

The Global Use of FIDIC by Chinese Architecture, Engineering, and Construction (AEC) Firms



Foreword from the FIDIC President

Catherine Karakatsanis

I am delighted to write this foreword to this important study that showcases the global use of FIDIC contracts by Chinese architecture, engineering and construction firms. It is impressive that this study has been undertaken and the industry can learn from it, as it is important to listen to the market and learn from the valuable experience sharing that such feedback provides.

FIDIC contracts provide a fair and balanced approach to parties on major construction contracts. They promote a shared risk–reward allocation between the employer and the contractor and are widely recognised as striking an appropriate balance between the reasonable expectations of these contracting parties. FIDIC is proud that its contracts are fair and offer a clear and global standard for the construction and engineering industry. The approach they take is also underscored by FIDIC's core values of quality, integrity and sustainability.



As a result, FIDIC contracts continue to influence the global construction industry and the projects being delivered. The contracts are very highly regarded by leading global funding organisations like the World Bank and also many of the international multilateral development banks, who use them as a key part of their standard bidding documents to help them deliver global projects worth billions around the world.

In order to safeguard the integrity of its contract documents, FIDIC's Golden Principles should always be kept in mind when drafting particular conditions. In fact, these principles set out the essential characteristics of FIDIC's general conditions of contract that should not be amended if the contract is to be regarded as a genuine FIDIC document.

I am sure that this study of the use of FIDIC contracts by Chinese architecture, engineering and construction firms will help foster greater understanding of these market-leading documents that play such an important role on construction projects across the global industry.

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Executive Summary

To understand the amendments made to the International Federation of Consulting Engineers (FIDIC) general conditions in practice, the Global Infrastructure Project Research Centre at Tianjin University in China has collected 454 contract documents that use the FIDIC standard contracts as general conditions. The collected contract documents cover 13 different editions of the FIDIC general conditions released from 1987 to 2017, from projects in 74 countries around the world with project dates ranging from 2004 to 2022.

Rather than offering subjective assessments regarding the fairness or appropriateness of the amendments, instead, this report aims to provide an objective overview of how such amendments are implemented in practice. The assessment of whether such amendments are fair or appropriate is left to our readers. However, we hope that the empirical data presented in this report will serve as a valuable evidence base for future discussions on the practical state of amendments made to the FIDIC general conditions in the market globally.

Chapter 2 outlines the coding methodology developed by the research team to analyse the extent and types of amendments to the FIDIC general conditions in practice. The extent of amendment has been divided into Level 1, Level 2 and Level 3 Amendment, which are based on the degree of deviation from the original General Conditions, from minor to substantial. In addition, the common types of amendment by adding Sub-Clauses, deleting Sub-Clauses, and those favourable to the Contractor are also analysed during the coding process.

Chapter 3 to Chapter 6 are used to introduce the coding results of the amendments in practice to the FIDIC 1999 Suite and 2017 Suite of Contracts. Each chapter includes an analysis of the three different levels of amendments, common types of the Level 3 Amendments, common types of additions, deletions, and contractor-favourable amendments.

Since its establishment in 2003, the Global Infrastructure Project Research Centre at Tianjin University in China has been conducting research and providing consulting services for construction project management, especially with a focus on two key matters: 1) How to improve contract management; and 2) How to ultimately improve construction project performance through better contract management.

This report is the first output generated from the collected contract data, with additional research reports based on the same dataset planned for future release. Based on the collected contract data and current studies, the research team plans to: 1) Enhance the contract management evaluation system by defining what constitutes a "good contract"; and 2) Leverage large language models to build a contract management system to help the parties draft a "good contract" to increase mutual understanding, clarify expectations to each other, avoid subsequent disputes, and ultimately improve project performance.

We greatly appreciate those who have provided the contract documents for this research, support from the National Natural Science Foundation of China (72031008), and the research team members Qi Xuan, Liang Yongxin, Xia Hanzhao, Lv Tong, Wang Peiwen, Xu Zhenyang, and Li Weichao for their contributions to the coding process.

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Chapter 1:

Data Collection and Descriptive Information

1. Data Collection

The Global Infrastructure Project Research Centre at Tianjin University in China has collected contract documents that use the FIDIC standard forms of contract as general conditions from Chinese contractors involved in international construction projects across the world.








Given the confidential nature of contract documents, random sampling was not feasible. As a practical alternative, we employed a convenience sampling strategy by reaching out to former alumni working in the construction industry who voluntarily agreed to share contract documents. We would like to explicitly acknowledge this convenience sampling method employed in the study so that readers are aware, from the outset, of its potential limitations. As the data was obtained through convenience sampling, the collected sample may not fully represent the broader population of international contracts that adopt FIDIC standard forms. Therefore, while the findings provide meaningful insights into how amendments are made in practice, they should be interpreted with an understanding of the sample's non-random nature and the possibility of bias.

With the sampling method mentioned above, there are 454 contract documents that have been collected in total, in which 36.3% are from Road & Bridge projects, 17.4% are from Building projects, 17.2% are from Ports & Waterways projects, 11.9% are from Municipal projects, 7.5% are from Energy projects, 4.4% are from Industrial projects, and 5.3% are from other types of projects.

2. Descriptive Information of the Collected Contract Documents

The projects are located in 74 countries worldwide, with starting dates ranging from 2004 to 2022. The collected contract documents encompass 13 different editions of the FIDIC standard forms of contract. The number of contract documents collected for each edition is shown in **Table 1**.

Table 1. Number collected for each FIDIC Standard Form of Contract

Edition of the FIDIC Standard Forms of Contract		Number of the Edition Collected
	Works of Civil Engineering Construction 4 th Ed	51
	Design-Build and Turnkey 1 st Ed	13
	Construction Contract 1 st Ed	90
	Plant and Design-Build Contract 1 st Ed	68
	EPC/Turnkey Contract 1 st Ed	122
	Short Form of Contract 1 st Ed	5
	Construction Contract MDB Harmonised 2005 Ed	21

Chapter 1:

Data Collection and Descriptive Information

	Construction Contract MDB Harmonised 2006 Ed	2
	DBO Contract 1 st Ed	4
	Construction Contract MDB Harmonised 2010 Ed	45
	Construction Contract 2 nd Ed	17
	Plant and Design-Build Contract 2 nd Ed	9
	EPC/Turnkey Contract 2 nd Ed	7
13 Editions in total		454 Contracts collected

As shown in **Table 1**, the majority of the collected contract documents use the FIDIC 1999 Suite of Contracts as general conditions, with project dates ranging from 2006 to 2021. This is followed by contract documents that use the 1987 Edition of the Works of Civil Engineering Construction (the FIDIC 1987 Red Book) as general conditions, with project dates ranging from 2007 to 2021. The projects that use the FIDIC 2017 Suite of Contracts as general conditions span from 2021 to 2022.

The projects are from 74 different countries around the world, as shown in **Figure 1** below.

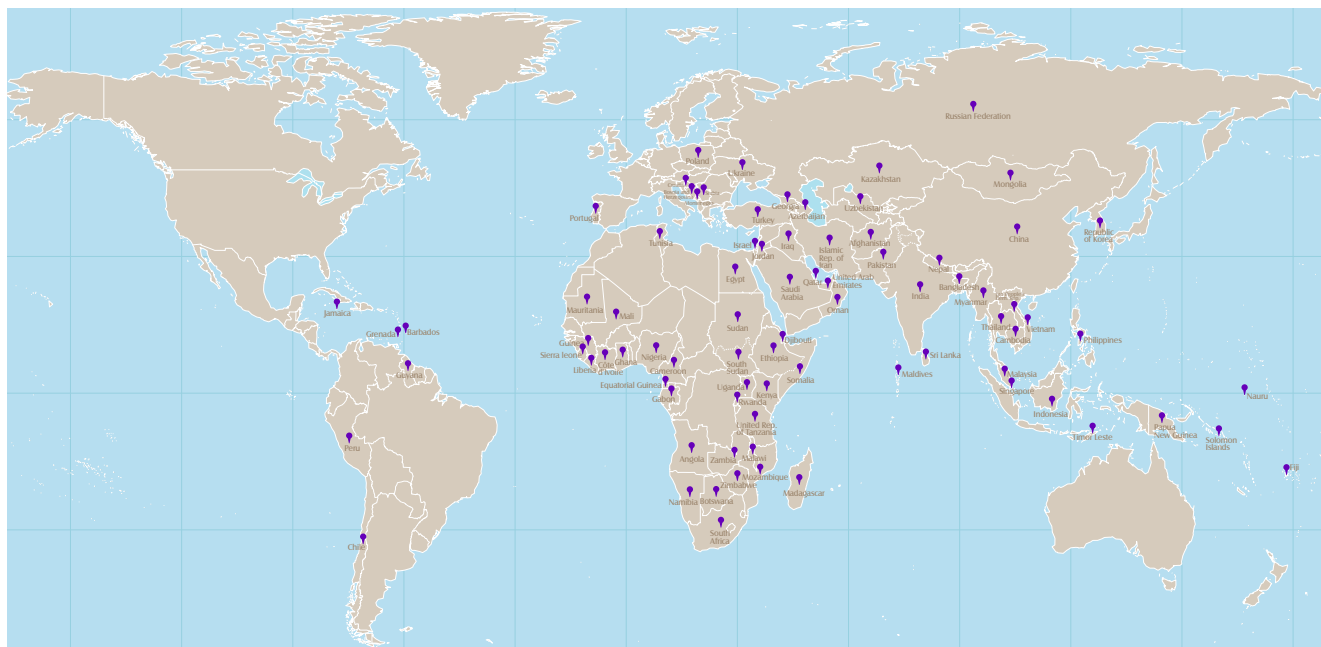


Figure 1. Geographical distribution of the projects

Chapter 2:

Coding Rules and Process

1. Coding Rules

To analyse the amendments made to the FIDIC general conditions in practice, this study codes the collected particular conditions and the results are reported in the following Chapter 3-6. Before presenting the coding results, this chapter introduces the coding rules and process.

Coding Unit: A Sub-Clause is used as one coding unit.

Levels of Amendments: There are three levels of amendments to illustrate different extents of modifications, including Level 1, Level 2, and Level 3 Amendments, which are based on the degree of deviation from the original General Conditions, from minor to substantial. The definition and example for each level are shown below.

- **Level 1 Amendment:** For Level 1 Amendments, the particular conditions provide more explanations and/or supplements to the clauses that give descriptions in the general conditions to enhance the clarity, precision, and readability of the Contract. It helps to increase the mutual understanding between the contracting parties. Level 1 Amendments do not alter the basics of the clauses. The overall structure of the Contract and the distribution of rights, obligations, and risks remain unaffected if such clauses are deleted. The subject of such a clause is often an object.

Example of a Level 1 Amendment:

Sub-Clause 1.4 Law and Language

This Sub-Clause shall be amended as follows:

“The Contract shall be governed by the Laws of England and Wales. If there are versions of any part of the Contract that are written in more than one language, the ruling language shall be English. The language for communications shall be English.”

- **Level 2 Amendment:** Level 2 Amendments can be divided into the following two types: 1) Addition/deletion/non-substantive amendments of the duties: these amendments refer specifically to duties that ensure contract performance, enforcement, and project progression, such as duties related to language, meetings, and procedural regulations; and 2) Substantive amendments that require compliance with certain local regulations related to Quality, Health, Safety, and Environment (QHSE).

Example of a Level 2 Amendment:

Sub-Clause 14.7 Payment

In the First paragraph (a) delete the wording “within 45 days after receiving” and substitute the wording of following: ‘within 45 days after receiving’

Add the following paragraphs at the end of the Sub Clause:

Method of payment will be as follows:

Payments due to the CONTRACTOR in US Dollars (USD) will be made to the CONTRACTOR in accordance with the Schedule of Payments attached hereto as ‘Section 18’ and shall apply in cases of disbursements for the payments made with respect to the portion of the contract stated in the currency of X.

- **Level 3 Amendment:** Level 3 Amendments are the highest extent of amendment and can be divided into the following 6 types specifically. 1) Amendments to the conditions and scopes of the obligations. This type of amendments strengthens the

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Coding Rules and Process

existing obligations in the Contract by improving standards or making the regulations more detailed. This type of amendments does not add new obligations but simply enhances the existing ones. 2) Substantive amendments to rights and obligations including the addition and/or deletion of certain rights and/or obligations, and the transfer of the subjects of these rights and/or obligations. 3) Substantive amendments related to payments, including amendments related to contract price, insurance, tax, etc. However, supplementary explanations of payment currency, payment methods, and other related matters that not specified in the general conditions are not categorized as Level 3 Amendments but as Level 1 Amendments. 4) Substantive amendments related to project schedules and/or duration. 5) Amendments related to DAB/DAAB and arbitration matters, including amendments to the selection of DAB/DAAB members and the place of arbitration (set within the country of the project), etc. If the place of arbitration is simply specified as a third country, it is categorized as a Level 1 Amendment. 6) Amendments related to claims matters.

Example of a Level 3 Amendment:

Sub-Clause 20.4 Obtaining Dispute Adjudication Board's Decision

Delete Sub-Clause 20.4 and substitute the Sub-Clause 20.4 published in FIDIC'S "Conditions of Contract for Construction" First Edition 1999, and then delete the second paragraph of such substituted Sub-Clause 20.4 and insert the following paragraph:

The Engineer shall act as DAB in accordance with this sub-clause 20.4, acting fairly, impartially and at the cost of the Employer. In the event that the Employer intends to replace the Engineer, the Employer's notice under sub-clause 3.4 shall include detailed proposals for the appointment of the replacement DAB.

Determination of the Amendment Level: The highest level of amendments will be used as the extent of modification if more than one level of amendments is made to one Sub-Clause in the particular conditions.

Special Markings during Coding: Apart from the levels of amendments, the research team also pays special attention to the common types of additions, deletions, and contractor-favourable amendments.

- Deleted/Added Sub-Clause: 0 will be marked if the particular conditions deletes the sub-clause directly. Both the number and the name of the added sub-clause will be marked down during coding process.
- Amendments favourable to the Contractor: 1 will be marked if the amendments in the particular conditions are favourable to the Contractor; otherwise, it will not be marked.

2. Coding Process

There were 9 members in the coding team, including 2 professors in contract management in construction projects and 7 graduate students. The 2 professors were responsible for establishing coding rules and overseeing the whole coding process. 1 graduate student among the 7 was the coding team leader, who organized and coordinated the work among different coding sub-groups, and ensured the coding process was completed as planned. The remaining 6 graduates were divided into 3 pairs to code by the rules. There were 3 stages in the coding process as shown below, spanning over 2 months.

