

# Defect Repairing Cost and Its Bond on Apartment Building in Relation to Lawsuit Parties

Junmo Park , Deokseok Seo

**Abstract**—An appropriateness of defect repairing cost for apartment is being challenged in Korea. The problem is that there is no detailed prescriptions or specifications about the defect repairing cost other than calculating standard of the defect repairing bond in the applicable laws. There is also not even a proper base in establishing the standard itself. In order to specify the standard of defect repairing bond and to make it serve as a realistic system, it is necessary to discuss how much is the actual scale of the defect repairing cost and how it is reasonable to establish the calculation system of defect repairing bond in the apartment buildings. The researchers have proposed a ratio of about 1.5% to the current standard of 3% of the construction cost as per the analysis of actual data in the previous study. However, it is necessary to supplement this scale considering the facts that the scale of lawsuit for defect is huge and the recent trend of litigation for the defect repairing has changed. Therefore, this study approaches the relationship between defect repairing cost and bond at a new point of view by analyzing the existing cases again. The builder for apartment construction makes agreement with the developer, therefore the builder has responsibility of defect repairing. It also becomes an auxiliary party in the lawsuit for defect in the resulting construction. In this study, we have categorized all the parties involved in the construction and defect repairing cost. Type A is the case where the litigant has a construction capacity rank of 1-10, Type B of rank 11-30, type C refers to the construction capacity rank other than type A and Type B, and for the case where the lawsuit party is not a builder but a guarantee company, it is categorized as type D. And then, the differences in the defect repairing cost rates in each category were reviewed. This review was conducted because the builders at upper group are generally excellent in terms of technology and quality, but it is not known in detail that how much they are good in counteracting the defect. The result of the case analysis by type showed that the rate of the defect repairing cost by the builder of upper rank was relatively low. In addition, the minimum repairing cost ratio was relatively small between the types, but the maximum repair cost showed great differences between the types. On the other hand, only two cases showed excess of 3% of the defect repairing bond rate among the total of 49 cases. This big difference might have caused large defect cost bond rate in the type A and Type B. The results of this study suggest the following points. First, 47 cases out of 49 cases showed the defect repair bond rates below 3%, which speaks that the current standard is not being practiced. Second, considering the fact that average defect repair bond rate is lowest and the maximum and minimum deviation of defect repair cost rate is also the lowest in the type B, the type B offers the lowest defect repair cost bond among other types of lawsuit cases.

**Keywords**— apartment building, defect lawsuit, defect repairing bond, defect repairing cost, lawsuit parties,

## I. INTRODUCTION

### A. Background

In Korea, while urbanization rapidly progressed in the 1980s and 1990s, apartment house became a universal type of dwelling. Especially, apartment houses which mean higher than five floors are the main residential type. Korea's apartments account for more than half of all houses and occupy 59% of the total residences as of 2010 [1]. Korea's apartments are equipped with various social infrastructures that are not available in detached houses, providing a superior comfort. So many Koreans are living in apartments and those others are hoping to live in apartments [2].

Since the 2000s, Koreans' concept about apartments has changed drastically, and they have recognized apartments as important assets, not as simple residing spaces. As a result, residents living in apartments are concerned with maintaining their property as real estate while maintaining their apartment in a safe and pleasant manner [3]. As the social values change, a variety of problems have arisen for apartments and become a social issue. Especially since the mid-2000s, the lawsuit against the defects of apartments has been soaring, causing economic and social disruption [4].

The most important issues in the lawsuit case of a defective apartment in South Korea are how to judge who is the responsible party and calculating the defective repairing costs. As a legal base for this, there are term of warranty liability and defect repairing bond in Korea.

First, the term of warranty liability is interpreted as a term of right or term of warranty liability during which defect repairing is claimed. That is, if the term of warranty liability is elapsed, the project entity (developer or builder) is not obliged to perform the defect repairing, and the divisional owner loses the right to claim defect repairing [5]. Particularly, as the criteria for judging legal liability according to the occurrence timing of the defects, the responsibility for the warranty liability has been set. However, the regulations for each facility construction stipulated in the Housing Act and related laws are only outlines, and there is no basis for detailed durable life or performance evaluation [6].

On the other hand, the defect repairing bond is set just in case when the developer or builder who has built the apartment fails to carry out the defect repairing. However, the repair bond is being used maliciously as an important criterion of litigation by

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brokers planning a lawsuit. In addition, litigation brokers are presenting the standard of compensation for damages promised to the occupants as a defect repairing bond. Therefore, occupants misunderstand that they can recover the defect repairing bond through a lawsuit on defects [7].

