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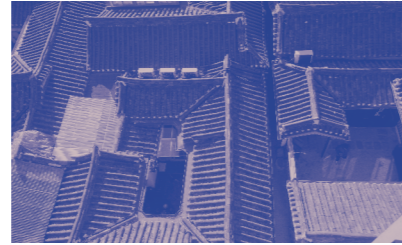
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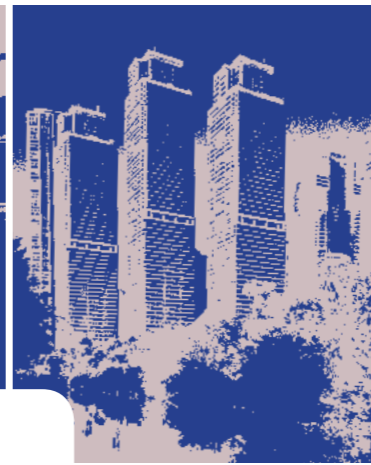
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The most distinctive feature that differentiates Korean houses from those of other countries would be *ondol* and its derivatives. *Ondol* is a unique floor heating system consisting of underfloor flues connected to the furnace. Even the modern alterations of Korean housing are highly influenced by the improvement of *ondol*. [...] This book introduces English readers to the history of the Korean house through several time periods: from the ancient to the modern periods. It also overviews the future of Korean housing in transition from a patrilineal society to a nuclear-family-based society, or the status of apartments serving as the representative Korean housing type.

Seoul Selection 



Understanding Korea No. 5

A Cultural History of
THE KOREAN HOUSE

A Cultural History of THE KOREAN HOUSE

Jeon BongHee



About the series

The Understanding Korea Series aims to share a variety of original and fascinating aspects of Korea with those overseas who are engaged in education or are deeply interested in Korean culture.

This is part of the Understanding Korea Project, which the Academy of Korean Studies has been carrying out to propagate an understanding of Korean society, history, and culture to every corner of the world.

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A Cultural History of
the Korean House

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Written by **Jeon BongHee**

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FOREWORD

Since its foundation in 1978, the Academy of Korean Studies has devoted itself to exploring the proper direction for Korea's future and creating the nation's unique culture through the promotion of in-depth research of and education about Korean culture. In addition, it has carried out the Understanding Korea Project, which is aimed at propagating an understanding of Korean society, history, and culture to every corner of the world.

As part of the Understanding Korea Project, we annually publish installments of the Understanding Korea Series as a part of our plan to share a variety of original and fascinating aspects of Korea with those overseas who are engaged in education or are deeply interested in Korean culture. For the fifth issue of the series, we have chosen the topic of the Korean house.

With consideration for the diverse climatic and geographical environments on the Korean peninsula, Koreans developed a unique residential space which has exerted a great influence on the dwelling culture of the country. This book reilluminates the development and the transformation of the Korean house from ancient times to the contemporary era. I hope that this book will offer enjoyment and useful information to readers around the world who have a deep interest in Korea.

I would like to express my sincere gratitude to those who have contributed continuous effort to publish this series. Appreciation must be particularly expressed for the generous support given for the completion of the book by those including the author, Professor Jeon BongHee of the Department of Architecture at Seoul National University and Kim Hyeon, director of the Center for International Affairs at the Academy, who has spearheaded the Understanding Korea Project.

LEE Bae Yong
President, Academy of Korean Studies

INTRODUCTION

Located on the edge of Eurasia, the Korean Peninsula is located next to mainland China and faces Japan across the Korea Strait. Korea and Japan developed their own architecture under the influence of ancient Chinese architectural culture, occupying wooden post-lintel structures in general. Especially, houses of Korea, Japan, and China show distinctive traits in terms of site plans, interior spaces, and space usage.

The most distinctive feature that differentiates Korean houses from those of other countries would be *ondol* and its derivatives. *Ondol* is a floor heating system consisting of underfloor flues connected to the furnace. It was invented around the twelfth century at the latest and came into wide use for the next several centuries in the whole Korean Peninsula. *Ondol* is a unique feature of Korean houses as it can be found all over Korea, but not in other countries.

Ondol played a significant role in the spatial layout and unit formation of Korean houses. First, *ondol* ensured a clean interior space in which Koreans could take off their shoes and cultivated the floor-sitting culture. Also, all interior spaces were wisely connected to each other to allow convenient passage without shoes.

Therefore, it is possible to categorize the history of the Korean house into two periods: before and after the invention of *ondol*. Even the modern alterations of Korean housing are highly influenced by the improvement of *ondol*. Western-style houses were introduced in the early twentieth century, but due to the preference for *ondol*, traditional Korean houses were more commonly built until the 1960s. However, as the modern floor-heating system with hot water pipes coiled underfloor was developed in the mid-1970s, Koreans could keep their unique living style of taking off shoes inside and warm floors, even in high-rise apartments. This Korean apartment has diffused rapidly since the 1980s, and

currently, over half of Koreans live in apartments.

This book introduces English readers to the history of the Korean house through several time periods. Chapter 1 explains the nature and geography of the Korean Peninsula. There are four distinct seasons, and the year-round temperature difference reaches up to 28°C. Therefore, individual houses have been optimized for both summer and winter.

Chapters 2 and 3 give overviews of the housing history, from the ancient to the pre-modern periods, focusing on differences between before and after the invention of *ondol*. Even though ancient housing cannot be described accurately due to lack of evidence, that the housing complex consisted of small buildings dispersed in one boundary can be presumed from excavations and historical records. After the invention of *ondol*, Korean housing underwent a process of combining separate buildings. Distinctive spatial features of Korean housing, namely, *ondol*, *maru*, and the kitchen were combined through this process. Chapter 4 reviews the characteristic layouts and architectural features of Korean traditional housing, focusing on those of the seventeenth to nineteenth.

Chapters 5 and 6 introduce modern housing types that emerged after opening ports. Chapter 5 discusses the alteration of traditional housing types and introduction of western-style modern houses. Chapter 6 reviews the alternative housing types that emerged with the disappearance of traditional houses in the metropolitan area due to rapid economic development.

Chapter 7, as a conclusion, analyzes general changes in housing according to the transformation of Korean society. It responds to the questions concerning the future of Korean housing in transition from a patrilineal society to a nuclear-family-based society with an increasing number of single-person families, or the status of apartments serving as

the representative Korean housing type.

I would like to thank all those who contributed to this publication. In particular, I extend my thanks to Lee SooNeon and Do Youn-jung of my laboratory, both of whom assisted me in profiling raw materials and completing this publication. I would like to thank Carol Shin for English translation, and Chae Uri from my laboratory for proofreading. I am also indebted to the Academy of Korean Studies (AKS) for great efforts to introduce Korean culture abroad. Although I have always felt the necessity for an English-language history book on the Korean house, it was the AKS who planned and asked me to write it. I am particularly grateful to Kim Euisik of the AKS who were in charge of this publication. Finally, sincere appreciation goes to the staff of Seoul Selection, whose support was invaluable in making this publication complete.






Chapter 1

**NATURE &
CULTURE OF
KOREA**

Korea is a peninsula, located northeast of the Eurasian continent, bordered by China to the north, Russia to the northeast, and Japan to the southeast across the Korea Strait. Geographically, the Korean peninsula is situated in a temperate climate zone of the middle latitudes; the temperatures of its southern and northern regions are significantly different, however, due to the long distance between the two areas. The annual average temperature of the Kaema Plateau region, located at Korea's northeast side near the border of China, is 5.5°C,¹ whereas the annual average temperatures of Seoul, the capital of Korea located in the middle of the Korean peninsula, and Jeju Island, Korea's southernmost region, are 12.5°C and 15.5°C, respectively. Therefore, the difference in annual average temperature between the northern and southern regions is 10°C.²

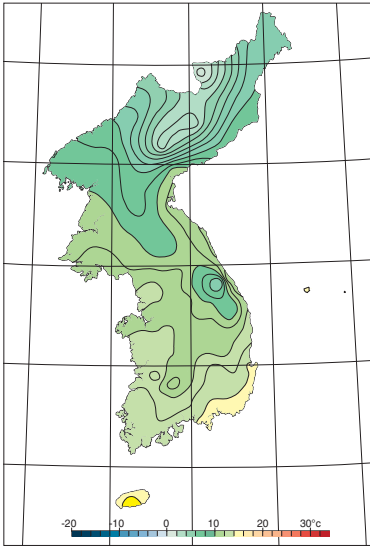


In addition, Korea has four distinct seasons. Winter is generally cold and dry due to the Siberian anticyclone. In contrast, the summer is influenced by the North Pacific anticyclone, resulting in high temperatures and humidity. Spring and fall have mostly clear and dry weather. For the central region, the average temperature of January, the coldest month of the year, is -2.4°C , and the average temperature of August, the hottest month of the year, is 25.7°C . The difference between the average temperatures of the coldest and hottest months of the year is 28°C .

These characteristics of the Korean peninsula's natural environment have greatly influenced modes of production, housing styles, and the overall lifestyle of the people who have lived there. As early as the Neolithic Age, grain agriculture developed on the Korean



Korea has four very distinct seasons.



Contour plot of average temperatures on the Korean Peninsula
(source: National Weather Service)

peninsula and rice and barley became the main crops that sustained the Korean people. This development of the agricultural industry necessitated the formation of human settlements that promoted the effective management of arable land. Therefore, premodern Korea's typical rural landscape consisted of agricultural land in the settlement's lowland. While villages formed around agricultural land, other facilities such as schools, religious spaces,

and cemeteries were built in more mountainous areas. To cope with Korea's four distinct seasons, individual houses were equipped with an *ondol*, or a system of chambers to funnel warm air under the floor, to avoid the cold during the winter period. During the summer, the *maru*, or wooden floor, located at the center of the house was used for the family's communal activities, as well as to cool off.

Paleolithic sites offer evidence of people living on the Korean peninsula as early as 700,000 years ago. Neolithic sites once occupied by *Homo sapiens*, the direct ancestors of modern humans, have been discovered throughout the entire Korean peninsula. Examples of such sites from the Neolithic era, which started around 5000 BCE,

are the archaeological sites in Osan-ri, Gyeonggi-do; Yangyang, Gangwon-do; and Dongsam-dong, Busan. Bronze Age archaeological sites dating back to around 1000 BCE have also been found, offering evidence of further developments in agriculture.

However, monuments using advanced architectural techniques eventually appeared after the establishment of the state system by the ancient dynasties. The emergence of ancient kingdoms on the Korean peninsula traces back to the first century BCE. Three ancient kingdoms known as Goguryeo, Baekje, and Silla were established on both the Korean peninsula and in Manchuria. This period coincides with the time period during which the Han Dynasty unified most regions of China and expanded its power to Manchuria. Under such

The monumental Seokguram Grotto (eighth century) of Unified Silla shows the highly advanced architectural techniques of ancient Korea.





Three Kingdoms Period (fifth century)

circumstances, Chinese civilization spread throughout the Korean peninsula and accelerated the formation of Korea's ancient kingdoms.

During the formative stage of ancient kingdom development, the kingdom's northern population in Manchuria and the mid-southern population on the Korean peninsula established independent nations.

However, as people resided

side by side over a long period of time, they became more and more similar both culturally and politically. Thus, it was natural that the movement toward unification gradually gained momentum. In the middle of the seventh century, the Korean peninsula was finally unified by Silla, the southern kingdom, which resulted in Manchuria and the northern part of the Korean peninsula falling under the rule of the Chinese dynasties. After this period, as a succession of unified dynasties of Korea gradually expanded their territories toward the north, the entire Korean peninsula, with its boundary along the Dumangang (Tumen) and the Amnokgang (Yalu) Rivers, became the territory of the Joseon Dynasty (1392–1910) and has maintained its borders even to this day. As this shows, the Korean peninsula has a long history of unification that has fostered in the population a strong national consciousness of homogenous ancestry

and cultural homogeneity.

Most Koreans still believe that the Korean house has a distinctive style with a long history. For example, every traditional house on the Korean peninsula has the unique floor-heating system called *ondol*. This system includes *yeondol*, which are horizontal flues installed beneath the floor. Contrary to the popular assumption that this *ondol* system has been used by Koreans throughout history regardless of their location or social standing, the *ondol*'s compositional method was not finalized until the middle of the twelfth century, and at that time it was only used by the upper-class elderly and ailing. Over many centuries, however, the *ondol* was incorporated into houses of all classes and in every region of the Korean peninsula. Use of the *ondol* changed the overall layout of the house because it influenced the location and design of the *maru* room, kitchen, and other areas of



Inside view of an *ondol* room (left) and outdoor chimneys

the house. Thus, the Korean house shows a great difference between the periods before and after the use of the *ondol*.

Another dramatic change to the Korean house occurred during modern times when contemporary techniques and materials were introduced to housing construction. After a long period of voluntary seclusion, the Joseon Dynasty opened its ports to foreigners as late as 1876. Japan, which experienced Western influence earlier than other East Asian countries, was itself highly influential during this period, and finally annexed Korea in 1910. Throughout the first wave of modernization in the late nineteenth and early twentieth centuries, the traditional house maintained its uniqueness while adopting new building materials such as glass, metal, and brick, partially becoming standardized and urbanized.

At the end of World War II in 1945, Korea became independent from Japan, though the Korean War was triggered in 1950. In 1953, an armistice was signed at the military demarcation line that had been established at the time, and Korea has remained divided into the North and the South until now. In the 1960s, South Korean society began to develop rapidly in conjunction with its economic growth. Industrialization and urbanization were followed by mass production of housing. Particularly after the 1970s, the significant growth of high-rise apartment buildings brought notable variations to the Korean housing market.

Under the present circumstances, over half of the country's housing options are apartments, and over 90 percent of Korea's total population resides in the urban areas. The current Korean house, however, still uses the unique floor heating system with the *yeondol*



Modern apartment buildings in Korea

being replaced with hot water pipes. This demonstrates that the *ondol* is the most important characteristic of the Korean house.

If a *hanok* is understood to be a traditional Korean house made of a timber-framed building with a tile or thatched roof and having an *ondol* and *maru* as its main spatial components, then the history of the Korean house can be classified into three major periods: the pre-*hanok* period (up until the mid-twelfth century), the *hanok* period (from the mid-twelfth century to the 1960s), and the post-*hanok* period (from the 1960s onward).



Chapter 2

THE BEGINNINGS OF THE KOREAN HOUSE

Prehistoric Dwelling Sites of the Korean Peninsula

In the history of mankind, the development of agriculture during the Neolithic era greatly influenced the rise of civilizations. Before farming, people were generally nomadic and lived as hunter-gatherers. Therefore, people tended to live in tent-like structures for mobility or in caves instead of settling down in one place. After people started farming, however, they needed to settle down at least until they were able to harvest crops from the seeds they had sowed. Consequently, some of the indispensable cultural artifacts still existing today include early settler shelters built to withstand the elements and pottery made to store harvested crops. In other words, settlements and pottery were the first inventions made at the beginning of material civilization.

People began populating the Korean peninsula during prehistoric times. Human remains from about 700,000 years ago have been found on the Korean peninsula and further north. People during this time are thought to have inhabited caves as temporary shelters.

On the Korean peninsula, the beginning of Neolithic culture is estimated to have occurred between 10000 to 8000 BCE. People started to settle down in one place and relied on fishing and gathering wild plants to survive. Examples of an earlier form of housing from this period known as a pit-house were also found. A pit-house is a shelter with a recessed floor dug into the ground and a roof that covers the top, which sits close to ground level. Many of the pit-houses were 60 to 70 centimeters deep, 4 to 6 meters wide, with a circular floor layout. The pit-houses' layout was circular because

Recreated models of prehistoric pit-houses
in Amsa-dong Prehistoric Settlement Site, Seoul



it was easier and more economical to construct circular roofs. This conical roof frame can be constructed by leaning wooden posts against each other while making one vertex at the top and then covering this frame with grass or leather as protection against harsh weather conditions.