Chapter 2:

Coding Rules and Process

Stage 1: Initial Development of the Coding Rules

The 2 professors developed the initial version of the coding rules based on their expertise, insights and the collected contract documents. These rules include the coding unit, different levels of amendments and their definitions, and special markings that required in the coding process.

Stage 2: Trial Coding - Revising Coding Rules - Trial Coding Circle

In the initial phase of this stage, the coding rules were introduced to the graduates. The 6 graduates coded the same contract documents independently based on their understandings of the taught coding rules. Their coding results were compared, discussed and corrected afterwards. The 2 professors refined the coding rules based on the feedback from the graduates after the trial coding stage. More detailed coding guidelines were provided to the graduates to ensure that consistent understanding among the coding members was achieved. The graduates in the coding team then coded the same contract documents individually based on the revised coding rules to enhance their understanding and familiarity with the coding rules. The trial coding and coding rule revision were repeated. Ultimately, the coding team completed the trial coding of 6 contract documents, achieving a consistency rate of 78.4% among all the 6 coding team members.

Stage 3: Formal Coding

The coding team members, divided into 3 pairs, proceeded into the formal coding with the refined rules. Each pair coded the same contract document independently and then compared their results. Discussions within the sub-group were first conducted in cases where inconsistencies were identified in their results. The coding team leader then intervened if consensus cannot be achieved. Each coding team provided daily progress updates and held post-coding discussions among all members every day to ensure consistency across the three sub-groups.

Chapter 3:

Amendments to FIDIC 1999 Red Book

1. Overview of the Amendments to the FIDIC 1999 Red Book

Among the collected 90 contract documents that use the FIDIC 1999 Red Book as general conditions, there are 5,778 amendments in particular conditions, including 456 Level 1 Amendments, 3,201 Level 2 Amendments, and 1,462 Level 3 Amendments. In terms of the overall frequency of amendments, Sub-Clause 1.1 [*Definitions*] ranks the highest with 85 amendments. In addition, all the Sub-Clauses of the FIDIC 1999 Red Book have been amended to varying extents.

The **Figure 2** below shows the top 13 Sub-Clauses with the highest frequency of amendments, 3 of which are under Clause 20 [*Claims, Disputes and Arbitration*], including: Sub-Clauses 20.6 [*Arbitration*], 20.2 [*Appointment of the Dispute Adjudication Board*], and 20.3 [*Failure to Agree Dispute Adjudication Board*].

Top 13 Sub-Clauses with the highest frequency of Amendments

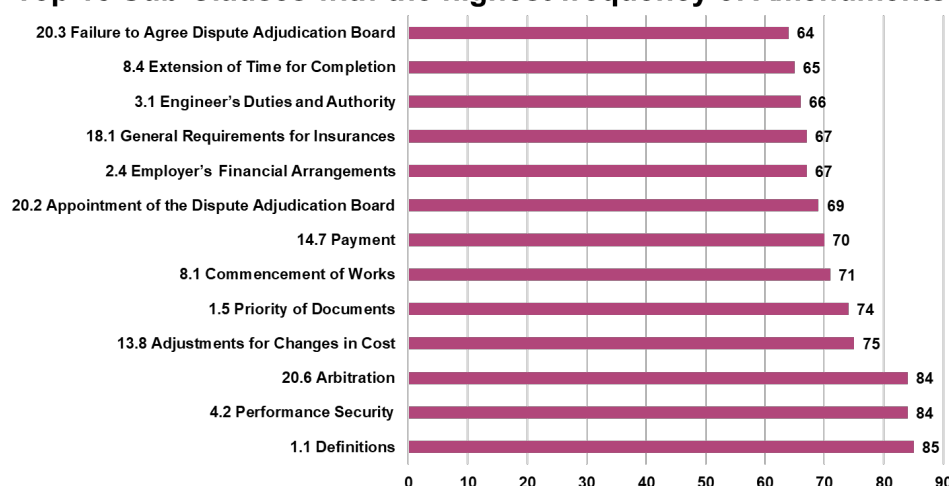


Figure 2. Top 13 Sub-Clauses in the FIDIC 1999 Red Book with the highest frequency of Amendments

2. Level 1 Amendments to the FIDIC 1999 Red Book in practice

Among the 456 Level 1 Amendments to the FIDIC 1999 Red Book, there are 85 amendments to Sub-Clause 1.1 [*Definitions*], indicating that all the amendments to Sub-Clause 1.1 [*Definitions*] are Level 1 Amendments instead of Level 2 or Level 3 Amendments.

In addition, among the top 6 Sub-Clauses with the highest frequency of Level 1 Amendments, 3 are under Clause 1 [*General Provisions*], including Sub-Clauses 1.1 [*Definitions*], 1.2 [*Interpretation*], and 1.4 [*Law and Language*]. The top 6 Sub-Clauses with the highest frequency of Level 1 Amendments are shown in **Figure 3**.

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Amendments to FIDIC 1999 Red Book

Top 6 Sub-Clauses with the highest frequency of Level 1 Amendments

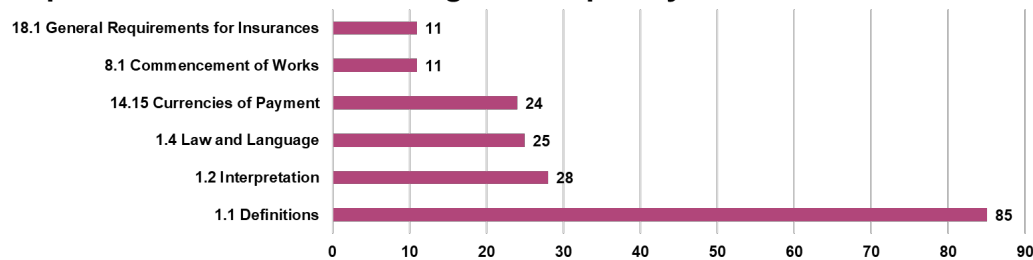


Figure 3. Top 6 Sub-Clauses in the FIDIC 1999 Red Book with the highest frequency of Level 1 Amendments

3. Level 2 Amendments to the FIDIC 1999 Red Book in practice

Among the 3,201 Level 2 Amendments to the FIDIC 1999 Red Book, there are 67 amendments to Sub-Clause 1.5 [*Priority of Documents*]. The top 7 Sub-Clauses with the highest frequency of Level 2 Amendments are shown in **Figure 4**, 2 of which are under Clause 8 [*Commencement, Delays and Suspension*].

Top 7 Sub-Clauses with the highest frequency of Level 2 Amendments

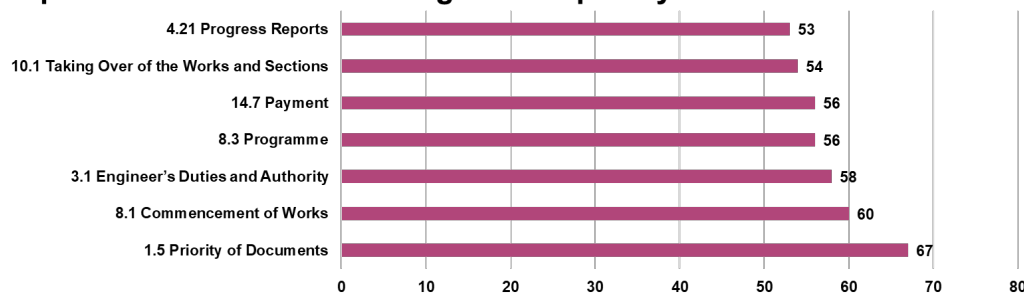


Figure 4. Top 7 Sub-Clauses in the FIDIC 1999 Red Book with the highest frequency of Level 2 Amendments

4. Level 3 Amendments to the FIDIC 1999 Red Book in practice

Among the 1,462 Level 3 Amendments to the FIDIC 1999 Red Book, there are 51 amendments to Sub-Clause 20.6 [*Arbitration*], which is the highest frequency. The main types of amendments include: 1) Modifying the rules of arbitration to follow either the laws of the country where the project is located or the United Nations Commission on International Trade Law Arbitration Rules (UNCITRAL Arbitration Rules); 2) Setting the place of the arbitration to the country where the project is located; and 3) In addition to the removal of Sub-Clauses related to the Dispute Adjudication Board (DAB) under Clause 20 [*Claims, Disputes and Arbitration*], the procedures of arbitration are also regulated under the scenario when disputes cannot be amicably settled between the parties. The top 13 Sub-Clauses with the highest frequency of Level 3 Amendments are shown in **Figure 5**.

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Amendments to FIDIC 1999 Red Book

Top 13 Sub-Clauses with the highest frequency of Level 3 Amendments

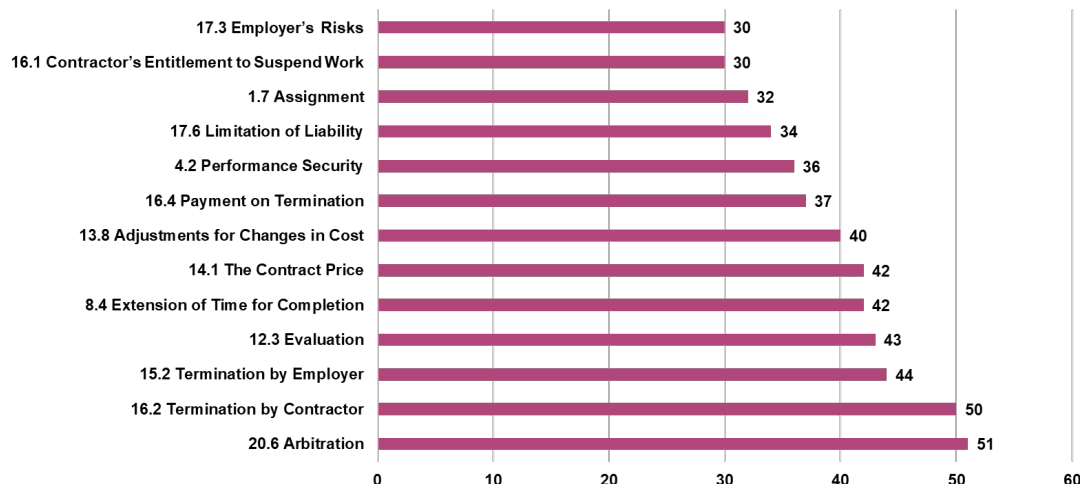


Figure 5. Top 13 Sub-Clauses in the FIDIC 1999 Red Book with the highest frequency of Level 3 Amendments

Sub-Clause 16.2 [*Termination by Contractor*] has been amended 50 times, ranking in second place. The main types of amendments include: 1) Adding or deleting the circumstances under which the Contractor is entitled to terminate the Contract. Examples of the circumstances that are often deleted include: (a) the Contractor does not receive reasonable evidence within 42 days after giving a Notice under Sub-Clause 16.1 [*Suspension by Contractor*] in respect of a failure to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*], (b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate, and (c) the Employer fails to comply with Sub-Clause 1.6 [*Contract Agreement*]; and 2) Mitigating the obligations of the Employer by tightening the conditions under which the Contractor is entitled to terminate the Contract through expanding the relevant time window. For instance, the time window from the payment date specified in Sub-Clause 14.7 [*Payment*] to when the Contractor issues a notice to the Employer is expanded, as well as the time window from when the notice is issued to the termination of the Contract.

Sub-Clause 15.2 [*Termination by Employer*] has been amended 44 times, ranking in third place. The main type of amendment is adding the circumstances under which the Employer is entitled to terminate the Contract, which are primarily related to construction safety and project delays. The circumstances concerning construction safety include but are not limited to: 1) The Contractor fails to comply with the construction safety specification; and 2) The Contractor refuses or persistently neglects to comply with a written notice from the Engineer requiring the Contractor to rectify or remove defective work or improper materials or goods. The circumstances concerning project delays include but are not limited to a cap on the Contractor's liability to pay Delay Damages, under Sub-Clause 8.7 [*Delay Damages*], has actually been reached or is reached in the Engineer's opinion.

Sub-Clause 12.3 [*Evaluation*] has been amended 43 times, ranking in fourth place. The main types of amendments include: 1) Stipulating that new rates or prices shall not be adopted under any circumstances; 2) Deleting the circumstances under which new rates or prices shall be adopted, commonly including sub-paragraph (a) and (b) (i) under Sub-Clause 12.3 [*Evaluation*], which respectively mean that all rates or prices are considered fixed regardless

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of any changes in the measured quantities of the item of work, and the work instructed under Clause 13 [*Variations and Adjustments*] shall not adopt new rates or prices; and 3) Increasing the original percentage to make it harder to adopt new rates or prices, such as specifying that new rates or prices can only be adopted when the measured quantity of the item of work is changed by more than 20% from the quantity of this item in the Bill of Quantities.

Sub-Clause 8.4 [*Extension of Time for Completion*] has been amended 42 times, ranking in fifth place. The main types of amendments include: 1) Deleting the circumstances under which the Contractor is entitled to an extension of the Time for Completion. Commonly deleted circumstances include: (a) exceptionally adverse climatic conditions, (b) unforeseeable shortages in the availability of Personnel or Goods caused by an epidemic or governmental actions, and (c) substantial change in the quantity of an item of work included in the Contract; and 2) Adding prerequisites for the Contractor to extend the Time for Completion. Commonly added prerequisites include: (a) the Contractor demonstrates, to the satisfaction of the Engineer, that the delay has affected the progress of critical path activities, (b) the Contractor has made reasonable and proper efforts to mitigate such delay, (c) the Contractor shall not be entitled to a separate extension of time for each one of several causes of delay running concurrently, and (d) the Contractor has complied with Sub-Clause 20.1 [*Contractor's Claims*].

Sub-Clause 14.1 [*The Contract Price*] has also been amended 42 times, tying for fifth place. The main types of amendments include: 1) Modifying the type of contract pricing to a lump sum/fixed-price contract, and supplementing the relevant provisions, e.g., "The Contractor shall submit for the Engineer's review and approval, within 21 days of submission by the Contractor of detailed drawings, a detailed and priced breakdown of any such lump sum amount. The Engineer shall take account of the breakdown when preparing the Payment Certificate."; and 2) Adding provisions of tax exemptions. Common exemptions include but are not limited to: Custom Duties/Import Duties, Value-added Tax (VAT), Income Tax, Surtax, Withholding Tax, Goods and Services Tax (GST), and Sales Tax.

5. Amendments by adding Sub-Clauses to the FIDIC 1999 Red Book in practice

Among the 90 collected contract documents that use the FIDIC 1999 Red Book as general conditions, the additional amendments to the general conditions are primarily achieved by adding Sub-Clauses. The main types of these amendments are detailed as followed.

