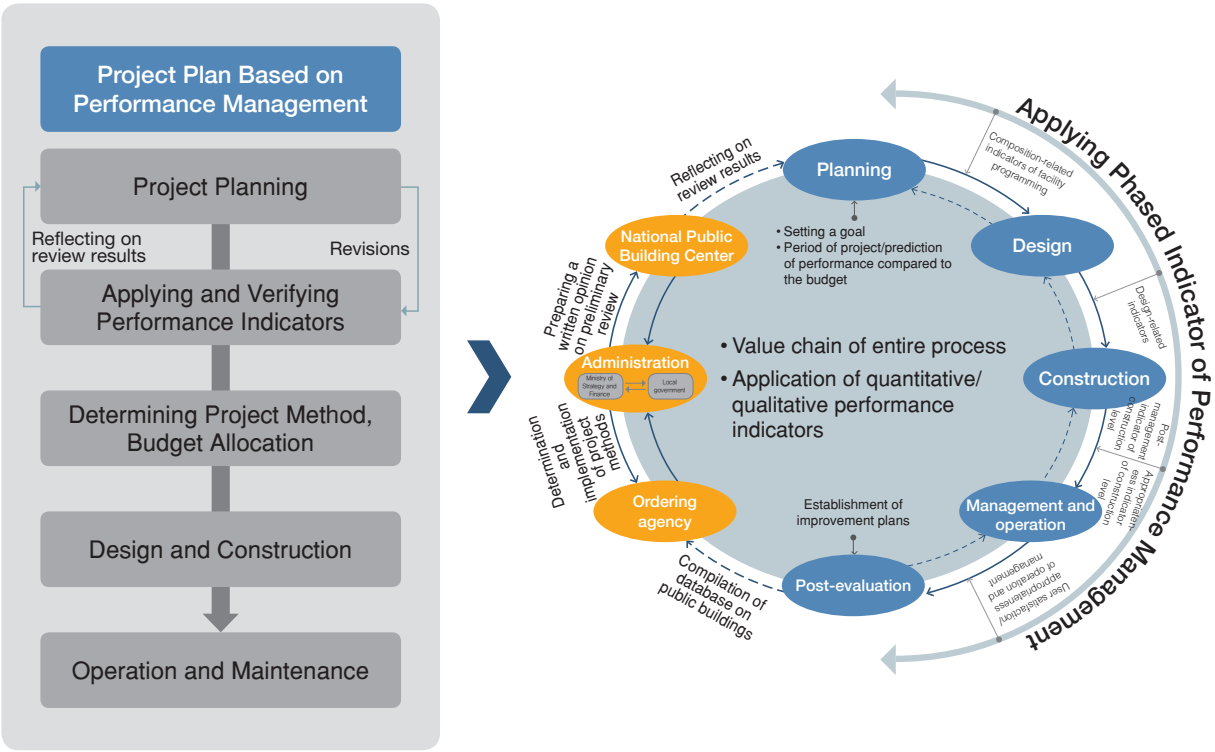
**Public Building Evaluation System by Project Size**

| Project/Construction Costs | | Less than 5 billion | 5 billion to 10 billion | 10 billion to 20 billion | 20 billion to 30 billion | 30 billion to 50 billion | More than 50 billion |
|---|---|---|---|---|---|---|---|
| Proportion of Public Buildings (Based on 2013 Research) | Project | 95.70% (12,910) | 2.22% (299) | 1.10% (148) | 0.70% (95) | | 0.28% (38) |
| | Construction Cost | 35.42% (6.2517 trillion) | 11.46% (2.234 trillion) | 11.63% (2.537 trillion) | 16.84% (2.972 trillion) | | 24.65% (4.3521 trillion) |
| Preliminary Feasibility Study (total project cost) | | × | × | × | × | × | ○ |
| Feasibility Study (project and construction cost) | | × | × | × | × | × | ◎ |
| Investment Finance Examination (project cost) | | ● | ● | ● | ● | ● | ● |
| Preliminary Review of Project Plan (construction cost) | | × | ○ | ○ | ○ | ○ | ◎ |
| Design Adequacy Review (project cost) | | × | × | × | ○ | ○ | ○ |
| Post-evaluation (total construction cost) | | × | × | × | × | ○ | ○ |

● Self-Evaluation ● City/Provincial Evaluation ● Cetral Evaluation ◎ Exemption(Included in Preliminary Feasibility Study)

※The proportion of public buildings was estimated based on data on the contracted amount of construction announced by the Construction Association of Korea in 2013.

