

보물로 지정된 주택의 특성에 관한 연구

Characteristics of Residential Buildings designated as Korean National Treasures

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초록

한국의 전통문화를 보존, 전승시키는데 도움을 주는 자료를 얻기 위하여 보물로 지정된 주택의 특성을 파악하는데, 본 연구의 목적이 있다. 연구내용은 전국에 보물로 지정된 11개 주택에 대하여 건립연대, 소재지, 외관특성(기단, 기둥, 지붕의 형태), 평면형태를 분석하는 것이다. 연구결과, 보물로 지정된 11개 주택은 모두 조선시대의 주택으로 경북에 9개(81.8%)가 위치하고 있었다. 외관특성으로 기단은 모두 석축기단이나 단 수는 1단부터 9단으로 다양하며, 기둥은 원주나 방주를 사용하고 있으며, 지붕은 팔작지붕(63.6%)이 많았다. 보물로 지정된 주택은 7개가 별당형식으로 지어진 사랑채이며, 4개는 사랑채가 몸체와 연결되어 있거나 아주 인접해 있었다. 사랑채 부분의 평면형태는 一자형이 10개(90.9%)이며, 1개만이 L자형이었다. 공간구성은 방과 대청이 기본적인 구성으로 부엌이 없는 것이 특징이었다.

주제어 : 보물로 지정된 주택, 주택외관특성, 사랑채공간 특성

I . Introduction

Cultural properties that are recognized for their historic and artistic value yield important information to be used for education. The lessons learned from cultural properties become a basis for a knowledge resource which may carry on the spirit of the traditional culture and continue cultural inheritance. Accordingly, cultural assets of national importance should be deemed worthy of special preservation.

There are five different types of Korean cultural properties: national cultural properties, city or province cultural properties, cultural materials, registered cultural

properties and non-designated cultural properties. Properties designated by the 'Cultural Properties Protection Act' under the examination of the Cultural Properties Administration are protected, and called national cultural properties.

National cultural properties include the following eight categories: treasures, national treasures, intangible cultural properties, historical sites, scenic sites, historic and scenic sites, natural monuments, and important folklore materials. Residential buildings belong to tangible cultural properties. Among national cultural properties, tangible cultural properties include three categories like treasures, national treasures, and important folklore materials.¹⁾

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1) There are 403 treasures; yet there is no single residential building. Among 951 "important folklore materials," there are 251 residential buildings (26.39%).

Currently, there exists 118 wooden cultural assets (8.7%) among 1354 treasures; among these, 11 are residential buildings. Namely, only 0.81% of treasures and 9.3% out of all wooden structural treasures are residential buildings. This is extremely few. Unlike other treasures that are stored in museums, these buildings have been used continuously such that they are subject to the ravages of time. The natural aging of wooden structures - and a combination of other forces such as exposure to precipitation, severe weather and fungal growth - has contributed to their becoming progressively deteriorated (Kim, 1999).

There are various merits of conducting research on these residences; residential buildings generally present a comprehensive synopsis of a culture. At present there exist several researches on individual buildings with regard to their socio-cultural background and historic perspective(Kim, 1997; Rhee, et al, 2004). Architectonic investigation has also been documented, using measured drawings in survey activities before designation as national treasures. Yet, research and extensive analysis of the eleven houses as a whole is scarce.

By investigating common characteristics of residential buildings which have been designated Korean National Treasures, this article is intended to array data that may produce an informational base for the

preservation and transmission of Korean cultural assets.

II. Research Method

In order to analyze common characteristics, background research of the residences is required. Preliminary work involves a thorough review of published and unpublished library materials. Next, a basic document of each building is obtained from the Cultural Properties Administration website (www.ocp.go.kr). Finally, a cursory reconnaissance survey of each building is conducted to ensure correctness of the collected data.

This research targets all eleven residential buildings presently designated as Korean National Treasures, as indicated in Table 1. In particular, it examines their general features (year built, original and current owner, and location), exterior architectural elements (platform, column, and roof), and spatial characteristics of *sarangchae*. Basic materials for the analysis had been collected by June 2003. The collected data was analyzed from July to October in 2003.

