

Article

Sustainability and Variability of Korean Wooden Architectural Heritage: The Relocation and Alteration

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Abstract: ‘Relocation’ is the most distinctive feature of Korean wooden architecture, since every wooden material can be in most cases completely dismantled and moved to another place. This paper analyzes Cheongju *Mangseollu* that possesses these unique relocation characteristics excellently, because it was relocated twice in 1923 and 1999 and the building’s function was therefore altered during the process. *Mangseollu*, which was once a pavilion, was relocated and altered into a school in 1923 and subsequently relocated into a pavilion again in 1999. Accordingly, there were inevitable changes in terms of function, surface, and structure every time it was relocated. As a result, the surface was utilized as one large space without walls, when it was altered into a classroom and the wall was built around each room. Despite all these changes, *Mangseollu* is recognized as a building of late Joseon period. Therefore, this paper claims that Korean wooden buildings are maintained with unique variability through the relocation process.

Keywords: Cheongju *Mangseollu*; relocation; changes in wood elements; changes in function; traditional Korean wooden building; variability; sustainability

1. Introduction

1.1. Background and Purpose of the Study

In wooden buildings, a number of wood elements are combined, and one of the characteristics of wood elements is that it has relatively weak durability compared to other types of building materials such as stone and steel. Therefore, the task of dismantling wooden buildings, which typically replaces only damaged parts and reassembling them, is performed in areas where wooden buildings are primarily utilized [1].

Regardless of the building type, the techniques of dismantling buildings—as well as replacing, repairing, and reassembling damaged wood elements—are commonly employed for traditional Korean wooden buildings [2]. Another relocation characteristic, which accompanies dismantling entire wooden buildings, which relocates those buildings to another place and reconstructs them, is also performed regularly. Efforts are also most often made to maintain the pre-relocation value of the relocated building so that those buildings are recognizable as what they were before [1]. Hence, it can be insisted that traditional Korean wooden buildings have sustained with vitality as the same building as before despite massive alterations such as relocation and re-assemblage. In part, Sung Jin’s paper [3] and Choi Jong-Deok’s paper [4] deal with relocation of architectural heritage in Korean Palace and Kang Yong-Hwan’s paper deals with relocation in public building [5].

However, the existing scholarship that applies the concept to Korean wooden architectural heritage is very limited by far. This paper aims to identify the maximum ‘variability’ marked by traditional Korean wooden buildings. In traditional Korean wooden buildings, ‘variability’ can be

defined that alters and utilizes the process—and the purpose—of dismantling each frame, moving them to a different location, and reassembling them.

Despite all, an important point is that traditional Korean wooden buildings employ the maximum ‘variability’ concept for durability deficiencies and limitations of wooden materials, in ways to maintain the identity of the building before transformations. The term “sustainability” can be defined that traditional Korean wooden buildings maintain the identity of buildings despite transformations. What this paper pays particular attention is to find evidence in order to highlight both “variability” and “sustainability” in the case of *Mangseollu*, a historic building in which the relocation process took place to an extreme degree.

Art historian Alois Riegl once addressed a universal concept applicable to the world of cultural heritage. What he calls by “age-value (alterswert)” is indeed related in the characteristics of Korean wooden architectural heritage that this paper aims to look at [6]. It is because such a concept classifies value according to the passage of time and thus imposes a “historical value (kunsthistorischeswert)” to secure “the value of change over time”. According to “age-value”, ‘variability’ and ‘sustainability’ can be distinguished each other and also integrated in Korean traditional wooden building [6].

This characteristic appears at the report titled, *Principles for the Preservation of Historic Timber Structures*, which was adopted by the ICOMOS at the 12th General Assembly in Mexico, October 1999 [7]. Another instance is one titled *Charter on the Built Vernacular Heritage*, ratified by the ICOMOS 12th General Assembly in Mexico, October 1999 [8]. In the venues, the concepts of “authenticity” and “integrity” were comprehensively examined [9,10]. “Authenticity” is a qualitative term that addresses materials, techniques, location and design including the essence and spirit of the property, attributes and dynamic processes especially at the time of inscription. Whereas “integrity” is a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes. It is undeniable that the perspective of western architectural heritage recognizes the above-mentioned concepts [11,12].

Gregory also talks about two relocation cases that relocation of an architectural heritage is necessary according to the situation and ICOMOS had to admit the relocation gradually as making the several Chapters and Principles [13]. However, Gregory’s paper differs from this study because Jenny’s paper deal with relocation of architectural heritage as mass. On the other hand, this study deals with the relocation of architectural heritage as dismantling to each member of buildings [13].

Accordingly, in addition to those concepts of “authenticity” and “integrity” used worldwide, this paper proposes to add the concepts of “sustainability” and “variability” as key characteristics of Korea’s wooden architectural heritage. This study also believes that these concepts can be expanded to several regions in East Asia where wooden architectural heritage abound [14,15].

As a specific case study, this paper aims to examine the relocation and alteration processes of a building called *Mangseollu* located in the city Cheongju, South Korea. This choice is made in consideration of its unique history, and its notable relocation characteristics from which to explore the general features as to how traditional Korean wooden architecture performed in history. This paper also aims to demonstrate that traditional Korean wooden buildings have overcome the material weakness and maintained variability and sustainability through relocation. In addition, this paper also addresses that periodic investigations and thorough survey reports are required to achieve this.

