

Comparative Review on Occurred Defect Data and Term of Warranty Liability to Landscape Work in Apartment Building Complex

Junmo Park¹, Deokseok Seo^{*2}

¹*Kyungsan Engineering Co. Ltd., 266 Seocho-daero, Seocho-gu, Seoul, 06646, Republic of Korea*

^{*2}*School of Architecture, Halla University, 28 Halla university-gil, Wonju-si, Gangwon-do, 26404, Republic of Korea*

^{*}Corresponding Author E-mail: seodk@halla.ac.kr

Abstract

Background/Objectives: In defect lawsuits for apartment, the term of warranty liability is the important legal standards that distinguish responsibility for said defects. However, the term of warranty liability has been criticized as it has no setting basis for itself and it is unrealistic.

Methods/Statistical analysis: Therefore, this study examined the problems of the current legislation and sought a rational basis system to supplement them. The scope of the study was to compare and analyze the tendency of occurrence of defects and term of warranty liability, mainly in the landscape work of apartment building complexes. The results are summarized as follows.

Findings: The total number of landscaping defects was the highest in the first year, but relatively low compared to other facility work. In addition, other facility works mainly resulted in defects up to the first two years, whereas that of landscape work occurred over four years later. Although the detail work of the landscape works is somewhat different, in general, the cumulative rate of occurred defects reaches 95% in the third to fourth years while it confirmed the eighth year for additional landscape appurtenant work.

Improvements/Applications: Therefore, the term of warranty liability should be properly established considering the tendency of defects in landscape work.

Keywords: Apartment building complex, Defect lawsuit, Landscape work, Occurred defect data, Term of warranty liability.

1. Introduction

In the 1980s and 1990s, Korea was urbanized rapidly making the apartment building complex a universal housing type. Especially, the apartment building complexes with five or more floors became the main housing type. Korean apartments account for more than half of all houses and 59% as of 2010 [1]. Korea's apartments are equipped with various social infrastructures that are not available in single houses, offering excellent convenience. Therefore, many Koreans live in apartments or are hoping to live in an apartment [2]. Since the 2000s, Koreans' awareness of housing has changed dramatically, recognizing housing as an important asset rather than just a simple living space. As a result, residents living in apartments are paying attention to maintaining apartment property safely and comfortably while maintaining property value as real estate [3]. As social values have changed, various problems have arisen over apartments and it has become a social issue. Especially since the middle of the 2000s, lawsuits against the defects of the apartments have been increasing, causing negative economic and social effects [4]. The terms of warranty liability on the lawsuits for defects are a very important issue. The term of warranty liability is interpreted as the right period or obligated period for claiming repair. In other words, if the term of warranty liability is exceeded, the business entity is not obligated to perform the repair, and the owner of the divided property loses the right to claim defect repair [5]. However, there is no basis for setting the term of warranty liability in relevant laws, and the item and the period are arbitrarily extended or deleted, causing problems. This is because

in the early 1980s, when the related law was first enacted, the foundation of the social system was relatively weak as it was the mid-industrialization period [6].

In particular, the important issue of defect lawsuits in relation to landscaping is conflicts increasingly involving trees withering or plants planted in place of withered trees early on. Since such lawns and trees are living creatures, careful consideration and continuous maintenance are necessary. However, management after completion of the apartment is difficult because the general staff, not experts, are performing maintenance. In addition, the playground equipment, walking trails, etc. included in the landscaping work are used frequently, often causing damage earlier than other facilities. Regarding the landscaping works, the standard of the current law sets a term of warranty liability of one to two years. However, there is controversy as to whether these standards are properly set. In order to improve this, it is necessary to collect and analyze evidence data such as the degree of defects in landscaping works and the period of occurrence.

According to housing law, an apartment landscape work is defined as follows. It is divided by lawn work for planting grass within the complex, planting work for all trees and shrubs except grass, landscape facility work to construct exercise equipment, rest areas, chairs, irrigation and drain work for supplying or discharging water for trees, pavement work for walking trails and pedestrian and appurtenant work such as landscaping related sculptures. Mainly apartment landscaping is for introducing natural elements into an artificial and planned housing complex and decorating

them in an environmentally friendly way.