Clause 6 [*Staff and Labour*] has been amended in 58 contract documents through the addition of Sub-Clauses. The types of amendments and their frequencies are shown below.

- [*Festivals and Religious Customs*] has been added 31 times.
- [*Alcoholic Liquor and Drugs*] has been added 29 times.
- [*Foreign Staff and Labour*] has been added 26 times.
- [*Arms and Ammunition*] has been added 26 times.
- [*Measures against Insects and Pests*] has been added 15 times.
- [*Epidemics*] has been added 10 times.
- [*Child Labour*]/[*Prohibition of Harmful Child Labour*] has been added 10 times. Among the 10 contract documents that add the Sub-Clause related to Child Labour, 1 contract document from Papua New Guinea stipulates the minimum working age of 16 years, prohibiting employment of children under 16; 1 contract document from Guyana stipulates the minimum working age of 15 years, prohibiting employment of children

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under 15. The remaining contract documents prohibit children under 18 from engaging in hazardous work. A common example of the amendment is: “The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of the Country have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.” It is worth highlighting that the definition of Child Labour varies by country.

Clause 1 [*General Provisions*] has been amended in 57 contract documents through the addition of Sub-Clauses, among which 16 contract documents add Sub-Clauses related to Confidentiality, and another 5 contract documents add the Sub-Clause specifically termed as “Confidentiality of Contract”. Sub-Clause 1.12 [*Confidential Details*] in general conditions stipulates that “The Contractor shall disclose all such confidential and other information as the Engineer may reasonably require in order to verify the Contractor's compliance with the Contract.” In particular conditions, it is amended to include: 1) The Contractor shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out obligations under it or to comply with applicable Laws; and 2) The Contractor shall not publish, permit to be published, or disclose any particulars of the Works to any third party or in any trade or technical paper or elsewhere without the prior written agreement of the Employer.

Clause 4 [*The Contractor*] has been amended in 56 contract documents through the addition of Sub-Clauses. The amendments include but are not limited to: 1) Expanding the scope of the Contractor's work; and 2) Clearer definitions of the regulations and procedures the Contractor must follow while working. Additional amendments to Clause 4 [*The Contractor*] have less commonalities compared to other Clauses, with each amendment in different projects having its own characteristics.

Clause 3 [*The Engineer*] has been amended in 31 contract documents through the addition of Sub-Clauses, among which 18 contract documents add Sub-Clause [*Management meetings*].

Apart from the additional amendments to the existing Clauses in general conditions, 26 contract documents also amend the FIDIC 1999 Red Book by adding Clauses directly, among which 15 contract documents add Clauses related to Tax and 11 contract documents add Sub-Clauses related to Tax under the existing Clauses.

6. Amendments by deleting Sub-Clauses in the FIDIC 1999 Red Book in practice

Among the 90 collected contract documents that use the FIDIC 1999 Red Book as general conditions, the top 6 Sub-Clauses that come with the highest frequency of deletion are shown in **Figure 6** below. 5 of these Sub-Clauses are under Clause 20 [*Claims, Disputes and Arbitration*]. It was also found that the deletion of these Sub-Clauses very often comes together with the addition of the provisions of amicable negotiation and the rules of arbitration if negotiation fails.

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Top 6 Sub-Clauses with the highest frequency of deletion

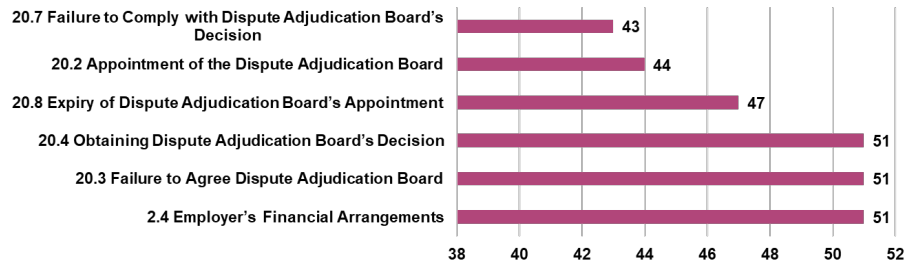


Figure 6. Top 6 Sub-Clauses in the FIDIC 1999 Red Book with the highest frequency of deletion

7. Amendments that favourable to the Contractor in the FIDIC 1999 Red Book in practice

Among the 90 collected contract documents that use the FIDIC 1999 Red Book as general conditions, there are a total of 55 amendments favourable to the Contractor. Among these, there are 8 amendments made to Sub-Clause 14.1 [*The Contract Price*], mainly by tax exemptions for the Contractor; 6 amendments made to Sub-Clause 1.13 [*Compliance with Laws*], mainly by tax exemptions for the Contractor or by increasing the Employer's obligation to obtain necessary permits; 4 amendments made to Sub-Clause 11.3 [*Extension of Defects Notification Period*], mainly by adding restrictive conditions for which the Contractor is responsible; and 4 amendments made to Sub-Clause 18.2 [*Insurance for Works and Contractor's Equipment*], mainly by reducing the circumstances under which the Employer is entitled to claim.

Chapter 4:

Amendments to FIDIC 1999 Yellow Book

1. Overview of the Amendments to the FIDIC 1999 Yellow Book

Among the collected 68 contract documents that use the FIDIC 1999 Yellow Book as general conditions, there are 3,387 amendments in particular conditions, including 476 Level 1 Amendments, 1,868 Level 2 Amendments, and 807 Level 3 Amendments.

In terms of the total frequency of amendments, Sub-Clause 1.1 [*Definitions*] ranks the highest. Sub-Clauses 10.4 [*Surfaces Requiring Reinstatement*] and 19.7 [*Release from Performance under the Law*] have not been amended in any of the 68 contract documents that were collected. The top 11 Sub-Clauses with the highest frequency of amendments are shown in **Figure 7**. It is worth noting that 5 of the top 11 Sub-Clauses with the highest frequency of amendments are related to project price, including: Sub-Clauses 4.2 [*Performance Security*], 14.2 [*Advance Payment*], 14.1 [*The Contract Price*], 14.7 [*Payment*], and 13.8 [*Adjustments for Changes in The Cost*]. In addition, there are 2 Sub-Clauses related to dispute resolution.

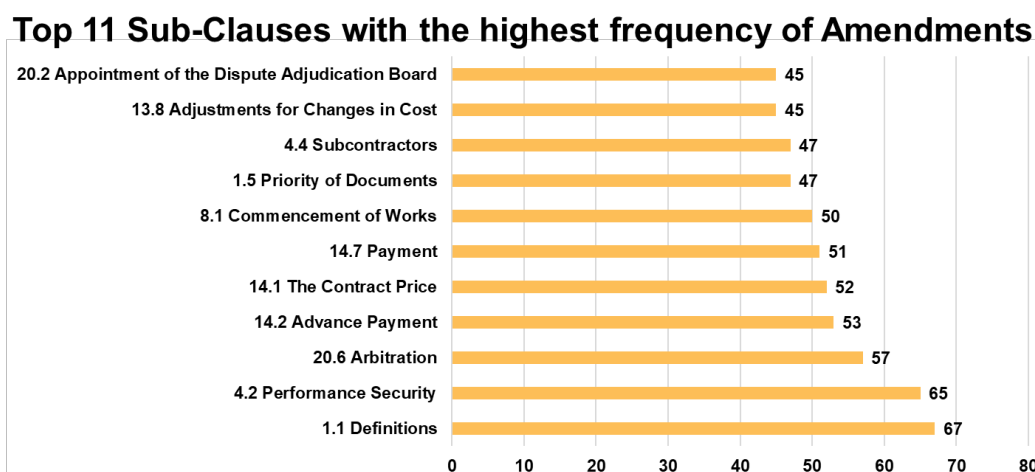


Figure 7. Top 11 Sub-Clauses in the FIDIC 1999 Yellow Book with the highest frequency of Amendments

2. Level 1 Amendments to the FIDIC 1999 Yellow Book in practice

Among the 476 Level 1 Amendments to the FIDIC 1999 Yellow Book, there are 67 amendments to Sub-Clause 1.1 [*Definitions*], indicating that all the amendments to Sub-Clause 1.1 [*Definitions*] are Level 1 Amendments instead of Level 2 or Level 3 Amendments. The top 3 Sub-Clauses with the highest frequency of Level 1 Amendments to the FIDIC 1999 Yellow Book are consistent with those in the FIDIC 1999 Red Book. The top 8 Sub-Clauses with the highest frequency of Level 1 Amendments are shown in **Figure 8**.

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Amendments to FIDIC 1999 Yellow Book

Top 8 Sub-Clauses with the highest frequency of Level 1 Amendments

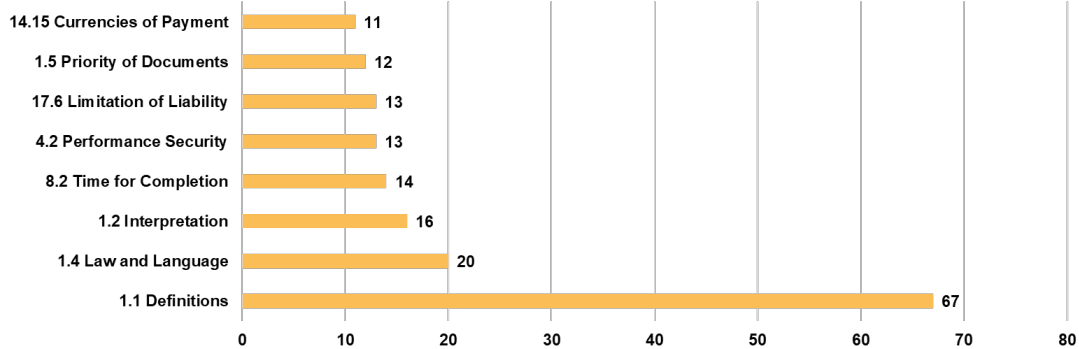


Figure 8. Top 8 Sub-Clauses in the FIDIC 1999 Yellow Book with the highest frequency of Level 1 Amendments

3. Level 2 Amendments to the FIDIC 1999 Yellow Book in practice

Among the 1,868 Level 2 Amendments to the FIDIC 1999 Yellow Book, there are 46 amendments to Sub-Clause 8.1 [*Commencement of Works*]. The top 10 Sub-Clauses with the highest frequency of Level 2 Amendments are shown in **Figure 9**.

Top 10 Sub-Clauses with the highest frequency of Level 2 Amendments

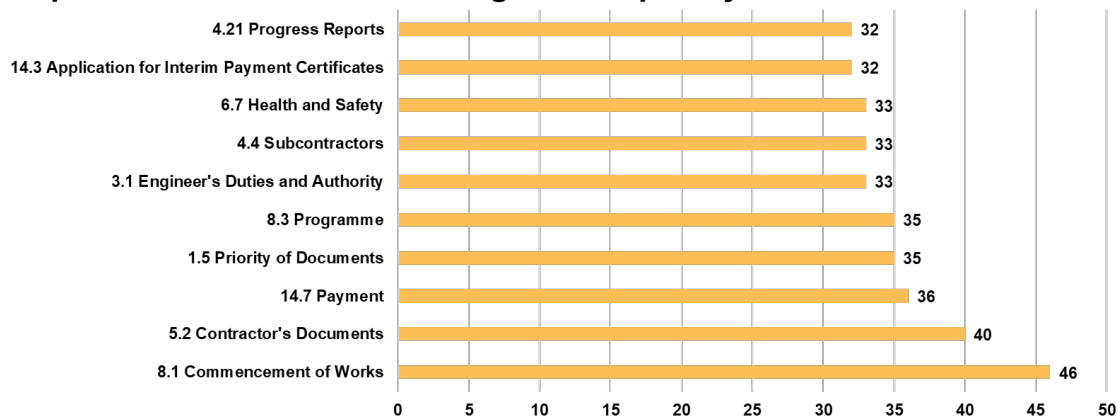


Figure 9. Top 10 Sub-Clauses in the FIDIC 1999 Yellow Book with the highest frequency of Level 2 Amendments

4. Level 3 Amendments to the FIDIC 1999 Yellow Book in practice

There are 807 Level 3 Amendments to the FIDIC 1999 Yellow Book. The top 8 Sub-Clauses with the highest frequency of Level 3 Amendments are shown in **Figure 10**, of which 3 are related to project price, including: Sub-Clauses 14.1 [*The Contract Price*], 13.8 [*Adjustments for Changes in Cost*], and 14.8 [*Delayed Payment*].

Chapter 4:

Amendments to FIDIC 1999 Yellow Book

Top 8 Sub-Clauses with the highest frequency of Level 3 Amendments

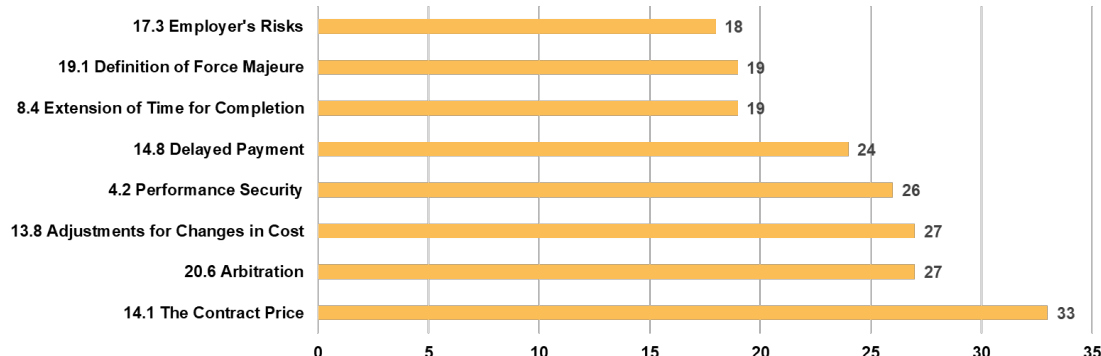


Figure 10. Top 8 Sub-Clauses in the FIDIC 1999 Yellow Book with the highest frequency of Level 3 Amendments

Sub-Clause 14.1 [*The Contract Price*] has been amended 33 times, ranking in first place. The main type of amendment is adding provisions about tax exemptions. Common exemptions include but are not limited to: Custom Duties/Import Duties, Value-added Tax (VAT), Income Tax, Surtax, Withholding Tax, Goods and Services Tax (GST), and Sales Tax.

