

## **THE KEYNOTES OF THE DIRECT CONTRACTING SYSTEM ON THE PUBLIC HOUSING PROJECT**

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Early 2009, an establishment about direct contracting system for the public housing project had been passed by Korea Ministry of Government Legislation. The execution of this establishment has been criticized about the project control ability of client. Furthermore, because this system is contrary to the existing subcontracting system, it is supposed to lead to considerable impact on Korean construction industry. Hence, this research purposes to predict the impact of the direct contracting system on Korean construction industry by developing the implication scenario. In order to archive it, first, we analyze the relationship and the points in dispute between stakeholders. Second, we analyzed the relationship between the change of subcontracting system and the Korea construction industry. Based on these results of analysis, we develop the predictable scenario and clarify the keynotes on execution of the direct contracting system.

## INTRODUCTION

In Korea, the lump-sum contract system, which consists of a client, a general contractor, and subcontractors, has generally been used as the most basic procurement system. The background of such a system was largely due to the strict division of the business scope of a general contractor, who manages the overall construction, and of a specialist contractor, who actually performs the construction. In addition, construction that is over a certain size should be performed by a general construction contractor. For these reasons, the lump-sum contract system always had a central role in the Korean construction system. In 2007, the business scope restriction that has separated the work of the general contractor and the specialist contractor was revoked. And it is possible for one to take a license to do business with each other between the specialist contractor and the general contractor. The business division will gradually loosen. However, it is necessary to have a license to conduct business operations and an evaluation system in Korean construction industry determine the ability to focus on the actual experience. Therefore, it is rare to take both licenses.

In early 2009, the Korean Ministry of Land, Transport and Maritime Affairs (MLTM) enacted legislation that allows the direct contracting system in some parts of public housing project. The direct contracting system is different from the lump-sum contracting system. In that system, the general contractor does not participate in the actual construction. This is an exception in law because that project is over a certain amount as stipulated in law. Therefore, other participants will be responsible for the work of general contractors

This revision will greatly affect the work division of each participant in the construction project and the project procurement system. There are many objections from the media and other construction-related research institutions because the project that is to be carried out under

the upcoming system is unprecedented. Therefore, it is necessary to analyze issues surrounding the direct contracting system. A report on the direct contracting system addressed the problems of the new system, and it concluded that the system may lead to inefficient organizational management so construction costs can be increased (Chang & Kim, 2008). However, the report focused on the step before the implementation of the new system and the details of the system were not yet determined. The roles of the construction project participants, such as specialist contractors, are also not mentioned. Therefore, it is necessary to analyze and discuss future directions with the details of the application of the direct contracting system.

First, this paper discusses the history of the introduction of the direct contracting system and analyzes the role of each member in the lump-sum contracting system, which is the most common procurement system associated with construction work. Because there is no precedent in Korea, this paper refers to the Japanese construction industry, which has a large influence on Korea's construction industry and legal system. By the studying Japanese cases, this paper estimates the changes under the direct contracting system. Finally, this paper highlights the issues that should be monitored for when the direct contracting system is implemented.

### **THE HISTORY OF ADOPTING THE DIRECT CONTRACTING SYSTEM**

On March 20, 2009, a special law was enacted that makes the direct contracting system available for fast supply of public housing. The main content of the provision is as follows:

Article 38 (Special Provisions for the construction industry law)

In case of the housing projects under this law, the project owners may be allowed to constructed although a ban by article 41 of the Basic Law of the Construction Industry,.

The main contents of article 41 of the Basic Law of the Construction

Industry are as follows:

Article 41 (Construction contracts limited to construction contractors). The following construction or remodeling shall be constructed by construction contractor(s). Structures designated by the presidential executive order for agricultural or livestock purposes may not be constructed by construction contractors.