These issues drive the necessity for evaluation system improvement. The system needs to be developed to establish project purpose and result index, and establish a "value chain" at every stage of compilation of budget, design, construction, post-evaluation, and management. In addition, a feedback system should be adopted to transform the results of each stage's inspection and evaluation into a database. The new database would compile problems and improvements from each project and serve as a valuable reference for future projects.




※ Source: Presidential Commission on Architecture Policy (2014), The study on strategies and national architecture policies in preparation for the change of the condition, P.152

## Analysis of Public Property Acquisition Projects

The main drawback to public property acquisition projects is related to issues of technicalities and special knowledge value. Most project managers who were interviewed with a structured questionnaire point out three issues: first, lack of specialty for project management; second, difficulty securing relevant information and data; and finally, absence of professional support. The guidelines from the Ministry of Strategy and Finance and Ministry of the Interior do not have enough information for a project manager to properly prepare a project proposal.

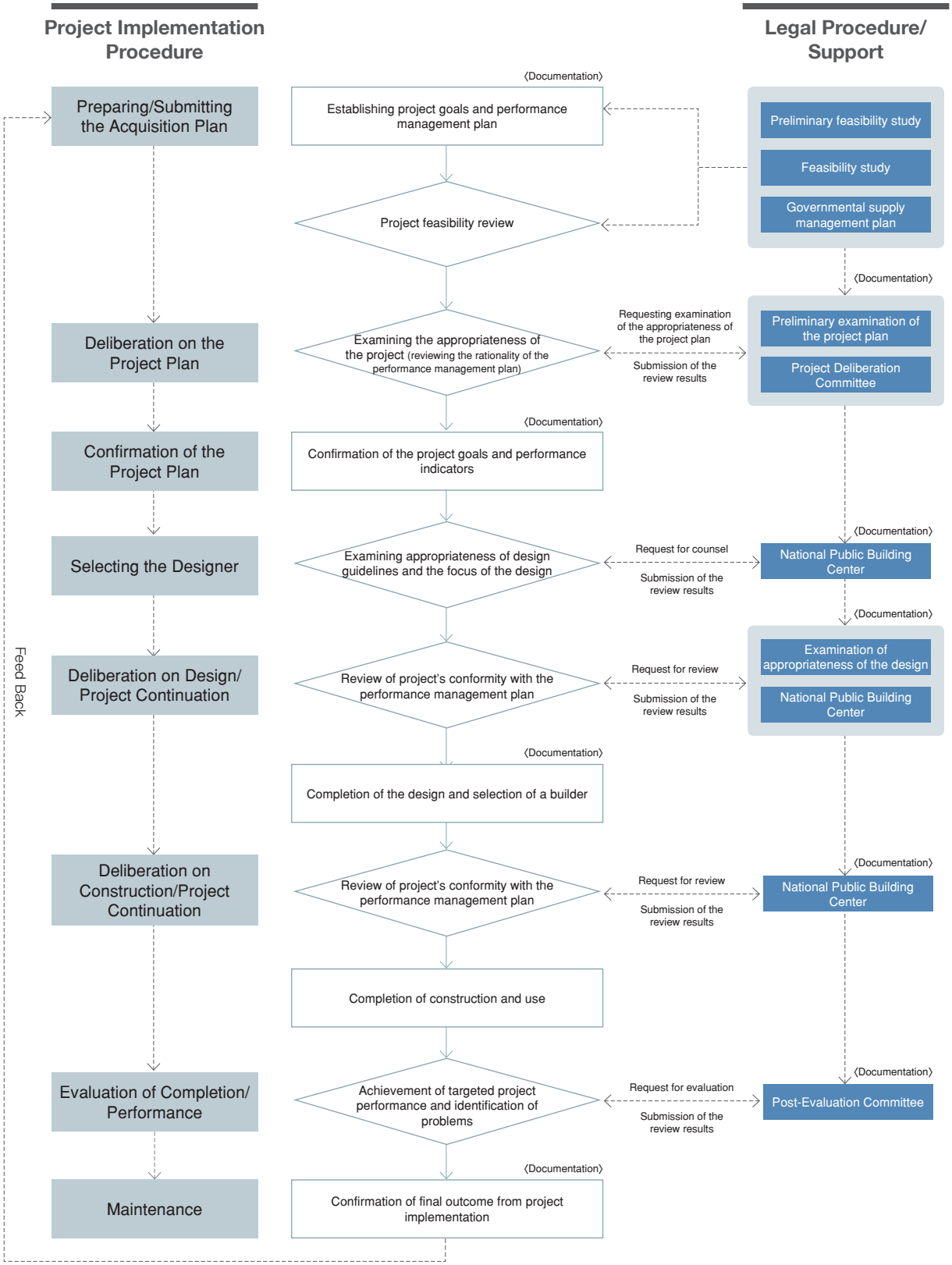
Currently, the adjustment of project expenses depends only on the issue of effectiveness of the total fund's execution without review of architectural and technical designs. Overall, the existing system has limitations in ensuring appropriate project management conditions throughout the whole process. Budget change, design change, and project schedule change are allowed only in a few cases. This reflects the inflexibility of the present project procedure and reveals the possibility that an erroneous strategic plan can govern the whole project to the end phase.