Sub-Clause 20.6 [*Arbitration*] has been amended 27 times, ranking in second place. Similar to the FIDIC 1999 Red Book, the main types of amendments include: 1) Modifying the rules of arbitration to either the laws of the country where the project is located or the United Nations Commission on International Trade Law Arbitration Rules (UNCITRAL Arbitration Rules); 2) Setting the place of arbitration to the country where the project is located; and 3) In addition to the removal of Sub-Clauses related to the Dispute Adjudication Board (DAB) under Clause 20 [*Claims, Disputes and Arbitration*], the procedures of arbitration are also regulated under the scenario when disputes cannot be amicably settled between the parties.

Sub-Clause 13.8 [*Adjustments for Changes in Cost*] has also been amended 27 times, tying for second place. The main types of amendments include: 1) Revoking the Contractor's right to adjust the contract price for changes in cost, 2) Stipulating a cap on adjusting the contract price for changes in cost, e.g., "The total price adjustment shall not exceed 20% of the Accepted Contract Amount."; and 3) Stipulating the time of price adjustment, e.g., "Adjustments of contract price shall be allowed after twelve months from the commencement date of the Contract.", and "No adjustments shall be applied during the period of 6 months calculated from the Commencement Date."

Sub-Clause 4.2 [*Performance Security*] has been amended 26 times, ranking in fourth place. The main types of amendments include: 1) Adding provisions of adjusting the amount of the performance security, e.g., "Without limitation to the provisions of the preceding paragraph, whenever the Engineer determines an addition or reduction to the Accepted Contract Amount, whether as a result of a change in cost and/or legislation or as a result of a variation amounting to more than 10 percent of the Accepted Contract Amount, the Contractor, at the Engineer's request shall promptly and in any event within 21 days increase/decrease the value of the Performance Security by an equal percentage in excess of the Accepted Contract Amount."; and 2) Adding other types of securities and corresponding provisions, with common additional types including: Parent Company Guarantee, Collateral Warranties.

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Amendments to FIDIC 1999 Yellow Book

Sub-Clause 14.8 [*Delayed Payment*] has been amended 24 times, ranking in fifth place. The main types of amendments are related to the calculation methods for financing charges due to payment delay. Common calculation methods include: 1) Using the same interest rate for both foreign currency and local currency, such as the annual discount rate of the central bank in the country where the project is located, and an annual interest rate of 5% or 3%; and 2) Using different interest rates for foreign currency and local currency, e.g., “The financing charges shall be calculated at the interest rate of, (i) For the foreign portion the prevailing London Inter-Bank Offered Rate (LIBOR) rate plus 2%, (ii) For the local portion the annual rate equal to the prevailing lending rate of Bank of the country where the project is located plus 1%.”

5. Amendments by adding Sub-Clauses to the FIDIC 1999 Yellow Book in practice

Among the 68 collected contract documents that use the FIDIC 1999 Yellow Book as general conditions, the additional amendments to the general conditions are primarily achieved by adding Sub-Clauses. The main types of these amendments are detailed as followed.

Clause 1 [*General Provisions*] has been amended in 38 contract documents through the addition of Sub-Clauses, among which 13 contract documents add Sub-Clauses related to Audit and/or Inspections, and 10 contract documents add Sub-Clauses related to Confidentiality.

Clause 6 [*Staff and Labour*] has been amended in 38 contract documents through the addition of Sub-Clauses. The types of amendments and their frequencies are shown below.

- [*Alcoholic Liquor and Drugs*] has been added 23 times.
- [*Arms and Ammunition*] has been added 21 times.
- [*Measures against Insects and Pests*] has been added 20 times.
- [*Epidemics*] has been added 20 times.
- [*Foreign Staff and Labour*] has been added 17 times.
- [*Festivals and Religious Customs*] has been added 17 times.
- [*Child Labour*]/[*Prohibition of Harmful Child Labour*] has been added 12 times. Unlike the additional amendments to the FIDIC 1999 Red Book, the amendments made to the FIDIC 1999 Yellow Book have fewer explicit stipulations regarding to the age of child labour. Instead, it uses general words to stipulate this matter, e.g., “The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child’s education, or to be harmful to the child’s health or physical, mental, spiritual, moral, or social development.”.

Clause 18 [*Insurance*] has been amended in 29 contract documents through the addition of Sub-Clauses, among which 11 contract documents add Sub-Clause [*Insurance for Design*].

Clause 4 [*The Contractor*] has been amended in 26 contract documents through the addition of Sub-Clauses. The amendments include but are not limited to: 1) Expanding the scope of the Contractor's work; and 2) Clearer definitions of the regulations and procedures that the Contractor must follow while working.

In addition to amendments by adding Sub-Clauses, 24 contract documents amend the FIDIC 1999 Yellow Book by directly adding Clauses, among which 9 contract documents add

Chapter 4:

Amendments to FIDIC 1999 Yellow Book

Clauses related to Tax and 10 contract documents add Sub-Clauses related to Tax under the existing Clauses.

6. Amendments by deleting Sub-Clauses in the FIDIC 1999 Yellow Book in practice

Among the 68 collected contract documents that use the FIDIC 1999 Yellow Book as general conditions, the top 10 Sub-Clauses with the highest frequency of deletion are shown in **Figure 11**. It is worth noting that among the top 10 Sub-Clauses with the highest frequency of deletion, 5 are under Clause 20 [*Claims, Dispute and Arbitration*], including: Sub-Clauses 20.3 [*Failure to Agree Dispute Adjudication Board*], 20.2 [*Appointment of the Dispute Adjudication Board*], 20.4 [*Obtaining Dispute Adjudication Board's Decision*], 20.8 [*Expiry of Dispute Adjudication Board's Appointment*], and 20.7 [*Failure to Comply with Dispute Adjudication Board's Decision*].

Top 10 Sub-Clauses with the highest frequency of deletion

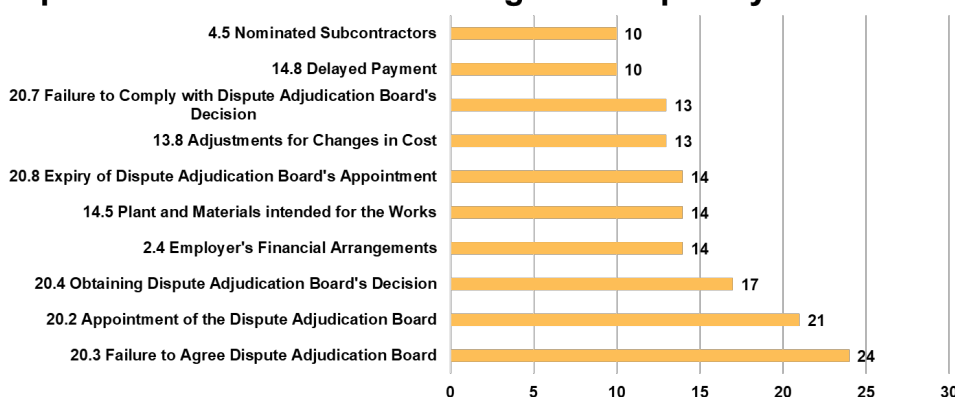


Figure 11. Top 10 Sub-Clauses in the FIDIC 1999 Yellow Book with the highest frequency of deletion

7. Amendments that favourable to the Contractor in the FIDIC 1999 Yellow Book in practice

Among the 68 collected contract documents that use the FIDIC 1999 Yellow Book as general conditions, there are a total of 163 amendments favourable to the Contractor. Among these, there are 21 amendments made to Sub-Clause 14.1 [*The Contract Price*], mainly by tax exemptions for the Contractor; 11 amendments made to Sub-Clause 4.13 [*Rights of Way and Facilities*], mainly by increasing the Employer's obligation to obtain rights of way; 9 amendments made to Sub-Clause 1.13 [*Compliance with Laws*], mainly by tax exemptions for the Contractor or by increasing the Employer's obligation to obtain necessary permits; 6 amendments made to Sub-Clause 4.2 [*Performance Security*], mainly by revoking performance security or granting the Contractor autonomy in selecting the guarantee institution; and 6 amendments made to Sub-Clause 7.3 [*Inspection*], mainly by adding requirements for inspections as variations or stipulating that the Employer bears the costs of inspection.

Chapter 5:

Amendments to FIDIC 1999 Silver Book

1. Overview of the Amendments to the FIDIC 1999 Silver Book

Among the collected 122 contract documents that use the FIDIC 1999 Silver Book as general conditions, there are 5,097 amendments in particular conditions, including 1,179 Level 1 Amendments, 2,870 Level 2 Amendments, and 1,048 Level 3 Amendments. In terms of the overall frequency of amendments, Sub-Clause 1.1 [*Definitions*] ranks the highest with 121 amendments. Sub-Clauses 14.14 [*Cessation of Employer's Liability*] and 19.5 [*Cessation of Employer's Liability*] have not been amended in all of the 122 collected contract documents. The top 9 Sub-Clauses with the highest frequency of amendments are shown in **Figure 12**.

Top 9 Sub-Clauses with the highest frequency of Amendments

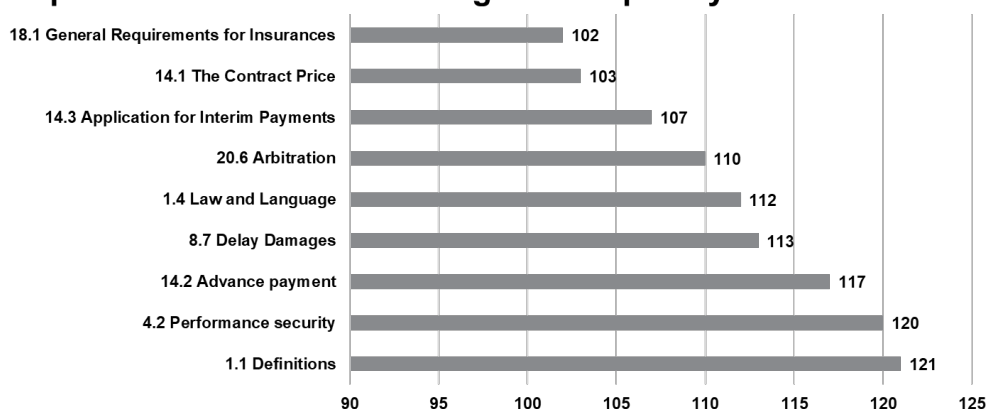


Figure 12. Top 9 Sub-Clauses in the FIDIC 1999 Silver Book with the highest frequency of Amendments

2. Level 1 Amendments to the FIDIC 1999 Silver Book in practice

Among the 1,179 Level 1 Amendments to the FIDIC 1999 Silver Book, there are 121 amendments to Sub-Clause 1.1 [*Definitions*], indicating that all the amendments to Sub-Clause 1.1 [*Definitions*] are Level 1 Amendments instead of Level 2 or Level 3 Amendments, which is the same in both the FIDIC 1999 Red Book and Yellow Book. The top 9 Sub-Clauses with the highest frequency of Level 1 Amendments are shown in **Figure 13**.

Top 9 Sub-Clauses with the highest frequency of Level 1 Amendments

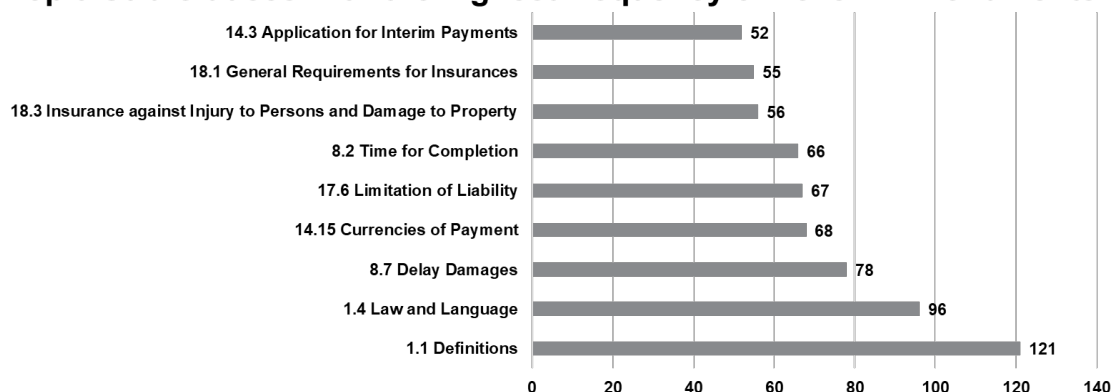


Figure 13. Top 9 Sub-Clauses in the FIDIC 1999 Silver Book with the highest frequency of Level 1 Amendments

Chapter 5:

Amendments to FIDIC 1999 Silver Book

3. Level 2 Amendments to the FIDIC 1999 Silver Book in practice

Among the 2,870 Level 2 Amendments to the FIDIC 1999 Silver Book, there are 91 amendments to Sub-Clause 5.2 [*Contractor's Documents*]. The top 10 Sub-Clauses with the highest frequency of Level 2 Amendments are shown in **Figure 14**, 3 of which are under Clause 14 [*Contract Price and Payment*].

Top 10 Sub-Clauses with the highest frequency of Level 2 Amendments

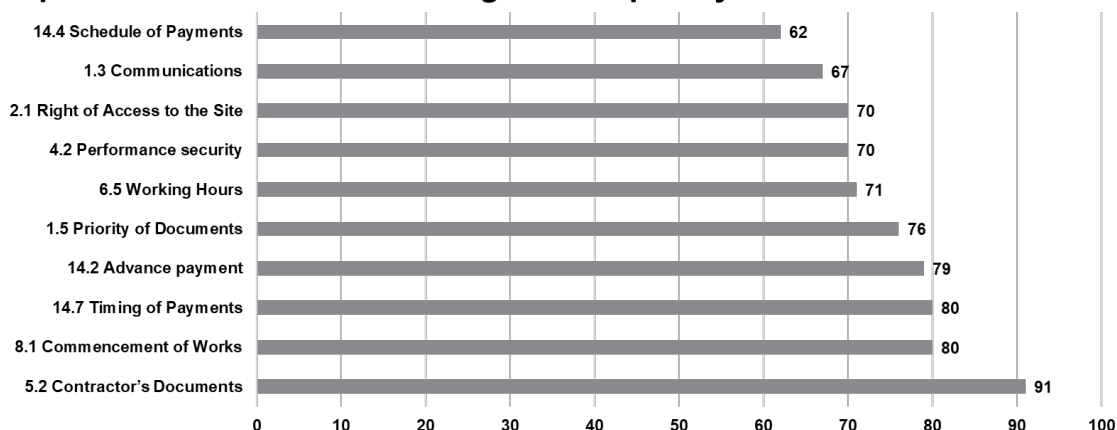


Figure 14. Top 10 Sub-Clauses in the FIDIC 1999 Silver Book with the highest frequency of Level 2 Amendments

4. Level 3 Amendments to the FIDIC 1999 Silver Book in practice

Among the 1,048 Level 3 Amendments to the FIDIC 1999 Silver Book, there are 70 amendments to Sub-Clause 14.1 [*The Contract Price*]. The top 10 Sub-Clauses with the highest frequency of Level 3 Amendments include Sub-Clause 19.1 [*Definition of Force Majeure*], which also frequently occurs in the Level 3 Amendments to the FIDIC 1999 Yellow Book but not for the FIDIC 1999 Red Book. Additionally, Sub-Clause 19.4 [*Consequences of Force Majeure*] is uniquely listed among the top 10 Sub-Clauses with the highest frequency of Level 3 Amendments to the FIDIC 1999 Silver Book. The top 10 Sub-Clauses with the highest frequency of Level 3 Amendments are shown in **Figure 15**.

