



The Consciousness Research for Han-Ok Construction of Community Facilities in an Apartment Housing

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ABSTRACT

The Purpose of this study is to analyze the investigation of consumer's consciousness for Han-Ok construction of community facilities in an apartment housing. The contents of this study were largely composed of two parts; First was about concept and type of 'New Han-Ok type' public building. Second was about consciousness for Han-Ok construction of community facilities in an apartment housing. The result to this study is as following: 1) the concept of 'New Han-Ok type' public building should not only be defined in terms of cultural property or Han-Ok experience facilities but daily life and practical community. 2) the consciousness for Han-Ok construction of community facilities in an apartment housing was recognized affirmatively more than 75.9%. 3) the strengths of 'New Han-Ok type' public building was as following: daycare centers & small libraries & management office-use of eco materials, senior centers-traditional maintenance, community center-ease of daylight and ventilation. 4) Weaknesses of 'New Han-Ok type' public building was as following: daycare centers-security problem, senior centers-inconvenience of space, community facilities-inconvenience of facilities, small libraries-lack of storage space, management office -inconvenience of moving line. The conscious research for 'New Han-Ok type' public building should succeed for vitalizing for Han-Ok.

KEYWORD

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1. Introduction

1.1. Background and Purpose

As Korean society has recently paid more attention to its traditional culture and eco-friendly and well-being architecture, the values of Han-Ok are newly recognized and civic groups and experts are more interested in the modern adaptation and expansion of Han-Ok construction. At the same time, the central and local governments of many are making various plans to preserve and extend Han-Ok through budge support, institutional improvement and encouragement of related private business. In parallel with the growing recognition of Han-Ok as an object to preserve and extend, more public buildings are newly planned or constructed in Han-Ok style. In this respect, it can be urgent to set up legal criteria to facilitate it and carry out a survey on the consciousness of Han-Ok with the public and experts.

On the other hand, the policies with respect to the preservation and extension of Han-Ok have been adopted and promoted in the field of architecture and urban planning. The two representatives of the policies are the development of Han-Ok technology and the

construction of Han-Ok Village. Developing Han-Ok technology is to make the technologies related to the construction, performance and information of Han-Ok more suitable for current market and business environment. And Han-Ok Village is a construction project funded and supported by the government and public agencies. The present study has the purpose of researching and analyzing the consciousness of the general public for 'New Han-Ok type' public building so the results can be used as a base in improving institutional system necessary to establish the foundation for the activation of 'New Han-Ok type' public building. Therefore, it has significance in that it can contribute to the expansion of public relation and experience of 'New Han-Ok type' public building for Korean citizens; thus to the succession of Korean unique tradition and lifestyle by constructing community facilities in an apartment housing or public buildings related to daily life in Han-Ok style; and eventually to the advancement of Han-Ok through from limited experience to general one to the public.

1.2. Method and Scope

In the present study, first, related literature was reviewed to examine the concepts and types of Han-Ok and internal research was made to define the concepts and types of 'New Han-Ok type'

public building. Second, a questionnaire survey was carried out with the general public at their age of 20 through 69, living in LH-leased and lot-solid apartment housing complex, to investigate their consciousness for Han-Ok, which will be used in improving institutional system necessary to establish the foundation for the activation of 'New Han-Ok type' public building. The review of precedent studies was attempted prior to the main survey to examine the general consciousness of Han-Ok. In the main survey, the respondents were asked about their consciousness and preference for Han-Ok construction of community facilities in apartment housing. The consciousness survey covers the strength and weakness of 'Han-Ok style' construction by facility and suitable community facility for 'Han-Ok style' construction and consumers' intention to use it. Based on the results of the survey, analysis was conducted to establish foundation on which 'New Han-Ok type' public buildings can be activated. Of the types of 'New Han-Ok' public buildings, which are suggested in Chapter 3 of the present study, the survey was focused on the regional style of Han-Ok, so was analysis. As for the regional style of 'New Han-Ok type' public buildings, research is planned to contribute in connection with 2015 Regional Construction Project of New Han-Ok Public Buildings.

2. General Consciousness for Han-Ok Found in Precedent Studies

2.1. Concepts and Types of Han-Ok

Though not specifically defined in the current law, Han-Ok is defined in the ordinance of local government as a building that is

Table 1. Type of Han-OK (Lee, Gang-Min, 2011)

Type	Contents	Target
Cultural Property	• Traditional Korean Houses Designated as National Cultural Properties	Preservation
Traditional Han-Ok	• Modern and Pre-modern Buildings which need Preservation and Management Policies	Maintenance and Utilization
New Han-Ok	• Contemporary Han-Ok which has Evolved into Diverse Ways	Object of the Popularization
Han-Ok Style Building	• Buildings Designed with Traditional Motif • This is Not the Subject of Promotion Policy, It is Worth being Referred in Terms of its Convenience for the Implementation.	

constructed in wooden structure and with Korean roof tiles. Meanwhile, New Han-Ok is defined nowhere in the current law, so it is impossible for it to take effect. However, it is flexibly interpreted, in fact, in administrative procedures such as for support of Han-Ok and thus defined in a way to make it possible to apply it to many areas. That is, such flexibility is to promote businesses related to Han-Ok by allowing the diversification of Han-Ok type and placing the demand of Han-Ok in consideration. In general, Han-Ok can be classified into 4 as seen in Table 1 according to the extent of modern convenience and preservation of traditional type.