Around 3500 BCE, agriculture promoted rapid development in the style of settlement that occurred. This was followed by the import of the Bronze Age culture in 1000 BCE from mainland China to the Korean peninsula, as well as the beginning of rice agriculture. People still lived in pit-houses, but the circular floored pit-house gradually became shallower and shifted toward an enlarged, rectangular layout. The shallower floor is closely linked to the vertical walls. This means that Neolithic-style pit-houses topped with ground-level roofs transformed in the Bronze Age into dwellings with the roof laid on top of man-made walls. Moreover, the floor

Recreated model of Songguk-ri Settlement Site (Bronze Age), Buyeo, Chungcheongnam-do



layout transformation from the circular to the rectangular was directly related to the growth of the number of family members, as the circular layout presented limitations in terms of enlarging the house's size and dividing it into rooms.

Archaeological sites of the Bronze Age, which lasted until 300 BCE, have been found throughout the entirety of the Korean peninsula. Most of the settlement sites were found with multiple pit-houses in a group. Some sites showed signs of a communal defense system such as the wooden fences found in Songguk-ri, Buyeo, Chungcheongnam-do, and a water-filled trench, called *ho* (濠), found in Geomdan-ri, Ulsan in the Gyeongsangnam-do region. In addition to the individual pit-houses, these types of village sites also had traces of public buildings that appear to have been under communal management.

The *ondol* is the most unique characteristic of the Korean house.

The primitive form of *ondol* found in Pungnap-dong Historic Site, Seoul



Primitive forms of the *ondol* were found in pit-houses, the advanced pit-houses of the Bronze Age. There was a flue made of stone to send hot air from the fire pit inside the house to the connected chimney located outside the house. This passage was installed on the ground with short stacks of stones used for walls and providing cover. This system allowed the temperature inside the room to be maintained more effectively while preventing smoke from filling the room. The next generation of improved *ondol* began to use the top surface of this flue as the floor of the living space.

Another type of prehistoric housing in Korea is a stilt house, which was built on top of wooden stilts. This structure was made of wood, so it is difficult to identify the original form in detail. However, the original form can be traced through written and pictured materials. In historical records, we can find two types of primitive housing—*hyeolcheo* (穴處) and *sogeo* (巢居), which refer to a pit-house and a

Recreated models of stilt houses in Bonghwang-dong Historic Site (Iron Age), Gimhae



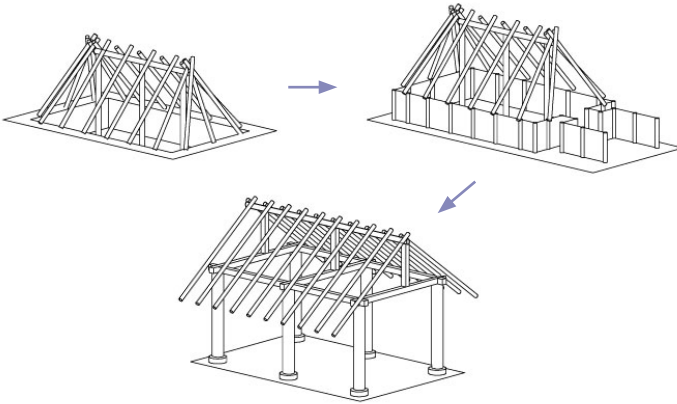
stilt house, respectively. *Hyeolcheo* was described as a house made by digging out a pit, including a horizontally dug cave and a vertically dug ground, like pit-houses. *Sogeo* literally refers to a house built on a tree. In the Chinese archaeological sites dating back to 6000 BCE, wooden stakes were discovered as evidence of the primitive stilt house. These two prehistorical housing styles are also found in vernacular houses of the East Asian and Southeast Asian regions. Moreover, the *ondol* and *maru*, the two unique spatial components of the traditional Korean house, can be thought to have originated from these two historical housing styles.

Formation of Ancient Society and House Patterns

The appearance of the ancient kingdoms coincided with the construction of megastructures such as the fortress walls and tombs. Around the first century BCE, Goguryeo, Baekje, and Silla were established, and they began developing the ancient kingdom system around the third and fourth centuries. As the Han Dynasty (206 BCE–220 CE), the ancient Chinese Kingdom, expanded its territory, the advanced architectural technique for building wooden structures was imported to the Korean peninsula.

The wooden structures were formed by joining wooden pillars and beams to the frame of the roof, and then the roof was covered by roof tiles. Between the two columns, the wall was made of earth or wooden boards. Different windows and doors were installed depending on the local weather. This Chinese wooden structure had a great adaptability to climates and a quakeproof structure that was

Structural Development Process from Pit-House to Wooden Structure



made from affordable construction materials such as stone, wood, and earth. Therefore, this structural method became widespread in mainland China, on the Korean peninsula, and in Japan. However, this advanced technique was only applied to certain facilities such as palaces and religious facilities. Commoners still dwelled in the pit-houses, similar to those of previous generations.

After the establishment of the ancient kingdoms during the Iron Age, the size of the pit-houses was expanded and the rectangular floor plan became more complex as well. Some such complex floor plans were in the shapes of Chinese characters 凸 (*cheol*) and 呂 (*yeo*). These shapes became the basis for floor plans that made it possible to extend the entrance area of the house or separate two interior spaces within the same house. Moreover, the floor level of the pit-houses built during this period became even shallower, only 10–20 centimeters below ground level. Also, the foundation stone

was installed to hold pillars instead of placing posts directly on the ground, to block the pillars from sinking into the ground.

Sites of stilt houses from this period have also been found. These houses had one to three bays on the long side and one to two bays on the short side. These buildings were usually very small, with each bay being about two meters in width and length, and were generally used as a storage space. House-shaped earthenware discovered in the southern region of Korea is a great example that shows the general appearance of this stilt house. On the front side of the house was a ladder to enter the elevated floor, with the ladder being held up on the stakes. The gabled roof was installed with roof tiles. A description of this type of stilt house can be found in ancient Chinese literary records. For instance, in the *Book of Wei*, the records of the Wei Dynasty (220–265) during the Chinese Three Kingdoms period, there are chapters about people residing in the east of China and Goguryeo that confirm the widespread use of stilt houses as storage spaces.

In the pit-houses of the Iron Age, an early form of *ondol* was discovered fully intact. There was a furnace or a cooking stove called an *agunggi* inside the house with an elongated *yeondol* (flue) on the floor that was connected to a simple chimney outside the house. In particular, some cases had different forms such as L-shaped *yeondol* and those installed alongside the walls. In China, this kind of *ondol*



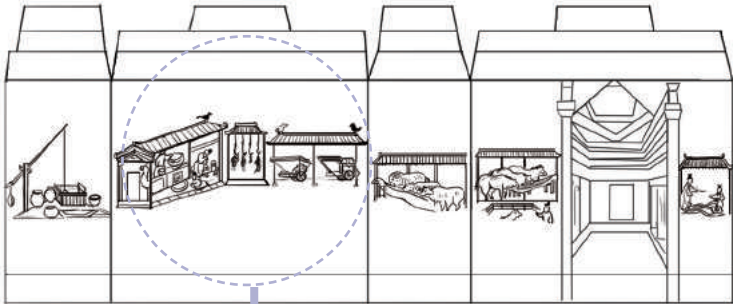
House-shaped earthenware from Gaya Kingdom (42–562)

was called *kang* (炕) and was used as a bed. *Kang* were used from ancient times up until the Qing Dynasty in Manchuria and the northern Chinese regions. The biggest difference between an *ondol* and a *kang* is that an *ondol* is used to heat an entire floor space while a *kang* is only used to heat up a portion of a room.

This limited application of an advanced architectural technique used only in palaces and religious facilities gradually expanded to the upper-class homes and then to all houses. Detailed examples of upper-class housing have been found in the mural paintings in the tombs of Goguryeo, dating back to around the fourth century. These mural paintings depict the layout of the house of the person occupying the tomb. One upper-class house was composed of several buildings with each building serving different functions. The mural painting found in the antechamber of Anak Tomb No. 3 in Hwanghae-do (North Korea) is one such example. This shows various subsidiary buildings of a house, such as a kitchen, a meat storage unit, a stable, a barn, a rice mill, and a garage. The size of buildings was small, fitting one to three bays in each. All buildings were constructed with wooden pillars and beams with roof tiles. The main building for the person occupying the tomb was not described in the painting; instead, the burial chamber is speculated to have been the main structure. A similar layout was found in the recently excavated site in Gyeongju, the capital of Silla. At this site, a house was composed of seven to ten individual buildings that were constructed on a rectangular area surrounded by fences and a main gate. Each building had a maximum of three bays. There were even some sites with personal wells.

A similar style of house from the same period—a residential struc-





The mural painting found in the antechamber of Anak Tomb No. 3 in Hwanghae-do, showing various subsidiary buildings of a house, such as a kitchen, a meat storage unit, a stable, a barn, a rice mill, and a garage



Subsidiary buildings of a house in the mural of the antechamber of Anak Tomb No. 3 (fourth century)



Excavation site in Gyeongju, which was the capital of Silla

ture composed of several small buildings—was also found in China. House-shaped pottery excavated in a tomb from the Han Dynasty showed that several small buildings had once been positioned around the courtyard to form a house. Called *siheyuan* (四合院), or Chinese quadrangle, this style continued to exist until the Ming and Qing Dynasties and became known as traditional Chinese housing. Korean houses, in contrast, transformed into having one building with more complex floor plans during the Middle Ages due to the use of *ondol* system.

In the *Samguk Sagi* (三國史記, *History of the Three Kingdoms*), a piece of historical literature written during the Goryeo Dynasty (918–1392), there is a section titled “Chapter on Houses (屋舍條)” that describes ancient houses in even more detail. This book also outlines the housing regulations of Silla, which were strictly defined for

each social stratum since Silla had a rigid social hierarchy. Therefore, the size, construction materials, architectural decorations, and facilities available were limited by one's social standing. For example, members of the royal family were allowed to decorate their houses using silk window blinds, tortoiseshell-decorated furniture, and decorative ridge-end tiles. Also they were allowed to construct buildings that were over 24 *cheok* (a unit of measure similar to a foot), or over seven meters, wide. Moreover, royal homes were also able to employ advanced architectural techniques, including wooden brackets called *gongpo* that were installed at the top of the columns for both decoration and structural reinforcement. The inclusion of such details means that advanced architectural techniques that were previously limited to the construction of palaces and religious facilities began to be applied to houses.



The *Samguk Sagi* (c.1145)



Chapter 3

HANOK: THE FORMATION OF THE TRADITIONAL KOREAN HOUSE

Ondol and Completion of the Traditional Hanok

The most impressive spatial feature of the Korean house, the *ondol*, is thought to have been invented around the twelfth century in the middle of the Goryeo Dynasty (918–1392). The oldest *ondol* ever discovered is from the thirteenth century. There are, however, historical documents from the twelfth century that make mention of rooms that experts assume to have had *ondol* systems, therefore there is still a possibility of finding even older evidence of *ondol* use in the future.

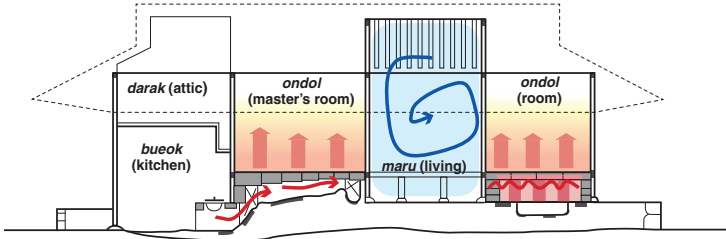
At first, the *ondol* was mainly used by the elderly and the sick from the upper class. According to many different historical documents of the Joseon Dynasty, there were debates about the proper use of *ondol* systems. Another historical document from the seventeenth

century states that the *ondol* was not widely used on Jeju Island, the southernmost region of Korea. For this reason, it can be concluded that *ondol* technology had spread throughout the Korean peninsula by the seventeenth century.

Once the *ondol* system was adopted for rooms, the interior floors were replaced with clean heated stone surfaces that would be raised above the ground level of the courtyard. An *ondol* floor not only brought about changes in the spatial composition of the room but also influenced the overall characteristics and spatial features of the house. For example, an *ondol* room and the kitchen needed to be located next to each other because, in order to save fuel, a single fire was used to both heat the *ondol* and cook for the family. To serve this dual purpose, the *buttumak*, a cooking pit over a fireplace, was created. A fire lit in the *agungi* would then heat up a pot held directly

A pot on the *buttumak* with the *agungi* below





Space composition diagram of the traditional *hanok* with a well-harmonized *ondol*, *maru*, and kitchen arrangement

above it. While the fire heated the pot, the hot air it generated would pass through the horizontal flue that ran beneath the room's floor, warming up the *ondol* room above it. Finally, the heated air would escape outside through a chimney located outside the house. Because of this system, the floor of an *ondol* room is typically at least 90 centimeters above the earthen floor of the kitchen and the *agungi*. Thus,



Agungi, or furnace in the kitchen of the Korean traditional house

unless the earthen floor of the kitchen has been positioned below ground level, the floor of the *ondol* room is always positioned much higher than ground level.

To get on the raised *ondol* room floor from the ground level, one should take off one's shoes and step on to the raised floor. To facilitate this process, a stylobate and a stepping stone would generally not



A *toenmaru* in front of an *ondol* room

be sufficient unless the additional *maru* was installed. As a result, either a *toenmaru* (a narrow wooden porch) or a *marubang* (wooden-floored room) would be constructed next to the *ondol* room. Therefore, people would step on the stylobate first, leave their shoes on the stepping stone, and enter an *ondol* room by passing through the *maru*.

Once people entered the level of the *ondol* room, they preferred not to climb more stairs or put on their shoes again, which is why all interior living spaces in Korean houses were designed to be on the same level, with the exception of the kitchen, and why every function was put into one megastructure as much as possible, instead of separated into several buildings.

The three fundamental spaces that make up a house are the *ondol* rooms, the *maru*, and the kitchen. In such a home, the *ondol* rooms

would constitute the private living space, the *maru* would be the communal space for the family, and the kitchen would be a necessary space for the preparation of meals. Although these three spaces were the requisites for every house, not all houses had these three features in one building at the earlier stage. This is because only houses over a certain size could feasibly have all three spaces. In addition, there were technical difficulties associated with trying to incorporate these three distinctive spaces into one building.

The first spatial integration can be seen in the houses composed of *ondol* rooms and *maru* only. As seen in the House of the Maeng Clan in Asan, one of the oldest Korean traditional houses that still exists today, many pavilions from the early Joseon Dynasty consisted of only *ondol* rooms and *maru*. The king's residence in the palace and the *sarangchae*, a detached quarters for upper-class men, were usually built using this style because it was unnecessary to place a kitchen within the building of upper-class men. Given that kitchens



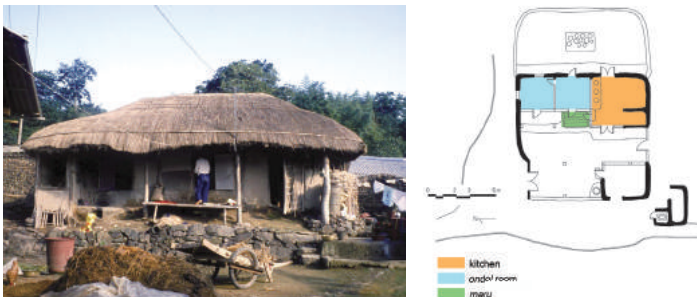
A house of the Maeng Clan in Asan, which consists of only *ondol* rooms and *maru*

were typically the workplace of servants or women, they were generally constructed separately.

From the perspective of commoners, however, the integration of *ondol* rooms and a kitchen was much more practical. The best-known housing layout for commoners of the Joseon Dynasty, called a “three-bay thatched house” (*choga samgan*, 草家三間), included a kitchen and two *ondol* rooms. There also existed smaller houses with one kitchen and one *ondol* room. These types of houses were too small to have *maru*, and instead would typically only have small *toenmaru* at the front of the *ondol* room.