<Table 1> The residential buildings presently designated as Korean National Treasures

No	Name	Date designated National Treasure
Treasure No. 165	<i>Ojukheon, Kangnung</i>	January 21, 1963
Treasure No. 209	<i>Dongchundang, Daedeok</i>	January 21, 1963
Treasure No. 306	<i>Yangjindang, Andong</i>	January 21, 1963
Treasure No. 411	<i>Mucheomdang</i>	November 14, 1964
Treasure No. 412	<i>Hyangdan</i>	November 14, 1964
Treasure No. 413	<i>Dokrakdang</i>	November 14, 1964
Treasure No. 414	<i>Chunghyodang</i>	June 23, 1967
Treasure No. 450	<i>Andong Euisung Kim clan Jongtaek</i>	June 23, 1967
Treasure No. 457	<i>Yecheon Kown clan Jongga byeoldang</i>	June 23, 1967
Treasure No. 521	<i>Sungryeoldang</i>	July 23, 1970
Treasure No. 553	<i>Yean Yi Clan Chunghyodang</i>	August 30, 1971

III. Research results

1. General features

1) Historical overview

The following is a list of the eleven residences designated Korean National Treasures:

Prior explain to the individual buildings, it is necessary to introduce the general layout of the traditional Korean house (*Hanok*). This varies slightly by region and social class. The upper class house, is especially composed of various types of quarters for its residents, since both males and females have certain duties to perform, and a set of ethics to observe, under the strict ideals of Confucianism. Typically, the house is formed with four different quarters based on social class, sex, and age: *sarangchae* (an outer quarter for the male resident), *haengnangchae* (a servants'quarter), *anchae* (an inner quarter for the female residents with children), and *sadang* (a family shrine). Each quarter is separated by walls with gates; *sadang* is surrounded by separate walls. The main gate, called *soseuldaemun*, is connected to the *sarangchae*. Each quarter consists of various *ondol* (heated floor) rooms with different types of *maru* (a wooden floor). A unique characteristic of Korean residential buildings is that both *maru* and *ondol* are incorporated: *ondol* is an indoor heating system for winter and *maru* for the outdoor. There are four different types of *maru* in function and shape: *Jokmaru*, *numaru*, *toetmaru*, and *daechongmaru*.

Ojukheon was built by Choi, Chi-un (1390-1440) in Gangneung. The house had been owned by the Gangneung Shin clan, including Shin, Myung-whan (Shin, Saimdang's father) and his son-in-law, Kwon Wha, until it was taken over and extensively repaired by the Gangneung Cultural Heritage Foundation in 1975. The present owner and concierge is Gangneung City. It has been known as the birthplace of Shin, Saimdang (1504-1551) and his son Lee, Yul-gok (1536-1551). To the present, many of their remnants have been exhibited in the house.

Dongchundang was built in 1653 by Song, Jun-gil (1606-1672) whose pen name is 'Dongchundang'. The

calligraphy of the hanging board in the house was written by Song, Si-yeol (1607-1689), whose pen name is Uam. *Dongchundang* is the *byeoldang*, a separate building detached from the main structure (Daejeon City, Tangible Cultural Treasures No. 3) that was originally constructed by Song, I-chang (1561-1627), who is the father of Song, Jun-gil. Later, when the house became run-down, Song, Jun-gil reconstructed the house in the present location. The present owner and concierge is Songyong City.

Yangjindang was the Pungsan Ryu's clan house built by Ryu, Un-ryong (1539-1601) whose pen name is Gyeonggam. The calligraphy of the hanging board in front of the *daechong maru* illustrates "Ipam-gotaek". Ipam is a pen name of Ryu, Un-ryong's father, Ryu, Jung-young. Gotaek means an old house. Calligraphy inside the *daechong maru* illustrates "Yangjindang." This is a pen name of Ryu, Young-ho who is the 6th great grandson of Ryu, Un-ryong. The present building was reconstructed when the original building was demolished during *Imjinwoeran* (the Japanese invasion of Korea in 1592). It has been known that the original house was built in the 13th century. The present owner and concierge is Ryu, Sang-bung.

Mucheomdang is a component of the *Jong-ga* of Yi, Eon-jeok (1491-1553) whose pen name is Hoejae. Presently, Yi, Eon-jeok's remains are housed and exhibited in the building. The present owner and concierge is Yi In-sik.

Hyangdan was built by Yi Eeon-jeok (1491-1553) for his younger brother when he served as governor of Gyeongsang province. The present owner and concierge is Yi, Moon-whan.

Dongrakdang was built in 1516 as *Sarangchae*, after Yi Eeon-jeok resigned from a government service. The present owner and concierge is Yi, Hae-cheol.

Chunghyodang was the house of Ryu, Seong-ryong (1542-1607). It is comprised of *haengnangchae*, *sarangchae*, *anchae*, and *sadang*. The *anchae* and *sarangchae* were built by his grandson Ryu, Weon-ji (1598-1674), and expanded and repaired by Ryu, Weon-ji's own son, Ryu, Ui-ha. The *haengnangchae* was built by Ryu, Sang-jo (1763-1838), the 8th great-grandson of Ryu, Seong-ryong. The present owner

and concierge is Ryu, Young-ha.