Top 10 Sub-Clauses with the highest frequency of Level 3 Amendments

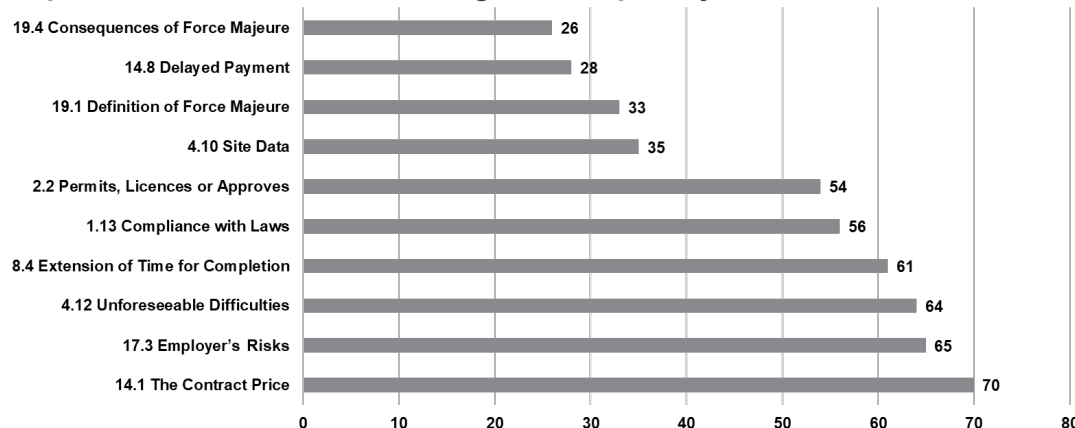


Figure 15. Top 10 Sub-Clauses in the FIDIC 1999 Silver Book with the highest frequency of Level 3 Amendments

Chapter 5:

Amendments to FIDIC 1999 Silver Book

Sub-Clause 14.1 [*The Contract Price*] has been amended 70 times, ranking in first place. The main type of amendment is adding provisions of tax exemptions. Common exemptions include but are not limited to: Custom Duties/Import Duties, Value-added Tax (VAT), Income Tax, Surtax, Withholding Tax, Goods and Services Tax (GST), and Sales Tax. It is worth noting that the multiple contract documents in which all taxes, duties, and fees levied under the laws of the country where the project is located are exempted from the Contractor are from the same Chinese contractor company.

Sub-Clause 17.3 [*Employer's Risks*] has been amended 65 times, ranking in second place. The main types of amendments include: 1) Adding other types of Employer's risks, thereby expanding the Contractor's right to claim. Common types of risks added include: (a) use or occupation by the Employer of any part of the Permanent Works (except as may be specified in the Contract), (b) design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible, and (c) any operation of the forces of nature which is unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventative precautions; and 2) Specifying that all Employer's risks shall happen within the territory of the country where the project is located.

Sub-Clause 4.12 [*Unforeseeable Difficulties*] has been amended 64 times, ranking in third place. The main types of amendments include: 1) Adding circumstances under which the Contractor is entitled to claim for unforeseeable difficulties; and 2) Amending this Sub-Clause to [*Unforeseeable Physical Conditions*], thereby expanding the Contractor's right to claim for unforeseeable physical conditions.

Sub-Clause 8.4 [*Extension of Time for Completion*] has been amended 61 times, ranking in fourth place. The main types of amendments include: 1) Adding circumstances under which the Contractor is entitled to an extension of the Time for Completion. Commonly added circumstances include: (a) exceptionally adverse climatic conditions, (b) unforeseeable shortages in the availability of personnel or Goods caused by an epidemic or by governmental actions, (c) delay in the handover of the site by the Employer according to Sub-Clause 2.1 [*Right of Access to the Site*], and (d) outbreak of an epidemic (Plague, Ebola, SARS, etc.); and 2) Adding prerequisites for the Contractor to extend the Time for Completion. Commonly added prerequisites include: (a) the Contractor must demonstrate, to the satisfaction of the Engineer, that the delay has affected the progress of critical path activities, and (b) the Contractor must make reasonable and proper efforts to mitigate such delay.

Comparing all the Level 3 Amendments made to the FIDIC 1999 Suite of Contracts, it can be seen that Sub-Clause 14.1 [*The Contract Price*] is among the most frequently amended clauses, with similar types of amendments being made to it. It is worth noting that in contrast to the amendments made to the FIDIC 1999 Yellow book and 1999 Silver Book, the Level 3 Amendments made to the FIDIC 1999 Red Book (26 out of 42 collected contracts that use the FIDIC 1999 Red Book had Level 3 Amendments to Sub-Clause 14.1 [*The Contract Price*]) modified the type of contract pricing to a lump sum contract/fixed-price contract and supplemented the relevant provisions.

In contrast to the Level 3 Amendments made to the FIDIC 1999 Red Book and 1999 Yellow Book, the ones made to the FIDIC 1999 Silver Book in the 70 contract documents collected stipulate exemption from all taxes, duties, and fees levied under the laws of the country where the project is located. In addition, the number of the Level 3 Amendments to Sub-Clause 20.6

Chapter 5:

Amendments to FIDIC 1999 Silver Book

[*Arbitration*] ranks on the top in both the FIDIC 1999 Red Book and 1999 Yellow Book, with similar types of amendments.

The number of the Level 3 Amendments made to Sub-Clause 8.4 [*Extension of Time for Completion*] ranks on the top in the FIDIC 1999 Red Book and 1999 Silver Book, with similar types of amendments.

5. Amendments by adding Sub-Clauses to the FIDIC 1999 Silver Book in practice

Among the 122 collected contract documents that use the FIDIC 1999 Silver Book as general conditions, the additional amendments to the general conditions are primarily achieved by adding Sub-Clauses. However, compared to the amendments made to the FIDIC 1999 Red Book and 1999 Yellow Book, the amendments to the FIDIC 1999 Silver Book include more additions to the existing Clauses. The main types of these amendments are detailed as followed.

Clause 6 [*Staff and Labour*] has been amended in 90 contract documents through the addition of Sub-Clauses. The types of amendments and their frequencies are shown below.

- [*Foreign Staff and Labour*] has been added 70 times.
- [*Alcoholic Liquor and Drugs*] has been added 38 times.
- [*Measures against Insects and Pests*] has been added 36 times.
- [*Epidemics*] has been added 32 times.
- Both [*Burial of the Dead*] and [*Arms and Ammunition*] have been added 26 times. The additions of these two clauses often occur simultaneously.
- [*Festivals and Religious Customs*] has been added 25 times.
- In contrast to the FIDIC 1999 Red Book and 1999 Yellow Book, the FIDIC 1999 Silver Book has only 3 additional amendments related to Child Labour under Clause 6 [*Staff and Labour*], which is significantly fewer compared to the frequency of such amendments made to the FIDIC 1999 Red Book and 1999 Yellow Book.

Clause 1 [*General Provisions*] has been amended in 57 contract documents through the addition of Sub-Clauses. By contrast to the FIDIC 1999 Red Book and 1999 Yellow Book, the additional amendments to Clause 1 [*General Provisions*] in the FIDIC 1999 Silver Book primarily involve additions to existing Sub-Clauses. The added Sub-Clauses are related to Audit and/or Inspections, Confidentiality, Research of Funding in favour of the Government, etc.

Clause 3 [*The Employer's Administration*] has been amended in 50 contract documents through the addition of Sub-Clauses, among which 46 contract documents add Sub-Clause [*Coordination*]/[*Management Meetings*].

Clause 2 [*The Employer*] has been amended in 31 contract documents through the addition of Sub-Clauses. Specifically, 9 contract documents add Sub-Clause [*Items to be Supplied Free of Charge by the Employer*], 7 contract documents add Sub-Clause [*Security and Safety*], and 6 contract documents add Sub-Clause [*Disposal Area*]. It is worth noting that the addition of Sub-Clause [*Disposal Area*] is inevitably accompanied by the addition of Sub-Clause [*Security and Safety*].

Chapter 5:

Amendments to FIDIC 1999 Silver Book

Clause 4 [*The Contractor*] has been amended in 30 contract documents through the addition of Sub-Clauses, among which 5 contract documents add Sub-Clauses related to Warranty.

6. Amendments by deleting Sub-Clauses in the FIDIC 1999 Silver Book in practice

Among the 122 collected contract documents that use the FIDIC 1999 Silver Book as general conditions, the top 10 Sub-Clauses with the highest frequency of deletion are shown in **Figure 16**. It is worth noting that among the top 10 Sub-Clauses with the highest frequency of deletion, 6 are under Clause 20 [*Claims, Disputes and Arbitration*], including: Sub-Clauses 20.2 [*Appointment of the Dispute Adjudication Board*], 20.3 [*Failure to Agree Dispute Adjudication Board*], 20.4 [*Obtaining Dispute Adjudication Board's Decision*], 20.8 [*Expiry of Dispute Adjudication Board's Appointment*], 20.7 [*Failure to Comply with Dispute Adjudication Board's Decision*], and 20.5 [*Amicable Settlement*]. The top 5 of these Sub-Clauses with the highest frequency of deletion also occur in the FIDIC 1999 Red Book and 1999 Yellow Book.

Top 10 Sub-Clauses with the highest frequency of deletion

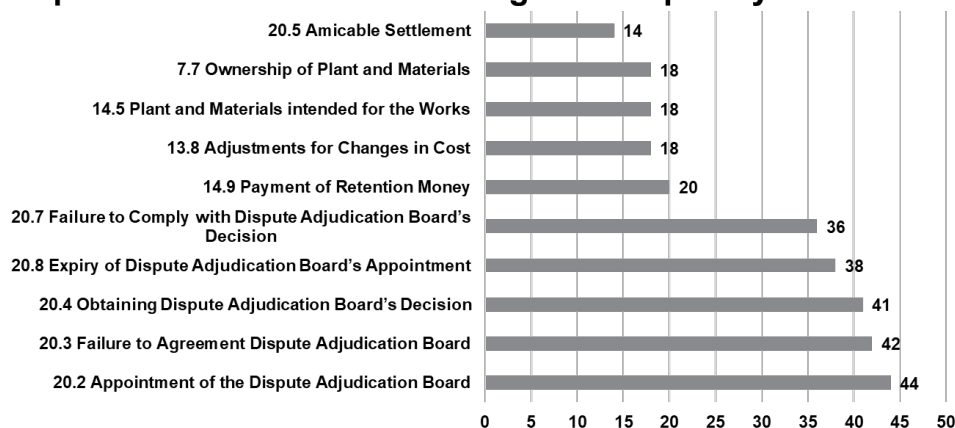


Figure 16. Top 10 Sub-Clauses in the FIDIC 1999 Silver Book with the highest frequency of deletion

7. Amendments that favourable to the Contractor in the FIDIC 1999 Silver Book in practice

Among the 122 collected contract documents that use the FIDIC 1999 Silver Book as general conditions, there are a total of 868 amendments favourable to the Contractor. Among these, there are 64 amendments made to Sub-Clause 4.12 [*Unforeseeable Difficulties*], mainly by adding the circumstances under which the Contractor is entitled to claim and execute variations; 64 amendments made to Sub-Clause 14.1 [*The Contract Price*], mainly by tax exemptions for the Contractor; 59 amendments made to Sub-Clause 2.2 [*Permits, Licences or Approves*], mainly by increasing the Employer's obligation to obtain necessary permits; 57 amendments made to Sub-Clause 8.4 [*Extension of Time for Completion*], mainly by adding the circumstances under which the Contractor is entitled to an extension of Time for Completion; 56 amendments made to Sub-Clause 1.13 [*Compliance with Laws*], which are mainly tax exemptions for the Contractor or adding obligations to the Employer to assist the Contractor in obtaining necessary permits.

Chapter 6:

Amendments to FIDIC 2017 Suite of Contracts

1. Overview of the Amendments to the FIDIC 2017 Suite of Contracts

Among 17 contract documents that were collected that use the FIDIC 2017 Red Book as general conditions, there are 1,021 amendments in particular conditions, including 136 Level 1 Amendments, 607 Level 2 Amendments, and 225 Level 3 Amendments. In terms of the overall frequency of amendments, both Sub-Clauses 1.1 [*Definitions*] and 1.5 [*Priority of Documents*] rank the highest with 17 amendments. Moreover, all Sub-Clauses in the FIDIC 2017 Red Book have been amended to varying extents. The top 5 Sub-Clauses with the highest frequency of amendments are shown in **Figure 17**.

Top 5 Sub-Clauses with the highest frequency of Amendments

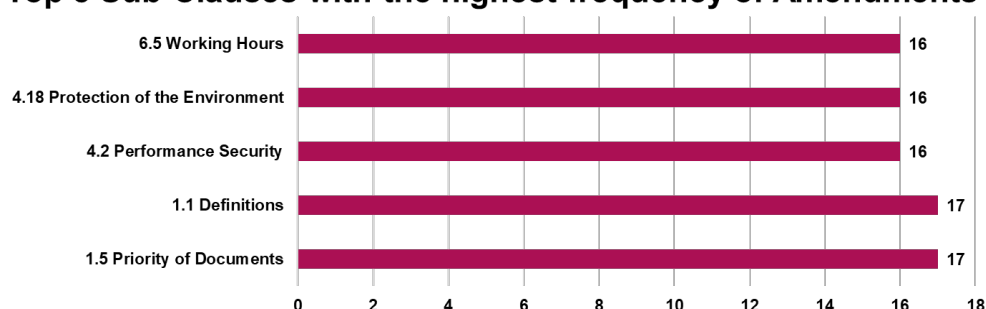


Figure 17. Top 5 Sub-Clauses in the FIDIC 2017 Red Book with the highest frequency of Amendments

Among the collected 9 contract documents that use the FIDIC 2017 Yellow Book as general conditions, there are 485 amendments in particular conditions, including 51 Level 1 Amendments, 314 Level 2 Amendments, and 89 Level 3 Amendments. In terms of the overall frequency of amendments, Sub-Clause 1.1 [*Definitions*] ranks the highest with 9 amendments. Moreover, all Sub-Clauses in the FIDIC 2017 Yellow Book have been amended to varying extents. The top 7 Sub-Clauses with the highest frequency of amendments are shown in **Figure 18**.