In order to have a house with all three fundamental spatial requisites of *ondol* room, *maru* and kitchen, a minimum of four bays were required. These houses are found in middle-class housing of the Joseon Dynasty. The layout of these four bays was as follows: a kitchen was located on one end of the house, with the *ondol* room, *maru*, and another *ondol* room placed beside it, in this order. Other facilities such as a toilet, a barn, and a storage space were built separately.

While *ondol* rooms and a kitchen are basic necessities for living, a



Picture and floor plan of a typical three-bay thatched house

maru is a luxury that is only constructed in houses with more than four bays. A *maru* is a hardwood-floored room without a heating system, so it is hardly used during the wintertime. It is, however, an honorable place where ancestral tablets are kept and the ancestral rites are performed. A *maru* located at the center of the house, called a *daecheong*, is especially significant. This space is used for holding important family events such as weddings, and also serves as a dining room or a reception room for guests, with some families storing a wooden rice chest in this space. In large houses, there are more *maru* rooms than *ondol* rooms, and they are used for storage and relaxation.

These characteristics of *maru* are derived from two origins. One is the stilt house. For the most part, the primitive stilt house—a space with its floor resting on top of four posts driven directly into the ground—was originally used as a grain warehouse. Over time,



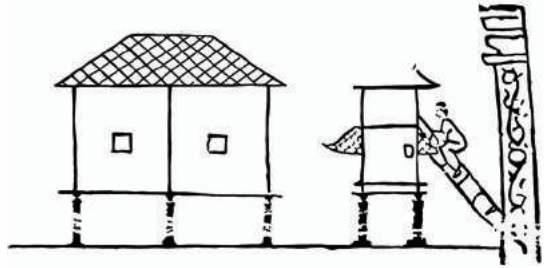
Daecheong maru in an upper-class house of the Joseon Dynasty

however, its function transformed into that of a lookout shed called *wondumak* and a summer pavilion called *jeongja*. A watchtower that was constructed for military purposes can also be traced to this same origin. These watchtowers had raised floors to prevent them from facing any direct threat while their occupants searched for approaching enemies or just took in the scenery. Traditional stilt-style houses were not limited to Korea but can also be found all over the world, especially in the coastal and mountainous regions of Southeast Asia.

Another origin of the *maru* is a low wooden bench called *pyeongsang* (榻 or 床) which can be easily seen in the Goguryeo mural paintings. *Pyeongsang* is a low raised *maru* to sit on without shoes. Even though the height of the floor is not that much higher than the ground, people who could sit on the *pyeongsang* were of the upper class. So semantically, low *maru* is similar to the platform. Adding



Jeongja (left) and *wondumak* (right)



Mural paintings in the burial chamber of an ancient tomb in Deokheung-ri depict the origins of low-*maru* (left) and high-*maru* (right)

to this, linguistically, the word “*maru*” has a common etymological origin with some words such as *sanmaru* (ridge of the mountain), *meori* (person’s head), and *mari* (head of animal). Therefore, *maru* has a connotation of being a high and noble space compared to its surroundings. It carries both practical value and symbolic significance, as explained above.

Expanding the size of the house meant an expansion of room size as well as an increase in the number of *ondol* rooms, *maru*, and kitchens within the house. If the house had five bays, then this meant that the *maru* or *ondol* room would become two bays wide. Moreover, any houses with four to seven bays would be designed with their rooms in a straight line, while larger houses would have complex floor plans. During the Joseon Dynasty, the upper-class houses usually had thirty to sixty bays, while members of the royal



Seongyojang House in Gangneung, Gangwon-do, representing the upper-class housing style of the Joseon Dynasty

family had mansions with over one hundred bays. In these large-scale houses, it was nearly impossible to place everything in a single building, so various other spaces were built separately according to different functions. The *anchae*, for example, was the main quarters for the family and where women usually stayed. The *sarangchae* was where men would typically receive guests and supervise all of the housework. Other buildings included a shrine where ancestral tablets were kept and ancestral rites were performed, a storage space, a stable, and servants' quarters. As the overall size of a house grew, every other space, including the *ondol* rooms, *maru*, and kitchens, would also become bigger. Accordingly, large *maru* sized between six and eight bays wide and kitchens and *ondol* rooms sized four to six bays wide started to appear during this period.

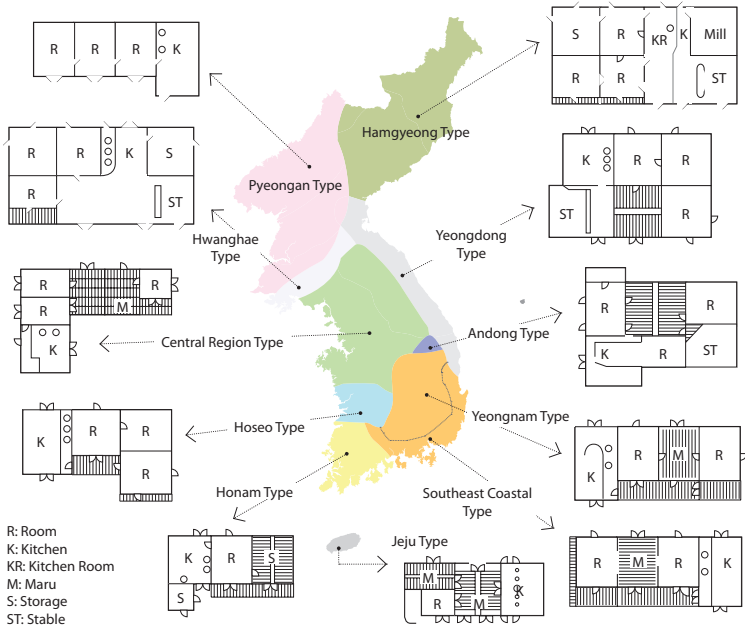
Types of Hanok

As the size of houses increased, the layout of each house became more dependent on the arrangement and size of the rooms, as well as on separate buildings in the same household. Therefore, the layout of a house differed according to the region and the family's social standing. In fact, none of the upper-class houses of over thirty bays were the same, which can be attributed to the fact that every owner had his own preferences and each house was constructed under different geographical conditions. The technique of the carpenter hired to build the house also had a great influence on the overall construction.

The floor plan of the main building of a house can be categorized into two or three layout patterns. These patterns are determined by the different ways of combining *ondol* rooms, *maru*, and the kitchen. Houses found in either the mountainous or plateau area in the northeastern part of the Korean peninsula had rooms arranged in two rows, which required more intensive composition. Even though there were environmental disadvantages, this composition was favored because it helped protect its occupants from cold air. Having rooms arranged in two rows extended the width of the house, thus requiring a wider and heavier roof. As such, an effort was made to reduce the weight of the roof by replacing the standard roof tiles with lighter materials that could easily be found in a mountainous area, such as tree bark and wood planks.

The commonness of double-row houses can be directly related to the occupations of local residents, which included collecting medicinal herbs, hunting, and farming non-rice crops. The solitary

Regional distribution of typical Korean housing in the late Joseon Dynasty



nature of such activities meant that, rather than establishing a community or village, people lived their own separate lives. Under such circumstances, houses in mountainous regions had a more defensive formation. For example, a stable in this type of house would be built as part of the house while houses further south would have their stables built independently from the main residence. Placing a stable within a double-row house would form a triple-row layout,

one that typically had a square-shaped floor plan. This type of house had more similarities to traditional Japanese houses than traditional Korean ones.

The houses in northwestern, central, and southern regions of the peninsula had slightly different variations on the general single-row layout. The northwestern region of the Korean peninsula that borders China is cold but has well-developed plains. A basic house in this region would typically have linear-shaped buildings that are usually arranged in two rows on the north and south sides of the courtyard. This composition was similar to the arrangement of a traditional Chinese house.

Meanwhile, as the size of houses in the center of the peninsula around Seoul increased, bent floor plans, such as those with an *L*, *U*, or square shape, began to be used over linear designs. These more angular floor plans were developed in order to resolve some of the land shortage issues caused by the rapid expansion of the city and its population. Therefore, instead of arranging linear-shaped buildings around a single courtyard, angular houses were built side by side or directly next to the street for more effective land use. The result of this strategy was more densely populated residential areas.

Seoul, which served as the capital of the Joseon Dynasty for over 500 years, was originally surrounded by an 18-kilometer city wall that circumvallated a 16-square-kilometer area inside. The city was composed of several palaces and national facilities, while the land directly inside the rampart was deemed unsuitable for housing due to the steepness of the slope. In the early Joseon Dynasty, Seoul's population was estimated at 50,000 people and had increased to



Hanok in Bukchon, Seoul

200,000 by the dynasty's end. By the late Joseon Dynasty, there was not enough land to build houses, so there were frequent conflicts over ownership of properties. To accommodate the concentrated population on the limited land, the courtyard-centered house was developed.

The house layout that was popular in the southern region of the Korean peninsula connected *ondol* rooms, a *maru*, and a kitchen in a single row. This way, each room was attached to another by its sides while also remaining open-air at the front and back. By creating an entrance on the front side of the room and windows on the rear side of the room, air ventilation and natural lighting were greatly improved. This formation fit perfectly with the mild climate of the central-southern Korean peninsula. Each house was surrounded by fences and was composed of several linear-shaped buildings for different functions. As such, each individual building in the house served as a separate quarters and had its own courtyard. As one



A U-shaped house (left) and I-shaped house (center) in the central-southern region of the Korean peninsula

traveled across the southern region, however, one would witness slight variations in house layouts depending on geographical characteristics such as the region's proximity to plains, mountains, and the ocean.

Jeju Island, located off the southern coast of the Korean peninsula—the country's most southward point—had a unique house layout. The major difference was that the walls and fences were formed with volcanic rocks, the most common material in the area. Also, the houses were designed with thatched roofs tied with straw ropes to withstand the strong winds. Because of the island's mild winter climate, *ondol* systems were not applied as actively in comparison to the Korean mainland, and *buttumak* were rarely installed. A typical Jeju house was composed of two linear buildings in a dou-



An I-shaped house on Jeju Island

ble-row arrangement. Buildings here were not separated by their functions as they were on the mainland, but they were instead separated for the independent lifestyle of parental and filial generations.

Styles of homes in the central-southern part of the Korean peninsula transformed as the population increased during the late Joseon Dynasty, especially in the nineteenth century. Therefore, the width of the basic home layout expanded little by little in the front and back ends of the house, and these enlarged spaces were used as part of the home's interior or were installed with *toenmaru* to make them into both indoor and outdoor spaces.

Expanding the width of the house, however, requires completely different technical requirements when compared to expanding the length of the house. Expanding the length of the house does not

require that the structure of the house be changed; builders must only continue doing what had already been done: add extra bays as a continuation of the structure. But when the width of the house expands, the roof must also be enlarged in accordance with the new width of the building, and the structure to support such a roof has to become bigger and sturdier. Thus, more advanced techniques along with bigger building materials are needed to expand the width of the building. If the width of the house was doubled, then volume and weight of the roof would octuple. Therefore, to hold eight times the original weight, the structure of the building would need to be strengthened accordingly.

Since advanced architectural techniques were applied to build all types of houses in the late Joseon Dynasty, expanding the width of the house was possible. In the early Joseon Dynasty, all skilled workers were supervised by the government. The carpenters who constructed houses were of low class, for example, and the registry of such laborers was maintained by the government offices of each district. The carpenters were mobilized to construct national facilities, including government offices, fortresses, and schools. In order to build religious facilities, Buddhist monks were educated in architectural techniques as well. As the Korean status system began to shift in the late Joseon Dynasty, carpenters no longer found themselves being managed by the government, meaning that they were able to work without any restrictions. As a result, more advanced architectural techniques began to be applied to commoners' houses during this time and, consequently, stronger and bigger houses were built.

ARCHITECTURAL FEATURES THAT REFLECT REGIONAL CHARACTERISTICS

Gulpijip and *neowajip* in Gangwon-do

The *gulpijip* (oak-bark-roofed house) and *neowajip* (shingled house) are found in the northeastern part of the Korean peninsula, as well as in Korea's more mountainous areas. Since they are located in the mountainous areas, these houses feature double-row room composition to block the cold air and maintain a warm interior space. In this case, because the width of the house is greater, the roof is made to be larger and heavier as well. To reduce the weight of the roof, light roofing materials that can be easily obtained in the local area are used.

Gulpijip uses roofing made with the bark of trees such as cone-fruit *platycarya*, sawtooth oak, and cedar, which all have relatively thick bark. The roofing of *neowajip* is made of thin pine tree plates that have been split along the grain with a wedge.



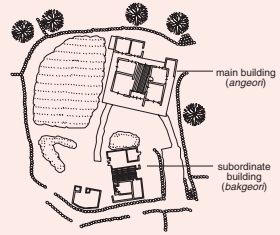
Gulpijip (top) and *neowajip* in Samcheok

Houses on Jeju Island

Due to the temperate climate, houses on Jeju Island usually consist of two linear buildings arranged in a parallel manner with the courtyard in between. The main building is called *angeori* and the subordinate building is called *bakgeori*. These houses have a double-row form even with the

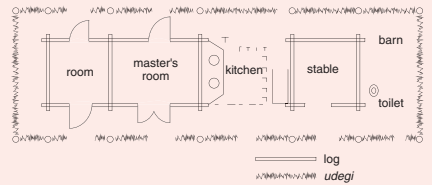


temperate climate because of the strong winds and typhoons. In other words, the purpose of this closed house arrangement is to improve wind protection while increasing the size of the house. Likewise, other characteristics such as having a low roof tied with straw ropes are also due to concerns about the wind.



Udegijip of Ulleungdo Island

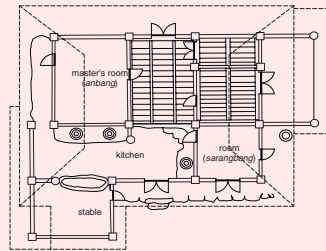
Ulleungdo Island is located in the middle of the East Sea. On Ulleungdo Island, the subordinate spaces such as barns and sheds are attached to the main building. *Udegijip* (walled house) are surrounded by *udegi*, which is the freestanding wall installed under the eaves. *Udegi* is a type of snow wall made by weaving cornstalks and silver grass into the wooden columns that cover the exterior of the building, in order to keep out the snow. Meanwhile, the main building has log-framed walls that are built by stacking the logs up so that they are parallel to the ground. This wall is built in box-frame construction, which offers the advantage of having a solid structure that can withstand heavier vertical loads. Since the structure is required to hold heavy snow loads on the roof, this log-framed wall was chosen over the general wooden structure.³



Yangtongjip (two-layered house) of the mountainous Gangwon-do area

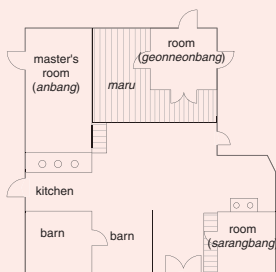
For residents in the mountainous area of Gangwon-do, the major production activities are non-rice farming activities that do not require collective labor. As a result, residents tend to live independently instead of forming a village. Therefore, every house in the mountainous area has defen-


sive-styled floor plan, focused on maintaining heating and defense. Contrary to the houses of the plain area that have several buildings to form one house, this compact house has all necessary spaces within one building due to the meaningful use of the building's exterior spaces. The most common type of *yangtongjip* in Gangwon-do is the *yeokanjip* (house with six bays). The interior of the house includes a dirt-floored work space situated between two rooms called a *bongdang*, as well as a *maru* at the center of the house.



Ttwarijip of isle regions in the West Sea

The style of house found throughout the coastal area and islands of Gyeonggi-do and Hwanghae-do is called *ttwarijip* (ring-shaped house), known for its square floor plan. Built on relatively less land than other houses built further inland from the coast, the size of such houses is also smaller than the square-shaped houses inland. The name *ttwarijip* comes from the *ttwari*, a ring-shaped object that is used when carrying a load on one's head, as the opening in the roof above the courtyard in the center of these small thatched houses resembles the hole in the center of a *ttwari*.⁴





Chapter 4

SPATIAL FEATURES OF HANOK

Confucianism and the Composition of Hanok

The Joseon Dynasty was established in 1392 by Yi Seong-gye, a general of the Goryeo Dynasty, with the support of Neo-Confucian scholars. For this reason, Neo-Confucianism was adopted as the state ideology of the Joseon Dynasty from the early stages. Neo-Confucianism was a new a form of Confucianism developed by Confucian scholars of the Southern Song Dynasty (1127–1279). Confucianism developed from the teachings of the Chinese philosopher Confucius in the sixth century BCE. There had been significant changes in Confucianism throughout the Han and Tang Dynasties. Neo-Confucianism of the Southern Song, specifically the doctrine of Zhu Xi (1130–1200), advanced a unified worldview and epistemology by applying the Chinese traditions of Buddhism and Daoism to Confucianism.