Table 1 below summarizes the revision history of laws concerning the term of warranty liability of landscaping works. In 1979, the repair period of lawn work and planting work was set to one year. In 1982, facility work was added into the law. And, as the Enforcement Decree of the Housing Act was revised in 2007, irrigation and drain work, pavement work, and appurtenant work were newly added to the landscape works, and the term of warranty liability of the works, except for lawn work, increased to 2 years.

Table 1: Law Revision

Detailed work	Term of repairing a defect		Term of warranty liability
	1979	1982	2007
Lawn work	1 year	1 year	1 year
Planting work	1 year	1 year	2 years
Landscape facility work	-	1 year	2 years
Irrigation and drain work	-	-	2 years
Landscape pavement work	-	-	2 years
Landscape appurtenant work	-	-	2 years

However, there is no concrete basis for establishing the category of detailed works or the term of warranty liability in the enactment or amendment of such related laws. In addition, there are limitations in that it is composed of simple and comprehensive regulations, despite the variety of types of defects that occur in landscaping works. For example, there are single year and perennial plants depending on the kinds of trees and the characteristics of trees and shrubs are different from each other, making the management method different even though they are categorized as planting work. However, the term of warranty liability for planting work is defined as two years for all of them. In addition, since a tree is a living organism, management is more important compared to general structures, and careful management is necessary at the early stages of planting in that it affects the growth of the organism. However, management is performed by general people rather than experts after completion. Furthermore, since trees are greatly affected by climate such as typhoons and droughts, and there is the problem of insect pests, it is difficult to respond appropriately to the occurrence of defects in the present system.

2. Materials and Methods

2.1. Purpose

The purpose of this study is to review the limit of the term of warranty liability of the Enforcement Decree of the Housing Act and to provide a rational basis for supplementing it. The detailed objectives of this study are as follows. First, it is to review the history and current regulations of the term of warranty liability for landscape works. Second, it is to analyze the trend of defects for the whole and detailed works of the landscaping works in apartment complexes and outline their characteristics. Third, it is to compare with the current term of warranty liability and seek a reasonable alternative.

2.2. Method and Flow

Although the term of warranty liability in the current Enforcement Decree of the Housing Act applies to the entire housing complex, the main object in the actual defect lawsuit is the apartment building complex. Therefore, the scope of this study was limited to apartments, especially landscape work in apartment complexes. The method and procedure of the study are as follows. First, the past history of the term of warranty liability of the current law was reviewed and the current regulations were analyzed to draw up problems. Second, in order to improve this, the defects in

landscaping works of actual apartments were examined and the number and ratio of occurred defects for every year were analyzed. Third, the rate of defects and the cumulative rates were calculated for each year up to the 10th year, the term of warranty liability according to the Housing Law. Fourth, the term of warranty liability of the current law was compared based on when the cumulative rate of defects reached 95%.

2.3. Outline on Case Study

The purpose of this study is to review and compare the relationship between the defect rate and the term of warranty liability for landscape work in apartment complexes. To this end, the status of various defects in apartments was examined. The subject apartments for this study were built between 2002 and 2011, with a total of 177 buildings and 125,816 households. In this study, the defects were not classified by the cause and timing of defects such as regulation, design, construction, and use.

Figure 1 shows the status of defects caused by each detail work of the landscape work. The defects of lawn work accounted for 43.8% of the total, followed by 27.57% for landscape facility work and 14.63% for landscape appurtenant work. On the other hand, relatively few defects were presented in planting, pavement, and irrigation and drain work.