2.2. General Consciousness for Han-Ok

The precedent studies with regard to the general consciousness for Han-Ok paid attention mainly to the general awareness of its characteristics and considerations in building the traditional housing as well as development and distribution in terms of consumer's aspect. Some of such representative studies are Kim, Ji-Min(2007), Lee, Sung-Kyung(2010) and Lee, Myoung-Rae (2012). In the present study, general consciousness of Han-Ok was

Table 2. Recognition about Han-Ok (Lee, Myoung-Rae, 2012)

Division	Items	Percentage(%)	Division	Items	Percentage(%)
Strengths of Han-Ok	Beauty of Exterior	26%	Weaknesses of Han-Ok	Lack of Storage Space	12%
	Harmony With Nature	26%		Inconvenience of Space ¹⁾	23%
	Well-being	24%		Difficulty of Maintenance & Management	38%
	Comfort of Internal Space	9%		Inconvenience of Moving Line	17%
	Traditional Maintenance	15%		Soundproofing Problem	10%
Interior of Han-Ok	Traditional Window Frame	19%		Exterior of Han-Ok	Korean Traditional Roof Tile
	Dae Chung-Floor, Yeon Deung Ceiling	19%	Eaves		16%
	Traditional Soil Wall	24%	Traditional Window Frame		14%
	Ondol-Korean Floor Heating System	12%	Rafter		3%
	Wooden Column	12%	Madang-Yard, Jangdokdae*		8%
	Etc.(Kitchen, Darak-Attic)	14%	Wooden Column		8%
Recognition Range about Han-Ok	Korean Traditional Roof Tile	33%	Learning Information about Han-Ok	Book	7%
	Korean Traditional Roof Tile / Han-Ok Style	55%		Internet Search	36%
	Korean Traditional Roof Tile / Traditional Wood Structure / Modern Facilities	12%		Mutual Exchange of Opinion	12%
				Han-Ok Experience	45%

※High Preference-

*Platform for Crocks of Sauces and Condiments

1) It means spatial inconvenience in kitchen and bathroom.

Table 3. Consideration for Construction of Han-Ok (Lee, Myoung-Rae, 2012)

Division	Items	Percentage(%)	Division	Items	Percentage(%)		
Location Selection	Urban Central Areas	2%	Composition of Common Use Space	Integrated Living room, Kitchen, Dining Room	44%		
	Suburban Areas	55%		Independent Kitchen	28%		
	Rural Areas	43%		Independent Living Room	28%		
Number of Floors	First Floor	40%	Floor	Dae Chung-Floor	38%		
	First Floor and First Basement Level	26%		Toenmaru	19%		
	Second Floor	31%		Chewmaru-a Narrow Wooden Veranda	2%		
	Second Floor and First Basement Level	3%		Numaru-an Upper Floor	41%		
Plan Types	— Shape	10%	Total Floor Area	Between 20 Pyeong~Less Than 30 Pyeong	9%		
	∩ Shape	28%		Between 30 Pyeong~Less Than 40 Pyeong	38%		
	⊔ Shape	47%		Between 40 Pyeong~Less Than 50 Pyeong	24%		
	□ Shape	12%		More Than 50 Pyeong*	29%		
	Etc.(∩ Shape and — Shape)	3%					
Consideration of Interior Space	Floor	36%	Ondol-room	Installation	60%		
	Toilet and Kitchen	50%		Uninstallation	23%		
	Entrance and Storage Space	14%		Consideration	17%		
Technique and Materials in Modern Style	Use of Window Frame in Modern Style	Yes	64%	Technique and Materials in Modern Style	Use of Window Frame in Modern Style	No	36%
	Use of Roof Tile in Modern Style	Yes	26%		Use of Roof Tile in Modern Style	No	74%
	Alteration of Dae Chung-Floor to a Living Room	Yes	64%		Alteration of Dae Chung-Floor to a Living Room	No	36%

*High Preference-

*Pyeong-about 3.3m²

summarized (in Table 2 and 3) based on those precedent studies and they were reviewed before a survey was executed on the consciousness for Han-Ok, which aims to establish the foundation of vitalization of 'New Han-Ok type' public buildings. Preliminary review was attempted on the basis of Myoung-Rae(2012) in particular. The review revealed that traditional beauty (e.g. exterior beauty and harmony with nature) and being good for health are the strengths of Han-Ok. In detail of architectural elements of Han-Ok, traditional window frame, Dae Chung (salle) floor, mud-plastered wall, Korean roof tiles for exterior and eaves are valued positively. On the other hand, difficulty of maintenance and repair and spatial inconvenience turned out to be the weakness of Han-Ok. In addition, the preliminary study showed that the general public deem Korean roof tiles, which is Korean traditional roof style, and any Korean-style houses as part of Han-Ok. They get information of Han-Ok largely from Internet and field survey.