Top 7 Sub-Clauses with the highest frequency of Amendments

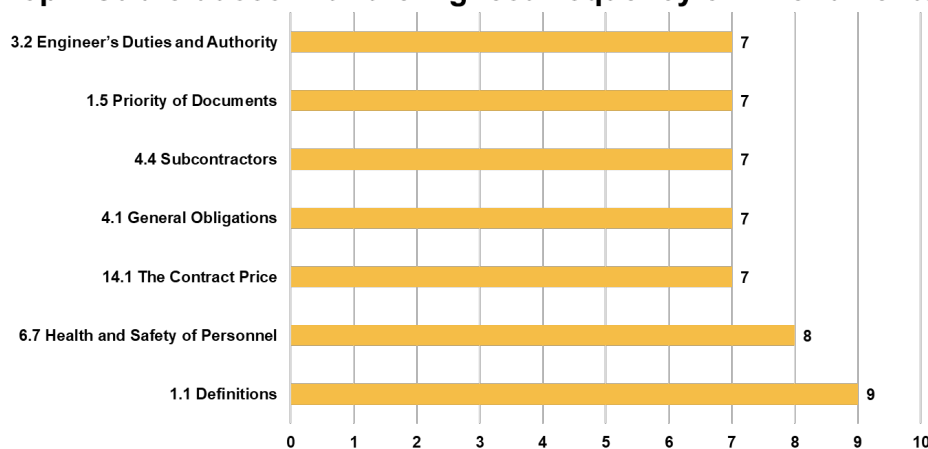


Figure 18. Top 7 Sub-Clauses in the FIDIC 2017 Yellow Book with the highest frequency of Amendments

Chapter 6:

Amendments to FIDIC 2017 Suite of Contracts

Among the 7 contract documents that were collected that use the FIDIC 2017 Silver Book as general conditions, there are 392 amendments in particular conditions, including 21 Level 1 Amendments, 239 Level 2 Amendments, and 83 Level 3 Amendments. In terms of the overall frequency of amendments, Sub-Clause 1.1 [*Definitions*] ranks the highest with 7 amendments. Moreover, all Sub-Clauses in the FIDIC 2017 Silver Book have been amended to varying extents. The top 7 Sub-Clauses with the highest frequency of amendments are shown in Figure 19.

Top 7 Sub-Clauses with the highest frequency of Amendments

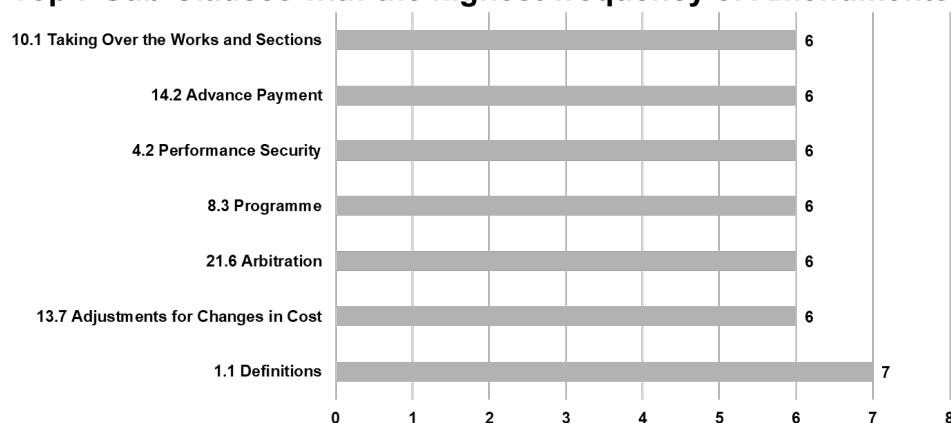


Figure 19. Top 7 Sub-Clauses in the FIDIC 2017 Silver Book with the highest frequency of Amendments

2. Level 1 Amendments to the FIDIC 2017 Suite of Contracts in practice

Among the 136 Level 1 Amendments to the FIDIC 2017 Red Book, there are 17 amendments to Sub-Clause 1.1 [*Definitions*], indicating that all the amendments to Sub-Clause 1.1 [*Definitions*] are Level 1 Amendments instead of Level 2 or Level 3 Amendments. The top 5 Sub-Clauses with the highest frequency of Level 1 Amendments are shown in Figure 20.

Top 5 Sub-Clauses with the highest frequency of Level 1 Amendments

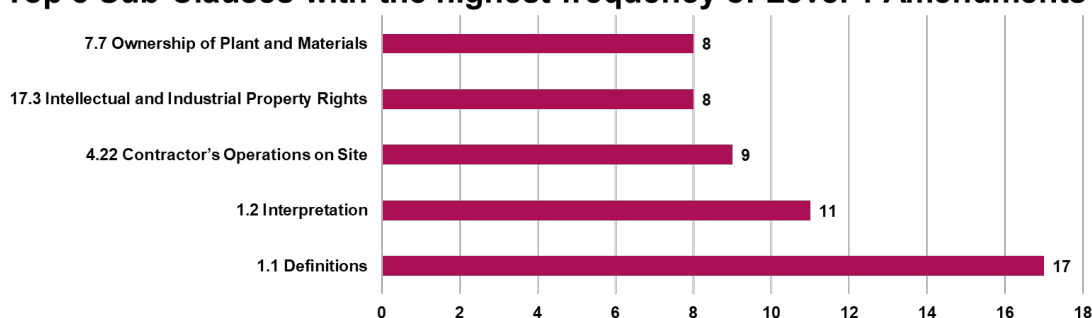


Figure 20. Top 5 Sub-Clauses in the FIDIC 2017 Red Book with the highest frequency of Level 1 Amendments

Among the 51 Level 1 Amendments to the FIDIC 2017 Yellow Book, there are 9 amendments to Sub-Clause 1.1 [*Definitions*], indicating that all the amendments to Sub-Clause 1.1 [*Definitions*] are Level 1 Amendments instead of Level 2 or Level 3 Amendments, which is the same as the situation in the FIDIC 2017 Red Book. The top 5 Sub-Clauses with the highest frequency of Level 1 Amendments are shown in Figure 21.

Chapter 6:

Amendments to FIDIC 2017 Suite of Contracts

Top 5 Sub-Clauses with the highest frequency of Level 1 Amendments

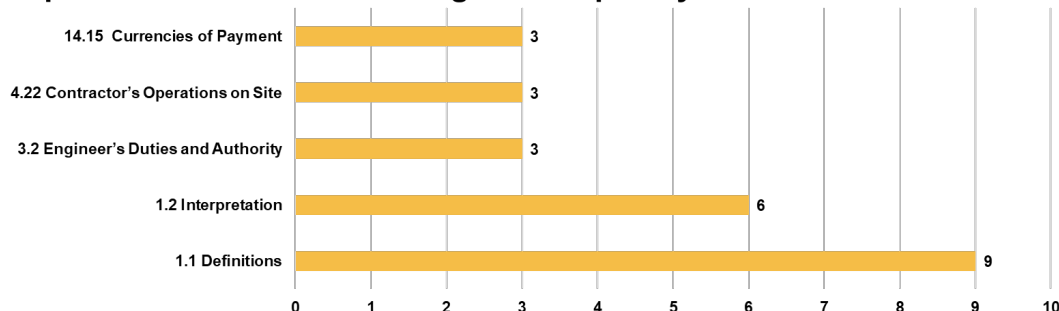


Figure 21. Top 5 Sub-Clauses in the FIDIC 2017 Yellow Book with the highest frequency of Level 1 Amendments

Among the 21 Level 1 Amendments to the FIDIC 2017 Silver Book, there are 7 amendments to Sub-Clause 1.1 [*Definitions*], indicating that all the amendments to Sub-Clause 1.1 [*Definitions*] are Level 1 Amendments instead of Level 2 or Level 3 Amendments, which is the same as the situation in the FIDIC 2017 Red Book and 2017 Yellow Book. The top 2 Sub-Clauses with the highest frequency of Level 1 Amendments are shown in **Figure 22**.

Top 2 Sub-Clauses with the highest frequency of Level 1 Amendments



Figure 22. Top 2 Sub-Clauses in the FIDIC 2017 Silver Book with the highest frequency of Level 1 Amendments

3. Level 2 Amendments to the FIDIC 2017 Suite of Contracts in practice

Among the 607 Level 2 Amendments to the FIDIC 2017 Red Book, there are 17 amendments to Sub-Clause 1.5 [*Priority of Documents*]. The top 5 Sub-Clauses with the highest frequency of Level 2 Amendments are shown in **Figure 23**.

Top 5 Sub-Clauses with the highest frequency of Level 2 Amendments

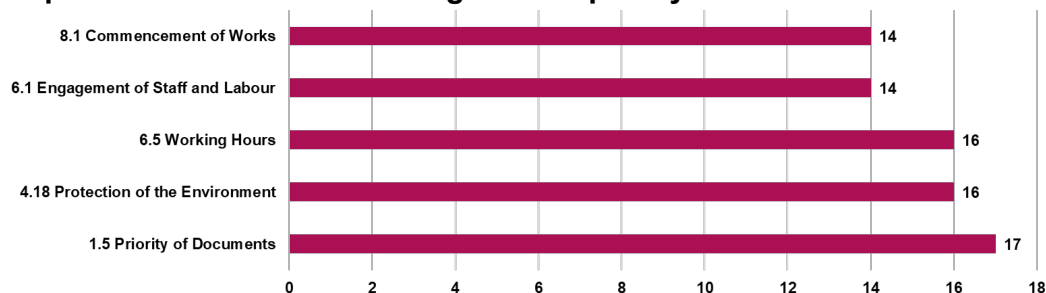


Figure 23. Top 5 Sub-Clauses in the FIDIC 2017 Red Book with the highest frequency of Level 2 Amendments

Among the 314 Level 2 Amendments to the FIDIC 2017 Yellow Book, there are 8 amendments to Sub-Clause 6.7 [*Health and Safety of Personnel*]. Among the top 8 Sub-Clauses with the highest frequency of Level 2 Amendments, 3 are under Clause 4 [*The Contractor*] and 3 are under Clause 6 [*Staff and Labour*]. The top 8 Sub-Clauses with the highest frequency of Level 2 Amendments are shown in **Figure 24**.

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Top 8 Sub-Clauses with the highest frequency of Level 2 Amendments



Figure 24. Top 8 Sub-Clauses in the FIDIC 2017 Yellow Book with the highest frequency of Level 2 Amendments

Among the 239 Level 2 Amendments to the FIDIC 2017 Silver Book, there are 6 amendments to Sub-Clause 10.1 [*Taking Over the Works and Sections*]. The top 9 Sub-Clauses with the highest frequency of Level 2 Amendments are shown in **Figure 25**, among which 3 are under Clause 4 [*The Contractor*].

Top 9 Sub-Clauses with the highest frequency of Level 2 Amendments

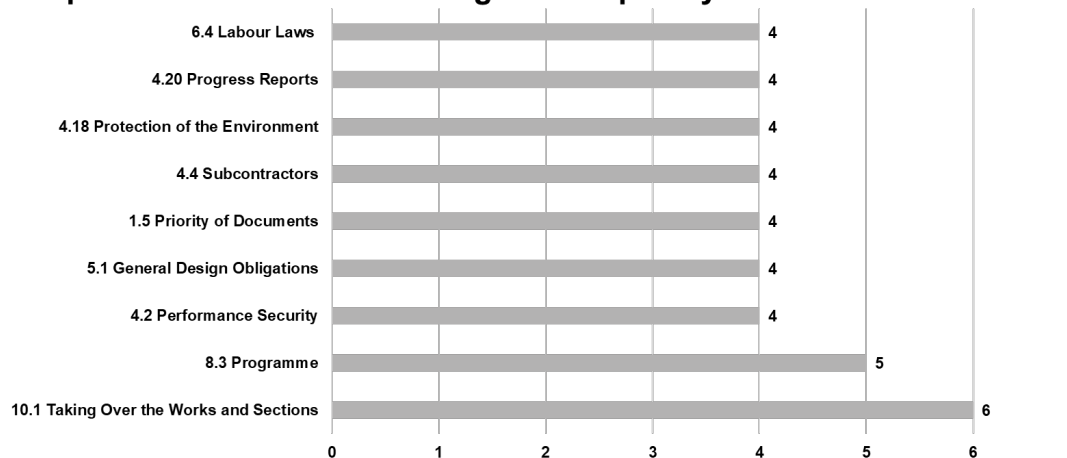


Figure 25. Top 9 Sub-Clauses in the FIDIC 2017 Silver Book with the highest frequency of Level 2 Amendments

4. Level 3 Amendments to the FIDIC 2017 Suite of Contracts in practice

Mirroring the analysis of Level 3 Amendments to the FIDIC 1999 Suite of Contracts, for Level 3 Amendments to the 2017 FIDIC Suite of Contracts the authors also detail the main types of amendments to each of the top 5 Sub-Clauses that occur with the highest frequency. In the following sections, Level 3 Amendments to the FIDIC 2017 Red Book, 2017 Yellow Book, and 2017 Silver Book will be discussed in turn.

• Level 3 Amendments to the FIDIC 2017 Red Book in practice

Among the 225 Level 3 Amendments to the FIDIC 2017 Red Book, there are 12 amendments to Sub-Clause 4.2 [*Performance Security*]. The top 5 Sub-Clauses with the highest frequency of Level 3 Amendments are shown in **Figure 26**.