Andong Euisung Kim clan Jongtaek is located near the banks of the *Nakdonggang* River in North Gyeongsang Province. The house was burned out during *Imjinwoeran* but was rebuilt in the 16th century by Kim, Sung-il (1538-1593) whose pen name is Hakbong. The present owner and concierge is Kim, Si-u.

Yecheon Kown clan Jongga byeoldang was built by Kown, O-sang in 1589. A set of wooden printing plates (designated Treasure No. 878) is housed in the bookshelf of the *byeoldang*. The present owner is Kwon, Suk-in.

Sungryeoldang was a house of General Yi, Sun-mong. It was built in 1433 in the 15th year of King Sejong. Presently, the house is used as a shrine for General Yi. Because he did not have any descendants, the ceremonial rite is performed by Confucian scholars every September. There are thirteen present owners including Yi, Soo-chaeh.

Yean Yi Clan Chunghyodang was the house of Yi, Hong-in (1528-1594). It was built in the 6th year of King Myungjong. The present owner and concierge is Yi, Sung-jik.

This brief historic overview of the individual buildings indicates that all of the eleven houses designated Korean National Treasures were built in the early and mid-Chosun



[Figure 1] Photographs of individual building: a. *Ojukheon*; b. *Dongchundang*; c. *Yangjindang*; d. *Mucheomdang*; e. *Hyangdan*; f. *Dokrakdang*; g. *Chunghyodang*; h. *Andong Euisung Kim clan Jongtaek*; i. *Yecheon Kown clan Jongga byeoldang*; j. *Sungryeoldang*; k. *Yean Yi Clan Chunghyodang*

Dynasty (1392-1910). All are over 400 years old and are representative of upper class homes.

2) Location

The survey of regional distribution for these residences indicates most (81.8%) are located in Gyeongbuk province (Andong, Yecheon, Gyeongju, and Youngchun), except for *Ojukheon* (Gangneung) and *Dongrakdang* (Daedeok). Thus, this survey exhibits uneven distribution across the country. A large number

of other national treasures, including traditional buildings and stone structures, are found in the same region.

Among 1354 Korean National Treasures, 359 (26.5%) are located in Seoul, and 254 (18.8%) in Gyeongbuk province. This disparity is due to the number of palace-related buildings (for examples, Kyungbok Palace and the South Gate), classical books, works of calligraphy, ancient documents, pictures, sculptures, crafts, etc. which are kept in Seoul.²⁾ However, certain

<Table 2> Location and year of construction of dwellings designated as Korean National Treasures

Name	Location	Year Built	Original / Current Owner	Spatial Function / Plan Typology(<i>sarangche</i> plan typology)
Ojukheon	Kangnung, Kwangwon	Early Chosun: 1390-1440	Choi, Chi-un / Gangneung City	<i>Byeoldang</i> / "I(I)" shape layout
Dongchundang	Daedeok, Daejeon	Mid Chosun: the 4 th year of King Hyojong, 1653	Song, Jun-gil / Songyong City	<i>Byeoldang</i> / "I(I)" shape layout
Yangjindang	Andong, Gyeongbuk	Mid Chosun: 1539-1601	Ryu, Un-ryong / Ryu, Sang-bung	<i>Byeoldang</i> / "I(I)" shape layout
Mucheomdang	Gyeongju, Gyeongbuk	Early Chosun: 1491-1553	Yi, Eeon-jeok / Yi, In-sik	<i>Byeoldang</i> / "L(L)" shape layout
Hyangdan	Gyeongju, Gyeongbuk	Early Chosun: 1491-1553	Yi, Eeon-jeok / Yi, Moon-whan	<i>Anchae, araechae sarangchae, and haengnangchae</i> / "用(I)" shape layout
Dokrakdang	Gyeongju, yeongbuk	Mid Chosun: the 11 th year of King Jungjong, 1516	Yi, Eeon-jeok / Yi, Hae-cheol	<i>Byeoldang</i> / "I(I)" shape layout
Chunghyodang	Andong, Gyeongbuk	Mid Chosun: 1598-1674, 1763-1838	Ryu, Weon-ji / Ryu, Young-ha	<i>Anchae, sarangchae, haengnangchae, and sadang</i> / "ㄷ(I)" shape layout
Andong Euisung Kim clan Jongtaek	Andong, Gyeongbuk	Early Chosun: 1538-1593	Kim, Sung-il / Kim, Si-u	<i>Anchae, sarangchae, haengnangchae, and other subsidiary rooms</i> / "巳(I)" shape layout
Yecheon Kwon clan Jongga byeoldang	Yecheon, Gyeongbuk	Mid Chosun: 1589	Kwon, O-sang / Kwon, Suk-in	<i>Anchae and sarangchae</i> / "ㄷ(I)" shape layout
Sungryeoldang	Youngchun, Gyeongbuk	Early Chosun: the 15 th year of King Saejong, 1433	Yi, Sun-mong / Thirteen owners including Yi, Soo-chae	<i>Byeoldang</i> / "I(I)" shape layout
Yean Yi Clan Chunghyodang	Andong, Gyeongbuk	Early Chosun: the 6 th year of King Myungjong, 1551	Yi, Hong-in / Yi, Sung-jik.	<i>Byeoldang</i> / "I(I)" shape layout