Public building leadership generally aims for energy efficiency. But the relevant energy design fee is not considered important in budget prioritization. Every public building project should be planed based on community-friendly design regardless of the purpose of building and their unique security system. These issues are assumed to be the main obstacles to developing the systematic management of achievement.

### Proposal on Evaluation Model of Public Property Acquisition Projects

The evaluation systems of the US, Japan, and the UK generally display more systematic and detailed evaluation and management procedure compared to the evaluation system in Korea. This has three policy implications: first, it is critical to set up specific performance goals in the early planning process; second, coherent evaluation and management of achievement based on the project goal are necessary; third, it is essential to construct a feedback system that facilitates information disclosure and remedial action based on evaluation results.

The research proposes an index of evaluation and evaluation model, which has been simulated as a performance management program to operate in the field. The index of evaluation is composed of a mandatory index and an elective index. The flexibility of this evaluation system allows each ministry (project manager) to select an index based on the project's goal and put more weight on the more important elements in the index. The index list submitted by a project manager requires review by a public institute or committee of its level of validity and appropriateness. The project should be deliberated at several critical phases to verify its coherent progress. A post-evaluation plan is carried out in terms of project goal and performance evaluation index. All the results of evaluation should be registered and accessible for project managers to consult.




Evaluation Model

## Evaluation Index at the Planning Stage

| Field | Index | Evaluation Criteria |
|---|---|---|
| **1. Systematic Project Planning** | | |
| Rationality of Budget Planning | Scale of the Budget | • Verify appropriateness of the scale of the budget through comparison with similar cases such as standard price per unit (1㎡) specified in 「Analysis of Construction Expenses of Public Facilities by Type」 by the Public Procurement Service (If not applicable, comply with the estimated price of 「National Contract Law」, Article No. 9) |
| | Budget Compilation | • Verify the appropriateness of the compilation and proportion of the budget for the land purchase price, cost of the basic design, cost of the working design, cost of supervision, cost of facilities, cost of equipment, and so on |
| Appropriateness of Facility Planning | Location and Land Use Plan | • Verify the validity of the selected location based on the characteristics of the project and the relationship with the local community<br>• Verify whether the plan for land use and outdoor space is precise |
| | Distribution of Major Functions | • Appropriateness of setting major functions in accordance with project goal<br>• Check whether a new function is applied in response to the changing conditions of administrative matters |
| | Scale and Area by Function | • Check compliance with area standards<br>• Check if scale/area is differentiated based on project goal and main function |
| | Focus of the Plan on the Space and Facility | • Consideration of the plan for indoor, outdoor space and major facilities<br>• Improvement plan for sustainability and energy efficiency |
| | Quality Improvement, etc. | • Consideration of the level and related issues for successful implementation of the facility security plan, such as consideration of special technology, architectural artistry, improvement of user convenience, harmonization with the surroundings, economic improvements, prevention of crime and disasters |
| | Similarity with Surrounding Buildings/ Connection between Facility and Surroundings | • Actual state of use and current status of the distribution of similar surrounding buildings<br>• Plan for establishing a connection between the facility and surrounding facilities after completing construction |

| | | |
|---|---|---|
| Appropriateness of Operation Plan | Appropriateness of the Program for Facility Operation | • Separate operation plan such as consignment and letting<br>• Specification of main items in the budget and facility plans based on the facility's operation |
| | Appropriateness of the Organization in Charge of Operating the Facility | • Specification of the organization in charge of operation after construction of the facility<br>• Appropriateness of obtaining the operator's opinion during the period of the project after completing construction |
| | Budget for Operation of the Facility | • Plan for securing the budget for the facility's operation<br>• After completing construction, appropriateness of obtaining the operator's opinion during the period of the project |
| **2. Rationality of Project Management** | | |
| Rationality of the Project Implementation Plan | Project Period | • Appropriateness of the project period in conformity with the scale and characteristics of the project |
| | Project Management System | • Plan for securing the expertise of the project management organization<br>• Consistency of the project management organization |
| | Labor Service and Management Method | • Appropriateness of management method and entrustment of labor service for the design<br>• Appropriateness of management method and entrustment of the construction |
| Rationality of the Performance Management Plan | Establishment of Evaluation Indicators, etc. | • Validity of the performance goal of each performance indicator and item of the indicator |
| | Weighting of Value | • Appropriateness of the way of weighing values of evaluation indicators, items, fields |