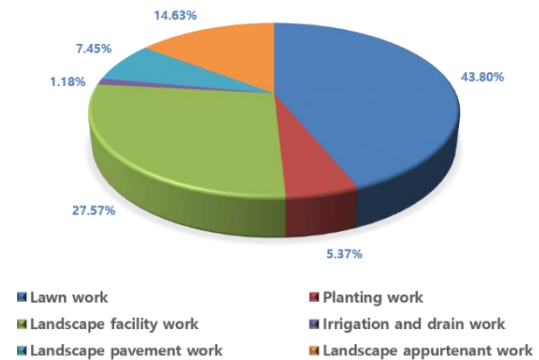


Figure 1: Contribution of Occurred Defect in Landscape Work

3. Results and Discussion

In this chapter, the annual trends of the total defects in landscaping works and the cumulative trends by year were reviewed. In addition, the appropriateness of the current standard was examined in comparison with the time when the cumulative rate reached 95% and the term of warranty liability of the current Enforcement Decree of Housing Act.

3.1. Occurrence Trend in Whole Defect of Landscape Work

The total defect occurrence of landscape work shows the tendency shown in the following figure 2. Defects occur most frequently in the first year and rapidly decrease in the second year, resulting in fewer defects from the fourth year. Accumulated defects up to the fourth year are 96.6%, exceeding 95% of the total, reaching 99% by the seventh year. The term of warranty liability by detailed landscaping works varies from one to two years. Therefore, this result cannot be regarded as the tendency of the entirety of landscape work, and it should be judged comprehensively by referring to the analysis result of each detail work.

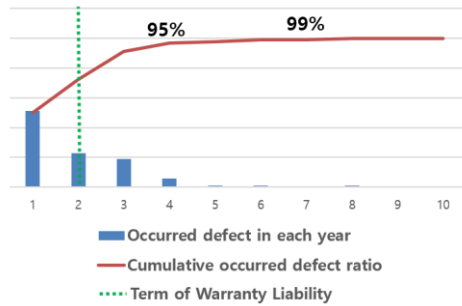


Figure 2: Occurrence Trend in Whole Defect

3.2. Occurrence Trend in Detailed Work

3.2.1. Lawn Work

In lawn work, defects occur mostly in the first to third years as shown in Figure 3 below. The cumulative rate of defects is 95% in the fourth year and 99% in the fifth year. Compared to the entirety of landscape work, it is the same in that defects occur often in the first to third years and the cumulative rate reaches 95% in the fourth year. On the other hand, the term of warranty liability of the current Enforcement Decree of the Housing Act for lawn work is one year, but only 50% of the total defects occurred in the first year in lawn work.

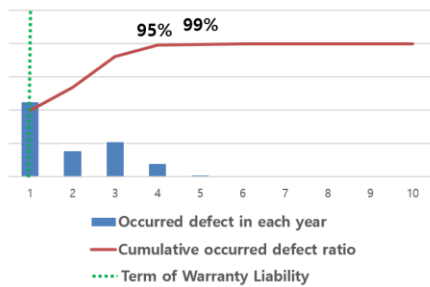


Figure 3: Occurrence Trend in Lawn Work

3.2.2. Planting Work

In the planting work, defects occur mostly in first to second year as shown in Figure 4 below. The cumulative rate of defects is 99% in the fourth year. Compared to the entirety of landscape work with planting work, the tendencies of defects were found to be different from each other. On the other hand, the term of warranty liability of the current Enforcement Decree of the Housing Act for planting work is two years, and first and second year defects in planting work reached 92% of the total.

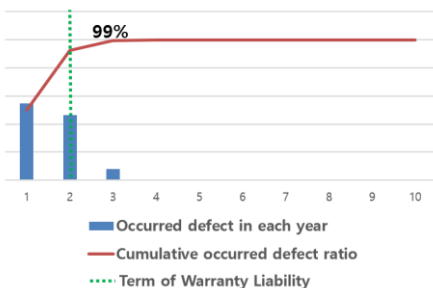


Figure 4: Occurrence Trend in Planting Work

3.2.3. Landscape Facility Work

In landscape facility work, defects occur mostly in the first to third years as shown in Figure 5 below. The cumulative rate of defects is 95% in the fourth year. Compared to the entirety of landscape work, it is the same in that defects occur often in the first to third years and the cumulative rate reaches 95% in the fourth year. In

addition, the tendency of defects in landscape facility work is different from that of planting work, but similar to that of lawn work. On the other hand, the term of warranty liability of the current Enforcement Decree of the Housing Act for landscape facility work is two years, and 77.5% of the total defects occurred in the first to second years in the landscape facility work.

