

Adaptation of Standard Contract Documents (FIDIC, AIA, EJCDC, Consensus Docs) in Chinese Construction¹

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ABSTRACT

Since China has been devoted to realizing the modernization completely before 2025, it occurs evermore that many construction projects are carried through without standards. Construction contracts as the first guarantee to ensure the success ongoing of the project, therefore have the duty to be formed properly. As China develops slowly in the Contract Law, the contracts we use today don't match to the current constructions anymore. To make the contracts applied appropriately, this paper will develop which standard contracts such as Fédération Internationale Des Ingénieurs Conseils (FIDIC), American Institute of Architects (AIA) is better to be adapted to make up the defects in the Chinese construction contracts by adopting Dominance method and the Additive Weighting Technique to analyze. Based on the result, it's suggested to adopt the FIDIC contracts as it has large advantages in most of the aspects of which Chinese contracts is shorting. This paper may help to make improvements to the Chinese construction contracts and create an orderly environment for Chinese construction industry.

Key words: Chinese Construction, Construction Contracts, Adaptation of Contract, Characteristic of Contracts, Pros of Contracts, Cons of Contracts, Comparative Analysis

INTRODUCTION

China nowadays being second-largest economy plans, is at a rapid speed of development, so is the construction industry. In the recent 5 years, China has built several enormous buildings such as Hong Kong-Zhuhai-Macao Bridge, the longest cross-sea bridge in the world; Danyang-Kunshan Grande Bridge, the longest worldwide bridge; and Beipanjiang Large Bridge which is the highest bridge all over the world. These are all thrilling achievements in the construction field.

With the ongoing of the 19th National Congress of the Communist Party of China, China has set her new direction which is to keep open to these international companies in order to realize the globalization. However, she is faced with many difficulties among which the Chinese

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standards varying from the popular international standards is a significant problem to deal with. Concerning the construction industry, the standard of contract that China has adopted limits Chinese construction companies' scope of business.

It is urgently needed to make some reformation to the construction contract to get more suitable to the international criterion. There are mainly four types of contracts widely adopted to the field of construction which are: Fédération Internationale Des Ingénieurs Conseils (FIDIC), American Institute of Architects (AIA), Consensus Docs Construction Contracts (Consensus Docs) and The Engineers Joint Contract Documents Committee (EJCDC). These four types of construction contracts focus on different aspects resulting in their different characteristics. In another words, though used worldwide, some defaults still exist in these four popular construction standard contracts. Therefore, the objective of this paper is to discuss how to adopt these four popular standard contracts to the Chinese construction contracts by analyzing the issues as followed:

- What are the characteristics of construction contract management in China?
- What are the advantages and disadvantages of the standard construction contracts (FIDIC, AIA, EJCDC and Consensus Docs)?
- Which is the best mode for Chinese construction contracts?

METHODOLOGY

In order to find the best mode for Chinese construction contracts as mentioned above, we used a quantifiable analysis to comprehend the advantages and disadvantages among the FIDIC, AIA, EJCDC and Consensus Docs and selected one most suitable mode for the Chinese environment. For purposes of this analysis, Dominance method and the Additive Weighting Technique were selected as the main methodologies. Dominance method as one of the Multi-Attribute Decision Making (MADM) methods, is easy to use and quickly finds the best solution when there are subjective attributes. Following which, the Additive Weighting Technique can provide a more specified result. To perform this comparison, necessary definitions, easy to understand, flexibility, fairness for all parties and healthy supervision system were chosen as the essential attributes for the analysis.

2. Development of the Alternatives

There are four forms of standard contracts recommended to help to enhance the advantages of the Chinese construction contracts. We assumed that:

- 1) The terms of FIDIC are more appropriate for Chinese construction contracts.
- 2) The terms of AIA are more appropriate for Chinese construction contracts.
- 3) The terms of EJCDC are more appropriate for Chinese construction contracts.
- 4) The terms of Consensus Docs are more appropriate for Chinese construction contracts.

3. Development of the Outcomes for Each Alternative

- 1) The terms of FIDIC are more appropriate for the Chinese construction contracts. If it's true, Chinese construction can be more attached to the world because FIDIC is an international standard construction contract which is adapted by many countries. But, it may also happen that contracts have conflicts with the local laws. In this way, FIDIC will lose its advantages.
- 2) The terms of AIA are more appropriate for the Chinese construction contracts. If it's true, the Chinese construction contracts may obtain more advantages, but may also be limited to a certain requirement. Because AIA only has one general form for all kinds of conditions. When preparing the contract, it requires more contribution to fit the needed terms in the contract.
- 3) The terms of EJCDC are more appropriate for the Chinese construction contracts. If it's true, the conflicts during the process of the construction may reduce. Because EJCDC has the characteristic of easy to understand, every party can obtain a clear statement of their responsibilities and the works they are expected to complete. They will have fewer disagreements with others. This could be a significant change to the Chinese construction.
- 4) The terms of Consensus Docs are more appropriate for the Chinese construction contracts. If it's true, the forms of contracts will be adequate. Because Consensus Docs calls for the active involvement of the Contractor. But in the actual situation, China doesn't give enough authority to the Contractor. On the contrary, the Contractor takes more responsibilities for the construction project in reality.