About the considerations in planning Han-Ok construction, it was turned that the general public have preference for suburban areas as location of Han-Ok construction, one-floor house, 30 to 40 Pyung (or 99m² to 132m²) for floor space and ⊔-shape for floor structure. For common use space, it was found that they prefer the integrated space of living room, dining space and kitchen. Especially, they demand the improvement of bathroom and kitchen structure to independent structure. In addition, there was a highly positive response for the application of modern windows and doors in terms of employing modern construction techniques and

materials. On the contrary, a considerable number of the respondents were against the use of tiled roof. Dae Chung (salle) floor was more favored as a living room than disfavored.

3. Concepts and Types of 'New Han-Ok Type' Public Building

3.1. Concepts and Characteristics²⁾

With dwelling qualities the first priority, 'New Han-Ok' includes a broad range of Han-Ok types, ranging from a Han-Ok house applied partially or as whole with new technology and construction techniques to one integrated with modern architecture through remodeling and maintenance work. As for public building, it is a structure built with public budget from the central or local government. Though not precisely stipulated in applicable law, it generally includes public facilities such as public office and facilities constructed for public purpose such as public social welfare facility for education, culture and so on.

'New Han-Ok type' public building proposed in the present study, as seen in Table 4, means a public structure designed and constructed in Han-Ok type with its elements of tradition, which

2) The present study used the research output from their own reviews and discussions of mainly LH(3-1) and 3 entities - Hanin Architects and Associates (3-3), Daejin University (3-2) and Kyonggi University (commissioned) for the model development and establishment of Han-Ok construction technology, which is the third sub-task of Development of Han-Ok Technology, Phase II for Urban Architecture Research Project. And Table 4 is quoted from the report of LHI.

Table 4. Concept and Characteristic of 'New Han-Ok Type' Public Building

Division		Structure	Function	Beauty
Han-Ok	Traditional Han-Ok	Elements to succeed to Things to improve	Other functions then simple swelling Functions to improve	Analyze architectural esthetics (traditional beauty)
	New Han-Ok	Research stage I Analyze factors to develop	Review of precedent studies on the functional improvement of Han-Ok	Review of the elements of traditional beauty to succeed to
Modern Building		Review structure factors to be combined with wooden structure	Review of the functions, space and performance of modern public building	Review of the elements of traditional beauty worth reinterpretation. Review of the elements of modern design.
+				
'Hyung(Type)'	Lexical meaning of 'Hyung (Type)'	The meaning of 'Hyung (Type)' in New Han-Ok Type Public Building	Examples of usage for 'Hyung (Type)'	
	A type or form of something means to distinguish it from something else.	Intangibility / A structure of a new type based on the architectural elements of Han-Ok	Formative term: T-type, I-type, Cone-type Taxonomic term : B-type hepatitis, B-type hepatitis, Typological term: Ca-type, Folded-type	
+				
Public Building				
+				
Outdoor Space	水 Su (water)	木 Mok (tree)	± To (soil)	
	-Analysis of Korean style waterfront space -elements Applicability of waterfront space	-Analysis of Korean style landscape elements -Review of the optimal arrangement of trees	-Review of Korean open space -Korean style Han-Ok outdoor space	
New Han-Ok Type Public Building	Building + Outdoor Space			
	It is a combination of wooden structure (column and beam) as main frame and steel and concrete supplements as modern structure. It is building that plays various roles due to flexible spatial planning; succeeds to the traditional beauty of Korean architecture; reinterprets the traditional beauty; accepts future-oriented design factors. It includes not only the foregoing building, but also its wings and outdoor space. It also means a building closely connected to resident's daily life to enhance their wellbeing, welfare and cultural benefit and exchange.			

are interpreted into modern convenience and technology. Its conceptual purpose is to invite traditional Han-Ok into daily life, so 'New Han-Ok type' public building can use various materials and structure to hold diverse functions necessary for daily life. It maintains wooden structure in major frames such as column and beam and additionally uses other materials for it to perform the functions as public building. It also adopts tilted roof (Korean traditional tilted roof, tilted roof of cement or PVC) and employs

the traditional technique of roof tile connection to preserve Korean traditional beauty of Han-Ok.

3.2. Types of New Han-Ok Type' Public Building

'New Han-Ok Type' Public Building is a concept of advancing the experiential stage of Han-Ok to daily living-based Han-Ok. Therefore, it can be divided into complex type and regional type as seen in Table 5 according to its use frequency, usage and public character.