1.2. Subjects and Method of the Study

As mentioned above, Korean traditional wooden buildings have frequently been relocated. However, in most cases, buildings were dismantled and transported to another place while the purpose, form and function of the building were maintained. In addition, another feature of historical wooden buildings is the lack of concrete records in cases where buildings were relocated a long time ago. In particular, records dating before the Joseon Dynasty (1392–1910) are archaic, which thus makes it difficult to understand the contents of relocation accurately [16].

But the *Mangseollu* was relocated twice in 1923 and 1999, which is relatively a short period of time: the 70-years difference [17]. Moreover, there was a significant architectural alteration in the

relocation process due to change in purpose. Photographs and drawings after the relocation still exist, so there is sufficient data to compare it with its appearance after the second relocation.

The appearance after the second relocation is similar to the one before the first relocation was made, thus enabling us to deduce its original appearance. We conducted field investigations of the location where *Mangseollu* existed and its current site after relocation. We also conducted a comparative analysis of the replaced frame and altered portions with the original floor plans. *Mangseollu* is a great material to study, because it provides a comprehensive amount of data regarding its appearance before and after the relocations made twice. Technically speaking, the building was selected since it currently stands as an open pavilion without walls where wooden frame replacement and repairs can easily be performed. For this reason, an investigation of *Mangseollu* can be a good exemplar, which can be applied to other traditional wooden buildings in similar ways.

The method of this study includes an analysis of photographs and drawings after the first relocation that enables to investigate the relocation characteristics; meanwhile, an analysis of the photographs and drawings after the second relocation is an opportunity to understand the content regarding the repaired and replaced sections, as well as to investigate the alterations and relocation characteristics. The expected contribution derived from these serial investigations is that *Mangseollu* has sustained in history with a maximum variability despite the relocation processes, which might have resulted in a significant degree of change so that no original characteristics of the building would remain in the present [18].

2. History of *Mangseollu* and the Recognition of Architecture

There is no record of when *Mangseollu* was first built. Some records indicate that it was named “*Chwিয়েongru*”, a local government building in the Koryo period (918–1391) which was a pavilion standing to the east of the Cheongju guesthouse (a place where central government officials used to stay). Later, in 1461, its name was changed to ‘*Mangseollu*’ when it was reconstructed. Since then it has been reconstructed and renovated several times, maintaining the name “*Mangseollu*” —a pavilion [16].

In terms of ‘its longest time’, *Mangseollu* can be viewed as a building that has been maintained from the Koryo period, the Joseon Dynasty (1392–1910), and Japanese occupation (1910–1945) to the present. In addition, during the Koryo and Joseon periods, *Mangseollu* served the purpose of a pavilion where government parties occurred and also as a place of rest. However, during the Japanese occupation when modern ideologies were propagated, *Mangseollu* was instead employed as a classroom [18]. In 1921, *Mangseollu* was dismantled to construct another building in its place. It was relocated to the site of Jeil Church. And the wooden members of *Mangseollu* were disassembled and stored. After relocation at 1923, *Mangseollu* was utilized as a school building. It has been renovated several times even during being used as a school classroom, with records indicating renovations in both 1953 and 1989 [19]. In 1999, *Mangseollu* was relocated as a pavilion at the Central park in Cheongju where it has remained until now.

Meanwhile, there are some cases in which *Mangseollu* is recognized as the Koryo period or early Joseon period. It means that one recognizes it according to the first record or the first period of construction. However, *Mangseollu* is not accepted as the building of that period but as one of the late Joseon period in terms of structural or stylistic aspects [16]. Essentially, it is considered that Koryo period or early Joseon period architecture no longer remains because of the numerous renovations performed over a long period of time. It can be seen that there are big differences even within the period of 70 years in which two changes took place, to which this paper pays particular attention. Thus, it can be assumed that there had been a great deal of changes over the centuries, which is beyond the original appearance.

In most cases *Mangseollu* is considered a late Joseon period building. It was designated as a tangible cultural heritage No. 110 of Chungcheongbuk-do in 1982. Subsequently it was relocated in 1999. Given that *Mangseollu* maintained its value as a cultural heritage despite being relocated after being designated as a cultural heritage, it can be said that *Mangseollu* is still recognized as a historical building. Therefore, *Mangseollu* is generally considered a late-Joseon-period building [20]. There is

no evidence that *Mangseollu* is recognized as a building after 1999, which implies that it was recognized as a historical building that maintains the architectural elements of the late Joseon period despite the relocation made afterwards.

3. The Original *Mangseollu*

Based on the Cheongju Eupseong-do written in the late Joseon period (Figures 1 and 2), the original *Mangseollu* was a pavilion belonging to the local government that served as a national guesthouse. *Mangseollu* is located between guesthouses in the east and the north gate in the west. There are several buildings to the south and southwest of *Mangseollu*. A fence surrounds the guesthouse area and the governor's office is directly attached to the south of the guesthouse. Given that trees are planted adjacent to *Mangseollu*, the pavilion was located in an ideal site with an excellent natural view.

The precise architectural structure and formation of the original *Mangseollu* are unknown, but it can be assumed that it was similar in structure and shape to the present one. This is because the present *Mangseollu* was 'restored' by assessing *Mangseollu* of the Joseon Dynasty using various data. However, before and after the beginning of the Japanese occupation, it lost its function as a pavilion and was utilized as a township office building and school classroom. Therefore, it can be speculated that there were already several deformations even before it was dismantled in 1922.