1. Residential building in excess of 661 m<sup>2</sup> in total area
2. Residential building less than 661 m<sup>2</sup> in total area, but having three or more floors
3. Non-residential building in excess of 495 m<sup>2</sup> in total area
4. Non-residential building less than 661 m<sup>2</sup> in total area, but designated by the presidential executive order and having public use purpose

Because of provisions in the act, public corporations can only perform 5% of the yearly public housing construction projects.. Thus, the direct contracting system is still limited to work carried out by the public housing corporations. However, it is the Korean construction industry that has mainly been affected by public policy, although the private sector has recently moved into the main part of the construction industry. Therefore, the direct contracting system is supposed to be expanded to private projects. This system will be applied to public housing projects in Seoul and urban neighborhoods. These areas have close proximity to the city, and the project aims to reduce the cost burden on the people by high housing prices and greatly reduce housing costs. In 2009, MLTM appointed 9 projects, including 6150 residences. The target project has planned to build 150 million residences in 10 years, so the system would be applied on more public housing construction projects than MLTM expected about 4% reduction of the price by comparing the current procurement system by reducing contracting stages from three stages to two stages.

## **THE KOREAN CONSTRUCTION INDUSTRY PROCUREMENT SYSTEM**

To clarify the role of participants in the direct contracting system, it is necessary to understand their current roles in the general system. The construction project team in the Korean construction system consists of a client, an architectural engineer, a supervisor, and a construction contractor. They make up the construction team and the work of each is regulated by a different legal system; therefore, they are characterized by a strict division of the business scope.

### **CLIENT**

In the planning capacity, public owners are supposed to have insufficient ability to carry out a project. To compensate for the lack of ability, the turnkey system has been developed. The number of projects under these procurement systems has increased yearly. In particular, Private Finance Initiative (PFI) projects such as Build-Transfer-Lease (BTL) and Build-Lease-Transfer (BLT), which was announced in 1999, also increased in bridge and high-rise building construction projects.

### **ARCHITECTURAL ENGINEER**

If an architect wants to carry out his/her works, he/she needs to open an architect's office and file in the name of 'Architectural Firms' (Architects Act, Article 23 [Declaration of the business of architects]). These provisions restrict and define the scope of an architect's business. In other words, if a construction corporation that is not an architectural firm tries to carry out architectural work, it needs to change the company name to include the phrase 'architectural firm.' For example, although a corporation performing engineering wants to do architectural work with their own engineering work, they must change their company name into "OO Engineering Architectural Firms."

## SUPERVISOR

In Korea, architects belonging to architectural firms or supervisors belonging to a company that specializes in architect supervision perform the work of a supervisor. The types of companies in the supervision field are companies specializing in comprehensive supervision, supervision of civil engineering, supervision of architectural engineering, and supervision of construction equipment. The "Construction Technology Management Act" was created to prevent problems that occur when the companies carry out both construction and supervision. A supervision must be carried out by someone other than the contractors or their affiliates.

The responsible supervision system was introduced in 1994 in order to prevent defective construction of public works. This is a unique characteristic of the supervision system in the Korean construction industry. The responsible supervision can be carried out only by professional companies. Currently, over 100 million public projects are subject to the responsible supervision system.

## CONSTRUCTION FIRMS

Construction firms in the Korean construction industry are divided into general contractors and specialist contractors. The division of these contractors is strictly regulated.

The number of construction companies has increased enormously from 1975 to 1988, which is when the government resumed the issuance of new licenses. Nearly four million contractors were registered, particularly during the registration system to change the licensing system. Meanwhile, in spite of the changes in government policy, the recession of foreign construction businesses, and the economic crisis, the number of construction firms has been steadily increasing each year. However, construction companies have been affected by the global financial crisis and there have recently been an increasing number of construction companies declaring bankruptcy.

Since 1975, the construction industry has been divided into general contractors and specialist contractors because the acquisition of multiple building industry licenses has been banned by law. Therefore, there are general contractors in the construction industry and subcontractors that are determined by the legal division of the construction area of specialty construction industry. The original purpose of establishing this divide was to develop each specialty and to prevent specialist contractors because specialist contractor companies are mostly small and medium enterprises in terms of scale, so it had the intention to develop small companies. In 2007, the "Basic Law for the Construction Industry" was revised and the restriction was abolished.