## B. Purpose

The summary of above is that the criterion or base by which the term of warranty liability or defect repairing bond was set in relation with apartments is not at all proposed in the law. In addition, even after several revisions of the laws, the foundation of the system has been weak in such way that types of facilities construction, term of the warranty liability, and guarantee ratio have been arbitrarily and newly enacted or deleted.

As such, there are no clear grounds for establishing the term of warranty liability or the defect repairing bond, and there are no detailed provisions used as a judging criterion in the dispute, in fact these criteria became systems with no meaning.

Therefore, in order to improve such ill practice, various discussions and researches are needed to improve the system, such as the problem of defect repairing bond system for apartments, and how much is appropriate as a defect repairing bond after the actual defect repairing cost is incurred.

In the previous research, the defect repairing bond ratio was suggested through the case studies, but there was a difficulty that the conclusion was drawn with the limited cases. In addition, it is necessary to consider that what is recent dispute point and trend of the defect lawsuit are changed drastically. It is necessary to collect past data and recent data to compare. Therefore, this study is a basic study that approaches the relationship between defect repairing cost and bond through analyzing existing cases again to establish a data collection and analysis system. This study was performed in the order shown in Figure 1.

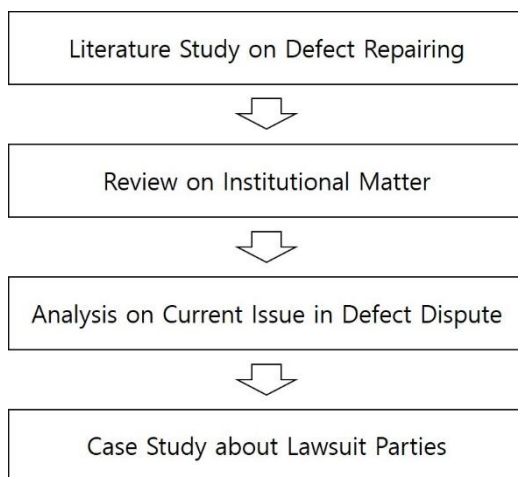


Fig. 1. Research Flowchart

## II. LITERATURE STUDY

### A. Maintenance and Defect Repairing

When the apartment is completed and delivered to the divisional owner, durability and problems due to natural aging and use are inevitable and it is necessary to maintain and repair the house. In Korea, the law prescribes to

establish a long-term repair plan and repair and maintenance should be performed accordingly. In addition, the reserve fund (long-term repair allowance) necessary for this is prepared and used.

Meanwhile, for the problems that have already occurred at the time of construction of the housing and those that have been inherent appear at the time of usage, defect repairing will be executed. Because the cause of the defect lies in the developer, the divisional owner claims the defect repairing, and the developer repairs it at its own expense. This liability is called as warranty liability and the law prescribed this liability to be borne by the project entity to the divisional owner.

However, it is difficult to clearly distinguish whether this defect is caused by natural aging or by faults of the developer.

### B. Defect Dispute

Generally, if some problems are occurred in the houses, the developer sometimes conduct repairing by itself, but if the civil complaint by the divisional owner is increased so much so that it cannot handle, the developer refuse to carry out defect repairing.

Since the divisional owner spends its expenses to cope with the problems by natural aging or usage, he/she claims that the defects are caused by the fault at the developer side and demands repairing or compensation for the repairing. However, the developer may argue that the problem is responsible by the negligence by the divisional owner since those problems have not been occurred on completion of the building. Because the viewpoints from both parties are extremely at other ends, it is difficult to reach to the amicable point and the dispute can be expanded to the lawsuit.

### C. Defect Repairing Cost and Bond

In the defect lawsuit, the divisional owner claims defect repairing expenses or damage compensation as an alternative remedy to the developer. However, if the developer is under the condition of not undertaking the defect repairing due to capital erosion, bankruptcy, or insolvency which are legally incapable, the defect repairing cost cannot be paid. That is why the defect repairing bond is set forth in the law.