2) In Seoul, among 359 treasures there are 177 books and documents (49.3%); yet, only 13 wooden buildings are designated National Treasures. In contrast, Gyeongbuk province has 118 wooden buildings which are designated. The ratio of geographical distribution of the buildings is high in this region.

regional characteristics locate the majority of residences in Gyeongbuk province. The geographical situation of the province and strong conservative tendencies of the inhabitants contribute to this condition. Other cultural assets are well-preserved and of high quality in the region.³⁾

Another interesting fact is that three buildings including *Mucheomdang*, *Hyangdan*, and *Dongrakdang* are related to one individual, Yi Eeon-jeok (1491-1553) and located at Yangdong Folk Village⁴⁾. This is 16 kilometers northeast of Gyeongju City, where Yi Eeon-jeok's mother's maiden home was located, and where he himself was born.

2. Exterior Architectural Elements

1) Platform

Platforms have been used from the Three Kingdoms period (lasting about 1000 years from the first century B.C.).⁵⁾ A stone platform (*kidan*) is placed on the ground, and a wooden structure is raised above it.

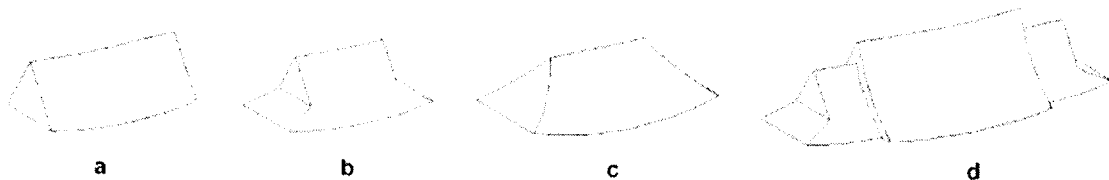
The platform is an important element used to heighten the external appearance of a building, to improve ventilation, and to prevent damp rising from

the ground. Various construction methods are employed in residential buildings, using two different types of stones: natural stone and artificially trimmed stone. Trimmed stone is further classified according to shape: *jangdaesuk*, *sadosuk*, *kanjisuk*, etc. With regard to how stones are piled-up in tiers, there are two ways: one is an ordered method, and the other disordered.

Although all eleven houses are built with stone platforms, eight buildings use natural stone. According to Ju, Nam-chul (1994, p.206), natural stone was popular in suburban areas; however, trimmed stone was mostly in Seoul. The number of piling layers for platforms varies as: one tier (3 buildings), two tiers (2 buildings), three tiers (2 buildings), four tiers (1 building), six tiers (1 building), and nine tiers (1 building). Therefore, there is no consistency among these buildings (Ju, 1994, p.205).

2) Column

Columns⁶⁾ distribute the weight of the roof structure to the foundation and serves as framework for walls. The space between columns remains open or closed for doors and windows. In most cases, circular columns (five buildings) and rectangular columns (four buildings) were used in a similar proportion. Two buildings (18.1%) mixed both types. Although circular



[Figure 2] Four different roof types in Korean residential buildings: a. *matbae jibung*; b. the *paljak jibung*; c. the *ujingak jibung*; d. the *soseul jibung*

3) See National Architectural Assets - Taegye and Gyeongbuk, (Eds.) The Year of Korean Architecture and Culture Committee, 1999.

4) There are 6 folk villages which belong to 'Important Folklore Materials,' including *Yangdong* folk village. There are 3 treasures and 12 wooden buildings designated Important Folklore Materials, and also 15 national cultural properties in *Yangdong* folk village.

5) Stone platforms (*kidan*) in traditional Korean architecture is slightly higher than that of Japanese and Chinese examples.

6) There are two different types of column in traditional Korean houses: circular and rectangular. Circular columns include those which are tapered, with entasis, and also parallel-sided; rectangular columns include rectangular, hexagonal, and octagonal columns.