4. Selection of the Criteria

Based on the construction industry in China, several criteria were selected to analyze which hypothesis is true:

Necessary Definitions: The definition can specify the lien among the participants.

Easy to Understand: If the contracts are misunderstood, it may result in the cost of time and money.

Flexibility: If the terms can be modified will influence the degree of the coherence between the contracts and the project.

Fairness for All Parties: The unfairness in the contracts can cause some conflicts.

Healthy Supervision System: A healthy supervision system can reduce the workload of the Owner and make sure the producers handed over in time.

These attributes would determine whether the standard contracts fit the purpose of the improvement or not.

FINDINGS

5. Analysis and Comparison of the Alternatives

We analyzed these contracts following the instruction of the Dominance method to identify their characteristics.

1) Terms of FIDIC

FIDIC publishes a series of contracts for all aspects including employers, contractors and consultants. The conceptions of these three roles are defined as followed:

- a) The Employer must provide rational assistance to the Contractor once the Contractor requests.
- b) The Contractor shall design, execute and complete the Works demanded in the contract and by Engineer's instructions.
- c) "Engineer" means the person appointed by the Employer to act as the Engineer for the purposes of the Contract or other person appointed provisionally by the Employer.
- d) The Engineer shall have no authority to amend the Contract.

In these terms, FIDIC defines the person of the three main roles and their responsibilities. From which it can be identified that the Engineer plays an essential role in the contract, but it can't go beyond the Employer's power. On the contrary, the Contractor must follow the instructions of both the Employer and the Engineer. In addition, the Engineer can be appointed from time to time which indicates that FIDIC is flexible about its structure.

2) Terms of AIA

AIA contract documents try to create a fair environment for all participants in design and construction project. The AIA strives to balance those interests through a reasonable apportionment of risks and responsibilities that take into account the best interest of the project. There are three terms in AIA selected as below.

- a) The Owner is identified as such in the Contract and is referred to keep unique the Contract Documents as if singular in number.
- b) The Contractor should supervise and manager the Work.
- c) The Architect will visit the site at the time where vital decisions will be made to the stage of construction, or as otherwise agreed with the Owner.

From the statement of the terms above, it's clear that the Contractor should be responsible for the Work for most of the time because the Architect doesn't come to the site as a regular. And the definition of the roles isn't clarified clearly as expected.

3) Terms of EJCDC

EJCDC is written for infrastructure projects in the United States and can be modified to satisfy the projects. It mainly focuses on the cost of the project. There are some terms relevant to this paper:

- a) Contractor shall supervise, inspect, and direct the Work competently and efficiently to execute the Work according to the Contract Documents.
- b) The Owner shall not do the Work of the Contractor nor be responsible for Contractor’s tasks or for any failure of Contractor.

We can make a conclusion that the Engineer works as an intermediary between Owner and Contractor from the perspective of the Owner.

4) Terms of Consensus Docs

Consensus Docs has more than 80 contracts and forms to address a variety of project’s delivery methods. It is adapted for good implementation of the project rather than any one party. Three terms were selected to discuss.

- a) Each Party shall take their obligations with integrity.
- b) Each shall avoid conflicts of interest and warrant that no contingent fees appear to secure preferential treatment.
- c) The Parties shall negotiate faithfully an appropriate adjustment to the time or the price and shall arrange these negotiations as expeditiously as possible.

The concepts in the Consensus Docs are totally different from other contract documents, which may lead to the misunderstanding of the contract. What’s more, this is the only contract putting the Owner and the Contractor in an equal position.

5) MADM Method Analysis

To make a clear comparison of these four contracts, the Dominance method was applied in figure 1.

Attributes	FIDIC	Consensus Docs	AIA	EJCDC
Necessaire Definitions	Clear	No definitions	Not Clear	Not Clear
Easy to Understand	Easy	Hard	Not Easy	Very Easy
Flexibility	Much	Little	Little	Not too Much
Fairness for All Parties	Very Fair	Fair	Unfair	Not Very Fair
Healthy Supervision System	Healthy	Unhealthy	Unhealthy	Unhealthy

Figure 1: Summary comparison among FIDIC, AIA, EJCDC and Consensus Docs, by Author

We classified the standard contracts by matching the content of the contracts with the attributes. From the figure above, we can eliminate the Consensus Docs first for the reason that it has the maximum number of red cells in the chart. Then we could analyze further in the next part.