This ideology was not immediately accepted by people of different classes at the emergence of the Joseon Dynasty. By the fifteenth and sixteenth centuries, however, Neo-Confucianism was adopted everywhere—even by the country villages. The daily lifestyle of the general public was greatly influenced by the contents of a book titled *Zhuzi Jiali* (Family Rites of Zui Xi). This book describes proper conduct within the family according to the philosophies of Neo-Confucianism, such as how to promote ethical discipline in both family and social lives, as well as the detailed steps of rites of passage in the four ceremonial occasions (coming of age, wedding, funeral, and ancestor rituals). For example, this book contains descriptions of the behavioral standards for family members, differentiating between the roles of parents and children, men and women, and children and the elderly, as well as addressing family ceremonies and their procedures. The aforementioned description of Confucian ritualism influenced Korean housing and, moreover, remains influ-

The features of *hanok* was greatly influenced by Neo-Confucianism, which was adopted as the state ideology of the Joseon Dynasty.



ential in modern Korean society.

At the same time, during the Joseon Dynasty, the logistics of agricultural management presented challenges to housing design that were not faced in previous eras. Until the end of the Goryeo Dynasty (918–1392), the two most common agricultural practices—crop rotation and shifting cultivation—were carried out biennially. The rice farming practiced in China’s southern region, however, was first implemented during the late Goryeo Dynasty and spread. By the late Joseon Dynasty, southern Chinese rice farming was performed throughout the Korean peninsula. Moreover, advanced agricultural techniques such as adding compost to the soil to recover the fertility were introduced in the early Joseon Dynasty. With this advanced farming technique, it became possible for annual cultivation on the same land while increasing the density of land use.

Under these circumstances, the land of country villages was owned by the *yangban*, or the ruling class of the Joseon Dynasty,



The courtyard in *anchae* (left) and *sarangchae* (center and right)

and served as their source of income. The ruling class was mainly composed of Neo-Confucian scholars who practiced the proprieties of Confucianism. Most of these male literati believed performing ancestral rites thoughtfully and hosting their guests with the utmost devotion were their most important jobs. They spent the rest of their time reading books and supervising household chores, including farming. In order to provide the work space for the literati, the house was separated into the *anchae* (the main quarters or women's quarters) and *sarangchae* (the men's quarters). The *sarangchae* would usually be located at the front side of the house while connected to the main quarters via a *toenmaru* or were sometimes built separately. Even though the *sarangchae* and *anchae* were within the same area, visibility from one side to the other would be blocked. This means that people in the *sarangchae* could not be seen from the *anchae*, and vice versa. This was because men would frequently use the *sarangchae* to host guests, while the *anchae* was used by women



and family members only.

Among the other topics it addresses, *Family Rites of Zui Xi* clearly outlines the gender roles for men and women. According to this book, the role of an adult male is to be a patriarch. This book describes perspectives on gender roles that espouse gender discrimination, and this characteristic is reflected in the house as well. The *sarangchae*, a work space for males, is not attached to a kitchen and only consists of an *ondol* room and *maru*. The *maru* was particularly used as a space for public activities such as meetings, so various forms of *maru* were developed.

It appears that ancestral shrines known as *sadang* started to be built in a noblemen's houses during the Joseon Dynasty. A *sadang* is a place to enshrine the ancestral tablets of up to four generations of household ancestors. This custom shows that ancestors up to four generations back are still considered to be members of the family even after death. The faithful scholar's daily schedule began



An ancestral shrine, *sadang*, with a gate and fence

with paying respects to the ancestors at the *sadang*. The *sadang* was usually located at the back of the main building and separated by additional walls and a gate. For people who could not afford to build a *sadang*, they instead used a closet in the *daecheong* (main wood-en-floored hall) of the *sarangchae* or *anchae* to enshrine the ancestral tablets. On the anniversary of the ancestor's death or on major holidays, descendants took the ancestral tablets from the *sadang* or the closet, placed them on the north side of the *daecheong*, and held a memorial ceremony for the ancestors. Through this ceremony, all descendants showed their respect and gratitude to their ancestors by serving rice wine and food.

Since the *sarangchae* was built separately, the *anchae*, or the main quarters of the house, was used by family members and children, particularly women. If one wanted to leave the house from the *anchae*, one would have to pass by the *sarangchae*. One of the consequences of this feature was that female members of the family were



A *daecheong* in an *anchae*

under surveillance by the male members and therefore restricted from leaving the house on their own. Furthermore, upper-class women were expected to hide their faces with a cloak-shaped veil when they left the house.

The *anchae* was generally composed of the main *ondol* room for the highest-ranked female member of the house, a *daecheong* that served as the center of family life, a kitchen as the main work space for household chores, and a courtyard. In addition, the *ondol* room on the opposite side of the *daecheong* was mostly used by an elderly woman or a girl. Boys either used the *ondol* room in the *anchae* that was closest to the *sarangchae* or rooms in the *sarangchae* itself.

The house of upper-class landowners also had spaces for many servants and slaves, who were separated according to the gender of the person. Women were mainly responsible for work in the *anchae* while men were in charge of the outdoor work. Called *haengnangchae*, the servants' quarters were attached to the main entrance, and



A backyard behind *anchae*, with a *jangdokdae* and clay pots

male servants lived there. Female servants stayed in the inner rooms of the *anchae* or in the building closest to the *anchae* known as an *anhaengnang*.

Because the front of a house was shielded from view by the main entrance and the *haengnangchae*, the backyard behind the *anchae* that was directly connected to the kitchen became a private family space. In this private space, there were platforms called *jangdokdae* used for storing and preserving foods such as sauces and condiments in clay pots. This private space could also be used to hold a well for supplying drinking water and doing laundry, or could hold a small flower garden for enjoyment. In contrast, the yards in front of the *sarangchae* and *haengnangchae* were public spaces used as a work space for agricultural work. According to the gender role responsibilities, men mainly performed the activities situated at the front side of the house while women usually stayed in the rear of the house occupied with family activities.



Haengnangchae

YEONGYEONGDANG (演慶堂): A MODEL HOUSE BUILT IN THE PALACE

Yeongyeongdang is an exemplary model of a *yangban* house in the Joseon Dynasty. It is located behind Changdeokgung Palace, which was the main palace during the late Joseon Dynasty. Yeongyeongdang is estimated to have been built in the late nineteenth century. It is assumed that the primary objective of building this house was to teach the crown prince about civilian life outside the palace.⁵

Yeongyeongdang was constructed facing southwest in accordance with the site's natural geography. In the house, there are basic buildings including two *haengnangchae*, one *sarangchae*, one *anchae*, and additional buildings such as a library called Seonhyangjae and a pavilion called Nongsujeong. As a special case, it also includes a *banbitgan* (a type of kitchen) located north of the *anchae*. At the very front of Yeongyeongdang there is a tall gate with a *haengnangchae* next to it. On the west side of the gate are *ondol* rooms, a kitchen, and a *daecheong* for servants. On the other side, to the east of the gate, there is a stable and a barn. The *haengnangchae* by the front gate is connected to the *haengnangchae* of the middle gate.

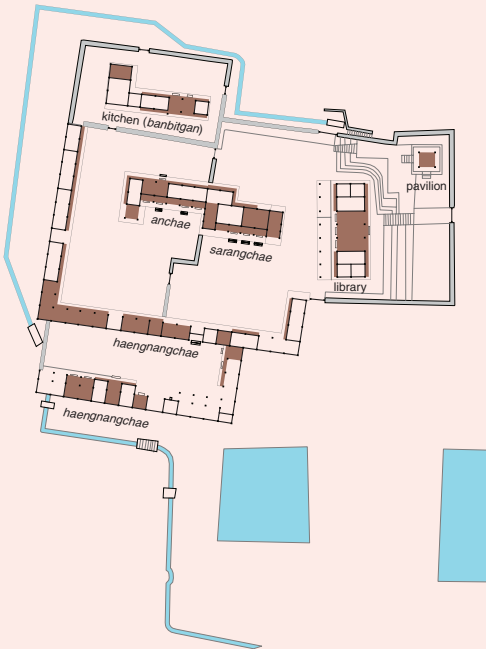
The site's *anchae* and *sarangchae* were constructed as one building; however, a wall was installed to divide them into two separate spaces to limit access. The *sarangchae* has two *ondol* rooms, a two-bay *daecheong*, a *maru* room, and a *numaru*. The *numaru* (a one-step lofty *maru* at the right corner) and *daecheong* would act as a living room, a recreation room, and a reception room during summer and as an antechamber before entering the *ondol* room during other seasons.

There is a library called Seonhyangjae on the east side of *sarangchae*. This library is an advanced facility that is only allowed to be constructed in housing for royalty.

Anchae is composed of a main *ondol* room, an opposite *ondol* room, a *daecheong* between the two rooms, and a *numaru* protruding toward the courtyard of *anchae*. In case of Yeongyeongdang, the *banbitgan*, or kitchen complex, is located outside the *anchae*. This is an unusual characteristic only found in the royal homes. A place to cook and do household chores, the *banbitgan* comprised a kitchen, two *ondol* rooms, a *maru*, a shed, and a barn.

In Yeongyeongdang, there is a detached pavilion called Nongsujeong located where the *sadang* would usually be found in houses belonging to the nobility. A *sadang* was an unnecessary building for this house because the royal shrine was built separately outside the palace. This small pavilion (sized one bay by one bay) was built on top of a raised base, and from the top of this building it was possible to enjoy the panoramic view of Yeongyeongdang and the area behind Changdeokkung Palace.

Floor plan of Yeongyeongdang (current)



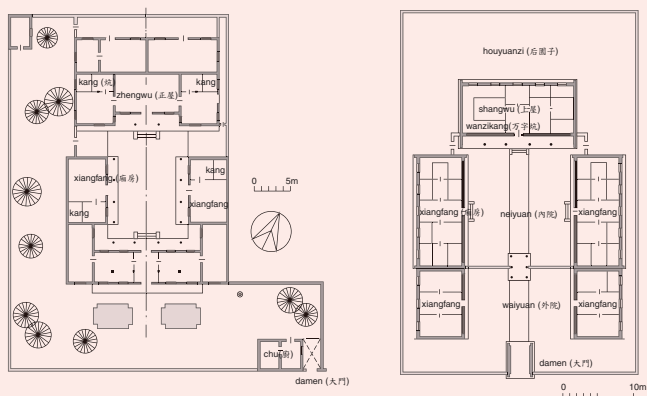
The rear view of *sarangchae* (top) and frontal view of *anchae* (bottom)



DIFFERENCES IN KOREAN, CHINESE, AND JAPANESE HOUSES

The most common layout of the Chinese house is known as the *siheyuan* (四合院), which typically includes a detached house with four buildings surrounding the four sides of the courtyard. Each building is given a distinct name, such as *zhengfang* (正房) for the one sitting furthest to the north; *dongxiangfang* (東廂房) and *xixiangfang* (西廂房), respectively, for those to the east and west; and *daofang* (倒房) for the outermost building situated next to the street.

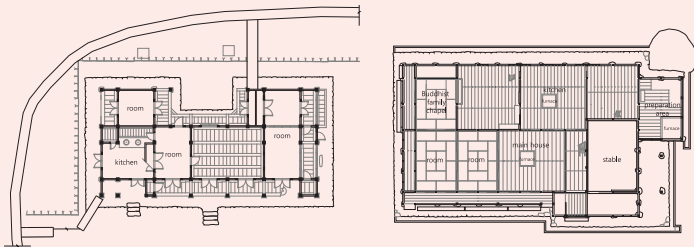
Whenever people wanted to expand the size of their house, the standard measurement unit of *siheyuan* was added. Since mainland China is very large with very diverse climates, it would be impossible to have the same style of house for the entire country. The aforementioned mentioned layout, however—either the detached *siheyuan* or the Beijing-style *siheyuan*—was the basis for all Chinese houses. In southern China, the size of the house is smaller than in the northern region. Every building in the house is connected from corner to corner, forming the closed *siheyuan* layout. The houses in the northeastern region featured an open *siheyuan* style that places buildings at the front and back with fences on both sides. Both Chinese *siheyuan* and *hanok* have a similar formation, with the courtyard being surrounded by buildings.



A house in Ningxia Autonomous Region (left)
and in Tongtian in Jilin (right)

There are diverse house layouts in every region of Japan. Generally, however, most of the houses are linear in shape with a wider width than a *hanok*. This is because Japanese houses have different room layouts compared to those of Korean houses. The main characteristic of the Japanese house is the integrated interior space composed of four to six rooms in the double-row form of a 田 shape with an attached kitchen, all under one roof. One similarity between a Japanese house and a *hanok* is the connected interior flooring and space. Every room of a *hanok* is connected by a *toenmaru* or *maru*, while rooms of Japanese houses are connected and divided with sliding doors.

Another common factor of Japanese houses and *hanok* is that the interior living space is used without shoes. This is because people in both countries traditionally have a lifestyle in which it is normal to have direct contact between the body and the floor of the interior living space. Therefore, both *hanok* and Japanese houses are known to always have clean, raised floors. This lifestyle in which shoes are not worn in the home has served to strengthen the connection among the spaces of such houses: a size expansion of the linear layout of *hanok* led to the bent “L” shape and “U” shape using connections such as *toenmaru*, while Japanese houses achieved the spatial connection without *toenmaru* by attaching rooms directly. Another difference can be found in the height of each style of house’s floor level: Japanese houses have a lower floor level than *hanok* because Japanese houses do not use *ondol* systems.



A *hanok* (Yi Geum-jae's House in Boseong)⁶ and a Japanese house

Villages and Houses

A group of houses form a village. In particular, collaborative work was emphasized during the Joseon Dynasty since rice farming was the peninsula's key industry during this time. In order to maintain this collaboration, a reasonably sized village needed to be maintained. Located in the plains, the farming villages of the Joseon Dynasty were typically composed of 50 to 150 families. This size of the village would be adjusted according to the distance between the village and the working field, with the maximum distance being four to five kilometers. If the farm was too far from the houses of some of the workers, the efficiency of farm work would become too low. As a result, village sizes were controlled by transferring families to newly developed villages whenever the size of the village became too large

The village and the working field (Yangdong village in Gyeongsangbuk-do)



for all workers to access the field in a reasonable amount of time.

Rice farming requires lots of water, thus the lowland was intensively exploited. The first priority of the land use plan during the Joseon Dynasty was to seek out suitable land to build rice paddies. Next was to pick a location for settlement while developing the surrounding land as arable fields. The rest of the land in the region, such as mountain slopes, was used to build cemeteries and both educational and recreational facilities. Most of the residential areas were developed on the foothills of mountains due to the mountainous geography of the Korean peninsula. The preference was to build on the south side of the slope because the Korean peninsula is located in the middle latitudes and therefore experiences a highly varied climate. The fields around the house were usually developed on the sloped land to cultivate crops used for various Korean side dishes.

Houses and alleys inside the village



Though people preferred to have their houses on the south side of the mountain and facing south, the most important factor for determining house placement was the slope of the land, with houses typically built so that the front side was on the lower part of the slope and the back side on the higher ground. Thus, the *anchae* was situated on higher ground than the *sarangchae*, which allowed the *anchae* to get plenty of sunlight. There is an intimate connection between this house layout and traditional Korean geomancy, known as *pungsu* (feng shui in Chinese). According to the theory of *pungsu*, dynamic energies flow along the mountain ridges. Mt. Baekdusan, located at the north end of the Korean peninsula, is referred to as the origin of the entire Korean peninsula's energy, which has since spread throughout the peninsula, including to individual houses and graves. The elevated land on which the back of the house was built was thought of as the place where energy was received from the land. This belief influenced the positioning of the *sadang*, or where the ancestral tablets were enshrined. The *sadang* was supposed to be the first place to receive the energy of the land.