## Evaluation Index after Completing the Project

| Field | Index (Shaded sections : Requirement) | Performance Goal (example) |
|---|---|---|
| Rationality of Budget Operation (30–50) | ① Conformity with Total Project Costs | Project is completed within the planned budget throughout the process of the project |
| | ② Changes to the Budget and Design | No change in the budget during the period of the project<br>The design was redrafted fewer than five times |
| | ③ Prevention of Waste in the Budget and Reduction of the Budget | Achieved up to 5% reduction in total project cost |
| | ④ Appropriateness of Budget Execution at Each Stage | No carryover of the budget |
| Excellence in Project Contents (30–50) | ① Work Efficiency | Customer service-related facilities are mainly located on the first floor, Spaces for conferences are enlarged (20% more than similar facilities), emphasis on efficiency of administrative and civil work, intelligent building certification |
| | ② Energy Reduction and Efficient Maintenance | Designated as first class according to the building energy efficiency rating system, focused on improving energy reduction and efficient maintenance by introducing an integrated management system |
| | ③ Comfort and Environmental Friendliness | Focus on improving comfort and environmental friendliness by certifying the barrier-free living environment along with expansion of the staff lounge (20% more than similar facilities), and expansion of green space (20% more than similar facilities) |
| | ④ Facility Safety | Focus on improving facility safety by controlling entry and separating the space for administrative work from the public-service center and installing a crime prevention system (e.g. CCTV) for preventing break-ins or other crime |
| | ⑤ Reflection of the Demands of the Local Community and Characteristics of the surroundings | Focus on reflecting the demands of the local community and the characteristics of the surroundings by sharing the parking lot with public offices near the facility, by opening outdoor rest area and gym to the public |
| | ⑥ Harmonization with the Surroundings | Focus on harmonizing the facility with the surroundings by planting a variety of trees, planning the number of floors in light of the surrounding facilities, and specializing the exterior design of the building |
| | ⑦ Accessibility and Usability | Focus on improving usability and accessibility by securing one-stop public service and expanding the public lounge (20% more than similar facilities), and securing parking spaces for the public near the main entrance |

| | | |
|---|---|---|
| Rationality of Project Management (20–40) | ① Compliance with Project Deadline | Project is completed within the deadline |
| | ② Expertise of the Project Management Organization | Attempt to improve the expertise of the project management organization by forming a consulting committee and employing outside experts, enforcing the guidelines for project implementation, conducting training for the project managers and personnel, securing professionals in the architectural field, and establishing specialized departments |
| | ③ Consistency of the Project Management Organization | Attempt to improve the consistency of the project management organization by ensuring the consistency of the work process in the course of changing the person in charge, establishing and operating the phased plan for the project management along with no change of the person in charge of the project during the project period |
| | ④ Appropriateness of the Entrustment of the Labor Service and Management | Focus on the appropriateness of the management and entrustment of the labor service for the design by making the change in the design fewer than five times during the period of the design, and completing the design within the deadline |
| | ⑤ Appropriateness of the Entrustment of the Construction and Management Methods | Focus on the appropriateness of the management method and entrustment of the construction by keeping the occurrence of civil complaints and defects under five times and completing the construction within the scheduled date |

## Conclusion

A significant amount of research exists for designing a specific action plan and proposing an evaluation system and feedback system, of which various advanced research has discussed reinforcing the early strategic planning process, evaluation and feedback system, information system, and so on. There will be three future research tasks related to this subject: First, a pilot project of an evaluation and feedback system should be delivered and monitored for applicability to current public property acquisition projects. Second, overall research on project achievement management, including the advanced review that the National Public Building Center is currently undertaking, needs to be done. Third, to perform the effective legal operation, it is essential to take account of the conformity of the relevant laws and guidelines such as the revised regulation: Guidelines of National Property Management Fund.

**Key words :** Public Building, Evaluation System, Public Property Acquisition Project (PPAP), Advanced Review of Project Proposal, Management of Achievement

(auri) Architecture & Urban Research Institute

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**Tel** +82-44-417-9600 **Fax** +82-44-417-9608 **www.auri.re.kr**