# Four types of Contract documents to resolve Retainage Conflicts: A Multi-Attribute Decision Analysis[1]

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## ABSTRACT

Project management practice did not evolve knowing that the number of disputes is increasing in terms of time and money. This paper addresses the problem by choosing the best contract provoking the least of disputes in terms of Retainage.

The method used is first to address and view the problem and clauses related to it in four different contract types and second, compare in a qualitative matter the four types of contracts to be able to do a clearer choice. As a third step the paper's objective is to choose one single contract type that suit best our objective and this choice is made by using the non-compensatory model of disjunctive reasoning.

As a final answer, one contract that replies best to the objectives set is chosen, therefore it is the best contract dealing with conflict avoidance in regards of Retainage clauses. >

**Key words:** Retainage; Post-Completion Obligations; Performance; Retention Clause; Romalpa; Guarantees; Protecting Sellers.

## INTRODUCTION

Statistics show that the number of disputes in contracts is largely increasing. The average dispute value has increased from 31million dollars in 2012 to over 42.8 million in 2016; in the same manner, the length of disputes has tremendously increased throughout the years to get to an average of 12.8 month in 2012 and 14 month in 2016 these numbers are not necessary focused in a certain part of the world but the numbers are representative samples from all the continents where the four types of contracts addressed in this paper are highly present and being worked with. Although project and contract management is evolving in terms of number of people having degrees and certifications but the practical part seems to fall away and Winston Churchill's famous quote "Let our advance worrying become advance thinking and planning" doesn't seem to be applied when dealing with project management conflicts.

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Further research have shown that "Failure to administer contract" is the top cause mentioned in the 2016 Construction Dispute report; therefore, Project delays, or end phase conflicts are considered to take a big share of the overall conflict percentages, while contractors are not payed but they managed to finish the work on time, or clients trying to delay final payment times by looking to hit on small specific technical issues. In this regard this paper's purpose is to solve the issue of Retainage / Post completion guarantees and protection of the client and seller.

All in all, this issue had been targeted for a long time and till now no clear solutions were advanced. Therefore It is of major importance to review the four types of contracts: FIDIC, ConsensusDocs, EJCDC, AIA Contract Documents. To have a clear view on the topic and settle a certain benchmark, the CSI manual practice is used as a comparative basis in order to find the most appropriate context resolving this kind of issues.

**Step 1: Problem Definition:**

In this manner the objectives of this paper are:

- Advance/State the least conflicting Retainage/Post Completion Payment clause in form and sentence.
- Investigate and give a brighter view of the retention clause in the four types of contracts.

## METHODOLOGY

**Step 2- Development of Feasible Alternatives**

The methodology used is based on a qualitative research method based on a study interested in subjective knowledge, Having an exploratory and observational aim, flexible characteristics, dynamic and made in a purposeful sampling method shown by using the four types of contracts we choose and limiting our study to certain professional selective opinions.

Therefore, a clear overview on the topic of Retainage is made by scanning the definition, causes, processes and some real story facts is made. As a second step, we will have a direct analysis of the four types of contracts in terms of Retainage clauses. As a final analytical step we will be able to qualify the criteria through a Multi Attribute Decision Making (MADM) analysis by using the **N**ON-COMPENSATORY MODEL of Disjunctive Reasoning. After viewing the general idea and the contracts content regarding Retainage a comparison table is issued to compare the four and benchmark it with the CSI standard.

### 2.1 Retainage in construction contracts and position in contract administration

"Retainage is law talk for money that an owner, or a contractor, withholds from an interim payment to pay at a later time."

Retainage appears in both prime and subcontracts; the contract usually allows the owner to withhold money from contractor until he completes all of the work.

Same thing for the contractor, that himself withholds money from subcontractors until they finalize the work to be done on the project. This can also be done on chainlike process while having subcontractors to hold money from other subcontractors that they assigned.

### 2.2 Causes of Retainage

Retainage is used as an incentive to the contractor. Therefore when a certain amount of the total project sum is deferred until completion, the contractor will be more involved and wanting to finish up the work as fast as he can to receive the remaining amount. Moreover this end of the project should be satisfactory and according to plans and specs, therefore the amount is kept until: "Substantial Completion of the project".