The same logic was applied to villages consisting of several houses. Every summit—including those of small mountains—was considered to hold the energy of the land. Therefore, summits were left untouched. The houses of higher-class citizens, however, would be built nearest to the summits, followed by those of others in descending order of social class and family tree. Every village had its own rules to determine their building hierarchies and how strictly they were to be adhered to.

The distinctive social composition of villages during the Joseon

Dynasty is a lineage-village that has been developed by descendants of a common ancestor. This type of village was formed after the order of Neo-Confucianism was delivered to country villages. During the Joseon Dynasty, the inheritance system and the institution of marriage had changed greatly due to the effects of Confucian ritualism. For example, during the Goryeo Dynasty and early Joseon Dynasty, every child was legally eligible to inherit an even amount from their father, but under Confucianism this was changed so that the legal inheritance was exclusively limited to the eldest son of the household's legal wife. In the case of marriage customs during the Goryeo Dynasty and early Joseon Dynasty, it was not awkward to live in the

In the village, the houses of higher-class would be built nearest the summits, followed by those of others in descending order of social class and family tree.



woman's house after marriage, but this was also changed so that the women were expected to move into the man's house after marriage.

Therefore, women always moved into the men's houses after marriage, and only the firstborn was allowed to live with the father when he became an adult; all others had to live outside the house. Children inherited only their father's family name, so these changes in the marriage and inheritance system resulted in villages in which all residents shared the same family name. These types of villages are called a lineage-village. Even though most of the families had the same family name, there were still servants with different family names and some circumstances under which a man might live in his wife's house. Therefore, in most lineage-villages, more than half of the residents had the same family name. There were some unusual cases in which the village would be presided over by people from two different family names, though these were also considered lineage-villages.

It became obvious, then, that the family with the highest standing in the lineage-village was the family whose direct ancestor had settled in the area first, and that leadership was continuously passed down to the first sons. This house or family is called a *jongga*, which refers to both the head family or this head family's house. A village's *jongga* has a strong influence on all village-related decisions and is positioned at the most prominent location in the village. Generally, the *jongga* is located on the highest ground of the village or at the village's geographical center.

The development of lineage-villages during the Joseon Dynasty as the universal style of village formation was closely related to the lo-

gistics of rice farming. Rice farming requires a particular style of collaborative work for both the rice planting, weeding and harvesting. These types of work were thought to be more effective when done by groups with the same family name. The process of developing a lineage-village is as follows. Until the early Joseon Dynasty, most villages had residents with diverse family names, but because of the changes in the inheritance and marriage system, people tended to stay in their father's hometowns. Under such circumstances, conflicts arose among families with different family names as they tried to possess more land in the village. In these cases, the family with the greatest political or economic power ruled over the village. As a result, other families with different family names would leave the village and develop their own villages in different regions. The most famous lineage-villages of Korea, inscribed as UNESCO World Heritage Sites, are the Hahoe and Yangdong Villages. In these villages, the family who first settled the area left to find more arable land or to live with the family of the patriarch's wife. Afterward, the progeny of another family gradually moved in and ruled over the entire village.

Villages formed in such way show the similarities between the spatial layout of a village and the spatial layout of an individual house. In other words, if the individual house's *ondol* room, *maru*, and kitchen respectively represent the characteristics of the living space, recreational space, and production space, then the village has the group of houses acting as living spaces, arable land and fields for such purposes as rice farming acting as production spaces, and pavilions and graveyards acting as recreational spaces. Therefore, the



A head family's house visible from the entrance of Yangdong village

domain of the village was not limited to the group of houses but instead included the arable fields, green space, and mountains as well.

It is through this process that a village would finally become a complete living space for people of the Joseon Dynasty, and one can better understand the composition of each village. Most of the residents lived in their hometowns or in the villages they emigrated to after marriage for their entire lives. There were, however, some exceptions: government officials who passed the state exam and would work and reside in the capital or their appointed regions and some upper-class men who used the public facilities located at the regional center outside the village, including *hyanggyo* (local Confucian schools) and *seowon* (private Confucian academies). The village acted as their whole world; thus, every necessity was contained within the village.

HAHOE VILLAGE AND YANGDONG VILLAGE – UNESCO WORLD HERITAGE SITES

Hahoe and Yangdong Villages represent the typical *yangban* lineage-villages and historic villages in Korea. They are located in the southeastern region of the Korean peninsula, the heartland of *yangban* culture during the Joseon Dynasty. Both villages were developed in a similar way on land thought to be ideal for Korean villages—areas that have a river in front of them and a mountain behind. Moreover, the houses in such villages are well suited to the Korean climate and arranged within the village according to Confucian courtesy. In these two villages, the representative components of the *yangban* lineage-village—arable fields and natural landscapes—are well preserved. The components include the head family's house, the dwelling houses of other residents, a *jeongsa* (study hall), a *jeongja* (pavilion), a *seowon* (Confucian academy), and a *seodang* (village school). In addition, these villages also possess other tangi-

A panoramic view of Hahoe Village





Byeongsan Seowon in Hahoe Village

ble cultural heritage sites as well as intangible cultural heritage practices such as rites, traditional plays, books, and artifacts. These two villages are classic examples of Korean lineage-villages that reflect traditional Korean architecture and lifestyles. As a result, they were listed among the UNESCO World Heritage Sites in August 2010.

In traditional Korean society, the settlement of lineage-villages was typically pioneered in two ways. The first process involves an ancestor of a specific lineage selecting land as a permanent home for his descendants, as exemplified in the Hahoe Village. The other process of village formation is carried out by husbands moving to their wives' hometowns upon marriage. Yangdong Village is an example of this second pattern.

Hahoe Village is a lineage-village of the Pungsan Ryu (柳) Clan, located in Andong, Gyeongsangbuk-do. It is the hometown of Ryu Seong-ryong (1542–1607), who was a scholar-official during the mid-Joseon Dynasty. This village is situated on floodplain that is bordered by Nakdonggang River on three sides. At the center of the village is a *jongga* surrounded by the houses of the commoners. *Jeongsa* and *jeongja* can also be found along the riverside. Fields,



The *anchae* of Chunghyodang Hall in Hahoe Village

which are the financial foundation of the village, are situated beyond a nearby mountain and river.

In Gyeongju, Gyeongsangbuk-do, sits Yangdong Village, which is a lineage-village formed by the Gyeongju Son (孫) Clan and the Yeosu Yi (李) Clan. The Yangdong Village is an unusual case in which two different clans share power within the village. At first, this village was controlled by the Son family, with the Yi family moving there later as a result of a marriage. Given that both families produced many outstanding scholars, this village became recognized as a noble village. The head families of the two clans took possession of the land between the valley and the developed residential areas next to the Yangdongcheon Stream. Beyond the mountain sits a field called Angangdeul that served as the financial foundation of the village. The two clans competed against one another to build *jeongja* at the most scenic point surrounding the field.



Chapter 5

INTEGRATION WITH MODERN CULTURE

New Housing Types after the Opening of Ports

In 1876, the Joseon Dynasty formally opened its ports under the pressure of foreign powers. After this opening, foreigners, including diplomats, missionaries, and civilian businessmen from Europe, the United States, and Japan entered Korea through its ports. During the initial stage of their stay, they rented *hanok*. As they resided in Korea for longer periods of time, however, they gradually constructed their own houses and business buildings that fit their lifestyles. In the 1880s, a number of unconventional, Western-style buildings were constructed in Seoul, the capital of Korea. These buildings had brick walls and roofs made of tin plates or slates. Some were two-story buildings. At first, these buildings were called various names such as two-story house, tin-roofed house, and brick house. In 1890, this

type of building became collectively known as *yangok*, which means “Western-style house.” Accordingly, *hanok* was then used as the generic term denoting a traditional Korean house. Therefore, the terms *hanok* and *yangok* were two neologisms of modern times that were used to distinguish between the different styles of buildings after the introduction of foreign architecture.

Not all houses constructed by foreigners were brick houses. While Westerners preferred building brick houses, the first Japanese immigrants built modernized wooden buildings. When the Japanese constructed public facilities, however, they typically opted for brick buildings, and as a result these brick buildings became the representative architectural style of *yangok*. In *yangok*, every room was clustered around the middle hallway or hall within one building that had a compact floor plan. As such, the interior and exterior spaces were

The British Embassy (1892), Seoul





Left: Daehan Hospital in Seoul (1907); Center: Former Gunsan Branch Office of the Bank of Joseon (1922)

strictly distinguished and the inside was only accessible by using an entrance. *Hanok* had accessible doors and windows that connected the room directly to the yard. And in terms of layout, urban traditional *hanok* had buildings surrounding a courtyard while *yangok* placed a building in the middle of the property with the yard around the perimeter of the house. Furthermore, the major difference between *yangok* and *hanok* was the use of *ondol* and *maru* since such rooms were only used in traditional *hanok*.

The construction of *yangok* began in earnest after 1905 when many Japanese people entered Korea following their country's victory over the Russians. Around this time, there was mass construction of *yangok* that were meant to serve as official residences in urban areas, including Seoul. *Yangok* used to be constructed in small quantities by diplomats, missionaries, and businessmen as their business offices or houses. Massive official residences, how-



Former Gunsan Customs Houses (1908)

ever, were built on large plots of land in the urban center and were designed to form a complex. When Japan established a Residency-General in Joseon in 1906, this spurred the construction of official residences for management and company housing for employees. In 1910, Japan annexed Korea and established the Government-General of Korea. After this, the Government-General of Korea was able to start construction of new government offices and official residences on state land, including the grounds of old royal palaces, without any restrictions. The construction of official residences gradually escalated, and in 1921, out of 1,495 newly built houses in Seoul, 417 were official residences—approximately 28 percent.⁷

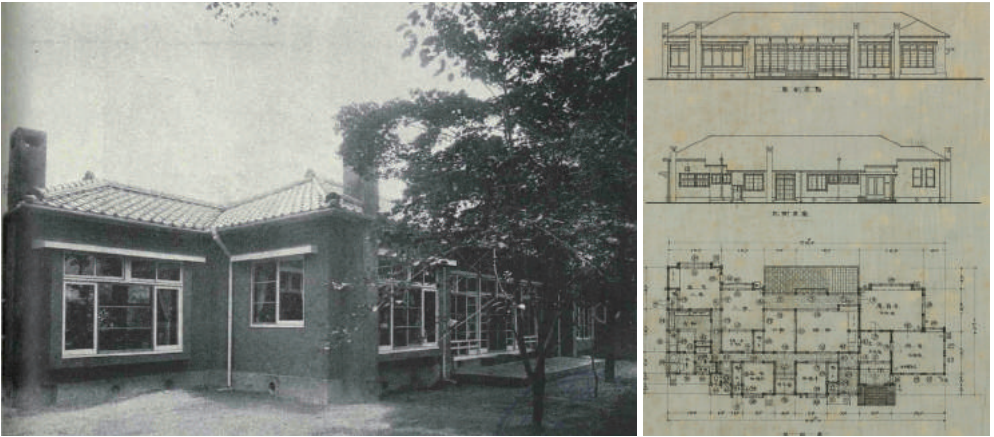
These official residences were constructed using the modern housing supply system in which buildings were constructed prior to finding inhabitants. This was different from the traditional construction process in which a person or family would request the construc-

tion of the house. With such a system in place, several standardized layouts were designed with the social position of future inhabitants in mind and were offered to such people once the construction was finished. Generally, the styles of official residence buildings were differentiated by size. For example, the governor-general of Korea was provided with an official residence of over 100 *pyeong* (330 square meters) because he was the highest-ranking government official, while local employees were provided with official residences of 18 *pyeong* (about 63 square meters), the smallest size. The latter were not considered small compared to the standard house of Joseon because 18 *pyeong* was about the same size as a *hanok* with nine bays.

In the early stages of Japanese occupation, the official residences of Japanese colonial leaders and their staff applied the style of



Gunsan Japanese-style House of Sinheung-dong (Hirotsu House)



The residence of Superintendent of Taxation Office under the Japanese occupation (left) and its design plan

modern Japanese wooden structures. Japan, having opened its ports in 1854, began incorporating Western styles into traditional Japanese wooden structures and produced what is now recognized as the pseudo-Western style or early modern Japanese style. This hybrid modern house style was applied to the official residences and included rooms positioned on both sides of a hallway that was connected to the entrance. Some of the rooms were traditional Japanese *tatami* rooms designed to suit the Japanese lifestyle. However, as the duration of these officials' stays in Korean was extended, efforts were made to make improvements that could negate the impacts of the Korean climate. The addition of *ondol* rooms was one of the representative efforts.

Japanese people, who had lived in a warmer climate, struggled to withstand the cold winters of the Korean peninsula, which has

an average winter temperature of below -10°C . They soon realized that they could not make it through a Korean winter with only a traditional Japanese indoor brazier or the type of Russian stove that was imported then. As a result, all of the official residences built after 1920s had at least one *ondol* room to help its inhabitants survive the cold winter. *Ondol* installation continued, and by the late colonial period the position of the *ondol* room moved to the middle of the house. The fact that *ondol* systems were being installed in official residences that were mainly used by Japanese nationals demonstrates the extent to which the *ondol* is a perfect fit for the Korean climate. When the official residences and private Japanese-styled houses were taken over by Koreans in 1945, after liberation, the first thing Koreans did was replace the *tatami* rooms with *ondol* rooms.

In 1920, Seoul experienced rapid urbanization. As a large portion of the population moved from rural areas to the city, Seoul suffered from a severe housing shortage. The population of Seoul was 250,208 in 1920, 302,711 in 1925, 355,429 in 1930, and 443,876 in 1935, with an annual population increase of 5.2 percent.⁸ Because of such a situation, a housing industry emerged after the mid-1920s, providing a massive number of homes. The housing industry can be classified into two categories, one being Japanese-oriented companies that provided modern *yangok* and the other being Korean-oriented companies that provided standard *hanok*, as colonization did not immediately change the demand for traditional housing styles. There was, however, a similarity between these two types of businesses in that they both distributed houses using a method that was different from the previous norms. Whereas houses were tra-

ditionally constructed upon need, the new house distribution style meant that homes were mass constructed as housing complexes and then allocated to future residents.

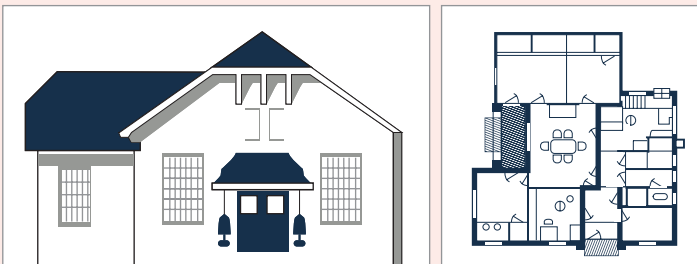
In the 1920s and 1930s, *yangok* houses that were sold by developers were called “culture houses.” This name was coined by Japanese modernists who believed that Westernization equated with modernization and created this commercial name to promote the Westernized lifestyle. The typical culture house had a master bedroom, a dining room, a living room (family room), and a children’s room that were separated according to their functions. The most up-to-date plumbing technology was installed in the kitchen and bathroom. Moreover, the placement of each room was determined by its specific function, meaning that more important rooms were positioned at the sunnier front side of the house while ancillary rooms were placed on the other side with a hallway intersecting the two sides. Most of the buildings were one-story houses, and the exterior of the building was formed with a pitched roof using cement or slate tiles and walls made of either brick or wooden boards. As the complex developed, the streets and lots within the complex would be planned at the same time. In most cases, the arrangement of lots in rows of two surrounded by roads formed a rectangular shape. Both official residences and culture houses were developed as massive housing complexes using the same floor plan, with individual houses surrounded by their own yards. This style eventually became the foundation of *yangok* and modern Korean housing.