#### GENERAL CONTRACTORS

The scope of work of general contractors includes civil engineering construction, architect construction, civil engineering-architect construction, environmental facilities, and landscape construction. Civil engineering and architect construction are regulated separately, and the characteristic of Korean construction industry in division system is the regulation of the civil engineering-architect construction works with the application of tougher standards than separated division. The civil engineering construction industry's business is "what belongs to the construction industry and the business of civil engineering construction industry." A civil engineering license is required in order for a single company to perform both. Clients can also request that contractors have a civil engineering-architect construction license or both a civil engineering and an architect construction license in the case of large-scale projects. Architect construction and civil engineering licenses should be possessed in 26 months for assurance of higher skills.

However, there are no cases of similar licenses in foreign countries. The requirement of license possession was abolished in 2008. And it

costs high to register and maintain licenses. For these reasons, it is discussed to abolish the division of civil engineering-architect construction license.

Many general contractor companies are conglomerate companies, and it is not uncommon for them to perform as the developers of their projects. They have their own apartment trademarks, especially in the housing industry. They set the strategic brand marketing because the brand image is directly related with construction companies. However, the excessive increase of housing specialist construction companies has led to a decrease of the amount of orders received at each company, and because of the changing situation, such as falling real estate prices and the economic downturn, many companies went bankrupt.

#### SPECIALIST CONTRACTORS

There are 25 types of special construction work, which are established by law in South Korea. The most commonly registered license is for concrete work, and the second is earth work. Work related to the construction of facilities, such as electric equipment, is not regulated by the "Basic Law for the Construction Industry." Although the acquisition of multiple licenses is possible, over half of companies have only one license. Until 1996, companies were limited to the acquisition of only two licenses. The number of the limitation increased to 6 temporarily between 1996 and 1999. Although the limitation act was abolished in 1999, specialist construction firms are still quite specialized in their work.

It is most common for a company to have a license for both concrete work and earth work because the amount of orders for two construction works occupies in the special works. Concrete work and

earth work occupies about 30% of all orders, and construction firms specializing in both can secure the amount of obtain orders. In addition, those two works are main structure works and have continuous relation in the construction project.

### **THE ROLE OF A GENERAL CONTRACTOR IN A CONSTRUCTION PROJECT**

A general contractor's business scope is defined by law:

The Basic Law for the Construction Industry defines the business scope of general contractors as construction work that requires comprehensive planning, management, and control. It continues to provide provisions on a general contractor's responsibilities, including that they will perform construction in good faith per design, specification, and construction contract, while abiding by laws and regulations regarding construction work to secure quality facilities and safety. Besides, a general contractor is encouraged to cooperate with and lead subcontractors from the perspective of collaborative management.

MLTM announces standard contracts for private construction projects and defines the responsibilities and business scope of clients and general contractors in private construction projects.

Table 1. The Contents in the Standard Construction Contract

The Classification of Works	The Contents in the Standard Construction Contract
Site management	Deployment site agent in site
Contract management	Selection of contractors under contract management
Time management	Report of begin construction、 Making the master schedule
Cost management	Making of the cost breakdown sheet
Safety management	Installation of safety facilities, Insurance
Environment management	Waste management
Quality management	Completion inspection, Defect warranty

The Construction Technology Management Law stipulates the duties of clients and contractors regarding quality, safety, and environmental management. A contractor must take initiative in management and a client must supervise and approve each work. However, the scope of management is not clear and this was identified as one reason for the dispute regarding who is responsible and liable for quality management. For example, quality control includes the testing of materials by a contractor and the approval of the test by a client, but organizational structure or managerial guidelines are not provided.

