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Study on Design Guidelines of National Daycare Centers

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1. Introduction

As a daycare center with children from 0 to 5 years of age and the nature of an educational institution that is first encountered by children is a public building of basic living unit that exists everywhere with a police station, a fire station, and a community center, the importance of daycare center is gradually increasing. This study has begun to suggest the desirable development direction of national daycare centers with high symbolism and speciality as a place for future generations. Therefore, this study proposes the necessity of design guideline which is necessary to establish basic spatial environment and plan direction necessary for the establishment of national daycare centers, and suggests guidelines and guidelines for establishing design guidelines to be applied to national daycare centers.

First, in order to verify the necessity of design guidelines for national daycare centers, we analyzed the current status of national daycare centers and identified limitations of the current plans, and clarified the necessity to establish a new national daycare center design guidelines by grasping the actual state of the provision of national daycare centers such as design service work instruction manuals applied to national daycare center planning and design stage, user awareness survey, and physical survey.

Based on this, the work on presenting the direction of the design guidelines of the national daycare centers and the specific design guidelines. For the starter, we have conducted an advanced case study on the daycare center design guidelines for

nations known as advanced nations such as the United States, the United Kingdom, and Japan, and set up guidelines for design guidelines. In addition to establishing these basic design guideline, the final design direction of the design guidelines was determined and the design guidelines were formulated by integrating related legal system with the problems derived from the present situation and the present status of formation. Also, as a measure to secure the effectiveness of the design guideline, the Ministry of Health and Welfare notification was made as well as suggestion of ways to improve the relevant laws and regulations.

2. Status and Problems of the Legal System Related to the Planning Criteria of National Daycare Center

In order to elucidate the problem and to improve plans of existing national daycare center, we have analyzed the objectives and contents of daycare center, laws and regulations related to national daycare center and related plan standards, focusing on "Infant Care Act". Based on the results, the limitations and improvements of current national day care center plan standards have been derived.

As a result of the analysis, it was found that the planning standard applied to the planning and design stage of the national daycare center was the only criterion for "Setting Standards of Daycare Center" according to Table 1 of the "Enforcement Rule of Infants Care Act." The facility area used in "Standards for the Installation of Daycare Center" in Table 1 of the "Enforcement Rule for Infants Care Act" has been maintained for 25 years, the same standard as in the early enactment in 1991, so it does not reflect changes in social and economic conditions respectively. In addition, in the "Setting Standard of Daycare Center", quantitative standards such as site conditions and size, and technical standards for structures and facilities are mainly presented. Therefore, there is a lack of guidelines for improving the quality of the physical and spatial environments in daycare centers.

On the other hand, the "third indicator for daycare center appraisal authentication", which presents the detailed criteria for the child care environment, is applied only to the institutions evaluated by the application. Problems can also be found in the guidelines covered in "setting standards of daycare center". Some of the

standards for securing safety, comfort and convenience are included in the current standards, while the guidelines for the diversity and creativity of the physical activity of infants and toddlers are scarce, and it has been found that this is also just a guide for teaching materials and teaching instruments.

There are items such as safety devices by type, playgrounds and toys as guidelines for ensuring safety of infants and young children in the current planning standards. On the other hand, the guidelines on the arrangement of the daycare center, spatial composition, and spatial planning of the main rooms are relatively limited in terms of spatial planning, which is considered to be improved. The lack of standards for securing sustainability in the current establishment standards can be pointed out as a problem. It is necessary to complement the guidelines so that energy efficiency and sustainability, which should be considered as public buildings, can be taken into consideration.

3. Analysis of National Daycare Center

The analysis of national daycare center has been conducted to apprehend the limits of the national daycare center regulations and the plan standards, to realize the goal of the daycare process, and to create the national daycare center with high quality of design. The analysis of national daycare centers was conducted through three parts: analysis of design guidelines related to the establishment of national daycare center, user perception survey, and physical status.

As a result of the analysis, it was found that the contents of the guidelines provided for each local governments and facilities differ from each other. In the absence of a separate design guideline to be presented legally, some local governments offer design guidelines in accordance with their own needs at public design subscription. There are some common guideline items, but a considerable part of them is found to be different according to local governments or facilities. Specific differences include detailed guidelines for ensuring safety, comfort and convenience that are not specified in the legal standards. While in certain local governments, there were cases where excessive instructions on the use of specific facilities and materials, such as the installation of an oxygen room, using cypress woods and etc. In addition,

design guidelines for space expansion, economic efficiency as a public building, and energy conservation were also suggested. Therefore, in future, it is necessary to present a common guideline that should be considered as essential for ensuring the quality of consistent national daycare centers. In addition, it is necessary to propose plan guidelines that are separately required according to the types of construction of national daycare centers.

The perception survey of national daycare center users was conducted by parents with children from 0 to 5 years old and principals and teachers of national daycare centers. 101 parents and 39 day care teachers have responded to the survey. The survey was conducted by online for parents, and childcare teachers were individually surveyed through visits to daycare centers. The results of this study suggest that both parent and teachers consider in order of safety, comfort and convenience, activity, creativity and sustainability. In the case of teachers, activity, creativity, and sustainability were perceived as important, while parents were concerned about the safety of children as a top priority. As for the planning factors, both parents and teachers evaluated 'equipment and evacuation facility planning', 'child care space', 'finishing materials and interior' as important. Parents assigned importance more to 'equipment and evacuation facility planning', while teachers assigned more to 'child care space'. On the other hand, the degree of importance of architectural exterior design such as 'building layout' and 'building facade' was relatively low.