EXPOSITIONS AND THE CULTURE HOUSE

The Japanese word *bunka* (translated as “culture,” *munhwa* in Korean) was first used in the 1910s in Japan, and gradually gained popularity on the Korean peninsula in the 1920s as a trendy form of slang. By then, *munhwa* began to stand for modernization, added to other words to suggest a “new and better version of the existing one.”⁹ This meant that a *munhwa juteak* (文化住宅), or “culture house,” was an ideal modern house that had adopted the urbanized, Westernized lifestyle that deviated from the existing housing style.

In 1910s Japan, there was a movement initiated to improve traditional Japanese houses in an attempt to alleviate the gap between the traditional lifestyle and the Western lifestyle. Some of the issues addressed by this movement were the lack of privacy existing between rooms in traditional Japanese houses and the irrational use of spaces centered on the reception of guests. This movement greatly influenced the features of culture houses. Through the model village at the Tokyo Peace Exposition of 1922, culture houses were introduced to the public, with fourteen actual houses on display. These 20- to 30-*pyeong* (66 to 99 square meters) Western-style houses targeted Japan’s middle class and offered detailed solutions to various problems that had emerged during the house improvement movement.¹⁰

The idea of a culture house was introduced to Koreans in the early 1920s. To promote this idea, an organization called the Architectural Association of Joseon held various activities such as an exhibition of culture house designs and floor plans. There was one large-scale event called the Joseon Exposition of 1929. The Architectural Association of Joseon was the exhibitor of the



Illustrations of a culture house design and a floor plan exhibited in the Joseon Exposition of 1929



An example of a "culture house"

actual culture house, and over 700,000 people visited the exhibition, an event that contributed greatly in dissemination of culture houses in Korea.

The Architectural Association of Joseon started to prepare for the display of this house six months prior to the exhibition. Their arrangement committee limited the construction cost per *pyeong* of floor space to around 150 Korean yen (the equivalent of US\$ 14,000

today) for one- or two-story buildings of 20 to 40 *pyeong* (66 to 132 square meters), targeting the middle class. However, only Japanese who lived in Korea and a small number of upper-class Koreans were able to take advantage of this style of housing because of the size and cost.

Over time, culture houses became popular in the Japanese residential area in Seoul. There were cases where a number of individually constructed culture houses would form a culture house district. The development of culture house districts by common developers or government-run companies first appeared in the mid-1920s. In the case of residential districts in Seoul, culture house districts were located near the boundaries of old Seoul, found at the foot of mountains such as Namsan, Naksan, Geumhwasan, and Daehyeonsan. These districts were also highly accessible to the city, with residents who were entrepreneurs, high-ranking government officials, professors, government employees, doctors, office workers, and bank clerks, among others.¹¹

Culture houses had a centralized floor layout (unlike traditional *hanok* that had several buildings forming a house, every room of a culture house was positioned inside a single building) and design that resembled the exterior of Western houses, such as pointed roofs and dormer windows (bay window on the roof), chimneys, porches on the front side of the house, and bay windows in the living rooms.¹²

Transformation of Hanok in the City

In the early twentieth century, Koreans responded to the dramatic changes of urbanization and house distribution patterns. To overcome a serious shortage of urban housing, Koreans accepted the inevitable mass distribution of standardized, small-scale houses, but were slow to adapt to the Western-style spaces and housing layout. Despite the modern changes related to these living spaces, including electricity, water supply, and their proximity to trams, Koreans maintained their indigenous lifestyles by wearing traditional Korean clothing and eating Korean food. In addition, they wore Western-style suits to work during the day and changed into *hanbok*, or Korean traditional clothes, during their evenings at home. This “double lifestyle” continued until the 1960s. Under such circumstances, the housing industry appeared to meet the market demand. Housing businesses purchased large lots, parceled out the land, and then constructed urbanized *hanok* to be supplied to urban middle class. The old urban houses of the upper class, including those of high-ranking government officials and members of the royal family, were the first to be torn down and developed. The houses belonging to such groups had been built on large parcels of land sized anywhere between a hundred and, in some cases, even thousands of *pyeong* (one *pyeong* is equivalent of 3.3 square meters). When suppliers bought these lands and separated them into 30- to 40-*pyeong* lots, they could construct dozens of small *hanok* to be sold. In the 1930s, there were no such lots left in the city. Therefore, the builders began developing lands outside the old city walls to be used as arable fields.

These new *hanok*, which had been mass constructed by suppliers, were named “urban-type *hanok*.” The urban-type *hanok* was developed as the original form of small *hanok* in Seoul. In Joseon Dynasty-era Seoul, *hanok* builders were already experiencing a land shortage, resulting in L-shaped or U-shaped houses with outer walls directly facing the street without fences, unlike rural houses. However, urban-type *hanok* also maximized the efficiency of land use by standardizing house sizes and building houses side by side, positioning eaves next to each other. Land was typically parceled into rectangular shapes, with there even being appearances of rows of houses under a single connected roof.

As a part of this process, urban-type *hanok* began to integrate the *anchae* and *sarangchae* of traditional houses into a single building, a structure that also incorporated both the entrance and the toilet. Urban-type *hanok* were preconstructed for the market; suppliers decorated the houses with fancy roof tiles and used thick, unnecessarily ostentatious materials in more noticeable places. Suppliers also standardized room sizes to better suit mass-produced building materials. The environmental performance of such houses improved around this time due to the use of modern building materials such as brick, tile, tin, and glass.

If official residences led the construction boom of new houses in the 1910s, then urban-type *hanok* led such a movement in the late 1920s. One of the reasons for this was that most of Korea’s urban population preferred *hanok*. Another reason was the supply value differentials for *hanok*, *yangok*, and culture houses. The construction expenses of *hanok* were less than half of the construction expenses of culture houses, which made them easier to afford.



Remodeled urban-type *hanok* in Gahoe-dong

AN EXAMPLE OF URBAN-TYPE *HANOK*: GAHOE-DONG

During the Joseon period, Gahoe-dong served as a residential area for upper-class citizens, including the royal family, and therefore had a relatively large number of large-scale lots compared to other regions. By the 1930s, however, these lots were divided into smaller parcels sized at around 30 *pyeong* (99 square meters). A group of new *hanok* was then built on these lots, leading to Gahoe-dong's transformation into an urban-type *hanok* village in the city.¹³

The urban-type *hanok* residences of Gahoe-dong formed a tree-like street system. This system was formed based on the tendency of such streets to extend in a north-south direction based on the topographic slope of the area. Since most of the lots were directly connected to the sloped road, stairs were installed at the entrance of houses to counter the angle of the hills.¹⁴

The floor plan of a typical Gahoe-dong urban-type *hanok* is a U-shape that surrounds the courtyard. Most of these houses had an entrance on the southern or eastern side of the structure. Since urban-type *hanok* were structured after remaining foundations of past homes, the direction of the entrance was thought of as a primary consideration. Most house entrances faced the east or west side of a U-shaped building opened to the south. Typical houses opened to the south with an eastward-facing entrance. This way, the *daecheong* had southern exposure while the entrance and kitchen were facing each other.¹⁵ If the entrance of the house was on the north side, then the building opened to the east.¹⁶

House suppliers used several methods to raise the value of an urban *hanok*. The room next to the entrance, called a *munganbang*, was usually available for rent, thus the floor plan was altered to improve the utility of this room.¹⁷ The house's value was also improved by transforming the tip of the beam into decorative shapes. Moreover, the eaves of the *anchae* were extended by attaching extra plates and gutters, and a wooden decorative piece was inserted between structural beams and columns.¹⁸ Another way to raise value was to divide the *daecheong* space to increase this room's otherwise nominal size. Given that the *daecheong* space served as a symbolic feature of the *hanok*, the number of bays occupied by the *daecheong* became a significant indicator of the owner's wealth.¹⁹

The Emergence of Multifamily Housing

In 1937, Japan started a war with China that influenced the policies of the Korean peninsula; put simply, the area became a supply base for the war. For this reason, many regions in the peninsula began to develop as industrial areas. The industrial capabilities of the Seoul-Incheon area in particular grew rapidly and, because of this development, population concentration in Seoul sped up after the mid-1930s. The population of Seoul was 443,876 in 1935, 774,286 in 1939, and 1,078,173 in 1943, right before the end of the war. This population increase is closely related to the development of industries and the migration of the working class to the city.

During this time, the Seoul government realized that the development of individual houses was inadequate for such a concentrated population. As a result, the city began developing multifamily houses, and on July 1, 1941, the Government-General of Korea established the Joseon Housing Authority with the objective of supplying houses to the working class.²⁰ The Joseon Housing Authority was said to be a joint organization between private companies and the government, though essentially led by the government.

First, the Housing Authority redirected its efforts away from the Seoul downtown area, providing small-scale houses between 6 to 20 *pyeong* (about 20 to 66 square meters, respectively) in size. Amenities related to urban infrastructure such as tram service, water tanks, and electricity were installed prior to this suburban development. In order to supply a massive number of houses in a short

period of time within the budget, a standardized floor plan based on the number of family members was attempted and developed by the Joseon Housing Authority. They had five models and a total of twenty-nine types: eleven types of model A sized 20 *pyeong* (66 square meters), ten types of model B sized 15 *pyeong* (49.5 square meters), four types of model C sized 10 *pyeong* (33 square meters), two types of model D sized 8 *pyeong* (26.4 square meters), and two types of model E sized 6 *pyeong* (19.8 square meters). Each model was offered to different classes. Models A, B, C, D, and E were for the high-middle class, mid-middle class, low-middle class, lower class, and workers, respectively.²¹

With the exception of models A and B, the size of the models was smaller than those of the houses for commoners. As conditions deteriorated during wartime, construction activity was interrupted and, consequently, the housing shortage continued.

During this period, an apartment, that is, a multifamily-dwelling with two stories or more, was supplied. This style of midrise multifamily housing was motivated by the emergence of studio apartments, which were provided to unmarried employees by companies. The type of studio apartment constructed in modern Japan was like a dormitory, complete with a public kitchen and bathroom. Since it was difficult to install facilities such as kitchens and toilets in every unit, studio apartments featured individual rooms and shared facilities. An example of this type of commoners' apartment was built in Seoul around the 1960s, and it was common for such buildings to have a public toilet on every floor.

THE TERM APARTMENT²²

The term “apartment” was imported from Japan in the 1920s. The first example of a building described using this term appeared in an article introducing the Japanese project known as Apartment of Dojunkai, published in *Joseon-gwa Geonchuk* (Joseon and Architecture) in 1925 by the Architectural Association of Joseon. Then, until the mid-1930s, the term “apartment” and similar terms frequently appeared in commercial magazines such as *Samcheolli* and *Byeolgeongon*. Such publications described apartments as multifloored, multifamily, fireproof houses built with reinforced concrete that could support an unspecified number of individuals as they went about their lives independently. In addition, the coverage also mentioned that apartment housing would gain prominence for offering leases on residential space. The first apartment in Seoul, named Chungjeong-ro Yurim Apartment,



Mikuni Apartment in Naeja-dong (source: *Joseon and Architecture*)



Mikuni Apartment in Hoehyeon-dong (source: *Joseon and Architecture*)

was constructed in 1930. Other multifloored official residences such as the two Mikuni Apartment buildings, one located in Hoehyeon-dong and the other in Naeja-dong, were also called apartments because of their multifloored exterior.

As it turns out, the term “apartment” is rarely used in Japan. Instead, the term “mansion” is used. In Korea, “mansion” was used to emphasize luxurious apartments; Hangang Mansion Apartment, for example, was built in 1970 by the Korea National Housing Corporation. After this, many private contractors used the name “mansion apartment” in reference to the Hangang Mansion Apartment. This phenomenon continued for small-scale, private built luxury apartments in the 1980s.

Apartments built after the 1970s were distributed based on ambitious development plans and became a representative form of contemporary Korean residential styles. According to the current architectural regulations, an apartment is defined as “a building with five or more residential floors.” One with four or less floors is called as a multiplex house.



Chapter 6

MODERN KOREAN HOUSING

Transformation in Korean Housing after Liberation

Korea was liberated from Japanese colonial rule in 1945, but was divided into north and south soon after. The Korean War followed, taking place over the course of three years starting in 1950. Therefore, housing construction in Korea recommenced after the armistice was signed in 1953. The housing construction industry mainly addressed the rehabilitation of buildings destroyed due to the war. At this time, Korea received assistance from the United States because it was difficult to effectively cover the shortage of housing with Korea's economic capacity at the time. Also, the population in South Korea was expanding rapidly because many Koreans who left Korea during the Japanese colonial period and lived in Japan and China or those who left North Korea under communist rule were

migrating back to South Korea.

According to historical pictures of Korean housing in Seoul from this period, many people lived in tents or shanties that were built illegally using building waste and constructed on state-owned lands either by streams or along the ridges.

To combat such issues, the Korean government initiated a project to supply public housing, including welfare houses. Though this was not enough to resolve the housing shortage, these efforts were significant for being the first public housing project carried out by the Korean government. Rather than building *hanok*, the housing type adopted by the Korean government was *yangok* structures made with cement blocks, paving the way for modern Korean housing. The rationale for selecting *yangok* over *hanok* was related to the availability of building materials; South Korea was lacking in wood while having an abundance of limestone, the raw material used for

Hillside town in Seoul rebuilt on an old shanty town after the Korean War



making cement.

After the liberation, brick became the standard building material for Korean public housing. Blocks were made with cheap cement, and these blocks were stacked up to build walls. Next, wooden trusses would be used to support the roofs. Briquettes made of coal made up for the lack of wood available for burning, though *ondol* systems were still used as the main source of heat. In order to have an *ondol* in the house like in a traditional *hanok*, the kitchen floor had to be installed at a lower level than the other floors, which made it difficult to lay the floor evenly. This challenge hindered the development of high-rise apartments in Korea until the 1970s, at which point a floor heating system with hot water pipes replaced the traditional *ondol*.

Besides the distribution of public housing by the Korean government, most of the houses in the 1950s were privately built *hanok*



Houses using cement blocks and light roof tiles in the 1960s

with columns and beams made with smaller, standard-sized lumber. Moreover, the structure of the roof was simplified by adopting the Japanese roof frame or Western-style truss. For example, urban-type *hanok* of the 1930s generally used 15-centimeter-thick lumber for columns²³ while simplified *hanok* of the 1950s installed 10.5-centimeter-thick columns and 10- to 40-centimeter-thick lumber beams, which were previously made of thicker wood.²⁴ To reduce the size of the structural materials, the overall weight of the roof had to be reduced. Therefore, instead of using traditional earthenware tiles, light cement roof tiles were widely used.

In 1961, Park Chung-hee came into power through a military coup. Through revisions to the Constitution and an election, he was inaugurated as president in 1963 and ruled until 1979. During this period, Korea went through unprecedented economic growth due to processing trade, or the export and processing of manufactured



Typical urban *yanggok* built in 1980s



Apartment buildings alongside the Hangang River built in the 1980s

imported raw materials and half-finished products into finished products. As a result, Korea's agriculture-focused industrial system transformed into an industry-focused industrial system and the country underwent rapid urbanization, two transitions that influenced houses in both urban and rural areas.

Within the city, both public and private suppliers produced an extensive number of detached houses in the *yangok* style in the 1960s and 1970s extensively. After the mid-1970s, the construction of high-rise apartments began. In addition, rural areas also adopted new standard housing that replaced thatched houses and traditional tile-roofed houses with cement brick buildings with slate roofs.

Most urban houses were detached houses. The walls were made of bricks or cement blocks, and wooden roof frames known as trusses were placed on the top before the roof was finished with tiles. Such houses typically had centralized layouts, and in the 1960s were usually single-story. In the 1970s, the houses were equipped with semi-basements, meaning that most of the houses were semi-two-story buildings. Later in the 1970s, houses were expanded to have three floors including a basement and above stories above the ground. Furthermore, heating and cooking systems were installed

separately. The floor heating systems improved from traditional *but-tumak* to include the use of a boiler that would heat up water and circulate heated water through pipes installed under the floor. Propane gas was also used for cooking. These improvements to heating and cooking equipment introduced innovative changes in the kitchen.