Table 5. Type of 'New Han-Ok Type' Public Building

Type	Contents
Complex Type	The Community Facilities Which were Built for Life and The Convenience of Inhabitants in an Apartment Housing. (Ex. Daycare Centers, Senior Centers, Community Facilities, Small Libraries, Management Office, Etc.)
Regional Type	The Community Facilities Which were Built for Life and The Convenience of Inhabitants in an Area. (Kindergarten, Library, Daycare Center, Welfare Facilities for the Aged, Exhibition Hall, Etc.)

1) Complex Type

Complex type Han-Ok public buildings are the community facilities which are built for life and the convenience of inhabitants in apartment housing in accordance with The Housing Act and regulations related to house construction standards and possessed and managed by supervising entity of apartment housing or concerned residents' association. They include daycare centers, senior centers, community facilities, small libraries, management office, etc. Lower in public nature and openness, but they are more convenient for the residents of the apartment complex and its neighbors than regional type because they are located within the apartment complex. Like this, complex type Han-Ok public buildings close to daily life is considered a necessary public structure to popularize and improve the consciousness for Han-Ok.

2) Regional Type

Regional type Han-Ok public buildings are the community facilities which were built for life and the convenience of inhabitants in an area, such as education and research facilities (kindergarten, library), senior and young children care facilities (daycare center, welfare facilities for the aged), training facilities (youth training center and specialized facility for youth), culture and convention facilities (exhibition hall, museum, experience hall), and residents' support center (local community center, precinct station, community child center). Though lower in closeness to daily life, but they have far higher public characteristics and openness for local residents than complex type because they are buildings for the use of a greater number of local residents. In this study, however, large-scaled building owned and managed by the central and local government such as public office

are excluded from regional type due to very low closeness to daily life of local residents.

4. Consciousness Survey of Han-Ok Construction of Community Facilities in Apartment Housing

4.1. Research Method

The survey, which was conducted in the present study, is to examine the consciousness for the model development and establishment of 'New Han-Ok type' public buildings as part of Development of Han-Ok Technology, Phase. In 'one-to-one interview'³⁾ manner, the survey was given to the residents in apartment housing complex (particularly, living in LH-leased and lot-solid apartment housing complex), which belongs to the complex type in this study, on Han-Ok type community facilities within the complex and additional interviews were followed after the main survey. The reason why LH-leased and lot-solid apartment housing complex was selected as survey location is that 'New Han-Ok type' public building, especially in complex type, will be evaluated for construction business and performance.

4.2. General Demographics of the Respondents of Consciousness Survey

The questionnaire used for the present study consists of the questions for 'general demographic information' of the respondents such as sex, age, occupation and household income, for 'consciousness and preference for New Han-Ok-typed public building', for 'consciousness for budget support of the central and local government' and for 'consciousness for the construction of Han-Ok type community facilities in apartment housing complex'

The demographic distribution of the effective samples is shown in Table 6. For sex, males are 51.0% while females are 49.0%. The percentage of male respondents is slightly larger than that of females. In terms of age, the effective samples consist of their 20s (43.4%), 30s (20.4%), 40s (10.7%), 50s (9.6%) and the older than 50s (15.9%). The respondents in their 20s and 30s take relatively higher portion in age composition. The average age is 33.5. The composition of occupation is office worker (9.6%), professional (12.5%), student (42.3%), housewife (18.4%) and others (8.6%). Relatively more students and housewives participated in the survey because the survey was conducted between 10:00 am and noon and between 2:00 pm and 6:00 pm. The number of family member per household shows that 1.9% of the households are a single member household; 14.4% are two-member household; 17.3% are

Table 6. General Characteristics of The Respondents

Division		No.	Percentage(%)
Gender	Male	53	51.0%
	Female	51	49.0%
Age	20's	45	43.4%
	30's	21	20.4%
	40's	11	10.7%
	50's	10	9.6%
	Over 60 Years Old	17	15.9%
Job	Government Official	0	0%
	Employee	10	9.6%
	Self-Employed	9	8.6%
	Specialized Job	13	12.5%
	University Students	44	42.3%
	Homemaker	19	18.4%
	Etc.	9	8.6%
The Size of a Family	One People	2	1.9%
	Two People	15	14.4%
	Three People	18	17.3%
	Four People	55	52.8%
	More than five people	14	13.6%
Residential Area	Urban Central Areas	38	36.5%
	Suburban Areas	54	51.9%
	Rural Areas	12	11.6%
Housing Style	Single-family house	8	7.7%
	Multiplex Housing	17	15.9%
	Apartment	79	76.4%
	Etc.	0	0.0%
House Income	Less Than 1,500,000 Won	40	38.4%
	Between 1,500,000~Less Than 2,500,000 Won	26	25.0%
	Between 2,500,000~Less Than 3,500,000 Won	18	17.3%
	Between 3,500,000~Less Than 4,500,000 Won	19	18.4%
	More Than 4,500,000 Won	1	0.9%

three-member household; 52.8% are four-member household, which is the highest; and the a household with more than 5 members takes 13.6%. 51.9% of the respondents live in suburban area and followed by 36.5% in central part of city and 11.6% in countryside. For dwelling type, 76.4% live in apartment housing, which is the largest, and followed by multiplex or low house (or townhouse, 15.9%) and detached house (7.7%), respectively. The reason why there are respondents living in multiplex, low or detached house though the survey was carried out in apartment complex is that some of them who are workers or users of the community facilities in the complex reside in somewhere else. The household monthly income of the samples shows that 1.5 million won or higher (38.4%) is the highest. This reported income status is deemed to be a respondent's own income, not combined with an entire income of his/her household.