Table 2. The Contents of the Construction Technology Management Law

The Classification of Works	The Contents of the Construction Technology Management Law
Quality management	Establishment of a pilot project quality management plan and quality
Safety management	Establishment of a safety management plan
Environment management	Environmental management to minimize environmental damage to determine

Unclear legal definitions of the business scope and responsibilities of general contractors are one reason in practice, causing unclear scope of work of practitioners. For example, a survey of 27 practitioners at general contractor companies, specialist construction companies, CM(Construction Management) firms, and architectural firms shows that some work that is unclear in the law is generally performed by general contractors (Shin, 2009). The survey was done for structural work, and excluded electric facility work and telecommunication work because they are defined by other laws and have to be contracted separately.

In the business scope, the general opinion is that managerial work is done by a general contractor, and construction worker management is done by a specialist contractor (Table 3.). General contractors expressed the opinion that specialist contractors have an insufficient ability to manage, even if the situation is getting better, and specialist contractors agreed that general contractors are the ones to be better at managerial work. There is growing number of specialist contractors who procure materials themselves and conduct material quality control, but such control is far from a general contractor's overall comprehensive quality management. For materials such as steel or concrete, general contractors perform major material quality control and specialist contractors perform quality control for other materials. The reason that a general contractor manages major materials such as steel is that they account for a lot and are susceptible to big price change and, thus, they burden a lot to specialist contractors which may be exposed to the risk of bankruptcy. It is of general opinion that, in principle, drawings must be prepared by a general contractor; however, detailed drawings and shop drawings are being re-prepared by specialist contractors. The drawings by a general contractor contain insufficient data for actual construction work and, due to changes in the construction environment, specialist contractors re-

prepare drawings in many cases, even if this is not covered by contract, causing some to point to the problem of overlapping work scope.

Table 3. The work package matrix in general project

	①	②	③	④	⑤	⑥	⑦
Schedule Management/control	GC						
Quality management/control	GC						
Shop drawing							
Work force on site	SCa	SCa	SCb	SCb	SCb	SCc	SCd
Material procurement	SCa	SCa	SCb	GC	GC	SCc	SCd
Temporary facilities and machinery	SCa	SCa	SCb	SCb	SCb	SCc	SCd

※GC : General Contractor; SCa,SCb... : Sub-Contractor[a], Sub-Contractor[b]...

①Earth works; ②Scaffolding works; ③Formworks; ④Concrete;

⑤Reinforced bar; ⑥Steel beam; ⑦Crane

※Gray cells are irregular.

In other words, specialist contractors provide manpower and material—except for steel and concrete—in a lump sum and general contractors perform overall work and quality control. A general contractor also performs safety control and environmental management, including the general management of construction sites. General contractors tend to subcontract all work except for overall managerial work in order to deal with decreased contracts and to reduce costs in maintaining material and equipment. Accordingly, the construction equipment leasing business is also developed. Specialist contractors can increase the amount of contracts through the addition of material contracts, as well as by providing manpower and, thus, there are few conflicts of interest with a general contractor. It is also expected that general contractors will more specialized in overall comprehensive management. At the same time, to reduce the

management work load at construction sites, general contractors have tended to reduce the size of site organization by package subcontracting or headquarters' dealing with procurement or selection of specialist contractors. In addition, general contractors perform deciding on work method in the planning stage, selection and management of specialist contractors, and partial procurement. Clients seldom express an opinion regarding the selection of specialist contractors or work method decision and, even for the supervision of quality control, clients use architects or supervisors to perform such work.

### **THE DIFFERENCES BETWEEN THE DIRECT CONTRACTING SYSTEM AND THE GENERAL CONTRACTING SYSTEM**

The greatest difference between the lump-sum contracting system and the direct contracting system is that in the latter, clients can directly have a contract with a specialist contractor without a general contractor. In other words, because of the absence of the general contractor, the work load of other participants increases and the number of contracts also goes up.