In the past, a kitchen's *agunggi* needed to be placed lower than the floor level, meaning that the kitchen floor was always lower than other interior spaces including other rooms and the *maru*. In later housing models, however, it was possible to install a kitchen at the same level as spaces that used the *ondol*.

As the level of the floor evened out, the relationship between the kitchen and *maru* also started to change. In *hanok*, the kitchen was the designated work space for women. However, in a society in which the perception of gender roles was becoming more moderate, these evenly leveled kitchens became intimate spaces, often used as dining rooms. In the past, the *maru* had been used as a space for the

A dining room and kitchen room in an apartment with an underfloor heating system



communal life of the extended family, but as family sizes got smaller, the nuclear family became more commonplace and the *maru* was used only by the immediate family. As a result, the *maru* became a living room of sorts. The integration of the living room, dining room, and kitchen into a single open space is known as an “LDK house,” which became the standard floor plan of both apartments and detached houses.

The complete integration of the toilet and bathroom into the interior space is closely related to the improvement of plumbing technology. In the 1920s, toilets in urban *hanok* and culture houses were already located within the building, but the disposal of excrement was still handled conventionally; thus, the toilet was positioned near the entrance or next to the street. As flush toilets were made available in the late twentieth century, it became possible to position toilets inside the house. In order to install all of the plumbing in one space, the toilet and bathroom were positioned together.

After the late 1970s, many two-story buildings were constructed in urban areas, including Seoul. This was done in order to improve the city’s housing density and to help alleviate the burden of an increasing population. During this process, a house that was built with reinforced concrete slabs for both the floor and the roof, called a “slab house,” became the most common construction style for detached houses. Therefore, carpenters, whose profession involved making complex wooden roof frames, gradually saw their role replaced by modern house construction. Moreover, after the last wave of slab house construction in the 1980s, changes to the design of detached houses were thrust aside as high-rise apartments began to

dominate the urban housing landscape.

The primary reason for the disappearance of *hanok* from the housing market after the 1960s is imbalanced supply and demand of building materials. The most natural material, wood, was scarce while industrial products, including the cement and oil needed to produce bricks and blocks, were available at a relatively cheap cost. In addition, the memory of the Korean War instilled a desire to have a strong, fireproof house. Moreover, *hanok* required continuous repairs that were not compatible with the work schedules of urban laborers. The size of the nuclear family as compared to the extended family also played an important role in the prevalence of *yangok*.

Korea's urban housing industry may have gone through a period of experimentation during the early twentieth century, but houses in rural areas retained the traditional *hanok* style until the mid-twentieth century. In fact, rural regions were excluded from the modernization that stemmed from the industrialization of the 1960s. During this period, the government encouraged the rural population to migrate to urban areas for the expansion of the urban labor force.

Around the mid-1970s, the government performed a modernizing project in rural areas called *Saemaeul Undong* (the New Community Movement), which involved the provision of agricultural machinery, a readjustment project surrounding arable land, and the improvement of rural housing. The improvement of rural housing proceeded by developing and supplying standard rural housing models and sharing the cost of remodeling with the government. As such, the government would provide annual proposals

for standardized rural housing according to family size and region. The proposed house layouts were similar to those of popular urban detached houses. Much like an urban detached house, a centralized floor plan that included brick or cement walls and a wooden truss roof on top was recommended. There was only one difference, however: in these houses in the rural area, there were large *maru* (living rooms) at the center of the house that would have direct contact

VARIOUS FEATURES OF THE URBAN DETACHED HOUSE

The exteriors of detached houses of the 1960s looked like those of *yangok*, but the interiors were similar to those of *hanok*. There were also some changes to the layout of the house. These changes included a shift from a wooden structure to brick walls with a wooden roof frame, the use of a pointed roof with cement tiles, and the same L-shaped floor plan with an additional loft that created an upper floor. In the yard, there was a bathroom, a *jangdokdae* (place for clay pots), toilet, and general storage space, among other things. Most of these facilities had direct contact with the *maru*. Therefore, the means of using the yard was similar to that of *hanok*.²⁵

In the 1970s, the floor of the house was installed about one meter above the ground level while a semi-basement was created underneath the floor to use as extra living space or storage. This semi two-story house was popular.²⁶ A connection between the interior space and the yard was reduced and limited to the stairway in front of the entrance. The kitchen and *agunggi* were installed on the same floor level as the backyard. The yard was then transformed from a work space, which was no longer necessary, into a garden, and a terrace was installed in front of the living room. This new housing layout was called the “French” or “Swiss” style²⁷ because the cement roof tiles were painted either red or blue, covering the pointed gable roof and giving it an exotic appearance.

From the late 1970s, the complete two-story house layout became more common than the semi-two-story house. With the emergence of leasing out

with the yard. This meant that the entrance hall was ignored. This feature was the result of incorporating the traditional *hanok's* spatial relation between the interior space and the outer courtyard. Such a feature was necessary because rural villages still required spacious courtyards for agricultural work.

the basement for rent, a plan was introduced to separate the flow of movement for each floor of the house by setting up separate entrances out of consideration for multihousing. Moreover, reinforced slabs were adopted as a roof structure during this period, leading such houses to be called “slab houses”²⁸—a trend that continued into the 1980s.²⁹ Later, the roof style changed back to a hipped roof with protruding eaves and a reinforced slab.³⁰



A typical 1970s' urban yanggok town

The Popularization of the Apartment

Although there were examples of small-scale multifamily houses for the middle class even before liberation, apartments began to be constructed en masse after the 1960s and were universally adopted by Koreans after the late 1970s.

The first apartment to be built after liberation was Jongam Apartment. It was an apartment for the working class that was built in 1959 at the base of a mountain. Since its facilities had not yet been fully upgraded—that is, its rooms still required briquettes for heating and had communal restrooms—this type of housing was not immediately embraced. This style of cheaply built apartment was widely constructed from 1967 to 1971.

For this reason, Mapo Apartment, which was constructed from 1961 to 1964, holds significance in the developmental history of Korean apartments. It was a large-scale apartment complex serving 642 households with four linear buildings surrounding six Y-shaped, six-story buildings. This was a representative model of the beginning of the apartment complex with residential buildings, stores, and playgrounds within the complex. It successfully changed the image of apartments from being cheap housing to being luxury housing. This change played a decisive role in making apartments the most popular housing type in Korea.

In the mid-1970s, a development proposal for the southern part of Seoul also played an important role in popularizing apartments. Although the size of Seoul had already expanded to the current city boundaries by 1963, it was only the old downtown and a few industrialized western areas that had been developed; the southern part

of Seoul remained rural. In order to accommodate the population growth—the population of Seoul rapidly increased to 5,530,000 in 1970, 6,880,000 in 1975, and 8,350,000 in 1980³¹—the government started developing residential areas on the east side of the area south of the Hangang River. Since houses had to be supplied in large numbers, the government opted to accelerate apartment construction.

Hangang Mansion Apartment, constructed in 1970, employed a central heating system instead of individual heating systems. This central heating system included a central boiler room, which distributed heated water to every housing unit for heating as well as hot water use. As a result, this helped spread the awareness of apartment housing as a warm and comfortable way to live. Central distribution of hot-water heating became the standard heating method of apartments. Moreover, an apartment building with stores on the ground floor was built along one of the streets, and other apartment complexes were created nearby as well. This apartment district could accommodate over 3,000 households and later became a model for apartment construction in the districts south of the Hangang River. Meanwhile, Yeouido Sibeom Apartment, built in 1971, was equipped with an elevator, which allowed for twelve to thirteen stories, in contrast to other commonly constructed five- to six-story apartments with stairs. This opened up the era of high-rise apartments.

Banpo Apartment Complex, which was constructed in 1974, was the first large-scale development in Gangnam, south of Hangang River. This complex consisted of 3,786 households and functioned as a self-sufficient community that included an elementary school,

a middle school, a community service center, a post office, a bank, a police substation, a shopping center, and even bus stops inside the complex. The popularity of apartment-oriented housing continued, leading the government to create legislation that designated land for apartment districts and prohibited the construction of any other types of buildings. The desire to live in apartment, which emerged in the late 1970s, caused people to make speculative ventures on apartments. Through the 1980s to 1990s, apartments gradually became the most common housing type, spreading from the urban areas, including Seoul, to the rest of the nation. After the 1970s, apartments targeted middle-class consumers by adopting LDK-type

Panoramic view of Banpo Apartment (1976)



floor plans that had combined the kitchen, dining room, and living room into one open space, as well as 3LDK floor plans that had a master bedroom for the head of the household and two bedrooms for children. Houses for commoners had 2LDK or 1LDK, which had fewer rooms, whereas a floor plan with four or more bedrooms was developed for higher-class families. Until the early 1980s, the heating system was constructed by installing hot water pipes underneath the bedroom floors while radiators were used in other rooms such as the living room, kitchen, and bathroom. Using a radiator, however, was not compatible with the Korean sedentary lifestyle and could not sufficiently allow a household to withstand the cold Korean winter. For this reason, floor heating systems began to be applied to the entire house.

The layout of rooms initially accepted the modern zoning plans which arranged spaces by functions: the living room, dining room, and kitchen were positioned near the entrance while bedrooms were placed together at the back of the house. However, after the mid-1980s, a living-room-centered floor plan was used, one that was very similar to the traditional *hanok* floor plan with a *maru* at the center and *ondol* rooms on the sides. As a result, the living room and dining room were placed at the center while the bedrooms were positioned on the sides. This style was preferred because it allowed more privacy within the family.

SUPPLY OF APARTMENT COMPLEXES³²

The collapse of the Wau Apartment buildings in April 1970 rapidly spread fear about apartment dwelling. The Wau disaster was caused by poor construction. The apartment had been constructed in a short period of time using cheap construction materials for the framework. As a result, construction on all public apartment projects ceased and plans to supply apartments to lower-class families were put on hold indefinitely.

For this reason, the government started targeting people who had newly joined the middle class due to economic development. In 1970, Hangang Mansion Apartment was built for 3,220 households in Dongbuichon-dong and the twelve-story Sibeom Apartment, the tallest apartment at the time, was built for 1,584 households in Yeouido. In particular, Hangang Mansion Apartment was the first luxury apartment to offer preconstruction sales by displaying a model house. Such an aggressive push by the government to convince prospective middle-class buyers to purchase apartments raised the price of the apartments. There were all sorts of expedients and trade-ups during the lottery drawing of Banpo Apartment in 1973 to convince people to buy them. The government was criticized for these efforts because they intentionally raised the price of the apartment to target the middle classes, even though their priority had been to supply apartments for the lower class.

Hangang Mansion Apartment (1970)



However, this public perception did not deter the government from the important project of developing Gangnam (the area south of the Hangang River).


The government implemented a number of institutional strategies to promote large-scale apartment complex development in the 1970s. The Housing

Construction Promotion Act of 1972 and the Specific Area Development Promotion Act of 1973 were enacted, institutionalizing financial support for the private development of housing projects and offering tax reductions. Furthermore, the government also designated specific apartment districts, which prohibited all other forms of construction in these areas. Eleven districts and a total of 3,720,000 *pyeong* (about 12.2 square kilometers) were designated as apartment districts in 1976, including such neighborhoods as Banpo, Jamsil, and Apgujeong, a number that expanded to fourteen districts in 1979. Banpo Apartment Complex One had 1,490 households, Banpo Apartment Complexes Two and Three had 4,120 households, and Jamsil Apartment Complexes One through Five were constructed in 1973, 1977, and from 1975 to 1977, respectively. At the same time, large-scale apartment complexes, including the Apgujeong Hyundai Apartment built in 1975, were built by private construction companies. Consequently, Gangnam became a major apartment residential area of the middle class.

Starting in the 1970s, active construction of large-scale apartments by public and private construction companies based on the institutional framework of the government eventually led to the redevelopment of both cities and towns during the 1980s. This was the principal factor in producing Korean society's modern uniform apartment culture. In the United States and Europe, apartment complexes were usually reserved for the lower classes. In contrast, the apartment complex in Korea was generally for the middle class, which resulted in closed, gated communities. Although there are large-scale apartment complexes available for the lower classes, an obvious classification and shunning of people living in rental apartments has generated social problems. There is an increasingly loud call for attention and reflection concerning numerous social and urban problems caused by large-scale apartment complexes, for which experts across sectors are seeking solutions.



Hangang Mansion Apartment (2016)



Chapter 7

THE PRESENT AND FUTURE OF KOREAN HOUSING

The Korean economy has grown consistently and rapidly since the 1980s, and the urban migration of the country's population has continued as well. Among all Korean cities, it was the capital, Seoul, that was at the center of the population influx. Since Seoul's borderlands were a part of the regional green belt, the development of the lands crossing over this area was accelerated. As of 2014, the population of the Seoul metropolitan area had reached 25 million residents; in other words, over half of the Korean population is concentrated in this area. Globally, Seoul has become the second largest metropolitan area after Tokyo. Regularized new development of metropolitan areas proceeded after the 1980s with the continued building of apartment complexes to pursue economic efficiency.

In 1980, President Chun Doo-hwan pledged to build five million

houses over the next ten years. The next president, Roh Tae-woo, successfully achieved his own election pledge—that is, to build two million houses—by exceeding this number during his five-year term. For the decade following 1980, Korea constructed over half a million houses per year, and most of these were apartments. Therefore, the approximate ratio of apartment housing to all other Korean houses in both urban and rural areas in 1997 was over 50 percent.

In response to Korea's tendency toward a uniform housing style, one Western scholar once ridiculed Korea as the "Republic of Apartments." Even though houses vary in size and have different floor plans depending on the builder, Korea still has a very uniform housing style because the number of differentiation is significantly low compared to the level of existing Korean apartments. This uni-

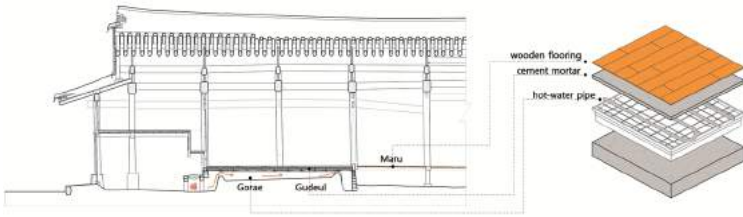
Newly built apartment complexes in the Seoul metropolitan area



formity, however, is a result of Korea's rapid modernization and the general aspiration for everyone to be equal. Another cause for uniformity is that, due to Koreans having the longest working hours in the world, a house was simply considered a place to stop and sleep, rather than being a place to enjoy family life. In addition, to Koreans, a house is predominantly viewed as an investment, since property prices have continuously increased.

More recently, however, there has been a slight change in the spatial layout of the house. In the 1980s, the living-room-centered floor plan was already in use, but there has been continuous improvement to the house and spatial layout. In particular, the introduction of *ondol-maru* flooring in the late 1980s greatly changed the interior space of apartments. An *ondol-maru* is thin but durable wooden flooring installed with hot water pipes underneath. At first this wooden flooring was only used in the living room, which was originally outfitted with a wooden *maru*, but it was later expanded to kitchen and dining room floors. Toward the end of the 1990s, bedrooms were also constructed with *ondol-maru* instead of vinyl linoleum. Moreover, in 2006, the Korean government legalized the expansion of interior spaces to include the space occupied by balconies. This means that after this point, rather than including an outdoor balcony, all apartments extended the interior space out to where the balcony would have been. Therefore, with the exception of the entrance, laundry room, and bathroom, the entire interior space of Korean apartments is now constructed on the same floor level and uniformly outfitted with *ondol-maru* flooring.

The appearance of *ondol-maru* is just like that of traditional *maru*,



Ondol-maru flooring is an integration of two flooring characteristics of traditional *hanok*: the *ondol* and the *maru*.

but it is capable of accommodating a floor heating system. This can also be explained as an integration of two flooring characteristics of traditional *hanok*: the *ondol* and the *maru*. The *ondol*, introduced to Korean housing in the mid-twelfth century, embodied unique characteristics and the Korean cultural identity and over time was designed to complement the *hanok*'s many different spaces, such as the *maru* and kitchen. Since the introduction of modern housing in the late nineteenth century, Koreans have employed trial and error while adjusting to new housing styles such as the *yangok* and apartment housing. And after all of these efforts, the formation of interior spaces has ended up similar to that of the traditional *hanok*.