As a result, parents and child care teachers who are users of national daycare centers think that design guidelines are needed to enable children to live in a safe and pleasant environment, rather than activity, creativity, and sustainability. We evaluated that more detailed guidelines on facilities, evacuation spaces, child care spaces, etc. rather than layouts and elevations of buildings.

In order to conduct the analysis, 60 public nursery schools built within the past 5 years were requested to cooperate with the site visits and 7 public daycare centers were visited as they agreed to the request. Through this study, the considerations for improvement of the physical environment of national daycare centers are summarized in terms of safety, comfort and convenience, activity, creativity and sustainability.

4. Survey and Analysis of Related Standards of Overseas Daycare Center

As a preliminary work to formulate the plan items in the design guidelines of national daycare centers, we concentrated on the cases of the UK, the US, and Japan where operate the design guidelines and related standards applied to daycare facilities. Since the regulations applicable to daycare facilities differ from country to country and the age categories of the children to be provided are different, basically, the policy basis for child care is not the same, we have analyzed the related laws and standards that affect the operation of the design guideline relatively in the same framework. The relevant standards of each country that has been analyzed for this purpose are as follows.

- (US case) GSA's "Federal Childcare Center Design Guide"
- (UK case) "School Basic Law", "School Facilities Standards", "Infant School Design Standards"
- (Japan case) "Child Welfare Law", "Standards on the Facilities and Operation of Child Welfare Facilities", "Guidelines on Standards for the Establishment of Daycare Centers"

As a result of the analysis, it was found that the detailed constitutional elements and the hierarchy are different, but the constitutional items of the guidelines are divided, and very specific standards are presented in order to reflect the needs of adults and children, and the fact that detailed safety standards focusing on infants are being faithfully presented. In addition, the following suggestions can be found in order to establish the direction of development of national daycare design guidelines of Korea. In other words, the design guidelines for overseas include educational considerations, non-physical standards such as the value that the child care facility should aim for, the basic direction of the design and the role of the related personnel. It also provides detailed instructions on indoor spaces such as multipurpose spaces, offices and resting area, and outdoor spaces such as parking lots and landscaping.

On the other hand, in "Infant Care Act Enforcement Regulations" of Korea, non-physical standards such as target, operator, garden and so on, and regulations on physical space elements such as arrangement plans, indoor and outdoor spatial plan,

and facilities are presented in the form of some minimum standards. Therefore, the guidelines for the daycare center design guidelines need to provide more detailed guidelines to ensure the quality of the space and the flexible plan to build a safe and child care environment suitable for infant education, beyond the minimum planning standards needed for planning the nursery facilities.

5. Setting Design Guidelines for National Daycare Centers

The work of establishing the design guidelines for national daycare centers on the basis of the present status and problems related to the national daycare center planning standards, the analysis of daycare centers, and the investigation and analysis of the standards related to overseas daycare centers. Specifically, a pool of planning items was created to prepare the plan items to constitute the guideline, and the propriety and necessity of these plan items were examined and the final design guidelines were presented.

Based on the basic plan items presented in the current enforcement regulations of Infant Care Act, the pool of plan items was reviewed for guidelines for designing public daycare centers for the last five years and overseas cases such as USGSA's "Federal Childcare Center Design Guide", UK's "Infant School Design Standards", Japan's "Standards on the Facilities and Operation of Child Welfare Facilities". As a result, a total of 344 (211 domestic, 133 overseas) plan items were derived.

The propriety and necessity examination was carried out by survey method. In order to ensure the convenience of the survey, only 144 items, which are frequently cited among 344 plan items, were processed. For the propriety survey, 79 plan items, which were commonly cited in the domestic design public subscription guidelines and overseas' cases, were set as mandatory items, and the degree of propriety was measured on a 5-point scale. The necessity survey had 67 plan items missing from the propriety survey as a recommendation item, so that multiple choice can be made without limiting the number of responses in order to understand the necessity of domestic introduction. The questionnaires were conducted for experts and public officials who were directly or indirectly involved in the planning and managing

daycare centers. The number of subjects was 68 and the analysis was conducted by 46 (67.%) excluding the non-responded and the invalidate answers. In addition to the questionnaires, a comprehensive roundtable discussion was held to set up the development direction of the design guidelines. As a result, we could find specific directions about the composition of the indicators, the objects, contents and quantitative standards for each plan item.

In order to establish a spatial standard that takes into account the stage of development of the child and its characteristics, the characteristics of developing area of developmental stages and the data of infants' body size were considered together. Also the data on the minimum standards of infant care facilities in OECD countries were analyzed to suggest ways to improve the quantitative standards of Korean daycare center establishment standards.

In order to secure the effectiveness of the design guideline, a proposal to designate the design guideline for the national daycare center as a notification of the Ministry of Health and Welfare is suggested as a policy proposal

Keyword: Enforcement Regulations of Infant Care Act, National Daycare Centers, Design Guideline, Standards.