Due to the absence of a general contractor, work done by a general contractor has to be done by other participants. As described above, however, the general perception is that public clients are not capable of making plans. Lump-sum contracts were preferred in order for a general contractor to supplement a client's insufficient capability. General contractors play a central role in projects, even creating detailed drawings which have to be done by architects. One of unique characteristics of quality control in the Korean construction industry is the responsible supervision system; supervision for quality control is done by a third party who is not affiliated with the client, architects, or contractors. Under the responsible supervision system, however, a

supervisor's authority is limited to checking work results and stopping construction if necessary, and all liabilities and duties on quality are the responsibility of the general contractor. General contractors perform a lot more work than those defined in the law for efficiency and contract relationship. However, ambiguous work scope is one reason to determine who is liable for quality and safety. Thus, liabilities are disproportionately on a specific party. Therefore, while reshuffling the work scope of each participant under the direct contracting system, it is necessary to review and examine the work scope of each participant under the new system.

In the direct contracting system, the Korea Housing Corporation is solely in charge of launching public housing projects around the country. There are a few projects in nine districts to test the new contracting system, but the number of specialist contractors has obviously increased compared to number of general contractors in the existing system. Even if contracts are made in package, a tremendous amount of contracts with specialist contractors must be created, including facility work companies. Even the contracting work of clients will skyrocket compared to the previous system, and the client's organization needs to be reorganized to cover the increased work.

### **THE KEYNOTES OF ADOPTING DIRECT CONTRACTING SYSTEM**

The 2008 report by CERIK examined the direct contracting system, focusing on the possibility of construction cost reduction and systemic issues (Chang & Kim, 2008). It indicated that if the direct contracting system is implemented, when compared to the lump-sum contracting system with general contractors, cost reduction is not possible, the client's organization becomes larger, and the client's overhead cost increases due to the increased number of contracts. The

report analyzed the feasibility of the new system and this study explores methods for the successful application of the system after the system was implemented.

The traditional way of contracting public apartment housing projects was the lump-sum contract, based on lowest bidding price. The amount of construction contracts has been decreasing since 2003, and the lowest bidding price contracting method was regarded as causing excessive price competition among general contractors. Excessive price competition burdens not only general contractors, but also specialist contractors, leading to the possibility of low quality construction. Thus, overall work scopes for project participants must be examined to reduce construction cost of the direct contracting system and, at the same time, maintain the level of quality and safety control.

However, there are few cases in Korea of applying the direct contracting system to large projects, such as public apartment housing projects. Therefore, the work scope was examined by analyzing factors used in Japan to be considered in selecting a contracting method. The Japanese construction system has greatly influenced the Korean construction industry from the legal system to practice. Recent implementation of the responsible supervision system is unique to Korea, reflecting the environment surrounding the Korean construction industry, but there are a lot of similarities in the structure of construction industry in Korea and Japan. See references for a comparison of the construction industries in Korea and Japan.

While the Korean construction industry clearly defines the boundaries of the industry by law, Japan does not have such clear boundaries for the construction industry. For example, in Japan, working as a general contractor and a specialist contractor at the same time is allowed, and it is also possible for a company to be both

a design firm and contractor. Thus, the construction market in Japan has developed based on free market approach. In Korea, there are a number of specialist contractors having multiple licenses because of laws, whereas in Japan, it is because of ways to improve competitiveness by specialization. In fact, Korea has more cases of companies with multiple licenses. Clients in Japan can select a contract method without legal restriction, and a number of contracting methods are being used, including turnkey and CM at risk.

According to research by Furusaka, et al., Japanese private clients prefer a lump-sum contract to other contract methods, such as separate contracts (Furusaka, Umemoto & Kaneta, 2003). In the following project, the response provides several reasons for selecting lump-sum contracts:

Risk hedge is not possible by other contracting methods in the case of construction management or subcontractor's bankruptcy.

Cost and risk increase for coordinate participants if separately contracted.

Separate contracts seem to be right, but there are few contractors who can handle comprehensive management work.

The liability issue on the whole project is clear.

In the same survey, the following response is against lump-sum contracts:

Cost increases.