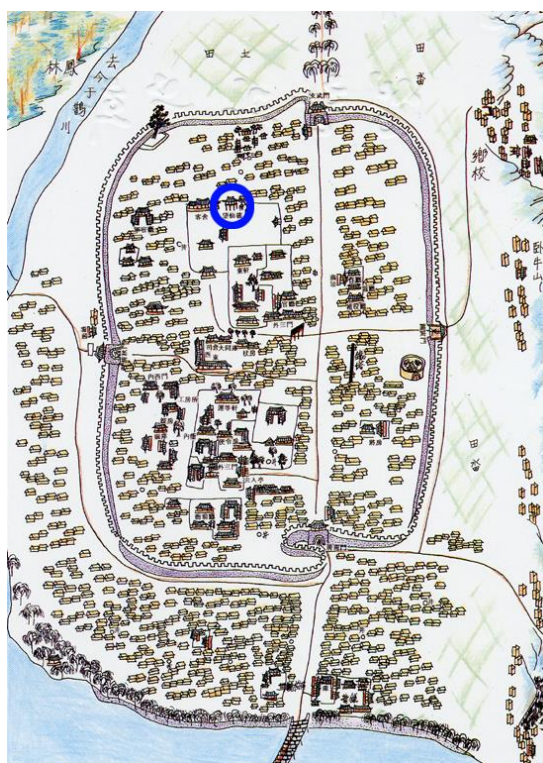


Figure 1. Cheongju Eupseong-do: The original location of *Mangseollu*. (Source: Jeonnam Unjoru with author's edit [21]).

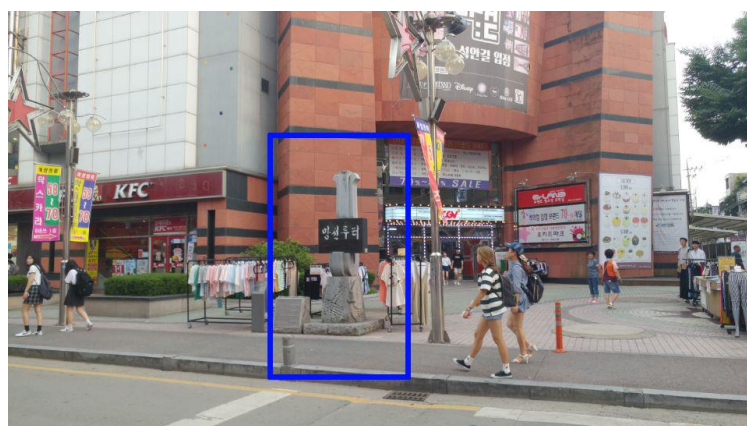


Figure 2. The monument that marked the location of original *Mangseollu*. (source: author).

4. The Year 1923: The First Relocation of *Mangseollu*

Mangseollu was dismantled in 1922 to build another building on the *Mangseollu* site. It was relocated in 1923 and the School Foundation of the Jeil Church purchased the disassembled components to construct a school classroom. It was utilized for various purposes as a church facility [17]. After the first relocation, several renovations were performed with records indicating works in 1953 and 1989. Among these records, drawings were included in the records of the renovation work performed in 1989, which helps us to better understand the architectural situation [19]. Hence, it can be assumed that there were a number of changes made from 1923 to 1999 (Figures 3 and 4).

