창의적 연구업무 수행을 위한 공간계획에 관한 연구
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A Study on the Space Planning for the Creative Research Work :
Focusing on the Design Direction of the Second Research Building in Sejong City

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1. Overview

The relocation of the planned agency was completed in 2015 after the relocation of the government-funded research institute to Sejong City in 2014. At that time, most of the institutions, except for their own office-building institutions, moved into the first research building, but due to the lack of space, some of the institutions, including the Institute for Building and Urban Space, partially leased to private facilities. However, as about five years passed, the number of researchers and organizations were expanded, and the problem of using the facilities such as lack of space emerged, the implementation of the construction of the second research building was confirmed through consultation between related agencies and ministries. Against this backdrop, this study was carried out with the aim of redefining the function and value of work space for national policy research institutes and preparing design guidelines, which can be reflected in design orders.

In this study, we set the core value (creation and efficiency) of the construction of the second research building and analyzed the organization and work characteristics of the policy research institute to examine the main focus of the plan. In particular, the government established the planning requirements that should be reflected in the plan

of the second research office through a survey on the work methods, satisfaction level, and requirements of users of the current research institute to move in, and also operated the TF to analyze the actual issues. Based on the analysis results, the planned design simulation was conducted, and the space composition and space program for each floor were prepared and presented as design competition guidelines. The results derived from this study are primarily applied to the design public offering guidelines for the second research building, but in the long run, it is meaningful to prepare a desirable workspace planning guide for future research buildings to be built.

2. Main Results

□ Establishing the direction of space planning for public research institutes

The public sector research office plan derived eight main points from previous studies related to creative research work, government's business facility planning guidelines corresponding to social change, actual building case study, and user survey of the institution to be moved:

First. the space for creative research work should be able to perform the flexible piece of time and distance based on the horizontal work performance system and efficiently accept and support the organization members' work characteristics in various forms. Second. it should be a space where mutual trust and close cooperation in professionalism are naturally induced, minimizing immersion inhibition, maximizing the autonomous research environment. Third. it is necessary to plan flexible space reflecting the development, organizational restructuring, and reinforcement of future institutions. It is required to construct a workspace and a public space and plans an area considering the user work pattern and the variable utilization of space. Forth. the interdepartmental connection for communication and exchange should be enhanced, and at the same time, an independent space where individual immersion research is possible should be formed together. Fifth. the workspace is divided into private space and public space, and the private space should be created variously according to the work method and form, and it should enhance to connect with the available space. The public space also requires various room configurations that can

collaborate and communicate, and it should organically connect all space. Sixth. As creative thinking expression, personal space planning is essential, comfortable, and convenient resting, and convenience facilities should be planned sufficiently. Seventh. such workspace should be categorized according to the purpose of use and variously organized according to its organizational characteristics. The workspace types can be divided into 1) intensive workspace requiring personal creativity, 2) workspace promoting creativity through small-scale and large-scale collective communication, 3) creative stimulation space through non-planned meeting and intersection, 4) creative storage space through personal and collective rest. Eighth. the natural environment (lighting, ventilation, etc.) and the equipment and technology system's performance should be satisfied as basic conditions.

□ Identifying the needs of users of the second research building

Meanwhile, this study investigated the actual condition, satisfaction, and requirements of the space currently used by users of the institution to move into the second research office and presented the main planning direction. The survey included five items: work method and work type, the current status of utilization of workspace, satisfaction of workspace (evaluation), need for improvement of workspace, and creative workspace. The results were analyzed by classifying them by institution, occupation, and service period. The main points can be summarized in the following ten.