4.3. Consciousness and Preference for Han-Ok Construction as Community Facility in Apartment Housing

In the research of consciousness and preference for Han-Ok construction as community facility in apartment complex, which belongs to the complex-typed New Han-Ok public building, about 76% of the respondents show positive or very positive attitude

3) The survey for the present study was conducted in LH leased and lot-solid apartment housing complex (of about 5,000 households) in Pocheon City, Kyunggi Province during two days, from July the 3rd to the 4th.

towards it (Table 7). The reason why there are positive with it consists of the harmony of tradition and modern culture (40%), which is the highest response, and followed by eco-friendly environment (25.1%). Meanwhile, 35.7% thinks the high cost of construction is a negative factor for Han-OK construction as community facility, which is the highest, and followed by inefficient space use (16.1%) and mismatch with surroundings (16.1%). As indicated in previous studies of consumers' consciousness for Han-Ok, these results imply that improvements the responds want for traditional Han-Ok are equally reflected as those on the complex-typed New Han-Ok public building.

Besides, Han-Ok construction as community facility in apartment complex tends to increase the burden of working expenses. Regarding this, questions were asked to the respondents if they want it (Han-Ok construction as community facility in apartment complex) in case the central or local government support budget. 57% of the respondents answered that they would want it. When this percentage is combined with that of those who responded they would consider it, the figure reaches to 90.7% (Table 8). Next, about 35% of the respondents, which is high, suggested 30% to 50% as a proper level of the budge support if it is possible for the central and local government to support budge as seen in Table 9. When the range is expanded to more than 10% but less than 70%, 81% of the total respondents stay within the band.

One particular thing was found in interviewing: most of the

Table 7. Recognition about constructing a Community Facilities with a Han-OK I

Division		No.	Percentage(%)
Recognition	Very Affirmative	23	22.1%
	Affirmative	56	53.8%
	Normal	22	21.5%
	Negative	3	2.6%
	Very Negative	0	0%
Affirmative Reason	Korean Beauty	12	13.6%
	Harmony with Modern	36	40.9%
	Practicality	18	20.4%
	Environment Performance	22	25.1%
Negative Reason	High Construction Cost	11	35.7%
	Lack of Information	3	9.6%
	Inefficient Space	5	16.1%
	Maintenance Burden	4	12.9%
	Disharmony with Surrounding Environment	5	16.1%
	Etc.	3	9.6%

※High Preference-

Table 8. Construction intention of Han-Ok in case of the budget support from Government & Local Government

Division	No.	Percentage(%)
Yes	44	57.1%
No	7	9.2%
Consideration	26	33.7%

※High Preference-

Table 9. Budget Scope

Division	No.	Percentage(%)
Less Than 10%	2	3.8%
Between 10% ~ Less Than 30%	13	25.1%
Between 30% ~ Less Than 50%	18	34.6%
Between 50% ~ Less Than 70%	11	21.1%
Between 70% ~ Less Than 90%	3	5.8%
Full Amount	5	9.6%

※High Preference-

respondents wish that the whole working cost of the project could be covered by the budge aid, but they are aware it is impossible so that they gave answers within realistic boundary. Although the construction cost of Han-Ok can vary according to the level of technology relevant to Han-Ok and industrial advancement as well as the number and location of Han-Ok construction, so that it may be inappropriate to apply the results of this survey as they are, they give a chance to estimate a proper level of construction cost to be supported in implementing New Han-Ok-typed public buildings in future.

4.4. Consciousness and Preference for Han-Ok Construction as Community Facility in Apartment Housing: By facility

A survey was carried out on the consciousness and preference for Han-Ok construction as community facility in apartment housing complex by facility (Table 10). As a result, it was found that the respondents generally consider it positive to construct 5 community facilities in Han-Ok type among those included in the survey question. Senior center was answered to be the most favored facility that can be constructed in Han-Ok type though college students in their 20s and 30s and housewives take considerable portion of the sample pool. It is assumed that they think the traditional and original image from Han-Ok is the best agreeable to senior center. On the contrary, the respondents in their 50s and 60s are very negative towards Han-Ok type senior center because they think that the spatial inconvenience of Han-Ok - for example, Han-Ok life is most based on sitting posture - will not be good for the elderly with problem in knee and this make them uncomfortable to great extent. Therefore, a considerable number of the respondents suggest a Han-Ok type senior center where standing life is possible and there is no spatial obstacle when it is constructed in the traditional way. Accordingly, these findings can be used to influence the construction of Han-Ok as community facility including senior center, that is, can have affect on the laws and regulations related to the establishing foundation for the activation of complex-typed New Han-Ok public buildings at the stage of planning.