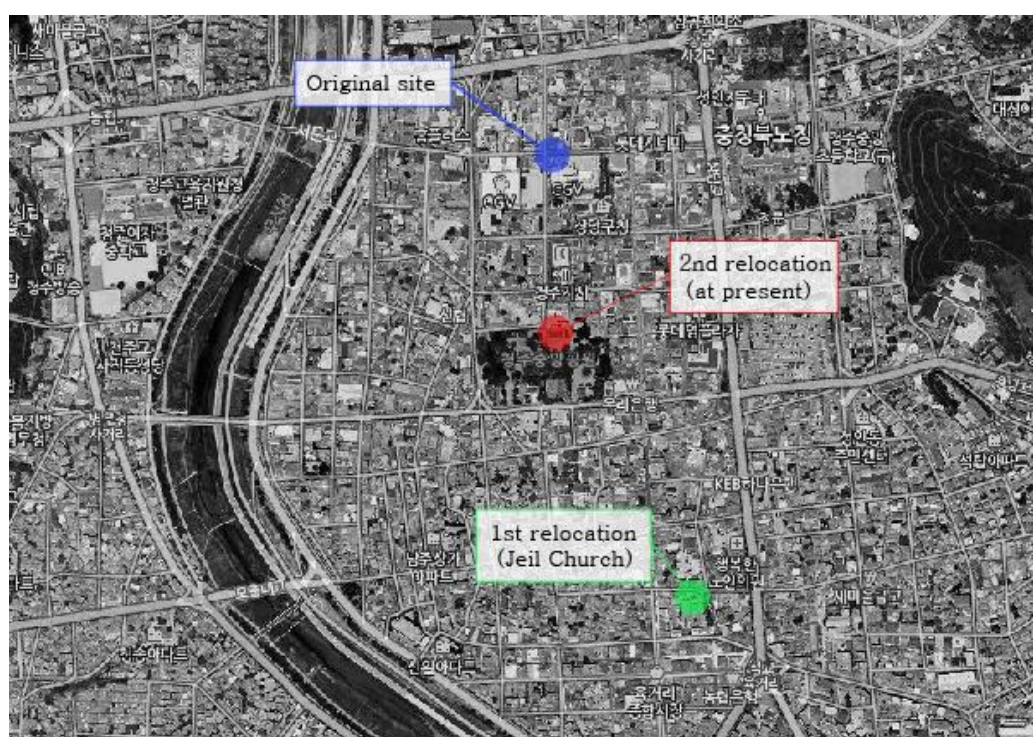


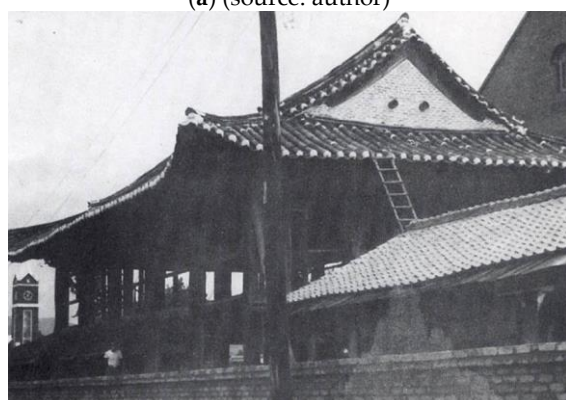
Figure 3. Location of the relocations of *Mangseollu* (source: author drawing based map).



(a) (source: author)



(b) (source: Cheongju Cityhall)



(c) (source: Cheongju Cityhall)



(d) (source: author)

Figure 4. Changes of location of *Mangseollu* (a) The original location of *Mangseollu*; (b) *Mangseollu* during the Japanese occupation period; (c) *Mangseollu* under renovation in 1953; (d) *Mangseollu* in present day.

4.1. Changes from 1923 to 1999

In comparison with the 1935 picture (Figure 5), the one taken in the 1990s just before the dismantlement (Figures 6 and 7) indicates four different changes as identified below:

First, in the 1935 picture, the exposed wooden columns on the first floor were led to the second floor. Conversely, in the 1990s one, the first floor is made of square-shaped columns and is painted with the same color as the surrounding walls. Second, in the 1935 picture, *toekan* (adjoining outside bay) that seemed to be installed on both sides of the building was added; whereas in the 1990s picture, it no longer disappears. Third, in the 1935 picture, the horizontal timber that differentiates the first floor from the second is visible, while in the 1990s picture it is not visible. Last, the shape of the window notably changed. From these facts, it can be seen that *Mangseollu* underwent a number of changes from 1923 to 1999.



Figure 5. The picture of the year 1935 (source: Cheongju Cityhall).



Figure 6. The picture of the 1990s (source: Cheongju Cityhall).



Figure 7. The picture taken just prior to the dismantlement in 1999 (source: Cheongju Cityhall).

4.2. Analysis of the 1989 Renovation Drawings

The first floor is designed to enter from the front center, and a hall is formed inside the front central bay. The hall has a staircase up to the second floor and there is a lavatory behind the stairs. A brick wall divides both sides of the central bay. The left-hand column is divided into three spaces by a wooden paneling, and the right-hand column consists of one wide room.

The structure of the first floor is made of a round wooden column, but the periphery of the column was augmented with cement mortar and thus has a square shape. The outer wall is made of brick. No columns are installed on the first floor so that the large space can be utilized. Long windows are installed on the front and rear side. The second floor can be accessed via the central staircase. On the second floor, there are rooms on both sides based on the central bay, with a small room of uncertain purpose in the front. The unique feature is that, given the stairs are painted on the front section of the second floor and the door is drawn on the front view, the stairs were created as a passage to be directly accessed from the adjacent building to the second floor. This passage can be seen in the picture just before the dismantlement in 1999 (Figure 7) as well. The walls of the second floor comprise bricks, and the front and rear sides comprise woods. The circular columns are exposed and thus have a different structure from the first floor.

In this regard, the walls and internal facilities of *Mangseollu*, which had undergone the first relocation process, have been altered so that it can serve as a school building, changing functionally from the existing pavilion. However, the longitudinal and cross-sectional views reveal that the primary structural sections utilize the existing wood frame structure as it is. Given that the circular wooden column was used while the column section was finished with cement, efforts were made to utilize the existing components as much as possible. Although it is not possible to verify whether individual wood elements were also utilized before the 1923 relocation, it can be assumed that some wood elements were replaced (Figures 8 and 9).



Figure 8. The picture taken during the dismantlement in 1999. (all figures source: Cheonju Cityhall).