<Table 3> Exterior architectural elements : Platform, Column, and Roof type

Name	Platform	Column	Roof type
Ojukheon	1 tier, trimmed stone	rectangular	<i>paljak jibung</i>
Dongchundang	1 tier, trimmed stone	rectangular	<i>paljak jibung</i>
Yangjindang	4 tiers, natural stone with an ordered method	circular	<i>paljak jibung</i>
Mucheomdang	4 tiers, natural stone with an ordered method	<i>Daechongmaru</i> : circular Others: rectangular	<i>matbae jibung + gajeok jibung</i>
Hyangdan	2 tiers, natural stone with an ordered method	circular	<i>matbae jibung</i>
Dokrakdang	1 tier, natural stone with a disordered method	circular	<i>paljak jibung</i>
Chunghyodang	3 tiers, trimmed stone	<i>Daechongmaru</i> : circular Others: rectangular	<i>paljak jibung</i>
Andong Euisung Kim clan Jongtaek	9 tiers, natural stone with a disordered method	rectangular	<i>matbae jibung</i>
Yecheon Kwon clan Jongga byeoldang	6 tiers, natural stone with a disordered method	rectangular	<i>paljak jibung</i>
Sungryeoldang	2 tiers, natural stone with a disordered method	<i>Daechongmaru</i> : circular Others: rectangular	<i>matbae jibung + gajeok jibung</i>
Yean Yi Clan Chunghyodang	3 tiers, natural stone with a disordered method	circular	<i>paljak jibung</i>

columns are not typical in the traditional house, there are a number of examples in which these are used in front of *sarangchae* and *anchae maru* (Hong, 1995, p. 133). In particular, there are also some exceptions in the upper class regional house (Ju, 1994, p. 206).

3) Roof

The beauty of traditional Korean houses derives from rooflines which form three-dimensional curves. The curves of these rooflines form a variety of aesthetics depending on where one looks at the building. Traditional Korean houses differ in character through various roof structures. The wooden structure is covered with tiles, called *kiwa*, made out of clay. *Kiwa* of two different shapes, concave (female) and convex (male), are assembled together above the wooden structure. There are four major roof types for the house including the *paljak jibung* (a hipped and gabled shaped roof), the *matbae jibung* (a gabled roof),

the *ujingak jibung* (a hipped roof), and the *soseul jibung* (a combination of a *paljak jibung* and a gabled roof).⁷⁾ While the *matbae jibung* is the simplest one and the most common roof type, the *paljak jibung* is the most beautiful and has a variety of different shapes (Baek and An, 2003, p.179). Thus, the *paljak jibung* was mostly used for the houses of the elite.

Overall, seven out of eleven buildings (63.6%) have the *paljak jibung*. Two buildings (18.2%) have the *matbae jibung* and the other two (18.2%) have the *gajeok jibung*, which has additional roof structures to the *matbae jibung*. Herein, there are two distinctive types of roof shape: one is the *gajeok jibung* in *Mucheomdang* and *Sungryeoldang*, the other is a roof that emphasizes a barge board and a gable structure in *Hyangdan*. An additional roof structure is added on the right end of the *matbae jibung* in *Mucheomdang*, but on both sides of the *matbae jibung* in *Sungryeoldang* [Figure 2]. Seen from the front, they look

7) There are various roof designs depending on the use of materials including, *kiwa jibung* (clay tile roof), *choga jibung* (thatch roof), *neowa jibung* (wooden shingle plate roof), *gulpi jibung* (roof with the bark of oak trees), etc.

matbae jibung, but from the side view, they look like the *paljak jibung*. In fact, the *gajeok jibung* is a transitional roof shape between *matbae jibung* and *paljak jibung*.⁸⁾ This is due to the fact that both *Mucheomdang* and *Sungryeoldang* were built in the earlier period of the Chosun dynasty than others. The roof type of *Hyangdan* is basically *matbae jibung*. The structure is unique in the sense that its roof shape reflects the internal spatial hierarchy. That is, the roof structure of the major space like *daechung* is raised higher than that of the minor space like the kitchen (Ro & Hong, 1999, pp.39-51).

3. Spatial characteristics of *sarangchae*

1) Spatial functions and plan types

Seven out of eleven buildings (including *Ojukheon*, *Dongchundang*, *Yangjindang*, *Mucheomdang*, *Dokrakdang*, *Chunghyodang*, and *Yean Yi Clan Chunghyodan*) were built as *sarangchae*, a certain type of *byeoldang* for the upper class. It is a multi-purpose room for reading, meeting, and loafing. Six out of seven buildings have an "I" shape layout; only *Mucheomdang* has an L shape layout.