Table 10. Recognition about constructing a Community Facilities with a Han-OK II

Division	Daycare Centers		Senior Centers		Community Facilities		Small Libraries		Management Office	
	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)
Very Negative	2	1.9%	1	0.9%	3	2.8%	3	2.8%	5	4.8%
Negative	12	11.6%	2	1.9%	12	11.6%	8	7.7%	10	9.6%
Normal	34	32.7%	23	22.1%	49	47.1%	32	30.7%	59	56.8%
Affirmative	38	36.5%	49	47.1%	31	29.9%	42	40.4%	25	24.0%
Very Affirmative	18	17.3%	29	28.0%	9	8.6%	19	18.4%	5	4.8%







※High Preference Degree-①  ②  ③ 

Table 11. Strengths of Community Facilities Built in Han-Ok

Division	Daycare Centers		Senior Centers		Community Facilities		Small Libraries		Management Office	
	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)
Traditional Maintenance	48	18.6%	67	23.9%	46	18.6%	46	16.1%	52	18.9%
Comfort of Internal Space	16	6.2%	39	13.9%	22	8.9%	37	13.1%	28	10.2%
Use of Eco-Materials	72	27.9%	56	20.0%	26	10.5%	65	22.8%	55	20.0%
Open Structure	11	4.2%	18	6.4%	41	16.5%	19	6.6%	25	9.1%
Ease of Daylight, Ventilation	38	14.7%	44	15.7%	47	19.0%	57	20.3%	44	15.9%
Beauty of Exterior	16	6.2%	17	6.0%	23	9.3%	21	7.3%	41	14.8%
Harmony With Nature	49	18.9%	37	13.2%	41	16.6%	37	13.1%	28	10.1%
Etc.	8	3.3%	2	0.9%	1	0.6%	2	0.7%	3	1.0%

※High Preference Degree-①  ②  ③ 

In addition, a survey was conducted on the strengths and weaknesses of Han-Ok construction as community facility in apartment housing complex as part of the basic consciousness research upon the adoption and improvement of modern architectural technology and in an attempt to succeed to the use of environment-friendly materials, Korean space and traditional beauty of Han-Ok while carrying out studies that aim to establish the foundation for the activation of Han-Ok type public building in future. As mentioned above, this survey was given in connection with the analysis of the strengths of Han-Ok to preserve and its weaknesses to be improved in proposing the direction of R&D for the model development and establishment of 'New Han-Ok type' public building, which is Development of Han-Ok Technology, Phase II. The respondents were allowed to mark 3 items, at maximum, for a given question item.

First of all, upon the strengths and weaknesses of Han-Ok construction as community facility on apartment housing complex, it was turned out that the respondents based choices on their opinions on the existing strengths and weaknesses of Han-Ok. For Han-Ok typed daycare center, first, 27.9% of them consider the use of environment-friendly materials as a merit (see Table 11), which is the most value of all, and harmony with nature (18.9%) and

preservation of tradition (18.6%) are followed as strengths. Their perception that Han-Ok is helpful for children's health and emotion is also confirmed by the interview survey. And the respondents (23.9%) mention Han-Ok type senior center is good for the preservation of tradition and other strengths of such senior center are the use of environment-friendly materials (20.0%) and convenience of day lighting and ventilation (15.7%). As for senior center, most used by old people, traditional appearance is first thought to be important and next is the functions of Han-Ok such as environment-friendly materials, day lighting and ventilation. The convenience of day lighting and ventilation (19.0%) is considered the most merit of Han-Ok as residents' community center. Those who were pro for this seem to more consider the functional aspect of Han-Ok. And the preservation of tradition (18.6%) and harmony with nature (16.6%) are followed as the strength of Han-Ok as residents' community center. As for a little library to be constructed in Han-Ok type, 22.8% of the respondents say that the use of environment-friendly materials is the strongest strength. And the convenience of day lighting and ventilation (20.3%) and the preservation of tradition (16.1%) are followed as next strength of Han-Ok type library. These results shows Han-Ok type has potential with positive image of health contributor using

Table 12. Weaknesses of Community Facilities Built in Han-Ok

Division	Daycare Centers		Senior Centers		Community Facilities		Small Libraries		Management Office	
	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)	No.	Percentage(%)
Lack of Storage Space	17	6.5%	12	4.5%	15	5.4%	49	17.9%	26	9.8%
Inconvenience of Space ⁴⁾	32	12.3%	51	19.4%	37	13.4%	22	8.0%	34	12.9%
Inconvenience of Moving Line	36	13.8%	57	21.7%	29	10.5%	25	9.1%	38	14.4%
Separation of Space ⁵⁾	33	12.7%	24	9.1%	26	9.4%	21	7.7%	29	11.0%
Inconvenience of Facilities ⁶⁾	36	13.8%	52	19.7%	47	17.2%	40	14.6%	38	14.4%
Old Exterior	8	3.0%	6	2.2%	8	2.9%	16	5.8%	11	4.1%
Parking Problem	14	5.3%	13	4.9%	38	13.8%	24	8.7%	24	10.2%
Security Problem	46	17.7%	27	10.3%	34	12.4%	26	9.5%	39	14.2%
Soundproofing Problem	35	13.4%	18	6.8%	38	13.8%	48	17.7%	18	6.8%
Etc.	3	1.5%	3	1.4%	3	1.2%	2	1.0%	6	2.2%