The history of system establishment for the defect repairing bond for houses in Korea is as follows (Table I). Obligation and the defect repairing bond so that the business entity constructing the apartment house can repair the defect. It is related with the enactment of the Housing Construction Promotion Act in 1972 with the objective of promoting house construction in the industrialized society. Especially, when the Decree on the Management of Apartment Houses was enacted, the defect repairing bond system was first established. The Decree on the Management of Apartment Houses prescribed the term of warranty liability and defect repairing bond so that the project entity that constructs the apartments to perform defect repairing. Meanwhile, the rules on apartment housing management prescribed that the developer should submit the defect repairing bond which is set at least two-hundredths of

the total project cost set forth in the project plan in the form of cash or warranty card and this bond should be kept for two years. In 1981, when the Housing Control Order was amended, while it prescribed the term of warranty liability, defect repairing bond and undertaking procedure, the defect repairing bond equivalent to three hundredths of the total construction cost of the apartment barring land and plot cost should be deposited in the financial institutes. Since then, the law has been revised as the Housing Act. Recently, in 2016, the Act on Housing Management, the Enforcement Decree, and the Enforcement Regulations have been enacted and rules related with the apartment houses are migrated into. Since 1981, the requirement to provide defect repairing deposits as three-hundredths of the total construction cost of the apartment house has not changed [7].

**TABLE I: CHANGE OF DEFECT REPAIRING DEPOSIT**

Year	Law name	Estimating rate
1972	Housing Construction Promotion Act	-
1979	Decree on the Management of Apartment Houses	2%
1981	Regulations on the Management of Apartment Buildings	3%
2003	Housing Act	3%
2016	Apartment Housing Management Law	3%

#### D. Limitation of Previous Study

In a previous study, investigation was conducted based on the defect repairing costs recognized in the defect lawsuits as to whether the size of the defect repair deposit in the current standard was appropriate.

The analysis of the actual data revealed that the legal defect repairing bond was at 3% of the total construction cost, but the actual defect repairing cost was an on average 1.11%. That is, the legal defect repairing bond was excessive in comparison with the actual defect repairing cost [7].

In addition, when the annual return ratio of the defect repairing bond prescribed in the law and the ratio of actual defect repairing cost were compared, more amount of defect repairing cost was spent for the 1<sup>st</sup> and the 2<sup>nd</sup> year and the 5<sup>th</sup> to the 10<sup>th</sup> year than the prescribed rate than the prescribed rate. Whereas, a very low defect repairing cost was spent for the 3<sup>rd</sup> and 4<sup>th</sup> year than actual requirement [8].

On the other hand, the analysis results of the effect of number of household and total floor areas on the defect repairing bond rate calculation showed that the tendency was different if the effective parameter was categorized into the groups with appropriate sizes. Particularly, it was found that the larger the group size, the lower the repairing bond rate [9].

However, these previous studies were based on only the results of some cases, there are deviations in each case, and it is known that these differences are caused by the number of households and the total floor area, but effectiveness of these parameters on the bond rate and presence of other parameters could not be established.

#### E. Current Trend Change of Defect Lawsuit

In the cases used in the previous studies, most of the disputes were about the standard of calculation of the

repairing method, scope, and calculation criteria of the repair cost for the actual defects. On the other hand, recent defect lawsuits are mainly focused on matters such as whether they meet the standards of laws, design drawings, specifications, and so on. In fact, there are increasing disputes about issues that are not related with inconvenience to the residents or threaten their safety.

In addition, thanks to the economic boom and the development of local cities, large and small construction companies, besides those who traditionally used to build apartments have been building apartments. Therefore, unlike in the past, when disputes between divisional owners and some construction companies predominated, almost all construction companies are now involved in defective lawsuits.

Furthermore, in the cases of the previous research, the divisional owners mainly filed a lawsuit against the construction company (builder). However, recently, the developers such as undertaking expertized builders, real estate trust companies, re-development associations have diversified. However, according to the nature of developers, lawsuits are becoming more complicated because legal rights relationships such as the extent of defects, responsible subject of the defect repairing, and expiry of the right become changed.

On the other hand, as the construction of apartment buildings increases, the builders often fall into bankruptcy or insolvency due to fierce competition. If the builders become incapable in this way, the divisional owner will file a lawsuit against the companies who render a guarantee.

### III. CASE STUDY

#### A. Outline

As has discussed earlier, it is necessary to conduct research with a new point of view by supplementing the limitation in the previous research and by considering the tendency of defect lawsuits that are recently being changed. To do this, sufficient cases should be collected and a system to analyze them should be well established. Therefore, in this study, the relationship between project entities and defect repairing cost in recent trends that were not considered in previous research would be investigated.

The project entity is the entity that participates in the construction of the apartment. These generally include the developer, the designer, the builder, and the supervisor. Among them, the parties to the defect lawsuits are mainly the developer and the builder.

The developer is responsible for land purchasing, project financing, selection of designers and builders, licensing, and apartment sales. In the legal aspect, since the developer is a party to a contract of selling apartments with the divisional owner, it is directly responsible for the defect repairing for the divisional owner, therefore it becomes an important party in the defect lawsuit.