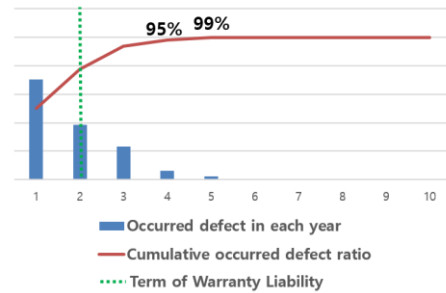


Figure 5: Occurrence Trend in Landscape Facility Work

3.2.4. Irrigation and Drain Work

In irrigation and drain work, defects occur in the first to fourth years as shown in Figure 6 below and there was no defect occurring after the fourth year. Compared to the entirety of landscape work, the degree of occurring defects is different, but it is the same in that the defect accumulation rate reached 95% in the fourth year. On the other hand, the term of warranty liability of the current Enforcement Decree of the Housing Act for irrigation and drain work is two years, and the 80% of the total defects occurred in the first to second years in irrigation and drain work.

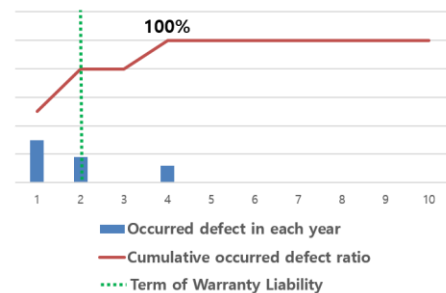


Figure 6: Occurrence Trend in Irrigation and Drain Work

3.2.5. Landscape Pavement Work

In landscape pavement work, defects occur mostly in the first to third years as shown in Figure 7 below. The cumulative rate of defects is 99% in the third year. Compared to the entirety of landscape work, it is similar in that defects occur often in the first to third years, but it is different in that the cumulative rate reaches 99% in the third year. On the other hand, the term of warranty liability of the current Enforcement Decree of the Housing Act for landscape pavement work is two years, and 73.2% of the total defects occur in the first to second years in landscape pavement work.

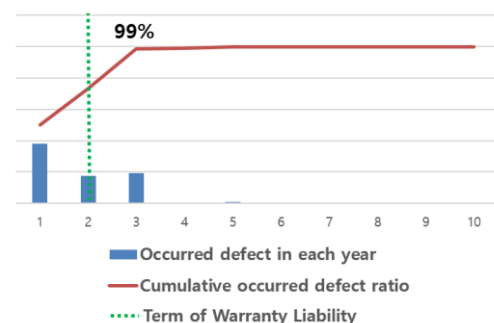


Figure 7: Occurrence Trend in Landscape Pavement Work

3.2.2. Landscape Appurtenant Work

Lastly, in landscape appurtenant work, defects occur mostly in the first to third years as shown in Figure 8 below and continue from time to time in the fourth to seventh years. The cumulative rate of defects is 99% in the eighth year. Compared to the entirety of landscape work, it is the similar in that defects occur often in the first to third years, but it is different in that the cumulative rate reaches 99% in the eighth year, which is significantly later compared to other detailed work. On the other hand, the term of warranty liability of the current Enforcement Decree of the Housing Act for landscape appurtenant work is two years, and the 71.0% of the total defects occurred in the first to second years in landscape appurtenant work.