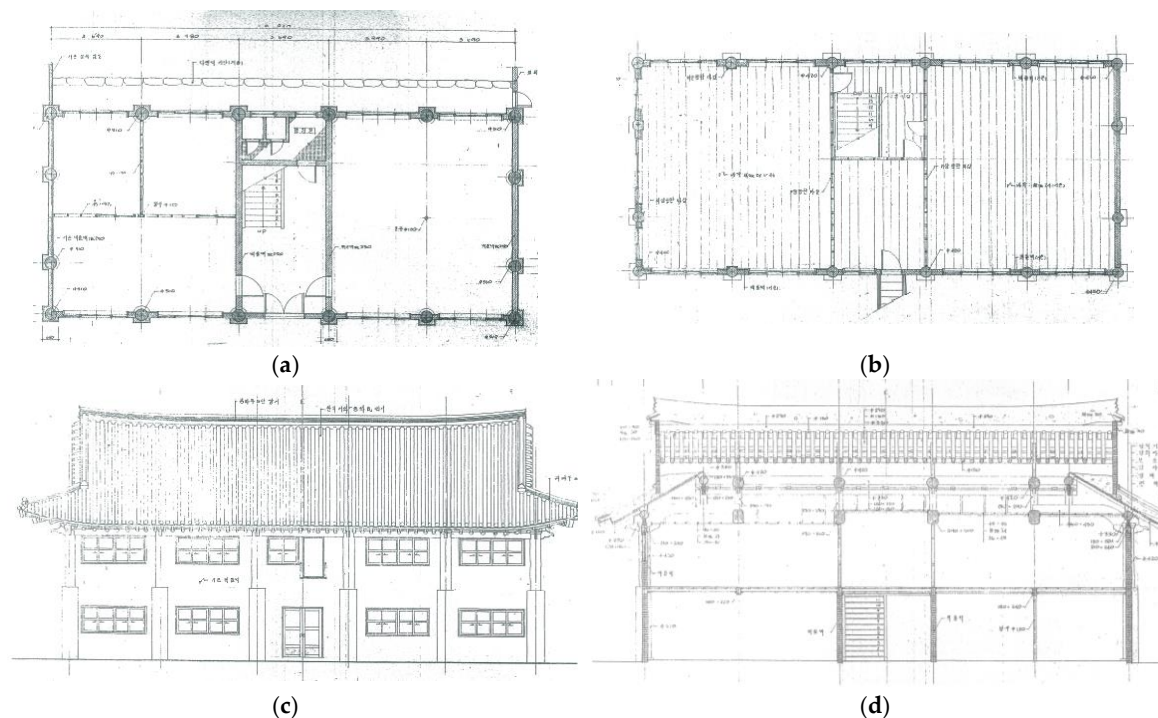


Figure 9. The drawings of *Mangseollu* before dismantlement in 1999; (a) Drawing of the 1st floor; (b) Drawing of the 2nd floor; (c) The front view; (d) The longitudinal sectional view. (source: National Archives of Korea, author edit).

5. The Year 1999: The Second Relocation of *Mangseollu*

In 1982, the architectural and historical values of *Mangseollu* were recognized so that it was designated as a cultural heritage of Chungcheongbuk-do [20]. However, it did not capture people's attention since it was located within the church. Moreover, despite the partial renovation conducted in 1989, the building itself began to slant in one direction. This led to a relocation issue, but that was impossible because its original location was in a building-dense area as shown above (Figure 2). Therefore, in 1999, relocation and construction began in a central park (Figure 10), which was not the original location [18]. The reason that *Mangseollu* was relocated to the park was that, as a cultural heritage, it was given a public characteristic; this historic building was relocated to the park to ensure that people could view it and to be managed as a public cultural property. Moreover, the relocation was also made to restore its function as a pavilion as in the Joseon period. Therefore, the purpose of the second relocation was to restore its pristine form that had once existed in the past.

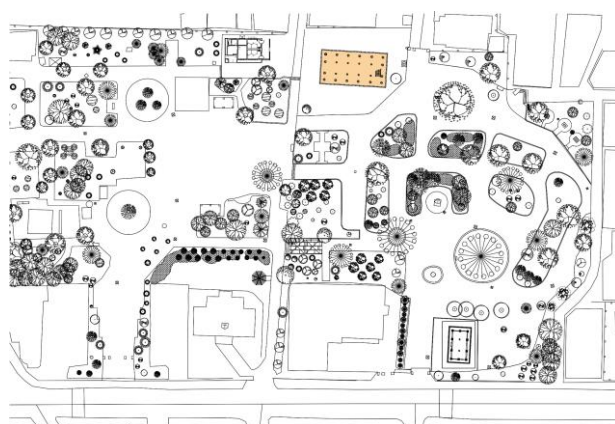


Figure 10. *Mangseollu* that was relocated for the 2nd time into the central park. (source: author).

5.1. Analysis of the Floor Plan of the Present *Mangseollu*

Today's *Mangseollu* consists of five bays in the front and three bays on the side, comprising an area of 18.9 by 8.4 square meters (This size is the same as before its relocation). The first floor is the lower section of the pavilion and does not have walls, and its bottom floor is made of compacted soil. For the columns facing the outside, a circular column with a diameter of 480 millimeter was utilized and a 360-millimeter column, a smaller diameter than the exterior one, was utilized inside. Therefore, the foundation stone of the exterior column is larger than the one for the interior column. The stairs are installed on the right side. Meanwhile, the second floor is designed to function as an upper layer of the pavilion. The exterior columns begin on the first floor and extend to the roof structure. Hence they are inevitably large, becoming long components that playing an important role, leaving no other choice but to reuse them if possible.

The interior column is installed only along the rear side column and not along the one for the front. The diameter of the interior column is 360 millimeter, which is smaller than the exterior one. The interior column on the second floor is thus provided with a different component than the one on the first floor. The interior column supports the main girder and is simply attached to the upper structure. Moreover, since interior columns are not typically installed asymmetrically in a pavilion, it can be assumed that they were installed recently to secure the stability of the upper structure. The walls are not installed, and the railing with traditional patterns is newly installed along the column line. Therefore, although it has undergone several changes compared to when it was used as a school building, the scale, existing upper structure, primary structure columns, and other aspects have not much changed.

5.2. Traces of Renovation and Replacement

Since relocation is a large construction that dismantles the entire building and moves it to a new location, several components are replaced or partially repaired to be utilized. *Mangseollu* in particular, as it was once used as a school building before relocation, has sections connected with other components that have become unnecessary because of the nature of wood elements. Thus, numerous restorative tasks such as renovating damaged sections and reusing them abound. The relocation data does not provide any such information, and thus it is impossible to assess how many components have been replaced and renovated [22].

Moreover, aside from the two rounds of relocation, several renovation works were performed and thus there is no choice but to infer that some of the components have been replaced and renovated. However, as with relocation, there are little available data to examine how many times of renovations were conducted or to what extent they were made. Furthermore, it is difficult to identify traces because they are now decorated with *dancheong*, a traditional Korean painting pattern employed in wooden buildings.