The remaining four buildings have relatively complicated plan typologies. *Hyangdan* comprises *anchae*, *sarangchae*, *araechae*, and *haengnangchae*. They are clustered in a "川" shape layout as a whole.⁹⁾ *Sarangchae* is attached to the cluster with an "I" shape layout. *Chunghyodang*¹⁰⁾ consists of *anchae*, *sarangchae*, *haengnangchae*, and *sadang*. *Anchae* forms a "□" shape layout, while *sarangchae* in front right of *anchae* has an "I" shape layout. *Andong Euisung Kim clan Jongtaek*¹¹⁾ is clustered by a "□" shape *Anchae*, an "I" shape

sarangchae, and various separated buildings, forming a "ㄱ" shape overall. *Yecheon Kwon clan Jongga byeoldang* looks as if a "□" shape *anchae* is separated from *sarangchae*, interconnected in the back by a corridor between *daechong* in the *anchae* and *sarangbang* (a master's room) in *sarangchae*.¹²⁾

When *sarangchae* are independent buildings, the *sarangchae* alone is designated a National Treasure. However, when *sarangchae* are adjacent to other buildings like *anchae*, *haengnangchae*, and *sadang*, the whole cluster is designated. Most of the plan layouts (10 houses) are based on an "I" shape layout. Only one building is based on an "L" shape. This is in accord with Yi, In-hee's (1973) claim that the *sarangchae* in the upper class house comprise an "I" or "L" shape layout.

One of the distinct characteristics in houses of the Chosun dynasty is the expansion or separation of *sarangchae* (Kim, 1998). Given that the master's quarters seemed extremely small and narrow compared to other quarters in the early period of the Chosun dynasty (Yi, 1991), it used to be a small guest room. Subsequently, it has been developed into the current enlarged and expanded form of *sarangchae* by separating from *anchae* due to the strong influence of Confucianism around the 16th century (Kim, 2002). After the 17th century, *sarangchae* became totally separated as an independent building to serve as public space within a house for social activities (Kim, 1994).

Among eleven buildings, two were built in the 15th century, seven were in the 16th century, and two were built after the 17th century. It shows that *byeoldang* type of *sarangchae* was designed earlier than the 17th

8) Visit Cultural Properties Administration website: www.ocp.go.kr

9) The plan layout of *Hyangdan* is distinctive and different from other upper elite class houses. This is due to the influence of Feng Shui principles. The clustering of the house is formed based on an "I" shape *haengnangchae* plus a "月" shape the rest of the house, thus forming a "川" shape layout as a whole (Ju, 1994).

10) Two buildings of *Chunghyodang* are designated Korean National Treasures (No. 414), whereas the other 10 National Treasures include only one building.

11) Since *Sarangchae* in *Andong Euisung Kim clan Jongtaek* is placed far away from *anchae* as a separate building, guests can directly enter to *Sarangchae*.

12) Rather than connecting *daechongmau* to *daechongmaru*, a connection between *daechongmaru* in the *anchae* and *sarangbang* in *sarangchae* is a unique example.

century. These buildings also belong to the upper class whose social life was very active during the period. Since the role of *sarangchae* was considered significant for the upper class, *byeoldang*-type *sarangchae* was adopted into the upper class earlier than that of the commoners.

To summarize, a major portion of these buildings function as *sarangchae* (an outer quarter for the male resident) or as a house that includes *sarangchae*. They form mostly an "I" shape layout, having *daechung* and *sarangbang* (the master's room).

2) Plan layout

All plan layouts in traditional Korean houses are laid out according to the *kan* system. *Kan* denotes a basic unit of measurement which refers to the distance between two columns; however, the *kan* is not defined by an exact measurement. Rather, the dimension varies slightly. The eleven houses are laid out according to the *kan*. As discussed earlier, these residential buildings are either *sarangchae* or a house with *sarangchae*. Thus we focus our analysis of plan layout on *sarangchae*.

Ojukheon is laid out with 3 *kan* on the front and 2 *kan* on the side. From the front, 2 *kan* on the left is *daechong*, 1.5 *kan* on the right is a room (*ondol*, heated-floor) and the rest 0.5 *kan* is *toetmaru*.

Dongchungdang is a typical *byeoldang*. It is laid out with 3 *kan* on the front and 2 *kan* on the side. The house consists of a *kan* room on the left and two *kan daechong* on the right.

Yangjindang is laid out with 5 *kan* on the front and 2 *kan* on the side. *Sarangchae* is connected to *anchae*.

Mucheomdang is laid out with 5 *kan* on the front and 2 *kan* on the side. There are two rooms either side. *Numaru* is project in front of a room on the left, and a small 0.5 *kan* attic is adjacent to a room on the right. Three *kan daechong* occupies the middle.

Hyangdan is laid out with 4 *kan* on the front and 2

kan on the side. It is connected to an I shape *arachae*. From the front, the house consists of a 1 *kan* room on the left and right, respectively. The middle 2 *kan* is for *daechong*. A room on the right from the side view is laid out with 1.5 *kan* plus 0.5 *kan toetmaru*.