For next step, we could use the Additive Weighting Technique to produce an appropriate ratio scale. Firstly, we allocated values to the different degree of the abstract descriptions of the attributes to make them quantifiable; Secondly, we calculated the sum of the attributes relevant weighting; Thirdly, we gave a relevant rank of the attributes according to the environment of the construction industry in China and the problems she is faced with. And then combine the relevant rank and the relevant weighting of each contract. The process is shown from figure 2 to figure 4.

Easy to Understand		Fairness for All Parties	
Very Easy	3	Very Fair	3
Easy	2	Fair	2
Not Easy	1	Not Very Fair	1
Hard	0	Unfair	0

Figure 2: Evaluation of Two Complicated Attributes, by Author

Attributes	FIDIC	AIA	EJCDC
Necessaire Definitions	1	0.5	0.5
Easy to Understand	0.67	0.33	1
Flexibility	1	0	0.5
Fairness for All Parties	1	0	0.33
Healthy Supervision System	1	0	0
TOTALS	4.67	0.83	2.33

Figure 3: Relevant Weighting, by Author

Attributes	Relevant Rank	Normalized Weighting(A)	FIDIC		AIA		EJCDC	
			(B)	(B)×(A)	(C)	(C)×(A)	(D)	(D)×(A)
Necessaire Definitions	1	1/15=0.07	1	0.07	0.5	0.04	0.5	0.04
Easy to Understand	2	2/15=0.13	0.67	0.09	0.33	0.04	1	0.13
Flexibility	4	4/15=0.27	1	0.27	0	0	0.5	0.14
Fairness for All Parties	5	5/15=0.33	1	0.33	0	0	0.33	0.11
Healthy Supervision System	3	3/15=0.2	1	0.2	0	0	0	0
SUM	15	1		0.96		0.08		0.42

Figure 4: The Additive Weighting Technique, by Author

6. Selection of the Preferred Alternative

It's obvious that the preferred alternative is the option earned the highest value, which means the FIDIC is the best standard for Chinese construction market.

Based on all the terms we discussed and the MADM analysis, some suggestions were put up to improve the performance of the Chinese construction contracts:

- 1)** Modify the terms about the definitions of the roles revolved in the construction project. Clear definitions can reduce the opportunity for misunderstanding of the contracts.
- 2)** Rebalance the power, the responsibilities and the risks among the Owner, Contractor and Engineer or Architect. In most contracts, Contractor is always in a negative position. To reach for a sustainable environment for construction, it's necessaire to improve the flexibility when using the terms and give the Contractor enough rights.
- 3)** Architect or Engineer should play the role as a coordinator for both the Owner and the Contractor. To supervise the progress of the Work from Owner's perspective, to deliver orders considering the Contractor's interests.

7. Performance Monitoring and Post-evaluation of Results

To verify if these commendations are good for construction, we can review the real duration of the project, the quality of the products and the cost of the project compared with the initial price.

CONCLUSIONS

To summarize, the objective of this paper is to discuss how to adopt these four popular standard contracts to the Chinese construction contracts by analyzing the issues as followed:

What are the characteristics of construction contract management in China?

What are the advantages and disadvantages of the standards construction contracts (FIDIC, AIA, EJCDC and Consensus Docs)?

Which is the best mode for Chinese construction contracts?

The needs for housing are much over the speed of the construction. Therefore, the process of the construction is often out of control. Besides, the construction contracts don't mention how to deal with these issues. The necessity to amend the Chinese construction contracts has been approved. FIDIC stands out from the other standard contracts owing to its information completeness, understandable statement, large flexibility, healthy supervision system and the most essential, the fairness for all parties.

As a result, some adjustments are applied to the Chinese construction contracts according to the principles of the FIDIC to standardize the process in the construction and make a balance among all the parties.

FOLLOW ON RESEARCH

During the research of this paper, we found that we didn't involve the payment which is an essential concern when considering the problems about the construction. To develop this issue further, some questions are put up.

1. Should the terms of payment in Chinese construction contracts be improved?
2. How many means can fulfill the payment?
3. Is there any institute or personnel to supervise the process of the payment?
4. Are there some terms that may force one party to pay?
5. If improvements are needed, which type of standard contract fits better the purpose?

Once the changes to the contracts are done, we will use the economic evaluation indicators such as the Net Present Value (NPV), Net Asset Value (NAV), Internal Rate of Return (IRR) to track whether the model I created operates properly and fixes the problems.

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