※High Preference Degree-①  ②  ③ 

Table 13. A Well Matched Community Facility with Han-OK

Division	No.	Percentage(%)
Daycare Centers	27	25.9%
Senior Centers	61	58.6%
Community Facilities	9	8.7%
Small Libraries	7	6.8%
Management Office	0	0%

※High Preference- 

Table 14. Preference for Utilization of Community Facilities Built in Han-Ok

Division	No.	Percentage(%)
Yes	95	91.3%
No	9	8.7%
Total	104	100%

※High Preference- 

environment-friendly materials and defender of traditional beauty. Similarly, the respondents cite the use of environment-friendly materials as the biggest merit when management office is built in Han-Ok type.

On the other hand, the respondents reveal such weaknesses of Han-Ok construction as community facility in apartment housing complex by facility as in Table 12. They consider security issue (17.7%) as the weakest of Han-Ok type daycare center. It is followed by facility inconvenience such as long walk flow and bathroom (13.8%) and noise (13.4%). As for Han-Ok type senior center, they mention that long walk flow (21.7%) will be the highest obstacle to senior center and it is followed by inconvenient bathroom (19.7%) and inconvenient kitchen and bathroom (19.4%). The respondents choose inconvenient bathroom as the

weakest point of a residents' community center when it is built in Han-Ok type. It is followed by difficult parking (13.8%) and loud noise (13.8%). Inconvenient kitchen-bathroom is responded by 13.4%. As the weaknesses of Han-Ok type small library, insufficient bookshelf space (17.9%) and noise (17.7%) are answered. They are followed by inconvenient bathroom (14.6%). Last, 14.4% of the respondents consider long walk flow, inconvenient bathroom and noise issue, all 14.4%, respectively.

In the survey of the most suitable community facility for Han-Ok type in apartment housing complex (Table 13), 58.6% of the respondents respond a senior center. As assumed above, they tend to think the traditional and original image from Han-Ok is the best agreeable to Han-Ok type senior center. It is followed by daycare center (25.9%) because they think that the use of environment-friendly materials is the first priority for the facility. More than 91.3% of the respondents reveal intention to use those community facilities when they are actually built in Han-Ok type (Table 14).

As seen above, the present study carried out a survey of consciousness for Han-Ok construction as community facility in apartment housing complex, which belongs to complex-typed New Han-Ok public building category. As seen in Table 15, especially, the respondents checked key strengths (that have to be maintained) and weak points (that have to be improved) of Han-Ok construction by facility in terms of structure and function. As for 5 community facilities of all, the respondents value the use of eco-friendly materials - Han-Ok's functional strength - the most for daycare center, small library and management office while considering traditional beauty - preservation of tradition- for senior center and the ease of day lighting and ventilation for residents' community center the most important merit.

On the contrary, the weaknesses vary by the characteristics of each facility. First, security issue in structure and function is most worried for daycare center while a long walk flow is the most troublesome for senior center and management office. In addition,

4) It means spatial inconvenience in kitchen and bathroom.

5) It means spatial inconvenience caused by the spatial division of it, that is, into *Sarangchae* (or guesthouse), main building and outhouse.

6) It means inefficiency of kitchen facilities and hygiene facilities of bathroom and inconvenience from it.

Table 15. Strengths and Weaknesses of Community Facilities Built in Han-Ok

Division		Strengths of Community Facilities Built in Han-Ok	Structure	Function	Traditional Beauty		Weaknesses of Community Facilities Built in Han-Ok	Structure	Function	Traditional Beauty
Daycare Centers	1	Use of Eco-Materials		●		1	Security Problem	●	●	
	2	Harmony With Nature			○	2	Inconvenience of Moving Line	○	○	
	3	Traditional Maintenance	○		○	3	Inconvenience of Facilities		○	
Senior Centers	1	Traditional Maintenance	●		●	1	Inconvenience of Moving Line	●	●	
	2	Use of Eco-Materials		○		2	Inconvenience of Facilities	○	○	
	3	Ease of Daylight, Ventilation		○		3	Inconvenience of Space	○	○	
Community Facilities	1	Ease of Daylight, Ventilation		●		1	Inconvenience of Facilities	●	●	
	2	Traditional Maintenance	○		○	2	Parking Problem		○	
	3	Harmony With Nature			○	3	Soundproofing Problem	○	○	
Small Libraries	1	Use of Eco-Materials		●		1	Lack of Storage Space	●	●	
	2	Ease of Daylight, Ventilation		○		2	Soundproofing Problem	○	○	
	3	Traditional Maintenance	○		○	3	Inconvenience of Facilities	○	○	
Management Office	1	Use of Eco-Materials		●		1	Inconvenience of Moving Line	●	●	
	2	Traditional Maintenance	○		○	2	Inconvenience of Facilities	○	○	
	3	Ease of Daylight, Ventilation		○		3	Security Problem		○	