The builder is responsible for the construction of the apartment. Since the builder is the contracting party with the developer, it is responsible to defect repairing, thus becomes an auxiliary party in the defect lawsuit. In Korea, the ability of builders is generally



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assessed by their order receipt, management status, and credibility. This ability is categorized into ranking 1-10, 11-30, 30-100, and lower than rank 100.

In this study, the apartments built by builder of rank 1-10 is categorized as type A, type B by the builder of rank 11-30, and type C by builders other than type A and type B. The case where the guarantee company becomes a party not a builder in the lawsuit is classified as type D (Table II). The reason why the type is classified is that it needs to confirm that the builder with higher rank is relatively superior in terms of technology and quality when the builder acts as a developer, but nothing was revealed in detail in relation with the defect of the apartment.

**TABLE II. TYPE DIVISION OF LAWSUIT PARTIES**

Type	Construction capacity	Cases
A	No. 1 ~ 10	21
B	No. 11 ~30	8
C	Others	12
D	Guaranty insurance corporation	6

### B. Comparison

A total of 49 cases of defect lawsuit cases were compared with each other by comparing the percentage of total repair cost to the total construction cost which were judged on the 1<sup>st</sup> trial. These comparisons are based on the mean value, but the range of the minimum value and the maximum value were also considered. The results of basic statistical analysis for each type based on the average are shown in Table III.

**TABLE III. STATISTICS RESULT OF TYPES**

Type	House holders	Bond (Korean Won)	Total construction cost (Korean Won)	Damage (Korean Won)
A	617	2,741,015,265	91,367,175,508	824,128,466
B	389	1,882,835,329	62,761,177,625	598,624,343
C	575	2,264,514,184	75,483,806,117	800,649,508
D	631	2,048,784,762	68,292,825,411	829,510,381

The analysis of the ratio of defect repair cost to each type is as follows (Figure 2).

First, the repair cost ratio of 49 cases was 1.246% of the total construction cost. Examination of each type showed that the type B was the lowest at 1.011% and type A was at 1.188%, which were lower than the overall average. On the other hand, type C was at 1.320% and type D was at 1.574%, which were higher than overall average.

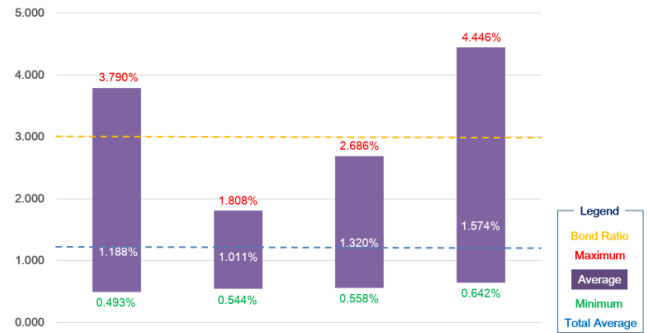
Second, the minimum repair ratio was found to be the lowest in type A at 0.493%, and the rest was increased in order of type B, type C, and type D. The minimum value of type D seems to be relatively high compared to other types, but the difference is small compared to the mean value.

Third, the maximum repair cost rate was the lowest in type B (1.808%) and the highest in type D (4.446%). The highest value is 2.46 times bigger than the lowest value in this case. Unlike the minimum value, there is a large difference between the maximum value by the type.

Fourth, the cases where the defect repair cost ratio exceeded 3%, which is the defect repair bond ratio of the

current legal standard, was two cases out of 49 cases, which comprised of one case each in the type A and type D, respectively.

Fifth, the type B showed the least deviation among the defect repair ratio. While the type D showed the largest deviation.



**Fig. 2. Comparison of Defect Repairing Cost in each Type**

### C. Implication

The above analysis results suggest the following points.

First, the defect repairing bond ratio in the 47 cases out of 49 cases was less than 3% of the total construction cost. Therefore, the current standard of defect repairing bond ratio would be in conformity with the realistic aspect.

On the other hand, the comparison results according to the rank of the builder, the type B of the next to the builders with higher rank spent lower expenses for defect repairing than that of the type A which is a traditional top-ranking builder. However, this might be because one case having repair cost exceeding the current standard was included in the type A during analysis. Still, it is evident that the builders in the type B bearing a defect repair cost lower than the other types since average cost was the lowest in the type B and the deviation between the maximum and minimum value was the lowest.

However, considering that the size of case data of this study is relatively small and recent cases are not taken into consideration, it cannot be ruled out that the results may be changed when collecting and analyzing case data of sufficiently large size in the future.