Breakdown of costs is not clear and transparency cannot be guaranteed.

The major reasons for adopting the direct contracting system in Korea are to simplify the contract stages and reduce costs. At the same time, implementation of the direct contracting system means that clients have more options in contracting. Even if there is little cost benefit in the direct contracting system, it should be examined

for any benefits in quality, safety, or work control. As the same as Japanese case, transparency in public housing projects may be improved because the breakdown of costs becomes clearer by excluding general contractors.

### **THE RISK OF ADOPTING THE DIRECT CONTRACTING SYSTEM**

Clients now have more contracting options because of the adoption of the direct contracting system, but there are still limitations because, by law, electric facility work and fire prevention and extinguishing facility work have to be contracted separately by laws. And, public clients have little experience in the overall management of projects under the direct contracting system. Additional licenses for general contractors are only recently allowed, and relatively few specialist contractors have the capability to perform the overall management of construction projects. Therefore, the prompt implementation of direct contracting system is too hasty.

The CM contracting method is a method in which a party performs the management of planning, design, and construction for relatively new or difficult projects to maximize the success of these projects. Thus, this method is effective for relatively unprecedented or technologically hard projects. Public apartment housing projects are large-scale, but general housing projects. At the turn of 1990s, the government increased the portion of public housing projects as part of a quick housing supply policy and, accordingly, there are a lot of general contractors specialized in housing projects and who have a lot of experience and know-how in housing projects. Meanwhile, due to the recent decrease in the amount of contracts, there are growing numbers of cases of general contractors forming consortiums in order to participate in bids for public housing projects. The construction management capabilities of general contractors

need to be utilized.

In case of a CM at risk method, a CM firm performs the work of responsible supervision as well. However, even if the same work is performed, a CM firm under a CM at risk contract has a different perspective than a supervision firm under a traditional contract. Supervisors only perform quality control under the guidelines of the law. CM firms, however, perform supervision and, at the same time, consulting work from the perspective of clients. In other words, supervision firms only perform supervision under the law, but CM firms consider clients' interest. The responsible supervision system only applies to large-scale public projects where a contractor's quality control or an architect's supervision seems to be insufficient. Supervision firms, performing responsible supervision, are a third party to a project, irrespective of the interest of a project and, thus, their work is called third-party supervision. In addition, in case of a CM at risk contract, a CM firm has a contractual duty to finish the project under the total contract amount. Thus, a CM firm must consider both the public and profitability under the circumstances of a high likelihood of a conflict of interest. It is same when a general contractor participates as a CM firm. In adopting a CM at risk contract system, a comprehensive overhaul of the legal system involving the responsible supervision system must be reviewed.

## **CONCLUSION**

As explained above, the original goals of the direct contracting system are to reduce housing prices and to pursue the public interest. However, as shown in other studies, reduction of housing prices should be reviewed on market values, including land prices as well as construction costs. Current housing prices, when compared to a household's income level, are about 200% higher in Korea than in the US or Japan. The government's real estate policy, however, seems to

focus on preventing housing prices from going down. Furthermore, while pursuing a development policy centering on greater Seoul area, the government seems to overlook the problem local unsold apartments and the problem of increased transaction cost due to overflowing population in the greater Seoul area.

As mentioned above, the adoption of the direct contracting system is meaningful in that it provides more contract options to clients. Until now, under limited contracting methods, clients and contractors have had a set role, irrespective of the characteristics of projects. However, a reduction in the amount of contracts and the demand from private clients led to an opportunity to reconsider project organization and the roles of participants. Contracting methods determine the organization of the project and the role of each participant. Thus, diversification of contracting methods will provide clients the opportunity to freely improve the quality of construction and price competitiveness. In addition to the direct contracting method, the CM at risk system is likely to be implemented at some point this year. Trial and error generally occurs when an existing framework is changed under a new policy. Sufficient review before the adoption of a new system is important, but once a new system is adopted, efforts must be made to reduce errors and to maximize the new system's positive effects.

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