Dongrakdang is laid out with 4 *kan* on the front and 2 *kan* on the side. From the front, the house consists of a 1 *kan* room on the left and a 3 *kan daechong* on the right.

Chunghyodang is laid out with 6 *kan* on the front and 2 *kan* on the side. From the front, the house consists of two 1 *kan* rooms on the left, a 2 *kan daechong* in the middle, and a 2 *kan* room with *daechong* on the right.

Andong Euisung Kim clan Jongtaek is laid out with 4 *kan* on the front and 2 *kan* on the side. *Sarangchae* and *haengnungchae* are connected by the two-story wooden floor structure where the upper portion is book storage and the lower portion is a storeroom. It is a unique structure, rarely found in any traditional house in the Chosun dynasty. *Sarangchae* consists of a 3 *kan daechong* on the left, a 1 *kan* room on the front right and a small attached room in the back.

Yecheon Kwon clan Jong-ga byeoldang is laid out with 4 *kan* on the front and 2 *kan* on the side. *Byeoldang* is connected to *anchae* by corridor. The building consists of a 3 *kan daechong* on the right, and a 1 *kan* room on the front left as well as on the back.

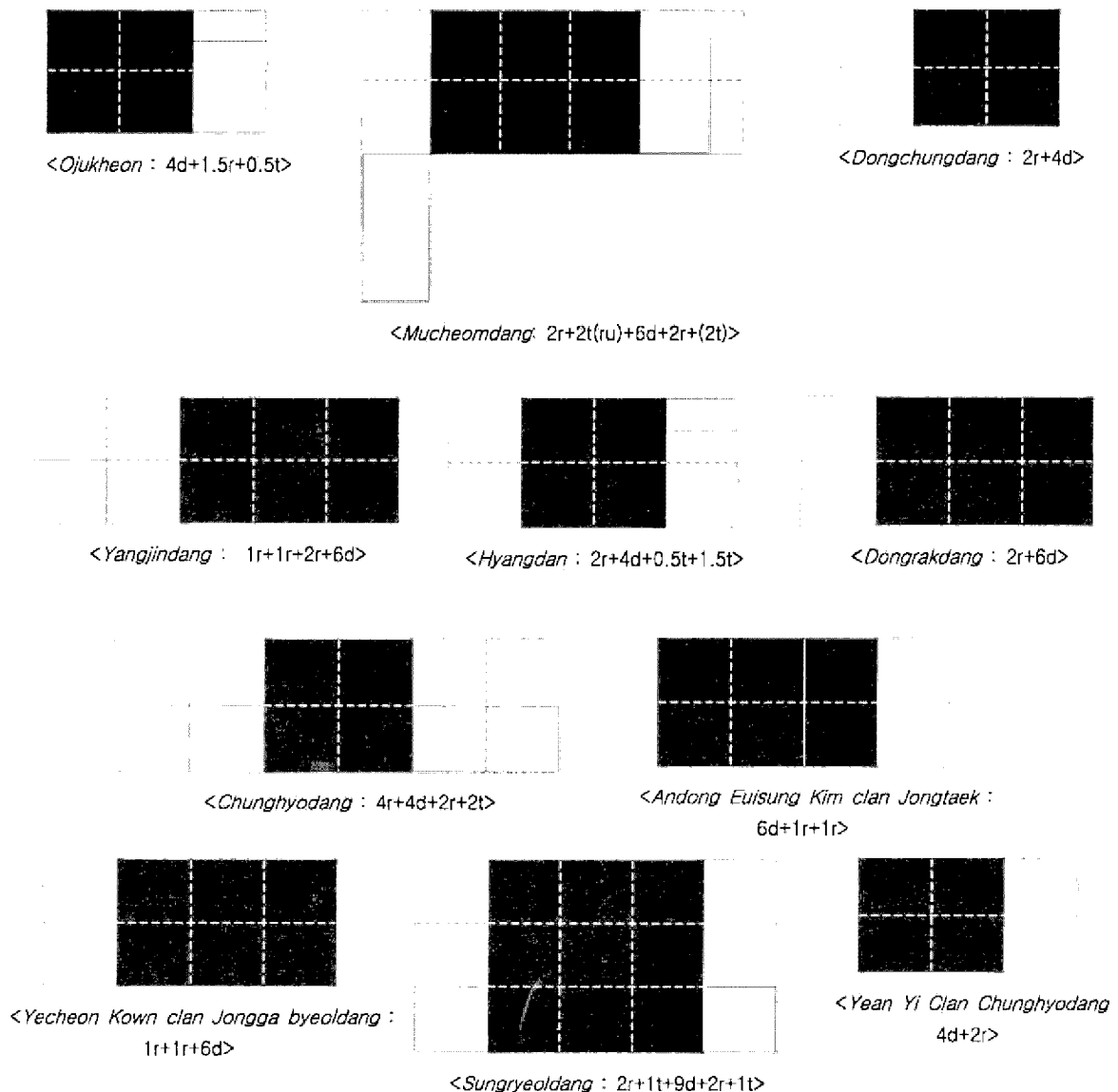
Sungryeoldang laid out with 5 *kan* on the front and 3 *kan* on the side. From the front, the house consists of a 1 *kan* room on the left, a 3 *kan daechong* in the middle, and a 1 *kan* room on the right. In particular, a 1 *kan maru* is set in front of each room so that they look 1 *kan* from the front and 2 *kan* from the side.