※High Preference Degree- ① = ●, ② ○

the respondents think inconvenience of facility in terms of structure and function is worried for Han-Ok type residents' community center. They also think that Han-Ok type small library will lack in bookshelf space. It is noticeable that the merits of Han-Ok construction are mentioned from diverse aspects of Han-Ok (function, structure and beauty), while any aspects of beauty are mentioned as one to be improved. It may prove the acknowledgment of the values -traditional appearance and view-. Finally, it is expected that the findings from the present study will be used as important basic data in developing and establishing complex and regional Han-Ok models as well as establishing the concept of 'New Han-Ok' type public building.

5. Conclusion

As part of Development of Han-Ok Technology (Phase II) for Urban Architecture Research Program, the present carried out a survey on the consciousness for Han-Ok construction as community facility in apartment housing complex, which is necessary to know for the development and establishment of 'New Han-Ok' type public building model. The results of the survey can be summarized as follows.

First, the survey of the consciousness for Han-Ok construction as community facility such as daycare center, senior center, residents' community center, small library and management office in apartment housing complex shows that 76% of respondents positively think about it for such reasons mainly as harmony with modern times (40.9%) and environment-friendly strength. However they are also negatively worried about such Han-Ok type

community facilities out of high construction cost (35.7%), inefficient use of space (16.1%), mismatch with surroundings (16.1%). Through construction cost will increase when community facilities are built in Han-Ok type, 80% of the respondents say they consider or intent to use them. And 81% of them think that the suitable level of budget support (from the central or local government) for such Han-Ok construction is between 10% and 70%. It was found that they wished that the whole working cost of the project could be covered by the budge aid, but they were aware it was impossible so that they gave answers within realistic boundary. The construction cost of Han-Ok can vary according to the level of technology relevant to Han-Ok and industrial advancement as well as the number and location of Han-Ok construction, so that it may be inappropriate to apply the results of this survey as they are. From the results of this study, however, we can anticipate that the general public will take positive attitude to constructing complex-typed Han-Ok public building in future. Furthermore, this survey give an opportunity estimate a proper level of construction cost to be supported in implementing New Han-Ok-typed public buildings in future.

Second, the consciousness for Han-Ok construction as community facility in apartment housing complex by facility turned out positive as a whole. Of the community facilities, senior center was chosen as the most favored facility that can be constructed in Han-Ok type though college students in their 20s and 30s and housewives take considerable portion of the sample pool. However, the older respondents in their 50s and 60s are very negative towards Han-Ok type senior center because they think that the spatial inconvenience of Han-Ok - for example, Han-Ok

life is most based on sitting posture - will not be good for the elderly with problem in knee and this make them uncomfortable to great extent. Therefore, a considerable number of the respondents suggest a Han-Ok type senior center where standing life is possible and there is no spatial obstacle when it is constructed in the traditional way. Accordingly, these findings can be considered in constructing Han-Ok as community facility including senior center and in improving the related legislation.

Third, the respondents value the strengths of Han-Ok differently by community facility: the respondents value the use of eco-friendly materials for daycare center, preservation of tradition for senior center, the ease of day lighting and ventilation for residents' community center and the use of eco-friendly materials for small library and management office. As for demerits, they mention security issue for daycare center, a long walk flow for senior center, inconvenient use of bathroom for residents; community center, lack in bookshelf space and noise for small library and a long walk flow and inconvenient bathroom for management office.

Last, 58.6% of the respondents respond a senior center as the most suitable community facility for Han-Ok type in apartment housing complex despite the fact that though college students in their 20s and 30s and housewives take considerable portion of the respondents. Moreover, more than 91.3% of the respondents reveal intention to use those community facilities when they are actually built in Han-Ok type.

The results of this consciousness survey suggest that Han-Ok is not only object for preservation and/or experience anymore, but also there is positive outlook for it to be a part of our life as daily space. Therefore, Han-Ok as community facility in apartment housing complex can propose a direction to a new dwelling culture when joined in synergy with the current development project and of Han-Ok technology project and policy.

Meanwhile, the present study has a few limitations. The survey conducted in the study needs considering more for its reliability and error range. Its analysis is also confined to simplicity for conclusion, even with the characteristics of consciousness survey considered. Therefore, these drawbacks will be compensated with expert survey and questionnaire to improve. Given that survey and analysis of consciousness is not one-time research but an on-going project, proper time interval and consistency should be chosen to reflect significant market situation and industrial conditions in implementing a follow-up research on the consciousness and legal system on regional base for the activation of New Han-Ok type public buildings.

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