Moreover and for the security of the owner, the retainage amount is kept to secure that the contractor will pursue work on the project. And in case the contractor leaves, the owner can use this money to replace the contractor by another one. This same practice is done between contractors and subcontractors to insure their ability to wrap the work with no extra damages done.

### 2.3 Processes provoked by Retainage:

- A maximum of 10% is to be retained from the project's total sum (Varies From 0 to 10)
- After the work completion the party responsible of work survey and acceptance (Can be Owner/Architect/ Engineer or a third party) sends a note for the adjustments to be made.
- After making the adjustments, the contractor can deliver the site as per mentioned in the contract.
- The owner signs the substantial completion document and the contractor gets payed the remaining retainage amount.

**The top five causes of disputes in US construction projects during 2011 were:**

1. Ambiguities in the contract document
2. Incomplete design information or employer requirements
3. Conflicting party interests
4. Failure to make interim awards on extensions of time and to give associated compensation
5. A failure to properly administer the contract.

**The top five causes of disputes in Asian construction projects during 2011 were:**

1. Failure to make interim awards on extensions of time and to give associated compensation
2. Unrealistic risk transfer from employers to contractors
3. Conflicting party interests
4. An unrealistic contract completion date being defined at tender stage
5. Incomplete design information or employer requirements.

**The top five causes of disputes in European construction projects during 2011 were:**

1. A failure to properly administer the contract
2. Incomplete design information or employer requirements
3. Ambiguities in the contract document
4. Failure to make interim rewards on extensions of time and to give associated compensation
5. Employer imposed change.

**The top five causes of disputes in Middle East construction projects during 2011 were:**

1. A failure to properly administer the contract
2. Incomplete design information or employer requirements
3. Employer imposed change
4. Failure to make interim awards on extensions of time and to give associated compensation
5. Unrealistic risk transfer from employers to contractors.

Figure 1: "Global Construction Disputes: Moving in the Right Direction."

### 2.4 The Four types of contract

The study tackles four types of contracts: EJCDC, AIA, FIDIC and ConsensusDocs. A briefing on retainage as viewed in the four contracts is to be presented and analyzed.

### 2.4.a EJCDC

For the EJCDC contract we can split our study for multiple criteria comparison:

**Application for Retainage Payment**

The engineer checks that all the requirements are met: the contractor made all the corrections already asked for in the last inspection, the project is performed according to Contract documents: Schedule, guarantees, bonds, insurances, marked-up record documents. The contractor makes the final payment request as a payment closure for the project.

**Required evidence for Retainage payment**

- ✓ All documentation called for in Contract Documents.
- ✓ Consent of Surety to final payment.
- ✓ Claims/ Change orders previously made and that the contractor states that it was not settled.
- ✓ A legal release from the owner.

**Engineer's review**

The engineer checks that the project is according to all plans and specs, in addition of making sure that the contractor made the changes requested. After having the required documents the contractors fills in an Application for Payment, the engineer has 10 days to reply by accepting or rejecting. If accepting an owner recommendation is required, if not accepted the reasons should be stated.

### 2.4.b AIA

**Application for Retainage Payment**

The contractor has performed the entire project according to the plans and specs, except for correcting the work (Section 12.2.2 of AIA Doc) and satisfaction of owner after performing the close out requirement.

**Required evidence for Retainage payment**

- ✓ Submittal of final accounting for the costs
- ✓ Issue of final certificate from the architect
  - ✓ Final lien waivers from Contractor and subcontractor
  - ✓ All other documents requested by the contract
  - ✓ Construction close-out checklist

**Engineer's review**

According to the AIA contract, the architect is the entity responsible checking the accuracy and completeness of the work and information provided by the contractor.

### 2.4.c ConsensusDocs

**Application for Retainage Payment**

When issue of substantial completion the contractor. The date will be the start warranties, guarantees and release of retainage.

**Required evidence for Retainage payment**

- ✓ Substantial completion documents (Certificate of final completion)
- ✓ Release responsibility papers for both entities
- ✓ Application for payment

**Engineer's review**

After consultant's acceptance of the work, The Certificate of final completion is issued.