In addition, it is necessary to investigate and analyze the cause of the relatively high repair cost in cases exceeding 3%, which is the standard of the current defect repair bond ratio. It is expected that the present study results will help to prepare preventive measures and post measures to reduce defect repair costs.

## IV. CONCLUSION

In Korea, the increasing number of lawsuits against apartments have raised questions about the appropriateness of the defect repairing bond, which is the main purpose of the lawsuit and the legal standard. In order to improve these problems, it is necessary to establish concrete standards such as how much repair cost is actually incurred and how to establish a calculation system suitable for the nature of the defect repair bond.

For the current standard of 3%, previous studies have

proposed a ratio of around 1.5% through the analysis of the past data. This can be regarded as an objective alternative compared to the fact that there was no basis for the establishment of the defect repairing bond. However, the previous study result might not represent as an example since the number of defect lawsuits have been more than thousands, and hundreds of lawsuits are filed every year even in today. In addition, since the issues of disputes are different from those of the past, it is difficult to conclude that the dispute is based solely on previous research results. Therefore, it is necessary to collect enough case data and analyze them in various angles.

This study is a basic research to approach the relationship between defect repairing cost and bond by analyzing the existing cases again with a new viewpoint to establish a data collection and analysis system for apartment repairing cost and bond. Since the builder constructing the apartment is the contracting party with the developer, it is liable to repair the defect, and thus becomes the auxiliary party in the defect lawsuit. Generally, in Korea, the ability of builders is divided into groups and classified into rank 1-10, 11-30, 30-100, and below the rank 100. In this study, the type A is categorized as the case where the litigants have construction capacity rank 1-10, the type B with the rank 11-30, the type C with the rank other than type A and type B. And, the type D is the case where the litigant is a guarantee company not a builder. This is generally because the builders with superior group are relatively excellent in terms of technology and quality, but it is not confirmed in detail about their performance for the defects handling of the apartment.

The results of case analysis by type are summarized as follows. First, when the average value of defect repairing cost ratio is taken as a reference, the ratio of defect repairing cost is lower in the cases of apartments built by the top builders than other cases. Second, the minimum defect repairing cost ratio by type is relatively small. Third, the maximum ratio of repairing cost ratio by type showed a big different from the minimum value. Fourth, when the defect repairing cost rate exceeded 3% of the defect repairing deposit rate, only two out of 49 cases were found, which affected excessive deviation in type A and type B. Fifth, the least deviation in the defect repairing cost was found in type B.

The results of this study suggest the following points. First, 47 cases out of 49 cases had the defect repairing bonds less than 3%, which is in line with current practice. Second, considering the average defect repairing bond ratio is lower and the deviation between the maximum and minimum value is also the lowest in the type B, it can be concluded that the defect repairing bond ratio is the lowest in type B than other types.

In the future, it is necessary to collect recent case data to confirm whether the defect repairing bond ratios are same as previous study. In addition, in this study, only the difference of repairing cost by size of builder was investigated. However, in order to analyze it more deeply, it will be analyzed whether there is a difference in repairing cost ratio according to the case where the developer and the builder are the same. It is intended to continue the in-depth study considering the difference in the structure of the

construction business of the apartment and the defective lawsuit contents.

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#### AUTHORS PROFILE



**Junmo Park** was born in 1980 in Seoul, South Korea. He currently lives and works for Kyungsan Engineering in Seoul. He majored in Architectural Engineering at the Chungbuk National University in Korea, graduated in 2006 with a master's degree in 2008, and received his Ph.D in 2012. Since 2005, he has been involved in various research and development projects commissioned by the Korean government and corporations and has lectured at many universities since 2010. Research on the defects of apartment buildings has been carried out with Professor Deokseok Seo, with support from Korean government over 6 projects since 2008. Currently, he is working with Professor Deokseok Seo on defect repairing cost and bond for apartment housing.

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**Deokseok Seo** was born in Gongju, Korea in 1964. He currently lives in Wonju, Korea and is a professor of the College of Architecture at Halla University. He received bachelor's, master's, and doctoral degrees from Korea University in Korea. He also worked as a researcher at Korea Land & Housing Corporation, the only professional public company in Korea's apartment houses. He is the first researcher who received a doctorate in

research on defects in apartment housing in Korea. Until now, he has been conducting various researches with government support on defects in apartment houses. In 2016, he was also listed in the World Dictionary of Marquis Who's Who in the World. In addition, he received a commendation from the Minister of Education as an excellent researcher. He has done various researches with Dr. Junmo Park, and has written academic papers and thesis. Recently, with the support of the Korea Research Foundation, a specialized research institute under the Ministry of Education, Korea, he is conducting a study on defect repairing cost and bond in apartment buildings.