Nevertheless, identifying traces of renovation by investigating the present *Mangseollu* is the most accurate method to confirm that they are the components before relocation. A component with traces

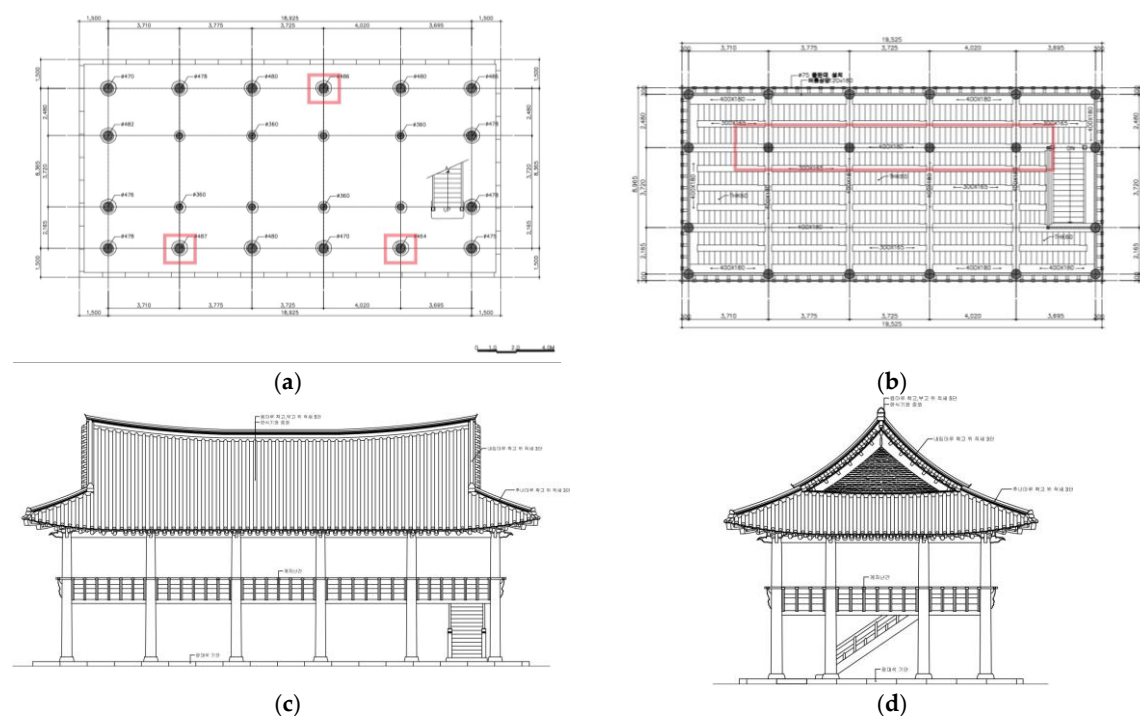
of renovation has significant value different from that of a replaced component, since it is considered a component before renovation or relocation. Three reasons can be raised in this regard: The first is that the reuse of components utilized before relocation is perceived as symbolizing the continuity of the building; Second, reusing components after repair confirm that the building's sustainability is high. Third, the variability of traditional wooden buildings can be confirmed because assembling is only possible when the shape of the newly replaced component and the shape of the existing component are similar. [23]

5.2.1. Traces of Renovation of Exterior Columns

Among the wood elements in wooden buildings, the exterior column is generally a component that is reused the longest because of its considerable size and difficulty in handling. Conversely, it is also the component with the most traces of renovation because it is easily damaged. In the case of *Mangseollu*, the process of relocation where its function was altered was performed twice, and renovation works were repeated numerous times so the traces of renovation inevitably left in the exterior column were not completely replaced.

The columns were initially exposed after the first relocation, but later the first floor section of the exterior column was covered with cement mortar, and thus the columns retaining traces of renovation are those before the second relocation. In addition, if traces of renovation remain on the first floor section, they should have a more significant meaning because they are older components that were utilized since the Joseon Dynasty before the first relocation.

As illustrated in Figure 11a, traces of renovation could be found in three different columns. Among them, two were obtained by repairing the grooves for inserting the components on the column side of the first floor section, and it can be presumed to be a component from before the first relocation. This is because there was no necessity to insert a new component as *Mangseollu* was used as a school building after the first relocation and the exterior column was covered with cement mortar. Moreover, one column had been repaired since the lower section of the column was damaged, indicating that this component was utilized at least before the second relocation. (Figures 12 and 13)