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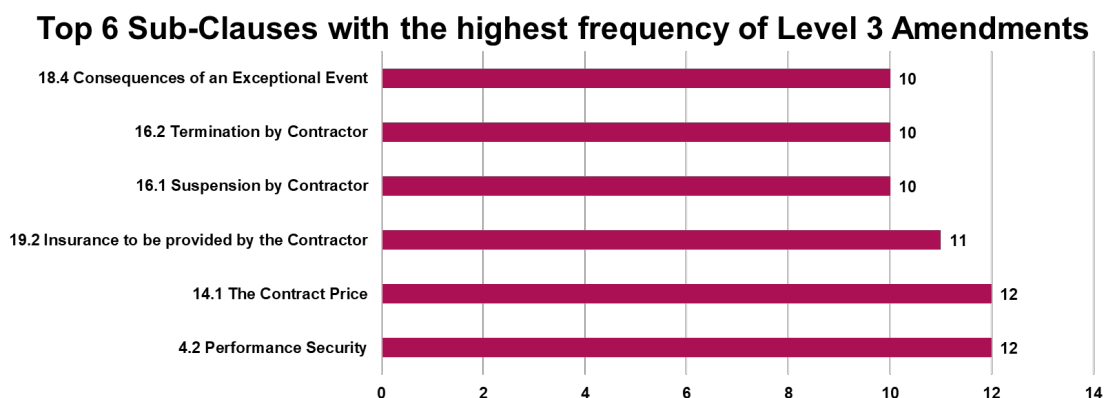


Figure 26. Top 6 Sub-Clauses in the FIDIC 2017 Red Book with the highest frequency of Level 3 Amendments

Sub-Clause 4.2 [*Termination by Contractor*] has been amended 12 times, ranking in first place. Specifically, there are 8 contract documents that add Environmental and Social (ES) Performance Security along with amendments to Sub-Clause 4.2.3 [*Return of the Performance Security*] extending the time for the Employer to return the security. There are also 2 contract documents that add other types of securities and corresponding provisions, such as Warranty Security, Advance Payment Guarantee, Parent Company Guarantee, etc.

Sub-Clause 14.1 [*The Contract Price*] has also been amended 12 times, tying for first place. The main type of amendment is adding tax exemptions for the Contractor. Specifically, there are 7 contract documents that add alternatives for the Contractor to pay import duties and taxes and these include but are not limited to: for Contractor's Equipment, including essential Spare Parts, imported by the Contractor for the sole purpose of execution, the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities at the port of entry an approved export bond or bank guarantee and shall also provide a corresponding copy to the Employer, valid until the Time for Completion plus 6 months, in an amount equal to the full import duties and taxes which would be payable on the assessed imported value of such Contractor's Equipment and Spare Parts. Ultimately, import duties and taxes shall be due and payable to the customs authorities by the Contractor on (a) the difference between the initial imported value and the residual value of the Contractor's Equipment and Spare Parts exported; and (b) on the initial imported value of the Contractor's Equipment and Spare Parts remaining in the country after completion of the Contract. In addition, there are 2 contract documents that exempt specific equipment of the Contractor from related taxes and duties.

Sub-Clause 19.2 [*Insurance to be provided by the Contractor*] has been amended 11 times, ranking in third place. Specifically, there are 6 contract documents that narrow the scope of insurance, excluding any loss or damage occasioned by the Contractor in the course of any operation carried out by the Contractor for the purpose of complying with the Contractor's obligations under Clause 12 [*Tests after Completion*] from coverage; 3 contract documents add other types of insurances and corresponding provisions, such as Workmen's Compensation, Contractor All Risk Insurance, Employer's Liability Insurance, Motor Vehicles Third Party Liability Insurance, and Hull and Machinery Insurance.

Sub-Clause 16.1 [*Suspension by Contractor*] has been amended 10 times, ranking in fourth place. The main type of amendment is adding circumstances under which the Contractor is

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entitled to suspend work. Specifically, there are 7 contract documents from projects funded by the World Bank that add the provision entitling the Contractor to, by notice, suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower has received the suspension notification from the Bank, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [*Employer's Financial Arrangements*]. Additionally, 3 contract documents revoke the Contractor's right to suspend work if the Employer fails to provide reasonable evidence of financial arrangements according to Sub-Clause 2.4 [*Employer's Financial Arrangements*].

Sub-Clause 16.2 [*Termination by Contractor*] has been amended 10 times, tying for fourth place. Specifically, there are 7 contract documents from projects funded by the World Bank that have similar types of amendments to this Sub-Clause, including: 1) Revoking the Contractor's right to terminate the Contract if the Employer is found, based on reasonable evidence, to have engaged in corrupt, fraudulent, collusive or coercive practice at any time in relation to the Works or to the Contract; 2) Extending the time for the Contractor to issue a notice of the intention to terminate the Contract; and 3) Adding the right to terminate the Contract if the Bank suspends the loan or credit from which part or whole payments to the Contractor are being made and Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [*Payment*] for payments under Interim Payment Certificates.

Sub-Clause 18.4 [*Consequences of an Exceptional Event*] has also been amended 10 times, tying for fourth place. Specifically, there are 6 contract documents that clarify the costs that the Contractor is entitled to claim from the Employer due to exceptional events, such as the costs of rectifying or replacing Works and/or Goods damaged or destroyed by exceptional events, to the extent they are not indemnified through any insurance policy referred to in Sub-Clause 19.2 [*Insurance to be provided by the Contractor*]. There are 4 contract documents that revoke the Contractor's right to claim on costs due to exceptional events.

• Level 3 Amendments to the FIDIC 2017 Yellow Book in practice

Among the 89 Level 3 Amendments to the FIDIC 2017 Yellow Book, the top 12 Sub-Clauses with the highest frequency of Level 3 Amendments are shown in **Figure 27**.

Top 12 Sub-Clauses with the highest frequency of Level 3 Amendments

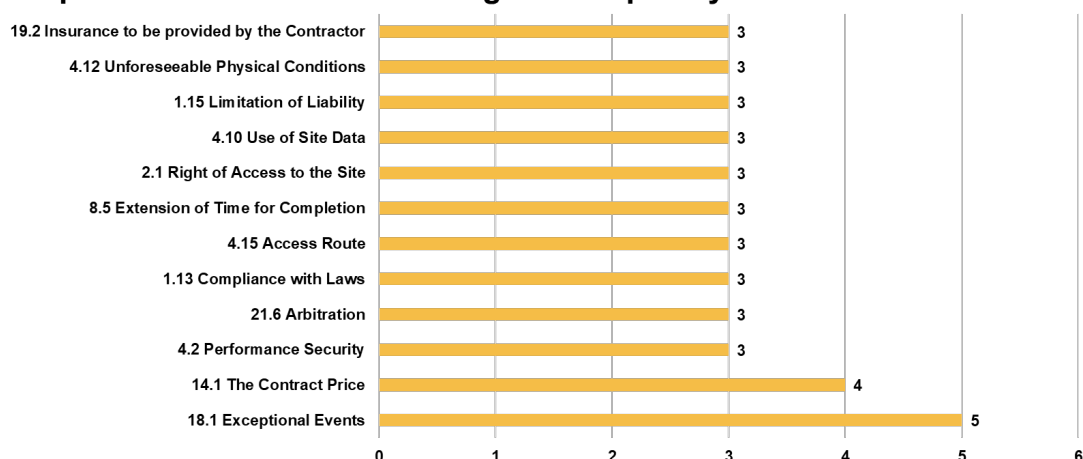


Figure 27. Top 12 Sub-Clauses in the FIDIC 2017 Yellow Book with the highest frequency of Level 3 Amendments

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Sub-Clause 18.1 [*Exceptional Events*] has been amended 5 times, ranking in first place. The main type of amendment is adding types of exceptional events and restrictions on where exceptional events occur. Specifically, 2 contract documents limit events such as war and hostilities within the country where the project is located, and limit events such as disorders, strikes, or lockouts within the site as well. It is worth noting that both contract documents are from the same Contractor and for projects in the same country (Philippines).

Sub-Clause 14.1 [*The Contract Price*] has been amended 4 times, ranking in second place. Specifically, there are 2 contract documents that stipulate that goods imported by the Contractor shall be exempted from customs and other import duties, and make corresponding modification to Sub-Clause 1.13 [*Compliance with Laws*] concerning the Contractor's tax obligations.

Among the 89 Level 3 Amendments to the FIDIC 2017 Yellow Book, there are 10 Sub-Clauses have been amended 3 times, which are also shown in **Figure 28**. Among them, the 3 contract documents with Level 3 Amendments to Sub-Clause 2.1 [*Right of Access to the Site*] relate to limiting the Contractor's right to claim for the Employer's failure to provide a right of access to the site within the specified time to different degrees, including restricting claims only to costs or revoking the right to claim.

Sub-Clause 4.2 [*Termination by Contractor*] has been amended 3 times. Similarly to the amendments made to the FIDIC 2017 Red Book, there is 1 contract document that adds Environmental and Social (ES) Performance Security, together with amendments to Sub-Clause 4.2.3 [*Return of the Performance Security*], extending the time for the Employer to return the security.

Sub-Clause 4.12 [*Unforeseeable Physical Conditions*] has been amended 3 times. 2 of these contract documents revoke the Contractor's right to claim for unforeseeable physical conditions.

Sub-Clause 4.15 [*Access Route*] has been amended 3 times. The main type of amendment is enhancing the Contractor's obligation concerning access routes, including but not limited to: "In any other case, the Contractor shall indemnify and keep indemnified the Employer from and against and shall himself be responsible for and shall meet and discharge all claims, demands, proceedings, damages, and expenses in respect of any such damage to highway, road or bridge(s). In case of failure of the Contractor in settling the claim and in case the Employer is held responsible for payment to the authorities, then the Employer shall settle the claim and the Employer's expenses in this regard, as certified by the Engineer shall be deducted from the Contractor's dues."

Sub-Clause 8.5 [*Extension of Time for Completion*] has been amended 3 times. 2 of these contract documents add provisions for handling delays caused by multiple concurrent reasons, stating: "The Contractor shall not be entitled to a separate extension of Time for Completion for each one of several causes of delay running concurrently but only for the actual period of delay determined by the Engineer irrespective of the causes contributing to produce such delay. If one of several causes of delay operating concurrently is due to the fault of the Contractor or any Subcontractors and would itself irrespective of the concurrent causes have delayed the completion of the Works or parts thereof no extension of Time for Completion shall be granted for the period of such delay."

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Sub-Clause 19.2 [*Insurance to be provided by the Contractor*] has been amended 3 times. All 3 contract documents clarify the scope of professional liability insurance in Sub-Clause 19.2.3 [*Liability for breach of professional duty*], limiting it to Permanent Works.

Sub-Clause 21.6 [Arbitration] has been amended 3 times. All 3 contract documents set the place of the arbitration to the country where the project is located, among which 2 contract documents, upon the removal of Sub-Clauses related to the Dispute Avoidance/Adjudication Board (DAAB) under Clause 21 [*Disputes and Arbitration*], reestablish the procedures for proceeding to arbitration when disputes cannot be amicably settled between the parties, stating: “Unless settled amicably, and subject to Sub-Clause 3.7.5 [*Dissatisfaction with Engineer’s determination*], any Dispute, including dispute arising out of or in connection with the Contract, and any question regarding the existence, validity or termination of the Contract Agreement, shall be referred to and finally resolved by arbitration.”.

• Level 3 Amendments to the FIDIC 2017 Silver Book in practice

Among the 83 Level 3 Amendments to the FIDIC 2017 Silver Book, the top 5 Sub-Clauses with the highest frequency of Level 3 Amendments are shown in **Figure 28**.

Top 5 Sub-Clauses with the highest frequency of Level 3 Amendments

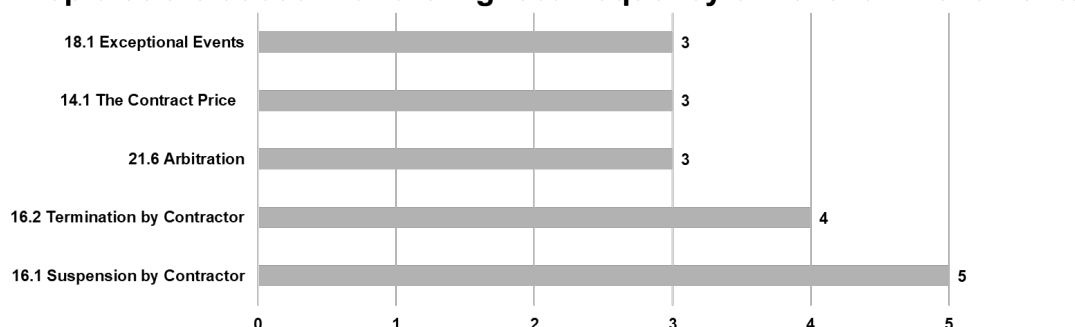


Figure 28. Top 5 Sub-Clauses in the FIDIC 2017 Silver Book with the highest frequency of Level 3 Amendments

Sub-Clause 16.1 [*Suspension by Contractor*] has been amended 5 times, ranking in first place. The amendments are primarily related to the circumstances under which the Contractor is entitled to suspend work. Similarly to the FIDIC 2017 Red Book, the amendments made in 2 of the collected contract documents revoke the Contractor’s right to suspend work if the Employer fails to provide reasonable evidence of financial arrangements in accordance with Sub-Clause 2.4 [*Employer’s Financial Arrangements*].

Sub-Clause 16.2 [*Termination by Contractor*] has been amended 4 times, ranking in second place. The amendments primarily concern the circumstances under which the Contractor is entitled to terminate the Contract. Commonly deleted circumstances include: 1) the Employer fails to provide reasonable evidence of financial arrangements in accordance with Sub-Clause 2.4 [*Employer’s Financial Arrangements*]; 2) the Contractor does not receive a Notice of the Commencement Date under Sub-Clause 8.1 [*Commencement of Works*] within 84 days after receiving the Letter of Acceptance; and 3) the Employer fails to comply with: (a) a binding agreement, or final and binding determination under Sub-Clause 3.7 [*Agreement or Determination*]; or (b) a decision of the DAAB under 21.4 [*Obtaining DAAB’s Decision*] (whether it is binding or final and binding).

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Sub-Clause 14.1 [*The Contract Price*] has been amended 3 times, ranking in third place. 2 of these contract documents add provisions related to tax exemptions for the Contractor.

Sub-Clause 18.1 [*Exceptional Events*] has also been amended 3 times, tying for third place. Similarly to the types of amendments to the FIDIC 2017 Yellow Book, 3 contract documents also add scenarios of exceptional events. However, all the amendments to the FIDIC 2017 Yellow Book adding scenarios of exceptional events are specifically related to epidemics or pandemics.

Sub-Clause 21.6 [*Arbitration*] has also been amended 3 times, tying for third place. Similarly to the types of amendments to the FIDIC 2017 Yellow Book, 3 contract documents also set the place of arbitration to the country where the project is located. However, the amendments to the 2017 Silver Book not only change the place of arbitration, but also modify the rules of arbitration to the laws of the country where the project is located.