### 2.4.d FIDIC

**Application for Retainage Payment**

In case a Taking over certificate was issued, a proportion of the retention money would be issued.

If there were remaining works (Defect Liability clause) the engineer shall keep the retainage amount estimated for this work retained.

**Required evidence for Retainage payment**

- ✓ Payment certificate (Value of work, Further sums to be due, estimate of additional amounts due to upcoming contract clauses)
- ✓ Engineer Payment Certificate
- ✓ Take over certificate receive

**Engineer's review**

After issuing the interim payment certificate approved and reviewed by the engineer and sent to the client the payment should be issued by this time indicating the end of the job.

**Step 3: Development of the Outcomes**

FIDIC gives authority to the engineer, like the engineer is the one having the authority on the contractor, therefore to have the final payment the contractor has to take the engineer's approval. Payments can be released after substantial completion is ordonnance with the value of work done.

AIA contract gives the authority to the architect, so the authorities are given to the architect and especially dealing with substantial completion, it is the architect who issues the substantial completion document stating that everything is according to plans and specs before releasing any payments.

Consensus docs was originally made by all stakeholders, therefore the difference lies in giving authority for all these stakeholders: owners, Engineer, Architect and contractor therefore it creates a certain equilibrium but sometimes makes the procedure more complex. Moreover ConsensusDocs give certain flexibility while relying on forms and required document because this type of contract considers every contract as a special case to be treated separately. Moreover, Consensus docs allow the owner to release a part of Retainage applicable to the work finished. In addition to the flexible part of the retainage the consensus doc advanced a new option stating "Retention Bond" as a security instead of having the Retainage.

In the EJCDC contract the level is authority is more or less balanced. Relationship is balanced between Engineer/Architect on one side and contractor on the other. When we analyze the clauses of EJCDC we can figure out that The Engineer/Architect's roles are basically to solve the

dispute in case it happens between the owner and contractor but in the main perception we cannot consider it as neutral entity because according to the EJCDC the owner is the one employing the Engineer and Architect to work on a certain project. A concrete example is the necessity of Owner's formal recommendation for final payments.

**Table 1: Contract Attributes Comparative Table**

| Attributes | EJCDC | FIDIC | ConsensusDocs | AIA |
|---|---|---|---|---|
| Cash Flows when substantial completion and closure | Retention as Closure Payment | In Ordonnance with the work done | Release according to the work finished | After Architect's Release of Substantial Completion |
| Punch List (Reliability of Documents) in a timely manner | Partial flexibility allowing a project based Punch list + Clearness | Clear and simple list allowing also for flexibility and goes along with contract type | Clear and simple list allowing also for flexibility and goes along with contract type | Detail and Mostly non flexible list. |
| Level of Authority | Mostly balanced and giving power to the Owner | Gives Power to the Engineer | Gives power to all Stakeholders | Gives Power to the Architect |

**Step 4: Selection of Criteria:**

Three major comparative criteria were chosen and multiple rankings are issued to be able to do the comparison.

**Criteria 1**

*** Level of Authority**

- Rank from 0 to 2 when only given to one single entity to decide.

- Rank from 2.5 to 3.5 when given to 2 entities (Shared responsibility)

- Rank from 3.5 to 4 when it is distributed between Stakeholders

**Criteria 2**

*** Reliability of Documents**

- Rank between 0 to 2 for Fixed/ Non flexible number of documents

- Rank between 2.5 and 3.5 for Very Flexible number of documents leading to complexity

- Rank between 3.5 and 4 for Balanced Fixed and Flexible number of documents according to contract request.

**Criteria 3**

*** Reliability of Documents**

- Rank between 0 and 2 for final payments issued only when work is done.

- Rank between 2.5 and 3.5 for paying partly the final payment according to practice.

- Rank between 3.5 and 4 for Paying partly according to practice in addition to flexible options related to having bonds.