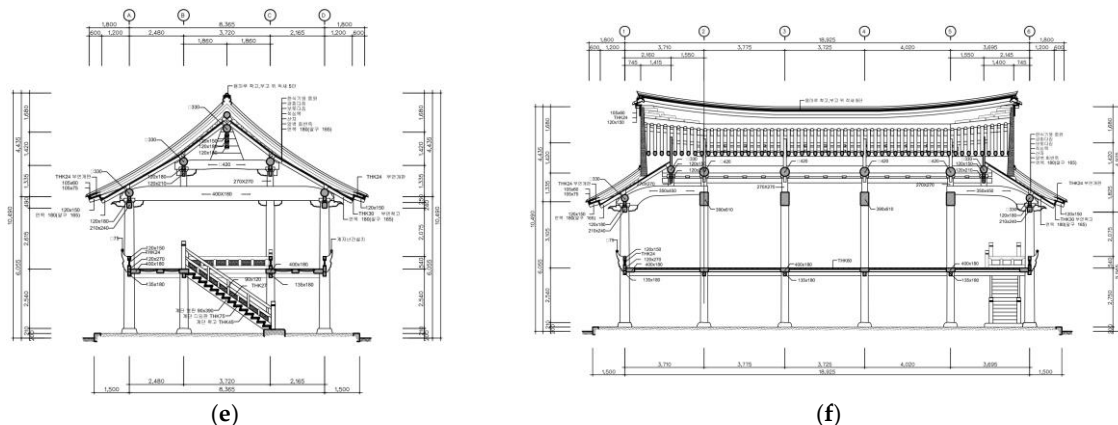


Figure 11. The drawings of present *Mangseollu*; (a) Drawing of the 1st floor (Marks indicate the columns with traces of renovation); (b) Drawing of the 2nd floor (Marks indicate the newly added columns); (c) The front view; (d) The lateral view; (e) The longitudinal sectional view; (f) The cross-sectional view. (all figures source: Cheongju Cityhall).

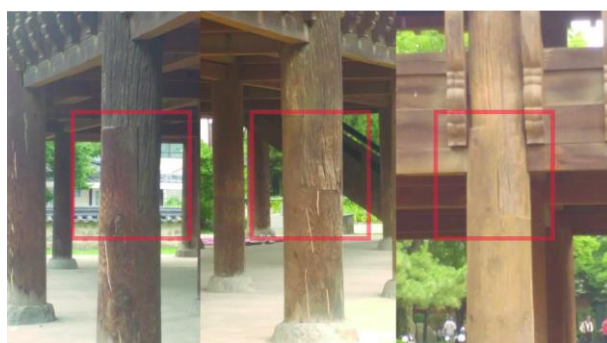


Figure 12. Traces of renovation of the exterior columns on the 1st floor. (all figures source: author).



Figure 13. Traces of renovation of the exterior columns on the 2nd floor. (all figures source: author).

5.2.2. Traces of Other Repaired and Replaced Members

Comparing the present *Mangseollu* that underwent the second relocation with the period when it was used as a school building after the first relocation, indicates that various parts were replaced in addition to the exterior columns. Particularly, the interior column, the railing, and others are new components because it is certain that they were recently constructed during the second relocation.

However, most of *Mangseollu's* components are difficult to differentiate as those before relocation or newly replaced ones during relocation. Furthermore, because it has been 20 years since the second relocation, identifying them is more difficult as the replaced components have aged. A repaired component can be more easily identified than a replaced component because visual confirmation of the repaired sections is possible. For instance, as illustrated in Figure 14, the most visible traces of renovation in the upper structure are the main girder and upper beam main girder.

Two of the four main girders were reinforced by covering the partially damaged sections with a metal strap; three of the four upper beam main girders were reinforced by covering the damaged sections with a metal strap.

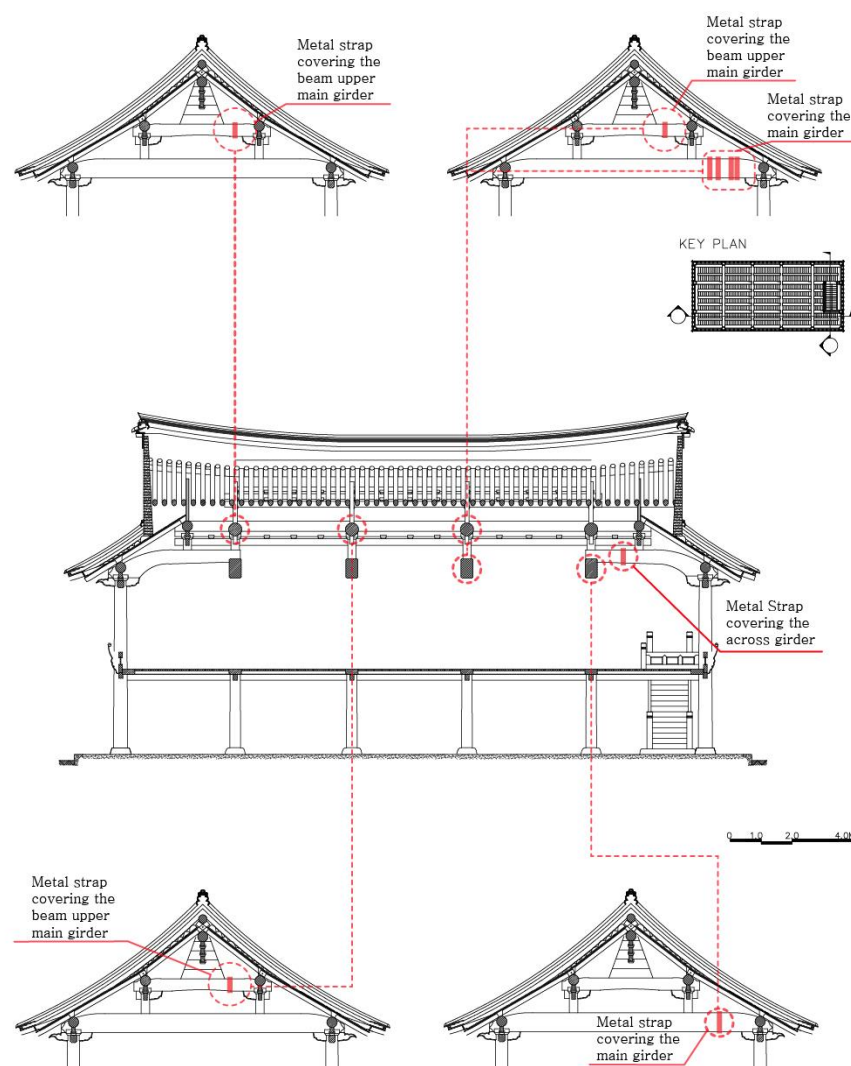


Figure 14. Repaired parts in the main girder and beam upper main girder. (all figures source: author).