When the first apartment was introduced, a modern zoning plan and modern heating system with a radiator were applied—both of which could not survive. As a result, the living-room-centered floor plan and floor heating system were reinstalled, mainly because Koreans upheld their tradition of living on a clean, hard, and heated interior floor without their shoes. This echoes the period after liberation, when the first thing Koreans taking over Japanese houses did was replace the *tatami* floors with *ondol*. Even in the 1990s, when the



A living room with *ondol-maru* flooring

expansion of balconies was illegal, Koreans installed hot water pipes on the balcony floor to make the apartment floors uniformly heated. What is interesting is that many Korean expatriates who live in locally designed housing overseas also leave a space at the entrance to take their shoes off before

entering, so that the house can remain a clean living space.

This aspect of Korean culture that distinguishes between outdoor and indoor lifestyles by putting on and taking off shoes is very similar to Japanese culture; the main difference, however, is that the *ondol* of the traditional Korean house was made of hard stone while Japanese houses had soft *tatami* floors. A *tatami* floor is designed to help keep the house's temperature cooler during hot summers while a warm *ondol* is used for cold winters. Both countries traditionally used wooden floors, but the thickness of the floor was different in that the thicker Korean *maru* was harder and more solid than Japan's soft flooring. Moreover, carpet flooring is rarely used in the modern Korean house. Even though there were significant changes to the interior design of Korean houses over a long period of time, the traditional use of interior space has been maintained.

CHANGES IN INTERIOR SPACES OF APARTMENTS

At present, there are regular patterns for the composition of an apartment unit floor plan. The space is typically arranged by first securing sufficient width for the house, positioning the living room (L), dining room (D), and kitchen (K) at the center of the house for openness and then surrounding them with bedrooms. After the extension of the balcony space became legalized, most of the unit floor plans were redesigned to include an extended balcony. For 3LDK's of 85 square meters, a length of three bays or more is a prerequisite, and an attached bathroom and a walk-in closet for the master bedroom are also necessities. For both private and public architectural firms specializing in apartment design, basic models already exist according to size, though some companies develop new floor plans as well. Apartments occupy an absolute majority in the Korean housing market, but it is impossible to present an apartment floor plan of marketable quality unless it has been generated by a specialty design company. Therefore, work for general architects is limited, and such people are usually assigned the arrangement of apartment building designs, façade designs, or landscape facilities designs.

The introduction of central heating systems meant the kitchen floor-level was raised, a feature that made it easier to create a single open space with both a kitchen and a living room. As such, the same flooring material was used for kitchen and living room floors, and *ondol-maru* flooring became the most popular design. In the late 1980s, carpet flooring was in vogue, but this trend did not last because it was considered unsanitary and was not compatible with floor heating. As a result, *ondol-maru* flooring became widely used for a residence's entire floors, including the extended balcony floors, and even replaced linoleum floors in bedrooms.

One of the features of *ondol-maru* flooring is improved wooden boards that do not warp when exposed to heat. Such floors were made by joining multiple thin veneers in crossed wooden grains with sliced patterned wood on the top. This type of *ondol-maru* flooring was first introduced in 1988 before becoming widely popular in the 1990s.³³ Though a more expensive feature in a home, *ondol-maru* flooring is durable and known for its ability to retain heat for longer. In addition, such a system incorporates wood into the home design, an important selling point for Koreans.

For the future prospects of Korean housing, it is important to consider the relationship between a house and its surrounding environment, instead of simply focusing on interior changes. A house is a primary living space for human settlement. The status and importance of houses in a person's life is determined by the society of that person's time. For example, most of the activities that would have taken place within the house during the heyday of traditional *hanok* can be done outside the house in modern times. For example, a wedding ceremony would now take place in the wedding hall and a burial service in a funeral hall, and families will now leave the



The high-rise apartment complexes in Seoul

home to eat, do laundry, meet with friends, and more. Changes to Korean houses have also been spurred on by changes in family size: traditionally, an extended family with three generations, including grandparents and grandchildren, would live in a single *hanok*. In the present, however, most families are nuclear families formed with parents and children only. Moreover, in recent times, the age at which marriage happens is rising, a trend that contributes to a higher age for childbirth. As a result, the average number of family members has become fewer than three. This has also resulted in the preference for small houses instead of large-scale houses.

Considering universal social issues, such as the disbanding of the family unit, the construction of experimental housing types other than apartments will continue to accelerate in the near future. The housing supply ratio has already exceeded 100 percent, and younger generations have shown a repulsion toward the uniformity of apartment styles. Therefore, the demand for new large-scale apartments is expected to stay low. Moreover, a house is no longer an attractive investment in Korea because of the low economic growth rate, and many unmarried older adults are no longer able to afford expensive houses. In the meantime, the concept of “share house” in which several people share a single house has been introduced and practiced successfully. For over a decade, an increasing number of families are adopting modernized *hanok* that have been redesigned to suit the modern lifestyle. There has also been an increasing demand for leisure space within the house, especially with more seniors spending their retirements living at home on their pensions.

All of the above phenomena explain the increasing demand





An increasing number of Korean people prefer detached houses to apartments for their residence.

for detached houses while apartments decrease in popularity. The problem with this change is that it is difficult to afford land for new detached houses in urban areas. An urban express road and train system recently proposed by the Korean government may improve the accessibility of the newly developing residential areas.

This effect, however, will be limited, thus a realistic alternative for future Korean housing is needed. Such an alternative would not only involve choosing between an apartment and a detached house but also improving the efficiency of the detached house in urban environments. For this reason, recently, major cities in Korea, including Seoul, have actively promoted improvement plans for old urban residential areas. Some of these proposals address the formation of local communities, a process that should be expedited to improve the weaknesses of detached-house residential areas. In addition to crime and fire prevention, these areas require support for the construction of sport

facilities, parks, day care centers, and other public facilities, as well as community centers offering house maintenance and mail delivery for each community. Such proposals will help urban villages develop into viable alternatives to the standardized apartment-oriented housing culture.

ENDNOTES

1. The temperature of North Korea was collected from the global transmitting system (GTS) in 2013 with temperatures measured in Celsius. Source: “The National Weather Service Homepage,” http://www.kma.go.kr/weather/climate/past_tendays.jsp?stn=108&yy=2013&mm=10&obs=1&x=19&y=13.
2. Average climate date of 30 years. Source: “The National Weather Service Homepage,” http://www.kma.go.kr/weather/climate/average_30years.jsp.
3. Kang Yeong-hwan, *Saerosseun hanguk jugeomunhwa-ui yeoksa* (History of Korean housing culture) (Seoul: Kimoodang, 2002), p. 266.
4. Park Seon-ju and Kim Seong-woo, “Seohae doseominga-ui pyeongmyeonhyeongsik-ui jiyeokjeok teuksaek-e gwanhan yeongu” (A study on the regional characteristics of traditional house plans from the islands of Korea’s West Coast) *Daehan geonchuk hakhoe nonmunjip* (Journal of the Architectural Institute of Korea) 16, No. 1 (January 2000), p. 48.
5. Joo Nam-cheol, *Yeongyeongdang* (Yeongyeongdang house) (Seoul: Iljisa, 2003), pp. 8–16.
6. Jeon BongHee and Kwon Yong-chan, *Hanok-gwa hanguk jutaek-ui yeoksa* (History of hanok and the Korean House) (Paju: Dongnyeok, 2014), p. 129.
7. National Archives of Korea, *Iljesigi geonchukdomyeon haeje* (Annotated architectural drawings during the period of Japanese occupation) (Daejeon: National Archive of Korea, 2009), p. 344.
8. Seoul Metropolitan Government, *Seoul dosigyehoeok* (Urban planning in Seoul) (Seoul: Seoul Metropolitan Government), p. 36; *Seoul dosigyehoeok yeonhyeok* (History of urban planning in Seoul) (Seoul: Seoul Metropolitan Government, 1977), p. 9.
9. Kim Yong-beom, *Munhwa saenghwal-gwa munhwa jutaek* (Cultural life and culture house) (Seoul: Sallim, 2012), pp. 8–9.
10. Lee Gyeong-ah, “Iljegangjeomgi munhwa jutaek gaenyeom-ui suyong-gwa

- jeongae” (The adoption and evolution of the concept of “culture house” during the Japanese colonial period in Korea) (PhD diss., Seoul National University, 2006), p. 58.
11. Lee Gyeong-ah and Jeon BongHee, “1920-30nyeondae gyeongseongbu-ui munhwajutaekjigae-bal-e gwanhan yeongu” (A study on the development of the culture village around Keijyo [Seoul] from the 1920s to the 1930s), *Daehangeonchukhakhoe nonmunjip* (Journal of the Architectural Institute of Korea) 22, No. 3 (March 2006).
 12. Jeon BongHee and Kwon Yong-chan, *Hanok-gwa hanguk jutaek-ui yeoksa* (History of hanok and the Korean House), pp. 180–182.
 13. Song In-ho, “Dosihyeong hanok-ui yuhyeong yeongu” (A study on the types of urban hanok) (PhD diss., Seoul National University, 1990), pp. 36–42.
 14. Jeon Nam-il, *Hanguk jugeo-ui gonggansa* (Spatial history of Korean houses) (Paju: Dolbegae, 2013), p. 35.
 15. Song In-ho, “Dosihyeong hanok-ui yuhyeong yeongu” (A study on the types of urban hanok), p.152.
 16. *Ibid.*, pp. 139–140.
 17. Jeon BongHee and Kwon Yong-chan, *Hanok-gwa hanguk jutaek-ui yeoksa* (History of hanok and the Korean House), p. 161.
 18. Kim Sin-jae, “Geundae dosi jutaek-ui byeoncheon-e gwanhan yeongu” (A study on the transformation of modern urban housing) (master’s thesis, Seoul National University, 1987), p. 63.
 19. Park Cheol-jin and Jeon BongHee, “1930nyeondae Gyeongseongbu dosihyeong hanok-ui sahoe gyeongjejeok baegyeong-gwa pyeongmyeon gyehoek-ui teukseong” (The socioeconomical background and characteristics of Seoul’s urban type hanok and its floor plan of the 1930s) *Daehangeonchukhakhoe nonmunjip* (Journal of the Architectural Institute of Korea) 18, No. 7 (July 2002), p. 103.

20. Domii Masanori (富井正憲), “Dongasia geoju hwangyeong-e daehan bigyo yeongu: Hanguk, taiwan, jungguk, ilbon-ui juteak yeongdan-eul saryero” (A comparative analysis of the living environment in East Asia: with the case of Housing Authorities of Korea, Taiwan, China and Japan) (Lecture presented at the Annual Conference of Daehan Geonchuk Hakhoe [Architectural Institute of Korea], 2008).
21. Jeon BongHee and Kwon Yong-chan, *Hanok-gwa hanguk juteak-ui yeoksa* (History of hanok and the Korean House), p. 184.
22. Park Cheol-soo, *Apateu* (Apartment) (Seoul: Mati, 2013); Jang Lim-jong and Park Jin-hee, *Daehanminguk apateu balgusa* (History of Korean apartment buildings) (Paju: Hyohyungbooks, 2009).
23. Kim Seok-sun, “1921-1945 nyeon-ui geonchuk jujaeryo-in mokjae-wa byeokdol-ui saengsansa-e gwanhan bigyo yeongu” (A comparative study on the production history of timber and brick as the main architectural material in 1920–1945), *Daehangeonchukhakhoe nonmunjip* (Journal of the Architectural Institute of Korea) 11, No. 1 (April 1991), p. 168.
24. Kim Dae-il, “1950nyeonda Seoul jiyek gani hanok-ui josa yeongu” (A study of the simplified hanok in Seoul in the 1950s) (master’s thesis, Seoul National University, 2009), pp. 91–105.
25. Jo Yong-hoon, “Hanguk dosijuteak-ui byeoncheon-e daehan yeongu” (A study on the transformation of Korean urban housing) (master’s thesis, Seoul National University, 1984), pp. 69–73.
26. Jeon BongHee and Kwon Yong-chan, *Hanok-gwa hanguk juteak-ui yeoksa* (History of hanok and the Korean House), p. 190.
27. Jo Yong-hoon, “Hanguk dosijuteak-ui byeoncheon-e daehan yeongu” (A study on the transformation of Korean urban housing), pp. 78–82.
28. Jeon BongHee and Kwon Yong-chan, *Hanok-gwa hanguk juteak-ui yeoksa* (History of hanok and the Korean House), p. 190.
29. *Ibid.*, pp.86–87, p. 92.

30. Jo Yong-hoon, "Hanguk dosijutaek-ui byeoncheon-e daehan yeongu" (A study on the transformation of Korean urban housing), p. 88.
31. Statistics Korea, National Statistical Office (NSO), "Population Census of Seoul," http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabId=M_01_01#SubCont. Statistics were rounded to the nearest thousand.
32. Park Cheol-soo, *Apateu* (Apartment) (Seoul: Mati, 2013); Jeon BongHee and Kwon Yong-chan, *Hanok-gwa Hanguk jutaek-ui yeoksa* (History of hanok and the Korean House).
33. "Ondolyong marupan sillae badakjae ingi" (Public interest in the *ondol-maru* interior flooring) *The Kyunghyang Shinmun* (Kyunghyang Newspaper), November 9, 1993; "Ondol marupan sijang gyeongjaeng gayeol" (Heating competition in the market over *ondol-maru* flooring) *Maeil Gyeongje* (MK Business News), December 19, 1995.

GLOSSARY

- anchae***: a main quarters for the family, main quarters or women's quarters
- anhaengnang***: female servants' quarters located in main quarters or women's quarters
- agung***: furnace
- apateu***: apartment
- buttumak***: a fireplace with cooking pit, worked by lighting a fire in the *agung* which would heat up a pot installed right above the fires of *agung*
- cheok*** (尺): measurement unit, similar to a foot
- daecheong*** (大廳): a *maru* hall located at the center of the house. / main wooden-floored hall
- gongpo*** (拱包): wooden brackets, installed at the end of the eaves for structural reinforcement as well as for decoration
- gulpijip***: oak-bark-roofed house
- haengnangchae***: servants' quarters
- hanok*** (韓屋): a traditional Korean house
- jangdokdae***: platforms for storing and preserving foods such as sauces and condiments in clay pots
- jeongja*** (亭子): a pavilion
- jeongsa*** (精舍): study halls
- maru***: wooden floor
- Munhwa Jutae*** (文化住宅): literally "culture house," an ideal modern house that adopted the urbanized, westernized lifestyle in early 1900s
- neowajip***: shingled house
- numaru***: a raised wooden floor or a loft
- ondol*** (溫突): floor heating system
- pyeong*** (坪): area unit, about 3.3m²

sadang (祠堂): ancestral shrine

sarangchae: a detached quarters for an upper-class man / men's quarters.

seodang (書堂): village school

seowon (書院): Confucian academy

Siheyuan (四合院): Chinese quadrangle / several small buildings positioned around a courtyard to form a house

toenmaru: a narrow wooden floor placed before a room

ttwarijip: ring-shaped house

udegijip: walled house

wondumak: a lookout shed

yangtongjip: two-layered house

yeokanjip: six-bay house

yeondol (煙突): horizontal flues installed beneath the floor

About the author

Jeon BongHee is a professor of architecture at Seoul National University. He was a visiting scholar at Harvard-Yenching Institute in 2003, a Fulbright visiting scholar at the University of California, Berkeley in 2010, and a visiting professor at Kyushu University in 2015. He specializes in the history of the architecture of Korea and East Asia. His major publications include the books: *3 Bay x 3 Bay*, *Hanok and the History of the Korean House*, and *The First Modern Drawings of Korea*. Over the past twenty years, he has not only focused on comparative research on the architectural traditions of the East Asian region but also contributed to establishing archives of drawings and oral history related to the modern architecture of Korea.

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