**FINDINGS**

**Step 5: Comparative Analysis**

**Assessment of the conflicting Retainage/Post Completion Payment clause in form and sentence**

| Quality | |
|---|---|
| **Excellent** | **5** |
| **Fair** | **4** |
| **Good** | **3** |
| **Poor** | **2** |

**Table 2: Assessment of Contract Attributes.**

| Attributes | EJCDC | FIDIC | ConsensusDocs | AIA |
|---|---|---|---|---|
| Cash Flow | 3 | 5 | 4 | 4 |
| Punch List (Reliability of Documents) in a timely manner | 5 | 4 | 4 | 3 |
| Level of Authority Diversity | 4 | 3 | 5 | 3 |
| Clarity of Clauses | 3 | 4 | 4 | 4 |
| Availability of External Support Documents | 3 | 4 | 4 | 4 |
| Total | 18 | 20 | 21 | 18 |

| | | | | |
|---|---|---|---|---|
| Percentage Efficiency | 72 | 80 | 84 | 72 |

While comparing the four types of contracts we can clearly notice that the difference's origin is basically from the level of authority of each entity and the country of origin.

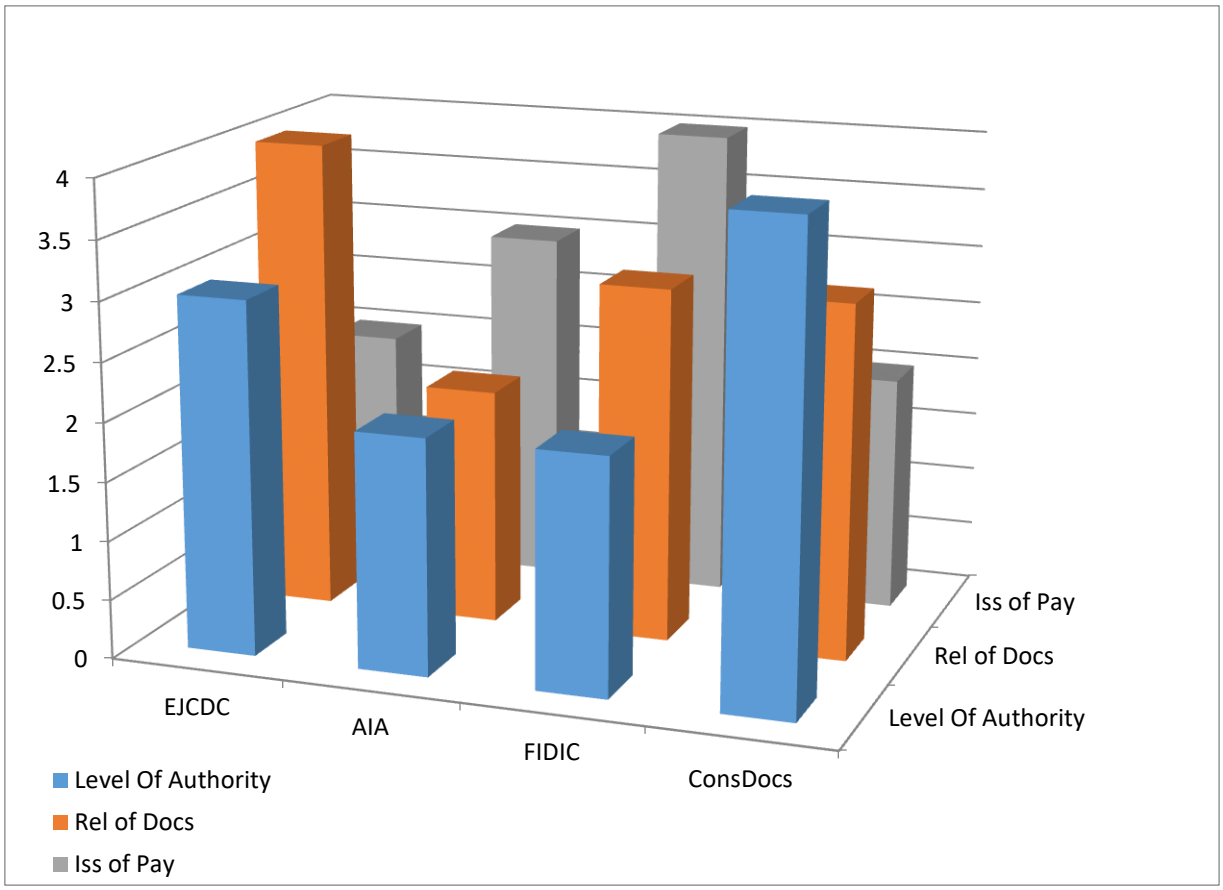


**Figure 2: Visual Comparison of Important Contract Attributes.**

The Comparative scale ranges between 0 and 4."0" indicating the least relevant (least fair or range of balanced flexibility) and 4 indicates the best practiced in terms of relevancy (the most fair and most balanced flexibility).