Moreover, the damaged sections that now have metal straps installed thereon are on the rear side of the building, essentially referring to where the interior columns are installed. Given these points, the interior column of the second floor may have been installed recently to reinforce the damaged section of the main girder and upper beam main girders. And the components before relocation were utilized as is for the main girder and upper beam. Finally, as depicted in Figure 15, we found that the *dancheong* color of some rafters were different from others, thereby confirming that some rafters were replaced during renovation or relocation.



Figure 15. Traces of the reuse of wood elements. (source: author).

6. Conclusions: The Meaning of Sustainability and Variability Observed through the Relocation of *Mangseollu*

Through an in-depth case study of *Mangseollu*, this paper addresses that relocation implies completely dismantling wooden building, thereby moving the components to another place and rebuilding its entirety. What is brought forth are inevitable changes that unfold throughout the process, and *Mangseollu* is a representative example displaying such changes in a considerable degree. Despite that, this building has maintained its vitality as a building that has values that had existed before the serial relocations. In particular, *Mangseollu* is a work illustrating variability and sustainability depending on its characteristics as a wooden building, which brings forth an intellectual platform from which to explore Korean wooden architecture according to the notions of variability and sustainability. Following are the re-articulated summaries of both terms in broader contexts, which provide a new way of exploring the field of Korean traditional architecture through both theoretical and empirical research.

6.1. Meaning of Sustainability

As mentioned above several times, traditional Korean wooden buildings are maintained through frequent dismantlement, renovation, and replacement of components. Buildings that have undergone such changes have been recognized as the same buildings as before. To connect an existing component to a new component while renovating a wooden structure, the new components must utilize the same structure frame in manufacturing and assembly employed in the previous components. The same shape utilized by the previous components should be employed to reproduce that section. For example, in the case of *Mangseollu*, the joints of the replaced exterior column must maintain the same shape as the existing exterior column, which allows to join the exterior column to the existing components. Moreover, traces indicative of being connected to other components inevitably remain in the repaired exterior column.

In wooden buildings, any difference in the shape of the existing component and the new one causes imbalance, although the overall shape maintains the same shape as the existing exterior operation. This is also visible in the exterior columns of *Mangseollu*. At least three existing components have been identified, and although there are newly replaced exterior columns, and only those with confirmed repaired sections can be identified using the existing components, which makes it difficult to visually distinguish between existing components and new ones. Hence, because it is necessary to use a similar technique to the one dealing with existing components, the building is considered to maintain sustainability in terms of the technical aspects of building construction.

Traditional Korean wooden buildings are predominantly characterized by a framed structure that is divided into a structural section, which supports the weight, and a decorative section. Decorative sections can be altered but structural sections are generally maintained. In *Mangseollu*'s framed structure, for example, the structural section was maintained despite being relocated and utilized as a classroom. The sectional drawings in Figures 9d and 11e,f indicate that the upper wood frame structure was maintained. The exterior columns were maintained despite being covered with

cement mortar and altered to a square shape in order to serve as a school building. By all of those analyses, this paper argues that *Mangseollu* ultimately possesses sustainability in a structural sense.

6.2. Meaning of Variability

Buildings are maintained and utilized for a long period of time. Therefore it is natural to alter their usage based on the requirements, leaving us no choice but to make appropriate changes. Likewise, there have been considerable changes in the use of *Mangseollu*—from a pavilion, which was used to enjoy the scenery or hold a banquet, to a classroom where lessons were provided. The implications of *Mangseollu*'s sustainability are significant, as it has recently regained its use as a pavilion through relocation, although it has well maintained its fundamental structure and shape from the notion that sustainability and variability coexists in such a typology in Korean settings.

Traditional wooden buildings are inevitably repaired and replaced while being maintained for a long period of time. In particular, when there is a considerable change during relocation and repair, many components are inevitably repaired and replaced. Several components of *Mangseollu* have been replaced in the process of relocation and renovation. It is balanced by being a combination of previous components before relocation, repaired components, and replaced components. Particularly, given that the repaired and replaced components can be identified in the columns and ridgepoles, and that new components were added including the interior columns and railings on the second floor, the variability becomes prominent.

Because traditional Korean wooden buildings are framed structures divided into structural and decorative sections, the decorative section is altered considerably as required while maintaining the structure as far as possible. The superior authenticity of traditional Korean architecture is placed on the degree of conservation in the structural section of the wooden structure than the decorative section. Based on *Mangseollu*'s relocation process and its characteristics, traditional Korean wooden buildings are taken into consideration to have a high variability and maintain their sustainability despite changes. Moreover, work is conducted on traditional Korean wooden buildings through 'relocation' to exceed insufficient durability, and is extended to the portions that expand and secure the opposing concepts of "sustainability" and "variability" in buildings.

By implementing the concepts in this study supplement those within Alois Riegl's theory of the monument, "age-value (alterswert)" and the principles of ICOMOS, this paper concludes that the recognition of the variability and sustainability of wooden buildings requires an expansive intellectual perspective; And this paper has aimed to propose the dual concepts of 'sustainability' and 'variability' as key characteristics defining Korea's wooden architectural heritage in addition to the worldly acknowledged concepts of "authenticity" and "integrity." Periodic investigations and thorough survey reports are thus necessary to accomplish this task, especially if heritage is fundamentally put on the state of constant change.

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