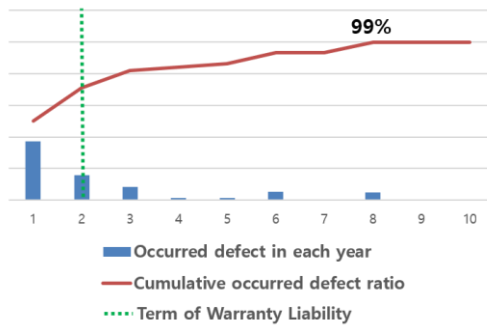


Figure 8: Occurrence Trend in Landscape Appurtenant Work

3.3. Results

The results of comparing the trend of annually occurring defects for each detail work category on apartment building complex landscape work, comparing the period when the cumulative rate of defects reaches 95%, and the term of warranty liability of current Housing Act are summarized as follows: First, the annual occurring defects in the entirety of landscape work is the highest in the first year, and defects tend to be concentrated in the first to fourth years. Second, although there is a slight difference in each detailed work category, the cumulative rate of defects reaches 95% in the third or fourth year. However, it was eight years for landscape facility work, which was a large difference from other detail works. Third, the difference between the period when the cumulative rate of defects reaches 95% and the term of warranty liability in the current Enforcement Decree of the Housing Act is summarized in Table 2 below.

Table 2: Difference between Term of Warranty Liability and Term of Cumulative Rate 95%

Detailed work	Term of Warranty Liability (A)	Term of Cumulative Occurrence Rate 95% (B)	Difference of Term (A-B)
Lawn work	1 year	4 years	3 years
Planting work	2 years	3 years	1 year
Landscape facility work	2 years	4 years	2 years
Irrigation and drain work	2 years	4 years	2 years
Landscape pavement work	2 years	3 years	1 years
Landscape appurtenant work	2 years	8 years	6 years

3.4. Discussion

The above analysis results on landscape work suggest the following implications.

First, there is a difference between the tendency of defects in the entirety of landscaping and the tendency of defects in each detail work category. Surely, there was a difference in the tendency of occurrence of defects for each detail work category in the other facility work of apartment building complexes. In comparison with the telecommunication work from previous research, the

tendency of the entirety of telecommunication work is the most similar to the tendency of the detailed work, but the work of the disaster prevention equipment or the automatic fire detection equipment tends to be very unique [7]. However, they did not have a significant effect on the overall trend of telecommunication work since the occurrence of defects was very small. On the other hand, in the case of landscape work, plant work, landscape facility work, and landscape appurtenant work occupy 86% of the entirety of landscape works and the difference in tendencies between them seems to affect the tendency of the entirety of landscape work.

Second, the tendency of defects in landscape work differs considerably from that of other facility work in apartment building complexes. Landscape work is different from telecommunication work, which is mainly concentrated in the first and second years [7], and also different from the work of water supply and sanitation facilities concentrated in the first to third years [8]. In addition, it is different from window and door work in that the cumulative rate of defect occurrence reaches 95% in the second to third years [9], and finishing work which peaks in the third to fifth years[10].

The term of warranty liability for landscape work was initially established based on the judgment of various aspects of the landscape such as design and construction in the apartment building complex being similar classification. However, as a result of this study, the tendency of defect occurrence of landscape work is different according to each detail work category and does not show a consistent tendency. In addition, it confirms that there is a difference from the cases of other facility work, implying the need for another approach to the defects of landscape work.

4. Conclusion

In Korea, there is constant social and economic conflict due to apartment building complex defect lawsuit between tenants and business entities. In these defect lawsuits, term of warranty liability is an important legal standard to distinguish responsibility for defects. However, the term of warranty liability in the current Enforcement Decree of the Housing Act has been criticized as it has no setting basis for itself and it is unrealistic.

The purpose of this study was to examine the problems of the current legislation and to provide a rational basis for supplementing them. The scope of the study was to compare and analyze the tendency of occurrence of defects and term of warranty liability mainly in the landscape work of apartment building complexes. The results are summarized as follows.

First, the occurrence of defects in the entirety of landscape work is the highest in the first year, but is relatively few compared to other facility work. In addition, defects were concentrated in the first to fourth years, and there was a difference from other facility works which were concentrated in the first and second years. Also, the cumulative rate of defect occurrence usually reaches 95% in the third to fourth years. However, it was the eighth year for landscape appurtenant work, which was a significant difference.

Second, the tendency of defect occurrence in landscape work was different according to each detailed work category, and was totally different from other facility work in apartment building complexes. Therefore, this suggests that the approach to the term of warranty liability should be different considering the different tendency of the defects in the landscape work, requiring efforts for concrete measure in the future.

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