Yean Yi Clan Chunghyodang is laid out with 3 *kan* on the front and 2 *kan* on the side. From the front, the house consists of 2 *kan numaru* on the left, and a 1 *kan* room on the right.

Except for *Mucheomdang*, all buildings are laid out as an "I" shape with rooms and *daechong*. A two-room type the most popular (6 buildings, 54.5%), followed by one-room type (four buildings, 36.4%), and three-room type (one building, 9.1%), in that order.

A comparative analysis of layouts reveals that there is no kitchen among these buildings. According to Yi, In-hee (1973), *sarangchae* comprises *daechong*, *sarangbang* (a master's room), *numaru*, *toetmaru*, and other

subsidiary rooms. *Anchae* comprises the housewife's sleeping room (*anbang*), subsidiary rooms, and *daechong* in the middle. A kitchen, storage rooms for *kimchi*, firewood, etc. are adjacent to *anbang*. Various auxiliary rooms are also attached to the kitchen. The kitchen is not typically attached to *sarangchae*, since the *sarangchae* is the master's social space and is a component of the upper class house during the Chosun dynasty. In addition, under Confucianism it was prohibited for males to dine with females during the Chosun



[Figure 3] Eleven spatial layouts of *Sarangchae*

[Legend : = Building outline, -- Partitions, -- Kan divisions, □ room, ■ daechong, and ▨ toetmaru(rumaru)]

dynasty. Generally speaking, meals were served separately to each (Yi, 1995, p.178). As such, *sarangchae* without kitchen is a typical layout during the period.

Spatial layouts of the eleven buildings are illustrated below according to room, *maru*, and other subsidiary rooms. *Maru* typically occupy 2 or 3 times the size of other rooms.¹³⁾ The reason is that *maru* is considered a significant social, family activity space, particularly in the upper class houses. Rooms are attached either left/right or on both sides of *maru*. This is a typical spatial grammar of Korean traditional houses.¹⁴⁾

IV. Conclusion

Comparative analysis of these buildings illustrates all eleven residences were built in the Chosun Dynasty; yet the exact year of construction is known for only four buildings. The residences have been well-preserved and are representative of upper class houses of the period. Nine of eleven buildings are located in Gyeongbuk Province. They are of mostly *byeoldang*-type *sarangchae*. *Sarangchae* was mainly used for social interaction within a house. This means the *sarangchae* has been embraced as an emblem of the family's status in society, particularly for the upper class. Accordingly, families oriented design toward the signaling of social power; it is natural that much attention was given to the building's outward appearance, the use of high quality materials, and design elements which represented their status.

Most of the eleven buildings have a hipped and gabled roof structure (*paljak jibung*) supported by either circular columns or square columns in a similar

proportion. All buildings are also set upon stone platforms (*kidan*) - yet the number of tiers is irregular. Most of the floor plans rely on an "I" -shaped layout. Basic spatial components include room (*ondol*) and various wooden floors (*maru*) without the kitchen. The *kan*-system controlled each component of the buildings.

This research opens us to future research projects: what are common characteristics of traditional houses in other dynasties? Each dynasty prescribes a style that evolved, influenced, or broke from each other. Therefore, it is compelling that a comparative and systematic analysis of residential buildings in each dynasty can be pursued to restore and preserve a rich cultural architectural heritage.

Key Words : Residential Buildings Designated as Korean National Treasures, Exterior Architectural Elements, Spatial characteristics of *sarangchae*

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13) Wooden floors like *daechongmaru* in Korea developed since the 15th century, and were adopted as part of the interior design since the 16th century (Baek and An, 2003, p.66).

14) According to Kim (Kim, et al, 1993), *sarangchae* comprise *sarangbang*, *maru*, and the kitchen. He argues that each subsidiary room has been transformed from the three rooms. He also reports that *maru* at *sarangchae* are considered significant in daily activities, and differ from *anchae* in both upper and lower class houses.

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