• Comparisons of the Level 3 Amendments among the 2017 FIDIC Suite of Contracts

Overall, the number of the Level 3 Amendments to Sub-Clause 14.1 [*The Contract Price*] ranks on the top among the 3 editions of the FIDIC 2017 Suite of Contracts, with similar types of amendments related to tax exemptions for the Contractor.

The numbers of amendments to Sub-Clauses 4.2 [*Performance Security*], 19.2 [*Insurance to be provided by the Contractor*] rank on the top in the FIDIC 2017 Red Book and 2017 Yellow Book, among which the main type of amendment to Sub-Clause 4.2 [*Performance Security*] is adding Environmental and Social (ES) Performance Security, together with an amendment to Sub-Clause 4.2.3 [*Return of the Performance Security*] by extending the time for the Employer to return the security.

The numbers of amendments to Sub-Clauses 18.1 [*Exceptional Events*] and 21.6 [*Arbitration*] rank on the top in the FIDIC 2017 Yellow Book and 2017 Silver Book, among which the main type of amendment to Sub-Clause 21.6 [*Arbitration*] is setting the place of arbitration to the country where the project is located.

The numbers of amendments to Sub-Clauses 16.1 [*Suspension by Contractor*] and 16.2 [*Termination by Contractor*] rank on the top in the FIDIC 2017 Red Book and 2017 Silver Book, among which the most common type of amendment to Sub-Clause 16.1 [*Suspension by Contractor*] is adding or deleting the circumstances under which the Contractor is entitled to suspend work, and the main type of amendment to Sub-Clause 16.2 [*Termination by Contractor*] is adding or deleting the circumstances under which the Contractor is entitled to terminate the Contract.

5. Amendments by adding Sub-Clauses to the FIDIC 2017 Suite of Contracts in practice

• Amendments by adding Sub-Clauses to the FIDIC 2017 Red Book

Among the 17 contract documents that were collected that use the FIDIC 2017 Red Book as general conditions, the additional amendments to the general conditions are primarily achieved by adding Sub-Clauses. The main types of these amendments are detailed as followed.

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Clause 4 [*The Contractor*] has been amended in 12 contract documents through the addition of Sub-Clauses. The amendments include but are not limited to: 1) Expanding the scope of the Contractor's work; and 2) Clearer definitions of the regulations and procedures the Contractor must follow while working. 8 of these contract documents add Sub-Clause [*Code of Conduct*], stipulating the Contractor shall have a code of conduct for the Contractor's personnel to ensure compliance with the Contractor's Environmental and Social (ES) obligations under the Contract.

Clause 1 [*General Provisions*] has been amended in 11 contract documents through the addition of Sub-Clauses. 8 of these contract documents add Sub-Clause [*Inspections & Audit by the Bank*].

Clause 6 [*Staff and Labour*] has been amended in 9 contract documents through the addition of Sub-Clauses. The type and content of the additions to the 9 contract documents are very similar, with the addition of Sub-Clauses [*Foreign Personnel*], [*Alcoholic Liquor or Drugs*], [*Festivals and Religious Customs*], and [*Measures against Insects and Pests Nuisance*]. 8 contract documents add Sub-Clause [*Child Labour*]. All the 8 contract documents stipulate that the Contractor, including its Subcontractors, shall not employ or engage a child under the age of 14. The Contractor including its Subcontractors, shall only employ or engage children between the age of 14 and 18 after an appropriate risk assessment has been conducted by the Contractor with the Engineer's consent. The Contractor shall be subject to regular monitoring by the Engineer that includes monitoring of health, working conditions and hours of work. Additionally, children shall not be employed in work considered harmful to their health and safety.

Clause 15 [*Termination by Employer*] has been amended in 8 contract documents through the addition of Sub-Clauses. Under Sub-Clause 15.2 [*Termination for Contractor's Default*] which stipulates that the Employer is entitled to terminate the Contract for the Contractor's corrupt, fraudulent, collusive or coercive practice. All the 8 collected contract documents add Sub-Clause [*Fraud and Corruption*], reinforcing the enforcement against such behaviours.

Clause 17 [*Care of the Works and Indemnities*] has been amended in 8 contract documents through the addition of Sub-Clauses. All these 8 contract documents add Sub-Clause [*Use of Employer's Accommodation/Facilities*].

Furthermore, it is worthy to note that the amendments to the 5 contract documents for projects funded by the World Bank are similar, which are mainly through adding Environmental and Social (ES) Performance Security by amending Sub-Clause 4.2 [*Performance Security*], adding Sub-Clause [*Code of Conduct*] to Clause 4 [*The Contractor*], and adding Sub-Clause [*Fraud and Corruption*] to Clause 15 [*Termination by Employer*].

• Amendments by adding Sub-Clauses to the FIDIC 2017 Yellow Book

Among the 9 collected contract documents that use the FIDIC 2017 Yellow Book as general conditions, the additional amendments to the general conditions are primarily achieved by adding Sub-Clauses as well. The main types of these amendments are detailed as followed.

Clause 6 [*Staff and Labour*] has been amended in 8 contract documents through the addition of Sub-Clauses. 6 of these contract documents add Sub-Clauses [*Foreign Personnel*], [*Alcoholic Liquor or Drugs*], and [*Festivals and Religious Customs*]. There are 3 contract

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documents that add Sub-Clauses related to Child Labour, including: 1 contract document from Ethiopia stipulates the minimum working age of 14 years, prohibiting employment of children under 14; 1 contract document from Ethiopia stipulates that “The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.”; and 1 contract document from Nepal stipulates prohibition of children under 18 from engaging in hazardous work.

Clause 4 [*The Contractor*] has been amended in 5 contract documents through the addition of Sub-Clauses. The amendments include but are not limited to: 1) Expanding the scope of the Contractor's work; and 2) Clearer definitions of the regulations and procedures that the Contractor must follow while working. 3 of these contract documents add Sub-Clause [*Publicity*], stipulating that the Contractor shall neither permit nor allow any information regarding the Works to be published in any scientific, engineering or other newspaper, periodical, trade or other publications, including internet sites without the prior permission of the Employer.

Clause 14 [*Contract Price and Payment*] has been amended in 4 contract documents through the addition of Sub-Clauses. 2 of these contract documents add Sub-Clause [*Contract Price and Payment*], which stipulates that payment certificates can only be issued to the Contractor after approval by the project management team established by the Employer, thus adding a procedural step to the Employer's payment process.

Clause 15 [*Termination by Employer*] has been amended in 4 contract documents through the addition of Sub-Clauses. 2 of these contract documents add Sub-Clause [*Fraud and Corruption*].

• Amendments by adding Sub-Clauses to the FIDIC 2017 Silver Book

Among the 7 collected contract documents that use the FIDIC 2017 Silver Book as general conditions, the additional amendments to the general conditions are also primarily achieved by adding Sub-Clauses. The main types of these amendments are detailed as followed.

Clause 1 [*General Provisions*] has been amended in 5 contract documents through the addition of Sub-Clauses.

Clause 4 [*The Contractor*] has been amended in 4 contract documents through the addition of Sub-Clauses. The amendments include but are not limited to: 1) Expanding the scope of the Contractor's work; and 2) Clearer definitions of the regulations and procedures the Contractor must follow while working.

Clause 6 [*Staff and Labour*] has been amended in 3 contract documents through the addition of Sub-Clauses. All of these 3 contract documents add Sub-Clause [*Foreign Personnel*].

Clause 10 [*Employer's Taking Over*] has been amended in 2 contract documents through the addition of Sub-Clauses.

Clause 18 [*Exceptional Events*] has been amended in 2 contract documents through the addition of Sub-Clauses.

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6. Amendments by deleting Sub-Clauses in the FIDIC 2017 Suite of Contracts in practice

Among the 17 collected contract documents that use the FIDIC 2017 Red Book as general conditions, the top 6 Sub-Clauses with the highest frequency of deletion are shown in **Figure 29**. It is worth noting that among the top 6 Sub-Clauses with the highest frequency of deletion, 6 are under Clause 21 [*Disputes and Arbitration*].

Top 6 Sub-Clauses with the highest frequency of deletion

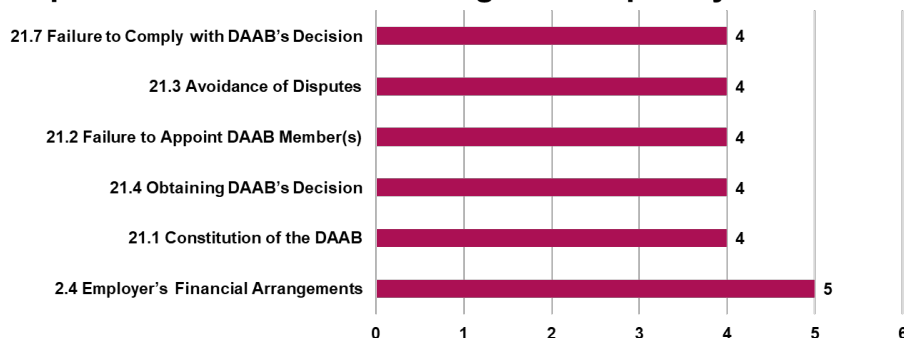


Figure 29. Top 6 Sub-Clauses in the FIDIC 2017 Red Book with the highest frequency of deletion

Among the 9 collected contract documents that use the FIDIC 2017 Yellow Book as general conditions, the top 7 Sub-Clauses with the highest frequency of deletion are shown in **Figure 30**. It is worth noting that among the top 7 Sub-Clauses with the highest frequency of deletion, 6 are under Clause 21 [*Disputes and Arbitration*].

Top 7 Sub-Clauses with the highest frequency of deletion

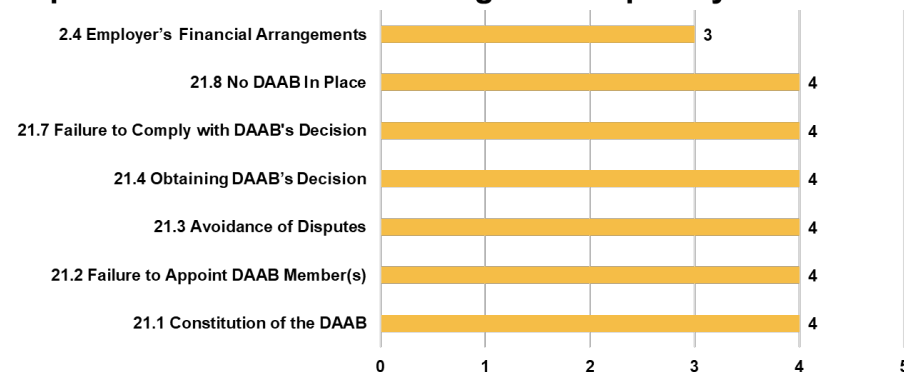


Figure 30. Top 7 Sub-Clauses in the FIDIC 2017 Yellow Book with the highest frequency of deletion

Among the 7 collected contract documents that use the FIDIC 2017 Silver Book as general conditions, the top 4 Sub-Clauses with the highest frequency of deletion are shown in **Figure 31**. The commonly deleted Sub-Clauses include: Sub-Clauses 21.3 [*Avoidance of Disputes*], 2.4 [*Employer's Financial Arrangements*], 13.7 [*Adjustments for Changes in Cost*], and 14.5 [*Plant and Materials intended for the Works*]. Compared to deletions in the FIDIC 2017 Red Book and 2017 Yellow Book, the proportion of deletions of Clause 21 [*Disputes and Arbitration*] in the FIDIC 2017 Silver Book is relatively lower.

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Top 4 Sub-Clauses with the highest frequency of deletion

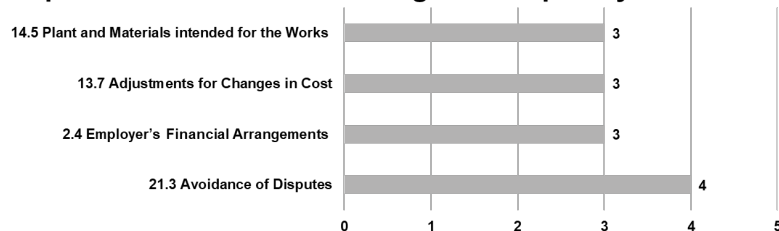


Figure 31. Top 4 Sub-Clauses in the FIDIC 2017 Silver Book with the highest frequency of deletion

7. Amendments that favourable to the Contractor in the FIDIC 2017 Suite of Contracts in practice

Among the 17 collected contract documents that use the FIDIC 2017 Red Book as general conditions, there are a total of 37 amendments favourable to the Contractor. Among these, there are 7 amendments made to Sub-Clause 16.1 [*Suspension by Contractor*], mainly by adding the circumstances under which the Contractor is entitled to suspend work, e.g., “If the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [*Employer’s Financial Arrangements*], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank.”; 6 amendments made to Sub-Clause 14.1 [*The Contract Price*], mainly by tax exemptions for the Contractor; 6 amendments made to Sub-Clause 16.2 [*Termination by Contractor*], mainly by adding the circumstances under which the Contractor is entitled to terminate the Contract, e.g., the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works; 6 amendments made to Sub-Clause 18.4 [*Consequences of an Exceptional Events*], mainly by adding the circumstances under which the Contractor is entitled to claim.

Among the 9 collected contract documents that use the FIDIC 2017 Yellow Book as general conditions, there are a total of 7 amendments favourable to the Contractor. Among these, there are 2 amendments made to Sub-Clause [*Compliance with Laws*], mainly by tax exemptions for the Contractor; 2 amendments made to Sub-Clause 4.13 [*Rights of Way and Facilities*], mainly related to the Employer's provision of rights of way and facilities to the Contractor free of charge; 2 amendments made to Sub-Clause 14.1 [*The Contract Price*], mainly by tax exemptions for the Contractor; 1 amendment made to Sub-Clause 2.2 [*Assistance*], mainly by increasing the Employer’s obligation to obtain permits.

Among the 7 collected contract documents that use the FIDIC 2017 Silver Book as general conditions, there are a total of 21 amendments favourable to the Contractor. Among these, there are 2 amendments made to Sub-Clause 4.12 [*Unforeseeable Difficulties*], mainly by adding the circumstances under which the Contractor is entitled to claim; 2 amendments made to Sub-Clause 4.21 [*Security of the Site*], mainly by stipulating that the Employer shall be responsible for the security on the site; 2 amendments made to Sub-Clause 8.5 [*Extension of Time for Completion*], mainly by adding the circumstances under which the Contractor is entitled to an extension of Time for Completion; 2 amendments made to Sub-Clause 18.1 [*Exceptional Events*], mainly by adding the types of exceptional events.