After investigating and having a brighter view about the subject and after checking the four kinds of contracts we can now state which one can suit us best and respond to our demand of decreasing the number of conflicts.

The criteria chosen have mutual effect on the type of contract to be chosen. It is widely known that a contract's clause can make a huge conflict this is why our finding relied on multiple

important facts to stress the topic from different angles and be able to set up this comparative chart and obtain clear Results.

### 6.0 Selection of Preferred alternative

The best contract in terms of Retainage has a big relation with the entity concerned. Therefore from an Engineer's perspective, the FIDIC would be the best one but in other means, for an Architect, the AIA would be the best and so for the other two. To go back to our initial topic, and solve this issue of retainage we look at this topic on a conflict resolution and conflict avoidance perspective.

As Conflict avoidance gets best in the ConsensusDocs clauses in many means, assuring each and every stakeholder's right, and giving the stakeholders the required level of authority to go with project end as smooth as possible.

In addition to the flexibility of the required documents by assuring certain must haves and others required depending on the project. On the other hand for determined and specific construction type of contracts the FIDIC will be more likely conflict avoidant and so as for the two other types. It is by all means for the stakeholders to choose the type of contract according to a certain project and then choose what contract title to look under.

### 7.0 Performance Monitoring and Post Evaluation of Results

This paper advanced several types of contracts and presented each type on a multidimensional scale having same comparative criteria enabling to conduct a comparison between the existing clauses related to Retainage. Projects are suffering day after day from conflicts and therefore we have multiple delays and several change orders in addition to conflicts that usually adhere. And choosing the right type of contract is the most powerful tools to enable us solve and overcome project issues.

EJCDC is currently used in many contracts and debates are always running to find out what the deficiencies are and what is the best type of contract that allow us to use EJCDC. Therefore in this case many didn't use EJCDC and shifted to other types of contracts naming: AIA, in the same manner AIA has many different weaknesses knowing that it gives a higher power to the Architect and is mostly used for Architect's contracts. In other regards reviewing the FIDIC conditions we notice that it is one of the most used types of contracts in the Middle East and still many conflicts are occurring in Retainage and other terms.

For the ConsensusDocs it is also important to note that comments and weaknesses are noted, but all in all as a convenient contract considering the rights of all the stakeholders it gives this contract type a certain authority on others.

Day after day we realize the need of standardization of contracts. To have just one contract model to be used for each and every type. But imagining that each and every company has its own contract format will result in a complete mess.

In the end, what really should be done is to have more and more comparative papers comparing the types of contract in each and every section in addition to papers noting each contract and linking it to certain conditions and facts that will enables us to prefer one on the other.

## CONCLUSIONS

This paper was designed to state and analyze the least conflicting retainage completion clause in form and sentence.

To answer this dilemma, it is quite obvious that the choice must be made accordingly with several other criteria, knowing the type of contract and the entity wish we represent in addition to some cultural aspects that might affect the results that we had.

According to the study and document analysis made it became clear that the least conflicting document is the ConsensusDocs proven by the two studies made before.

For the second issue that was advanced, Investigating and giving a brighter view of the retention clause in the four contracts.

This objective has reached its point by knowing more and more about retention clauses in general and retention clauses related to each and every type of contract. To prove this, comparative tables are issued and put into display comparing each criterion on its own. This practice allowed the contractor, The owner, The engineer and all other stakeholders to know what contract makes them more comfortable and what contract will cause the least disputes while considering their conditions and objectives.

As a follow up to this paper, an analysis of case studies of conflicts resulting from Retainage and Delays in projects caused by clauses related to each contract type would be interesting in order to see how much effects we would save by setting the right termination clauses. It would be a good opportunity to recommend a new procedure for all kinds of contracts to be used while protecting the rights of all.

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