first, research institutes are largely divided into research, administrative, and private room users, and unused persons. The number of researchers is about 70% of the total number of members, and all associate researchers use private rooms. Besides, each institution separates departments according to the research theme. Second, both the institutions that are planning to move in (scale) recognize that the size of the space they are currently using is small, especially meeting space, resting, and lack of convenience space is highlighted. Third, in the context of (promotion, stimulation, and stockpiling space), collaboration and communication are considered essential for creative research work. Still, it is found that there is a lack of meeting space, rest and convenience space for this, and especially in the case of meeting rooms, it is recognized that it is necessary to expand the area more than 1.5 times as of now. Fourth, it is found that there is more communication with administrative and management support tasks than exchanges between research departments. However,

related studies are being reduced due to the computerization of administrative documents recently. Fifth, in the situation where for the meeting, resting space is insufficient, most of the work is done mainly in the personal area, so there are many demands for improvement of the quality such as privacy of personal space, comfort such as mining, and sufficient storage. Sixth, regarding the space utilization method of three institutions, the possibility of sharing a conference room, library, resting, and convenience space is highly recognized. Seventh, the researcher has more frequent out-of-work and business trips than administrative ones and has a longer average absence time. So it can be found that there is room for new workspace such as a smart office that introduced an autonomous seat system. Eighth, the use of conference space by occupation is different. Although there are frequent meetings in small group form in research positions, there are not many administrative positions, but there are many meetings in the middle of the meeting. Ninth, the difference in the characteristics between the private room users and the unused users is also identified. Generally, the private room is a personal workspace and is used as a multipurpose space for a small meeting space, outsiders' reception, and private rest space. Therefore, restrooms and convenience facilities are mainly used for non-users in private rooms. Tenth, it is shown that they prefer a smart office composition with individual fixed seats but can perform open and flexible work rather than autonomous seat systems. Besides, the left-handed seat operation recognizes that the ratio of about 7:3 is appropriate compared to the fixed seat.

Based on the results of this survey, the direction of space planning reflecting the opinions of users of the second research office is as follows: 'Flexible space plan considering the development, organizational restructuring, and reinforcement of future institutions', 'Improving the linkage of workspace for communication and exchange', 'Improving the utilization of buildings through the shared space plan of three institutions', 'Improving the environment and facility performance of the whole workspace,' 'Use flexible space considering work methods and work forms', 'Expansion, and Expansion of conference space. Particularly, it can organize into the meeting space plan, 'the durability and environment improvement of the meeting space', 'the rest within the work space and offset space installation', and 'the workspace composition which is available in the outside person reception' considering the property of the job.

□ Preparing guidelines for design competition

In this study, a design simulation was conducted based on the main focus of the second research office space plan to verify the effects linked to the land environment and the size of the building, specify the contents, and prepare the design contest guidelines. The guidelines for design competition reflected the details and the focus of the space planning plan so that the evaluation items prescribed in the "Guidelines for Operation of Design Competition" can be judged.

I. Building placement planning

(i) Placement reflecting the number of employees, outside visitors, future development, etc. (ii) The entrance and exit of the site shall be considered for accessibility to the first research office and convenience of use of facilities. (iii) Sharing or separating facilities in consideration of the characteristics of the work of the three research institutes. (iv) Separating from business facilities when establishing facilities linked to the opening of residents to ensure the independence of security and research institutes.

II. Plan planning

(i)Organic linkage of the institution to be moved or proposal of a plan to utilize independent space. (ii) Spatial composition considering the increase of future research organization. (iii) The ratio of the field and short side of the room is composed of energy conservation, mining, ventilation, etc. (iv) Major service facilities, such as the communication management office of an institution scheduled to move in, should be constructed in consideration of convenience in use and maintenance.

III. Sectional planning

(i) Vertical movement line configuration which is independent of each other and can have mutually organic relationship between tasks. (ii) Plans for the height of the floor in favor of light and ventilation

IV. Workspace planning

The workspace is a space for research work and administrative support work, and the size and layout are planned according to the area table by room, and the plan is planned considering the difference in the space use type according to each job level.
(i) Work space is composed of various types of space according to the characteristics of the agency and department, considering the variability and openness. (ii) The rank

of a member or higher of the associate researcher shall be comprised of a private room, and the number and size of rooms should be adjusted according to the concept of the whole work space. (iii)Organic connection between personal work space and meeting space. (iv)Responding flexibly to future reorganization, organizational change, and reinforcement of the organization.

V. Work support space planning

The work support space includes collaboration and meeting space, copying and warehouse, resting and convenience space, etc., and it should be planned considering accessibility to workspace. (i) The conference room of each research institute may be proposed to be used jointly with each other, and in such cases, the utilization and operation plan may be presented